Ground Investigation Geoenvironmental Interpretative Report

Lostock Energy from Waste Plant

On Behalf of

Copenhagen Infrastructure Partners

Date: May 2018

Our Ref: JER1100

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1 Introduction

1.1 Background

1.1.1 RPS Planning and Development (RPS) has been commissioned by Copenhagen Infrastructure Partners (CIP) (the 'Client') to undertake a ground investigation at the former Lostock Power Station (the 'Site'). The Site boundary is detailed upon *Drawing JER1100-SI-001*.

1.1.2 The Site is proposed to be redeveloped as an Energy from Waste (EfW) facility and RPS has implemented a contaminated land ground investigation to further characterise the Site with respect to soil and groundwater contamination and ground gas levels, in support of the proposed Site redevelopment. In parallel to delivering the 'contaminated land' ground investigation RPS has also delivered a targeted geotechnical ground investigation, the scope of which was defined by Sisk (enabling works Contractor) and the EPC Contractors tendering the contamination works. It is understood that the scope of geotechnical investigation was defined by Sisk and the EPC Contractor to address perceived data gaps associated with the previous ground investigations and appraisals.

1.1.3 The scope of the contaminated land ground investigation has been agreed with the regulators through discharge of Planning Condition 26 and is set out within the Land Contamination Management Plan, produced by RPS in February 2017 (*RPS, 2017*).

1.2 Key Objectives

1.2.1 The key objectives of the intrusive ground investigation and associated assessments are to:

- Provide further characterisation of the soil and groundwater contamination at the Site and the gas regime, in order to constrain the technical remedial requirements; and
- Provide further characterisation of the soil contamination at the Site, in order to allow waste classifications to be assigned to the likely construction arisings associated with the key development areas.

1.2.2 This report also provides a preliminary geotechnical assessment to supplement the available geotechnical information from previous reports, providing preliminary advice in relation to hardstanding, buried concrete and likely foundation design options to allow selection of appropriate construction techniques.

1.3 Report Structure

1.3.1 The remainder of the report is structured as follows:

Section 2: Site Setting;

Section 3: Ground Investigation Methodology;

Section 4: Ground Conditions;

Section 5: Results of Laboratory Analysis;

Section 6: Refined Conceptual Site Model;

Section 7: Human Health Risk Assessment;

Section 8: Controlled Waters Risk Assessment;

Section 9: Gas Risk Assessment;

Section 10: Geotechnical Appraisal for Future Development;

Section 11: Waste Classification; and

Section 12: Conclusions and Recommendations.

2 Site Setting

2.1 Site Location

2.1.1 The Site comprises land off Griffiths Road (A530) at Lostock Gralam, 2.5 km east of the centre of Northwich. The centre of the Site is situated at National Grid Reference SJ 683 740.

2.2 Site Description

2.2.1 The Site is located on land occupied by the former Lostock Power Station (which ceased operating in September 2000, and is now redundant) and comprises:

- The Main Site containing the former boiler and turbine halls and associated plant including water treatment plant, together with offices and ancillary buildings. The main site is crossed by numerous pipe bridges and culverts carrying live steam, electricity and effluent services. A series of transformers associated with the Site also remain in-situ;
- A coke storage yard, located 200 m west of the main site;
- Rail sidings alongside the coke storage yard;
- An area of undeveloped land and partially surfaced land to the east of the canal;
- An area of undeveloped land to the south of the main site; and
- An area comprising undeveloped land and pipelines, located approximately 200 m north of the main site.

2.2.2 The Site forms part of the existing Tata Chemicals Europe (TCE) sodium carbonate manufacturing site, which is adjacent to a number of other industrial operators including Imerys and Inovyn. Other areas in close proximity to the Site to the south and east comprise lime beds associated with the TCE chemical works and bare ground with sections of dense and scattered scrub together with semi-improved grassland beyond.

2.2.3 The Trent and Mersey canal runs north / south through the Site.

2.2.4 Drawing *JER1100-SI-001* details the current Site layout.

General Description of Activities Undertaken

2.2.5 When the former power station was operational, it burned coal to produce energy. Coal waste will have been stored on Site. Prior to this, lime material (which was produced as a by-product of adjacent industrial activities) was deposited at the Site. Fuel storage has occurred at the Site. Asbestos is likely to have been used within the building fabric.

Site History

2.2.6 The historical records identify that the Main Site has been previously been subject to deposition of lime material from the adjacent industrial facilities. Accounts suggest that between 1940 and 1950, and latterly during construction of the boiler house in the 1960s, the lime material was

cleared from the area and the land redeveloped as a coal fired power station. Lime material is known to still be present at the Site however is believed to be outside of the footprint of the current turbine hall / boiler house.

2.2.7 The power station was taken out of commission in 2000 having previously provided heat and power to the adjacent chemicals works.

2.2.8 Historical Ordnance Survey maps identify rail sidings to be present in the coke storage yard area by 1910, with a rectangular building (chlorine plant with asbestos cells, used between the 1950s and 1980s) being present by 1954.

2.2.9 The area of land to the south of the disused power station has been identified as part of the former Griffiths Park landfill, operated by ICI Mond Division in 2 phases between 1903 to 1944 and 1947 to 1980. The landfill received inert, industrial and special waste types including liquid sludges.

Geology

2.2.10 The British Geological Survey (BGS) sheet (Sheet 110, Macclesfield, scale 1:50,000) identifies the underlying geology to comprise surface drift deposits of Boulder Clay / Glacial Till overlying solid geology of the Mercia Mudstone Group. Post-glacial alluvial deposits associated with Wade Brook are located to the north of the Site boundary.

2.2.11 Previous ground investigations undertaken at the Site (refer to *Section 2.3*) have identified Made Ground to be present across the Site. Two principle 'types' of Made Ground have been identified at the site beneath the hardstanding, as summarised below:

- Loose black sandy gravel of ash and clinker with brick fragments to depths of 0.7 – 7.7 mbgl (metres below ground level); and
- Light greyish white silt identified as lime material at depths of between 1.5 – 7.2 mbgl.

Hydrogeology

2.2.12 Environment Agency groundwater vulnerability has classified the Mercia Mudstone beneath the Site as a Secondary B aquifer and the superficial Boulder Clay / Glacial Till deposits as a Secondary (undifferentiated) aquifer.

2.2.13 The SLR Phase I LQA (*SLR, 2007*) for the Site states that any groundwater beneath the Site is considered to have been formed via precipitation or direct discharge to ground and leaching through permeable Made Ground and will be perched above the underlying natural clays.

2.2.14 There are no licensed groundwater abstractions or Source Protection Zones within 1 km of the Site centre.

Hydrology

2.2.15 The closest surface water course is the Trent and Mersey Canal which forms the eastern boundary of the Main Site. The canal is classified as River Ecosystem class 4 (fair quality).

The SLR Phase I LQA considers that the canal is likely to be constructed of thick, impermeable clay ('puddle clay') and the canal is therefore not considered to be in hydraulic continuity with any groundwater beneath the Site.

2.2.16 Wade Brook flows from east to west 125 m north-west of the Site boundary and passes beneath part of the Tata Chemicals Europe (TCE) operational site in a culvert (outside the Site boundary). It is classified as River Quality Grade F (bad). TCE has previously had a temporary abstraction from Wade Brook for cooling located approximately 300 m north of the Site.

2.2.17 There are three other licensed surface water abstractions within 1 km of the Site with two registered to British Waterways (400 m north of the Site from the Trent and Mersey Canal) and the third by Ineos Chlor Ltd [now Inovyn] (880 m north-west of the Site from Wincham Brook).

2.3 Summary of Key Previous Reports

2.3.1 Information is available in relation to 3 no. intrusive ground investigations that are known to have been undertaken at the Site:

- SLR Consulting Ltd, Waste to Energy Development, Phase 2 Land Quality Assessment, April 2008 *(SLR, 2008)*;
- WSP Energy & Environment, Brunner Mond (UK) Limited, Lostock, First Phase Reporting of the Site Protection and Monitoring Programme Where Reference Data is Required, August 2009 *(WSP, 2009)*; and
- IGSL, Sustainable Energy Plant at Lostock, Greater Manchester, England, Ground Investigation Report, March 2013 *(IGSL, 2013)*.

2.3.2 *Drawing JER1100-SI-002* shows the locations of the exploratory holes completed at the Site during the above ground investigations. Partial records are available detailing the location of boreholes advanced during a ground investigation undertaken in 1957. These locations are also shown on *Drawing JER1100-SI-002.* There are no details available, beyond the borehole locations, for this ground investigation.

2.3.3 In addition to the above reports concerning intrusive investigations, the following reports are also considered relevant:

- SLR Consulting Ltd, Former Power Station Area, Brunner Mond, Lostock, Cheshire, Phase I Land Quality Assessment. Project No. 403.0197.00257, September 2007 *(SLR, 2007)*;
- RPS Planning & Development Ltd, Lostock SEP, Environmental Statement, Chapter 11 Geology, Hydrogeology and Land Contamination, May 2011 *(RPS, 2011)*; and
- RPS Planning & Development Ltd, Lostock SEP, Land Contamination Management Plan, February 2017 *(RPS, 2017)*.

2.3.4 The key details relating to the ground investigation reports and the RPS Land Contamination Management Plan are set out in the remainder of this section. Details are not presented in relation to the SLR Land Quality Assessment and RPS Environmental Statement as these are considered to be superseded by the RPS Land Contamination Management Plan.

SLR Consulting, Waste to Energy Development, Phase 2 Land Quality Assessment, April 2008

2.3.5 Following completion of the Phase I LQA in 2007, SLR undertook an intrusive ground investigation to target specific contamination sources identified within the LQA. The investigation comprised ten solid stem rotary boreholes to depths between 3.50 m and 7.00 mbgl. The locations of the boreholes comprised:

- Boreholes 01 to 03: north of the Site (offices, former diesel tank and water treatment plant);
- Boreholes 04 and 05: central area by power plant (chimney / boiler house and transformers);
- Boreholes 06 to 08: south of the Site (diesel tanks);
- Borehole 09: in the coke storage yard; and
- Borehole 10: in the car park at the southern end of the Site.

2.3.6 Ground conditions across the Site were typically ash and clinker up to 2.9 m thick overlying saturated grey lime material to a maximum depth of 6.0 mbgl. Natural soft sandy clay deposits were encountered beneath the lime material in most locations.

2.3.7 Chemical testing of the soil samples collected form the Made Ground and the natural Boulder Clay deposits indicated that the level of contamination is low in relation to the proposed development. Groundwater analysis indicated localised impacts with petroleum hydrocarbons, copper and selenium, Polycyclic Aromatic Hydrocarbons (PAH) and ammoniacal nitrogen near a former diesel storage tank (borehole BH2 in the north of the Site) and PAH in BH8 near a former diesel tank on the south of the site. Given the industrial setting these groundwater impacts were not considered to be significant.

2.3.8 Methane concentrations were elevated in boreholes BH7 and BH10 and concentrations of carbon monoxide were elevated in borehole BH4.

WSP Energy & Environment, Brunner Mond (UK) Limited, Lostock, First Phase Reporting of the Site Protection and Monitoring Programme Where Reference Data is Required, August 2009

2.3.9 In line with the Site Protection Monitoring Programme (SPMP) for the Site, WSP undertook an intrusive investigation in September 2008 to target potential sources of contamination resulting from permitted activities at the Site. The following boreholes were positioned within the Site:

- WS1 – service zone (rail siding). Diesel tank with evidence of minor spillage around dispensing point;
- WS4 – service zone. Diesel tank with evidence of minor spillage around dispensing point;
- WS9 / WS9a – Zone 6. Brine stock tank and pipeline. Potential for failure or overfilling of stock tank or failure of pipeline when transferring the brine to point of use;
- WS10 – Zone 5a. Limestone stockpile;
- WS11 – Zone 5b. Coke stockpile; and

- WS12 – Zone 5a. Coke and limestone stockpiles.

2.3.10 The ground investigation encountered Made Ground at all locations, consisting of mixed lithologies and in some locations comprising sandstone, ash, concrete, clinker, brick, coke, slag, cobble and asphalt. A white paste material (lime) was observed in WS4 and WS12 (in the service zone in the north of the site / Zone 5b by the limestone stockpile).

2.3.11 No significant visual evidence of widespread contamination was observed. A minor hydrocarbon odour was noted between 2.75 m and 2.85 m in WS1 (where there was a diesel tank with evidence of spillage around the dispensing point) and between 0.3 m and 0.5 m in WS7 (where there was evidence of surface spillage from decanting of oil).

2.3.12 Elevated concentrations of PAH were identified in soil samples from WS11 and WS12. This contamination was considered potentially to be the result of coke residues although most of the contamination is likely to be due to ash from incomplete combustion, a result of historical activities.

2.3.13 Slightly elevated concentrations of Total Petroleum Hydrocarbons (TPH) were identified in the groundwater samples from WS10, WS11 and WS12. Hydrocarbons were not used in the area where WS10 was located therefore it was considered that these concentrations were as a result of historical activities.

2.3.14 Elevated concentrations of calcium were identified in the soil sample WS12, considered to be associated with the lime materials.

2.3.15 High pH (alkaline conditions) was identified in the groundwater samples from WS11 and WS12, likely to be associated with materials from historical activities or from lime within WS12.

2.3.16 Overall, the concentrations of calcium and the high pH were considered to be likely to be associated with material derived from historical activities rather than from the storage of limestone. The slight elevation of PAH and TPH was also considered to be due to ash from incomplete combustion, a result of historical activities.

2.3.17 The report concluded that there is only a slight effect on ground and groundwater as a result of historical activities. Therefore, from an operational perspective it was not considered necessary to propose any additional measures to prevent deterioration of the land in those locations due to surface mixing, leaching or other deposition but will continue with good stockpile management practices.

IGSL, Sustainable Energy Plant at Lostock, Greater Manchester, England, Ground Investigation Report, March 2013

2.3.18 A geotechnical ground investigation was undertaken at the Site by IGSL in 2012 to ascertain foundation requirements for the proposed energy plant structures. The principal objectives of the investigation were to investigate ground conditions at the Site and to obtain geotechnical parameters, however soil samples were retrieved from various locations and scheduled for laboratory chemical analysis.

2.3.19 The investigation comprised the completion of 6 boreholes drilled using cable percussive methods with follow on rotary coring to depths of up to 21.0 mbgl and the excavation of 9 trial pits to a maximum depth of 3.2 mbgl.

2.3.20 The ground investigation encountered Made Ground to be highly variable in nature, containing much extraneous matter including bricks, ash and clinker overlying a very soft lime residue. The Made Ground was observed to be up to 5.45 m in thickness.

2.3.21 Underlying the Made Ground a firm to stiff sandy gravelly clay attributable to Boulder Clay / Glacial Till was encountered, with a maximum observed thickness of 5.9 m. The Mercia Mudstone was encountered at depths ranging between 1.7 and 8.4 mbgl and typically comprised a firm to very stiff mudstone, becoming very weak to weak with depth.

2.3.22 A number of soil samples were analysed for a suite of organic and inorganic contaminants. The results of the analysis showed generally low concentrations of contaminants within soil, although PAH were noted to be elevated above the criteria used at a single location. In addition, asbestos fibres (amosite and chrysotile) were detected in one sample from the Made Ground within demolition waste.

2.3.23 A single round of gas monitoring undertaken upon completion of the investigation recorded maximum methane and carbon dioxide concentrations of 0.3% and 0.1% respectively.

RPS Planning & Development Ltd, Lostock SEP, Land Contamination Management Plan, February 2017

2.3.24 The RPS Land Contamination Management Plan (LCMP) was submitted to the local authority in support of planning and was accepted as suitable to discharge Planning Condition 26 relating to contamination at the Site. Consistent with Planning Condition 26 this report is considered to represent the agreed Scheme of Works to address ground contamination at the Site, setting out the required ground investigation works, outline remedial methodology and subsequent verification approach.

2.3.25 The objectives of the LCMP comprised the following:

- To provide a summary of published information for the Site, including previous ground investigations, to determine potential contamination land contamination risks that are present at the Site;
- To provide a summary of the proposed development and current Site constraints; and
- To provide a methodology for managing land contamination present at the Site during Site development.

2.3.26 The LCMP concluded that various phases of ground investigation undertaken have not identified a significant risk of widespread contamination at the Site although there is the potential for localised contamination to be present. Risk assessments undertaken for the Site concluded that risks to human health and controlled waters are low given the industrial setting

of the Site, the low sensitivity of the controlled waters environment and the proposed redevelopment of the Site for industrial use.

2.3.27 RPS assessed the available laboratory soil data against the LQM Suitable 4 Use Levels (S4ULs) for a commercial land use scenario and with the exception of a single contaminant at a single location, (dibenzo(ah)anthracene. TP9 – 0.5mbgl) all contaminant concentrations were below the respective S4ULs. Asbestos fibres were identified in TP4. It was concluded that based upon the findings of the ground investigation, contamination risks to human health and controlled waters are low.

2.3.28 Notwithstanding the above, the previous reports recommended that further ground investigation was undertaken to further define the nature and extent of soil and groundwater contamination present at the Site (the ground investigation presented within this report).

2.3.29 On the basis of the previous investigations and the nature of the proposed development, it was concluded that a simple remediation solution would mitigate the potential post development risks to human health from the presence of soil contaminants and ground gas. Risks to groundwater and surface water through the migration of contaminated shallow groundwater were deemed to be low and therefore no remedial effort was considered necessary.

2.3.30 The Remediation Options Appraisal (ROA) produced as part of the LCMP identified Source Removal and Capping / Clean Cover to be suitable remedial solutions.

2.3.31 The LCMP identified that gas protection measures will be required in those areas of the Site that are confirmed, through the further proposed additional gas monitoring, to fall into Characteristic Situation 2 or above.

2.3.32 The LCMP provided supplementary information relating to PPE and Nuisance management, General Waste Handling Requirements, Contamination Discovery Strategy, Materials Reuse/Management Plan and Piling. It also set out a Verification Plan and Reporting Strategy

2.4 Proposed Redevelopment

2.4.1 The Site is proposed to be redeveloped for an Energy from Waste (EfW) plant and it is understood that the main energy generation facility is to be constructed over the approximate footprint of the existing turbine hall and boiler house and adjacent areas. An ash handling facility is also to be constructed at the location of the existing coke storage yard in the western part of the Site.

2.4.2 Finished Site levels are to be similar to existing Site levels, with minor earthworks being required to accommodate the proposed structures (regarding of +/- 1 m). The exception to this is in relation to the construction of a new bunker in the northern part of the main energy generating facility that will be constructed to a depth of approximately 8.0 m below finished ground level. The construction of this bunker will require the excavation of approximately 14,000 m^3 of soil. The consented development layout is detailed upon *Drawing JER1100-SI-003.*

2.4.3 The EfW scheme benefits from an extant planning consent (reference 10/00691/DECC) which defines the extent and nature of the development. The consented scheme comprises:

- A steam turbine generator;
- A fuel reception hall;
- Boiler house and switchgear building;
- Emissions stack;
- Air cooled condenser;
- Ash handling facility; and
- Associated infrastructure including on-site pipelines for the collection and distribution of steam, transformer compound, internal roads, parking, gatehouse, weighbridge, rail connection, water treatment, fuel store, fencing, landscaping and offices, coke fuel storage area.

3 Ground Investigation Methodology

3.1 Introduction

3.1.1 A geoenvironmental and geotechnical ground investigation was undertaken by RPS in February / March 2018 to achieve the objectives set out in *Section 1.2*.

3.1.2 The ground investigation was set in the context of relevant UK guidance and legislation relating to the pollution of land and controlled waters including:

- The Model Procedures for the Management of Land Contamination, Contaminated Land Report (*CLR*) 11 (*DEFRA & EA, 2004*);
- British Standards BS5930 (*BSI, 2015*) and BS10175 (*BSI, 2011*); and
- Eurocode 7 (*EC 7, 2009*).

3.1.3 The specific scope of ground investigation, including investigation locations and densities was defined through the LCMP and the additional boreholes and trial pits requested by the enabling works contractor and EPC for geotechnical purposes. The density of investigation points does not necessarily comply with the above guidance.

3.2 Summary of Works Undertaken in February / March 2018

3.2.1 The intrusive ground investigation undertaken by RPS comprised the following items:

- Concrete coring at all hardstanding locations;
- Drilling of 10 no. rotary boreholes to depths of up to 10 mbgl (or until obstruction in made ground encountered) for the purpose of planning conditions relating to contamination;
- Drilling of 20 no. rotary boreholes to depths of up to 22 mbgl (or until obstruction in made ground encountered) for the purpose of general site coverage for contamination assessment and geotechnical assessment, as specified by the EPC Contractor;
- Drilling of 6 no. cable percussive boreholes to depths of up to 15 mbgl (or until competent bedrock reached), as specified by Sisk;
- Drilling of 28 no. windowless sampler boreholes to depths of up to 4 mbgl (or until obstruction in made ground encountered);
- Excavation of 23 no. trial pits to depths of up to 4 mbgl (or until obstruction in made ground encountered);
- In-situ Standard Penetration Tests (SPTs) in cable percussive and rotary boreholes;
- In-situ geotechnical testing within trial pits to include use of Hand Shear Vane and Mexecone testing, where appropriate;
- Recovery of disturbed and undisturbed samples;
- Analysis of soil and rock samples for a range of geotechnical tests including: moisture content, Atterberg Limits, particle size distribution testing and BRE sulphate testing;

- Analysis of soil samples for chemical laboratory analysis for a suite of analysis to include metals, TPH, PAHs, pH, asbestos and Waste Acceptance Criteria (WAC) testing;
- In-situ vapour testing of soil samples using a Photoionisation Detector (PID);
- Installation of 50 mm gas and groundwater monitoring standpipes within 12 no. borehole locations;
- Installation of 19 mm gas and groundwater monitoring standpipes within 12 no. borehole locations;
- Gas (4 no. rounds) and groundwater (2 no. rounds) monitoring upon completion of the ground investigation; and
- Analysis of groundwater samples for a suite of analysis to include metals, TPH, PAHs and pH.

3.2.2 The works undertaken as part of the overarching intrusive ground investigation have different primary purposes as set out below:

- Those required by the LCMP / Planning;
- Those required to allow classification of waste arisings;
- Those required by the Enabling Works Contractor (SISK Group) to characterise the geotechnical ground conditions and allow waste classification; and
- Those requested by the EPC Contractor to characterise the geotechnical ground conditions.

3.2.3 The ground investigation locations are detailed upon *Drawing JER1100-SI-005,* and are colour coded with regards to their primary purpose. All the ground conditions data is considered as a whole as part of the data interpretation set out within this report.

3.3 Rotary Drilling Works

3.3.1 The following table details the boreholes which were drilled using rotary drilling techniques.

Table 3-1 Rotary boreholes

Name	Comment	Depth to base of hole (mbGL)	Groundwater and Gas Monitoring Well response zone (mbGL)	Monitoring Well size, mm	Exploratory Hole Purpose
BH-RPS-01	Dynamic Sampler to Rotary Core	10.00	9.00-10.00	50	LCMP / Planning
BH-RPS-02	Hand Dug Pit, terminated due to brick and concrete	1.98	N/A	N/A	LCMP / Planning
BH-RPS-02a	Hand Dug Pit, terminated due to suspected asbestos	1.00	0.50-1.00	19	Reattempt BH-RPS-02
BH-RPS-03	Dynamic Sampler to Rotary Core	10.00	3.00-7.00	50	LCMP / Planning

Name	Comment	Depth to base of hole (mbGL)	Groundwater and Gas Monitoring Well response zone (mbGL)	Monitoring Well size, mm	Exploratory Hole Purpose
BH-RPS-04	Dynamic Sampler to Rotary Core	10.00	5.50-7.50	50	LCMP / Planning
BH-RPS-05	Dynamic Sampler to Rotary Core	10.40	3.00-7.50	50	LCMP / Planning
BH-RPS-06	Dynamic Sampler to Rotary Core	10.00	3.00-6.00	50	LCMP / Planning
BH-RPS-07	Dynamic Sampler to Rotary Core	10.00	3.00-6.50	50	LCMP / Planning
BH-RPS-08	Rotary Open Hole	2.10	N/A	N/A	LCMP / Planning
BH-RPS-09	Dynamic Sampler to Rotary Core	8.70	2.50-6.00	50	LCMP / Planning
BH-RPS-10	Dynamic Sampler to Rotary Core	20.50	5.00-7.00	50	LCMP / Planning and Geotechnical location requested by EPC Contractor
BH-RPS-10a	Hand Dug Pit, terminated due to suspected service (relocated as BH-RPS-10a)	0.45	N/A	N/A	Initial attempt BH-RPS-10
BH-RPS-10b	Hand Dug Pit, terminated due to timber obstruction	0.50	N/A	N/A	Initial attempt BH-RPS-10
BH-RPS-11	Dynamic Sampler, terminated due to obstruction (relocated as BH-RPS-11a)	3.28	N/A	N/A	Geotechnical location requested by EPC Contractor
BH-RPS-11a	Windowless Sampler Borehole terminated due to unknown obstruction	2.50	N/A	N/A	Reattempt BH-RPS-11
BH-RPS-12	Dynamic Sampler to Rotary Core	10.00	N/A	N/A	Waste Classification
BH-RPS-14	Dynamic Sampler to Rotary Core	20.65	N/A	N/A	Geotechnical location requested by EPC Contractor

Name	Comment	Depth to base of hole (mbGL)	Groundwater and Gas Monitoring Well response zone (mbGL)	Monitoring Well size, mm	Exploratory Hole Purpose
BH-RPS-15	Dynamic Sampler to Rotary Core	20.61	N/A	N/A	Geotechnical location requested by EPC Contractor
BH-RPS-16	Dynamic Sampler to Rotary Core	20.65	N/A	N/A	Waste Classification / Geotechnical location requested by EPC Contractor
BH-RPS-16a	Rotary Open hole to Rotary Core	20.50	10.00-20.00	19	Reattempt BH-RPS-16
BH-RPS-17	Hand Dug Pit, terminated on concrete slab	0.40	N/A	N/A	Geotechnical location requested by EPC Contractor
BH-RPS-17a	Hand Dug Pit, terminated on concrete slab	0.40	N/A	N/A	Reattempt BH-RPS-17
BH-RPS-19	Dynamic Sampler to Rotary Core	20.62	N/A	N/A	Geotechnical location requested by EPC Contractor
BH-RPS-19a	Rotary Open hole to Rotary Core	22.00	N/A	N/A	Geotechnical location requested by EPC Contractor
BH-RPS-20	Dynamic Sampler to Rotary Core	20.60	N/A	N/A	Geotechnical location requested by EPC Contractor
BH-RPS-21	Dynamic Sampler to Rotary Core	20.60	N/A	N/A	Geotechnical location requested by EPC Contractor
BH-RPS-21a	Rotary Open hole to Rotary Core	20.50	N/A	N/A	Geotechnical location requested by EPC Contractor
BH-RPS-22	Dynamic Sampler to Rotary Core	20.08	N/A	N/A	Geotechnical location requested by EPC Contractor
BH-RPS-23	Dynamic Sampler, terminated due to void	3.00	N/A	N/A	Geotechnical location requested by EPC Contractor

Name	Comment	Depth to base of hole (mbGL)	Groundwater and Gas Monitoring Well response zone (mbGL)	Monitoring Well size, mm	Exploratory Hole Purpose
BH-RPS-23a	Rotary Open hole to Rotary Core	20.09	1.00-4.00	19	Reattempt BH-RPS-23
BH-RPS-24	Dynamic Sampler to Rotary Core	17.00	1.00-4.00	19	Geotechnical location requested by EPC Contractor
BH-RPS-24a	Rotary Open hole to Rotary Core	20.61	10.00-20.00	19	Geotechnical location requested by EPC Contractor
CP-RPS-03	Dynamic Sampler to Rotary Core	14.71	3.00-6.00	50	Geotechnical location requested by Enabling Works Contractor – initial attempt by cable percussion drilling
CP-RPS-04a	Dynamic Sampler to Rotary Core	10.20	3.00-6.00	50	Geotechnical location requested by Enabling Works Contractor – initial attempt by cable percussion drilling

3.4 Cable Percussion Drilling Works

3.4.1 The following table details the boreholes which were drilled using cable percussive drilling techniques.

Table 3-2 Cable percussive boreholes

Name	Comment	Depth to base of hole (mbGL)	Groundwater and Gas Monitoring Well response zone (mbGL)	Installation size, mm	Exploratory Hole Purpose
CP-RPS-01	Cable Percussive	7.50	N/A	N/A	Geotechnical Location Requested by Enabling Works Contractor
CP-RPS-02	Cable Percussive	10.77	N/A	N/A	Geotechnical Location Requested by Enabling Works Contractor

Name	Comment	Depth to base of hole (mbGL)	Groundwater and Gas Monitoring Well response zone (mbGL)	Installation size, mm	Exploratory Hole Purpose
CP-RPS-02a	Terminated due to suspected asbestos in hand dug pit	1.00	N/A	N/A	Geotechnical Location Requested by Enabling Works Contractor
CP-RPS-03a	Terminated due to SPT 'N' Value over 50. Re-drilled using rotary technique (see above table)	1.30	N/A	N/A	Geotechnical Location Requested by Enabling Works Contractor
CP-RPS-04	Terminated due to SPT 'N' Value over 50. Re-drilled using rotary technique (see above table)	1.65	N/A	N/A	Geotechnical Location Requested by Enabling Works Contractor
CP-RPS-05	Cable Percussive	5.31	N/A	N/A	Geotechnical Location Requested by Enabling Works Contractor
CP-RPS-06	Cable Percussive	5.94	N/A	N/A	Geotechnical Location Requested by Enabling Works Contractor

3.5 Windowless Sampling Drilling Works

3.5.1 The following table details the boreholes which were drilled using a windowless sampler drilling technique.

Table 3-3 Windowless sampler boreholes

Name	Comment	Depth to base of hole (mbGL)	Groundwater and Gas Monitoring Well response zone (mbGL)	Installation size, mm	Exploratory Hole Purpose
WS-RPS-01	Windowless Sampler Borehole	4.00	N/A	N/A	LCMP / Planning
WS-RPS-08	Terminated in hand dug pit due to obstruction	0.90	N/A	N/A	LCMP / Planning
WS-RPS-09	Windowless Sampler Borehole	4.00	2.50-6.00	19	LCMP / Planning
WS-RPS-10	Windowless Sampler Borehole	4.00	5.00-7.00	19	LCMP / Planning

Name	Comment	Depth to base of hole (mbGL)	Groundwater and Gas Monitoring Well response zone (mbGL)	Installation size, mm	Exploratory Hole Purpose
WS-RPS-11	Windowless Sampler Borehole	4.00	N/A	N/A	LCMP / Planning
WS-RPS-12	Terminated in hand dug pit due to obstruction	0.80	0.30-0.80	50	LCMP / Planning
WS-RPS-13	Terminated in hand dug pit due to obstruction	1.00	0.50-1.00	50	LCMP / Planning
WS-RPS-14	Terminated in hand dug pit due to obstruction	1.10	N/A	N/A	LCMP / Planning
WS-RPS-15	Terminated at design depth	4.00	1.00-3.00	19	LCMP / Planning
WS-RPS-16	Terminated in hand dug pit due to obstruction	0.50	N/A	N/A	LCMP / Planning
WS-RPS-16a	Terminated in hand dug pit due to obstruction	0.50	N/A	N/A	LCMP / Planning
WS-RPS-17	Terminated in hand dug pit due to obstruction	0.95	0.45-0.95	19	LCMP / Planning
WS-RPS-18	Terminated in hand dug pit due to obstruction	1.00	N/A	N/A	LCMP / Planning
WS-RPS-19	Terminated at design depth	4.00	1.00-4.00	19	LCMP / Planning
WS-RPS-20	Terminated at design depth	4.00	1.00-4.00	19	LCMP / Planning
WS-RPS-21	Terminated in hand dug pit due to obstruction	1.00	0.50-1.00	19	LCMP / Planning
WS-RPS-23	Terminated due to refusal	3.40	N/A	N/A	Waste classification
WS-RPS-24	Terminated at design depth	4.00	1.00-4.00	19	Waste classification
WS-RPS-25	Terminated in hand dug pit due to obstruction	1.10	N/A	N/A	Waste classification
WS-RPS-26	Terminated in hand dig pit due to service	0.20	N/A	N/A	Waste classification
WS-RPS-28	Terminated in hand dug pit due to obstruction	0.70	N/A	N/A	Waste classification

Name	Comment	Depth to base of hole (mbGL)	Groundwater and Gas Monitoring Well response zone (mbGL)	Installation size, mm	Exploratory Hole Purpose
WS-RPS-29	Terminated in hand dug pit due to obstruction	0.90	N/A	N/A	Geotechnical Location Requested by Enabling Works Contractor
WS-RPS-30	Terminated at design depth	4.00	N/A	N/A	Waste classification
WS-RPS-31	Terminated in hand dug pit due to obstruction	0.42	N/A	N/A	Waste classification
WS-RPS-32a	Terminated in hand dug pit due to obstruction	0.2	N/A	N/A	Waste classification
WS-RPS-33	Terminated in hand dug pit due to obstruction	0.3	N/A	N/A	Waste classification
WS-RPS-36	Terminated in hand dug pit due to obstruction	0.4	N/A	N/A	LCMP / Planning
WS-RPS-36a	Terminated in hand dug pit due to obstruction	0.57	N/A	N/A	LCMP / Planning

3.6 Trial pit excavation works

3.6.1 The following table details the trial pits completed and the depths to base reached for each pit.

Table 3-4 Trial pits (machine dug and hand dug)

Name	Comment	Depth to base of hole (mbGL)	Exploratory Hole Purpose
TP-RPS-01	Hand dug pit	0.80	LCMP / Planning
TP-RPS-02	Hand dug pit	1.20	LCMP / Planning
TP-RPS-03	Hand dug pit	1.60	LCMP / Planning
TP-RPS-04	Machine dug pit	3.00	LCMP / Planning
TP-RPS-11	Machine dug pit	3.00	Waste classification
TP-RPS-17	Machine dug pit	3.40	Waste classification
TP-RPS-19	Machine dug pit	2.20	Waste classification
TP-RPS-21	Machine dug pit	3.40	Waste classification
TP-RPS-24	Machine dug pit	2.00	Waste classification
TP-RPS-25	Machine dug pit. Terminated on possible obstruction.	2.70	Waste classification

Name	Comment	Depth to base of hole (mbGL)	Exploratory Hole Purpose
TP-RPS-28	Machine dug pit	4.00	Waste classification
TP-RPS-30	Machine dug pit. Terminated on brick structure.	1.10	Waste classification
TP-RPS-35	Machine dug pit	3.80	Waste classification
TP-RPS-37	Machine dug pit	3.60	Waste classification
TP-RPS-38	Machine dug pit	3.50	Waste classification
TP-RPS-39	Machine dug pit	3.60	Waste classification
TP-RPS-40	Machine dug pit	3.60	Waste classification
TP-RPS-41	Machine dug pit	3.20	Waste classification
TP-RPS-44	Machine dug pit. Terminated on concrete obstruction.	0.30	Waste classification
TP-RPS-45	Machine dug pit	2.20	Geotechnical Location Requested by Enabling Works Contractor
TP-RPS-46	Machine dug pit	2.40	Geotechnical Location Requested by Enabling Works Contractor
TP-RPS-50	Machine dug pit. Terminated due to water ingress.	0.90	Geotechnical Location Requested by Enabling Works Contractor
TP-RPS-51	Machine dug pit. Terminated due to water ingress.	2.00	Geotechnical Location Requested by Enabling Works Contractor

3.7 Groundwater and Ground Gas Monitoring

3.7.1 4 no. rounds of gas monitoring were undertaken between 07th March and 13th April 2018, upon completion of the ground investigation. 2 no. rounds of groundwater sampling were undertaken on 07th March and 27th March 2018. Groundwater samples were subsequently sent for laboratory analysis. Gas and groundwater monitoring data is included in *Appendix 4*.

3.8 Deviations from Proposed Investigation Locations

3.8.1 Due to site operational constraints, unsafe buildings and surface obstructions a number of the exploratory holes were moved slightly compared to the original proposed location. *Drawing JER1100-SI-014* shows both the original proposed locations and the actual final locations for

reference. On a number of occasions suitable alternative locations could not be identified and in these instances the boreholes were abandoned.

3.8.2 A number of the rotary boreholes were re-drilled adjacent to their original locations in order to allow a complete and robust understanding of the ground conditions where disturbance of rock core samples during transit prevented this from the original boreholes.

3.8.3 Eleven of the trial pits were replaced with windowless sampler boreholes, to allow the investigation works without unacceptable impact to current site operations and to minimise reinstatement requirements.

3.8.4 Where the originally proposed cable percussive technique could not penetrate through the Made Ground, a rotary technique was used instead for the following boreholes: CP-RPS-03 and CP-RPS-04. Therefore in *Appendix 1*, there are both shallow and deep borehole logs for CP-RPS-03/CP-RPS-03a and CP-RPS-04/CP-RPS-04a.

4 Ground Conditions

4.1 Introduction

4.1.1 This section sets out the ground conditions encountered at the Site during the ground investigation undertaken by RPS in 2018.

4.2 Geology

4.2.1 *Table 4-1* below sets out the general ground conditions encountered at the Site. The exploratory hole logs in *Appendix 1* should be referred to for additional detail.

Table 4-1 General Geological Sequence for Assessment Site

Geology	General Description	Range of Proven Thickness of Stratum (m)	Proven Base Depth mbgl (mAOD)
Concrete/Tarmac hardstanding	Concrete was often recorded as reinforced with steel bars (typically 5 mm diameter)	0.1 to 0.8	0.05 to 1.9
Topsoil	Typically grass over soft dark brown sandy or gravelly silt or clay. Gravel is often of ash, asphalt, brick, clinker, concrete and limestone. Occasional rootlets or organic matter.	0.05 to 1.50	0.05 to 1.50
General Made Ground - Variable	Sub-angular to angular sandy gravel/gravelly sand. Gravel is of sandstone, limestone, clinker, bricks, coal, ash and concrete. Or Firm to stiff typically greyish brown sandy gravelly clay/silt. Gravel is of sandstone, limestone, clinker, bricks, coal, ash and concrete. Or Fine to coarse, sometimes clayey, sand. Occasional organic odours or hydrocarbon odours.	0.05 to 3.60	0.70 to 7.70 (24.14 to 18.70)
Made Ground – Lime Material	Typically very soft, light grey or white silt or clay. Occasionally sandy and or gravelly.	0.5 to 6.32	1.5 to 7.2 (25.24 to 18.12)
Alluvium - Organic-rich Sand/Silt/Clay	Dark grey/black clayey sometimes gravelly sand. Gravel is of sandstone. Organic odour. Or Soft dark greyish brown or black organic clay or silt with organic odour and sometimes organic matter	0.15 to 2.3	2.3 to 9.5 (22.54 to 15.82)

Geology	General Description	Range of Proven Thickness of Stratum (m)	Proven Base Depth mbgl (mAOD)
Boulder Clay / Glacial Till – Clay/Sand/Gravel	Typically soft to firm reddish brown and grey sandy gravelly clay. Occasionally sandy and/or gravelly inclusions, where gravel is of sandstone, limestone or mudstone.	0.25 to 7.05	5.65 to 10.00 (21.10 to 16.68)
Mercia Mudstone – Weathered to Clay	Firm to very stiff reddish brown, sometimes mottled grey/greenish grey, clay. Occasional bands of gypsum. Base not proven in many locations.	2.1 to 9.85	4.2 to 12.26 (22.54 to 13.74)
Mercia Mudstone - Mudstone	Extremely weak to very weak reddish brown or greenish grey mudstone with occasional greenish grey reduction spots. Sometimes with bands of gypsum. Discontinuities vary between closely to very closely spaced, planar or undulating, smooth, with partial, none or 1-3 mm calcareous infill. Weathering Grades recorded are Grade I to Grade IV.	>15.48 (base not proven)	>20.65 (5.70) (base not proven)

Made Ground

4.2.2 The Made Ground encountered at the Site can be split into hardstanding (concrete, asphalt etc.), topsoil, variable mixed General Made Ground and Lime Made Ground. These are discussed separately below, and in the table above.

Hardstanding

4.2.3 Hardstanding in the form of concrete or tarmacadam (asphalt) was encountered from ground level at the following locations: BH-RPS-02 to 03, BH-RPS-05 to 06, BH-RPS-08, BH-RPS-14 to 15, BH-RPS-17, BH-RPS-21 to 24, CP-RPS-03 to 04a, CP-RPS-06, TP-RPS-38, TP-RPS-44, WS-RPS-12, WS-RPS-18, WS-RPS-24.

4.2.4 Thick reinforced concrete was encountered at trial pit TP-RPS-44 which could not be broken through within a reasonable timeframe using a JCB mechanical excavator. The reinforcing steel bars were approximately 10 mm in diameter. The depth reached was 0.3 mbgl.

Topsoil

4.2.5 Topsoil was encountered in the following locations: BH-RPS-02, BH-RPS-04, BH-RPS-10a to BH-RPS-10b, BH-RPS-19, CP-RPS-02a, CP-RPS-03, CP-RPS-04a, TP-RPS-01, TP-RPS-51, WS-RPS-01, WS-RPS-14, WS-RPS-16 to 17, WS-RPS-23, WS-RPS-25, WS-RPS-30.

4.2.6 Where topsoil was encountered, it was found to be overlying Made Ground, with the exception of one window sampler borehole (WS-RPS-16). Window sampler borehole WS-RPS-16 was terminated within the topsoil due to suspected asbestos containing materials present.

General Made Ground

4.2.7 Made Ground across the Site was variable in composition however ash, clinker, brick and concrete gravels were common. Made Ground (not including Lime Made Ground) was encountered in all locations that penetrated through the surface hardstanding.

Lime Made Ground

4.2.8 Lime Made Ground, derived from previous industrial processes, was encountered across most of the Site. Lime Made Ground was encountered at the following locations: BH-RPS-01, BH-RPS-03 to 06, BH-RPS-09 to 10, BH-RPS-15 to 16, BH-RPS-19 to 22, BH-RPS-24, CP-RPS-01 to 02, CP-RPS-04, TP-RPS-03 to 04, TP-RPS-11, TP-RPS-24 to 25, TP-RPS-28, TP-RPS-35, TP-RPS-37 to 41, TP-RPS-45 to 46, WS-RPS-01, WS-RPS-09 to 11, WS-RPS-14 to 15, WS-RPS-17, WS-RPS-23 and WS-RPS-30.

4.2.9 The Lime Made Ground was often found confining perched water, due to it comprising a low permeability silt/clay material.

Alluvium - Organic-rich Sand/Silt/Clay

4.2.10 Organic-rich soils were encountered in the following locations: BH-RPS-10 and BH-RPS-15 (predominantly granular soils), and BH-RPS-23a, CP-RPS-02, TP-RPS-17 and TP-RPS-38 (predominantly cohesive soils).

4.2.11 These soils may be associated with previous water courses/water bodies in this area, prior to development.

Boulder Clay / Glacial Till - Sand/Gravel

4.2.12 Where the predominant component was recorded to comprise sand within the Boulder Clay / Glacial Till, this was encountered within BH-RPS-07, BH-RPS-10, BH-RPS-15, TP-RPS-01 and WS-RPS-21. Where the predominant component was recorded to comprise gravel, this was encountered within borehole BH-RPS-01 only.

Boulder Clay / Glacial Till - Clay

4.2.13 Where the predominant component was recorded to comprise clay within the Boulder Clay / Glacial Till, this was encountered within BH-RPS-04, BH-RPS-05, BH-RPS-07, BH-RPS-09, BH-RPS-10, BH-RPS-12, BH-RPS-14, BH-RPS-15, BH-RPS-19, BH-RPS-19a, BH-RPS-20, BH-RPS-23a, CP-RPS-03, CP-RPS-04a, CP-RPS-05, CP-RPS-06, WS-RPS-12 and WS-RPS-21.

Mercia Mudstone - Weathered Mudstone (Clay)

4.2.14 Mercia Mudstone that was noted to have weathered to a clay was proven in the following locations: BH-RPS-01, BH-RPS-03, BH-RPS-05, BH-RPS-06, BH-RPS-07, BH-RPS-09, BH-RPS-10, BH-RPS-12, BH-RPS-14 to 16, BH-RPS-19 to 24, CP-RPS-02 to 03, CP-RPS-04a, CP-RPS-06, TP-RPS-11, TP-RPS-17, TP-RPS-35, TP-RPS-38 to 41, WS-RPS-01, WS-RPS-09 and WS-RPS-10.

Mercia Mudstone - Mudstone

4.2.15 Mudstone bedrock was proven in the following locations: BH-RPS-03, BH-RPS-06 to 07, BH-RPS-10, BH-RPS-14 to 16, BH-RPS-19 to 24, CP-RPS-03.

4.2.16 The base of this stratum was not encountered during this investigation.

4.3 Ground Obstructions and Voids

4.3.1 Obstructions and voids were encountered at shallow depths at numerous intrusive ground investigation locations. Full details of the obstructions and voids are presented upon the logs presented within *Appendix 1* and a summary is presented within *Table 4-2*. The locations of the obstructions / voids are shown on *Drawing JER1100-SI-019*.

Table 4-2 Summary of Encountered Obstructions within Made Ground

Location ID	Depth to Top of Feature (mbgl)	Obstruction Encountered
BH-RPS-02	1.98	Obstruction within Made Ground at base and sides of borehole (possible redundant pipework)
BH-RPS-08	0.3	Void from 0.3 to 2.1 mbgl
BH-RPS-10a	0.45	Metal obstruction at base of inspection pit
BH-RPS-10b	0.5	Railway sleeper at base of inspection pit
BH-RPS-11	3.28	Unknown obstruction within Made Ground
BH-RPS-11a	2.5	Unknown obstruction within Made Ground
BH-RPS-17	0.4	Concrete slab
BH-RPS-17a	0.4	Concrete slab
BH-RPS-23	3.0	Ground collapse due to possible void
CP-RPS-01	7.5	Unknown obstruction within Made Ground
CP-RPS-03a	1.28	Unknown obstruction within Made Ground
CP-RPS-04	1.65	Concrete slab

Location ID	Depth to Top of Feature (mbgl)	Obstruction Encountered
WS-RPS-08	0.9	Concrete obstruction
WS-RPS-13	1.0	Unknown obstruction within inspection pit
WS-RPS-16a	0.5	Concrete slab
WS-RPS-17	0.95	Unknown obstruction within Made Ground
WS-RPS-18	1.0	Unknown obstruction within Made Ground
WS-RPS-23	3.4	Unknown obstruction within Made Ground
WS-RPS-25	1.1	Concrete obstruction
WS-RPS-28	0.7	Unknown obstruction within inspection pit
WS-RPS-29	0.9	Concrete slab
TP-RPS-19	2.2	Unknown brick structure
TP-RPS-25	2.7	Unknown obstruction within Made Ground
TP-RPS-30	1.1	Unknown brick structure
TP-RPS-37	3.6	Unknown brick structure
TP-RPS-44	0.3	Concrete slab
WS-RPS-31	0.42	Unknown obstruction within Made Ground
WS-RPS-32a	0.2	Unknown obstruction within Made Ground
WS-RPS-33	0.3	Unknown obstruction within Made Ground
WS-RPS-36	0.4	Unknown obstruction within Made Ground
WS-RPS-36a	0.57	Unknown obstruction within Made Ground

4.4 Visual and Olfactory Evidence of Contamination

4.4.1 This section sets out the distribution and nature of visual and olfactory evidence of contamination identified during the ground investigation. Details of the Lime Made Ground and ash / clinker within the General Made Ground are not presented as these materials were ubiquitous across the Site.

Hydrocarbons

4.4.2 Hydrocarbon odours/sheens were noted in the following locations: BH-RPS-06 (0.1 m to 0.2 mbgl), BH-RPS-16 (7.0 m to 7.56 mbgl), TP-RPS-35, TP-RPS-41 (GL to 1.0 mbgl) and WS-

RPS-24 (2.6 m to 3.2 mbgl). *Table 4-3* below provides a summary of the hydrocarbon contamination encountered.

Table 4-3 Summary of Contamination Encountered During Ground Investigation

Location	General Description of Contamination Identified	Laboratory Analysis in Soil	Laboratory Analysis in Groundwater
BH-RPS-06	Slight hydrocarbon odour noted from 0.1 m to 0.2 mbgl within Made Ground.	Yes, at 0.4-0.5 mbgl within Made Ground (380 mg/kg)	Yes, Total TPH of 1150 ug/l (Round 1) and 716 ug/l (Round 2)
BH-RPS-16	Hydrocarbon odour noted from 7.0 m to 7.56 mbgl within Made Ground below Lime Made Ground	Yes, at 7.0-7.5 mbgl within Made Ground (17.8 mg/kg)	No Sample
TP-RPS-35	Hydrocarbon sheen on perched groundwater seeping in at 0.7 mbgl, through Lime Made Ground.	Yes, at 1.6 mbgl within Lime Made Ground (110 mg/kg)	No Sample
TP-RPS-41	Hydrocarbon odour noted from ground level to 1.0 mbgl within Made Ground.	Yes, at 0.2 mbgl within Made Ground (125 mg/kg)	No Sample
WS-RPS-24	Strong possible sulphur/hydrocarbon odour noted from 2.6 m to 3.2 mbgl within Made Ground.	Yes, at 2.6-3.0 mbgl within Made Ground (77.5 mg/kg). 1,320 mg/kg measured in Made Ground from above at 0.5 mbgl	Yes, Total TPH of <10 ug/l in both sampling rounds

Asbestos

4.4.3 *Table 4-4* below details where visible evidence of suspected asbestos-containing material (ACM) was encountered.

Table 4-4 Summary of Visually Identified Suspected ACMs

Location	General Description of Contamination Identified	Laboratory Analysis Undertaken on Material / Outcome?
BH-RPS-02a	Tiles and sheeting identified at 0.5 mbgl.	Yes / asbestos detected
CP-RPS-02a	Sheeting identified at 0.5 mbgl	No
WS-RPS-16	Hand dug inspection pit terminated at 0.5 mbgl due to suspected presence of ACMs.	Yes / asbestos detected

4.5 Groundwater

Intrusive Investigations

4.5.1 During the intrusive investigation, a number of groundwater strikes were encountered within the boreholes and trial pits. These are summarised in *Table 4-5* below.

4.5.2 Where encountered, groundwater strikes were recorded as slight to moderate seepages.

Table 4-5 Summary of Groundwater Strikes During Drilling/Excavation

Geology	Location (Number of Groundwater Strikes within Stratum)	Depth of Groundwater Strikes mbgl (mAOD)
General Made Ground	BH-RPS-02 (1); BH-RPS-11 (1); BH-RPS-17 (1); CP-RPS-02 (1); CP-RPS-05 (1); TP-RPS-11 (1); TP-RPS-19 (1); TP-RPS-21 (1); TP-RPS-30 (1); TP-RPS-38 (1); TP-RPS-39 (1); TP-RPS-40 (1); TP-RPS-41 (1); TP-RPS-51 (1); WS-RPS-14 (1)	0.2 – 4.5 (20.82-26.15)
Lime Made Ground	BH-RPS-04 (1); BH-RPS-15 (1); BH-RPS-24 (1); CP-RPS-04 (1); TP-RPS-25 (1); TP-RPS-35 (1); TP-RPS-37 (1); WS-RPS-09 (1)	0.7-2.0 (24.59-25.84)
Mercia Mudstone Group	BH-RP1-01 (1); BH-RPS-23a (1)	9.0-17.5 (8.55-17.27)

4.5.3 The identified groundwater strikes mostly occurred within or at the base of the General Made Ground, where it overlies the less permeable Lime Made Ground. Strikes were also noted from within the Lime Made Ground and the Mercia Mudstone Group.

4.5.4 The depths and the nature of the strikes identified, indicate perched groundwater within the General Made Ground, often perched upon cohesive soils within the General Made Ground, Lime Made Ground and natural soils. No groundwater strikes were encountered within the Glacial Till / Boulder Clay.

Groundwater Monitoring

4.5.5 Groundwater levels measured within the monitoring wells installed at the Site during the ground investigation are summarised within *Table 4-6.*

Table 4-6 Groundwater Monitoring Data Summary

Borehole ID	Number of monitoring rounds	Depth to Groundwater (mbgl)	Elevation of Groundwater (mAOD)	Depth to Base (mbgl)	Extent of Slotted Section of Installation (mbgl)	Geology Adjacent to Screened Section
BH-RPS-02a	2	DRY	-	0.82	0.50 - 1.00	General Made Ground
WS-RPS-13	2	DRY	-	0.90	0.50 – 1.00	General Made Ground
WS-RPS-24	2	1.46-1.68	24.81 - 25.03	3.88	1.00 – 4.00	General Made Ground
BH-RPS-23a	2	1.01-2.0	24.05 - 25.04	4.75	1.00 – 4.00	General Made Ground / Alluvium / Glacial Till
WS-RPS-12	2	0.52-0.70	26.05 - 26.23	0.73	0.30 – 0.80	General Made Ground / Glacial Till
WS-RPS-19	2	2.52-2.63	24.26 - 24.37	3.94	1.00-4.00	General Made Ground / Glacial Till
WS-RPS-21	2	0.70-0.98	23.05 - 23.33	1.30	0.50 – 1.00	General Made Ground / Glacial Till
BH-RPS-24	2	0.75-0.84	25.16 - 25.25	3.78	1.00 – 4.00	General Made Ground / Lime Made Ground
WS-RPS-09	2	0.70-0.97	25.59 - 25.86	3.89	1.00 – 4.00	General Made Ground / Lime Made Ground / Mercia Mudstone
WS-RPS-10	2	0.78-0.95	25.69 - 25.86	3.73	1.00 – 4.00	Lime Made Ground / Mercia Mudstone
WS-RPS-15	2	1.56-1.90	23.45 - 23.79	2.56	1.00 – 3.00	General Made Ground / Lime Made Ground
WS-RPS-17	2	DRY	-	1.12	0.45 – 0.95	Topsoil / Lime Made Ground
WS-RPS-20	2	1.05-1.46	24.42 - 24.83	4.35	1.00-4.00	Lime Made Ground / Glacial Till
BH-RPS-04	2	1.39-1.54	25.14 - 25.29	7.24	5.50 – 7.50	Glacial Till
BH-RPS-09	2	1.10-1.12	25.38 - 25.40	6.00	2.50 – 6.00	Glacial Till
CP-RPS-03	2	0.93-1.03	25.01 - 25.11	6.00	3.00 – 6.00	Glacial Till
CP-RPS-04a	2	1.69-2.03	24.40 - 24.74	6.38	3.00 – 6.00	Glacial Till
BH-RPS-03	2	1.95-2.06	24.35 – 25.27	7.36	3.00 – 7.00	Glacial Till / Mercia Mudstone
BH-RPS-05	2	0.97-1.14	25.54 - 25.71	7.50	3.00 - 7.50	Glacial Till / Mercia Mudstone
BH-RPS-07	2	1.14-1.18	25.57 - 25.61	6.37	3.00 – 6.50	Glacial Till /Mercia Mudstone
BH-RPS-10	2	1.45-1.55	24.65 - 24.75	6.45	5.00 – 6.00	Glacial Till /Mercia Mudstone

Borehole ID	Number of monitoring rounds	Depth to Groundwater (mbgl)	Elevation of Groundwater (mAOD)	Depth to Base (mbgl)	Extent of Slotted Section of Installation (mbgl)	Geology Adjacent to Screened Section
BH-RPS-01	2	1.13-1.62	24.65 - 25.14	9.97	9.00 – 10.00	Mercia Mudstone
BH-RPS-06	2	0.86-0.87	25.87 - 25.88	5.85	3.00 – 6.00	Mercia Mudstone

4.5.6 The full results of the groundwater level monitoring across the Site, for Rounds 1 and 2, are included in *Appendix 4.*

4.5.7 Groundwater monitoring has confirmed the presence of a discontinuous perched water body within the Made Ground, and intermittent groundwater within the Glacial Till and Mercia Mudstone.

Gas

4.5.8 A summary of the gas concentrations identified over the 4 monitoring rounds is presented within *Table 4-7*. The full monitoring results are presented within *Appendix 4.*

Table 4-7 Gas Monitoring Results Summary

	Maximum Stabilised Flow (litres per hour)	VOCs max [stabilised] (ppm)	Maximum Peak CH_4 concentration (%v/v)	Maximum Peak Maximum Peak CO_2 concentration (%v/v)	Minimum O_2 concentration (%v/v)	Maximum Peak CO (ppm)	Maximum Peak H_2S (ppm)
BH-RPS-01	0.1	1.5	0.6	0.1	21	7	0
BH-RPS-02A	0	0	0.2	0.2	20.3	2.4	0
BH-RPS-03	-0.1	0	0.7	0.1	20.9	6	0
BH-RPS-04	0.51 (-2.4)	0	0.4	0.1	20.5	5	0
BH-RPS-05	-0.1	4.1	1.2	0.1	16.8	17	0
BH-RPS-06	0.51	1	0.4	0.2	15	16	0
BH-RPS-07	-0.1	0	0.3	1	21.1	2.3	0
BH-RPS-09	0.71	1.3	0.2	0.2	17.5	365	0
BH-RPS-10	1.81	0	1.6	0.1	19.1	5.2	0
BH-RPS-16A	-0.1	NR	0.2	0.1	21.8	2	0
BH-RPS-23A	-2.5	0	0.2	0.3	21.1	3	0
BH-RPS-24	-2.4	0	0.1	0.1	21.1	21	0
BH-RPS-24A	-0.1	NR	0.2	0.1	21.3	2	0

	Maximum Stabilised Flow (litres per hour)	VOCs max [stabilised] (ppm)	Maximum Peak CH_4 concentration (%v/v)	Maximum Peak Maximum Peak CO_2 concentration (%v/v)	Minimum O_2 concentration (%v/v)	Maximum Peak CO (ppm)	Maximum Peak H_2S (ppm)
CP-RPS-03	-2.51	0	0.2	0.2	19.5	1.9	0
CP-RPS-04A	0	0.3	0.2	1.7	17.3	51.9	0
WS-RPS-09	0.1	4	0.5	0.2	19.9	21.4	0
WS-RPS-10	0	0	14.4	0.4	12.8	268	0
WS-RPS-12	0.1	0	0.2	0.3	20.2	3	0
WS-RPS-13	0.1	0	0.2	0.4	17.6	3	0
WS-RPS-15	0	0	0.2	0.3	20.7	0	0
WS-RPS-17	0	0	0.2	0.2	16.3	3.3	0
WS-RPS-19	0.5	0	0.2	2.9	4.1	1.6	0
WS-RPS-20	0	0	0.3	2	20.9	6	0
WS-RPS-21	0	0	0.2	1	19.4	1	0
WS-RPS-24	-1.81	0.6	0.2	0.2	21.2	1.8	0

5 Results of Laboratory Analysis

5.1 Introduction

5.1.1 *Table 5-1* to *Table 5-7* provide a summary of the laboratory analysis undertaken. The tables are split into the different strata encountered on Site. The weathered and un-weathered mudstone has been grouped together in the summary tables. The laboratory certificates are presented in *Appendix 2.*

5.2 Results of Soil Analysis

Chemical Analysis in General Made Ground

5.2.1 *Table 5-1* below summarises the laboratory data for samples taken from General Made Ground soils.

Table 5-1 Summary of Laboratory Analysis for Contaminants of Concern – General Made Ground

Contaminant of Concern	Unit	No. Samples	No. Samples > LOD	Min	Max	Location of Max
Cyanide	mg/kg	2	0	N/A	N/A	N/A
Antimony	mg/kg	65	48	0.616	13.1	WS-RPS-28 at 0.2 mbgl
Arsenic	mg/kg	65	65	1.01	1130	CP-RPS-05 at 0.5
Cadmium	mg/kg	65	64	0.0266	6.89	WS-RPS-16 at 0.5 mbgl
Chromium	mg/kg	65	62	2.11	25.3	WS-RPS-30 at GL-0.3 mbgl
Cobalt	mg/kg	65	65	0.552	64.2	TP-RPS-37 at 0.2 mbgl
Copper	mg/kg	65	65	2.05	247	TP-RPS-02 at 0.15-0.4 mbgl
Lead	mg/kg	65	65	3.52	440	WS-RPS-25 at 0.35-0.5 mbgl
Manganese	mg/kg	65	65	57.7	27,700	TP-RPS-45 at GL-0.5 mbgl
Mercury	mg/kg	65	24	0.202	289	TP-RPS-37 at 0.2 mbgl

Contaminant of Concern	Unit	No. Samples	No. Samples > LOD	Min	Max	Location of Max
Molybdenum	mg/kg	65	65	0.202	12.5	WS-RPS-30 at GL-0.3 mbgl
Nickel	mg/kg	65	65	2.98	162	TP-RPS-37 at 0.2 mbgl
Selenium	mg/kg	65	10	1.07	11.3	TP-RPS-45 at GL-0.5 mbgl
Thallium	mg/kg	65	21	0.731	30.2	TP-RPS-45 at GL-0.5 mbgl
Tin	mg/kg	65	63	0.258	43.6	BH-RPS-10 at 0.7-0.9 mbgl
Vanadium	mg/kg	65	65	3.72	176	WS-RPS-30 at 0.5-0.8 mbgl
Zinc	mg/kg	65	65	14.4	469	TP-RPS-21 at 0.5 mbgl
Total PAH (USEPA 16)	µg/kg	64	57	563	919,000	TP-RPS-50 at 0.5 mbgl
Acenaphthene	µg/kg	64	41	9.97	3,090	TP-RPS-50 at 0.5 mbgl
Acenaphthylene	µg/kg	64	45	14.6	23,300	TP-RPS-50 at 0.5 mbgl
Anthracene	µg/kg	64	52	20.0	45,300	TP-RPS-50 at 0.5 mbgl
Benzo(a)anthracene	µg/kg	64	57	16.2	85,300	TP-RPS-50 at 0.5 mbgl
Benzo(a)pyrene	µg/kg	64	57	24.4	64,300	TP-RPS-50 at 0.5 mbgl
Benzo(b)fluoranthene	µg/kg	64	57	30.6	82,500	TP-RPS-50 at 0.5 mbgl
Benzo(g,h,i)perylene	µg/kg	64	56	37.6	25,200	TP-RPS-50 at 0.5 mbgl
Benzo(k)fluoranthene	µg/kg	64	54	22.3	28,800	TP-RPS-50 at 0.5 mbgl
Chrysene	µg/kg	64	57	25.4	66,100	TP-RPS-50 at 0.5 mbgl

Contaminant of Concern	Unit	No. Samples	No. Samples > LOD	Min	Max	Location of Max
Dibenzo(a,h)anthracene	µg/kg	64	45	27.4	9,840	TP-RPS-50 at 0.5 mbgl
Fluoranthene	µg/kg	64	58	35.0	164,000	TP-RPS-50 at 0.5 mbgl
Fluorene	µg/kg	64	41	12.1	16,400	TP-RPS-50 at 0.5 mbgl
Indeno(1,2,3)pyrene	µg/kg	64	54	25.2	23,400	TP-RPS-50 at 0.5 mbgl
Naphthalene	µg/kg	64	57	15.3	9,820	TP-RPS-50 at 0.5 mbgl
Phenanthrene	µg/kg	64	57	29.9	149,000	TP-RPS-50 at 0.5 mbgl
Pyrene	µg/kg	64	58	34.0	122,000	TP-RPS-50 at 0.5 mbgl
Sum of detected WHO 12 PCBs	µg/kg	29	0	N/A	N/A	N/A
pH	pH units	69	69	7.63	12.4	TP-RPS-24 at 0.3-0.4 mbgl
Phenols	mg/kg	8	0	N/A	N/A	N/A
Total Petroleum Hydrocarbons (>C5-C44)	mg/kg	64	64	2.54	3,750	TP-RPS-50 at 0.5 mbgl
Benzene	µg/kg	64	1	25.5	25.5	TP-RPS-38 at 0.8 mbgl
Ethylbenzene	µg/kg	64	4	3.1	8.5	TP-RPS-38 at 0.8 mbgl
m,p-Xylene	µg/kg	64	8	6.32	34	TP-RPS-38 at 0.8 mbgl
o-Xylene	µg/kg	64	13	3.16	20.4	TP-RPS-38 at 0.8 mbgl
Toluene	µg/kg	64	42	2.09	74.8	TP-RPS-38 at 0.8 mbgl
MTBE	µg/kg	64	10	6.1	24.6	WS-RPS-30 at 0.5-0.8 mbgl

Contaminant of Concern	Unit	No. Samples	No. Samples > LOD	Min	Max	Location of Max
Soil Organic Matter	%	8	8	0.526	33.3	BH-RPS-03 at 0.95-1.1 mbgl
Total Organic Carbon	%	22	22	0.279	37.5	BH-RPS-06 at 0.4-0.5 mbgl

5.2.2 In addition to the contaminants listed in the table above, the following Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) were detected above the laboratory limit of detection:

- 2-Isopropylphenol (1 no. sample above the LOD out of 8 analysed; 0.059 mg/kg in sample BH-RPS-16 at 7.0-7.5 mbgl);
- Cresols (2 no. samples above the LOD out of 8 analysed; 0.224 mg/kg in sample BH-RPS-16 at 7.0-7.5 mbgl & 0.0122 mg/kg in sample WS-RPS-08 at 0.2-0.5 mbgl);
- Xylenols (1 no. sample above the LOD out of 8 analysed; 0.319 mg/kg in sample BH-RPS-16 at 7.0-7.5 mbgl);
- 2-Methylnaphthalene (17 no. samples above the LOD out of 39 analysed; maximum value of 6,970 µg/kg in sample TP-RPS-50 at 0.5 mbgl);
- 4-Methylphenol (2 no. samples above the LOD out of 39 analysed; 365 µg/kg in sample BH-RPS-16 at 7.0-7.5 mbgl & 5,380 µg/kg in sample TP-RPS-50 at 0.5 mbgl);
- Bis(2-Ethylexyl)phthalate (1 no. sample above the LOD out of 39 analysed; 241 µg/kg in sample TP-RPS-45 at GL-0.5 mbgl);
- Carbazole (4 no. samples above the LOD out of 39 analysed, maximum value of 18,000 µg/kg in sample TP-RPS-50 at 0.5 mbgl);
- Dibenzofuran (9 no. samples above the LOD out of 39 analysed, maximum value of 24,200 µg/kg in sample TP-RPS-50 at 0.5 mbgl);
- N-Dibutyl phthalate (2 no. samples above the LOD out of 39 analysed; 257 µg/kg in sample TP-RPS-35 at 0.2 mbgl & 454 µg/kg in sample WS-RPS-29a at 0.75 mbgl);
- 1,1,1-Trichloroethane (1 no. sample above the LOD out of 36 analysed; 362 µg/kg in sample BH-RPS-10 at 0.7-0.9 mbgl);
- 4-Bromofluorobenzene (38 no. sample above the LOD out of 38 analysed; maximum value of 96.8 % in sample BH-RPS-12 at 0.3-0.6 mbgl);
- Carbon Disulphide (2 no. samples above the LOD out of 36 analysed; 14.5 µg/kg in sample WS-RPS-24 at 2.6-3.0 mbgl & 35.8 µg/kg in sample BH-RPS-16 at 7.0-7.5 mbgl);
- Carbontetrachloride (1 no. sample above the LOD out of 36 analysed; 32 µg/kg in sample CP-RPS-01 at 0.3-0.55 mbgl);
- Dibromofluoromethane (38 no. sample above the LOD out of 38 analysed; maximum value of 140 % in sample WS-RPS-24 at 2.6-3.0 mbgl);

- Dichloromethane (2 no. samples above the LOD out of 36 analysed; 13.8 µg/kg in sample BH-RPS-06 at 1.9-2.2 mbgl & 353 µg/kg in sample BH-RPS-10 at 0.7-0.9 mbgl); and
- Toluene-d8 (38 no. sample above the LOD out of 38 analysed; maximum value of 103 % in sample BH-RPS-03 at 0.95-1.10 mbgl).

Asbestos Analysis in General Made Ground

5.2.3 66 no. samples of General Made Ground were analysed for asbestos fibres. Asbestos fibres were reported in 35 out of the 66 samples. *Table 5-2* below summarises the samples where asbestos was detected and the results of the quantification testing undertaken.

Table 5-2 Asbestos identification & quantification in General Made Ground

Sample location	Sample depth, mbgl	Asbestos Type and Quantification, where measured (%)
BH-RPS-01	0.3-0.4	Amosite (0.0023)
BH-RPS-02a	0.2-0.5	Amosite, Chrysotile
BH-RPS-02a	0.45-0.50	Amosite, Chrysotile
BH-RPS-07	0.6-1.0	Chrysotile (0.0039)
BH-RPS-10	0.7-0.9	Chrysotile (0.0142)
BH-RPS-17	0.1-0.3	Chrysotile
TP-RPS-01	0.35	Chrysotile
TP-RPS-03	0.4-0.9	Chrysotile
TP-RPS-04	0.75	Amosite
TP-RPS-11	1.0	Amosite (<0.001)
TP-RPS-17	0.2	Chrysotile (<0.001)
TP-RPS-19	0.2	Amosite, Chrysotile, Crocidolite
TP-RPS-21	0.5	Amosite, Chrysotile, Crocidolite (3.05)
TP-RPS-25	0.2	Chrysotile
TP-RPS-35	0.2	Amosite
TP-RPS-37	0.2	Chrysotile
TP-RPS-38	0.8	Chrysotile

Sample location	Sample depth, mbgl	Asbestos Type and Quantification, where measured (%)
TP-RPS-40	0.2	Amosite
TP-RPS-45	GL-0.5	Chrysotile
TP-RPS-50	0.5	Chrysotile
WS-RPS-01	0.5	Chrysotile
WS-RPS-08	0.2-0.5	Amosite, Crocidolite (0.0217)
WS-RPS-12	0.2-0.5	Amosite
WS-RPS-13	0.05-0.45	Chrysotile (0.0027)
WS-RPS-14	0.2-0.4	Amosite
WS-RPS-15	0.5-1.0	Chrysotile
WS-RPS-16	0.5	Chrysotile (0.106)
WS-RPS-21	0.2	Chrysotile
WS-RPS-23	GL-0.4	Chrysotile (<0.001)
WS-RPS-24	0.5	Chrysotile (<0.001)
WS-RPS-25	0.35-0.5	Chrysotile (<0.001)
WS-RPS-28	0.2	Amosite (<0.001)
WS-RPS-29	0.6-0.9	Amosite (<0.001)
WS-RPS-29a	0.75	Chrysotile
WS-RPS-30	0.5-0.8	Chrysotile (<0.001)

Chemical Analysis in Lime Made Ground

5.2.4 Table 5-3 below summarises the laboratory data for samples taken from Lime Made Ground soils. The laboratory certificates are presented in *Appendix 2*.

Table 5-3 Summary of Laboratory Analysis for Contaminants of Concern – Lime Made Ground

Contaminant of Concern	Unit	No. Samples	No. Samples > LOD	Min	Max	Location of Max
Cyanide	mg/kg	1	0	N/A	N/A	N/A
Antimony	mg/kg	12	7	0.842	4.77	WS-RPS-23 at 0.7-1.0 mbgl
Arsenic	mg/kg	12	12	8.2	94.6	WS-RPS-23 at 0.7-1.0 mbgl
Cadmium	mg/kg	12	12	0.0789	1.19	BH-RPS-09 at 1.3-1.5 mbgl
Chromium	mg/kg	12	12	1.67	40.5	BH-RPS-09 at 1.3-1.5 mbgl
Cobalt	mg/kg	12	12	0.633	16.2	WS-RPS-23 at 0.7-1.0 mbgl
Copper	mg/kg	12	12	6.7	66.5	WS-RPS-23 at 0.7-1.0 mbgl
Lead	mg/kg	12	12	6.59	264	BH-RPS-01 at 1.2-1.5 mbgl
Manganese	mg/kg	12	12	71.6	856	BH-RPS-04 at 0.65-0.9 mbgl
Mercury	mg/kg	12	3	0.178	6.94	BH-RPS-04 at 0.65-0.9 mbgl
Molybdenum	mg/kg	12	12	0.484	4.1	WS-RPS-23 at 0.7-1.0 mbgl
Nickel	mg/kg	12	12	1.74	43.6	WS-RPS-23 at 0.7-1.0 mbgl
Selenium	mg/kg	12	0	N/A	N/A	N/A
Thallium	mg/kg	12	1	0.704	0.704	BH-RPS-04 at 0.65-0.9 mbgl
Tin	mg/kg	12	11	0.397	3.44	BH-RPS-04 at 0.65-0.9 mbgl
Vanadium	mg/kg	12	12	4.85	79.4	WS-RPS-23 at 0.7-1.0 mbgl

Contaminant of Concern	Unit	No. Samples	No. Samples > LOD	Min	Max	Location of Max
Zinc	mg/kg	12	12	14.8	172	WS-RPS-23 at 0.7-1.0 mbgl
Total PAH (USEPA 16)	µg/kg	12	10	186	22,600	BH-RPS-01 at 1.2-1.5 mbgl
Acenaphthene	µg/kg	12	5	14.4	34.9	TP-RPS-11 at 1.0 mbgl
Acenaphthylene	µg/kg	12	5	22.5	233	BH-RPS-04 at 0.65-0.9 mbgl
Anthracene	µg/kg	12	6	32.7	266	BH-RPS-01 at 1.2-1.5 mbgl
Benzo(a)anthracene	µg/kg	12	8	20.9	2,130	BH-RPS-01 at 1.2-1.5 mbgl
Benzo(a)pyrene	µg/kg	12	9	32.5	2,410	BH-RPS-04 at 0.65-0.9 mbgl
Benzo(b)fluoranthene	µg/kg	12	11	19.7	3,310	BH-RPS-04 at 0.65-0.9 mbgl
Benzo(g,h,i)perylene	µg/kg	12	8	90.1	1,980	BH-RPS-01 at 1.2-1.5 mbgl
Benzo(k)fluoranthene	µg/kg	12	8	25.2	1,290	BH-RPS-01 at 1.2-1.5 mbgl
Chrysene	µg/kg	12	11	13.8	2,390	BH-RPS-01 at 1.2-1.5 mbgl
Dibenzo(a,h)anthracene	µg/kg	12	6	30.4	507	BH-RPS-01 at 1.2-1.5 mbgl
Fluoranthene	µg/kg	12	10	30.4	2,380	BH-RPS-01 at 1.2-1.5 mbgl
Fluorene	µg/kg	12	2	16.5	29	BH-RPS-04 at 0.65-0.9 mbgl
Indeno(1,2,3)pyrene	µg/kg	12	8	45.9	1,590	BH-RPS-01 at 1.2-1.5 mbgl
Naphthalene	µg/kg	12	10	19.0	1,200	TP-RPS-11 at 1.0 mbgl

Contaminant of Concern	Unit	No. Samples	No. Samples > LOD	Min	Max	Location of Max
Phenanthrene	µg/kg	12	9	93.9	1,800	BH-RPS-01 at 1.2-1.5 mbgl
Pyrene	µg/kg	12	10	28.0	2,370	BH-RPS-01 at 1.2-1.5 mbgl
Sum of detected WHO 7 PCBs	µg/kg	8	0	N/A	N/A	N/A
pH	pH units	29	29	7.88	12.9	TP-RPS-28 at 1.0-1.1 mbgl
Phenols	mg/kg	4	0	N/A	N/A	N/A
Total Petroleum Hydrocarbons (>C5-C44)	mg/kg	12	12	4.47	288	WS-RPS-11 at 1.1 mbgl
Benzene	µg/kg	13	0	N/A	N/A	N/A
Ethylbenzene	µg/kg	13	0	N/A	N/A	N/A
m,p-Xylene	µg/kg	13	0	N/A	N/A	N/A
o-Xylene	µg/kg	13	0	N/A	N/A	N/A
Toluene	µg/kg	13	1	3.6	3.6	BH-RPS-04 at 0.65-0.9 mbgl
MTBE	µg/kg	13	0	N/A	N/A	N/A
Soil Organic Matter	%	3	3	0.547	1.56	BH-RPS-01 at 1.2-1.5 mbgl
Total Organic Carbon	%	8	8	0.317	5.34	TP-RPS-11 at 1.0 mbgl

5.2.5 In addition to the contaminants listed in the table above, the following Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) were detected above the laboratory limit of detection:

- 4-Bromofluorobenzene (4 no. sample above the LOD out of 4 analysed; maximum value of 113 ug/kg in sample BH-RPS-01 at 5.0-5.5 mbgl);
- Dibromofluoromethane (4 no. sample above the LOD out of 4 analysed; maximum value of 67.6 ug/kg in sample WS-RPS-11 at 1.1 mbgl);
- Dichloromethane (1 no. sample above the LOD out of 4 analysed; maximum value of 24.5 µg/kg in sample BH-RPS-01 at 5.0-5.5 mbgl); and

- Toluene-d8 (4 no. sample above the LOD out of 4 analysed; maximum value of 98.3 ug/kg in sample WS-RPS-11 at 1.1 mbgl).

Asbestos Analysis in Lime Made Ground

5.2.6 11 no. samples of Lime Made Ground were analysed for asbestos fibres. Asbestos fibres were reported in 2 out of the 12 samples. *Table 5-4* below summarises these samples where asbestos was detected and the results of the quantification testing undertaken.

Table 5-4 Asbestos identification & quantification in Lime Made Ground

Sample location	Sample depth, mbgl	Asbestos Type and Quantification, where measured (%)
CP-RPS-04	0.6	Amosite (<0.001)
TP-RPS-19	1.9	Amosite, Chrysotile (<0.001)

5.2.7 Additionally, one sample (from BH-RPS-09 at 1.3-1.5 mbgl) was reported to contain non-asbestos fibre. This sample was not sent for quantification analysis.

Chemical Analysis in Natural Soils

5.2.8 *Table 5-5* below summarises the chemical laboratory data for samples taken from natural soils.

Table 5-5 Summary of Laboratory Analysis for Contaminants of Concern – Natural Soils

Contaminant of Concern	Unit	No. Samples	No. Samples > LOD	Min	Max	Location of Max
Antimony	mg/kg	9	6	0.726	1.03	BH-RPS-23a at 1.4-1.6 mbgl & TP-RPS-35 at 2.4 mbgl
Arsenic	mg/kg	9	9	2.8	9.13	TP-RPS-17 at 1.2 mbgl
Cadmium	mg/kg	9	5	0.0481	0.304	CP-RPS-06 at 0.7-1.2 mbgl
Chromium	mg/kg	9	9	5.18	46.1	BH-RPS-12 at 6.5-6.8 mbgl
Cobalt	mg/kg	9	9	3.31	12.5	BH-RPS-12 at 6.5-6.8 mbgl
Copper	mg/kg	9	9	5.17	22.2	TP-RPS-17 at 1.2 mbgl
Lead	mg/kg	9	9	5.15	33.4	CP-RPS-06 at 0.7-1.2 mbgl

Contaminant of Concern	Unit	No. Samples	No. Samples > LOD	Min	Max	Location of Max
Manganese	mg/kg	9	9	98.8	761	BH-RPS-12 at 6.5-6.8 mbgl
Mercury	mg/kg	9	0	N/A	N/A	N/A
Molybdenum	mg/kg	9	9	0.249	3.29	TP-RPS-17 at 1.2 mbgl
Nickel	mg/kg	9	9	8.14	57.2	BH-RPS-12 at 6.5-6.8 mbgl
Selenium	mg/kg	9	0	N/A	N/A	N/A
Thallium	mg/kg	9	3	1.02	1.91	BH-RPS-12 at 6.5-6.8 mbgl
Tin	mg/kg	9	9	0.474	2.05	CP-RPS-06 at 0.7-1.2 mbgl
Vanadium	mg/kg	9	9	8.63	36.6	BH-RPS-12 at 6.5-6.8 mbgl
Zinc	mg/kg	9	9	15.2	60.5	BH-RPS-12 at 6.5-6.8 mbgl
Total PAH (USEPA 16)	µg/kg	9	3	223	785	TP-RPS-17 at 1.2 mbgl
Acenaphthene	µg/kg	9	0	N/A	N/A	N/A
Acenaphthylene	µg/kg	9	0	N/A	N/A	N/A
Anthracene	µg/kg	9	1	22.5	22.5	TP-RPS-17 at 1.2 mbgl
Benzo(a)anthracene	µg/kg	9	2	40.1	79.9	TP-RPS-17 at 1.2 mbgl
Benzo(a)pyrene	µg/kg	9	3	21.6	67.7	TP-RPS-17 at 1.2 mbgl
Benzo(b)fluoranthene	µg/kg	9	4	20.5	120	TP-RPS-17 at 1.2 mbgl
Benzo(g,h,i)perylene	µg/kg	9	2	53.9	70.6	TP-RPS-17 at 1.2 mbgl
Benzo(k)fluoranthene	µg/kg	9	3	20.8	31.1	TP-RPS-17 at 1.2 mbgl
Chrysene	µg/kg	9	3	17.7	59.7	TP-RPS-17 at 1.2 mbgl
Dibenzo(a,h)anthracene	µg/kg	9	0	N/A	N/A	N/A
Fluoranthene	µg/kg	9	3	28.0	97.1	TP-RPS-17 at 1.2 mbgl
Fluorene	µg/kg	9	0	N/A	N/A	N/A

Contaminant of Concern	Unit	No. Samples	No. Samples > LOD	Min	Max	Location of Max
Indeno(1,2,3)pyrene	µg/kg	9	2	37.8	53.5	TP-RPS-17 at 1.2 mbgl
Naphthalene	µg/kg	9	3	25.8	63.3	CP-RPS-06 at 0.7-1.2 mbgl
Phenanthrene	µg/kg	9	3	37.3	111	CP-RPS-06 at 0.7-1.2 mbgl
Pyrene	µg/kg	9	3	30.7	71.5	TP-RPS-17 at 1.2 mbgl
Sum of detected WHO 7 PCBs	µg/kg	4	0	N/A	N/A	N/A
pH	pH units	13	13	7.73	10.3	BH-RPS-10 at 4.7-4.85 mbgl
Total Petroleum Hydrocarbons (>C5-C44)	mg/kg	9	6	1.94	69.3	BH-RPS-12 at 6.5-6.8 mbgl
Benzene	µg/kg	10	0	N/A	N/A	N/A
Ethylbenzene	µg/kg	10	0	N/A	N/A	N/A
m,p-Xylene	µg/kg	10	0	N/A	N/A	N/A
o-Xylene	µg/kg	10	0	N/A	N/A	N/A
Toluene	µg/kg	10	0	N/A	N/A	N/A
MTBE	µg/kg	10	0	N/A	N/A	N/A
Soil Organic Matter	%	4	1	5.07	5.07	CP-RPS-06 at 0.7-1.2 mbgl
Total Organic Carbon	%	4	3	0.325	2.94	CP-RPS-06 at 0.7-1.2 mbgl

5.2.9 In addition to the contaminants listed in the table above, the following Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) were detected above the laboratory limit of detection:

- 2-Methylnaphthalene (1 no. sample above the LOD out of 1 analysed; 197 µg/kg in sample CP-RPS-06 at 0.7-1.2 mbgl);
- 4-Bromofluorobenzene (1 no. sample above the LOD out of 1 analysed; 91.3 % in sample CP-RPS-06 at 0.7-1.2 mbgl);
- Dibromofluoromethane (1 no. sample above the LOD out of 1 analysed; 109 % in sample CP-RPS-06 at 0.7-1.2 mbgl); and

- Toluene-d8 (1 no. sample above the LOD out of 1 analysed; 96.9 % in sample CP-RPS-06 at 0.7-1.2 mbgl).

5.3 Results of Groundwater Analysis

5.3.1 Groundwater was encountered and sampled within monitoring locations installed within the General Made Ground, Lime Made Ground, Boulder Clay / Glacial Till and Mercia Mudstone Group, at a total of 17 no. locations. The laboratory certificates are presented within *Appendix 2*.

Inorganic Analytical Results

5.3.2 Inorganic analytical data is available for 17 no. samples. A summary of the results detailing the range of concentrations identified and the location of the maximum identified concentrations is presented in *Table 5-6* below.

5.3.3 Separate summaries have been presented representing the different strata identified below:

- General Made Ground;
- Lime Made Ground;
- Boulder Clay / Glacial Till; and
- Mercia Mudstone Group

5.3.4 Only those determinants identified above the Laboratory Limit of Detection (LoD) are detailed.

Table 5-6 Summary of Groundwater Inorganic Analytical Results

Determinants	Lime Made Ground			General Made Ground		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Dissolved metals						
Aluminium	3	<LOD-30.1	BH-RPS-24 (R2)	4	<LOD-107	WS-RPS-24 (R2)
Arsenic	8	0.679-5.84	WS-RPS-09 (R1)	6	2.2-4400	WS-RPS-19 (2)
Antimony	4	<LOD-0.357	WS-RPS-09 (R1)	3	<0.307-2.63	WS-RPS-24 (R1)
Barium	4	145-895	BH-RPS-24 (R2)	3	21.4-1580	BH-RPS-23 (R2)
Boron	4	<LOD-24.6	WS-RPS-20 (R2)	3	18.2-375	WS-RPS-19 (R2)
Cadmium	8	<LOD	-	6	<LOD-1.77	BH-RPS-23a (R1)

Determinants	Lime Made Ground			General Made Ground		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Calcium	2 (2 samples not reported on lab results)	779000-967000	WS-RPS-09 (R2)	2 (1 sample not reported on lab results)	393000-2440000	BH-RPS-23a (R2)
Chromium	8	<LOD-3.31	WS-RPS-20 (R2)	3	<LOD	-
Cobalt	8	<LOD-2.5	WS-RPS-09 (R1)	6	<LOD-7.98	WS-RPS-19 (R2)
Copper	8	2.71-52.7	BH-RPS-24 (R1)	6	<LOD-1.08	BH-RPS-23a (R2)
Iron	4	<LOD – 48.8	BH-RPS-24 (R2)	3	26.4-30600	WS-RPS-19 (R2)
Lead	8	0.349-10.2	BH-RPS-24 (R1)	6	<LOD-0.714	BH-RPS-23a (R1)
Lithium	4	4.11-29.1	WS-RPS-20 (R2)	3	4.43-67.8	WS-RPS-19 (R2)
Magnesium	4	49-240	BH-RPS-24 (R2)	3	1470-206000	BH-RPS-23a (R2)
Manganese	4	<LOD-3.27	BH-RPS-24 (R2)	3	6.39-4230	BH-RPS-23a (R2)
Mercury	8	0.0183-0.323	WS-RPS-09 (R1)	6	<LOD	-
Molybdenum	8	12.1-50.2	BH-RPS-24 (R1)	6	<LOD - 9	WS-RPS-19 (R1)
Nickel	4	2.74-80.6	BH-RPS-24 (R1)	3	<LOD-11.8	WS-RPS-19 (R2)
Phosphorous	4	<LOD-25.9	WS-RPS-09 (R2)	3	14.8-22.8	WS-RPS-19 (R2)
Potassium	4	8430-25700	BH-RPS-24 (R2)	3	1020-15000	WS-RPS-19 (R2)

Determinants	Lime Made Ground			General Made Ground		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Selenium	8	1.69-13.1	WS-RPS-10 (R1)	6	<LOD-6.12	BH-RPS-23a (R1)
Silicon	4	<LOD-1790	WS-RPS-10 (R2)	3	2740-5330	WS-RPS-19 (R2)
Sodium	4	59300-437000	BH-RPS-24 (R2)	3	25600-2920000	BH-RPS-23a (R2)
Strontium	4	481-4770	BH-RPS-24 (R2)	3	156-7030	BH-RPS-23a (R2)
Titanium (total)	4	10.6-141	BH-RPS-24 (R2)	3	35.4-75.1	WS-RPS-24 (R2)
Vanadium	8	<LOD -2.46	WS-RPS-10 (R2)	6	<LOD-1.74	WS-RPS-24 (R2)
Uranium	4	<LOD	-	3	0.707-10.5	NH-RPS-23a (R1)
Zinc	8	<LOD-4.12	WS-RPS-10 (R1)	6	<LOD-16.3	WS-RPS-19 (R2)
Other inorganic parameters						
pH	8	12.5-13.2 (ph units)	WS-RPS-09 (R1)	6	7.13-8.13 (ph units)	WS-RPS-24 (R2)
Chloride	8	286000-2090000	BH-RPS-24 (R1)	6	30400-11300000	BH-RPS23a (R1)
Sulphate	8	<LOD-164000	BH-RPS-24 (R1)	6	42300-151000	WS-RPS-24 (R1)
Ammoniacal Nitrogen	8	1010-5050	BH-RPS-24 (R1)	6	<LOD - 8080	WS-RPS-19 (R2)

Determinand	Glacial Till / Boulder Clay			Mercia Mudstone		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Dissolved metals						

Determinand	Glacial Till / Boulder Clay			Mercia Mudstone		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Aluminium	8	<LOD-242	BH-RPS-10 (R2)	2	15.6-408	BH-RPS-01 (R2)
Arsenic	16	1.11 – 62.2	BH-RPS-10 (R1)	4	10.4 - 25.3	BH-RPS-01 (R1)
Antimony	8	0.443 – 5.57	BH-RPS-10 (R1)	2	0.811 - 3.74	BH-RPS-01 (R1)
Barium	8	43.9-782	BH-RPS-09 (R2)	2	178-245	BH-RPS-01 (R2)
Boron	8	11.4-452	BH-RPS-07 (R2)	2	111-173	BH-RPS-06 (R2)
Cadmium	16	<LOD – 0.481	BH-RPS-09 (R1)	4	<LOD – 0.1	BH-RPS-01 (R1)
Calcium	5	454000-7390000	BH-RPS-09 (R2)	0	-	-
Chromium	16	<LOD – 1.66	CP-RPS-03 (R2)	4	<LOD	-
Cobalt	16	<LOD-12	BH-RPS-05 (R2)	4	<LOD – 2.25	BH-RPS-01 (R1)
Copper	16	<LOD-24.7	BH-RP-03 (R2)	4	<LOD – 1.43	BH-RPS-01 (R2)
Iron	8	<LOD-3460	BH-RPS-05 (R2)	2	34.6-93.1	BH-RPS-01 (R2)
Lead	16	<LOD-3.13	CP-RPS-03 (R2)	4	<LOD – 1.06	BH-RPS-06 (R2)
Lithium	8	<LOD-104	BH-RPS-05 (R2)	2	101 - >104	BH-RPS-01 (R2)
Magnesium	8	44.3-207000	BH-RPS-07 (R2)	2	190-22600	BH-RPS-06 (R2)
Manganese	16	<LOD - 10800	BH-RPS-05 (R2)	4	<LOD - 743	BH-RPS-06 (R1)
Mercury	8	<LOD – 0.0545	BH-RPS-10 (R1)	2	<LOD – 0.674	BH-RPS-01 (R1)

Determinand	Glacial Till / Boulder Clay			Mercia Mudstone		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Molybdenum	16	<LOD-106	BH-RPS-10 (R2)	4	10.8-132	BH-RPS-01 (R1)
Nickel	16	<LOD-53.4	BH-RPS-05 (R2)	4	3.01 – 48.7	BH-RPS-01 (R1)
Phosphorous	8	<LOD-107	BH-RPS-09 (R2)	2	15-42.1	BH-RPS-01 (R2)
Potassium	8	2570-45200	BH-RPS-09 (R2)	2	18200-32500	BH-RPS-01 (R2)
Selenium	8	<LOD – 9.72	CP-RPS-04a (R1)	2	0.578-2.4	BH-RPS-01 (R1)
Silicon	8	472-10500	CP-RPS-03 (R2)	2	3630-4030	BH-RPS-06 (R2)
Sodium	8	174000-13000000	BH-RPS-09 (R2)	2	495000-2220000	BH-RPS-01 (R2)
Strontium	8	636-34500	BH-RPS-05 (R2)	2	1020-2290	BH-RPS-06 (R2)
Titanium (total)	8	103-874	BH-RPS-09 (R2)	2	78.7-171	BH-RPS-01 (R2)
Vanadium	16	<LOD-69.5	BH-RPS-10 (R1)	4	2.85-41.7	BH-RPS-01 (R1)
Uranium	8	<LOD-11.2	BH-RPS-07 (R1)	2	<LOD-0.935	BH-RPS-06 (R1)
Zinc	16	<LOD – 7.67	BH-RPS 04 (R1)	4	<LOD - 6.34	BH-RPS-06 (R1)
Other inorganic parameters						
pH	16	6.94 - 12.5 (ph units)	BH-RPS-01 (R2)	4	8.19-12.7 (pH units)	BH-RPS-01 (R2)
Chloride	16	27400 - 44600000	BH-RPS-09 (R2)	4	1590000 - 6220000	BH-RPS-01 (R1)
Cyanide	16	<LOD – 525	CP-RPS-03 (R1)	4	<LOD	-

Determinand	Glacial Till / Boulder Clay			Mercia Mudstone		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Sulphate	16	17000 - 540000	BH-RPS-07 (R1)	4	86300-159000	BH-RPS-06 (R1)
Ammoniacal nitrogen	16	<LOD-32900	BH-RPS-10 (R2)	4	4059 - 30300	BH-RPS-01 (R1)

Organic Analytical Results

5.3.5 Organic analytical data is available for 17 no. samples. A summary of the results detailing the range of concentrations identified and the location of the maximum identified concentration is presented in Table 5-7.

5.3.6 As with the inorganic analysis, the summary presents separate summaries for wells screened within each lithology. Only those determinants identified above the LoD are detailed.

Table 5-7 Summary of Groundwater Organic Analytical Results

Determinants	Lime Made Ground			General Made Ground		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Polycyclic Aromatic Hydrocarbons						
Naphthalene	8	0.458-4.03	WS-RPS-20 (R2)	6	<LOD-0.042	WS-RPS-19 (R1)
Acenaphthene	8	0.107-0.939	WS-RPS-20 (R2)	6	<LOD 0.0782	BH-RPS-23a (R2)
Acenaphthylene	8	0.0258-0.254	WS-RPS-09 (R1)	6	<LOD-0.00977	WS-RPS-19 (R2)
Fluoranthene	8	0.1548-9.11	WS-RPS-09 (R1)	6	0.00857-0.423	WS-RPS-19 (R2)
Anthracene	8	0.0365-2.67	WS-RPS-20 (R2)	6	<LOD-0.048	WS-RPS-19 (R2)
Phenanthrene	8	0.403-10.6	WS-RPS-20 (R2)	6	<LOD-0.151	WS-RPS-19 (R2)
Fluorene	8	0.0801-0.782	WS-RPS-09 (R1)	6	<LOD-0.0177	WS-RPS-19 (R2)

Determinants	Lime Made Ground			General Made Ground		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Chrysene	8	0.0244-6.51	WS-RPS-09 (R1)	6	<LOD-0.181	WS-RPS-19 (R2)
Pyrene	8	0.114-9.04	WS-RPS-09 (R1)	6	0.00867—0.401	WS-RPS-19 (R2)
Benzo(a)anthracene	8	0.0337-5.6	WS-RPS-09 (R1)	6	<LOD-0.185	WS-RPS-19 (R2)
Benzo(b)fluoranthene	8	0.012-11.9	WS-RPS-09 (R1)	6	<LOD -0.295	WS-RPS-19 (R2)
Benzo(k)fluoranthene	8	0.00692-5.11	WS-RPS-09 (R1)	6	<LOD -0.138	WS-RPS-19 (R2)
Benzo(a)pyrene	8	0.00977-9.15	WS-RPS-09 (R1)	6	0.00577-0.226	WS-RPS-19 (R2)
Dibenzo(a,h)anthracene	8	<LOD-1.56	WS-RPS-09 (R1)	6	<LOD-0.0346	WS-RPS-19 (R2)
Benzo(g,h,i)perylene	8	0.0059-6.99	WS-RPS-09 (R1)	6	<LOD-0.168	WS-RPS-19 (R2)
Indeno(1,2,3-cd)pyrene	8	<LOD-5.81	WS-RPS-09 (R1)	6	<LOD -0.175	WS-RPS-19 (R2)
Semi Volatile Organic Compounds (SVOC, excluding PAH as reported in PAH suite)						
2-Methylnaphthalene (aq)	8	<LOD-5.89	WS-RPS-09 (R1)	6	<LOD	-
2-Methylphenol (aq)	8	<LOD-3.44	WS-RPS-09 (R2)	6	<LOD	-
4-Methylphenol (aq)	8	<1.2-14.6	WS-RPS-09 (R2)	6	<LOD	-
bis(2-Ethylhexyl) phthalate (aq)	8	<LOD-12.4	WS-RPS-09 (R1)	6	<LOD	-
Carbazole (aq)	8	<LOD-2.1	WS-RPS-20 (R2)	6	<LOD	-
Phenol (aq)	8	<2.27-17.8	BH-RPS-24 (R2)	6	<LOD	-

Determinants	Lime Made Ground			General Made Ground		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Volatile Organic Compounds (VOC, excluding naphthalene as reported in PAH suite)						
1,1-Dichloroethane	8	<LOD-8.13	WS-RPS-09 (R2)	6	<LOD	-
1,2,4-Trimethylbenzene	8	<LOD-2.87	WS-RPS-09 (R2)	6	<LOD	-
1,3,5-Trimethylbenzene	8	<LOD-1.09	WS-RPS-09 (R2)	6	<LOD	-
Chloroform	8	<LOD	-	6	<LOD-5.14	WS-RPS-24 (R1)
m,p-Xylene	8	<LOD-1.01	WS-RPS-09 (R2)	6	<LOD	-
Total Petroleum Hydrocarbons						
Total TPH C5-C35	8	13-5100	WS-RPS-09 (R1)	6	<LOD-61	

Determinand	Glacial Till / Boulder Clay			Mercia Mudstone		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Naphthalene	16	0.0166-0.994	BH-RPS-10 (R2)	4	0.544-31.4	BH-RPS-01 (R1)
Acenaphthene	16	<LOD-0.123	CP-RPS-03 (R1)	4	4.3-9.13	BH-RPS-01 (R1)
Acenaphthylene	16	<LOD-0.178	CP-RPS-03 (R1)	4	0.255-2.11	BH-RPS-01 (R1)
Fluoranthene	16	0.0538-11.5	CP-RPS-03 (R1)	4	1.7-4.76	BH-RPS-01 (R1)
Anthracene	16	<LOD -0.688	CP-RPS-03 (R1)	4	0.31-1.48	BH-RPS-01 (R1)
Phenanthrene	16	0.0965-3.88	CP-RPS-03 (R1)	4	1.1-20.1	BH-RPS-01 (R1)

Determinand	Glacial Till / Boulder Clay			Mercia Mudstone		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Fluorene	16	0.0168-0.112	CP-RPS-03 (R1)	4	0.762-7.29	BH-RPS-06 (R2)
Chrysene	16	0.0211-8.75	CP-RPS-03 (R1)	4	0.135-1.83	BH-RPS-01 (R1)
Pyrene	16	0.0491-10.8	CP-RPS-03 (R1)	4	1.2-4.44	BH-RPS-01 (R1)
Benzo(a)anthracene	16	0.0207-7.31	CP-RPS-03 (R1)	4	0.14-0.72	BH-RPS-01 (R1)
Benzo(b)fluoranthene	16	<LOD -15.9	CP-RPS-03 (R1)	4	0.268-2.66	BH-RPS-01 (R1)
Benzo(k)fluoranthene	16	<LOD-7.97	CP-RPS-03 (R1)	4	0.0541-1.34	BH-RPS-01 (R1)
Benzo(a)pyrene	16	0.0148-12.7	CP-RPS-03 (R1)	4	0.0854-1.52	BH-RPS-01 (R1)
Dibenzo(a,h)anthracene	16	<LOD-1.99	CP-RPS-03 (R1)	4	0.0138-0.38	BH-RPS-01 (R1)
Benzo(g,h,i)perylene	16	<LOD -9.62	CP-RPS-03 (R1)	4	0.0539-1.7	BH-RPS-01 (R1)
Indeno(1,2,3-cd)pyrene	16	<LOD -9.11	CP-RPS-03 (R1)	4	0.0646-1.31	BH-RPS-01 (R1)
Semi Volatile Organic Compounds, excluding PAH						
2,4-Dimethylphenol (aq)	16	<LOD -2.25	BH-RPS-10 (R1)	4	<LOD-2.56	BH-RPS-01 (R1)
2-Chlorophenol (aq)	16	<LOD -1.02	BH-RPS-10 (R1)	4	<LOD	-
2-Methylnaphthalene (aq)	16	<LOD	-	4	2.73-5.13	BH-RPS-06 (R1)
2-Methylphenol (aq)	16	<LOD -22.4	BH-RPS-05 (R1)	4	2.42-15.2	BH-RPS-01 (R1)
4-Methylphenol (aq)	16	<LOD-35.5	BH-RPS-10 (R2)	4	<LOD-84.4	BH-RPS-01 (R1)

Determinand	Glacial Till / Boulder Clay			Mercia Mudstone		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
bis(2-Ethylhexyl) phthalate (aq)	16	<LOD-51.2	BH-RPS-03 (R1)	4	<LOD-25.3	BH-RPS-01 (R1)
Carbazole (aq)	16	<LOD	-	4	1.62-2.18	BH-RPS-01 (R2)
Dibenzofuran (aq)	16	<LOD	-	4	2.03-4.14	BH-RPS-01 (R2)
Phenol (aq)	16	<LOD-15.6	BH-RPS-10 (R2)	4	<LOD	BH-RPS-01 (R2)
Volatile Organic Compounds						
1,1-Dichloroethane	16	<LOD-1.33	BH-RPS-10 (R2)	4	<LOD	-
1,2,4-Trimethylbenzene	16	<LOD	-	4	<LOD-3.85	BH-RPS-06 (R2)
1,3,5-Trimethylbenzene	16	<LOD	-	4	<LOD-2.58	BH-RPS-06 (R2)
4-iso-Propyltoluene	16	<LOD	-	4	<LOD-5.57	BH-RPS-06 (R2)
Benzene	16	<LOD	-	4	<LOD-1.63	BH-RPS-06 (R2)
Carbon disulphide	16	<LOD-2.1	BH-RPS-03 (R1)	4	<LOD	-
Chloroform	16	<LOD-1.42	BH-RPS-05 (R1)	4	<LOD	-
Ethylbenzene	16	<LOD	-	4	<LOD-1.07	BH-RPS-06 (R2)
Isopropylbenzene	16	<LOD	-	4	<LOD-5.46	BH-RPS-06 (R1)
m,p-Xylene	16	<LOD	-	4	<LOD-4.03	BH-RPS-06 (R2)
o-Xylene	16	<LOD	-	4	<LOD-2.12	BH-RPS-06 (R2)

Determinand	Glacial Till / Boulder Clay			Mercia Mudstone		
	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.	No. of Samples Analysed	Conc. Range (µg /L)	Location of Max Conc.
Toluene	16	<LOD-3.24	BH-RPS-05 (R1)	4	<LOD-2.93	BH-RPS-06 (R2)
Trichloroethene	16	<LOD-3.47	CP-RPS-03 (R2)	4	<LOD	-
Total Petroleum Hydrocarbons						
Total TPH C5-C35	16	176-11700	BH-RPS-05 (R1)	4	716-21300	BH-RPS-01 (R1)

6 Refined Conceptual Site Model

6.1.1 The preliminary Conceptual Site Model (CSM) identifying potential contamination risks to sensitive receptors is summarised within the LCMP *(RPS, 2017)*.

6.1.2 Following completion of the ground investigation undertaken by RPS and a review of the ground investigation findings, it is considered that no refinements are required to be made to the CSM. On this basis, the CSM previously developed for the Site should be considered as valid.

7 Human Health Risk Assessment

7.1 Introduction

7.1.1 A human health risk assessment has been undertaken to determine the level of risk to human health from the presence of chemical contamination within soils at the Site. This section provides a summary of the levels of chemical contaminants encountered and determines whether a potential unacceptable / intolerable long term risk is posed to human health.

7.2 Risk Assessment Methodology

7.2.1 The assessment of risks posed to human health by the presence of soil contaminants is based upon the guidelines outlined in CLR11, which provides a framework for risk assessment and follows the tiered process, with each subsequent tier involving a higher degree of input into the assessment. This approach is outlined below.

Tier 1 – Qualitative Risk Assessment

7.2.2 This stage qualitatively identifies each of the Source-Pathway-Receptor components that are present on the Site, which forms the basis of the UK risk assessment approach. The Tier 1 assessment is presented in the SLR Phase I LQA.

7.2.3 The LCMP outlines a preliminary conceptual site model to identify potential contamination risks.

Tier 2 – Generic Quantitative Risk Assessment (GQRA)

7.2.4 Two Science Reports (SR2 and SR3) published in 2009 by the EA together with the CLEA exposure model have been used to form the basis of the Tier 2 assessment.

7.2.5 It is recognised that Category 4 Screening Levels (C4SLs), first published in 2014, for a limited number of contaminants have been developed by CL:AIRE in an attempt to align with the updated Part IIA guidance, by defining a level of contamination that would not be considered as contaminated land under Part IIA of the Environmental Protection Act. However, there is currently a debate within the UK contaminated land industry about the applicability of the C4SLs in determining remedial requirements under the planning regime, therefore C4SLs have not been applied within this risk assessment and instead Suitable 4 Use Levels (S4ULs) have been adopted, with the exception of lead, where no S4UL is available. Guidance on the development of C4SLs is presented in the CL:AIRE document Sp1010 (*CL:AIRE, 2014*).

7.2.6 The Tier 2 risk assessment aims to identify contaminants of concern and their spatial distribution, and requires benchmarks against which to compare the concentrations of soil contaminants. This requires the comparison of contaminant concentrations with S4ULs that have been derived by Land Quality Management Ltd (LQM) (*LQM, 2015*) using the Contaminated Land Exposure Assessment (CLEA) framework. Contaminant concentrations below the respective S4UL criteria represent a tolerable or minimal risk level to human health

as described in the SR2 Report. Where contaminant concentrations are above S4UL criteria, further risk assessment and possibly remediation may be required.

7.2.7 Where S4ULs have been derived by LQM, these have been used for comparison with Site ground investigation data. For those contaminants where no S4ULs have been derived, Assessment Site data is compared against Generic Assessment Criteria (GAC) published by CL:AIRE (*CL:AIRE, 2010*).

7.2.8 The Tier 2 risk assessment presented within this section is based upon the generic 'Commercial' land-use scenario under the CLEA methodology using S4UL/C4SL /GACs on those contaminants for which laboratory analysis is available.

Tier 3 – Detailed Quantitative Risk Assessment (DQRA)

7.2.9 Where a S4UL / C4SL / GAC is exceeded, a detailed human health risk assessment may be required to further quantify the potential risk posed and determine whether there is a requirement for remediation. The Tier 3 assessment considers the toxicological characteristics, migration mechanisms and exposure pathways to derive Site Specific Assessment Criteria (SSAC) using the CLEA computer model. A literature search is undertaken to obtain the most recent relevant toxicological information, and this is input into the model. Exceedance of the SSAC may suggest that remediation is required to mitigate risks posed to human health.

7.2.10 A Tier 3 assessment is outside the scope of this report and has not been undertaken.

7.3 Tier 2 – Generic Quantitative Risk Assessment

7.3.1 This section provides a comparison of soil analysis data, derived from the ground investigation undertaken by RPS at the Site against appropriate screening criteria for a commercial end use. The assessment was undertaken to identify any potentially unacceptable risks to human health on the basis of the proposed redevelopment of the Site for an EFW facility.

7.3.2 For inorganic contaminants principally comprising metals, the laboratory analysis results have initially been compared against the appropriate screening criteria to determine if the maximum concentration exceeds the screening criteria. Where the maximum concentrations do not exceed the screening criteria, it is considered that concentrations of these contaminants lie at levels of tolerable risk to human health and no further consideration is warranted. Where individual exceedances of particular contaminants are identified, further consideration to those particular contaminants is given by the calculation of the statistical 95% Upper Confidence Limit (UCL) of the true mean concentration and completion of an outlier assessment, in line with UK best practice. The statistical analysis is undertaken to determine whether the UCL exceeds the selected screening criteria and if the identified maximum concentration exceedance is part of the same statistical dataset i.e. the same contamination source, or whether it represents a statistical outliers and is indicative of a separate or discrete contamination source.

7.3.3 For all TPH, PAH, VOC and SVOC contaminants, the results of the laboratory analysis have been compared directly against the appropriate screening criteria, as the most likely source of this contamination is considered to be from point sources e.g. spillages from storage tanks, pipelines. Therefore the statistical assessment of data is not considered valid and this approach is considered to be in line with UK best practice.

Heavy Metals / Inorganics

7.3.4 *Appendix 2* provides a summary of the heavy metals / inorganic chemical analysis results and compares them against the relevant commercial screening criteria for all lithologies at the Site. The table shows that all concentrations of these contaminants lie below the relevant screening criteria with the exception of arsenic at CP-RPS-05/ES/0.5 within the Made Ground which presents a concentration of 1,130 mg/kg, exceeding the S4UL of 640 mg/kg. Statistical analysis of the data set has identified that the 95% UCL for arsenic within Made Ground is 135.59 mg/kg, lying below the S4UL of 640 mg/kg. An outlier test has also been undertaken on the arsenic dataset within the Made Ground. A total of 5 statistical outliers were identified, with only 1 outlier, from within CP-RPS-05/ES/0.5, lying above the relevant screening criteria.

7.3.5 On this basis it is considered that arsenic concentrations within the Made Ground across the Site typically do not present intolerable levels of risk to human health. The exception to this is in relation to CP-RPS-05/ES/0.5 which is likely to be a contamination 'hotspot', suggesting a separate contamination source to be present at this location. The borehole log records detail the presence of ash and clinker at a depth of 0.5 m at this location which is considered likely to be the source of the elevated arsenic concentrations. Remediation at this location will be required to mitigate potential risks to human health, however it should be noted that CP-RPS-05 lies outside of the redline boundary for the Site, and lies at the location of part of the enabling works for the development and therefore any remediation within this area should not be considered a requirement of planning, but rather be undertaken on a voluntary basis.

7.3.6 It is likely that the exposure pathway would be mitigated in this area by the proposed office building construction and associated hardstanding, although this would be subject to detailed design. Any construction arisings from the area that are to be reused at the Site should be placed under hardstanding or under a suitable thickness of soft landscaping to ensure future site users are not exposed to the soil contamination.

Organics

7.3.7 *Appendix 2* provides a summary of the organics chemical analysis results and compares them against the relevant commercial screening criteria for all lithologies at the Site. The table shows that the majority of contaminants do not present concentrations above the relevant screening criteria. The exceptions relate to one location (TP-RPS-50/ES/0.5m) and are:

- Benzo(b)fluoranthene @ 82,500 ug/kg, exceeding the S4UL of 44,000 ug/kg;
- Benzo(a)pyrene @ 64,300 ug/kg exceeding the S4UL of 35,000 ug/kg; and

- Dibenzo(a,h)anthracene @ 9,840 ug/kg exceeding the S4UL of 3,500 ug/kg.

7.3.8 TP-RPS-50/ES/0.5m is located within the footprint of the proposed 'Office' area of the Site situated to the north of the Main Site. The contamination was noted to be detected within the general Made Ground deposits at this location, which were noted to be black and containing inclusions of clinker, which are considered likely to be the source of the PAH contamination at this location.

7.3.9 Based on the proposed absence of hardstand ground coverage at this location, as well as the shallow depth at which identified elevated concentrations of organic contaminants were identified, it is considered that contamination at TP-RPS-50/ES/0.5m may lie above levels of tolerable risk to human health for a commercial end use, and this location should be considered as a contamination 'hotspot' for organic contaminants.

7.3.10 Remediation at this location will be required to mitigate potential risks to human health. Appropriate mitigation would take the form of implementation of a cap / cover system or source removal.

7.3.11 The results for the remaining determinands and locations are considered to lie below levels of tolerable risk to human health for a commercial end use and are not considered to warrant further consideration.

Asbestos

7.3.12 Asbestos identification analysis was undertaken upon a total of 77 No. samples obtained from the following strata across the Site with the following results:

- Made Ground – general: Asbestos identified within 35 of 66 samples analysed with concentrations between <0.001% to 3.05%.
- Made Ground – Lime Made ground: Asbestos identified with 2 of 11 samples analysed with concentrations within all samples below the limit of quantification of 0.001%.

7.3.13 The elevated concentration of 3.05% asbestos was identified within TP-RPS-21 at 0.5 mbgl and was reported by the laboratory to be associated with the presence of 'unidentified loose insulation debris' within the sample rather than distributed free fibres.

7.3.14 The presence of asbestos within Made Ground presents a potentially unacceptable risk to the human health of the future users of the Site. Currently there are no generic screening criteria against which the level of risk can be measured as part of a Tier 2 risk assessment. In the absence of screening criteria or a detailed Tier 3 site specific risk assessment remediation will be required to mitigate potential risks to human health. Given the prevalence of asbestos within the Made Ground, mitigation should be applied to all areas of the Site where Made Ground will be retained post development. Appropriate mitigation would take the form of implementation of a cap / cover system or source removal.

pH

7.3.15 Whilst there is no human health screening criteria for pH, it is considered that the pH of the Lime Made Ground beneath the Site are so elevated so as to make the materials a human health risk. This is indicated by the waste classicisation undertaken within *Section 11* of this report which identifies the material as corrosive as a result of the pH being greater than 11.5. On this basis, where these materials will be present at the ground surface post redevelopment it is considered that mitigation will be required. Appropriate mitigation would take the form of implementation of a cap / cover system or source removal.

Summary of Risks to Human Health and Overview of Remedial Options

7.3.16 The assessment undertaken indicates that there are a range of contaminants present at the Site at concentrations above the LoD, however the majority of concentrations lie at levels of tolerable risk to human health based on the proposed end use.

7.3.17 Several areas of contamination have however been identified, which are considered to present a potentially intolerable level of risk to human health, as outlined below:

- An outlier of arsenic was found to be in exceedance of the S4UL in the general Made Ground at one location (CP-RPS-05/ES/0.5mbgl) located within the footprint of the proposed 'Office' area of the Site, situated to the north of the main Site;
- Elevated concentrations of various PAHs detected in exceedance of the assessment criteria were identified in TP-RPS-50/ES/0.5m, also located within the footprint of the proposed 'Office' area situated to the north of the main Site;
- Frequent asbestos throughout the General Made Ground and infrequent asbestos within the Lime Made Ground; and
- Highly elevated pH levels within the Lime Made Ground beneath the Site.

7.3.18 Remediation will be required to mitigate potential risks to human health posed by these contaminants. Appropriate mitigation would take the form of implementation of a cap / cover system or source removal. Specifically in relation to asbestos it is possible, although unlikely, that a Tier 3 site specific risk assessment could dismiss the risk reducing the need for remediation at the Site.

7.3.19 Whilst not considered within this assessment, it should be noted that an assessment will be required to determine the appropriate measures to be implemented during construction to address the risk to construction workers. Measures are likely to include dust suppression and the use of Personal Proactive Equipment (PPE).

8 Controlled Waters Risk Assessment

8.1 Introduction

8.1.1 The previous assessments undertaken in relation to the Site have identified a low level of risk to controlled waters, principally as a result of limited pathways to the local surface water features and the low sensitivity of the groundwater beneath the Assessment Site. The further ground investigation works undertaken provide a more robust hydrogeological understanding of the Site allowing the risk to controlled waters to be considered in more detail. This section presents an updated Hydrogeological CSM and a Tier 2 screening level assessment for controlled waters.

8.2 Hydrogeological CSM

8.2.1 The published records identify that:

- The Mercia Mudstone beneath the Site and the overlying Boulder Clay are classified as Secondary B and Secondary (undifferentiated) aquifers respectively;
- There are no licensed groundwater abstractions or source protection zones within 1 km of the centre of the assessment site
- The closest surface water course is the Trent and Mersey Canal which forms the eastern boundary of the Site. The canal is classified as River Ecosystem class 4 (fair quality);
- Wade Brook flows from east to west 125 m north-west of the Site boundary and passes beneath part of the Tata Chemicals Europe operational site in a culvert (outside the Site boundary). It is classified as River Quality Grade F (bad). Tata Chemicals Europe has previously had a temporary abstraction from Wade Brook for cooling located approximately 300 m north of the Site; and
- There are three other licensed surface water abstractions within 1 km of the Site with two registered to British Waterways (400m north of the Site from the Trent and Mersey Canal) and the third by Ineos Chlor Ltd [now Inovyn] (880m north-west of the Site from Wincham Brook).

8.2.2 The previous SLR Phase I LQA (*SLR, 2007*) concluded that 'any groundwater beneath the Site is considered to have been formed via precipitation or direct discharge to ground and leaching through permeable Made Ground and will be perched above the underlying natural clays and that the canal is likely to be constructed of thick, impermeable clay ('puddle clay') and the canal is therefore not considered to be in hydraulic continuity with any groundwater beneath the Site'. The previous reports suggest, based on the aquifer designations that the groundwater beneath the Site is of low sensitivity and that the significance of any impact on groundwater should be considered low, with the primary receptors of concern being the local surface water features (the Wade Brook and canal). Following our updated review of the Site setting RPS agree with these conclusions.

8.2.3 The further ground investigation works undertaken by RPS have identified that the Site is underlain by variable thicknesses of Made Ground comprising a variable Made Ground (0.05m to 3.60m in thickness) underlain by Lime Made Ground (0.5m to 6.32m in thickness), which typically overly the Glacial Till (0.25m to 7.05m in thickness), although this is absent in small number of places. The Glacial Till in turn overlays the Mercia Mudstone (unproven thickness). Alluvium is infrequently present below the Made Ground at a small number of locations and is considered to be associated with previous water courses.

8.2.4 The Made Ground is variable in composition ranging from gravelly silt to sandy gravel. The Lime Made Ground material is typically present as a silt / clay. The Glacial Till is typically present as a sandy gravelly clay, but is locally present as a sand or gravel at a small number of locations. Where the Glacial Till deposits are a clay it is considered that they will inhibit vertical migration of contaminants and perched water. In the localised areas where they are present as a sand or gravel vertical migration may to occur. Alluvium, where present, comprises a clay / silt with rare sandier horizons. The underlying Mercia Mudstone bedrock has an upper horizon that has been weathered to a clay underlain by weak mudstone. It should be noted that relic pile structures associated with the previous structures at the Site may also present vertical pathway to the Mercia Mudstone.

8.2.5 Groundwater monitoring has identified that the Made Ground beneath the Site contains a discontinuous perched water table at variable depths ranging from circa 0.5 to 2.6 mbgl. Installations within the Glacial Till and Mercia Mudstone both indicate the presence of a shallow water table residing at circa 1 – 2 mbgl. When the depth of the slotted sections is considered the groundwater levels suggest that the water in these deposits may be under potentiometric pressure or that the borehole locations may be acting as sumps. Observations during monitoring, where the majority of the boreholes were observed to have very poor recovery of groundwater levels during purging and chloride concentrations suggests that the latter is likely to be the case and therefore a consistent continuous water table is not expected in these deposits.

8.2.6 Based on the above observations the water within the Made Ground is considered to represent a source of contamination rather than a groundwater receptor. Vertical flows of the perched water from the Made Ground to the underlying Glacial Till and Mercia Mudstone will be dependent on the local characteristics and thickness of the Glacial Till (and to a lesser extent the alluvium), with limited migration in areas where these deposits are thick and of low permeability. Horizontal flows within the Glacial Till and underlying Mercia Mudstone are considered likely to be limited. In the absence of a shallow groundwater table and taking consideration of restricted flows in the superficial deposits and shallow bedrock it is considered that there is a limited pathway to the local surface water features.

8.2.7 Whilst the risk to controlled waters is considered to be low based on the developed hydrogeological CSM a Tier 2, screening level assessment has been undertaken to identify if there are persistent and significantly elevated levels of contaminants within the perched water

and groundwater beneath the Site that could present a unacceptable impact to surface water receptors.

8.3 Tier 2 Controlled Waters Screening Assessment

Introduction

8.3.1 The groundwater screening assessment involves the comparison of tabulated analytical results for groundwater samples taken from the Site with published assessment criteria.

8.3.2 Given the Site's environmental setting, groundwater chemical data collected by RPS has been screened against Environmental Quality Standards (EQS) for a freshwater scenario based on an annual average where applicable. The primary source of the EQS was the WFD (Standards and Classification) Directions (England and Wales) 2015.

8.3.3 UK Drinking Water Standards (UK DWS) have generally not been considered based on the secondary nature of the underlying aquifers and lack of any groundwater abstractions in the surrounding area.

8.3.4 The risk assessment considers contaminant concentrations identified within water samples recovered from 23 no. monitoring wells over two monitoring rounds, as detailed below:

- 5 no. boreholes to target the general Made Ground;
- 8 no. boreholes to target the Lime Made Ground;
- 8 no. boreholes to target the Glacial Till; and
- 2 no. boreholes to target groundwater within the Mercia Mudstone.

8.3.5 The risk assessment is detailed in the following sections, and *Drawings JER1100-SI-023* to *JER1100-SI-031* present a summary of the identified exceedances of the screening criteria. All groundwater analytical results are presented within *Appendix 4*, together with the full screening spreadsheets.

8.3.6 As previously stated, based on the low sensitivity of groundwater and limited flow pathways to surface water, it is considered that sporadic or low level exceedances are not considered to warrant further consideration, therefore the discussion of exceedances of the screening criteria is limited to those which are persistent across the site <u>and</u> significantly elevated (at least one order of magnitude greater than the screening criteria).

Inorganic Contaminants

Made Ground

8.3.7 All boreholes with screened sections, either fully or partially within the Made Ground, are considered within this section where it was possible to obtain a groundwater sample. As set out with the Hydrogeological CSM, perched water within these deposits is considered a source of contamination rather than a receptor.

8.3.8 The exceedances above EQS criteria within Made Ground are detailed in *Table 8-1*. Only contaminants which have a relevant EQS are included within the table.

Table 8-1 Exceedances of Inorganic Contaminants above EQS in Made Ground and Lime Made Ground

Contaminant	Location	Concentration mg/l	Screening Value mg/l (AA-EQS)	Screened Strata
Arsenic	WS-RPS-19 (R1)	4.01	0.05	Made Ground / Glacial Till
	WS-RPS-19 (R2)	4.40		
Cadmium	BH-RPS-23a R1	0.00177	0.00008	Made Ground / Alluvium / Glacial Till
	BH-RPS-23a R2	0.00102		
Copper	BH-RPS-23a R2	0.00108	0.001	Made Ground / Alluvium / Glacial Till
	WS-RPS-19 R2	0.00107		Made Ground / Glacial Till
	BH-RPS-24 R1	0.0527		Made Ground / Lime Made ground
	BH-RPS-24 R2	0.036		
	WS-RPS-09 R1	0.017		Lime Made ground / Made Ground / Mercia Mudstone
	WS-RPS-09 R1	0.00704		
	WS-RPS-10 R1	0.0103		Made Ground / Lime Made ground / Mercia Mudstone
	WS-RPS-10 R2	0.0147		
	WS-RPS-20 R1	0.00271		Lime Made Ground / Glacial Till
	WS-RPS-20 R2	0.0263		
Iron	WS-RPS-19 (R2)	0.0306	0.001	Made Ground / Glacial Till
Manganese	BH-RPS-23a (R1)	3.14	0.123	Made Ground / Alluvium / Glacial Till
	BH-RPS-23a (R2)	4.23		
	WS-RPS-19 (R1)	2.69		Made Ground / Glacial Till
	WS-RPS-19 (R2)	3.07		
Mercury	BH-RPS-24 (R1)	0.000168	0.00007	Made Ground / Lime Made Ground

Contaminant	Location	Concentration mg/l	Screening Value mg/l (AA-EQS)	Screened Strata
	WS-RPS-09 (R1)	0.000323		Lime Made ground / Made Ground / Mercia Mudstone
Lead	BH-RPS-24 (R1)	0.0102	0.0012	Made Ground / Lime Made ground
	BH-RPS-24 (R2)	0.00798		
	WS-RPS-10 (R1)	0.00272		
	WS-RPS-09 (R1)	0.00133		Lime Made ground / Made Ground / Mercia Mudstone
	WS-RPS-09 (R2)	0.00123		
	WS-RPS-20 (R2)	0.0053		Lime Made ground / Glacial Till
Nickel	BH-RPS-23a (R1)	0.00976	0.004	Made Ground / Alluvium / Glacial Till
	BH-RPS-23a (R2)	0.00977		
	WS-RPS-09 (R1)	0.0338		Lime Made ground / Made Ground / Mercia Mudstone
	WS-RPS-09 (R2)	0.0259		
	WS-RPS-19 (R1)	0.0104		Made Ground / Glacial Till
	WS-RPS-19 (R2)	0.0118		
	BH-RPS-24 (R1)	0.0806		Made Ground / Lime Made ground
	BH-RPS-24 (R2)	0.0482		
	WS-RPS-10 (R1)	0.0086		Made Ground / Lime Made ground / Mercia Mudstone
	WS-RPS-10 (R2)	0.00877		
	WS-RPS-20 (R2)	0.0052		Lime Made ground / Glacial Till
Zinc	BH-RPS-23a (R2)	0.0116	0.0109	Made Ground / Alluvium / Glacial Till
	WS-RPS-19 (R2)	0.0163		Made Ground / Glacial Till
Ammoniacal Nitrogen	BH-RPS-23a (R1)	1.33	1.1 (Poor waters)	Made Ground / Alluvium / Glacial Till
	BH-RPS-23a (R2)	1.17		
	BH-RPS-24 (R1)	5.05		Made Ground / Lime

Contaminant	Location	Concentration mg/l	Screening Value mg/l (AA-EQS)	Screened Strata
	BH-RPS-24 (R2)	4.75		Made ground
	WS-RPS-09 (R1)	3.58		Lime Made ground / Made Ground / Mercia Mudstone
	WS-RPS-09 (R2)	4.63		
	WS-RPS-10 (R1)	1.66		Lime Made ground / Mercia Mudstone
	WS-RPS-19 (R1)	7.33		Made Ground / Glacial Till
	WS-RPS-19 (R2)	8.08		
	WS-RPS-20 (R1)	1.56		Lime Made Ground / Glacial Till
	WS-RPS-20 (R2)	1.33		

8.3.9 The elevated and persistent exceedances identified with the perched water within the Made Ground are:

- Copper exceeds the EQS (bioavailable) at 6 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on six occasions;
- Nickel exceeds the EQS at 6 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on six occasions; and
- Lead exceeds the EQS at 4 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on two occasions.

Superficial Deposits

8.3.10 Any borehole locations which include screened sections within Glacial Till and Alluvium but not Made Ground have been considered as Superficial Deposits, even if they included underlying Mercia Mudstone.

8.3.11 The exceedances above EQS are detailed in *Table 8-2*.

Table 8-2 Exceedances of Inorganic Contaminants above EQS in Superficial Deposits

Contaminant	Location	Concentration mg/l	Screening Value mg/l (AA-EQS)	Screened Strata
Arsenic	BH-RPS-10 (R1)	0.062	0.05	Glacial Till / Mercia Mudstone
Cadmium	BH-RPS-04 (R1)	0.000166	0.00008	Glacial Till
	BH-RPS-05 (R1)	0.000108		Glacial Till
	BH-RPS-07 (R1)	0.000108		Glacial Till / Mercia Mudstone
	BH-RPS-07 (R2)	0.000123		
	BH-RPS-09 (R1)	0.000481		Glacial Till
	BH-RPS-10 (R2)	0.000114		Glacial Till / Mercia Mudstone
	CP-RPS-03 (R2)	0.000371		Glacial Till
	CP-RPS-04a (2)	0.000115		
Copper	BH-RPS-03 R1	0.00657	1	Glacial Till / Mercia Mudstone
	BH-RPS-03 R1	0.0247		
	CP-RPS-03 R1	0.00162		Glacial Till
	CP-RPS-03 R2	0.00326		
	BH-RPS-10 R2	0.00123		Glacial Till / Mercia Mudstone
	CP-RPS-04a R1	0.00189		Glacial Till
Iron	BH-RPS-04 (R2)	0.00126	1*	Glacial Till
	BH-RPS-04 (R2)	0.00346	1*	Glacial Till
Manganese	BH-RPS-04 (R1)	5.32	0.123	Glacial Till
	BH-RPS-05 (R2)	0.523		
	BH-RPS-05 (R1)	8.13		
	BH-RPS-05 (R2)	10.8		
	BH-RPS-07 (R1)	2.00		Glacial Till / Mercia Mudstone
	BH-RPS-07 (R2)	1.1		
	BH-RPS-09 (R1)	2.27		Glacial Till
	BH-RPS-09 (R2)	3.14		

Contaminant	Location	Concentration mg/l	Screening Value mg/l (AA-EQS)	Screened Strata
	CP-RPS-04a (R1)	0.251		
	CP-RPS-04a (R2)	0.399		
Nickel	BH-RPS-03 (R1)	0.0534	0.004	Glacial Till / Mercia Mudstone
	BH-RPS-03 (R2)	0.0129		
	BH-RPS-04 (R1)	0.00665		Glacial Till
	BH-RPS-05 (R1)	0.0534		
	BH-RPS-05 (R2)	0.0515		
	BH-RPS-07 (R1)	0.0248		Glacial Till / Mercia Mudstone
	BH-RPS-07 (R2)	0.00875		
	BH-RPS-09 (R1)	0.0054		Glacial Till
	BH-RPS-09 (R2)	0.00434		
	BH-RPS-10 (R1)	0.00915		Glacial Till / Mercia Mudstone
	BH-RPS-10 (R2)	0.0197		
	CP-RPS-04a (R1)	0.00462		Glacial Till
	CP-RPS-04a (R2)	0.00429		
Lead	CP-RPS-03 (R2)	0.00313	0.0012	Glacial Till
Ammoniacal Nitrogen as N	BH-RPS-03 (R1)	3.35	1.1* (Poor waters)	Glacial Till / Mercia Mudstone
	BH-RPS-03 (R2)	3.29		
	BH-RPS-04 (R1)	6.27		Glacial Till
	BH-RPS-04 (R2)	6.36		
	BH-RPS-05 (R1)	4.85		
	BH-RPS-05 (R2)	5.98		
	BH-RPS-09 (R1)	5.42		
	BH-RPS-09 (R2)	6.09		
	BH-RPS-10 (R1)	29.1		Glacial Till / Mercia Mudstone
	BH-RPS-10 (R2)	32.9		
	CP-RPS-03 (R1)	16.6		Glacial Till

Contaminant	Location	Concentration mg/l	Screening Value mg/l (AA-EQS)	Screened Strata
	CP-RPS-03 (R2)	6.24		

8.3.12 The findings in relation to persistent and elevated contamination are summarised below:

- Cadmium exceeds the EQS at 7 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on eight occasions;
- Manganese exceeds the EQS at 5 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on seven occasions;
- Nickel exceeds the EQS at 7 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on six occasions; and
- Ammoniacal Nitrogen exceeds the EQS at 6 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on three occasions.

Mercia Mudstone

8.3.13 This comprised results from borehole locations which were screened exclusively in Mercia Mudstone, these being boreholes BH-RPS-01 and BH-RPS-06. BH-RPS16a and BH-RPS-24a were installed following completion of the main monitoring round in order to assess groundwater levels, and were therefore not sampled.

8.3.14 The exceedances above EQS are detailed in *Table 8-3*.

Table 8-3 Exceedances of Inorganic Contaminants above EQS in Mercia Mudstone

Contaminant	Location	Concentration mg/l	Screening Value mg/l (AA-EQS)	Screened Strata
Copper	BH-RPS-01 (R2)	0.00143	0.001	Mercia mudstone
Cadmium	BH-RPS-01 (R1)	0.0001	0.00008	
Manganese	BH-RPS-06 (R1)	0.743	0.123	
	BH-RPS-06 (R2)	0.461		
Nickel	BH-RPS-01 (R1)	0.0487	0.004	
	BH-RPS-06 (R1)	0.0248		
Ammoniacal Nitrogen	BH-RPS-01 (R1)	30.3	1.1	
	BH-RPS-01 (R2)	19.2		

Contaminant	Location	Concentration mg/l	Screening Value mg/l (AA-EQS)	Screened Strata
	BH-RPS-06 (R1)	5.23		
	BH-RPS-06 (R2)	4.59		
Mercury	BH-RPS-01 (R2)	0.674	0.07	

8.3.15 The findings are summarised below:

- Nickel exceeds the EQS at 2 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on 2 occasions; and
- Ammoniacal Nitrogen exceeds the EQS at 2 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on 2 occasions.

Total Petroleum Hydrocarbons (TPH)

8.3.16 It should be noted that there are currently no statutory values for TPH in the UK, therefore a non-statutory UK standard for protection of surface water intended for abstraction for drinking water (0.05 mg/l) has been used in this assessment as an indicator of elevated concentrations. An exceedance of this non statutory criteria should not be taken to indicate the potential to impact the adjacent surface water features.

8.3.17 Laboratory results generally indicate elevated concentrations of some TPH compounds in groundwater across the Site as are detailed below.

Made Ground

Table 8-4 Exceedances of TPH in made ground and Lime Made Ground

Contaminant	Location	Concentration mg/l	Screened Strata
Aliphatic >C8-C10	BH-RPS-24 (R1)	0.14	Made Ground / Lime Made ground
Aliphatic >C10-C12	WS-RPS-09 (R1)	0.071	Lime Made ground / Made Ground / Mercia Mudstone
	WS-RPS-09 (R2)	0.054	
	BH-RPS-24 (R1)	0.14	Made Ground / Lime Made ground
Aliphatic >C12-C16	WS-RPS-09 (R1)	0.44	Lime Made ground / Made Ground / Mercia Mudstone
Aliphatic >C16-C21	WS-RPS-09 (R1)	0.77	

Contaminant	Location	Concentration mg/l	Screened Strata
	BH-RPS-24 (R1)	0.11	Made Ground / Lime Made ground
Aliphatic >C21-C35	WS-RPS-09 (R1)	1.83	Lime Made ground / Made Ground / Mercia Mudstone
	WS-RPS-09 (R2)	0.128	
	BH-RPS-24 (R1)	3.03	Made Ground / Lime Made ground
	BH-RPS-24 (R2)	0.807	
	WS-RPS-19 (R2)	0.058	Made Ground / Glacial Till
	WS-RPS-20 (R2)	0.079	Lime Made ground / Glacial Till
Aromatic >C12-C16	WS-RPS-09 (R1)	0.20	Lime Made ground / Made Ground / Mercia Mudstone
Aromatic >C16-C21	WS-RPS-09 (R1)	0.41	
	BH-RPS-24 (R1)	0.067	Made Ground / Lime Made ground
	WS-RPS-20 (R2)	0.052	Lime Made ground / Glacial Till
Aromatic >C21-C35	WS-RPS-09 (R1)	1.27	Lime Made ground / Made Ground / Mercia Mudstone
	BH-RPS-24 (R1)	0.74	Made Ground / Lime Made ground
	BH-RPS-24 (R2)	0.130	
	WS-RPS-20 (R2)	0.067	Lime Made ground / Glacial Till

8.3.18 The concentrations of TPH are not noted to be persistent or significant within the made ground deposits.

Glacial Till

Table 8-5 Exceedances of TPH in Glacial Till

Contaminant	Location	Concentration mg/l	Screened Strata
Aliphatic >C12-C16	BH-RPS-05 (R1)	0.18	Glacial Till
	BH-RPS-05 (R2)	0.102	
Aliphatic >C16-C21	BH-RPS-05 (R1)	1.44	Glacial Till
	BH-RPS-05 (R2)	0.662	

Contaminant	Location	Concentration mg/l	Screened Strata
	BH-RPS-07 (R1)	0.30	Glacial Till / Mercia Mudstone
	BH-RPS-09 (R1)	0.22	Glacial Till
	BH-RPS-09 (R2)	0.102	
	CP-RPS-03 (R1)	0.057	Glacial Till
	CP-RPS-04a (R1)	0.96	Glacial Till
	CP-RPS-04a (R2)	0.056	
	BH-RPS-03 (R1)	0.097	Glacial Till / Mercia Mudstone
Aliphatic >C21-C35	BH-RPS-04 (R1)	0.70	Glacial Till
	BH-RPS-04 (R2)	1.40	
	BH-RPS-05 (R1)	8.11	Glacial Till
	BH-RPS-05 (R2)	4.13	
	BH-RPS-07 (R1)	4.06	Glacial Till / Mercia Mudstone
	BH-RPS-07 (R2)	0.57	
	BH-RPS-09 (R1)	5.04	Glacial Till
	BH-RPS-09 (R2)	2.01	
	CP-RPS-03 (R1)	1.49	Glacial Till
	CP-RPS-03 (R2)	0.573	
	CP-RPS-04a (R1)	4.34	Glacial Till
	CP-RPS-04a (R2)	0.305	
	BH-RPS-03 (R1)	1.44	Glacial Till / Mercia Mudstone
	BH-RPS-03 (R2)	0.139	
Aromatic >C16-C21	BH-RPS-05 (R1)	0.21	Glacial Till
	BH-RPS-05 (R2)	0.059	
	BH-RPS-07 (R1)	0.052	Glacial Till / Mercia Mudstone
	BH-RPS-09 (R1)	0.11	Glacial Till
	CP-RPS-03 (R1)	0.075	Glacial Till
Aromatic >C21-C35	BH-RPS-04 (R1)	0.24	Glacial Till

Contaminant	Location	Concentration mg/l	Screened Strata
	BH-RPS-04 (R2)	0.215	
	BH-RPS-05 (R1)	1.70	Glacial Till
	BH-RPS-05 (R2)	0.531	
	BH-RPS-10 (R1)	0.26	Glacial Till / Mercia Mudstone
	BH-RPS-07 (R1)	0.88	Glacial Till / Mercia Mudstone
	BH-RPS-07 (R2)	0.102	
	BH-RPS-09 (R1)	0.94	Glacial Till
	BH-RPS-09 (R2)	0.312	
	CP-RPS-03 (R1)	0.63	Glacial Till
	CP-RPS-03 (R2)	0.178	
	CP-RPS-04a (R1)	0.61	Glacial Till
	BH-RPS-03 (R1)	0.37	Glacial Till / Mercia Mudstone

8.3.19 The findings in relation to persistent and elevated contamination are summarised below:

- Aliphatic >C16-C21 exceeds the EQS at 6 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the non-statutory screening criteria by at least one order of magnitude on 6 occasions;
- Aliphatic >C21-C35 exceeds the EQS at 7 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the non-statutory screening criteria by at least one order of magnitude on 14 occasions; and
- Aromatic >C21-C35 exceeds the EQS at 8 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the non-statutory screening criteria by at least one order of magnitude on 13 occasions.

Mercia Mudstone

Table 8-6 Exceedances of TPH in Mercia Mudstone

Contaminant	Location	Concentration mg/l	Screened Strata
Aliphatic >C8-C10	BH-RPS-06 (R2)	0.133	Mercia Mudstone
Aliphatic >C10-C12	BH-RPS-06 (R2)	0.172	
Aliphatic >C12-C16	BH-RPS-01 (R1)	0.10	

Contaminant	Location	Concentration mg/l	Screened Strata
Aliphatic >C16-C21	BH-RPS-01 (R1)	0.77	
	BH-RPS-01 (R2)	0.139	
Aliphatic >C21-C35	BH-RPS-01 (R1)	15.50	
	BH-RPS-01 (R2)	3.1	
Aromatic >C8-C10	BH-RPS-06 (R1)	0.097	
Aromatic >C10-C12	BH-RPS-06 (R1)	0.093	
Aromatic >C12-C16	BH-RPS-01 (R1)	0.10	
	BH-RPS-06 (R2)	0.055	
Aromatic >C16-C21	BH-RPS-01 (R1)	0.32	
	BH-RPS-01 (R2)	0.085	
Aromatic >C21-C35	BH-RPS-01 (R1)	4.39	
	BH-RPS-01 (R2)	0.565	
	BH-RPS-06 (R1)	0.15	

8.3.20 The findings in relation to persistent and elevated contamination are summarised below:

- Aromatic >C12-C16 exceeds the EQS at 2 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the non-statutory screening criteria by at least one order of magnitude on 2 occasions; and
- Aromatic >C21-C35 exceeds the EQS at 2 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the non-statutory screening criteria by at least one order of magnitude on 3 occasions.

Polycyclic Aromatic Hydrocarbons (PAH)

8.3.21 Screening has been applied to benzo(a)pyrene, anthracene, fluroanthene and naphthalene as these have screening criteria available for annual average EQS from the WFD directive (WFD, 2015). Benzo(a)pyrene is indicated to be a marker for the group of priority PAH (benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123-cd)pyrene, benzo(ghi)perylene) and therefore only this determinand has been compared with the EQS. Only determinands from the standard PAH-16 analysis have been considered although PAH was also analysed in SVOC to avoid duplication of results.

Made Ground

8.3.22 Any borehole locations which include screened sections within Made Ground have been considered to be Made Ground, even if they include underlying natural strata. The Made Ground has also been further differentiated as general Made Ground and Lime Made ground.

8.3.23 The exceedances above EQS are detailed in *Table 8-7*.

Table 8-7 Exceedances of PAH Determinands above EQS in Made Ground

Contaminant	Location	Concentration µg/l	Screening Value µg/l (AA-EQS)	Screened Strata
Benzo(a)pyrene	BH-RPS-23a (R1)	0.0064	0.00017	Made Ground / Alluvium / Glacial Till
	BH-RPS-23a (R2)	0.00577		
	BH-RPS-24 (R1)	3.58		Made Ground / Lime Made Ground
	BH-RPS-24 (R2)	0.685		
	WS-RPS-09 (R1)	9.15		Lime Made Ground / Made Ground / Mercia Mudstone
	WS-RPS-09 (R2)	0.277		
	WS-RPS-10 (R1)	0.00977		Lime Made Ground / Mercia Mudstone
	WS-RPS-10 (R2)	0.0674		
	WS-RPS-19 (R1)	0.0806		Made Ground / Glacial Till
	WS-RPS-19 (R2)	0.226		
	WS-RPS-20 (R1)	1.12		Lime Made Ground / Glacial Till
	WS-RPS-20 (R2)	2.69		
	WS-RPS-24 (R1)	0.0166		Made Ground / Lime Made ground
	WS-RPS-24 (R2)	0.00585		
Fluroanthene	BH-RPS-23a (R1)	0.0106	0.0063	Made Ground / Alluvium / Glacial Till
	BH-RPS-23a (R2)	0.0253		
	BH-RPS-24 (R1)	6.86		Made Ground / Lime Made Ground
	BH-RPS-24 (R2)	1.73		
	WS-RPS-09 (R1)	9.11		Lime Made Ground / Made Ground / Mercia Mudstone
	WS-RPS-09 (R2)	0.403		
	WS-RPS-10 (R1)	0.259		Lime Made Ground / Mercia Mudstone
	WS-RPS-10 (R2)	0.158		
	WS-RPS-19 (R1)	0.213		Made Ground / Glacial Till

Contaminant	Location	Concentration µg/l	Screening Value µg/l (AA-EQS)	Screened Strata
	WS-RPS-19 (R2)	0.423		
	WS-RPS-20 (R1)	5.37		Lime Made Ground / Glacial Till
	WS-RPS-20 (R2)	8		
	WS-RPS-24 (R1)	0.0169		Made Ground / Lime Made ground
	WS-RPS-24 (R2)	0.0086		
Naphthalene	WS-RPS-09 (R1)	2.31	2	Lime Made ground / Made Ground / Mercia Mudstone
	WS-RPS-09 (R2)	2.46		
	WS-RPS-20 (R1)	3.06		Lime Made ground / Glacial Till
	WS-RPS-20 (R2)	4.03		
Anthracene	BH-RPS-24 (R1)	1.62	0.1	Made Ground / Lime Made Ground
	BH-RPS-24 (R2)	0.26		
	WS-RPS-09 (R1)	1.09		Lime Made ground / Made Ground / Mercia Mudstone
	WS-RPS-10 (R1)	0.161		Lime Made Ground / Mercia Mudstone
	WS-RPS-20 (R1)	1.85		Lime Made Ground / Glacial Till
	WS-RPS-20 (R2)	2.67		

8.3.24 The findings in relation to persistent and elevated contamination are summarised below:

- Benzo(a)pyrene exceeds the EQS at 7 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the non-statutory screening criteria by at least one order of magnitude on 14 occasions; and
- Fluroanthene exceeds the EQS at 7 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the non-statutory screening criteria by at least one order of magnitude on 13 occasions.

Glacial Till

8.3.25 Any borehole locations which include screened sections within Glacial Till and Alluvium but not Made Ground have been considered as Superficial Deposits, even if they included underlying Mercia Mudstone.

8.3.26 The exceedances above EQS are detailed in *Table 8-8*.

Table 8-8 Exceedances of PAH Determinands above EQS in Superficial Deposits

Contaminant	Location	Concentration µg/l	Screening Value µg/l (AA-EQS)	Screened Strata
Benzo(a)pyrene	BH-RPS-03 (R1)	0.714	0.00017	Glacial Till / Mercia Mudstone
	BH-RPS-03 (R2)	0.0148		
	BH-RPS-04 (R1)	0.118		Glacial Till
	BH-RPS-04 (R2)	0.178		
	BH-RPS-05 (R1)	0.0408		
	BH-RPS-05 (R2)	0.0644		
	BH-RPS-07 (R1)	3.11		Glacial Till / Mercia Mudstone
	BH-RPS-07 (R2)	0.337		
	BH-RPS-09 (R1)	0.978		Glacial Till
	BH-RPS-09 (R2)	0.268		
	BH-RPS-10 (R1)	0.724		Glacial Till / Mercia Mudstone
	BH-RPS-10 (R2)	0.43		
	CP-RPS-03 (R1)	12.7		Glacial Till
	CP-RPS-03 (R2)	3.24		
	CP-RPS-04a (R1)	1.88		
	CP-RPS-04a (R2)	0.236		
Fluroanthene	BH-RPS-03 (R1)	1.56	0.0063	Glacial Till / Mercia Mudstone
	BH-RPS-03 (R2)	0.0538		
	BH-RPS-04 (R1)	0.171		Glacial Till
	BH-RPS-04 (R2)	0.223		
	BH-RPS-05 (R1)	0.155		
	BH-RPS-05 (R2)	0.114		
	BH-RPS-07 (R1)	4.29		Glacial Till / Mercia Mudstone
	BH-RPS-07 (R2)	0.54		
	BH-RPS-09 (R1)	1.51		Glacial Till
	BH-RPS-09 (R2)	0.392		
	BH-RPS-10 (R1)	0.988		Glacial Till / Mercia Mudstone
	BH-RPS-10 (R2)	0.465		
	CP-RPS-03 (R1)	11.5		Glacial Till

Contaminant	Location	Concentration µg/l	Screening Value µg/l (AA-EQS)	Screened Strata
	CP-RPS-03 (R2)	4.16		
	CP-RPS-04a (R1)	2.09		
	CP-RPS-04a (R1)	0.342		
Anthracene	BH-RPS-03 (R1)	0.126	0.1	Glacial Till
	BH-RPS-07 (R1)	0.377		Glacial Till / Mercia Mudstone
	BH-RPS-09 (R1)	0.111		Glacial Till
	CP-RPS-03 (R1)	0.688		
	CP-RPS-03 (R2)	0.207		
	CP-RPS-04a (R1)	0.131		

8.3.27 The findings in relation to persistent and elevated contamination are summarised below:

- Benzo(a)pyrene exceeds the EQS at 8 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the non-statutory screening criteria by at least one order of magnitude on 16 occasions
- Fluroanthene exceeds the EQS at 8 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the non-statutory screening criteria by at least one order of magnitude on 16 occasions

Mercia Mudstone

8.3.28 This comprised results from borehole locations which were screened exclusively in Mercia Mudstone, these being boreholes BH-RPS-01 and BH-RPS-06.

8.3.29 The exceedances above EQS are detailed in *Table 8-9*.

Table 8-9 Exceedances of PAH Determinands above EQS in Mercia Mudstone

Contaminant	Location	Concentration µg/l	Screening Value µg/l (AA-EQS)	Screened Strata
Benzo(a)pyrene	BH-RPS-01 (R1)	1.52	0.00017	Mercia Mudstone
	BH-RPS-01 (R2)	0.395		
	BH-RPS-06 (R1)	0.203		

Contaminant	Location	Concentration µg/l	Screening Value µg/l (AA-EQS)	Screened Strata
	BH-RPS-06 (R2)	0.0854		
Fluroanthene	BH-RPS-01 (R1)	4.76	0.0063	
	BH-RPS-01 (R2)	1.7		
	BH-RPS-06 (R1)	2.43		
	BH-RPS-06 (R2)	1.8		
Naphthalene	BH-RPS-01 (R1)	31.4	2	
	BH-RPS-01 (R2)	20		
	BH-RPS-06 (R2)	4.12		
Anthracene	BH-RPS-01 (R1)	1.48	0.1	
	BH-RPS-01 (R2)	0.31		
	BH-RPS-06 (R1)	0.846		
	BH-RPS-06 (R2)	0.991		

8.3.30 The findings in relation to persistent and elevated contamination are summarised below:

- Benzo(a)pyrene exceeds the EQS at 2 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on 4 occasions;
- Fluroanthene exceeds the EQS at 2 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on 4 occasions;
- Naphthalene exceeds the EQS at 2 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on 2 occasions; and
- Anthracene exceeds the EQS at 2 locations, with variable concentrations over the monitoring visits. Concentrations were greater than the EQS by at least one order of magnitude on 1 occasion.

Other Organic Compounds

8.3.31 Generally low levels of VOC and SVOC were encountered within the groundwater across the Site with the vast majority of results lying below or marginally above the laboratory detection limit. There were frequent low levels of PAH in all strata of which have been assessed previously. BTEX compounds were also occasionally identified above laboratory detection limit.

Screening criteria are not available for all of the compounds identified exceeding detection limits. Those contaminants with EQS are discussed below.

8.3.32 Low concentrations of chlorinated hydrocarbons were identified with all concentrations below the relevant EQS.

8.3.33 Bis(2-ethylhexyl)phthalate was identified at concentrations above the EQS (0.0013 mg/l) within all strata at 11 locations, with concentrations above 1 order of magnitude above the EQS on 4 occasions

8.3.34 Phenol was identified at concentrations above the EQS (0.0077 mg/l) within all strata at 9 locations, with concentrations above 1 order of magnitude above the EQS on 8 occasions

8.3.35 When the persistence of these organic compounds is considered, together with their concentrations, it is considered that they are not persistent and significantly elevated.

8.4 Summary and Discussion

8.4.1 The screening assessment has identified multiple exceedances of the EQS criteria and selected non statutory screening criteria for a range of contaminants. These exceedances are present within the Made Ground, Superficial Deposits and Mercia Mudstone bedrock. These exceedances are considered to be consistent with the long industrial heritage of the area and the presence of Made Ground and are indicative of a regional degradation in groundwater quality. Nickel, PAH and to a lesser extent ammoniacal nitrogen are persistently present at concentrations an order of magnitude greater than the EQS. These are considered to be related to Made Ground at the Site, with no localised soil sources being identified. Given the limited flows encountered within the perched water and groundwater beneath the Site it is considered unlikely that significant transport of these contaminants to the surface water features will occur. Therefore it is considered that remediation to protect surface water receptors is not required.

9 Gas Risk Assessment

9.1 Background

9.1.1 This section provides an assessment of risks posed by the presence of ground gas based upon the proposed redevelopment of the Site as an EFW facility. The assessment is based on the data obtained during this phase of ground investigation as set out within the earlier sections of this report. Whilst the historical data captured by SLR and ISGL is not considered within this assessment the conclusions of this gas risk assessment will be reviewed against the conclusions of the previous assessment to determine if there is consistency and identify appropriate mitigation.

9.2 Risk Assessment

9.2.1 CIRIA Report C665 'Assessing Risk Posed by Hazardous Ground Gases to Buildings' (*CIRIA, 2007*) and BS 8485:2015 (*BSI, 2015*). 'Code of practice for the characterization and remediation from ground gas in affected developments' represent the current best practice guidance in relation to ground gas assessment. They propose a holistic approach to gas risk assessment, which takes account of the following factors:

- Nature of source and migration pathway;
- Borehole flow rate and surface emission rate;
- Frequency and distribution of elevated gas concentrations;
- Nature of proposed development; and
- Confidence and reliability of results.

9.2.2 These factors are described in the remainder of this risk assessment.

Current Gas Regime

9.2.3 The key findings from the ground gas monitoring are as follows:

- Carbon dioxide concentrations are generally equal to or below 1% at the majority of monitoring locations. Concentrations above 1% were identified within 3 monitoring wells with a maximum peak concentration of 2.9% within WS-RPS-19;
- Methane concentrations are generally equal to or below 1% at the majority of monitoring locations. Concentrations above 1% were identified with 3 no. monitoring wells as set out below:
  - BH-RPS-05 with a peak concentration of 1.2%,
  - BH-RPS-10 with a peak concentration of 1.6%,
  - WS-RPS-10 with a peak concentration of 14.4%.

- Oxygen concentrations were typically consistent with ambient atmospheric concentrations. The exception to this was within monitoring well WS-RPS-19 which presented depleted (<15%) concentrations within all 4 visits;
- Volatile organic compounds concentrations were low within all monitoring wells with a maximum concentration of 4.1ppm recorded in BH-RPS-05;
- Hydrogen sulphide was not detected above the limit of detection of the gas box during the monitoring; and
- Carbon monoxide was elevated at several locations across the Site, with peak readings of 365 ppm at WS-RPS-09, and several readings over 100 ppm.

Identified Gas Sources and Migration Pathways

9.2.4 The main ground gas source identified on Site is the presence of Made Ground which is present across the majority of the Site at various depths within the Made Ground.

9.2.5 A possible source of methane at the Site is the biological degradation of organic content within the Mercia Mudstone / Glacial Till deposits, and the localised presence of Alluvium at shallow depths across the Site.

9.2.6 The Made Ground at the surface of the site is variable and often granular in nature, and is considered a plausible pathway. Within the Mercia Mudstone and Glacial Till deposits, granular lenses / discontinuities may also act as local pathways. Additionally relic pile structures associated with the previous development of the Site and the proposed piles associated with the construction of the EFW will act a vertical pathway.

Defensibility of Gas Data

9.2.7 CIRIA C665 recommends that 4 no. monitoring rounds are undertaken over a minimum of a 1 month period at sites where the gas generation potential is ‘moderate’ and the sensitivity of the development is low (i.e. non- residential). The Site is considered to fall within this scenario.

9.2.8 The gas monitoring undertaken in support of this assessment comprised 4 no. individual monitoring rounds over a period of 1 month and is considered to conform with the requirements of CIRIA C665.

9.2.9 The monitoring rounds were undertaken over a range of atmospheric pressures, including falling pressures, as summarised in *Table 9-1* below. CIRIA C665 recommends that “monitoring should, as far as practical, be undertaken during times of falling atmospheric pressure and various weather / site-specific conditions to ensure data is acquired during ‘worst-case’ conditions”.

Table 9-1 Summary of atmospheric pressures during monitoring

Monitoring round	Measured atmospheric pressure (On site) (mB)	Comment on atmospheric pressure system during monitoring (Weather data)
1- 06 – 08 Mar 2018	982 - 991	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 8th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)
2- 26,28 and 29 Mar 2018	999 - 1007	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)
3 - 04 - 05 Apr 2018	988 - 1013	3rd 988mb 4th 989mb 5th 1012mb (rising before and during visit, falling after)
4- 11-12 Apr 2018	1006 - 1008	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)

9.2.10 The above table demonstrates that one of the four monitoring rounds has been undertaken during a period of sustained falling pressure.

9.2.11 It is considered that the available data set is sufficient to make an assessment of ground gas risk and make recommendations.

Gas Risk Assessment

9.2.12 The classification of a site's gas regime is governed by the concentration of the ground gas and the flow rate. This is reflected by the Gas Screening Value (GSV), which is calculated as the concentration of gas (expressed as a volumetric fraction) multiplied by the borehole flow rate, as per CIRIA C665 and BS 8485:2015.

9.2.13 In summary, the four gas monitoring rounds undertaken have identified the stabilised flow rates and maximum concentrations summarised within *Table 4-7.* Table 9-2 provides a summary of the assigned Characteristic Situation classifications for each borehole, based upon the data based on the maximum peak gas concentrations and the maximum stabilised flow rates for each borehole.

Table 9-2 Modified Gas Monitoring Data Summary

Location	Maximum Stabilised Flow (litres per hour)	Maximum Peak CH_4 concentration (%v/v)	Maximum Peak CO_2 concentration (%v/v)	Minimum stabilised O_2 concentration (%v/v)	Maximum Gas Screening Value	Characterisation
BH-RPS-01	0.1	0.6	0.1	21	0.0006	CS1
BH-RPS-02A	0	0.2	0.2	20.3	0.0002	CS1

Location	Maximum Stabilised Flow (litres per hour)	Maximum Peak CH_4 concentration (%v/v)	Maximum Peak CO_2 concentration (%v/v)	Minimum stabilised O_2 concentration (%v/v)	Maximum Gas Screening Value	Characterisation
BH-RPS-03	-0.1	0.7	0.1	20.9	0.0007	CS1
BH-RPS-04	-5	0.4	0.1	20.5	0.0096	CS1
BH-RPS-05	-0.1	1.2	0.1	16.8	0.005	CS2*
BH-RPS-06	0.51	0.4	0.2	15	0.00204	CS1
BH-RPS-07	-0.1	0.3	1	21.1	0.0003	CS1
BH-RPS-09	0.71	0.2	0.2	17.5	0.00142	CS1
BH-RPS-10	1.81	1.6	0.1	19.1	0.02896	CS2*
BH-RPS-16A	-0.1	0.2	0.1	21.8	0.0002	CS1
BH-RPS-23A	-2.5	0.2	0.3	21.1	0.0075	CS1
BH-RPS-24	-2.4	0.1	0.1	21.1	0.0024	CS1
BH-RPS-24A	-0.1	0.2	0.1	21.3	0.0002	CS1
CP-RPS-03	-25.1	0.2	0.2	19.5	0.0502	CS1
CP-RPS-04A	0	0.2	1.7	17.3	0.0017	CS1
WS-RPS-09	0.1	0.5	0.2	19.9	0.0005	CS1
WS-RPS-10	0	14.4	0.4	12.8	0.0144	CS2*
WS-RPS-12	0.1	0.2	0.3	20.2	0.0003	CS1
WS-RPS-13	0.1	0.2	0.4	17.6	0.0004	CS1
WS-RPS-15	0	0.2	0.3	20.7	0.0002	CS1
WS-RPS-17	0	0.2	0.2	16.3	0.0002	CS1
WS-RPS-19	0.5	0.2	2.9	4.1	0.0145	CS1
WS-RPS-20	0	0.3	2	20.9	0.002	CS1
WS-RPS-21	0	0.2	1	19.4	0.0002	CS1
WS-RPS-24	-1.51	0.2	0.2	21.2	0.00302	CS1

*Where CH_4 exceeds 1% by volume, consideration should be given to increasing to CS2.
^Where a stable flow has been recorded as a negative flow rate, the equivalent positive value has been used for this risk assessment

9.2.14 This GSV can be compared against one of two classification schemes, dictated by the type of development and the specific design proposals for the property floor. The proposed structures associated with the development application are assumed to be based on a typical commercial design, and therefore a Characteristic Situation system has been used, as set out in BS: 8485:2015.

9.2.15 A Characteristic Situation of CS1 (low risk) has been determined for the majority of locations based on the GSV ranges set out in BS:8485, CIRIA C665 and The Ground Gas Handbook (*Wilson et al 2009*). The exceptions to this are 3 no. locations where elevated concentrations of methane would lead to a Characteristic Situation CS2. These locations are:

- 1 monitoring occasion at BH-RPS-05, indicating methane readings of 1.2%;
- 1 monitoring occasion at BH-RPS-10, indicating methane readings of 1.6%; and
- 1 monitoring occasion at WS-RPS-10, indicating methane readings of 14.4%.

9.2.16 As there is no justification for zoning at the Site, it is therefore considered that the Site will fall under Characteristic Situation 2 (CS2).

9.2.17 Carbon monoxide and VOCs are not considered specifically when selecting a suitable Characteristic Situation and therefore a separate assessment is required where elevated concentrations are identified. For carbon monoxide maximum peak and stabilised concentrations of 365 ppm (BH-RPS-09) and 268 ppm (WS-RPS-10) respectively were recorded during the monitoring. These concentrations of carbon monoxide can be compared against the workplace exposure limits (WEL) to determine if they are likely to present a risk to future users of the Site. The long term exposure limit (LTEL) for carbon monoxide, based on an 8 hour working day, is 30ppm, and 15 minute short term exposure (STEL) is 200ppm. Several boreholes both inside and outside of the building footprint significantly exceed this criteria. On this basis it is considered that the gas protection measures designed for the Site should take account of the elevated carbon monoxide concentrations.

9.2.18 It is considered that the concentrations of VOCs (below 5 ppm) and H_2S (0 ppm) are so low that the gas protection measures required to meet the requirements of Characteristic Situation CS2 will address any risk that these gases may present.

9.2.19 The previous assessments undertaken in relation to the Site also identify that Characteristic Situation CS2 should be applied to the Site. They also identify higher concentrations of carbon monoxide reinforcing the requirement for gas protection to address the risk from this gas.

Gas Protection Measures

9.2.20 Based upon the ground gas monitoring undertaken by RPS a CS2 classification has been derived for the Site and therefore gas protection measures are considered to be required in new structures.

9.2.21 The detailed gas protection system should be designed in accordance with relevant guidance, including but not limited to:

- BS 8485:2015 – Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings (*BSI, 2015*);
- Protecting development from methane (*CIRIA, 1995*); and
- Assessing risks posed by hazardous ground gases to buildings (*CIRIA, 2007*).

9.2.22 Where these standards conflict, the most up to date relevant guidance will be applied.

9.2.23 Based on the current data and the guidance provided within BS8485, the gas protection measures would need to be implemented for the following:

- Type C (commercial / public buildings with small to large rooms) with a gas protection score of 2.5 points from a combination of protection measures; and
- Type D (commercial / industrial buildings with some small rooms present) with a gas protection score of 1.5 points.

9.2.24 For both building types, the points could be achieved with a combination of the following, depending upon the detailed design:

- Cast in-situ monolithic reinforced ground bearing raft or reinforced cast in-situ suspended floor slab with minimal penetrations = 1 point;
- Cast in-situ monolithic reinforced ground bearing raft or reinforced cast in-situ suspended floor slab with minimal penetrations – the raft or suspended floor slab should be well reinforced to control cracking and have minimal penetrations cast in = 1.5 points;
- Pressure relief pathway (usually formed of low fines gravel or with a thin geocomposite blanket or strips terminating in a gravel trench external to the building) = 0.5 points;
- Passive sub floor dispersal layer:
  - Very good performance= 2.5 points.
  - Good Performance = 1.5 points.
- Active dispersal layer, usually comprising fans with active abstraction (suction) from a subfloor dilution layer, with roof level vents. The dilution layer may comprise a clear void or be formed of geocomposite or polystyrene void formers = 1.5 to 2.5 points;
- Active positive pressurization by the creation of a blanket of external fresh air beneath the building floor slab by pumps supplying air to points across the central footprint of the building into a permeable layer, usually formed of a thin geocomposite blanket = 1.5 to 2.5 points; and
- Gas membrane in accordance with Table 7 of BS8485 = 2 points.

9.2.25 These measures shall be subject to detailed design by the developer as part of the design of the structures at the Site and will need to take account of the presence of carbon monoxide.

9.3 Conclusion

9.3.1 The gas risk assessment has identified that the Site should be considered to fall within Characteristic Situation 2, with elevated carbon monoxide also recorded, and therefore gas protection measures are considered necessary for the proposed development. The gas

protection measures apply to all structures across the Site and should be designed to take account of the elevated concentrations of carbon monoxide.

10 Geotechnical Appraisal for Future Development

10.1 Introduction

10.1.1 The following appraisal draws on the information available within this report and provides a preliminary geotechnical review for the Site to provide preliminary advice in relation to hardstanding, buried concrete accompanied with a review of the likely foundation design options to allow selection of appropriate construction techniques. In undertaking this review we have reviewed the conclusions against those presented by IGSL (*IGSL, 2013*) to identify areas where the outcomes are different and therefore uncertainty is present which may need to be addressed through further ground investigation or design. The waste classification of arisings is discussed in Section 11.

10.1.2 The following sections provide an overview of the site ground conditions, details of the geotechnical data available followed by consideration of the aforementioned issues.

10.1.3 This geotechnical appraisal draws on limited geotechnical information obtained during the RPS ground investigation. This ground investigation was primarily a contaminated land ground investigation, with targeted geotechnical works at the request of the client to address data gaps identified by the Enabling Works Contractor and potential EPC contractor. Section 3.2 sets out those investigation locations at which the client requested additional geotechnical information.

10.1.4 It is not intended to form a comprehensive Geotechnical Design Report, as defined by Eurocode 7 (*EC7, 2009*) but an overview of each development zone placed in context with the finding from the IGSL investigation. The development zones are defined in the sections below and present in *Drawing JER1100-SI-003.*

10.2 Development Zones

Main Energy Generation Facility

10.2.1 This zone is to comprises the main Energy from Waste (EfW) plant and it is understood that the main energy generation facility is to be constructed over an approximate footprint of the existing turbine hall and boiler house and adjacent areas.

10.2.2 This zone is approximately level with observed levels outside of the current structure recorded between 25.7 to 26m (*see Drawing Ref:16384/A1/P/5055*).

Bunker (within the Main Energy Generation Facility)

10.2.3 This zone is located within the northern part of the main Energy from Waste (EfW) plant facility. The new bunker will be constructed to a depth of approximately 8.0 m below finished ground level. The construction of this bunker will require the excavation of approximately 14,000 m^3 of soil, the installation of excavation support structures during construction and the implementation of groundwater control systems.

Ash Handling Facility

10.2.4 An ash handling facility is also to be constructed at the location of the existing coke storage yard in the western part of the Site. We understand the structure will be a portal frame structure however no loadings or founding levels have been provided.

10.2.5 This zone is approximately level with a general elevation of 22.3 mAOD. The sites north boundary is raised locally (small embankment) to approximately 22.8 mAOD *(see Drawing Ref:16384/A2/P/5056).*

Amenities and Workshops

10.2.6 Amenities' and workshops are proposed in in the north portion of the Site. Drawings from the Client indicate the works shop is 7.9m high with the work shop and maintenance amenities having a total foot print of 653m^2. A foundation recommendation of piles is proposed for the structure *(Drawing Ref: 12088.301.0).* No information is provided on the loads imposed.

Substation and Water Treatment Plant

10.2.7 A 6.0 m high single storey building is proposed (*Drawing Ref: 13684/A1/P/5126*). A foundation recommendation of piles for both structures is proposed *(Drawing Ref: 12088.302.01 and 12088.303.01)*. No information is provided on the loads imposed.

Office and Amenities

10.2.8 It is understood site offices are to be construed to the north of the main site (*see Drawing Ref: SK 1260-103*). No drawings have been provided to indicate the site levels at this location. The proposed structures roof ridge is 9.35m high with a foundation recommendation of piles *(Drawing Ref: 12088.310.00)*. No information is provided on the loads imposed.

Pipe Bridges

10.2.9 Pipe bridges are proposed at the site between the Proposed Substation and Water Treatment Plant (*Drawing Ref: 12088.2004.04*). The Pipe bridge supports are approximately 8.3m high with a span of 6.0m between bays. The foundations are quoted as 5.5m by 2.5m and 0.5m deep concrete pad foundation on a lean mix concrete. No information is provided on the loads imposed.

10.3 Geotechnical sampling and Analysis

10.3.1 Laboratory analysis was undertaken in general accordance with the current revision of BS1377 (BSI, 1990) with assessment of sulphate test results undertaken in accordance with the requirements of BRE Special Digest 1 (*BRE, 2005*).

10.3.2 Testing was undertaken on samples taken from the RPS ground investigation achieving a quality class of between 1 and 5, in accordance with Eurocode 7 (*EC7, 2009*) Classification.

Table 10-1 provides a summary of sampling techniques used during the RPS investigation and the resultant quality of sample expected.

Table 10-1 Summary of Anticipated Sample Quality Class

Test Type	RPS Sampling Technique	EC7 Sampling Category (Inferred Sample Quality)
BRE SD1 Suite	Disturbed samples	B3 to B4 (C5 in granular material)
Sieve analysis for particle size distribution	Bulk samples	B3 to B4 (C5 in granular material)
Plasticity index/NMC	Bulk and disturbed samples	B3-B4
Triaxial Testing	Undisturbed samples (thin wall)	A1 to A2
Oedometer Consolidation	Undisturbed samples (thin wall)	A1 to A2

10.4 Summary of Site Ground Conditions

10.4.1 Details relating to the site zoning are provided in Section 10.1. The assessment of ground conditions is presented in Section 4.2. Ground contamination, controlled waters and ground gas risk assessments are provided in Sections 7, 8 and 9 respectively.

10.4.2 Table 10-2 presents the exploratory hole locations from the current and previous investigations identified within the 'development zones' as defined in Section 10.1 with general comments on obstructions where encountered..

10.4.3 The exploratory holes have identified the Site to be generally underlain by heterogeneous Made Ground (Heterogeneous and Lime Made ground) over superficial strata comprising Alluvium and Glacial Till (Diamicton) over Mercia Mudstone. The geological succession identified in Section 4.2 has been revised and enhanced to reflect the stratigraphy beneath each of the development zones in. The identified ground conditions for each zone are summarised in Table 10-3 and discussed in the subsequent sections.

Table 10-2 Exploratory Holes within the Development Zones

Boreholes	Main Energy Facility[1]	Bunker[2]	Ash Handling Facility	Amenities and Workshops	Substation and Water Treatment Plant	Office
RPS Investigation 2018	BH-RPS-01 BH-RPS-02/02a BH-RPS-03 BH-RPS-04 BH-RPS-05 BH-RPS-10/10a/10b	BH-RPS-10/10a/10b BH-RPS-11/11a BH-RPS-14/14a BH-RPS-15 BH-RPS-16/16a BH-RPS-17/17a	WS-RPS-31 WS-RPS-33 WS-RPS-32a WS-RPS-36 WS-RPS-36a	TP-RPS-45 CP-RPS-01 CP-RPS02 CP-RPS-02a	BH-RPS-08 CP-RPS-03 CP-RPS-03a CP-RPS-04 CP-RPS04a WS-RPS-25	CP-RPS-05 CP-RPS-06 TP-RPS-50

Boreholes	Main Energy Facility[1]	Bunker[2]	Ash Handling Facility	Amenities and Workshops	Substation and Water Treatment Plant	Office
	BH-RPS-11/11a BH-RPS-12 BH-RPS-14/14a BH-RPS-15 BH-RPS-16/16a BH-RPS-17/17a BH-RPS-19/19a BH-RPS-20 BH-RPS-21/21a BH-RPS-22 BH-RPS-23/23a BH-RPS-24/24a					
ISGL (Nov 2012)	BH1 BH2 BH3 BH4 BH5	BH2	BH6 BH6A TP9 TP9A		TP4	
WSP (Sep 2008)	WS4	WS4	WS11			
SLR (Dec 2007)	SLR-BH 01 SLR-BH 02 SLR-BH 03 SLR-BH 04 SLR-BH 05 SLR-BH 06 SLR-BH 07	SLR-BH 02	SLR BH 09			
Tata (Oct 1957)		BH1147				

Notes.

1. Including Boreholes immediately outside of the proposed building footprint/larger area. Only boreholes have been considered in this area.
2. The Bunker is located within the main Energy Generation Facility. Boreholes have only been selected within the proposed Bunker location as presented in the Drawing - Ref: 12088-01 Rev.04.

Table 10-3 Summary of Ground Conditions in the Development Zones

Stratum	Depth Range (upper – lower)	Description	Notes
Ash Handling Facility			
Surface Hardstanding / Made Ground	0 – 1.1	Black sandy angular gravel of coke over sandy gravel of concrete and ash.	RPS investigation indicated termination on wood and concrete at 0.5m.
Possible Glacial Till	0.5 - >7.0	Stiff orange brown to reddish brown sandy gravelly clay. Sub-rounded to sub-angular	Data from IGSL TP9A indicated Glacial Till to 1.5m. WSP Window sample data indicated

Stratum	Depth Range (upper – lower)	Description	Notes
Ash Handling Facility			
		sandstone gravel.	Glacial Till to 3.8m.
Mercia Mudstone	1.5 – >12	Stiff reddish brown fissured clay grading to hard grey mudstone	Data from IGSL BH06A. SLR, BH09 possibly identified Mudstone from 5.2m.
General	The general area has been identified as comprising of a hardstanding surface with the exploratory investigation points undertaken within 'breaks' in the hardstanding surface. SLR BH09 indicates concrete to a depth of 2.0m overlying soft light brown sandy CLAY and firm light grey silty clay to 7.0m depth indicating variable geology across the site.		
Amenities and Workshops			
Surface Hardstanding / Made Ground	0 – 7.5	Black brown to light grey sandy gravel and with cobbles. Frequent brick, clinker and concrete fragments. Frequently gravelly sand in the upper 2.0m.	CP-RPS-01 terminated at 7.5m in unknown obstruction.
Lime Made ground	2.2 – 6.5	Soft white silt with some gravel of ash and clinker.	Variable in thickness identified within the above Made Ground.
Alluvium	7.2- 9.5	Soft dark greyish brown silt with organic odour.	-
Mercia Mudstone (weathered)	9.5 – >10.8	Recovered as stiff reddish brown clay.	No penetration to depth within the weathered Mercia Mudstone. -
Substation and Water Treatment Plant			
Topsoil	0 – 0.25	Black sandy gravel of clinker and ash.	Encountered in CP-RPS-03 only.
Surface Hardstanding / Made Ground	0.25 – 1.9	Dark grey sandy gravel with frequent clinker, brick concrete and ash.	WS-RPS-25 and CP-RPS-03a terminated at 1.1 and 1.3m respectively due to concrete slab. BH-RPS-08 terminated at 2.41m on possible basement. Concrete slab identified in CP-RPS-03 at 1.1 to 1.9m.
Lime Made ground	0.45 – 1.65	Light grey (very fine) silty gravel of limestone.	Encountered in CP-RPS-04
Alluvium	1.9 – 2.5	Soft reddish brown sandy clay.	Encountered in CP-RPS03.
Glacial Till	0.9 – 8.65	Firm to stiff reddish brown clay and sandy clay with some gravel. Gravel comprises sub-angular to angular fine limestone.	CP-RPS-04a recovered greatest thickness of Glacial Till.
Mercia Mudstone	8.3 – >11.3	Recovered as stiff reddish brown clay grading to very weak mudstone from 8.55m	-
Office			
Surface Hardstanding / Made Ground	0 – 3.0	Concrete hardstanding over heterogeneous soft reddish brown clay, clayey sand and black angular gravel (ballast), with clinker, limestone and brick.	TP-RPS-50 terminated due to rapid water ingress at 0.9m.
Alluvium	0.7 – 2.3	Soft blackish grey sandy silty clay with some organic odour.	Only encountered in CP-RPS-06
Glacial TIll	2.3 – 5.31	Firm dark reddish brown to brown sandy gravelly clay and sandy clay. Gravels are sub-rounded to rounded mudstone and sandstone.	-
Mercia Mudstone Weathered	5.0 – >5.9	Recovered as stiff brown lamented clay.	Only encountered in CP-RPS-06

Stratum	Depth Range (upper – lower)	Description	Notes
Ash Handling Facility			
General	No significant penetration into the underlying Mercia Mudstone bedrock.		
Main Energy Generation Facility			
Surface Hardstanding / Made Ground	0 – 7.7	Limestone gravel over heterogeneous light grey to black gravel of brick, concrete and limestone, sand with soft reddish brown clay, clayey sand and black angular gravel (ballast), with clinker, limestone and brick	Multiple boreholes obstructed between 0.45 – 3.28m. Many of these one services and unknown metal objects. 5.1m of Made Ground encountered in BH-RPS-14. 7.7m of Made Ground identified in BH-RPS-16.
Lime Made ground	0.15 - 5	Soft white sandy gravelly clay, often very soft white clay. Gravel of brick fragments and concrete fragments.	Variable in thickness identified within the above Made Ground. 5.45m of Lime Made ground identified in BH-RPS-01. 3.5m of Lime Made ground identified in BH-RPS-21.
Alluvium	1.4 – 6.7	Very soft reddish brown to black sandy clay with gravel horizons. Sub-angular to angular fine to medium gravel. Medium dense clayey sand with organic odour observed at base of unit.	Encountered in BH-RPS-15 and BH-RPS-23a. No Glacial Till identified.
Glacial Till	1.9 – 10	Reddish brown/grey sandy gravel of mixed lithologies. Often firm sandy gravelly clay.	8.2m of Glacial Till encountered in BH-RPS-19. 6.1m of Glacial; Till identified in BH-RPS-20.
Mercia Mudstone	4.5 – >20.0	Recovered as stiff reddish brown clay grading to very weak mudstone typically from 2.0m from the top of the unit.	Recovered as clay to 10.0m in BH-RPS-04/10/16. Recovered from 4.5m in BH-RPS-21a.
Bunker			
Surface Hardstanding / Made Ground	0 – 5.1	Heterogeneous light grey to black gravel of brick, concrete and limestone, brown sand with soft reddish brown clay , clayey sand and black angular gravel (ballast), with clinker, limestone and brick	BH-RPS-10b terminated at 0.5m due to buried railway sleeper. BH-RPS-10a, 17 and 17a terminated at 0.45, 0.4 and 0.4m respectively due to obstruction. 5.1m of Made Ground in BH-RPS-14.
Lime Made ground	2.3 – 4.2 and 0.7 – 2.0	Very soft white to grey sandy clay.	Depth range encountered in BH-RPS-10 and BH-RPS-15/16/19 respectively.
Alluvium	3.0 – 6.7	Very soft reddish brown to black sandy clay with gravel horizons. Sub-angular to angular fine to medium gravel. Medium dense clayey sand with organic odour observed at base of unit.	Encountered in BH-RPS-15. Think horizon of Glacial Till identified below this stratum.
Glacial Till	1.9 – 8.5	Black to reddish brown firm to stiff clayey gravelly sand and gravelly sandy clay. Sub-angular to sub-rounded fine to medium sandstone.	Typically recovered form in excess of 4.2m. 7.5m of Glacial Till recovered from BH-RPS-19.
Mercia Mudstone	5.9 – >20.0	Recovered as stiff reddish brown clay grading to very weak mudstone typically from 2.0m from the top of the unit.	-

10.5 Geotechnical Data

General

10.5.1 Table 10-4 summarises the geotechnical testing undertaken for the Strata identified in the exploratory investigation together with number of tests undertaken and the range of results for the Site as a whole. The full results are presented in *Appendix 3*, with a discussion on the results for each strum in the below sections. The test data (both laboratory and in-situ) from the IGSL is reviewed in Section 10.5.

10.5.2 In situ Standard Penetration Tests (SPT) were undertaken using both a split spoon and cone sampler, during the intrusive works. The tests were undertaken in line with BS EN ISO 22476-3:2005+A1:2011 (*BS EN, 2011a*) and BS EN ISO 22476-2:2005+A1:2011 (*BS EN, 2011b*). In accordance with BS EN ISO 22476-3, SPT N values in sandy soils have been corrected to the Design value N'. In addition to this the SPT C results have been corrected in accordance with the methodology proposed by Burmister (1948).

10.5.3 All SPT results obtained when encountering an obstruction have been removed for this assessment. The results are summarised in Table 10-4, included in *Appendix 5* and discussed in Section 10.4.4. The direct SPT 'N' results are presented on the logs.

10.5.4 Table 4-5 summarises the results of testing undertaken in accordance with BRE Special Digest 1 relating to Ground Aggressivity. The results are discussed in Section 10.6.69.

10.5.5 The Mercia Mudstone has been logged to weathering grades presented in Table 10-1. Typically recovered as a stiff fissured clay or weak laminated mudstone. It has been observed the weathering profile typically results in Grade II Mercia Mudstone being encountered from within 2.0m of the stratums surface. The properties of the Mercia Mudstone are further discussed in Section 10.4.

Table 10-4 Geotechnical Testing Summary

Stratum	Range of Results (number of results)						
	Moisture Content (%)	Plasticity Index[3]	Particle Size Distribution[4]	BRE Sulphate Testing[1]	Corrected SPT N^2 Values	Oedometer Consolidation / m^2/MN	Undrained Triaxial (kPa)
Made Ground	10 – 36 (9)[5]	14 (1)	(8)	(6)	2 – 66 (17)	-	-
Lime Made Ground	51 – 101 (3)	33 – 37 (3)	-	(1)	0 – 13 (13)	-	-
Alluvium	30 (1)	19 (1)	-	(2)	1 – 51 (7)	-	-
Glacial TIll	16 – 26 (5)	10 – 26 (5)	(2)	(1)	7 – 70 (38)	-	-
Mercia Mudstone (Clay)	24 – 41 (2)	24 – 41 (2)	-	(1)	See Paragraph 4.5.22	(1)	204 (1)
Mercia Mudstone	-	-	-	(1)		-	-

Notes:

1. BRE Sulphate test results are presented and discussed in Section 4.6
2. Corrected SPT N values presented in Appendix 5 with Mercia Mudstone discussed in Section 10.4
3. Plasticity information discussed in Section 10.4
4. PSD results discussed in Section 4.6
5. Moisture Contents obtained from plasticity testing and PSD testing.

Table 10-5 Results of BRE Sulphate Testing

Geology	No. of tests	pH	Acid Soluble Sulphate (%)	Water Soluble (2:1 extract) sulphate (mg/l)	Total Sulphur (%)	Total Potential Sulphate (%)	Oxidisable Sulphides (%)	Presence of potential pyrite identified	Design Sulphate Class	ACEC Class[1]
Made Ground	6	8.4 – 11.1	0.08 – 1.17	47 - 701	0.181 – 0.415	0.47 – 1.25	0.08 – 0.77	Yes	DS-4	AC-4
Lime Made ground	1	12.8	3.97	19	1.260	3.78	NA	Yes	DS-5	AC-5
Alluvium	2	7.7 – 12.8	0.1 – 1.1	5 – 241	0.44	0.86 – 1.33	1.23	Yes	DS-4	AC-4m
Glacial Till	1	9	0.04	121	0.02	0.06	0.03	No	DS-1	AC-1
Mercia Mudstone	2	8.0- 8.8	0.06 – 3.95	209 – 1,820	0.24 – 1.35	0.73 – 4.05	0.1 – 0.67	Yes	DS-5	AC-5

Notes.

1. Non Detectable Result (ND)
2. Analysis performed for a brownfield site with mobile groundwater
3. BRE sulphate test results are presented and discussed in Section 10.6

Geological Units

Made Ground – General

10.5.6 Laboratory testing of the Made Ground indicates Moisture Contents between 10 – 36% with the highest result observed in fine grained cohesive Made Ground. The index properties of this cohesive sample indicated a liquid limit of 34 and plastic index of 14. Plotting this on a casagrande plot (see Figure 1) indicated this would be classified as a clay of low plasticity.

10.5.7 Removing the coarse fraction from the sample indicated a modified plasticity index of 10.9 and would be classified of low volume change potential in accordance with the NHBC guidelines.

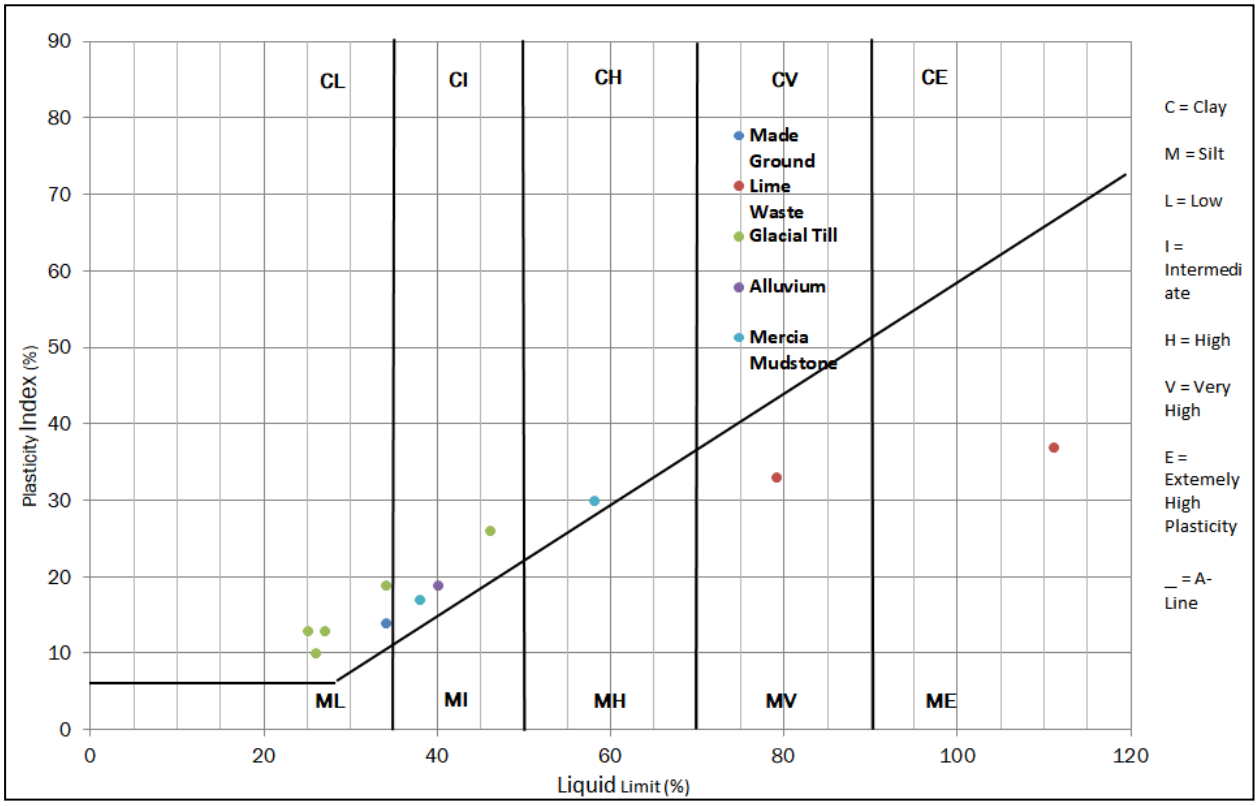

Figure 1: Casagrande Plot

10.5.8 Particle size analyses of the coarse-grained Made Ground have indicates the Made Ground to comprise of predominantly sandy gravels with a low fines content. The results indicate the field observations/descriptions to be correct.

Table 10-6 Particle Size Distribution Summary Results – Made Ground

Grain Size (mm)	Range (%)	Average (%)
Fine Grained (<0.0063)	3.4 – 10.1	6.8
Sand (0.0063 – 2.0)	17.8 – 36.2	23.8
Gravel (2.0 – 63)	53.7 – 79.9	65.5
Cobble (>63)	0 – 15.8	3.9

10.5.9 Corrected N values indicate the Made Ground to be highly variable, see Table 10-4, and the SPT plot in *Appendix 5*. A initial review of the results indicates there is no correlation of strength/density with depth. Multiple obstructions have been identified across the larger assessment Site when excavating in the Made Ground, as recorded in Table 10-2.

Made Ground - Lime Made Ground

10.5.10 Laboratory testing within the fine-grained Lime Made Ground indicates a moisture contents between 51 – 101% and plastic index of between 39 – 74% (see Figure 1) and would be classified as silts of very high to extremely high plasticity Removing the coarse fraction from the samples indicated a modified plasticity index of between 10.5 to 25.7 and would be classified of low to medium volume change potential in accordance with the NHBC guidelines.

10.5.11 Corrected N values within the Lime Made ground indicate it is highly variable, and to be of very low strength, see Table 10-4.

Alluvium

10.5.12 Laboratory testing within the fine-grained Alluvium indicates a moisture content of 30% with the index properties of this cohesive sample indicating a liquid limit of 40 and plastic index of between 19. Plotting these results on a casagrande plot indicates this sample of alluvium would be classified as a clay of intermediate plasticity (see Figure 1). Removing the coarse fraction from the samples indicates a modified plasticity index of 16 and would be classified of low volume change potential in accordance with the NHBC guidelines.

10.5.13 The corrected N values range between 1 – 51 within the Alluvium indicating highly variable results. It is noted bands of Alluvium have been identified with a soft to very soft consistency as reflected with several SPT results below 5, presented in the SPT plot (*Appendix 5*).

Glacial Till

10.5.14 Laboratory testing of the fine grained Glacial Till indicates Moisture Contents between 16 – 26%, liquid limits between 25 – 46% and plastic index between 10 – 26% Plotting the results on a casagrande plot (see Figure 1) indicates these would be classified as a clays of low to intermediate plasticity

10.5.15 Removing the coarse fraction from the samples indicated a modified plasticity index of between 8.5 – 24.7 and would be classified of low to medium volume change potential in accordance with the NHBC guidelines.

10.5.16 Particle size analyses of the Glacial Till indicates it is variable in content. The analysis has indicated between 15 to 71% silt/clay, 23 to 29% sand, 5 to 28% gravel with one sample comprising of 27.7% cobbles.

10.5.17 Corrected N values within the Glacial Till range from 7 to 70 indicating variable results, see *Table 10-4*. The plotted results (*Appendix 5*) indicate an increase in SPT values with depth.

Mercia Mudstone – Weathering Grades IV and III

10.5.18 Laboratory testing within the fine-grained weathered Mercia Mudstone (recovered as a clay) indicates a moisture contents between 24 - 41%, liquid limits between 38 – 58% and plastic index of between 17 - 30% and would be classified as clays of intermediate to high plasticity (see Figure 1).

10.5.19 Removing the coarse fraction from the samples indicates a modified plasticity index of between 17 – 18.9 and would be classified of low volume change potential in accordance with the NHBC guidelines.

10.5.20 Laboratory oedometer testing indicated coefficients of compressibility (m_v) recorded as between 0.013 and 1.2 m^2/MN over the pressure range of 0 – 280 kPa for a sample in the Grade III Mercia Mudstone. This indicates the weathered Mercia Mudstone is potentially of medium to high compressibility.

10.5.21 A single stage unconsolidated undrained triaxial test of the weathered mudstone indicated a undrained shear strength (S_u) of 204 kPa reflecting the stiff description observed from the log. The failure mode has been observed as plastic.

10.5.22 Corrected N values within the Grade IV and III Mercia Mudstone indicate a minimum result of 20 and maximum value of 118. There is no significant correlation with depth.

Mercia Mudstone – Grade II

10.5.23 Corrected N values within the Grade II Mercia Mudstone indicate the material is performing as a competent rock with a minimum N' of 35 and maximum N' of 535. The range of results indicate the material is variable in strength however a general increasing strength with depth trend is visible as presented in *Appendix 5*.

10.6 Preliminary Geotechnical Assessment

10.6.1 The following provides a brief geotechnical review for the Development Zones as specified in as presented in Section 10.1. Where possible specific reviews pertaining to the identified Development Zones as presented in Section 10.1 have been provided, with a general site overview undertaken where suitable. This is considered possible for the following issues;

- Re-profiling;
- Existing foundations; and
- Foundations

10.6.2 For the following issues a site wide appraisal has be undertaken;

- Ground Improvement;
- Material Reuse;
- Excavations and stability;
- Groundwater Management;

- Ground Aggressivity; and
- Pavement construction.

10.6.3 In undertaking this assessment we have reviewed the conclusions against those presented by IGSL to identify if there is a consistent or inconsistent outcome.

10.6.4 RPS has not been provided information pertaining to the founding horizon or likely loads from the proposed structures.

10.6.5 A variable thickness of Made Ground is present across the whole Site influencing the foundation types across the Site. In addition to this the variable proposed structures and underlying soil conditions will influence the foundation type. Foundation recommendations have been provided in the following Sections. However where piling has been recommended as a founding option the following will require consideration;

- Chemical contamination, a foundation risk assessment would need to be undertaken to support the chosen piling methodology. This would need to be undertaken in accordance with EA guidance entitled 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention' (*EA, 2001*).

10.6.6 Where structural tolerances for any proposed development permit, consideration could be given to the use of rafts in conjunction with ground improvement.

10.6.7 Consideration must be given to the degradation of the Mercia Mudstone bedrock over time resulting from piling.

10.6.8 Multiple obstructions including a possible basement, floor slabs and voids have been encountered during the investigation as presented in Table 10-2, and discussed in Table 10-3. Any pile design will have to consider the effects of the aforementioned structures/voids.

Main Energy Generation Facility

Re-profiling

10.6.9 Minor cut and fill works will be undertaken to create the development platform. Based on the current appraisals cut or fill works are unlikely alter site levels beyond 1.0m.

Existing Foundations

10.6.10 The site has been previously been developed as a power station with multiple ancillary structures. Multiple boreholes have been obstructed between 0.45 – 3.28m. The old foundations and underground structures identified in Table 10-2 may require removal when present within the zone of influence of the proposed development and cannot be designed around. Additional obstructions and voids are unlikely to be present.

Foundations

10.6.11 Data available (Table 10-3) indicates a cover of Made Ground (heterogeneous material and Lime Made Ground) between 0.0 – 7.7m depth overlying superficial soils comprising Alluvium (organic material) and Glacial Till between 1.4 – 6.7m over Mercia Mudstone. The Mercia mudstone has been encountered from between 4.5 to 9.45m, see Table 10-6. Multiple exploratory hole locations have refused due to various obstructions.

10.6.12 Given the proposed founding option of piles for the main structure *(Drawing Ref: 12088-01 Rev.04)* accompanied with variability of the superficial strata the foundation option of piles is recommended. Founding depths will be dependent on detailed design but at this stage based on the anticipated heavy pile loadings we would envisaged this to be within the competent Mercia Mudstone Formation (Grade II) from approximately 10mbgl.

10.6.13 The ground model presented by IGSL identified potential for adjacent buildings to incorporate the existing floor slab using ground beams. We understand that the proposed drawing above supersedes this design intent.

10.6.14 The RPS investigation has identified a variable thickness of Made Ground across the Site, and as such where any smaller structures are proposed to be founded in the Glacial Till additional investigation should be undertaken to determine the surface profile. The proposed bearing capacity of 150 KN/m^2 as suggest by IGSL within the Glacial Till is considered suitable when encountered.

Table 10-7 Depth Mercia Mudstone Encountered – Within Main Energy Generation Facility

Borehole	Mercia Mudstone Surface	Mercia Mudstone Depth (Grade II)	Notes
	8.5	-	Borehole terminated at 10.0m
BH-RPS-03	7.1	-	Borehole terminated at 10.0m
BH-RPS-03	-	-	Not identified to 10.0m
BH-RPS-05	7.4	-	Borehole terminated at 10.0m
BH-RPS-10[1]	7.2	10	
BH-RPS-12	7.5		Borehole terminated at 10.0m
BH-RPS-14[1]	8.8	10.1	
BH-RPS-14a[1]	8.8	-	Openhole drilling to 8.8m
BH-RPS-15[1]	9	9	
BH-RPS-16[1]	7.7	9.8	
BH-RPS-16a[1]	8.5	8.5	Openhole drilling to 8.5m
BH-RPS-19	9.45	10.15	

Borehole	Mercia Mudstone Surface	Mercia Mudstone Depth (Grade II)	Notes
BH-RPS-19a	9.05	-	
BH-RPS-20	9.0	9.0	
BH-RPS-21	4.5	10.5	
BH-RPS-21	4.45	-	
BH-RPS-22	4.6	4.6	
BH-RPS-22	4.6	4.6	
BH-RPS-23a	9.0	9.0	
BH-RPS-24	8.85	12.3	
BH-RPS-24a	11.3	11.8	

Notes.

1. Located within the proposed bunker

Bunker (within the Main Energy Generation Facility)

10.6.15 The proposed Bunker will extend 8.0m below the finished ground level within the footprint of the main Energy Generation Facility.

Excavation and Re-profiling

10.6.16 The ground model indicates the majority of the excavation will occur in Made Ground and Lime Made Ground with some Superficial strata. It is anticipated that the majority of excavations will be within the capacity of conventional excavators however old foundations, buried timber and concrete slabs may require larger capacity machines with breakers.

10.6.17 The construction of this bunker will require the excavation of approximately 14,000 m^3 of soil, discussed in Section 11. During installation and excavation of the bunker, support will be required including groundwater control systems. Consideration should be given to the presence of low strength Lime Made Ground and Alluvium during this phase of works. It is presumed sheet piles will be installed to form a suitable barrier (against the Lime Made ground and groundwater) prior to excavation of the bunker.

Existing Foundations

10.6.18 The Site has been previously been developed as a power station with multiple ancillary structures. The old foundations and underground structures identified in Table 10-2 will require removal when constructing the bunker.

Foundation Considerations

10.6.19 The succession comprises a cover of Made Ground (heterogeneous material and Lime Made Ground) between 0.0 – 5.1m depth, overlying superficial soils comprising Alluvium (organic material) and Glacial Till between 1.9 – 8.5m over Mercia Mudstone. No Alluvium has been encountered below 6.7m depth in this zone. Boreholes in the immediate zone indicate the surface of the Mercia Mudstone resides between 7.7 to 9.0m from the current surface, see Table 10-6.

10.6.20 A nominal pile depth of 15 m has been proposed by the Client *(Drawing Ref: 12088-01 Rev.04)*. This appears suitable founding within competent Mercia Mudstone bedrock however due to potential uplift forces tension piles are recommended. The design of piles shall be carried out in accordance with relevant guidance, including but not limited to:

- BS EN 1997-1:2004+A1:2013 and BS EN 1997-2:2007 – Eurocode 7: Geotechnical Design (*EC, 2009*),
- BS 8004:2015 – Code of practice for foundations (*BSI, 2015a*), and
- BS EN 1992-1-1:2004+A1:2014 - Eurocode 2: Design of concrete structures (*EC2, 2014*).

10.6.21 Further design shall utilise industry accepted procedures and take account of directly relevant published guidance including but not limited to;

- CIRIA R 181: Piled foundations weak rock (*CIRIA, 1999*); and
- CIRIA 570: Engineering in Mercia Mudstone (*CIRIA, 2001*).

10.6.22 Consideration must be given to the following during the installation of piles;

10.6.23 Uplift and lateral displacement caused by adjacent piling works and buoyancy is manageable in these ground conditions and its management is included for in the working method to be applied. This should include groundwater monitoring information.

10.6.24 The Mercia Mudstone requires careful consideration particularly in the estimation of pile bearing capacity and skin friction developed over the penetration depth into the rock and the end bearing resistance beneath the pile toe. The Mercia Mudstone can have variable strength characteristics, including bands of low or zero strength.

10.6.25 Care should be taken to ensure that piles are not stopped short on obstructions.

Ash Handling Facility

Topography and Re-profiling

10.6.26 Minor cut and fill works will be undertaken to create the development platform. Based on the current appraisals cut or fill works are unlikely alter site levels beyond 1.0m. Consideration to the removal of the concrete hardstanding is required.

Existing Foundations

10.6.27 The Site has been previously been developed as a coke storage yard and where required the concrete hardstanding and timber will require removal when present within the zone of influence of the proposed development.

Foundations

10.6.28 Data available (Table 10-3) indicates a cover of Made Ground to between 0.5 – 1.5m depth overlying Glacial Till comprising a mix of granular and cohesive material to depths from 0.5m to in excess of 7.0m. Mercia Mudstone has been recovered in BH06A (*IGSL, 2013*) from 1.5m, however this is anomalous with adjacent exploratory hole, SLR BH06 (*SLR, 2007*), identifying (possible) weathered Mercia Mudstone from 5.2m depth.

10.6.29 Given the variability from the two exploratory boreholes, the recommendations from the IGSL report should be revisited. Where (competent) Mercia Mudstone is identified shallow (i.e. less than 2.0m) shallow foundations are considered feasible with a support foundation pressure of 200kN/m2 considered suitable for preliminary design purposes.

10.6.30 Limited geotechnical test data is available for this zone. It is recommended that additional intrusive investigation is undertaken to confirm the rock head profile across the proposed structure to refine the foundation option in this zone.

10.6.31 If competent Glacial Till deposits are identified over Mercia Mudstone shallow foundations are potentially feasible in the superficial strata however, strengthening of footings to account for variability may also be required.

10.6.32 Where Made Ground and Glacial Till deposits are thicker, it is likely that foundations will require ground improvement, raft or a piled solution within the Mercia Mudstone

Substation and Water Treatment Plant

Topography and Re-profiling

10.6.33 Minor cut and fill works will be undertaken to create the development platform. Based on the current appraisals cut or fill works are unlikely alter site levels beyond 1.0m.

Existing Foundations

10.6.34 The site has been previously been developed with multiple ancillary structures. Multiple exploratory hole locations have refused due to a concrete slab with a possible basement in BH-ROS-08, below the proposed Water Treatment Plant.

10.6.35 The old foundations and underground structures identified above and in Table 10-2 will require removal when present within the zone of influence of the proposed developments, as part of the ground improvement works.

Foundations

10.6.36 Data available (Table 10-3) indicates a cover of Made Ground (heterogeneous material and Lime Made Ground) between 0.0 – 1.9m depth overlying Superficial soils comprising Alluvium (non-organic) and Glacial Till between 0.9 – 11.3m over Mercia Mudstone. The Glacial Till comprised of principally cohesive materials with an average SPT N' of 30. The Mercia mudstone has been encountered from between 8.5 – 8.7m depth.

10.6.37 Given the competency of the superficial strata (from 2.5m) shallow foundations are feasible however these are still likely to require increased footing depths and strengthening of footings to account for variability within soils may also be required. We consider the recommendation from IGSL of 150 kN/m^2 is a suitable presumed bearing capacity for preliminary design purposes (where founding in Glacial Till).

10.6.38 The founding of both structures by piles as proposed by the Client (*Drawing Ref: 12088.302.01 and 12088.303.01*). Piling would be dependent on the structures intended but founding would be envisaged to be within the Glacial Till from 5m depth and/or Mercia Mudstone Formation from 8.5m depth.

Amenities and Workshops

Topography and Re-profiling

10.6.39 No site levels or proposed levels have been provided on these structures.

Existing Foundations

10.6.40 We are not aware of any significant structures at this location however the general Site has been previously been developed as a power station with multiple ancillary structures. An unknown obstruction was identified in CP-RPS-01 at 7.5m depth.

Foundations

10.6.41 Data available (Table 10-3) indicates approximately 7.5m of Made Ground with soft Lime Made Ground identified within the heterogeneous Made Ground between 2.2 – 6.5m. Alluvium comprising soft cohesive material has been encountered between 7.2 – 9.5m over Mercia Mudstone. The exploratory holes indicate variable thicknesses of low strength Lime Made ground.

10.6.42 No assessment has been undertaken by IGSL (2013) for this location.

10.6.43 The aforementioned stratum are not considered to provide a suitable bearing stratum at the Site due to the presence of low strength Made Ground and organic material. Founding of the structures by piles as proposed by the Client *(Drawing Ref: 12088.301.0)* Piles would likely be founded in the Mercia Mudstone encountered from 9.5m depth.

10.6.44 It is recommended additional intrusive investigation is undertaken to determine the rock head profile across the proposed structure and weathering profile of the bedrock.

Office

Topography and Re-profiling

10.6.45 No site levels or proposed levels have been provided on this structure. We understand that as part of the remedial works 200mm of material is to be removed from Site.

Existing Foundations

10.6.46 No structures have been identified at this location however the Site has been previously been developed as a power station with multiple ancillary structures.

Foundations

10.6.47 Data available (Table 10-3) indicates a cover of Made Ground (heterogeneous material) between 0.0 – 3.0m depth overlying Superficial soils comprising Alluvium (organic material) and Glacial Till between 2.3 – 5.3m over Mercia Mudstone. The Glacial Till comprised of cohesive materials with an SPT N (not corrected) values between 12 - 25. The Mercia mudstone was encountered in one borehole from 5.0m.

10.6.48 No assessment has been undertaken by IGSL (2103) for this location.

10.6.49 Piling would be dependent on the final structure intended but founding would be envisaged to be within the Mercia Mudstone Formation from 5.0m depth.

10.6.50 Due to no exploratory holes in the vicinity have sufficiently penetrated the Mercia Mudstone it is recommend an additional borehole is advanced to determine the local weathering profile.

Pipe bridges

Topography and Re-profiling

10.6.51 No site levels or proposed levels have been provided for the Pipe Bridges across the Site.

Existing Foundations

10.6.52 Several concrete structures and voids have been identified in this Development Zone. All structure should be removed when in the vicinity of proposed foundations. and as such only minor breaking out is anticipated.

Foundations

10.6.53 Information from the Client indicates a Pipe Bridges will be constructed between the Substation and Water Treatment Plant. The ground conditions for this area (Table 4-3) indicate a cover of Made Ground (heterogeneous material and Lime Made ground) between 0.0 – 1.9m depth overlying Superficial soils comprising Alluvium (non-organic) and Glacial Till between 0.9 – 11.3m over Mercia Mudstone.

10.6.54 No information has been supplied on the Pipe Bridge loadings however these are anticipated to be low. Given the Made Ground is heterogeneous it is recommended to found all pads on the Glacial Till from beyond 0.9mbgl.

10.6.55 Given the competency of the superficial strata (from 2.5m) shallow foundations are feasible when founded within the Glacial Till. We consider the recommendation from IGSL (2013) of 150 kN/m^2 is a suitable presumed bearing capacity for preliminary design purposes (where founding in Glacial Till).

10.6.56 Where Pipe Bridges are proposed outside from this location additional review should be undertaken. Consultation on the final deigns should be sought with a suitable experienced geotechnical consultancy.

Ground Improvement

10.6.57 The following salient points are considered for ground improvement works:

- The Site is generally underlain by Made Ground, up to approximately 7.7 m thick. Generally this is made of a mixture of re-worked natural deposits, with some anthropogenic material within. A number of obstructions and voids were encountered within the Made Ground, see Table 10-2;
- Within the Made Ground non pervasive pockets of Lime Made Ground have been identified comprising soft silts;
- The Alluvium has been identified across the site however is non pervasive. The stratum has been recovered as both a soft organic clay and gravelly sandy clay of intermediate plasticity;
- The Glacial Till generally comprises firm to stiff sandy gravelly clay and/or medium dense clayey gravel; and
- It is not anticipated any Mercia Mudstone will be excavated as part of the ground improvement works.

10.6.58 It is understood that a separate study is being undertaken to assess the performance of the Lime Made Ground as a Hydraulically Bound Material. As such an assessment of the untreated Lime Made Ground materials suitability is beyond the scope of this report.

10.6.59 PSD results of the soils reviewed against the Specification for Highway Works (Volume 1 – Series 600) indicate the several applicable uses, summarised in Table 10-8. Due to the presence of argillaceous material in both the Made Ground and Glacial Till it is likely the materials will not be considered suitable for Type 6 materials.

10.6.60 The grading's indicate the Made Ground and coarse Glacial Till is likely suitable as general granular fill. The cohesive Glacial Till has been identified as suitable for general cohesive fill. Further assessment will be required to validate the aforementioned.

Table 10-8 PSD Grading Classification to Series 600

Sample	Depth	Unit	Series 600 Grading Classification
TP-RPS-50	0.5	Made Ground	1a/b, 6e/r/i/j/m/n/p
TP-RPS-45	0.5	Made Ground	1a/b 6e/r/i/j
TP-RPS-51	0.6	Made Ground	1a/b 6a/e/r 6f1/2/3
CP-RPS-02	4.5	Made Ground	1a/b 6a/e/r 6f1
CP-RPS-05	1.2	Made Ground	1a/b 6a/e/r 6f1/2/3
CP-RPS-01	1.2	Made Ground	1a/b 6a/e/r 6f1
CP-RPS-03	6	Glacial Till (clay)	2a/b 6e/r 7a/e/f/l
CP-RPS-04	0.2	Made Ground	1a/b 6e/r 6f1/2/3
CP-RPS-02	0.2	Made Ground	1a/b 6e/r 6f2/3
CP-RPS-03	3	Glacial Till (clay/gravel)	1a/b 6e/r

Notes.

1. Located within the proposed bunker

Material Reuse

10.6.61 It is considered, given the descriptions of the strata encountered and the grading's identified that some of the materials excavated for future development could be reused on the Site where remediated suitably, as below:

- Glacial Till - This will be suitable as general fill however screening will be required to determine the Grade of fill (granular or cohesive); and
- Made Ground - This may be suitable as general fill however screening is likely required accompanied with further assessment of the constituents in accordance with BS EN 13242.

10.6.62 Prior to material reuse on site additional testing in accordance with the Highways Specification will be required and consideration should be given to on-site screening of recovered materials.

10.6.63 There has been localised contamination encountered and this would need to be considered for any reuse. For some parts of the Site this would need to be addressed within a remediation strategy.

10.6.64 Asbestos has been recorded in a number of samples analysed and will also need to be considered for any earthworks undertaken.

Excavation and Stability

10.6.65 It is anticipated the majority of excavations are to occur in the Made Ground soils with multiple obstructions to be encountered. It is anticipated the majority of excavations will be within the capacity of conventional excavators however old foundations, concrete slabs and the possible basement feature may require larger capacity machines with breakers. All subsurface

structures identified in Table 10-2 and discussed in Table 10-3 will require either removal or should be suitably accounted for in foundation design. Further obstructions and voids are likely to be present.

10.6.66 Several Trial Pits recorded spalling from the sidewalls at depth. The information indicates that for the majority of shallow excavations that the support of excavation sides is unlikely to be required. Where instability is encountered suitable support should be installed.

10.6.67 Where excavating the Bunker it is presumed suitably designed sheet piles will be installed which will take account of potential instability.

Groundwater Management

10.6.68 Shallow ground water has been identified during the intrusive investigation as summarised in Section 4.4. Careful consideration will need to be given to groundwater control throughout the whole Site, with shallow water levels recorded across much of the site although this is considered to be perched and hence to be variably present.

Ground Aggressivity

10.6.69 Results in Table 10-5 in accordance with BRE SD1 (*BRE, 2005*), indicate a Design Sulphate Class of DS5 and AC-5, for both the Lime Made Ground and Mercia Mudstone. The Made Ground and Alluvium is indicated to be DS-4 and AC-4, with the Glacial Till indicated as DS-1, AC-1.

10.6.70 The results indicate elevated Design Classes and ACEC Class when compared to the IGSL sulphate results.

10.6.71 It should be noted that this is based on preliminary testing only and should be validated with further testing dependant on the construction anticipated.

Pavement Construction

10.6.72 Due to the presence of thick Made Ground deposits the removal of all Made Ground deposits in road construction is considered unfeasible.

10.6.73 It is <u>not</u> recommended to form roads upon the Lime Made Ground or soft compressible Alluvium. Where encountered these materials should be removed from Site. Where this is not possible the materials should be removed to 1.0m and replaced with a suitable granular material.

10.6.74 In the absence of in-situ CBR data from this investigation we considered a CBR value of 2.5% should be assumed for design purposes for the granular Made Ground. This assessment is based upon the data presented by IGSL, experience and published data. It is likely that this could be improved with the use of ground improvement and proper placement of imported fill. Actual CBR values should be confirmed prior to construction.

10.6.75 Actual design values should be determined for the construction zones upon finalisation of the levels.

10.7 Summary

10.7.1 The Site shows ground conditions consistent with an industrial legacy. There is the presence of significant Made Ground and the potential for ground contamination to be encountered including the presence of asbestos.

10.7.2 Whilst these aspects will need addressing for any intended development, the review above indicates that they are likely to addressed by recognised good construction practise and standard design practises consistent with the redevelopment of brownfield sites.

10.7.3 Prior to the development it is recommend that additional investigation is undertaken to further investigate piling depths outside of the main proposed building, ground aggressivity and the classification of materials for re-use onsite. Following this further investigation it is recommended individual geotechnical appraisals are undertaken for each development zone.

10.7.4 A summary of the Development Zones and Preliminary Geotechnical Assessment is presented in Table 10-9.

Table 10-9 Preliminary Geotechnical Assessment Summary

Development Zone	IGSL Founding Recommendations	RPS Founding Recommendation	Additional
Main Energy Generation Facility	Combination of piling and using ground beams on existing floor slab	Piling of the main building structure.	-
Bunker (within the Main Energy Generation Facility)	Secant pile cofferdam.	Piling of the bunker structure recommended, with sheet piling or similar for the sidewalls.	Support of excavation sides requires consideration. Consideration to uplift pressures requires assessment.
Ash Handling Facility	Founding on the Mercia Mudstone from 2.0m depth. 200kN/m2 considered suitable for preliminary design purposes	Additional investigation required to determine the depth profile of the Mercia Mudstone.	200 kN/m^2 considered suitable where founding in competent Mercia Mudstone.
Substation and Water Treatment Plant	IGSL (2013) propose 150 kN/m^2 is a suitable presumed bearing capacity for preliminary design purposes (where founding in Glacial Till).	Shallow foundations are feasible in the Glacial Till. IGSL bearing capacity considered suitable. Increased footing depths and strengthening of footings likely required	A concrete slab with a possible basement has been identified in BH-ROS-08, below the proposed Water Treatment Plant.
Amenities and Workshops	No assessment undertaken by IGSL.	Foundations will require a piled solution in the Mercia Mudstone encountered from 9.5m depth.	-

Development Zone	IGSL Founding Recommendations	RPS Founding Recommendation	Additional
Office	No assessment undertaken by IGSL.	Piled solution recommended. within the Mercia Mudstone Formation from 5.0m depth.	Additional boreholes recommend to determine Mercia Mudstone depth and weathering profile.
Pipe bridges	No assessment undertaken by IGSL.	It is likely pad footings will be acceptable Glacial Till. A full assessment is required on the pad footing design locations.	No information has been supplied on the Pipe Bridge design.
Material Reuse/Ground Improvement	Lime Made Ground and Made Ground not considered suitable as engineering fill. Consideration for use as landscaping fill. Stiff sandy gravelly clay (Glacial Till) likely suitable as general fill.	Glacial Till - Is likely suitable as general fill however screening may be required. Made Ground - This may be suitable as general fill however screening is likely required accompanied with further assessment of the constituents. Lime Made Ground – Not considered suitable as engineering fill.	Separate study for the reuse of Lime Made ground being undertaken.
Excavation and Stability and Groundwater	No comment.	Multiple concrete structure and basements will require removal. Support of deeper foundation horizons likely to be required. Local perched water bodies anticipated.	-
Ground Aggressively	DS-1, AC-1s to DS-3, AC-2s identified.	Ds-5, ac-5 identified in Made Ground and Mercia Mudstone.	RPS data indicates elevated Design Classes and ACEC Class when compared to the IGSL (2013) sulphate results.
Pavement Construction	CBR of 2.5% assumed for site. Lime Made Ground requires replacement to 1.0m depth.	No conflicting data identified.	CBR testing at proposed road locations advised.

11 Waste Classification

11.1 Introduction

11.1.1 The soil chemical data has been assessed, by stratum, for the appropriate waste disposal option.

11.2 General Made Ground

11.2.1 Initial assessment of the total soil concentration data (for 67 samples of General Made Ground) has shown that 8 out of 67 samples (12%) would require disposal as hazardous waste, and the remainder indicate that these materials are not hazardous (either inert or non-hazardous, discussed further below). Hazardous properties are due to TPH, benzo(a)anthracene, pH, manganese sulphate, asbestos and arsenic trioxide.

11.2.2 Waste Assessment Criteria (WAC) analyses (on 4 out of the 8 hazardous samples of Made Ground) have all shown that these materials would require pre-treatment prior to disposal at a hazardous facility. Pre-treatment is required due to Total Organic Carbon content and Loss On Ignition values being above the WAC for hazardous waste. When selecting a waste disposal route, consideration must be given to whether a facility can accept asbestos-containing soils, as asbestos was detected in 2 of the 4 hazardous samples. All of the 8 hazardous samples of Made Ground were analysed for asbestos.

11.2.3 WAC analyses (on 19 out of the 59 not hazardous samples of Made Ground) have shown that 5 samples (26%) meet the inert WAC criteria. It must be noted however that asbestos testing has shown that 2 out of the 5otherwise inert samples contain asbestos fibres (albeit below the limit of quantification). Inert waste facilities are unlikely to be able to accept asbestos-containing soils. All of the five inert samples of General Made Ground were analysed for asbestos.

11.2.4 Waste Assessment Criteria (WAC) analyses (on 19 out of the 59 not hazardous samples of Made Ground) have shown that 14 samples (74%) exceed the WAC criteria for acceptance at an inert waste facility and therefore will require disposal at a non-hazardous waste facility. This is due to exceedance of the inert criteria for the following in certain samples: Total Organic Carbon, Loss on Ignition, sulphate, Total Dissolved Solids, molybdenum, antimony, chloride and mercury. When selecting a waste disposal route, consideration must be given to whether a facility can accept asbestos-containing soils, as asbestos was detected in 28 of the not hazardous samples, ranging in quantification from <0.001% to 0.0217%. All bar one of the not hazardous samples of Made Ground were analysed for asbestos.

11.3 Lime Made Ground

11.3.1 Initial assessment of the total soil concentration data (for 28 samples of Lime Made Ground) has shown that 25 samples (89%) would require disposal as hazardous waste, and the

remainder of these materials are not hazardous (either inert or non-hazardous, discussed further below). Hazardous properties are due solely to (strongly alkaline) pH.

11.3.2 WAC analyses (on 6 out of the twenty 25 hazardous samples of Lime Made Ground) have all shown that 83% of the hazardous materials would require pre-treatment prior to disposal at a hazardous facility. Pre-treatment is required due to Loss on Ignition values being above the WAC for hazardous waste. The remaining hazardous sample was shown to be suitable for disposal without the need for pre-treatment. When selecting a waste disposal route, consideration must be given to whether a facility can accept asbestos-containing soils, as asbestos was detected (albeit below the limit of quantification) in 1 out of 9 hazardous samples tested. 9 out of the 25 hazardous samples of Lime Made Ground were analysed for asbestos.

11.3.3 The remaining 3 of the 25 Lime Made Ground samples (11%) would require disposal as not hazardous waste. The available WAC data indicates that these samples exceed the WAC criteria for inert waste and therefore these materials will require disposal as non-hazardous waste. This is due to exceedance of the inert criteria for the following in certain samples: Total Organic Carbon, sulphate and Total Dissolved Solids. When selecting a waste disposal route, consideration must be given to whether a facility can accept asbestos-containing soils, as asbestos was detected in two out of the three not hazardous samples (albeit below the limit of quantification). All of the 3 not hazardous samples of Lime Made Ground were analysed for asbestos.

11.3.4 The Lime Made Ground is easily distinguishable from the other soil types due to its colour (cream) and consistency (very soft).

11.4 Alluvium

11.4.1 Initial assessment of the total soil concentration data (for 3 samples of Alluvium) has shown that these materials are not hazardous.

11.4.2 Of the 2 WAC analyses, 1 met the criteria for inert disposal; however the other exceeded the inert threshold for antimony. Therefore the material will be acceptable for disposal at a combination of inert and non-hazardous landfill. Further testing will be required prior to consignment of the waste.

11.5 Boulder Clay / Glacial Till

11.5.1 Initial assessment of the total soil concentration data (for 4 samples of Boulder Clay / Glacial Till) has shown that all these materials are not hazardous.

11.5.2 Waste Assessment Criteria (WAC) analysis (on 2 samples of Boulder Clay / Glacial Till) meets the WAC for disposal at a non-hazardous facility. The concentration of chloride and TDS measured in the WAC analyses was above the inert waste threshold.

11.6 Mercia Mudstone

11.6.1 Initial assessment of the total soil concentration data (for 2 samples of Mercia Mudstone) has shown that these materials are not hazardous. No Waste Assessment Criteria (WAC) analysis was undertaken on samples from this stratum.

12 Conclusions and Recommendations

12.1 Conclusions

12.1.1 A ground investigation of the former Lostock Power Station Site has been undertaken to enable levels of contamination across key areas of the Site to be assessed and to determine the requirements for any remediation that may be required to facilitate development of the Site. In addition, geotechnical information has been obtained on the ground conditions at the Site to supplement the existing available geotechnical information for the Site, to assist with structural design.

12.1.2 The key findings of the ground investigation are as follows:

- The investigation has identified a sequence of General Made Ground and Lime Made Ground overlying Glacial Till / Boulder Clay, which in turn overlies strata of the Mercia Mudstone. Alluvium was encountered locally underlying the Made Ground;
- An intermittent perched water table is present within the Made Ground. Groundwater is present within the superficial deposits and bedrock with limited flow rates; and
- The findings of the investigation confirmed that the previous Conceptual Site Model (CSM) (*RPS, 2017*)developed for the Site remain appropriate.

12.1.3 The human health risk assessment identified the following:

- A localised elevated concentration of arsenic was identified in General Made Ground in exceedance of 'commercial' screening criteria within CP-RPS-05 (0.5 mbgl). This elevated concentration was identified within the footprint of the proposed 'Office' area of the Site (to the north of the main site area) and is considered to potentially lie above levels of tolerable risk to human health;
- Localised elevated concentration of PAHs (3 compounds) were identified in exceedance of the respective 'commercial' assessment criteria. These were identified in the General Made Ground within TP-RPS-50 at 0.5 mbgl, also in the vicinity of the proposed 'Office' area, and is considered to potentially lie above levels of tolerable risk to human health;
- Concentrations of other inorganic and organic contaminants were below 'commercial' screening criteria values and are therefore considered to lie at levels of tolerable risk to human health.
- Asbestos was encountered within the General Made Ground at a total of 36 no. locations across the Site and within the Lime Made Ground at 2 no. locations. The presence of asbestos fibres in soils is considered to pose a potential risk to human health;
- pH within the Lime Made Ground has been identified as being greater than 11.5 at numerous locations across the Site. It is considered that the pH of the Lime materials beneath the Site are so elevated so as to make the materials a human health risk; and

- Mitigation is considered to be necessary to address the identified contamination. Appropriate mitigation would comprise placement of a cap / cover system or source removal.

12.1.4 The controlled waters risk assessment identified the following:

- The Tier 2 controlled waters assessment has identified that elevated concentrations of inorganic and organic contaminants have been identified within the perched water and underlying groundwater body across the Site. This would indicate that the groundwater beneath the site may have been adversely impacted by past industrial activities, however the groundwater quality is considered to be typical of that located within an area of extensive past industrial activity where there have been numerous historical and current industrial premises/activities. This impact is not considered to warrant remediation when the sensitivity of the groundwater is considered; and
- The risks to surface water receptors (comprising the Trent and Mersey Canal and the Wade Brook) was also considered within the Tier 2 controlled waters assessment. The potential for these watercourses to be impacted by lateral migration of shallow perched groundwater from Site is considered to be low given the predominantly low permeability nature of the underlying natural soils, the lined nature of the canal and the culverted nature of the brook. Whilst concentrations of contaminants were identified above the EQS standards, it is considered that these do not warrant remediation when the nature of the pathways is considered.

12.1.5 The ground gas risk assessment identified the following:

- A ground gas risk assessment has determined a Characteristic Situation 2 for the Site, based upon localised methane concentrations in excess of 5% and the calculated gas fluxes. A maximum methane concentration of 14.4% was identified at the Site during the monitoring programme undertaken by RPS. Elevated concentrations of carbon monoxide were also identified. Ground gas protection measures will be required to mitigate potential gas risks at the Site from the presence of methane, carbon dioxide and carbon monoxide.

12.1.6 The waste assessment identified the following:

- The General Made Ground soils have been typically classified as not being hazardous (either inert or non-hazardous), although localised areas of hazardous waste have been identified within the stratum. The Lime Made Ground has typically been classified as hazardous waste due to the high pH of the material; and
- The Alluvium and Glacial Till / Boulder Clay soils have been classified as not being hazardous with WAC data confirming that they would be acceptable for disposal at a facility that accepts non-hazardous waste. An initial assessment of the Mercia Mudstone data suggest that these soils are not hazardous.

12.1.7 The preliminary geotechnical assessment identified the following:

- The founding recommendations proposed by IGSL appear to be broadly appropriate for the areas of development that they are considered. The IGSL report did not undertake an assessment of the Office building, Pipe bridges, Amenities and Workshops. Information from the Client indicates these structures are to be founded on piles or pads. The RPS investigation has identified the following contrary information for foundation design;
  - A degree of uncertainty in the depth of Mercia Mudstone in the area of the Ash Handling Facility exists; and
  - The Client has confirmed a piled solution for the Water Treatment Plant, Substation and Main Energy Generation Facility. As such we understand the existing floor slab will not be incorporated into the foundation design for the Main Energy Generation Facility, contrary to the previous proposal set out by IGSL.
- Multiple subsurface features including, concrete slabs, unknown metal objects, wood sleepers and a possible basement/void will require either removal where in the vicinity of proposed foundations or inclusion within a pile design solution.
- The recommendations provided by IGSL pertaining to material reuse and pavement construction appear suitable; however RPS has identified the possibility of using the General Made Ground as general fill. An advanced concrete class of AC5 has been identified in the General Made Ground and Mercia Mudstone exceeding the recommendation of AC-3 from the IGSL data.
- Piling design will need to be undertaken by a suitable contractor with an assessment of potential uplift forces in the Bunker area accompanied with assessment for the degradation of the Mercia Mudstone bedrock in response to piling.

12.2 Recommendations

12.2.1 It is recommended that remedial measures are implemented at the Site to mitigate potential risks to human health from localised areas of arsenic and PAH and also from the presence of asbestos across the Site. The measures will need to address the risk from high pH value within the Lime Made Ground if this materials is to be retained at or close to the surface Placement of a cap or cover system and / or source removal are considered to be appropriate remedial techniques.

12.2.2 Ground gas protection measures will also be required to be implemented in new structures at the Site to mitigate potential risks from the presence of ground gas (carbon dioxide and methane). These measures will need to take account of the presence of elevated concentrations of carbon monoxide.

12.2.3 A Remediation Earthworks Method Strategy (REMS) (*RPS, 2018*) has been developed in conjunction with this report that details the methodology for the remediation of the identified contamination.

12.2.4 The conclusions of this report and the REMS will require agreement with the Local Authority and Environment Agency prior to implementation of the remedial measures at the Site.

12.2.5 Prior to the development it is recommend additional investigation is undertaken for geotechnical purposes as summarised below;

- Rotary boreholes to assess the piling depths outside of the main proposed building (where required) and Office area
- Rotary boreholes in the area of the Ash Handling Facility to determine the foundation option and bedrock profile for piles if required;
- Additional ground aggressively testing to determine and optimise a suitable Design Class of Concrete for the site;
- Classification of materials for re-use onsite (in accordance with Series 600);

12.2.6 It is recommended individual geotechnical appraisals are completed for each development zone/structure with development levels and loads provided including an assessment on the Pipe Bridge foundations. It is also recommended that CBR testing is undertaken in the proposed roadway locations on formation level.

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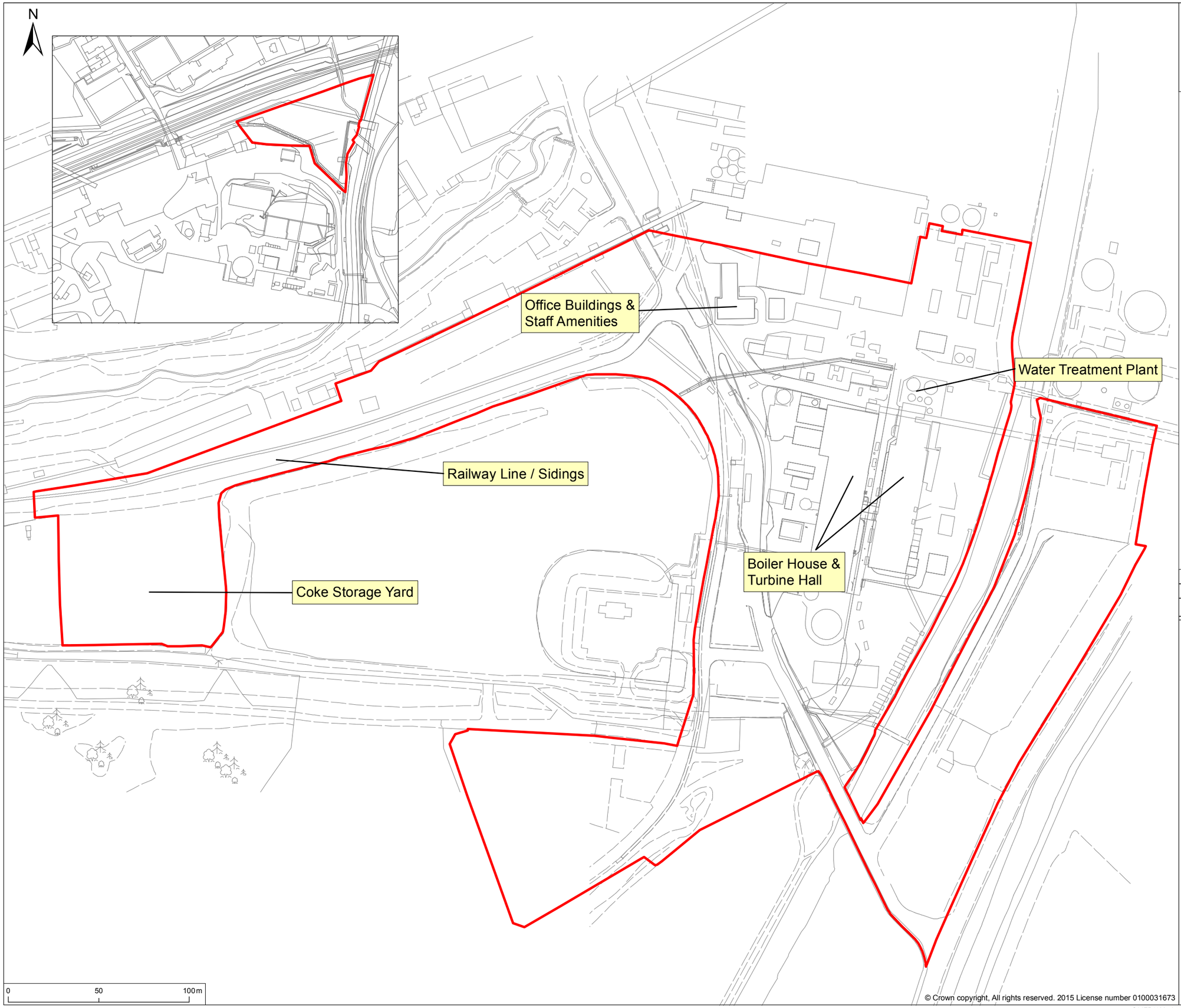
Drawings



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Legend

Planning Consent Boundary

Rev	Description	Date	Initial	Checked

RPS

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: SITE LAYOUT

Status	Drawn By	PM/Checked By
PRELIMINARY	JGB	GM
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	MAR 18

Drawing Number: **JER1100-SI-001**

Rev: **-**

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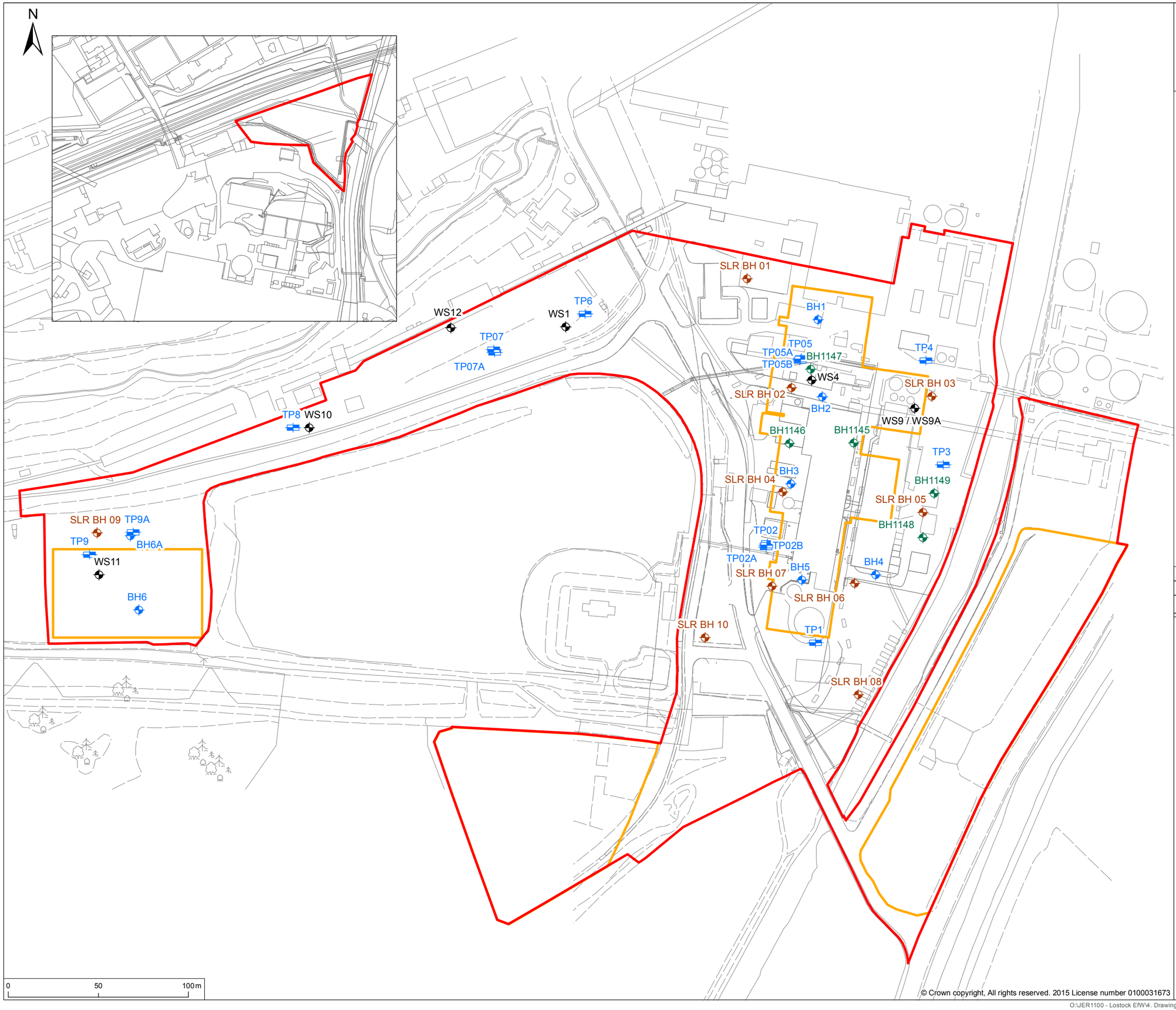

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Legend

Planning Consent Boundary

Proposed Buildings

Previous Investigation Locations

ISGL (November 2012)

Borehole

Trial Pit

WSP (September 2008)

Window Sample Borehole

SLR (December 2007)

Borehole

Tata Ref 142562 (October 1957)

Borehole (Data Not Available)

Rev	Description	Date	Initial	Checked

RPS

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Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: PREVIOUS GROUND INVESTIGATION LOCATIONS

Status	Drawn By	PM/Checked By
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Job Ref	**Scale @ A3**	**Date Created**
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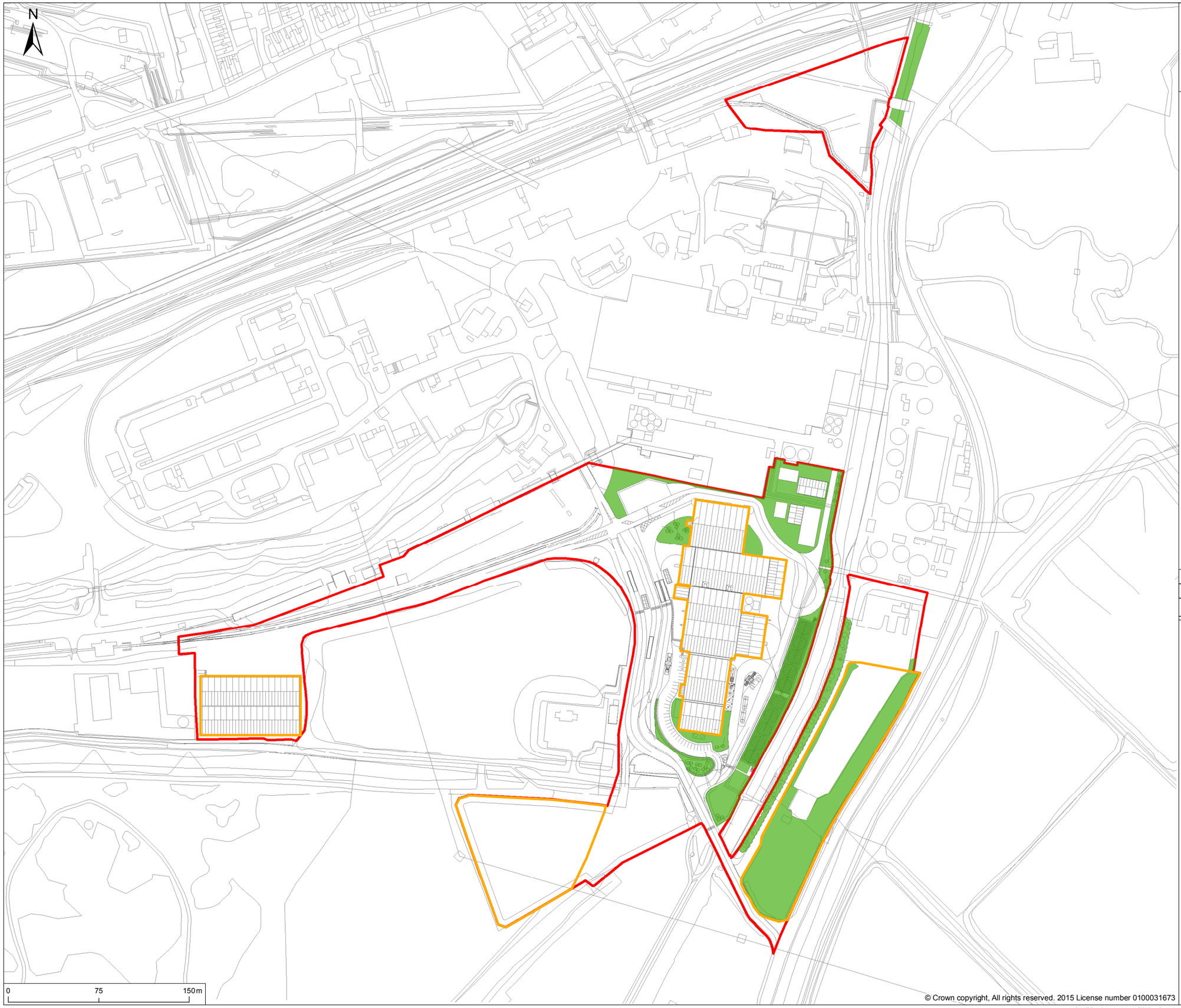

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Legend

- Planning Consent Boundary
- Soft Landscaping Areas
- Proposed Buildings

Rev	Description	Date	Initial	Checked
A	Addition of planning application areas	MAR 18	JGB	RY

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Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: PROPOSED DEVELOPMENT LAYOUT

Status	Drawn By	PM/Checked By
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Job Ref	**Scale @ A3**	**Date Created**
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Rev: **A**

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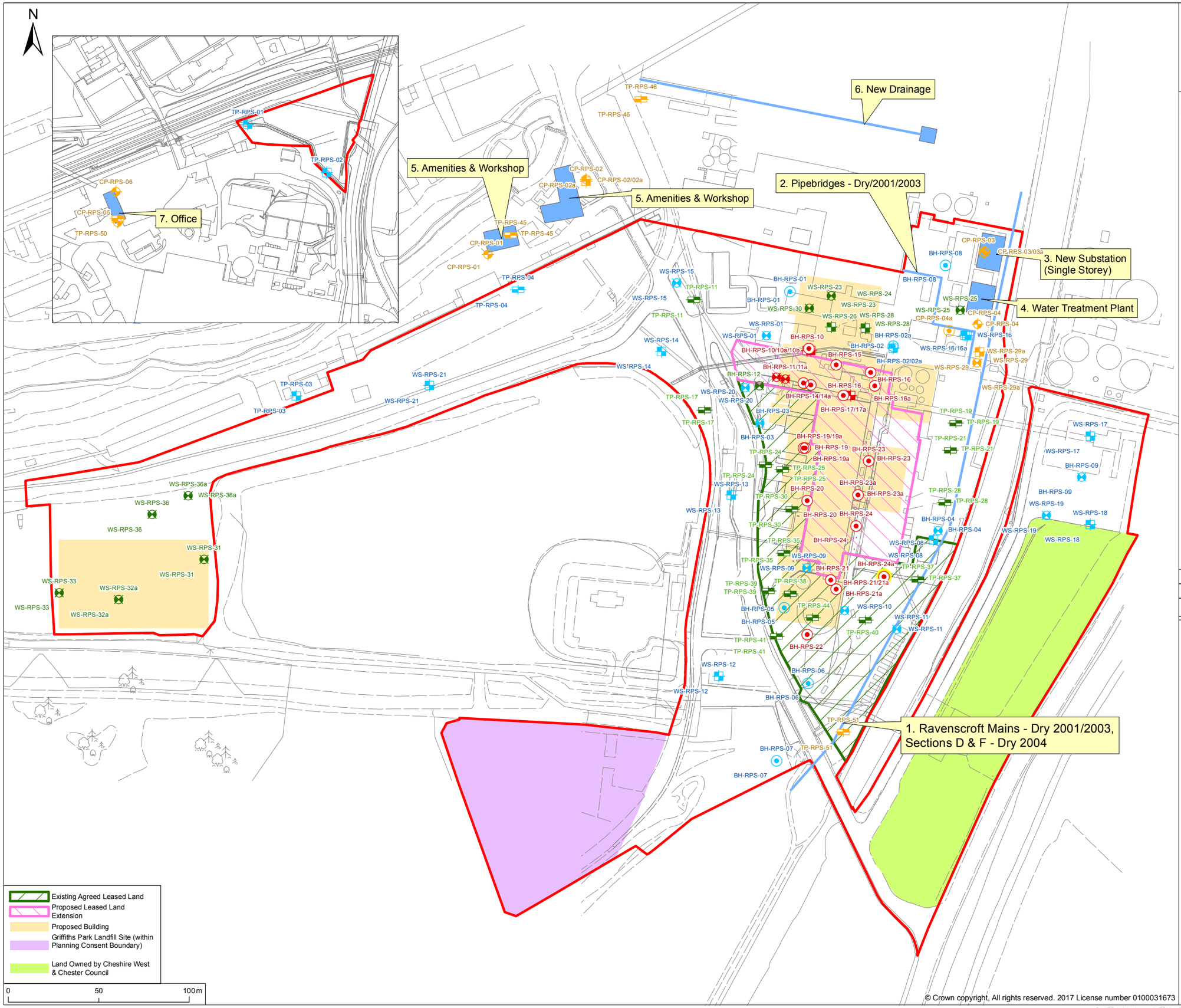

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Legend

- Planning Consent Boundary
- Monitoring Well Installation (23)

Investigation Locations

Based on Planning Requirements

- Rotary Borehole (6)
- Window Sample Borehole (10)
- Trial Pit (1)
- Hand Dug Pit (13)

Additional SISK Locations

- Rotary Borehole (2)
- Cable Percussive Borehole (6)
- Window Sample Borehole (1)
- Trial Pit (4)
- Hand Dug Pit (2)

Additional Geotechnical Requirements

- Rotary Borehole (15)
- Window Sample Borehole (1)
- Hand Dug Pit (3)

Abnormal Cost / General Site Coverage

- Window Sample Borehole (13)
- Trial Pit (16)
- Hand Dug Pit (3)

Rev	Description	Date	Initial	Checked
A	surveyed and indicative locations	MAR 18	RJ	GC

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: GROUND INVESTIGATION LOCATIONS

Status	Drawn By	PM/Checked By
PRELIMINARY	RJ	GC
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	FEB 18

Drawing Number: **JER1100-SI-005**

Rev: **A**

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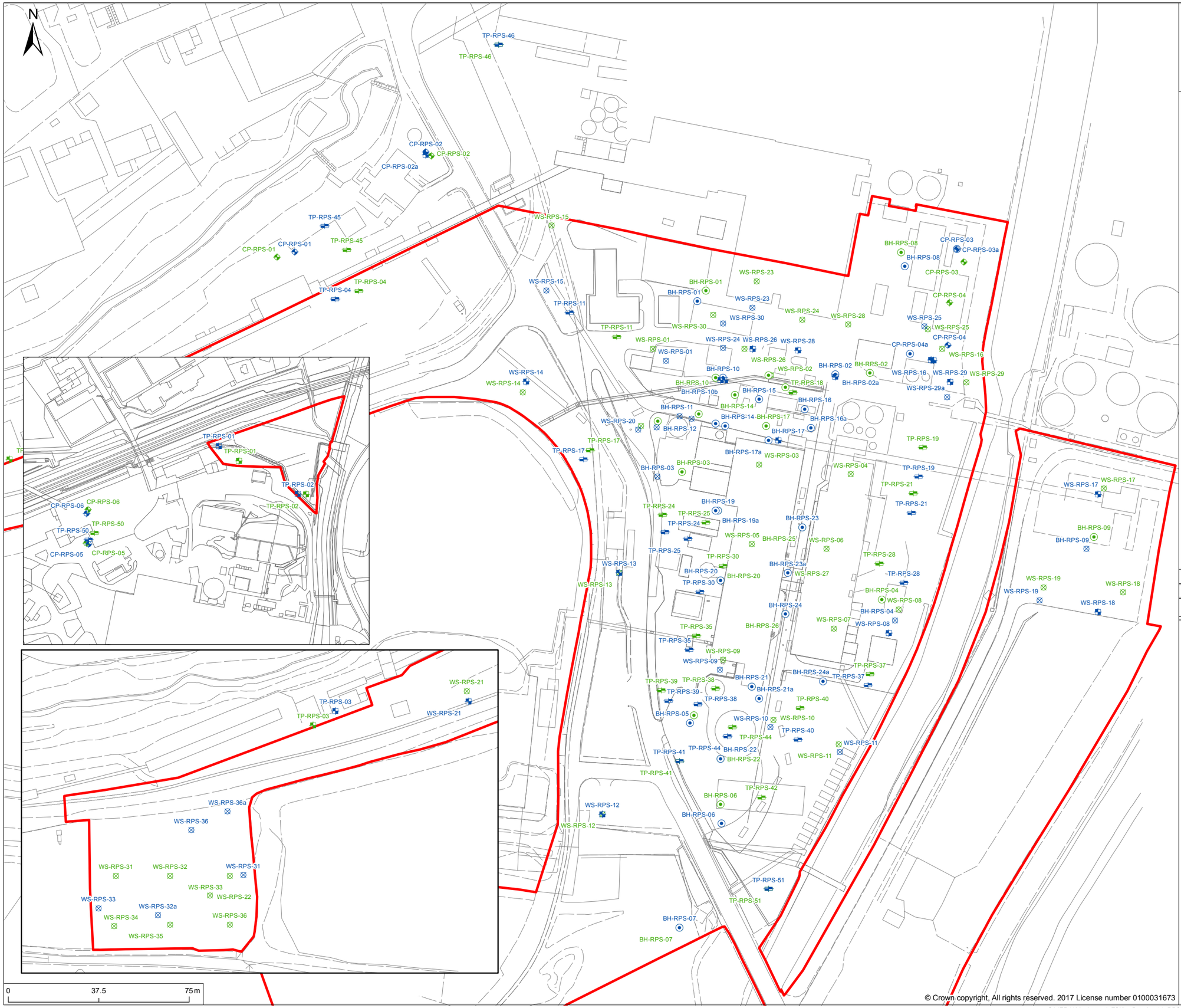

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Legend

Planning Consent Boundary

As Built Investigation Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Proposed Investigation Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: PROPOSED & AS BUILT INVESTIGATION LOCATIONS

Status	Drawn By	PM/Checked By
PRELIMINARY	RJ	LW
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:1,500	APR 18

Drawing Number: **JER1100-SI-014**

Rev: **-**

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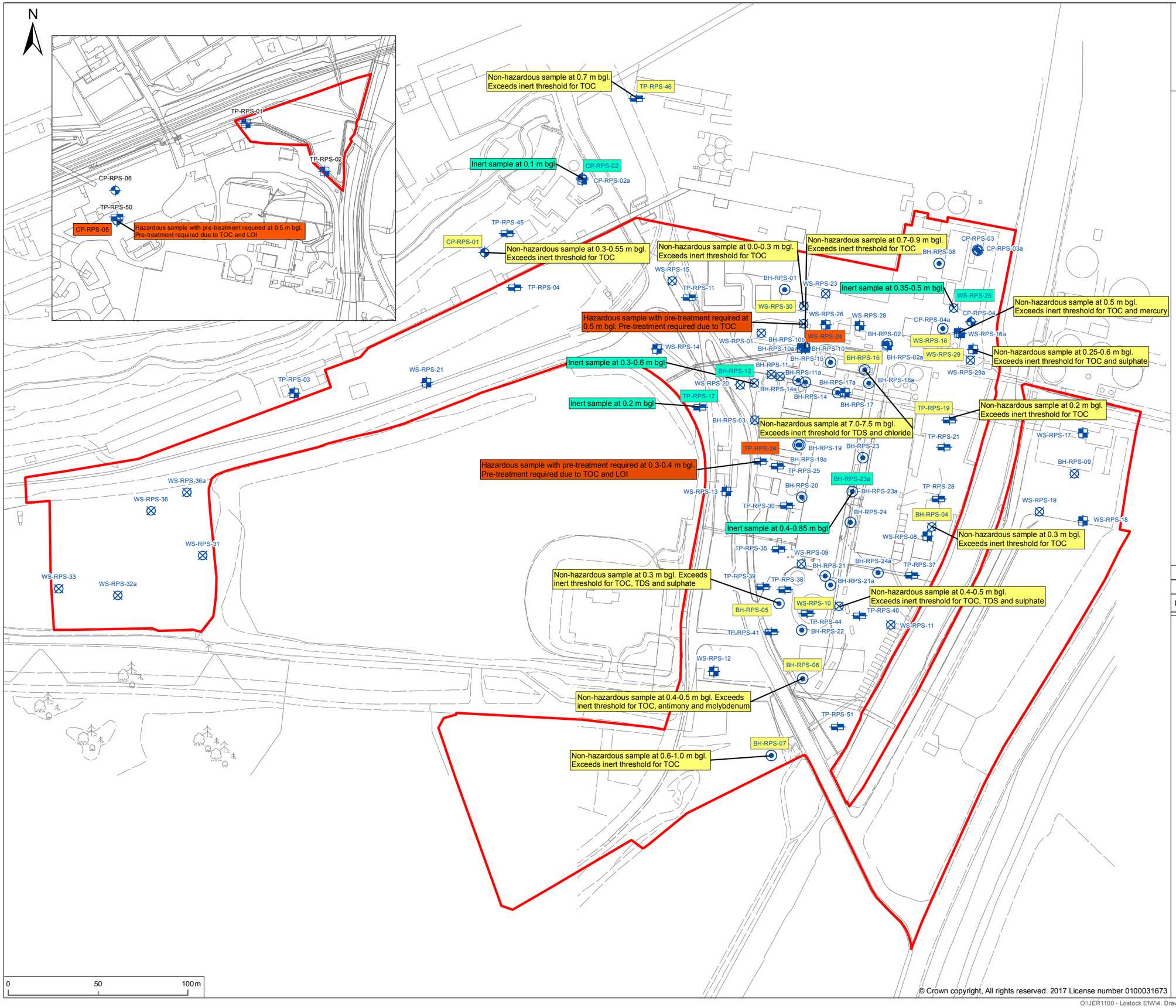

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Legend

Planning Consent Boundary

Investigation Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Waste Classification (Where WAC data is available)

- Inert
- Non Hazardous
- Hazardous with pre Treatment Required

WAC - Waste Acceptance Criteria
TOC - Total Organic Carbon
TDS - Total Dissolved Solids
LOI - Loss on Ignition

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: WASTE CLASSIFICATION - GENERAL MADE GROUND

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-015**

Rev: **-**

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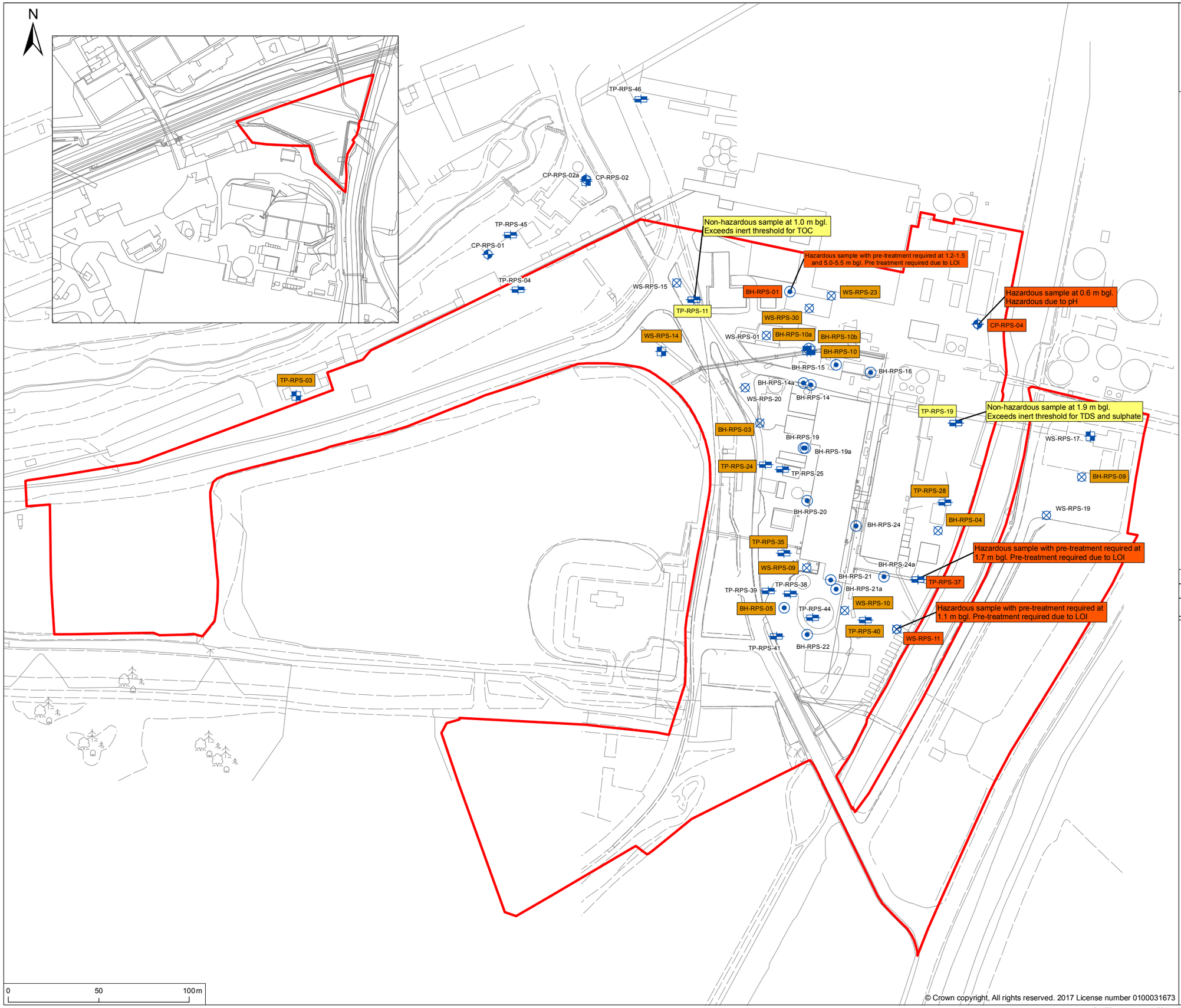

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Legend

Planning Consent Boundary

Investigation Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Waste Classification (Where WAC data is available)

- Non Hazardous
- Hazardous with pre Treatment Required
- High pH giving either hazardous or hazardous with pre-treatment classification (no WAC data to confirm)

WAC - Waste Acceptance Criteria
TOC - Total Organic Carbon
TDS - Total Dissolved Solids
LOI - Loss on Ignition

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: WASTE CLASSIFICATION - LIME MADE GROUND

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-016**

Rev: **-**

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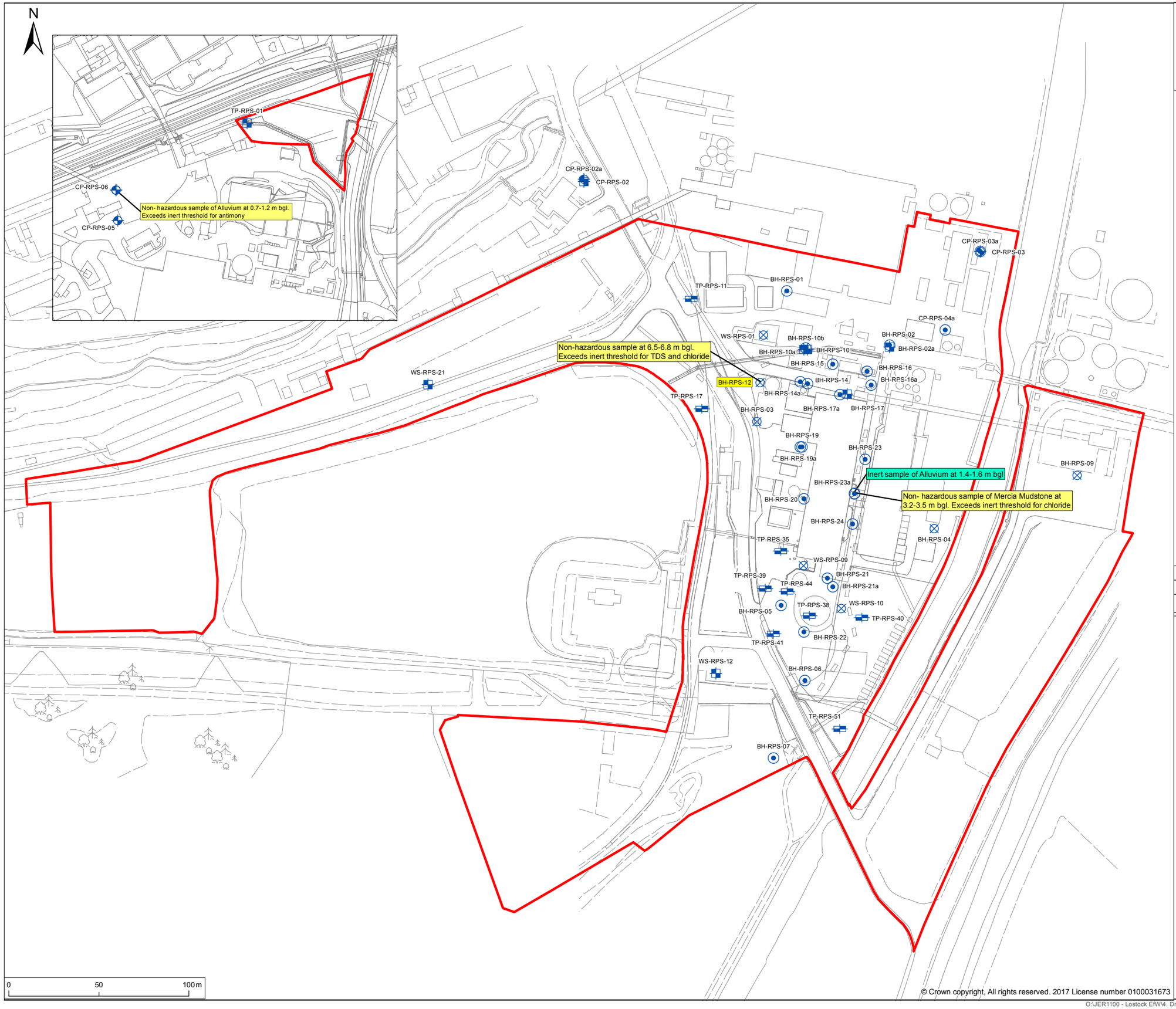

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Legend

Planning Consent Boundary

Investigation Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Waste Classification (Where WAC data is available)

- Inert
- Non Hazardous

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: WASTE CLASSIFICATION - NATURAL SOILS

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-017**

Rev: **-**

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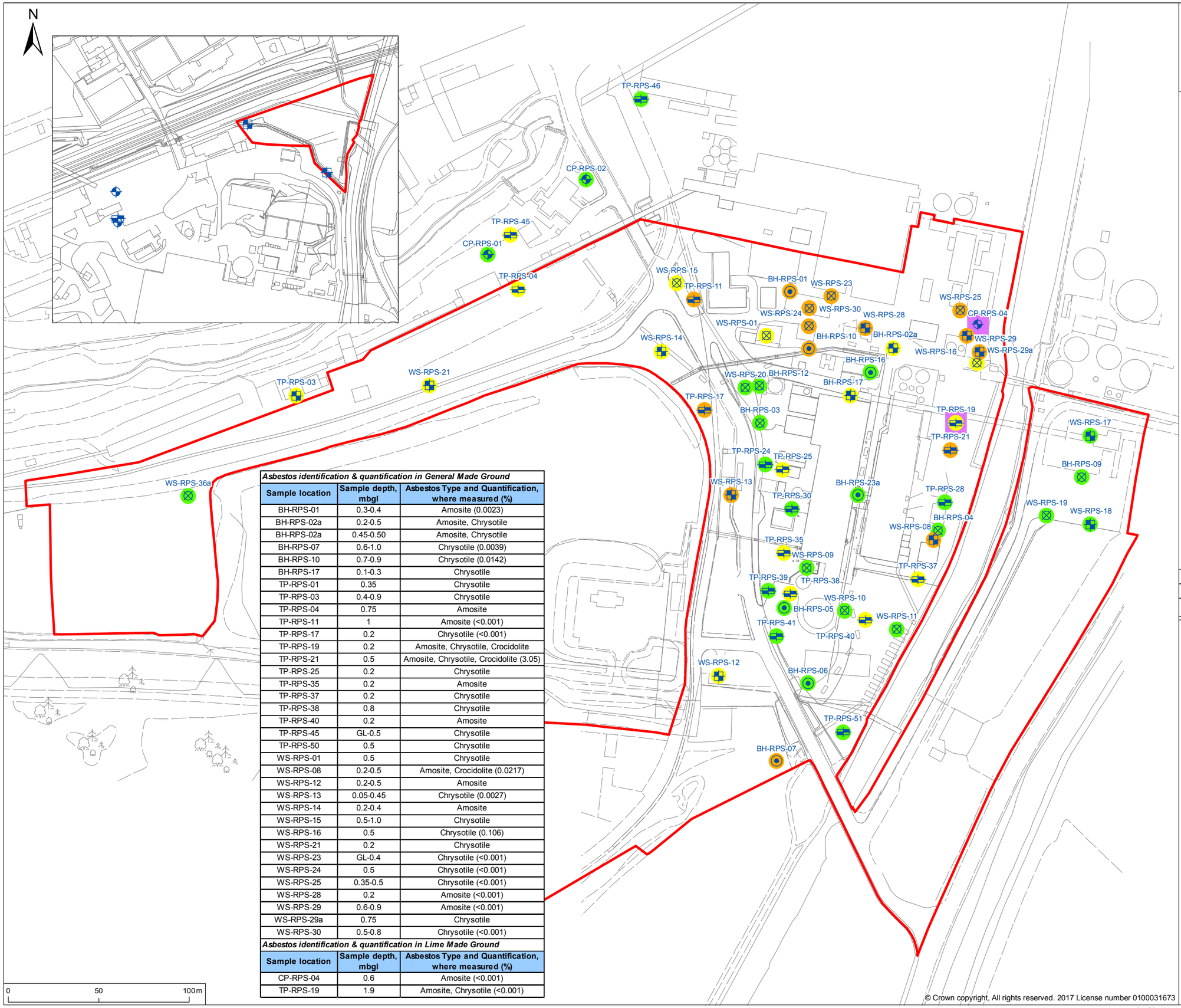

Asbestos identification & quantification in General Made Ground		
Sample location	**Sample depth, mbgl**	**Asbestos Type and Quantification, where measured (%)**
BH-RPS-01	0.3-0.4	Amosite (0.0023)
BH-RPS-02a	0.2-0.5	Amosite, Chrysotile
BH-RPS-02a	0.45-0.50	Amosite, Chrysotile
BH-RPS-07	0.6-1.0	Chrysotile (0.0039)
BH-RPS-10	0.7-0.9	Chrysotile (0.0142)
BH-RPS-17	0.1-0.3	Chrysotile
TP-RPS-01	0.35	Chrysotile
TP-RPS-03	0.4-0.9	Chrysotile
TP-RPS-04	0.75	Amosite
TP-RPS-11	1	Amosite (<0.001)
TP-RPS-17	0.2	Chrysotile (<0.001)
TP-RPS-19	0.2	Amosite, Chrysotile, Crocidolite
TP-RPS-21	0.5	Amosite, Chrysotile, Crocidolite (3.05)
TP-RPS-25	0.2	Chrysotile
TP-RPS-35	0.2	Amosite
TP-RPS-37	0.2	Chrysotile
TP-RPS-38	0.8	Chrysotile
TP-RPS-40	0.2	Amosite
TP-RPS-45	GL-0.5	Chrysotile
TP-RPS-50	0.5	Chrysotile
WS-RPS-01	0.5	Chrysotile
WS-RPS-08	0.2-0.5	Amosite, Crocidolite (0.0217)
WS-RPS-12	0.2-0.5	Amosite
WS-RPS-13	0.05-0.45	Chrysotile (0.0027)
WS-RPS-14	0.2-0.4	Amosite
WS-RPS-15	0.5-1.0	Chrysotile
WS-RPS-16	0.5	Chrysotile (0.106)
WS-RPS-21	0.2	Chrysotile
WS-RPS-23	GL-0.4	Chrysotile (<0.001)
WS-RPS-24	0.5	Chrysotile (<0.001)
WS-RPS-25	0.35-0.5	Chrysotile (<0.001)
WS-RPS-28	0.2	Amosite (<0.001)
WS-RPS-29	0.6-0.9	Amosite (<0.001)
WS-RPS-29a	0.75	Chrysotile
WS-RPS-30	0.5-0.8	Chrysotile (<0.001)
Asbestos identification & quantification in Lime Made Ground		
Sample location	**Sample depth, mbgl**	**Asbestos Type and Quantification, where measured (%)**
CP-RPS-04	0.6	Amosite (<0.001)
TP-RPS-19	1.9	Amosite, Chrysotile (<0.001)

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Legend

- Planning Consent Boundary

Investigation Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit
- Asbestos Detected and Quantified in Made Ground
- Asbestos Detected (Not Quantified) in Made Ground
- Asbestos Detected and Quantified in Lime Made Ground
- Asbestos Not Detected

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: ASBESTOS IDENTIFIED IN MADE GROUND

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-018**

Rev: **-**

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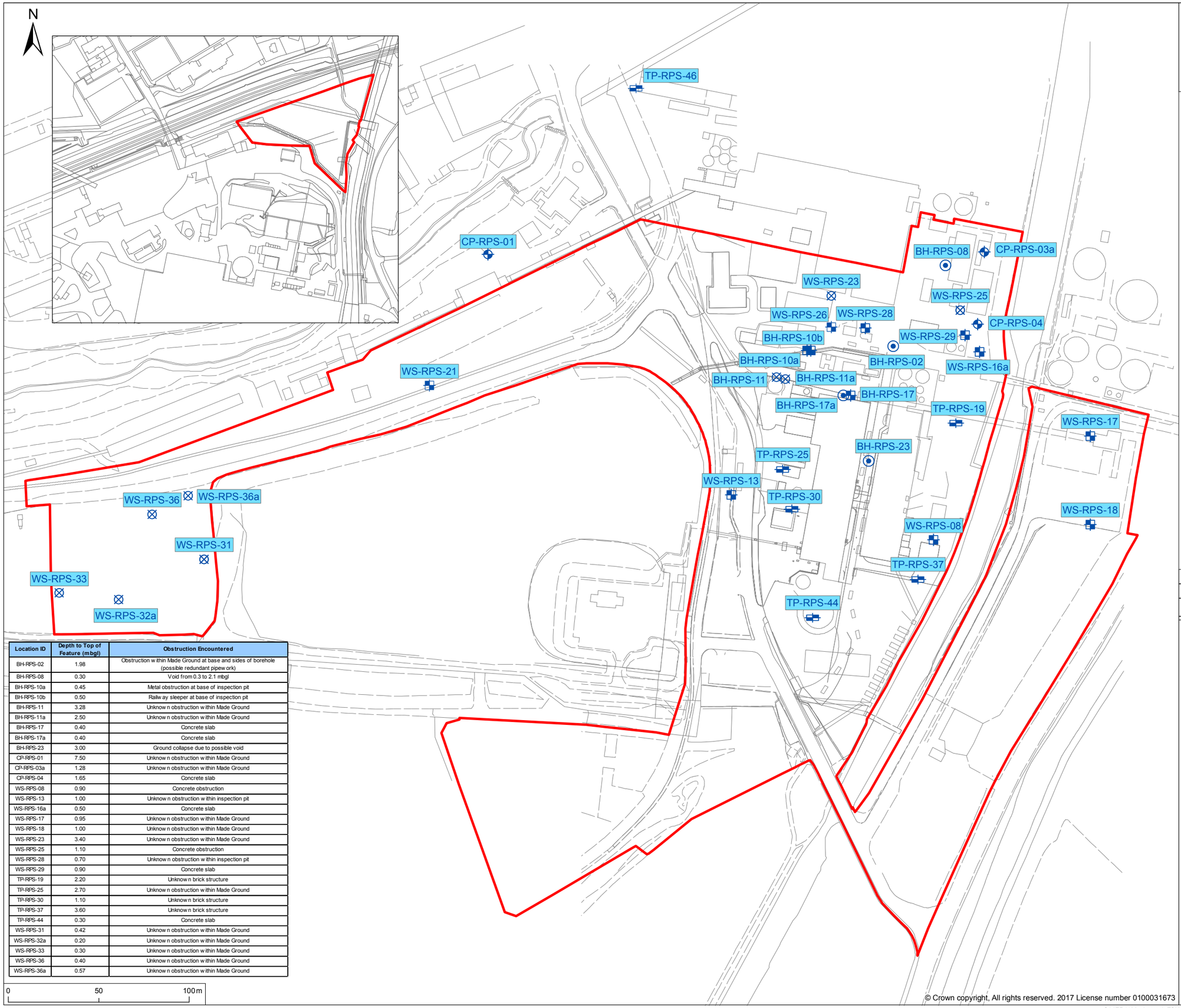

Location ID	Depth to Top of Feature (mbgl)	Obstruction Encountered
BH-RPS-02	1.98	Obstruction within Made Ground at base and sides of borehole (possible redundant pipework)
BH-RPS-08	0.30	Void from 0.3 to 2.1 mbgl
BH-RPS-10a	0.45	Metal obstruction at base of inspection pit
BH-RPS-10b	0.50	Railway sleeper at base of inspection pit
BH-RPS-11	3.28	Unknown obstruction within Made Ground
BH-RPS-11a	2.50	Unknown obstruction within Made Ground
BH-RPS-17	0.40	Concrete slab
BH-RPS-17a	0.40	Concrete slab
BH-RPS-23	3.00	Ground collapse due to possible void
CP-RPS-01	7.50	Unknown obstruction within Made Ground
CP-RPS-03a	1.28	Unknown obstruction within Made Ground
CP-RPS-04	1.65	Concrete slab
WS-RPS-08	0.90	Concrete obstruction
WS-RPS-13	1.00	Unknown obstruction within inspection pit
WS-RPS-16a	0.50	Concrete slab
WS-RPS-17	0.95	Unknown obstruction within Made Ground
WS-RPS-18	1.00	Unknown obstruction within Made Ground
WS-RPS-23	3.40	Unknown obstruction within Made Ground
WS-RPS-25	1.10	Concrete obstruction
WS-RPS-28	0.70	Unknown obstruction within inspection pit
WS-RPS-29	0.90	Concrete slab
TP-RPS-19	2.20	Unknown brick structure
TP-RPS-25	2.70	Unknown obstruction within Made Ground
TP-RPS-30	1.10	Unknown brick structure
TP-RPS-37	3.60	Unknown brick structure
TP-RPS-44	0.30	Concrete slab
WS-RPS-31	0.42	Unknown obstruction within Made Ground
WS-RPS-32a	0.20	Unknown obstruction within Made Ground
WS-RPS-33	0.30	Unknown obstruction within Made Ground
WS-RPS-36	0.40	Unknown obstruction within Made Ground
WS-RPS-36a	0.57	Unknown obstruction within Made Ground

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Legend

- Planning Consent Boundary
- Locations Terminated on Obstruction/Void in Made Ground

Terminated Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: LOCATIONS TERMINATED ON OBSTRUCTION/VOID IN MADE GROUND

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-019**

Rev: **-**

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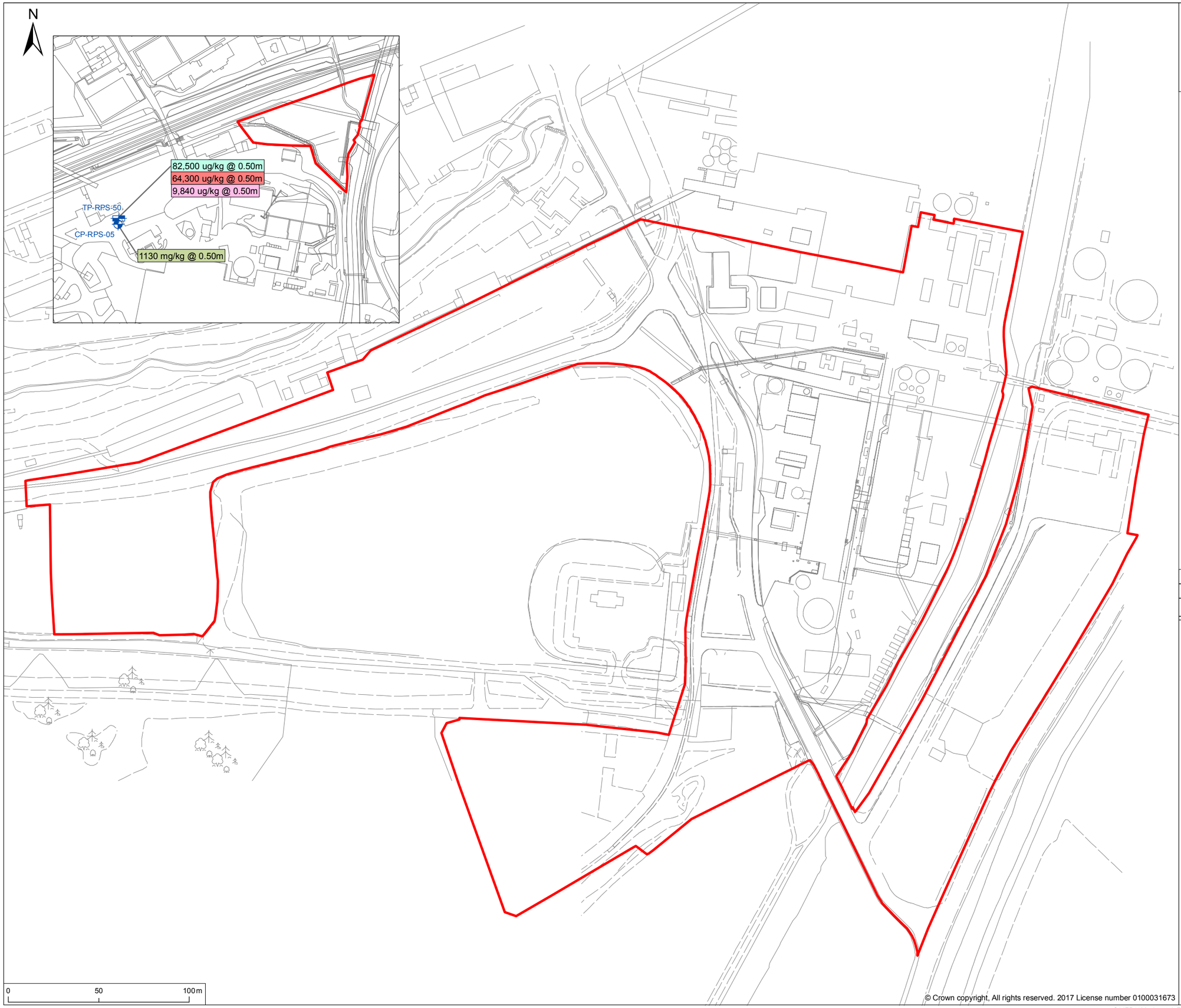

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Legend

Planning Consent Boundary

Exploratory Hole Locations

Cable Percussive Borehole

Trial Pit

Exceedances of Soil Screening Criteria

Arsenic

Benzo(a)pyrene

Benzo(b)fluoranthene

Dibenzo(a,h)anthracene

Rev	Description	Date	Initial	Checked

RPS

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Bristol, BS32 4SY
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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: ELEVATED CONCENTRATIONS OF CHEMICAL CONTAMINANTS

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-021**

Rev: **-**

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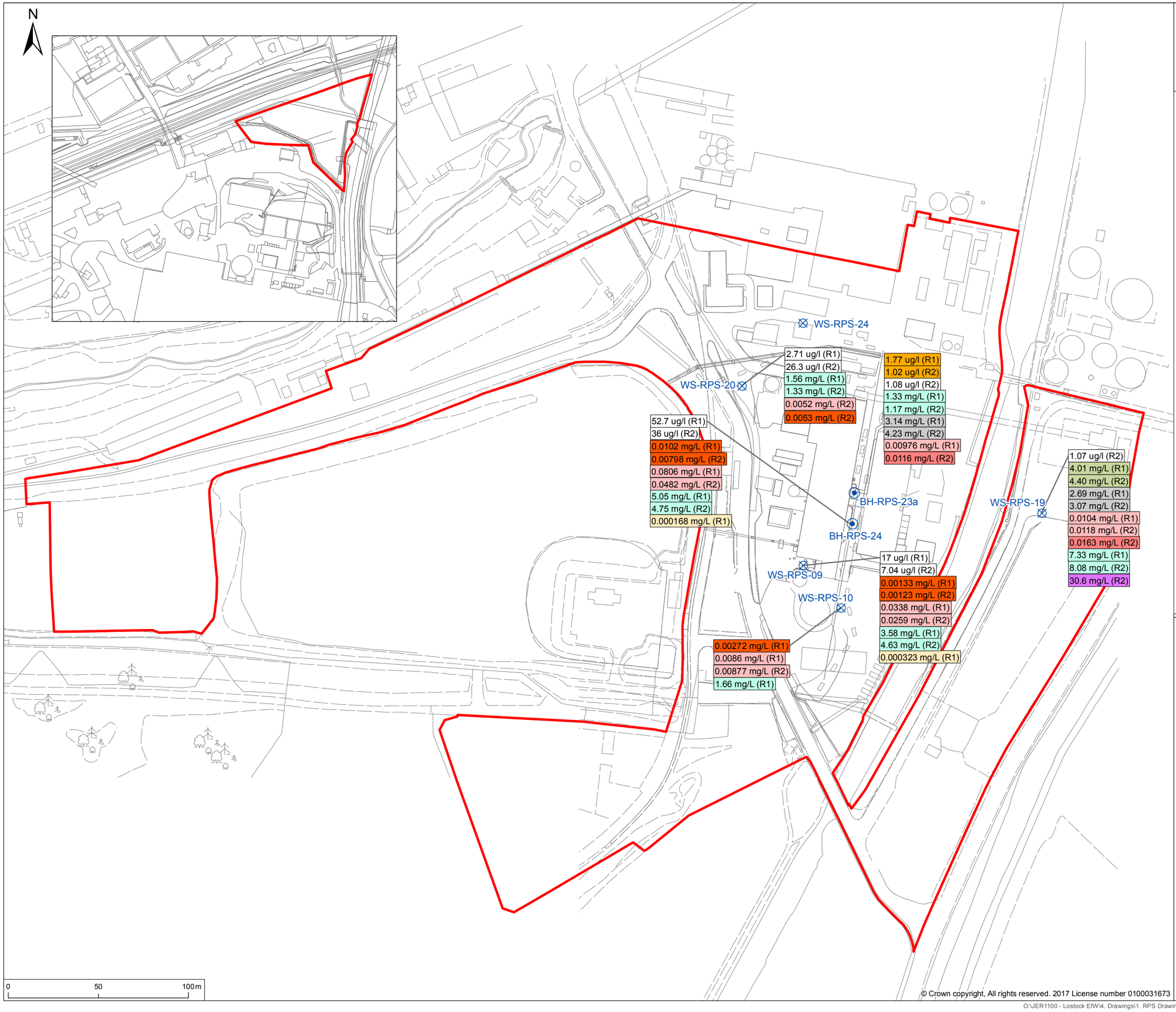

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Legend

Planning Consent Boundary

Exploratory Hole Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Exceedances of Screening Criteria

- Ammoniacal Nitrogen - SV (1.1 mg/L) EQS
- Arsenic - SV (0.05 mg/L) EQS
- Cadmium - SV (0.08 ug/l) EQS
- Copper - SV (1 ug/l) EQS
- Iron - SV (1 mg/L) EQS
- Lead - SV (0.0012 mg/L) EQS
- Manganese - SV (0.123 mg/L) EQS
- Mercury - SV (0.00007 mg/L) EQS
- Nickel - SV (0.004 mg/L) EQS
- Zinc - SV (0.0109 mg/L) EQS

SV = Screening Value mg/L

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: INORGANIC DETERMINAND CONCENTRATIONS IN GROUNDWATER EXCEEDING SCREENING VALUES -MADE GROUND

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-023**

Rev: **-**

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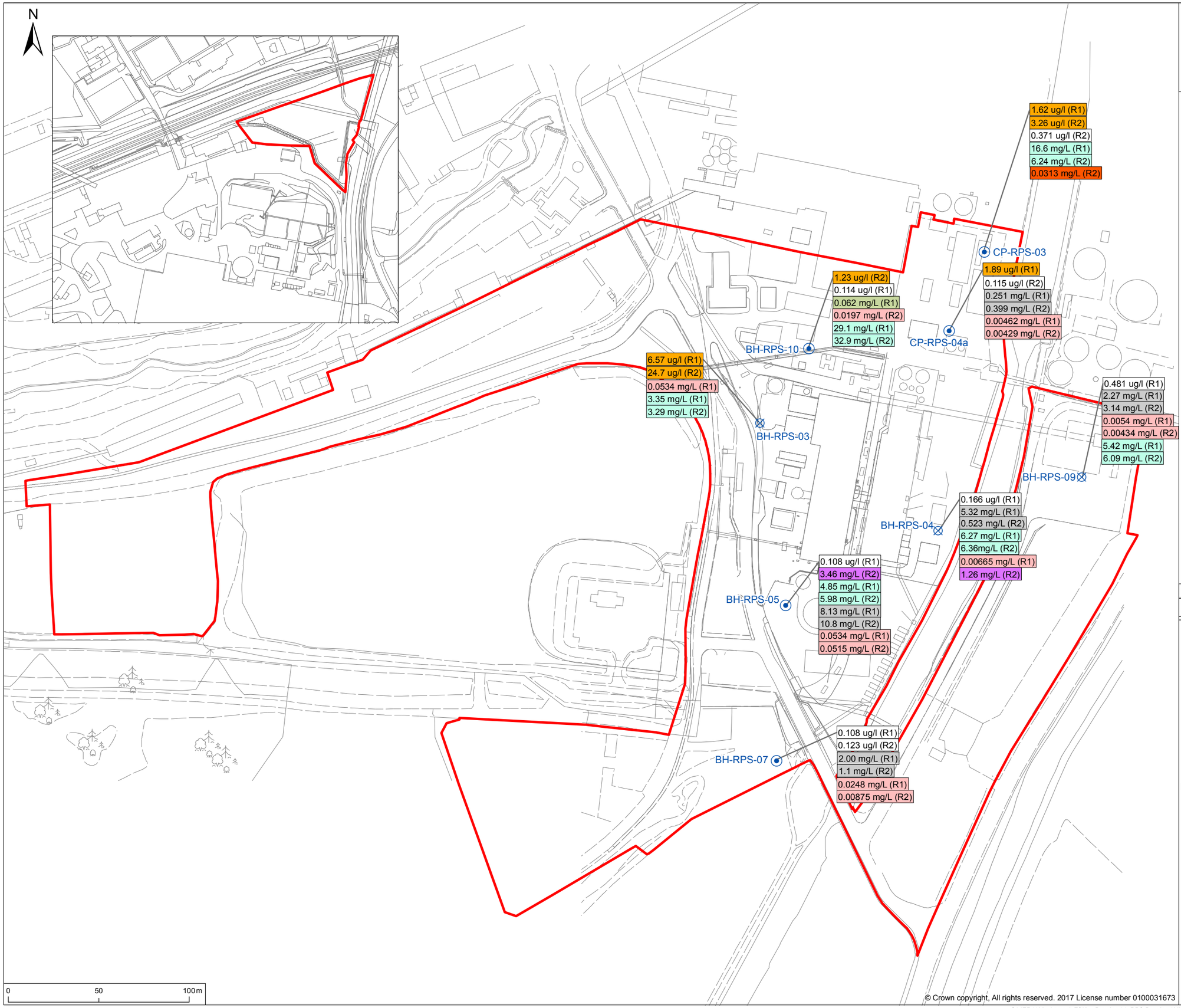

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Legend

Planning Consent Boundary

Exploratory Hole Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Exceedances of Screening Criteria

- Ammoniacal Nitrogen - SV (1.1 mg/L) EQS
- Arsenic - SV (0.05 mg/L) EQS
- Cadmium - SV (0.08 ug/l) EQS
- Copper - SV (1 ug/l) EQS
- Iron - SV (1 mg/L) EQS
- Lead - SV (0.0012 mg/L) EQS
- Manganese - SV (0.123 mg/L) EQS
- Nickel - SV (0.004 mg/L) EQS

SV = Screening Value mg/L (AA-EQS)

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: INORGANIC DETERMINAND CONCENTRATIONS IN GROUNDWATER EXCEEDING EQS - SUPERFICIAL DEPOSITS

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-024**

Rev: **-**

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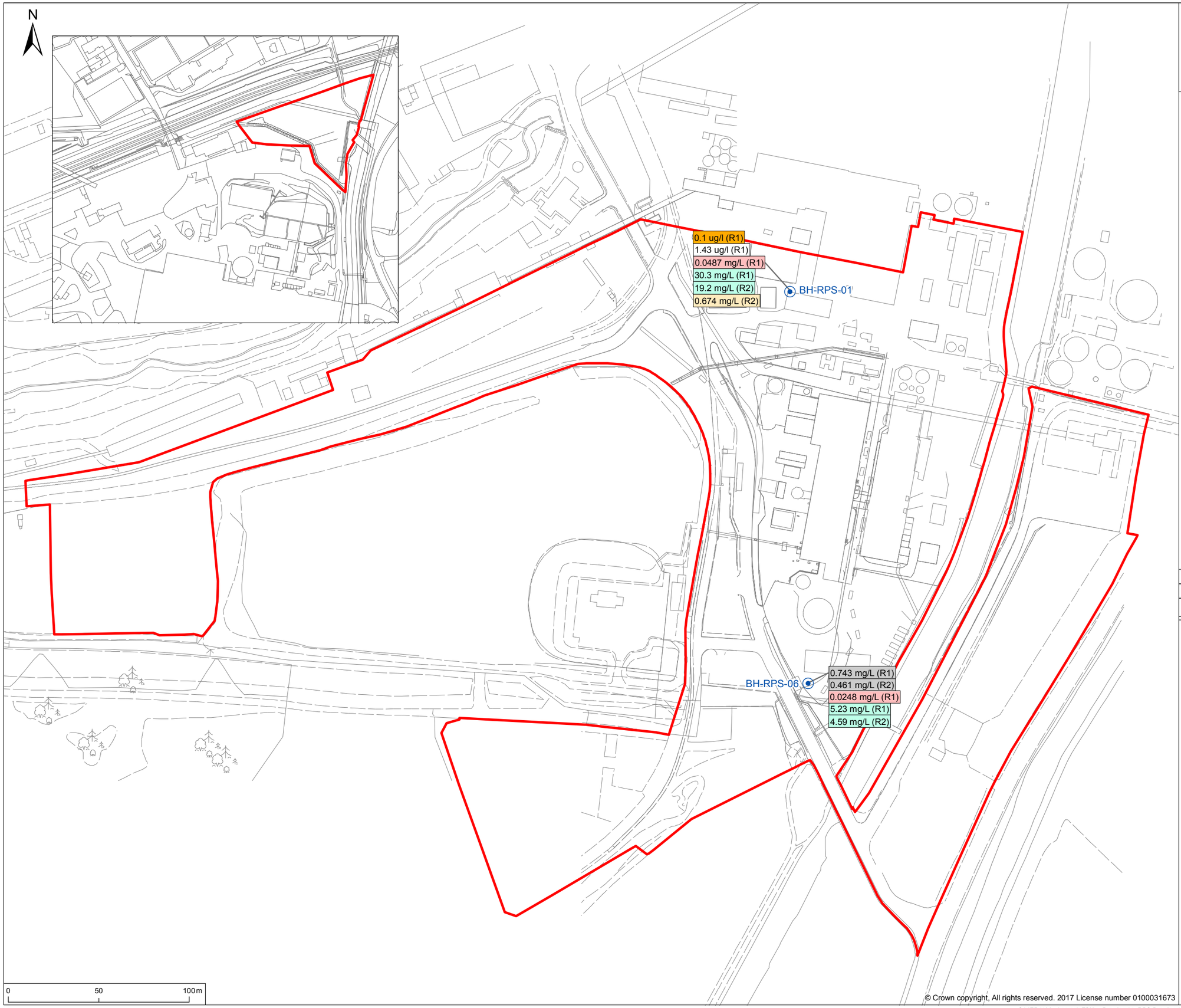

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Legend

Planning Consent Boundary

Exploratory Hole Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Exceedances of Screening Criteria

- Ammoniacal Nitrogen - SV (1.1 mg/L) EQS
- Cadmium - SV (0.08 ug/l) EQS
- Copper - SV (1 ug/l) EQS
- Manganese - SV (0.123 mg/L) EQS
- Mercury - SV (0.07 mg/L) EQS
- Nickel - SV (0.004 mg/L) EQS

SV = Screening Value mg/L (AA-EQS)

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: INORGANIC DETERMINAND CONCENTRATIONS IN GROUNDWATER EXCEEDING EQS - MERCIA MUDSTONE

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AP

Job Ref	Scale @ A3	Date Created
JER1100	1:2,000	APR 18

Drawing Number	Rev
JER1100-SI-025	-

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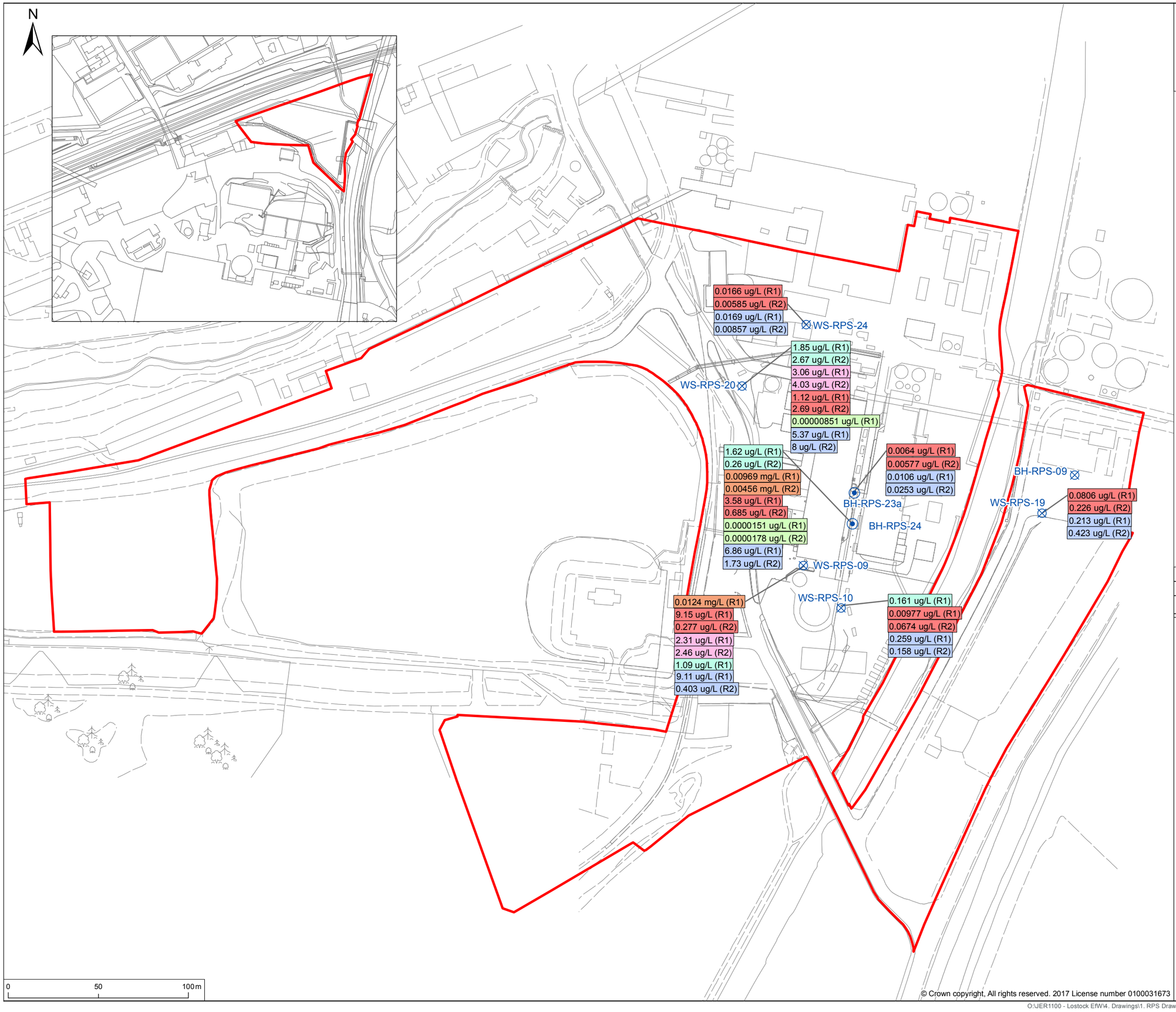

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Legend

Planning Consent Boundary

Exploratory Hole Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Exceedances of Organic Determinands above EQS

- Anthracene - SV (0.1 ug/L)
- bis(2-ethylhexy)phthalate - SV (0.0013 mg/L)
- Benzo(a)pyrene - SV (0.00017 ug/L)
- Fluoranthene - SV (0.0063 ug/l) EQS
- Naphthalene - SV (2 ug/L)
- Phenol - SV (0.0000077 ug/L)

SV = Screening Value ug/L (AA-EQS)

Rev	Description	Date	Initial	Checked

RPS

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: ORGANIC DETERMINANDS (EXCLUDING TPH) CONCENTRATIONS IN GROUNDWATER EXCEEDING EQS - MADE GROUND

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-026**

Rev: **-**

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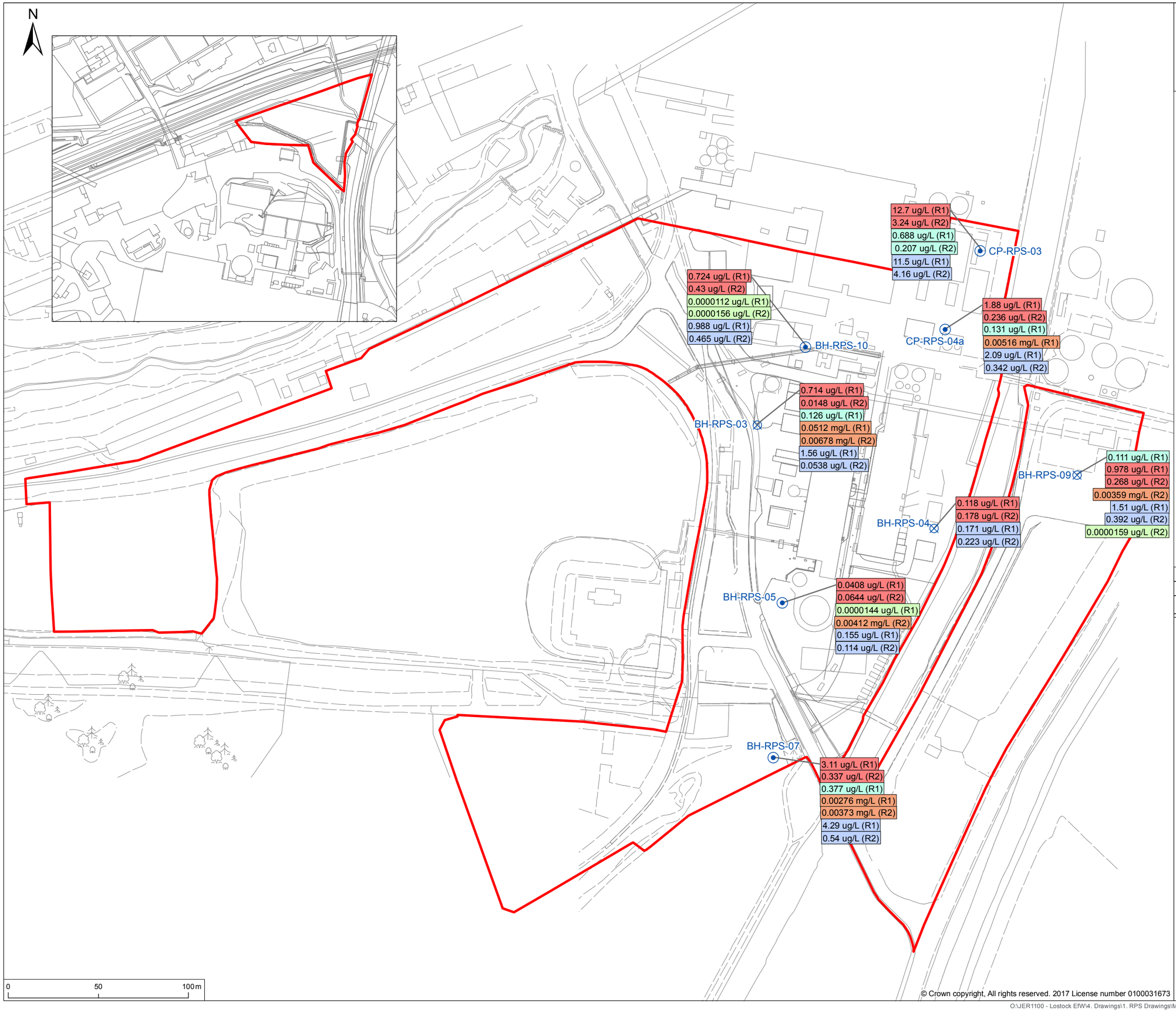

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Legend

Planning Consent Boundary

Exploratory Hole Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Exceedances of Organic Determinands above EQS

- Anthracene - SV (0.1 ug/L)
- bis(2-ethylhexy)phthalate - SV (0.0013 mg/L)
- Benzo(a)pyrene - SV (0.00017 ug/L)
- Fluoranthene - SV (0.0063 ug/l) EQS
- Phenol - SV (0.0000077 ug/L)

SV = Screening Values mg/L (AA-EQS)

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: ORGANIC DETERMINANDS (EXCLUDING TPH) CONCENTRATIONS IN GROUNDWATER EXCEEDING EQS - SUPERFICIAL DEPOSITS

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-027**

Rev: **-**

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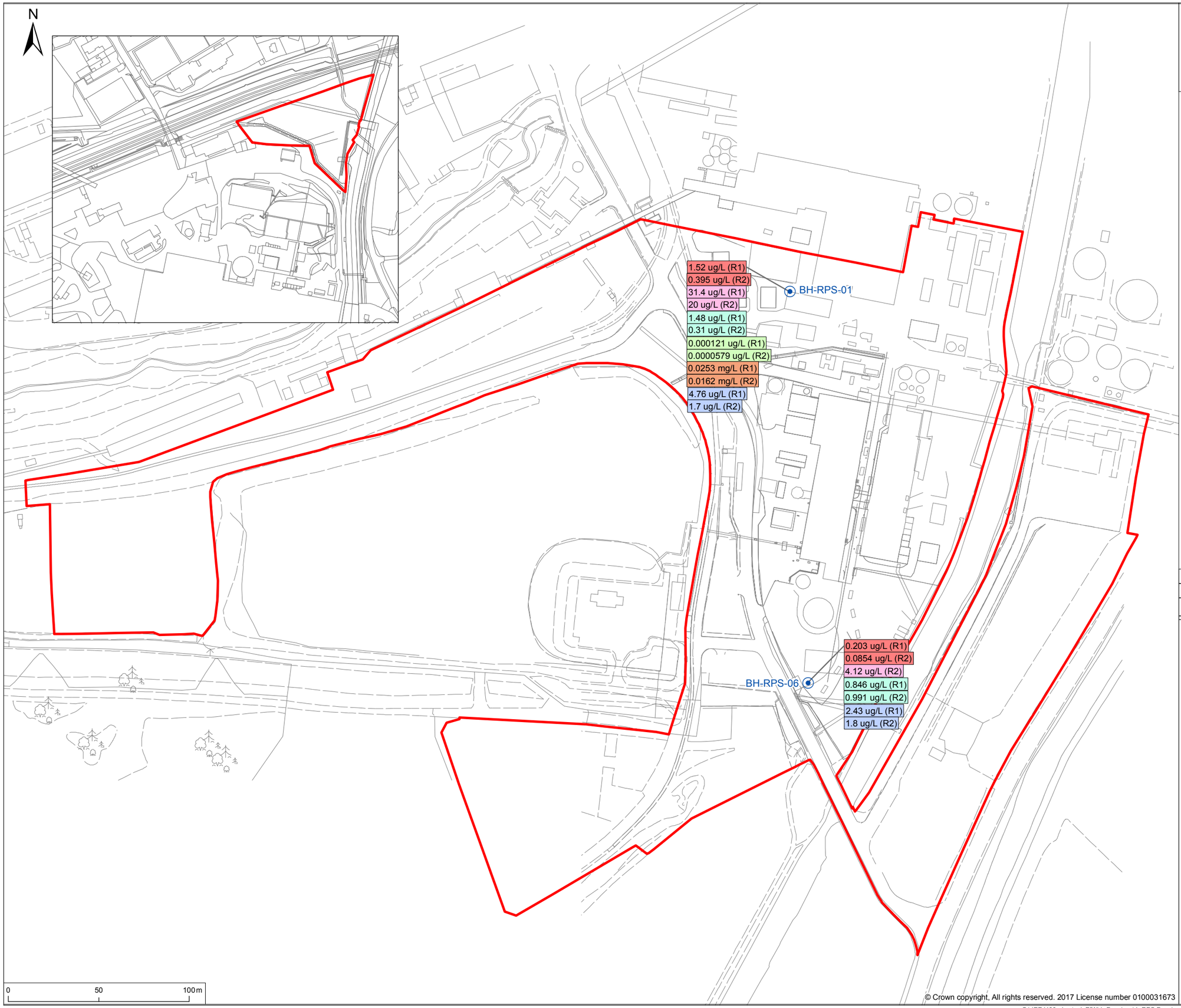

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Legend

Planning Consent Boundary

Exploratory Hole Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Exceedances of Organic Determinands above EQS

- Anthracene - SV (0.1 ug/L)
- Benzo(a)pyrene - SV (0.00017 ug/L)
- bis(2-ethylhexy)phthalate - SV (0.0013 mg/L)
- Fluoranthene - SV (0.0063 ug/l) EQS
- Naphthalene - SV (2 ug/L)
- Phenol - SV (0.0000077 ug/L)

SV = Screening Value ug/L (AA-EQS)

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: ORGANIC DETERMINANDS (EXCLUDING TPH) CONCENTRATIONS IN GROUNDWATER EXCEEDING EQS - MERCIA MUDSTONE

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-028**

Rev: **-**

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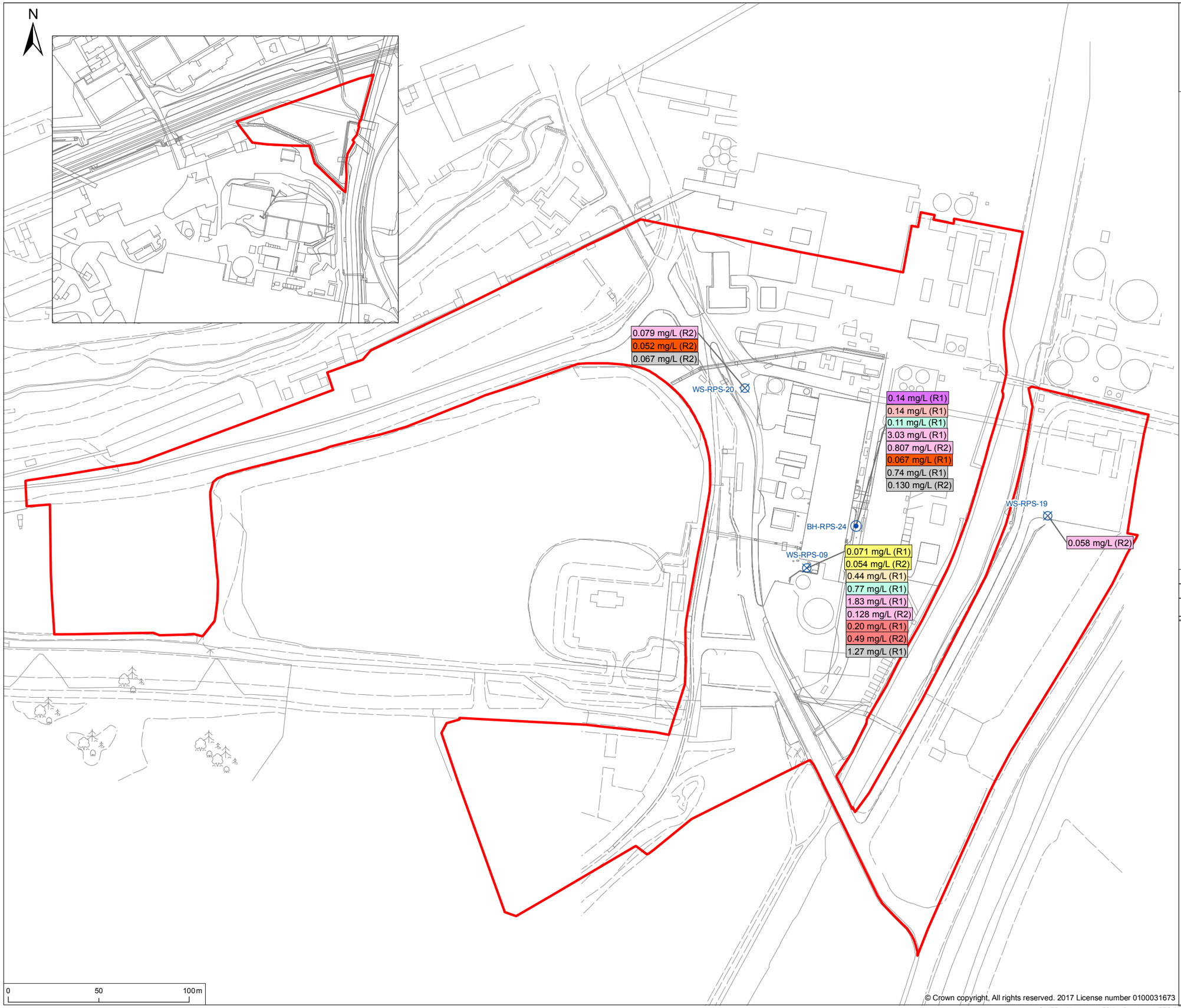

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Legend

Planning Consent Boundary

Exploratory Hole Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Exceedances of Non-Statutory Screening Criteria (0.05 mg/L)

- Aliphatic >C8-C10
- Aliphatic >C10-C12
- Aliphatic >C12-C16
- Aliphatic >C16-C21
- Aliphatic >C21-C35
- Aromatic >C10-C12
- Aromatic >C12-C16
- Aromatic >C16-C21
- Aromatic >C21-C35

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: TPH DETERMINAND CONCENTRATIONS IN GROUNDWATER EXCEEDING SCREENING CRITERIA - MADE GROUND

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-029**

Rev: **-**

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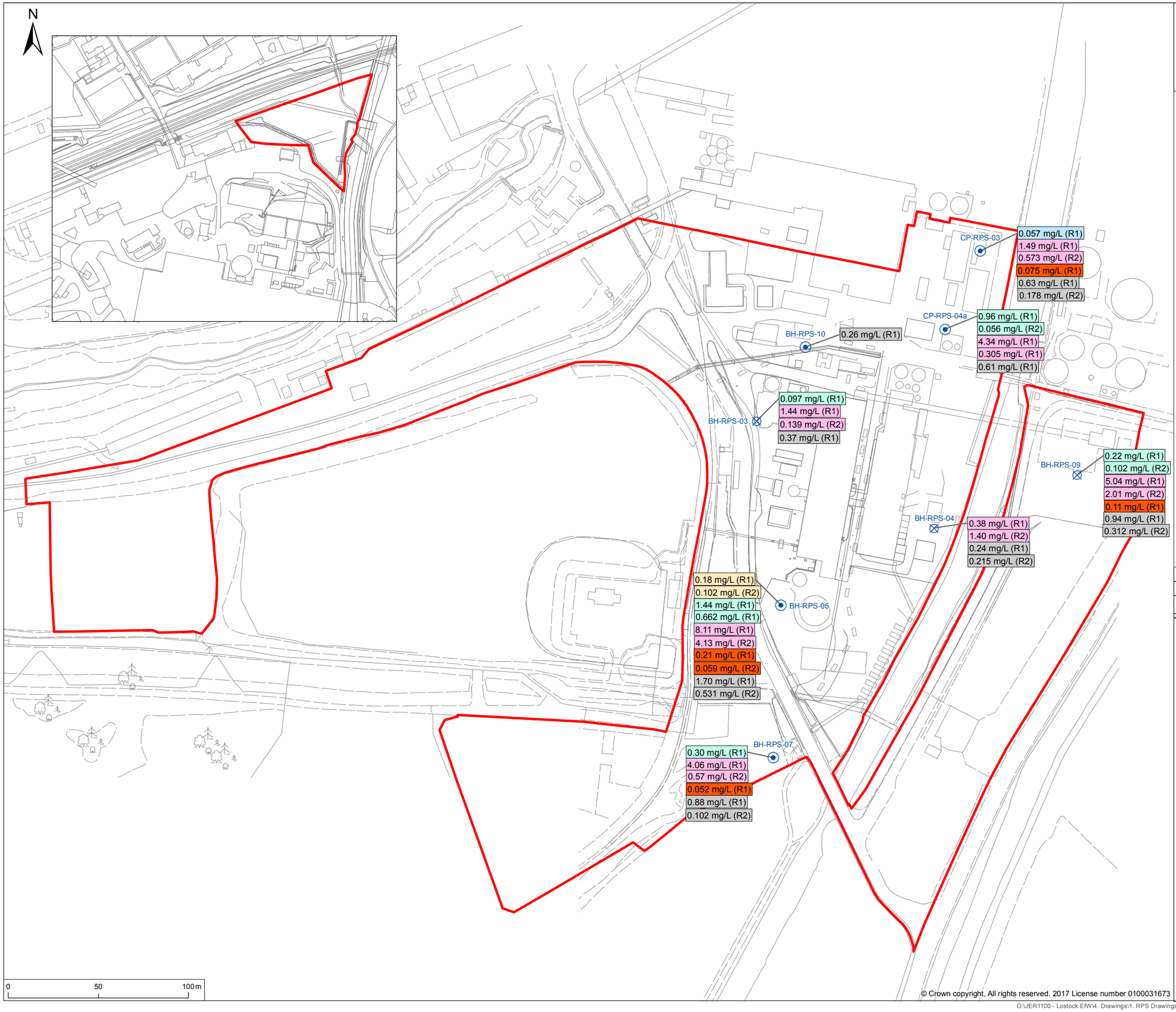

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Legend

Planning Consent Boundary

Exploratory Hole Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Exceedances of Non-Statutory Screening Criteria (0.05 mg/L)

- Aliphatic >C8-C10
- Aliphatic >C10-C12
- Aliphatic >C12-C16
- Aliphatic >C16-C21
- Aliphatic >C21-C35
- Aromatic >C10-C12
- Aromatic >C12-C16
- Aromatic >C16-C21
- Aromatic >C21-C35

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: TPH DETERMINAND CONCENTRATIONS IN GROUNDWATER EXCEEDING SCREENING CRITERIA - SUPERFICIAL DEPOSITS

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-030**

Rev: **-**

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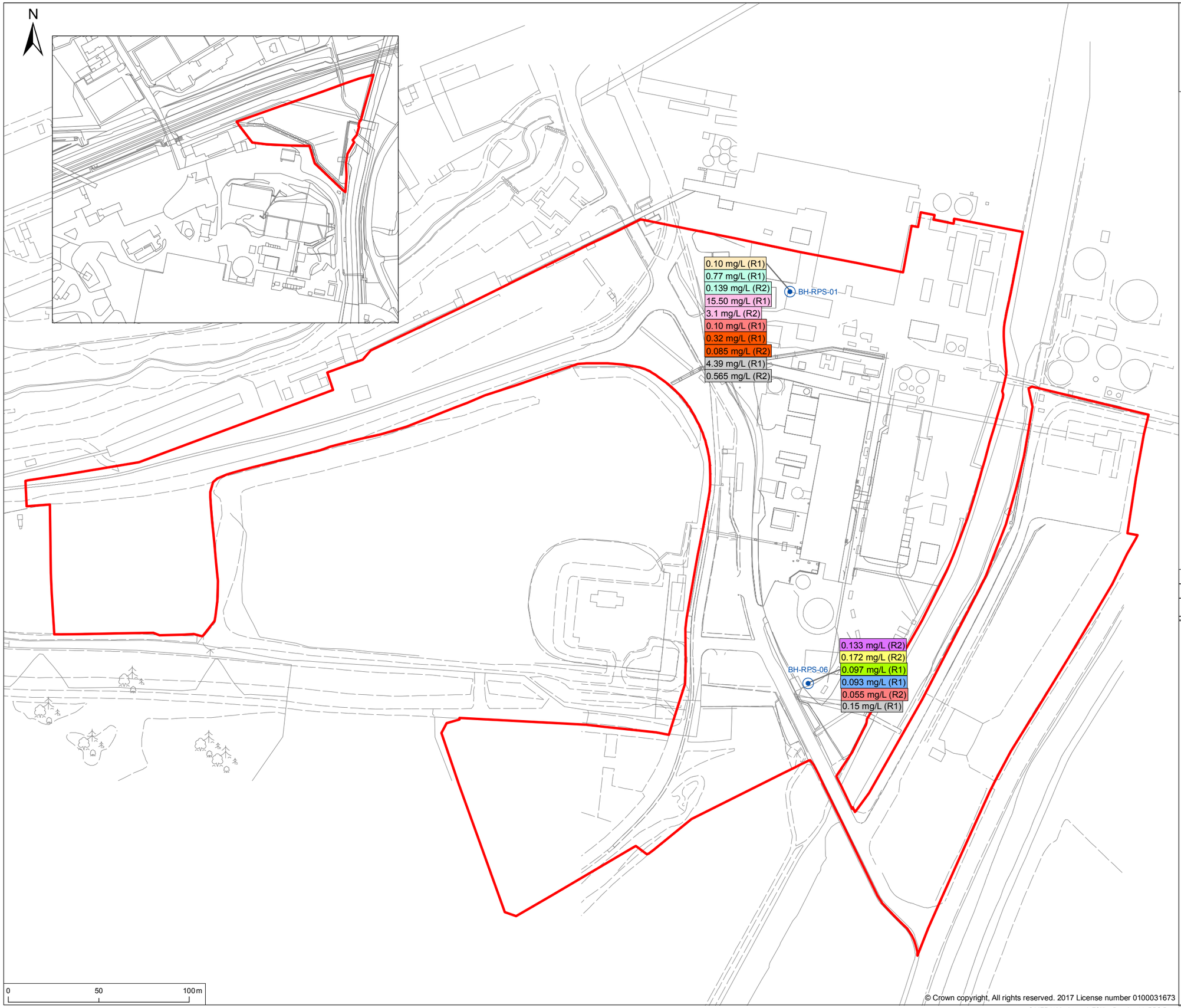

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Legend

Planning Consent Boundary

Exploratory Hole Locations

- Rotary Borehole
- Cable Percussive Borehole
- Window Sample Borehole
- Trial Pit
- Inspection Pit

Exceedances of Non-Statutory Screening Criteria (0.05 mg/L)

- Aliphatic >C8-C10
- Aliphatic >C10-C12
- Aliphatic >C12-C16
- Aliphatic >C16-C21
- Aliphatic >C21-C35
- Aromatic >C8-C10
- Aromatic >C10-C12
- Aromatic >C12-C16
- Aromatic >C16-C21
- Aromatic >C21-C35

Rev	Description	Date	Initial	Checked

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Client: COPENHAGEN INFRASTRUCTURE PARTNERS

Project: LOSTOCK SUSTAINABLE ENERGY PLANT

Title: TPH DETERMINAND CONCENTRATIONS IN GROUNDWATER EXCEEDING SCREENING CRITERIA - MERCIA MUDSTONE

Status	Drawn By	PM/Checked By
PRELIMINARY	AM	AT
Job Ref	**Scale @ A3**	**Date Created**
JER1100	1:2,000	APR 18

Drawing Number: **JER1100-SI-031**

Rev: **-**

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3. This drawing should be read in conjunction with all other relevant drawings and specifications.
4. Topological information taken from RPS drawings ACV5752_0600 & 0601.
5. For overall site layout see RPS drawing 16384/A1/P/5100 G
6. For planning application red line please see RPS drawing P/5002

10m SCALE 1:500

N

Proposed Development Boundary

Building to be removed.

Building to be retained.

1. Coke Tippler (retained)
   (See RPS drawing 16384_P_0056)
2. Lostock site main office (Brunner Mond)
3. Chemical storage compound
4. QA Centre and Meeting Room
5. BM Lostock main stores (Outside red boundary and will be retained)
6. No3 Turbo-alternator house (retained as part of the development)
7. "Slim House" - Maintenance Large Equipment secure storage area.
8. Waste skip storage site (not a building)
9. DCS Rack room (will be retained)
10. Disused pallet store
11. Maintenance amenities
12. Cast Iron Pipe storage area
13. Hot purified water stock tanks (one in use - one redundant)
14. Garage
15. Redundant fly ash silo
16. Small Chimney - now demolished to ground level
17. Electrostatic Precipitator
18. Electrostatic Precipitator
19. Unknown - to be investigated
20. Boiler house
21. Small disused building
22. Small disused building
23. Bike shed
24. Gate house
25. Weighbridge
26. Workshop
27. Workshop
28. Small disused building
29. Disused port-a- cabin
30. Disused port-a- cabin
31. Nitrogen cryogenic storage
32. The main alternator building,
33. A number of transformers and reactors.
34. Water Plant
35. Old coke conveyor
36. Disused above ground tank

Drawing for PLANNING purposes only

rev	amendments	by	ckd	date
B	Drawing sheet notes 5&6 amended. Note removed outlining Proposed land take area.	AD	BP	29.06.11
A	Client logos updated. Red line boundary updated. Area schedule updated.	AD	BP	27.05.11

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Client: e·on / TATA CHEMICALS EUROPE

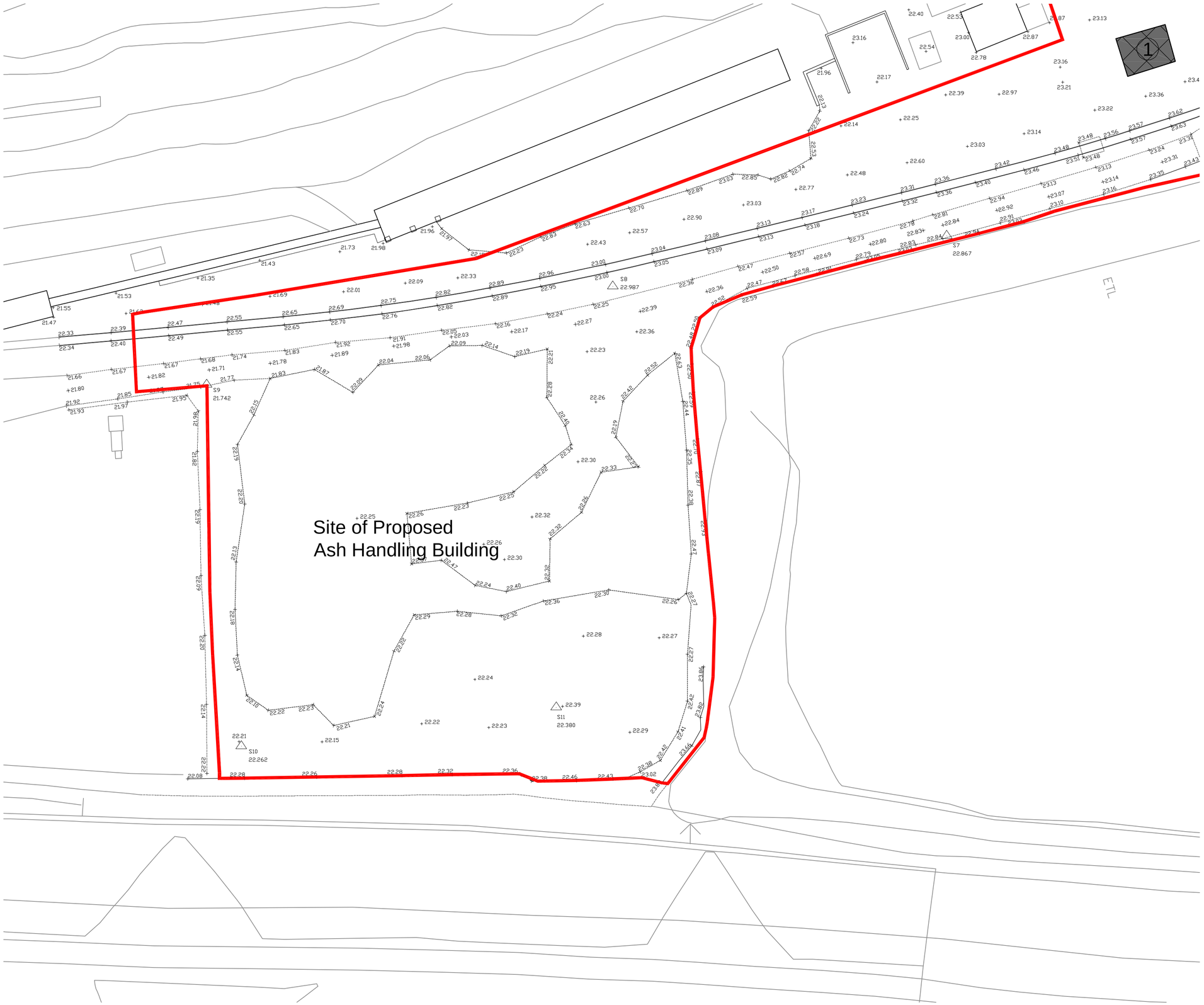
Project: Lostock Sustainable Energy Plant

Title: Existing Main Building Site Layout

Drawing Status	Date Created	Drawing Scale
Preliminary	15.09.10	1:500
Project Leader	**Drawn By**	**Initial Review**
RS	AD	RS

Drawing Number: 16384 /A1 / P / 5055

Rev: B



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4. Topological information taken from RPS drawings ACV5752_0600 & 0601.
5. For overall site layout see RPS drawing 16384/A1/P/5100 G
6. For planning application red line please see RPS drawing P/5002

10m SCALE 1:500

N

	Proposed Development Boundary

	Building to be removed.
	Building to be retained.

1. Coke Tippler (retained)

Drawing for PLANNING purposes only

rev	amendments	by	ckd	date
B	Drawing sheet notes 5&6 amended. Note removed outlining Proposed land take area.	AD	BP	29.06.11
A	Client logos updated. Red line boundary updated. Area schedule updated.	AD	BP	27.05.11

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Client e·on TATA CHEMICALS EUROPE

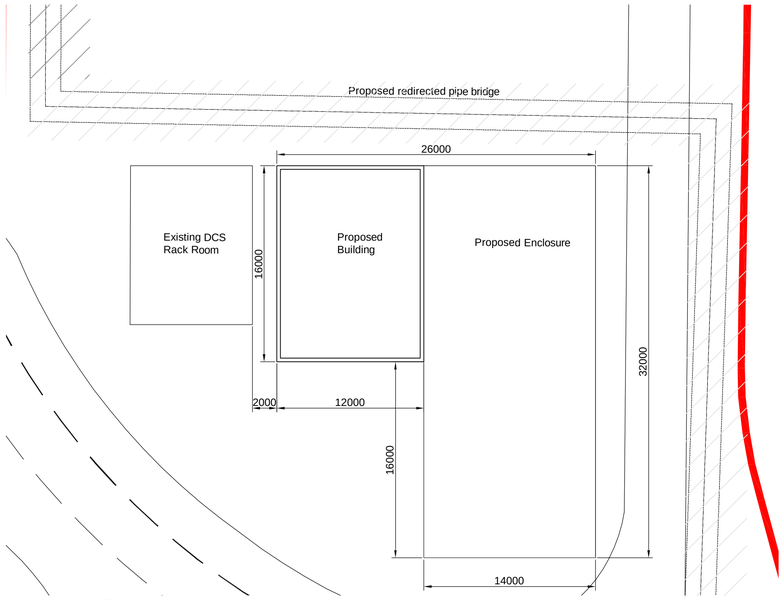
Project Lostock Sustainable Energy Plant

Title Existing Ash Handling (UEU) Site Layout Plan

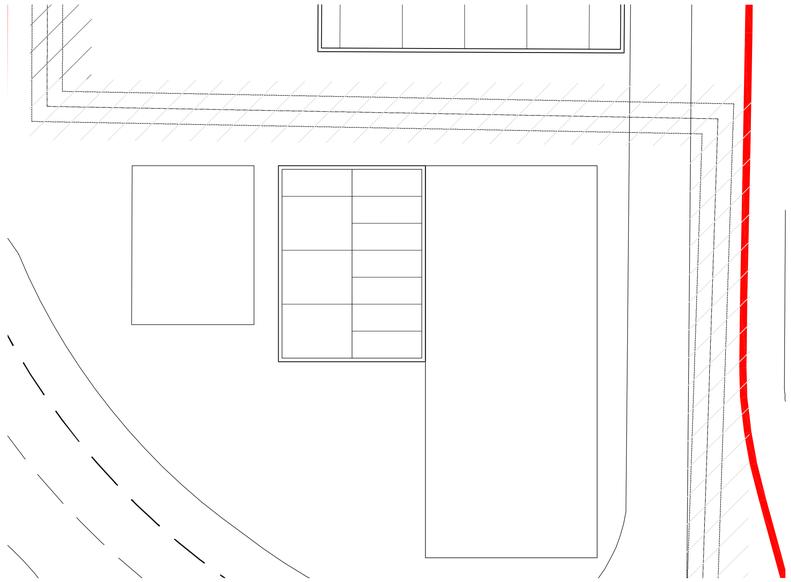
Drawing Status	Date Created	Drawing Scale
Preliminary	15.09.10	1:500
Project Leader	Drawn By	Initial Review
RS	AD	PRP

Drawing Number 16384 /A2 / P / 5056

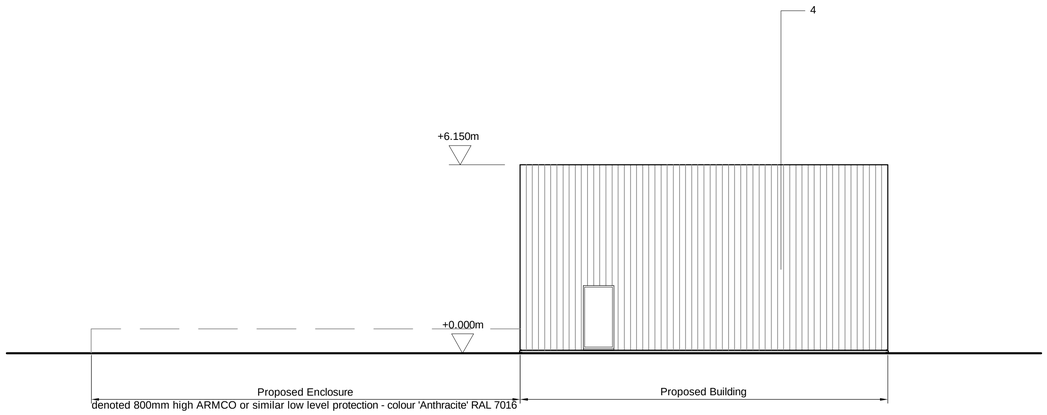
Rev B



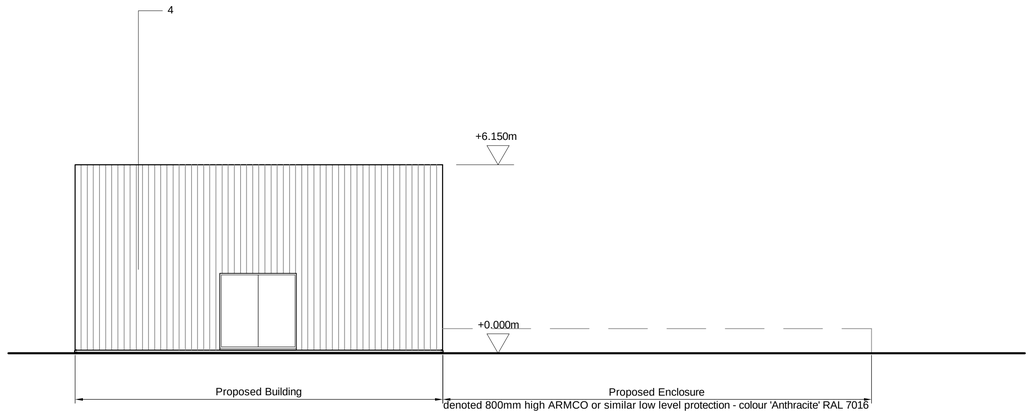
Building Layout
scale 1:250



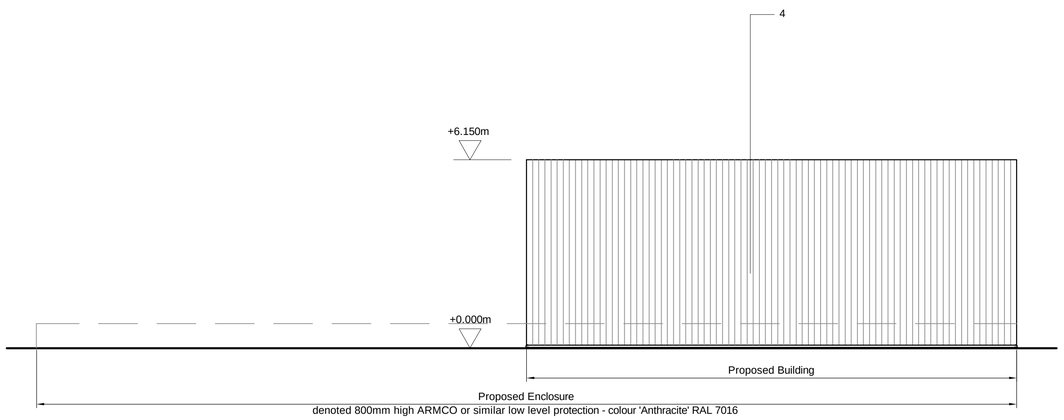
Roof Layout
scale 1:250



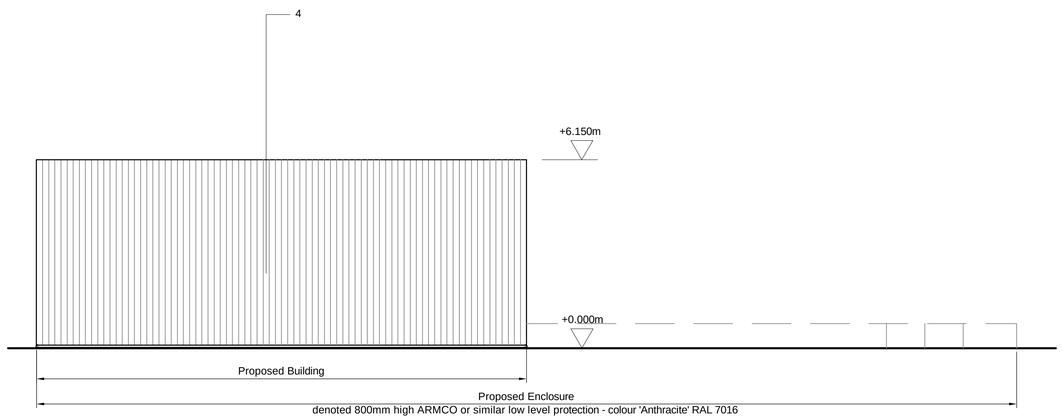
North Elevation
scale 1:100



South Elevation
scale 1:100



East Elevation
scale 1:100



West Elevation
scale 1:100

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1m SCALE 1:100

5m SCALE 1:250

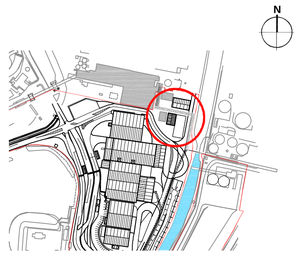
Key:

1. Horizontally laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Hamlet' RAL 9002
2. Horizontally laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Goosewing Grey' RAL 080 70 05
3. Horizontally laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colours random mixture - `Petra` RAL 3013/ `Burano` RAL 3004/ `Merlin Grey` RAL 180 40 05/ `Anthracite` (matt finish) RAL 7016/ `Hamlet` RAL 9002/ `Pure Grey` RAL 000 55 00
4. Vertically laid Trapezoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Anthracite' (matt finish) / RAL 7016
5. Horizontally laid Trapezoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Pure Grey' RAL 000 55 00
6. Rodecca panel laid to an angle. Panel dimensions to be 3000mm x 1000mm - Colour `Black`
7. Stack - Colour `Light Grey` / RAL 7035
8. Deep Grey Concrete
9. Polyester/ powder coated aluminum louvre frames and veins - Colour 'Anthracite' (matt finish) / RAL 7016
10. Horizontally laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colour `Petra` RAL 3013

All D**oors** to match adjacent cladding colour

Polyester powder coated aluminium w **indow frames** and B**rise Soleil** - Colour 'Anthracite' (matt finish) / RAL 7016

Metal **external handrails** and **plant support** - Colour 'Anthracite' (matt finish) / RAL 7016 (with contrasting elements to comply with building regulations)



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rev	amendments	by	ckd	date
B	Location map updated.	AD	RS	16.06.11
A	Client logos updated. Location map updated	AD	BP	31.05.11

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Client: e·on / TATA CHEMICALS EUROPE

Project: Lostock Sustainable Energy Plant

Title: Proposed Water Treatment Building Elevations

Drawing Status	Date Created	Drawing Scale
Preliminary	15.09.10	1:100
Project Leader	**Drawn By**	**Initial Review**
RS	KRy	RS

Drawing Number: 16384 / A1 / P / 5126

Rev: B

A1

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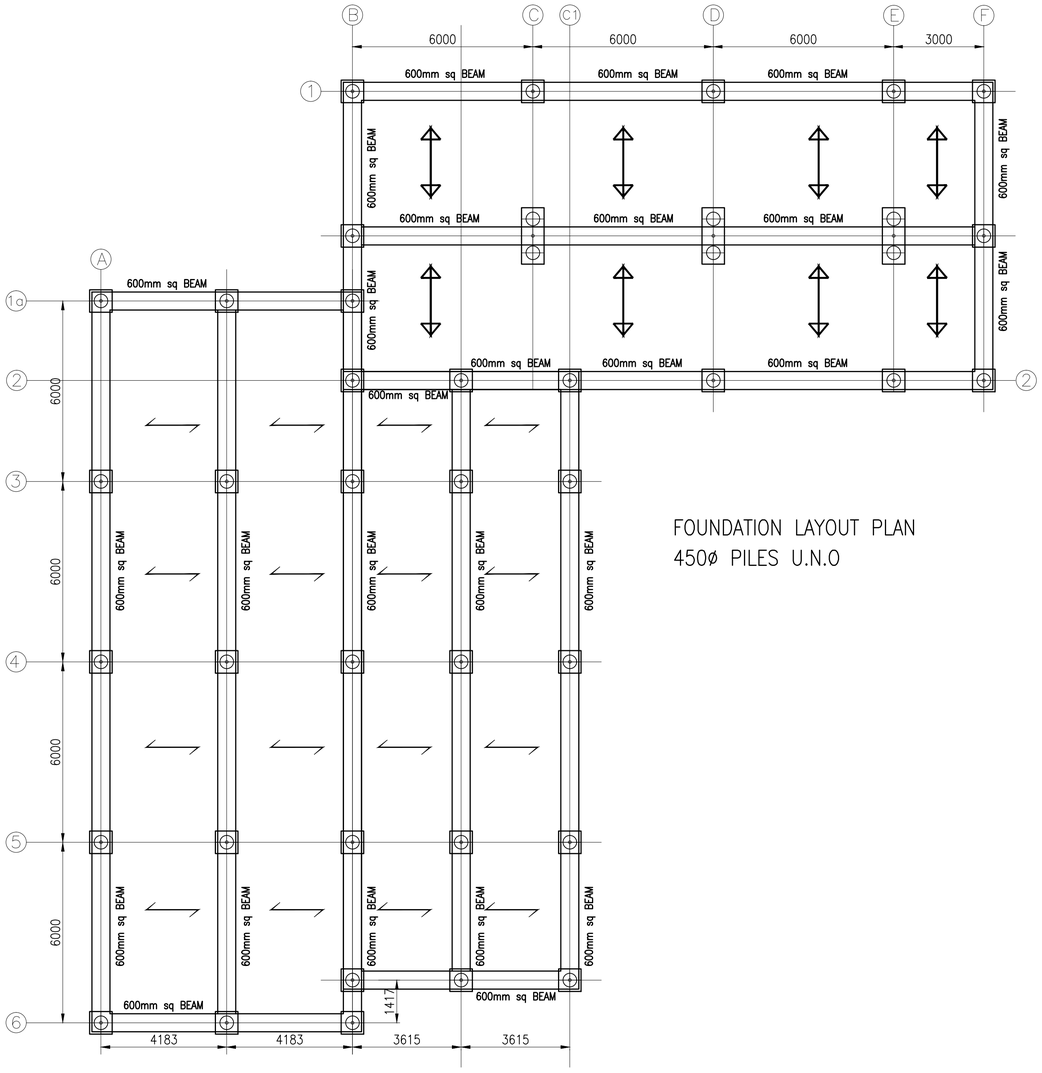
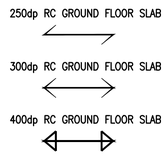
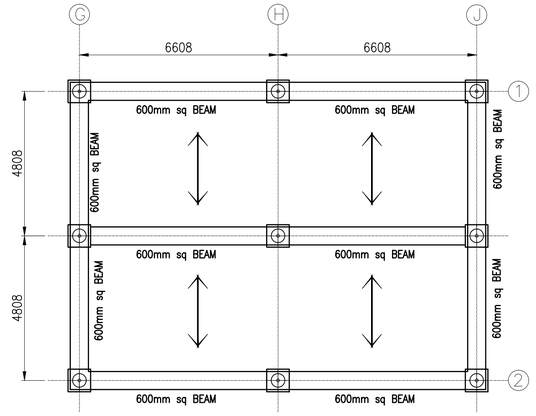


FOUNDATION LAYOUT PLAN
450Ø PILES U.N.O





TYPICAL PILING NOTES:

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02. All client ER documents to be reviewed and incorporated into pile design and installation
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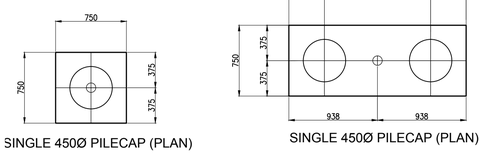
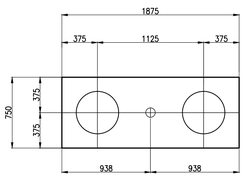
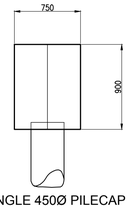
18. Assumed pile depths of approx 15m to be confirmed by specalist sub contractor.



SINGLE 450Ø PILECAP (PLAN)



SINGLE 450Ø PILECAP (PLAN)



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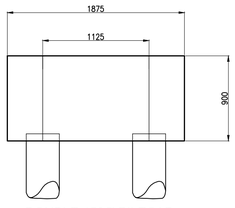
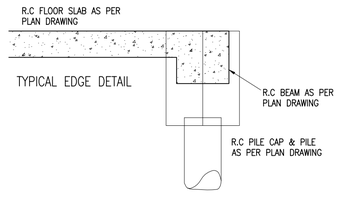


DOUBLE 450Ø PILECAP



TYPICAL EDGE DETAIL

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED
02	09.01.13	REVISED AS PER ARCHITECTS LAYOUT, ISSUE FOR COSTING	T.O.C	G.O.S
01	07.01.13	ISSUE FOR COSTING	T.O.C	G.O.S
00	19.12.12	ISSUE FOR INFORMATION	T.O.C	G.O.S

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Consulting Civil & Structural Engineers

Project.
LOSTOCK ENABLING WORKS

Client.
EON / BRUNNER MOND

Architect.
WILSON ARCHITECTS

Job No.	Drawing. No.	Scale.
12088	301	1:75 @ A1

Drawing Title.
WORKSHOPS & AMENITIES BUILDING
FOUNDATION LAYOUT PLAN

Date. DEC 12

Current Rev. 02

Current Status. Costing

A1

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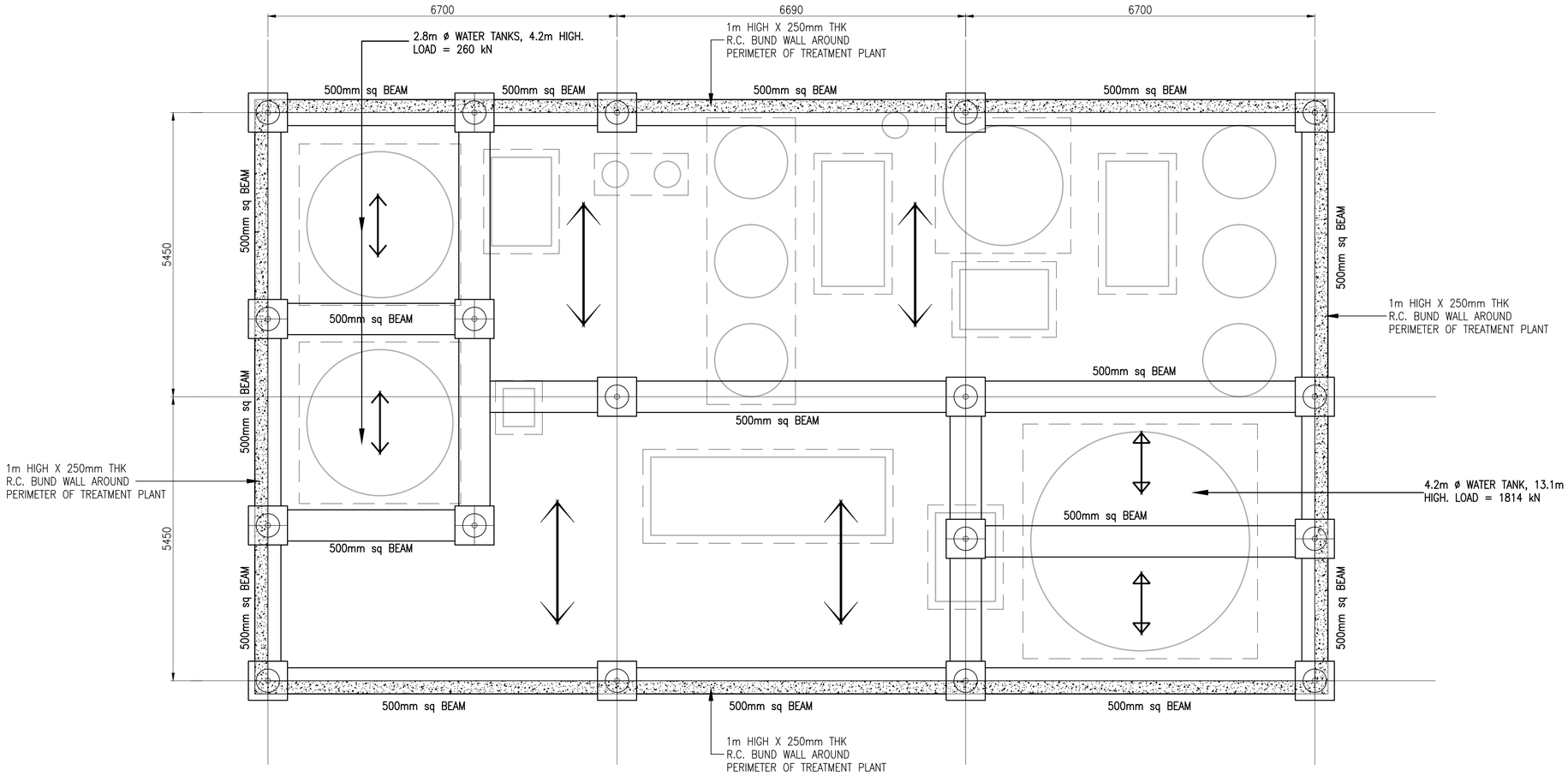
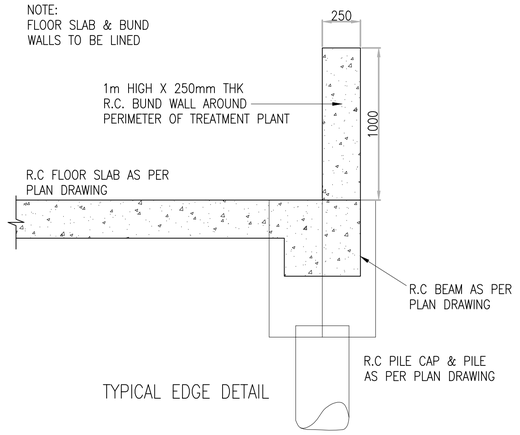
DO NOT SCALE – IF IN DOUBT ASK



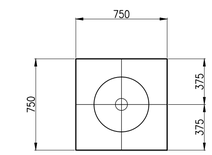
WATER TREATMENT LAYOUT PLAN
450ø PILES U.N.O

WATER TREATMENT PLANT LAYOUT AS PER
SATEC DRG. No. 1208005-PP-001 Rev 1

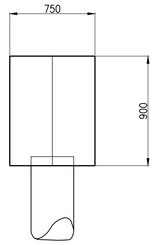
NOTE:
FLOOR SLAB & BUND
WALLS TO BE LINED



TYPICAL EDGE DETAIL



SINGLE 450Ø PILECAP (PLAN)



SINGLE 450Ø PILECAP

300dp RC GROUND FLOOR SLAB

500dp RC GROUND FLOOR SLAB

DENOTES 150mm HIGH R.C. PLINTH
UNDER ALL TANKS, PUMPS ETC.

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01	07.01.13	ISSUE FOR COSTING	D.B.	G.O'S
00	19.12.12	ISSUE FOR INFORMATION	T.O.C	G.O.S

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Consulting Civil & Structural Engineers

Project.
LOSTOCK ENABLING WORKS

Client.
EON / BRUNNER MOND

Architect.
WILSON ARCHITECTS

Job No.	Drawing. No.	Scale.
12088	302	1:50 @ A1

Drawing Title.
WATER TREATMENT PLANT
FOUNDATION LAYOUT PLAN

Date. DEC 12

Current Rev. 01

Current Status. Costing

A1

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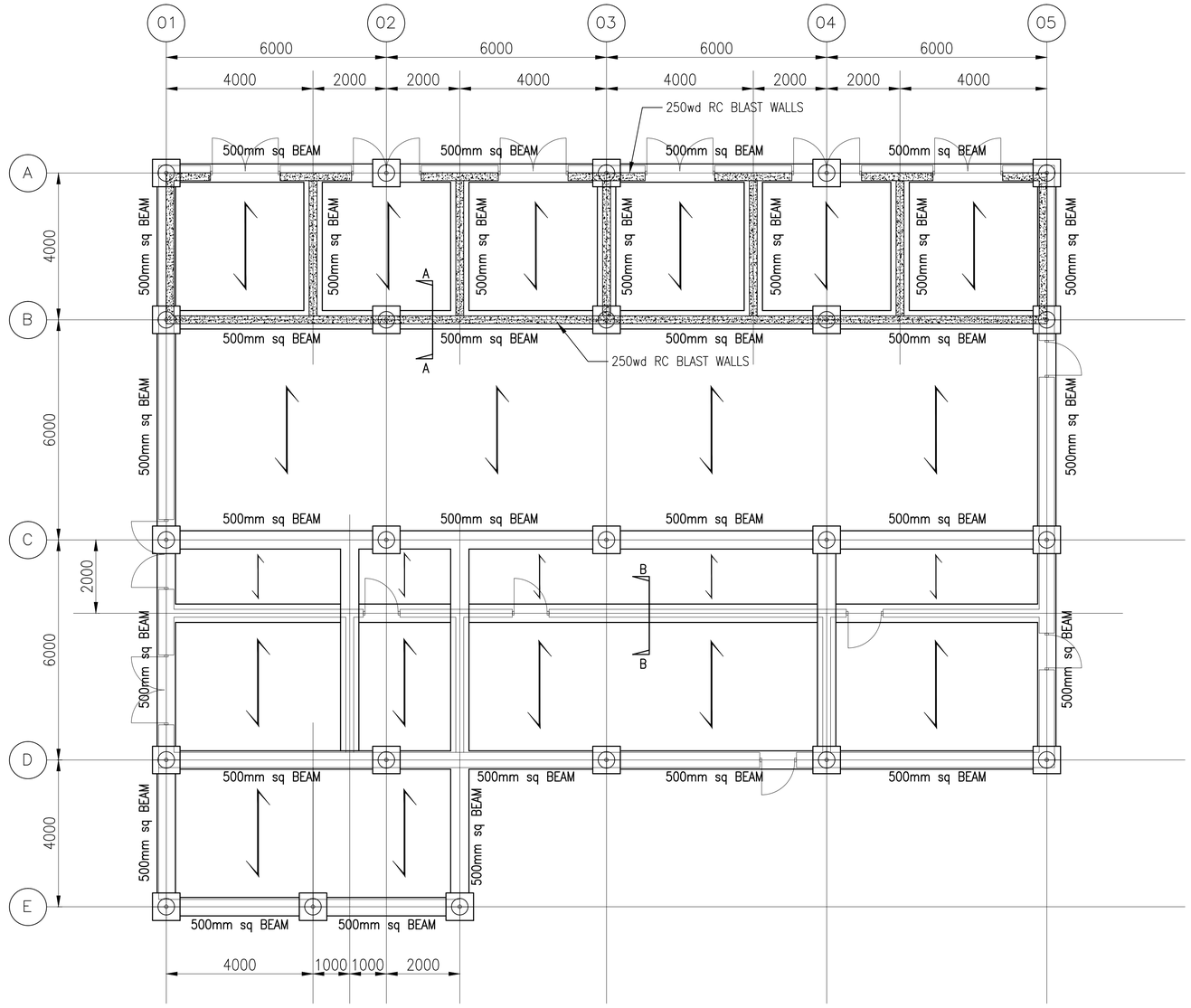
DO NOT SCALE – IF IN DOUBT ASK



FOUNDATION LAYOUT PLAN
450ø PILES U.N.O

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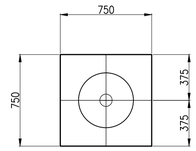
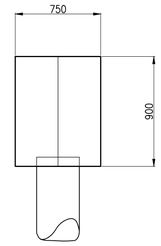
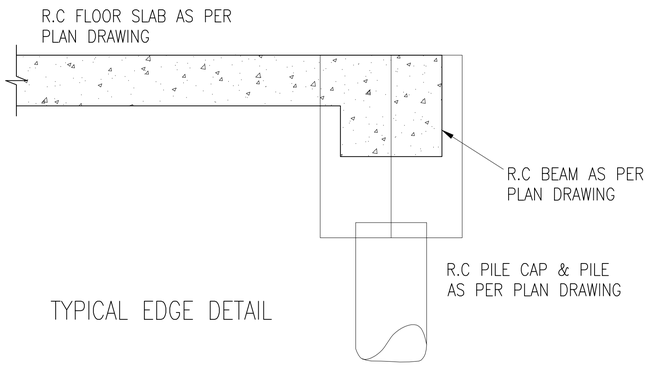


SINGLE 450Ø PILECAP (PLAN)

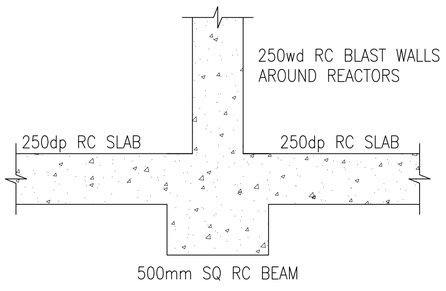


SINGLE 450Ø PILECAP

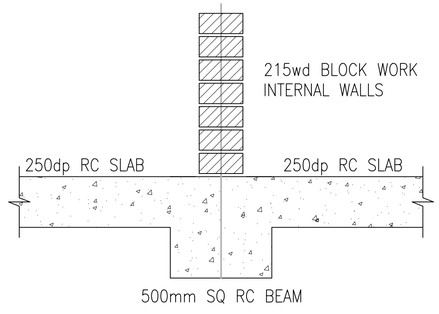
250dp RC GROUND FLOOR SLAB



TYPICAL EDGE DETAIL



SECTION A–A



SECTION B–B

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00	03.01.13	ISSUE FOR INFORMATION	T.O.C	G.O.S

MMOS MURPHY·MATSON·O'SULLIVAN
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Consulting Civil & Structural Engineers

Project.
LOSTOCK ENABLING WORKS

Client.
EON / BRUNNER MOND

Architect.
WILSON ARCHITECTS

Job No.	Drawing. No.	Scale.
12088	303	1:75 @ A1

Drawing Title.
11kV POWER PLANT SUB STATION
FOUNDATION LAYOUT PLAN

Date. JAN 13

Current Rev.	Current Status.
01	Information

A1

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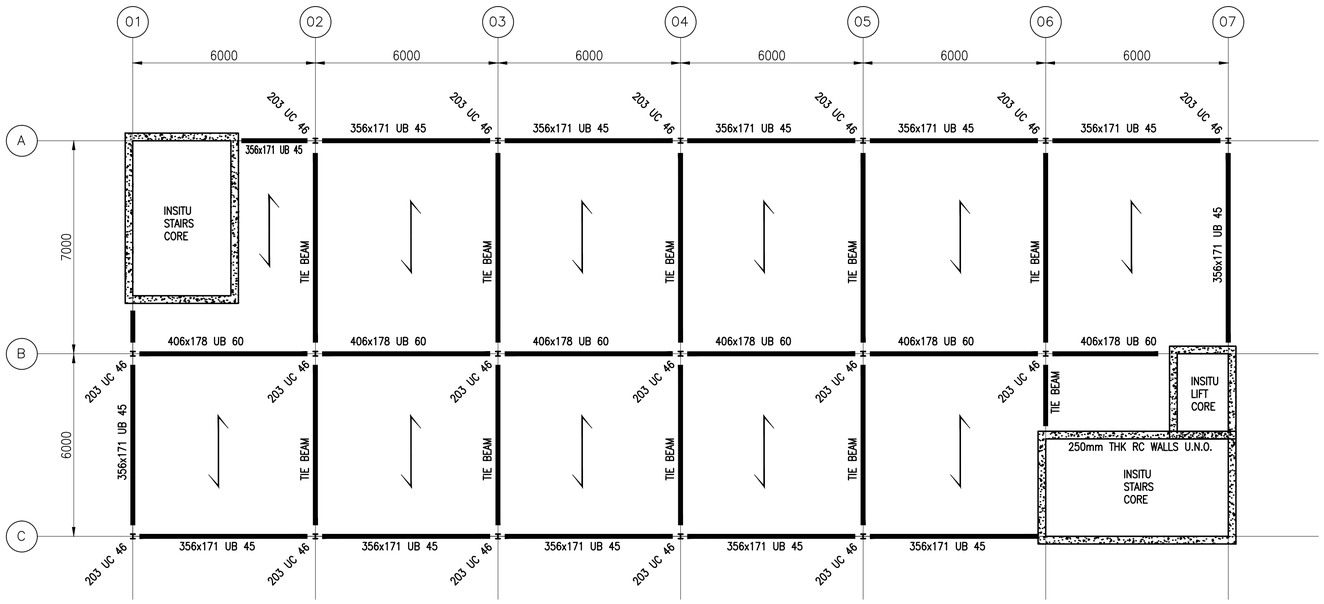
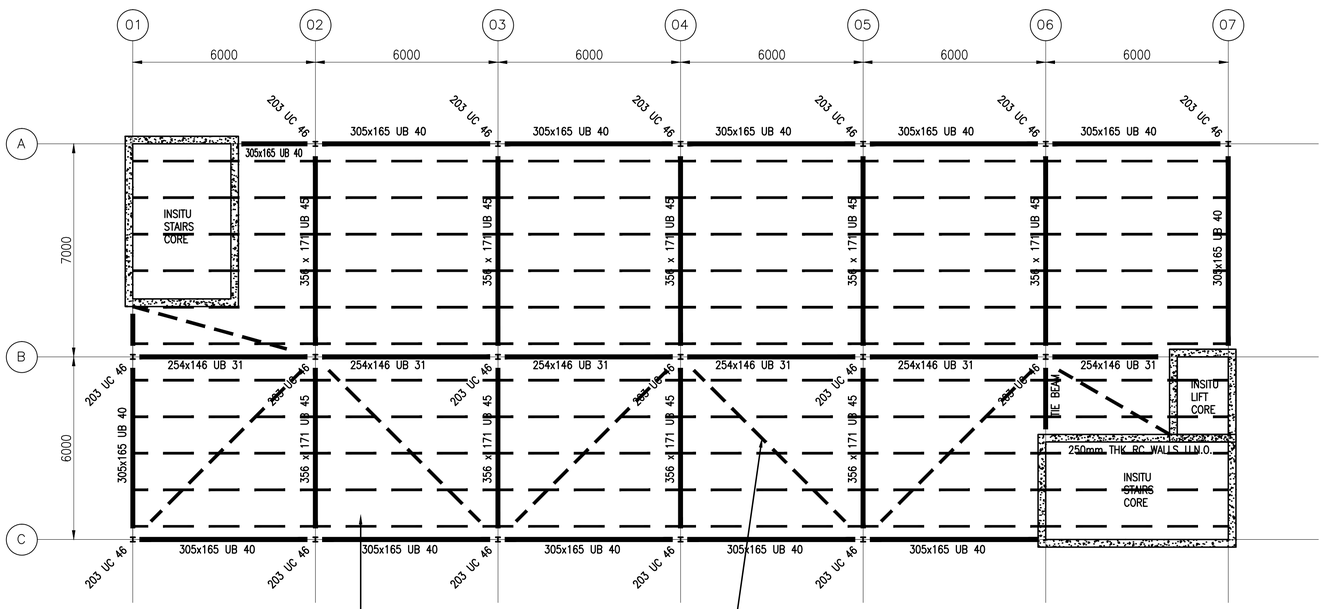


FIRST FLOOR LAYOUT PLAN

75mm SCREED WITH A142 MESH ON 200mm DP PRECAST SLAB

NOTE: ALL TIE BEAMS TO BE 254 x 146 UB 31



ROOF LAYOUT PLAN

PURLINS TO BE M205065160 DOUBLE SPAN PURLINS @ 1.2m CENTRES

BRACING TO BE 139.7 x 6.3 CHS

GENERAL NOTES :

REFER TO ARCHITECTS DRAWINGS FOR ALL SET OUT INFORMATION. ALL DIMENSIONS INDICATED ARE TO BE VERIFIED BY ARCHITECT PRIOR TO CONSTRUCTION.

ALL STEEL TO BE GRADE S355 UNO

ALL TEMPORARY WORKS REQUIRED TO SUPPORT OR ERECT THE STRUCTURAL STEEL ARE TO BE PROVIDED BY STEEL SUB-CONTRACTOR.

ALL SURFACES TO RECEIVE PROTECTIVE COATINGS SHALL BE ABRASIVE CLEANED TO SA2.5 TO BS EN ISO 8501

ALL STEEL STRUCTURES SUPPORTING GALLERIES, STAIRCASES AND STAYS ETC TO BE HOT DIPPED GALVANISED

ALL STEEL WORK CONNECTION DESIGN IS TO BE UNDERTAKEN BY THE STEELWORK SUB-CONTRACTOR.

FINAL CLADDING AND PURLIN DESIGN TO BE UNDERTAKEN BY SPECALIST SUB-CONTRACTOR AND SUBMITTED FOR REVIEW TO MMOS.

STRUCTURAL STEEL FABRICATION DRAWINGS TO BE SUBMITTED TO DESIGN TEAM FOR APPROVAL / COMMENT PRIOR TO FABRICATION.

ALL SECONDARY STEEL LOCATIONS TO BE FINALISED IN CONJUNCTION WITH DESIGN TEAM.

ALL DRAWINGS TO BE READ IN CONJUNCTION WITH FIRE CERTIFICATE DRAWINGS.

FIRE PROTECTION REQUIREMENTS INDICATED SHOULD BE READ IN CONJUNCTION WITH RELEVANT ARCHITECTS FIRE PROTECTION DETAILS.

ALL CONCRETE FINISHES TO BE AS PER MMOS CONCRETE FINISHES TABLE.

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED
00	08.01.13	ISSUE FOR COSTING	T.O.C	G.O.S

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Email - info@mmosengineers.com
Consulting Civil & Structural Engineers

Project.
LOSTOCK ENABLING WORKS

Client.
EON / BRUNNER MOND

Architect.
WILSON ARCHITECTS

Job No.	Drawing. No.	Scale.
12088	310	1:100 @ A1

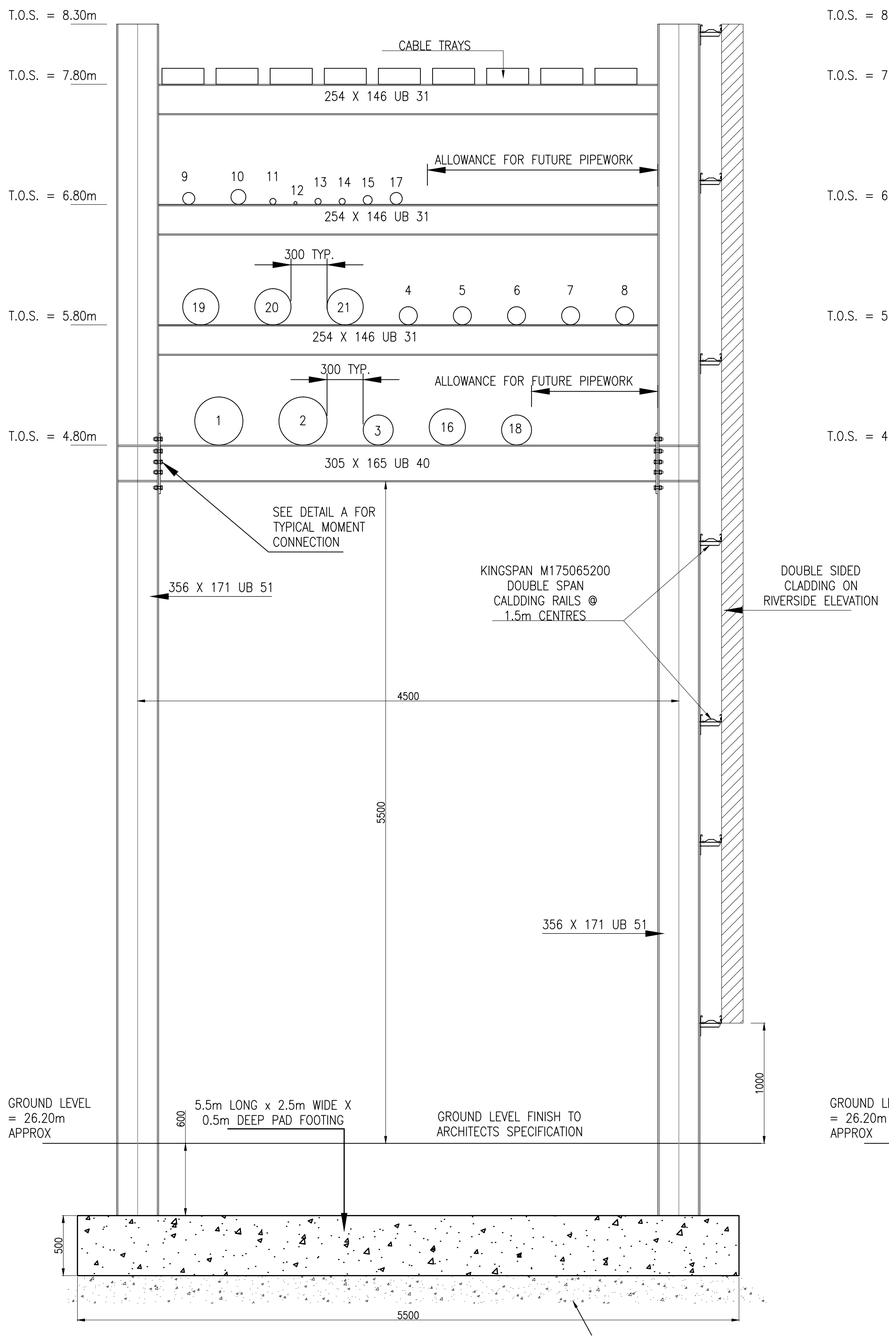
Drawing Title.
OFFICE & AMENITIES BUILDING
FIRTS FLOOR AND ROOF PLAN

Date. JAN 13

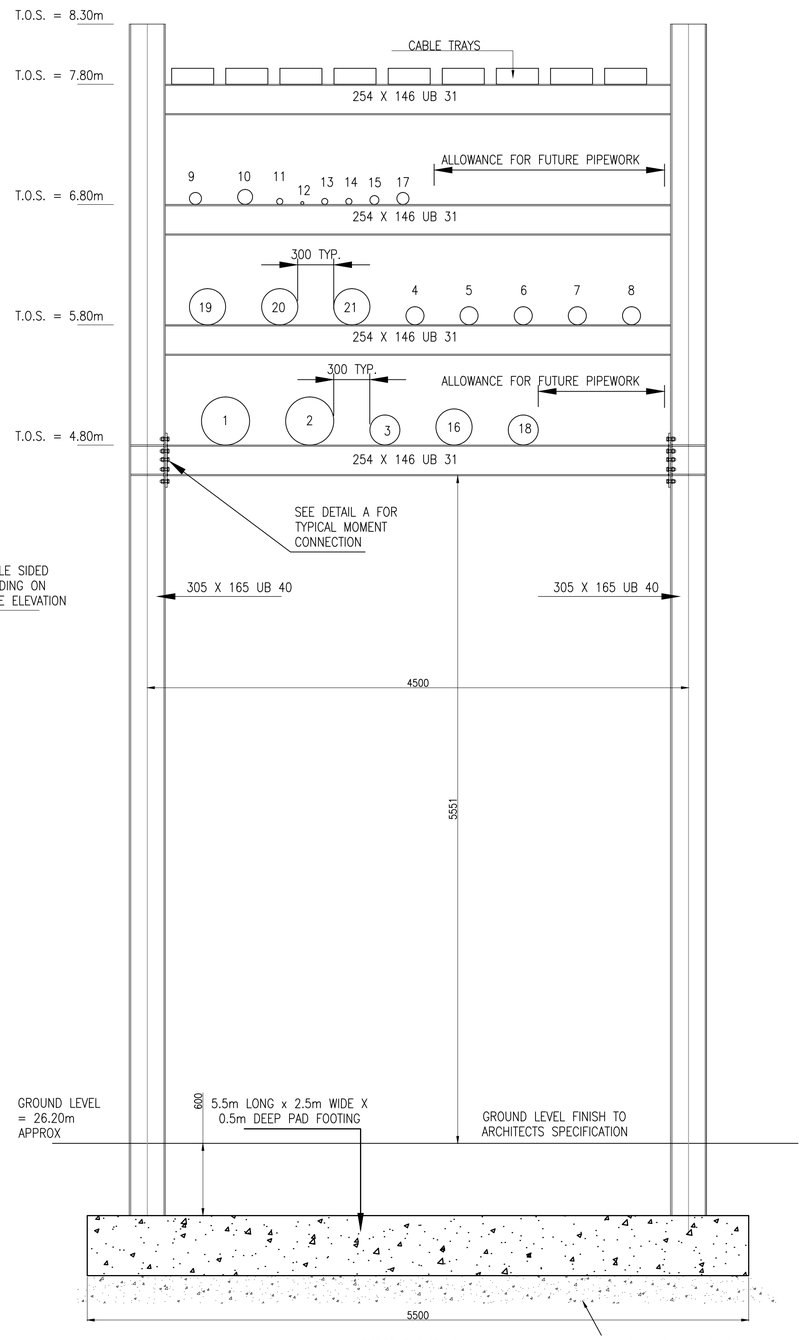
Current Rev. 00

Current Status. Costing

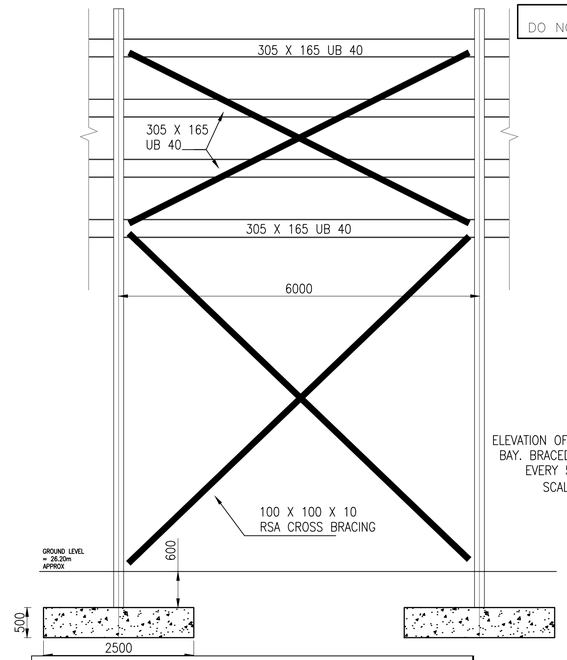
A1



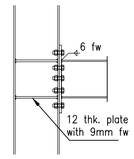
CROSS SECTION J–J
SCALE: 1/25

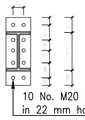


CROSS SECTION H–H
SCALE: 1/25



ELEVATION OF TYPICAL BRACED BAY. BRACED BAY REQUIRED EVERY 5 NO. BAYS
SCALE: 1/50





DETAIL A
TYPICAL MOMENT CONNECTION
SCALE: 1/20

LIST OF SERVICES ON DIVERTED PIPEBRIDGE

Mains connected from Foremans Bridge to DBO Pipebridge

Pipe No.	Description	Diameter (")	MOC	Ownership
1	DBO Effluent	14	Cast Iron	TCEL
2	DBO Effluent	14	Cast Iron	TCEL
3	Common User Cooling Water	8	Cast Iron	TCEL
4	Winnofil effluent main	6	Cast Iron	Solvay (Winnofil)
5	Winnofil effluent main	6	Cast Iron	Solvay (Winnofil)
6	Turbo Gas Scrubber Water	6	Cast Iron / some stainless stel	TCEL
7	Condensate return mains to SEP	6	Lagged Mild Steel	TCEL
8	Condensate return mains to SEP	6	Lagged Mild Steel	TCEL
9	Secheur Wash Water	3	Lagged Cast Iron / Stainless Steel	TCEL
10	Kiln Gas to DBO	5	Cast Iron	TCEL
11	Works Air	2	Mild Steel	TCEL
12	Potable Water	1.5	Lagged Plastic Pipe	TCEL
13	Foul Effluent	2	Alkathene	TCEL & INEOS
14	Foul Effluent	2	Alkathene	TCEL & INEOS
15	Fire Main	3	Lagged Mild Steel	TCEL

Provision to be made on reconfogured Pipebridge for following INEOS mains

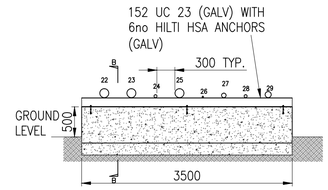
Pipe No.	Description	Diameter (")	MOC	Ownership
16	DCL	12	Cast Iron	INEOS
17	Acid alkali effluent	4	GRP	INEOS
18	Miscellaneous effluent main	10	Cast Iron	INEOS

Additional services to be alllowed for in diverted pipebridge

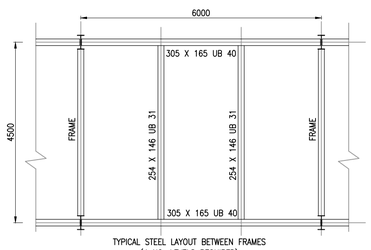
Pipe No.	Description	Diameter (")	MOC
19	Top tank water	12	Cast Iron
20	Hot raw water	12	Lagged Mild Steel
21	Hot purified water	12	Lagged Mild Steel

Connections to be allowed from the new pipebridge to the new water plant

Pipe No.	Description	Diameter (")	MOC
22	Common User Cooling Water	6	Cast Iron
23	Hot water supply	6	Lagged Mild Steel
24	Instrument air	2	Mild Steel
25	Process hot water	6	Lagged Mild Steel
26	Potable water	1	Lagged Plastic Pipe
27	IP Steam	3	Lagged Mild Steel
28	Brine	2	Alkathene
29	Effluent	4	Alkathene



CROSS SECTION I–I
THROUGH LOW LEVEL PIPE RACK TO WATER TREATMENT PLANT
SCALE: 1/50



TYPICAL STEEL LAYOUT BETWEEN FRAMES
(4 NO. LEVELS REQUIRED)
SCALE: 1/75

STEELWORK NOTES :

S1. ALL STEEL TO BE GRADE S275 UNO.

S2. ALL TEMPORARY WORKS REQUIRED TO SUPPORT OR ERECT THE STRUCTURAL STEEL ARE TO BE PROVIDED BY STEEL SUB–CONTRACTOR.

S3. ALL STEEL WORK CONNECTION DESIGN IS TO BE UNDERTAKEN BY THE STEELWORK SUB–CONTRACTOR.

S4. STRUCTURAL STEEL FABRICATION DRAWINGS TO BE SUBMITTED TO DESIGN TEAM AND HZI FOR APPROVAL / COMMENT PRIOR TO FABRICATION.

S5. ALL SECONDARY STEEL LOCATIONS TO BE FINALISED IN CONJUNCTION WITH DESIGN TEAM.

PAINTING SPECIFICATION:

1. PROTECTIVE COATING TO BE IN ACCORDANCE WITH SECTION 1.10.1 OF BRUNNER MOND CIVIL ENGINEERING STANDARD (JAN 2009)

2. STEELWORK SHALL BE DELIVERED TO SITE PRE–GALVANIZED

3. PREPARATION: BLAST CLEANING TO BS 7079:PART A1, PREPARATION GRADE SA2 USING CHILLED IRON GRIT GRADE G24 TO GIVE A COARSE SURFACE PROFILE, FOLLOWED BY ACID PICKLING

4. GALVANISING: TO BS729, MINIMUM AVERAGE COATING THICKNESS 85 MICROMETERS

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DO NOT SCALE – IF IN DOUBT ASK

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED
04	07.01.12	ISSUE FOR COSTING	T.O.C	G.O.S.
03	02.01.13	LIST OF SERVICES TO BE CARRIED BY PIPEBRIDGE REVISED AS PER LATEST TATA SCHEDULE. SECONDARY STEEL FOR CLADDED ELEVATION ADDED.	D.B.	G.O.S.
02	19.12.12	LIST OF SERVICES TO BE CARRIED BY PIPEBRIDGE REVISED AS PER LATEST TATA SCHEDULE.	D.B.	G.O.S.
01	14.12.12	WIDTH OF PIPEBRIDGE INCREASED TO ALLOW FOR CRANE ACCESS UNDERNEATH. DETAILS OF PIPEBRIDGE TO WATER TREATMENT PLANT ADDED.	D.B.	G.O.S.
00	04.10.12	ISSUE FOR INFORMATION	G.O.S	M.M

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Consulting Civil & Structural Engineers

Project.
LOSTOCK ENABLING WORKS

Client.
EON / BRUNNER MOND

Architect.
WILSON ARCHITECTS

Job No.	Drawing. No.	Scale.
12088	2004	AS SHOWN

Drawing Title.
PIPEBRIDGE SUPPORT DETAILS

Date. OCT 12

Current Rev. 04

Current Status. Costing

A1

NOTE: ALL PILING WORKS TO SPECALIST SUB-CONTRACTORS DESIGN

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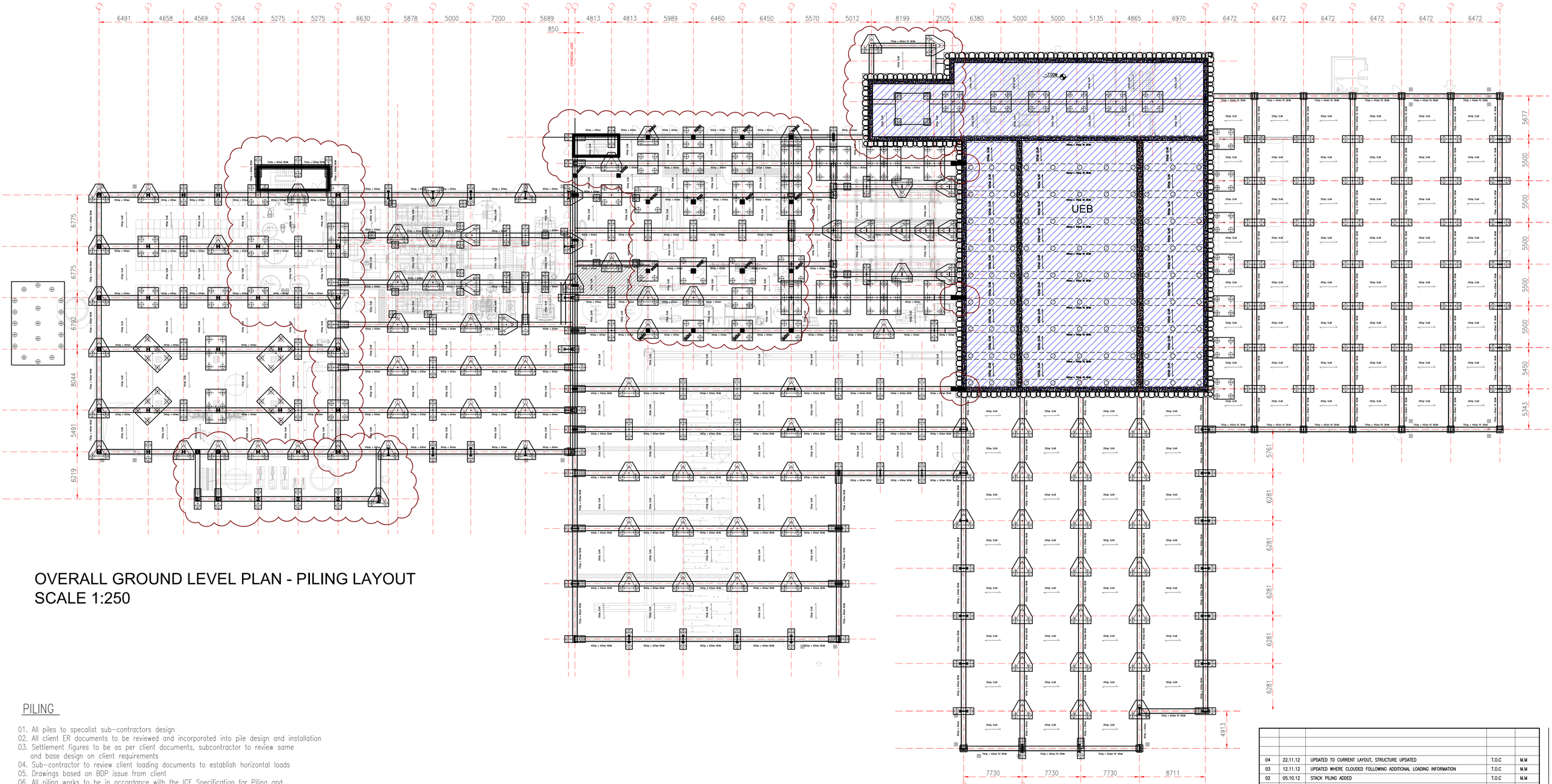
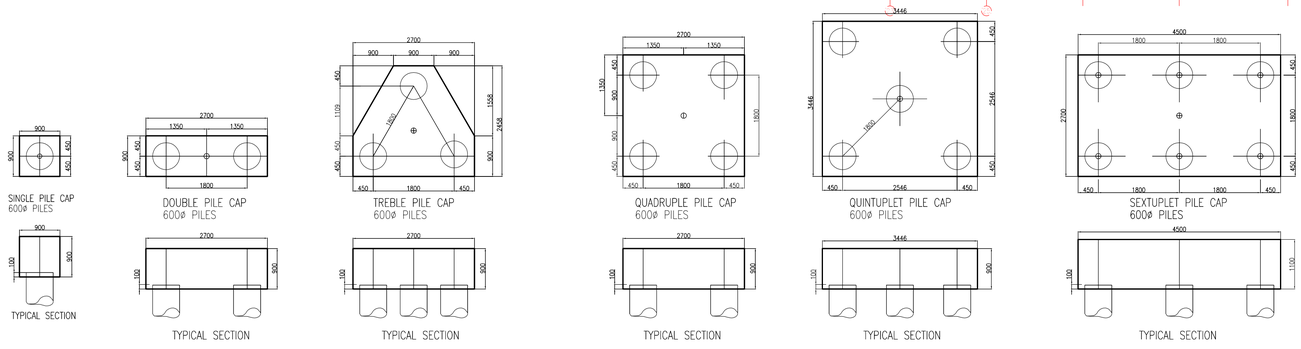
DO NOT SCALE – IF IN DOUBT ASK



OVERALL GROUND LEVEL PLAN - PILING LAYOUT
SCALE 1:250

PILING

01. All piles to specalist sub-contractors design
02. All client ER documents to be reviewed and incorporated into pile design and installation
03. Settlement figures to be as per client documents, subcontractor to review same and base design on client requirements
04. Sub-contractor to review client loading documents to establish horizontal loads
05. Drawings based on BDP issue from client
06. All piling works to be in accordance with the ICE Specification for Piling and Embedded Retaining Walls
07. All piling works to be in accordance with all relevant specifications and all relevant British Standards.
08. The piling designer shall clearly state the criteria used in the design and supply 2 copies of design calculations to the Engineer at tender stage.
09. The costs for all necessary testing shall be deemed to be included in the tender price.
10. Load-testing a preliminary non-working pile shall be agreed with the Engineer.
11. Load-testing on working piles shall be chosen by the Engineer in conjunction with piling (driving/boring) records.
12. Continuous vibration monitoring on existing/adjoining structures shall be carried out by the Piling Contractor in conjunction with the Engineer and/or adjoining owners representatives. Details of this monitoring shall be supplied to all relevant parties within 3 working days of completion of testing.
13. At least 5% of the total number of piles (with a minimum of 12 No) shall have a dynamic test carried out by a specialist independent testing company. This shall apply to all driven and bored (mini-piles). 1% of piles should have a static load test carried out on a working pile
14. All bored piles shall be integrity tested unless otherwise agreed with the Engineer.
15. The piling contractor shall inform the main Contractor on programme implications due to testing. Every effort shall be made to carry out all testing on piles as early as possible in order to mitigate delays and gain confidence in the piling operations. All static load testing shall be completed prior to the piling rig departing on site.
16. Reinforcement contained within piles shall be fully anchored (tension) into pile caps/ground beams. Sufficient reinforcement shall project from the piles (after breaking down) to achieve full tension anchorage.
17. The Piling Contractor is advised to visit the site and familiarise themselves with the site constraints. Having become familiar with all the constraints, the piling sub-contractor shall review their proposals (pile types, vibration limits etc). to ensure conformity with these constraints.
18. Assumed pile depths of approx 15m to be confirmed by specalist sub contractor.



REV	DATE	DESCRIPTION	DRAWN BY	CHECKED
04	22.11.12	UPDATED TO CURRENT LAYOUT, STRUCTURE UPDATED	T.O.C	M.M
03	12.11.12	UPDATED WHERE CLOUDED FOLLOWING ADDITIONAL LOADING INFORMATION	T.O.C	M.M
02	05.10.12	STACK PILING ADDED	T.O.C	M.M
01	04.10.12	GROUND FLOOR PLAN UPDATED	T.O.C	M.M
00	24.09.12	ISSUE FOR INFORMATION	T.O.C	M.M

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Consulting Civil & Structural Engineers

Project.
LOSTOCK E.F.W.

Client.
JOHN SISK & SONS LTD

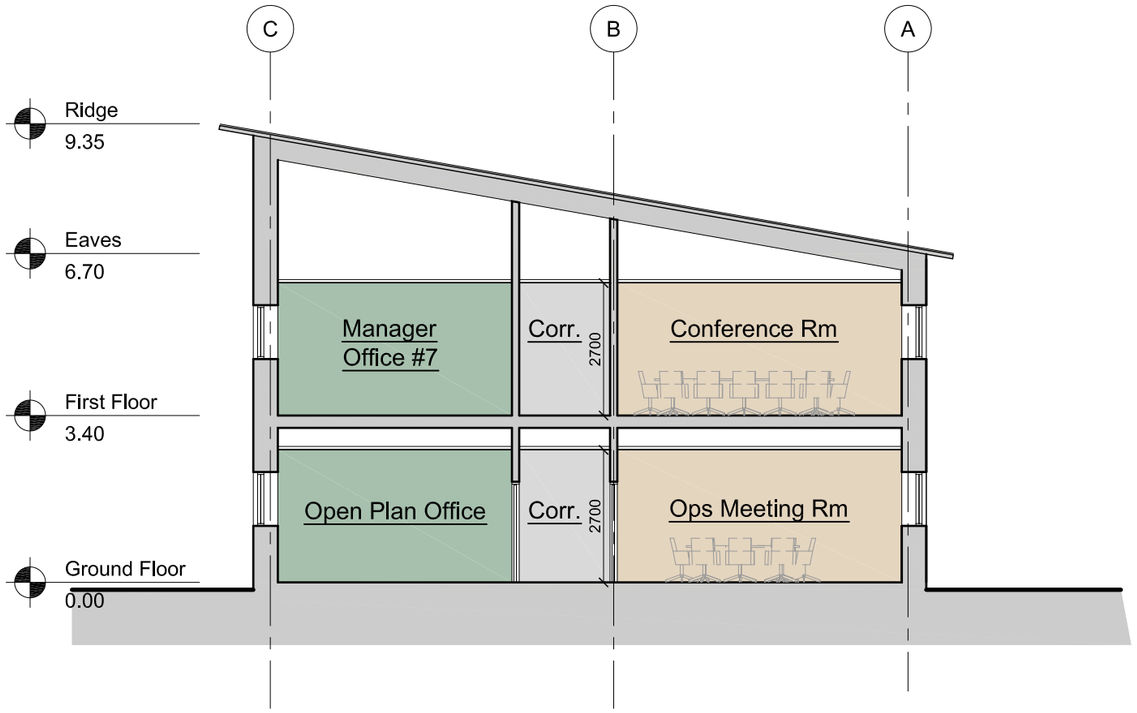
Architect.

Job No.	Drawing. No.	Scale.
12088	12088-01	1:250

Drawing Title.
OVERALL PLAN
LEVEL 0

Date. SEPT 12

Current Rev.	Current Status.
04	Information



Section

Scale: 1:125 @A3

Outline spec:

EXTERNAL WALLS:
Kingspan KS1000RW Trapezoidal Insulated Wall Panel, laid horizontally, polyester powder coated to selected colour(s) on purlins, supported on steel structure to Engineer's detail.
External wall to be finished internally with 2no. layers 12.5mm LaFarge Standard Wallboard supported on Cormet metal stud system.

ROOF:
Kingspan KS1000RW Profiled composite cladding on purlins on steel beams/ trusses to Engineer's detail.

EXTERNAL WINDOWS & DOORS:
Aluprof MB-70 Casement window system; Thermally broken, double-glazed, colour-coated.
Vertical PVC blinds internally.

ENTRANCE DOORS & SCREEN:
Aluprof MB-SR50 curtain walling system.
Besam Curved Automatic Sliding Door Lobby.

U-values and air permeability of external envelope to be in compliance with current Approved Document L2A.

INTERNAL WALLS:
LaFarge Cormet metal stud partition system with 2no layers 12.5mm Standard Wallboard each side.
Walls to be acoustically rated to 48-50dB.
100mm high Timber skirtings: to match architraves thickness and
colour as doorsets

CEILINGS:
Office Areas:
Armstrong Tegular Dune dB 600 x 600 Suspended Ceiling with Moy Isover Acoustic insulation, in Prelude X24 exposed grid, with 25mm Shadow gap to perimeter of rooms.
Locker Rooms/ showers:
Waterproof False ceiling metallic perforated sheet + Acoustic insulation

FLOOR FINISHES:

Offices (Clean)/ Meeting Rooms/ Corridors/ :
Carpet tile Floor coverings to be from Heuga 530 Quantum range, Manufacturer: Interface Europe or similar approved. Colour to be to client's choice.

Lockers/ Changing/ Toilets/ Canteen:
Altro Walkway 20 safety flooring with coved skirting.

Offices (Dirty areas); Stairs:
Gerflor Classic Imperial 2mm Vinyl with timber skirting
Gradus nosings & light grey inserts to stairs

Entrance Foyer:
Heakmondwike Conqueror Extra Heavy Duty Carpet tile with timber skirting

WALL FINISHES:

Plastered surfaces:
Painted plasterboard finish, 1 coat Dulux Multi-Surface Primer (OSA) primer, 2 coats Dulux low odour acrylic, 30% sheen. Surface defects should be filled prior to applying 1 coat of Dulux Plaster Sealer.
Gloss paint on woodwork, satin finish

Locker Rooms/ showers (Wet Areas):
Royal Mosa Global Collection 2nd Edition 150x150 smooth tiles
Showers and toilets: Ceramic tiles up to underside of false ceiling
Lockers area: paint
Moisture and fungal resistant acrylic paint, 30% sheen where not tiled

Internal doorsets:
Solid core laminate door leaf with hardwood edging to perimeter, with wraparound steel frames, 1/2 hour fire rated.
Vision panels where required, to be 200 (w) x 1500 (h)

SK 1260-103 - Office/ QA & Amenities Building

WILSON ARCHITECTURE
OMM W

Appendices

Appendix 1

Exploratory hole location logs

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-01
	Contract Number: JER1100	Start Date: 09/02/2018	End Date: 12/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 2
Windowless Borehole Log	Easting: 368315.4	Northing: 374126.7	Ground Level: 26.27mOD	Plant Used: Beretta T44 (Rotary)	Logged By: GC	Scale: 1:50
Weather:		Termination: Terminated at design depth.				

Samples & In Situ Testing: Depths	Type/Ref	SPT	Testing	Strata Details: Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Groundwater: Water Strike	Backfill/Installation
				26.22	0.05		Grey subrounded fine to coarse decorative GRAVEL of Limestone		
				26.12	0.15		MADE GROUND		
0.30 - 0.40	ES				(1.05)		Light grey angular fine to medium GRAVEL of brick, concrete and limestone. Rare white possible angular fine to medium lime made ground gravel fragments. Sand is medium to coarse MADE GROUND		
1.20 - 1.50	ES			25.07	1.20		Black angular fine to medium GRAVEL of brick, concrete, ash and limestone. Rare white possible angular fine to medium lime made ground gravel fragments. Sand is medium to coarse ash. MADE GROUND *Between 0.15 - 1.20 mbgl Rust colour staining on some gravels.*		
1.62 1.73	EW2 EW1				(1.50)		White, locally stained / mottled grey gravelly clayey medium to coarse SAND. Gravel is angular fine to medium concrete and rarely of brick fragments. MADE GROUND *At 2.50mbgl Concrete cobble present*		
2.70 - 3.00	ES			23.57	2.70		Very soft white sandy gravelly CLAY. Sand is medium to coarse. Gravel is angular fine to medium concrete and rare brick fragments. MADE GROUND *Between 2.70 - 4.00 mbgl: Grey staining of strata.*		
					(2.30)				
5.00 - 5.50	ES			21.27	5.00		Lime made ground recovered as very soft white CLAY. LIME MADE GROUND		
					(1.00)				
				20.27	6.00		Brown/Grey/Yellow angular fine sandy GRAVEL of mixed lithologies. and is fine to medium. Almost no recovery. GLACIAL TILL		
					(2.50)				
				17.77	8.50		Firm, locally stiff reddish brown locally mottled greenish grey CLAY. MERCIA MUDSTONE GROUP		
9.00 - 10.00			100 N/A N/A		(1.50)				
	Type/Ref		TCR / Fracture						

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
09-02-2018	08:00	0.00		
09-02-2018	17:00	9.00	9.00	
12-02-2018	08:00	9.00		
12-02-2018	17:00	10.00	9.00	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	9.00	PLAIN	50
1	9.00	10.00	SLOTTED	50

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 9.00 - 10.00 mbgl.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.70	80
2	101	3.00	4.50	67
3	101	4.50	6.00	100

Casing

Depth (m)	Diameter (mm)
9.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
9.00	9.00		0		

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-01
	Contract Number: JER1100	Start Date: 09/02/2018	End Date: 12/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 2
Rotary Core Drilling Log	Easting: 368315.4	Northing: 374126.7	Ground Level: 26.27mOD	Plant Used: Beretta T44 (Rotary)	Logged By: GC	Scale: 1:50

Weather:

Termination: Terminated at design depth.

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					16.27	10.00		End of Borehole at 10.00m		

10 11 12 13 14 15 16 17 18 19

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
09-02-2018	08:00	0.00		
09-02-2018	17:00	9.00	9.00	
12-02-2018	08:00	9.00		
12-02-2018	17:00	10.00	9.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	9.00	PLAIN	50
1	9.00	10.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
6.00	101
10.00	76

Casing Diameter

Depth (m)	Dia (mm)
9.00	130

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 9.00 - 10.00 mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
9.00	9.00		0		

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-02

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	22/02/2018	22/02/2018	LRW	FINAL	

Rotary Open Hole Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368372.6	374096.4	26.66mOD	Beretta T44 (Rotary)	AK	1:50

Weather: Cloudy

Termination: Terminated due to unknown obstruction at base and sides of borehole (possible redundant vertical pipework)

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	Duration (mm:ss)	Flush Return	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					26.46	0.20		Grass and moss vegetation over very sandy angular to subangular fine to medium GRAVEL of ash. Sand is fine to medium. TOPSOIL		
						(0.70)		Reinforced concrete slab. CONCRETE		
					25.76	0.90				
1.00 - 1.80				100 N/A N/A	25.61	1.05		Multicoloured subangular to angular fine to medium GRAVEL of sandstone, limestone and clinker. MADE GROUND		
						(0.93)		Brick and concrete structure consisting of ten layers of brick and concrete., possibly indicating former wall / remnant.		
					24.68	1.98		Obstruction. Approximately 1 inch diameter capped metal vertical infrastructure present in side of borehole when core removed. MADE GROUND		

End of Borehole at 1.98m

Type/Ref	RQD	Water

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
22-02-2018	08:00	0.00		
22-02-2018	17:00	1.98		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using rotary coring between 1-1.8m.
2. Groundwater encountered at 0.78m.
3.. Borehole backfilled with bentonite on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.78			0		

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
1.98	76		

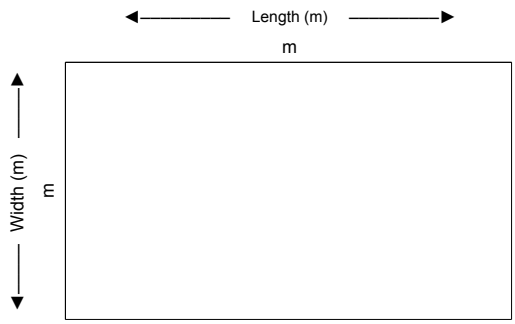
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: BH-RPS-02a
	Contract Number: JER1100	Start Date: 06/03/2018	End Date: 06/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368372.6	Northing: 374095.3	Ground Level: 26.70mOD	Plant Used: Hand tools	Logged By: AK	Scale: 1:50
Weather:	Hole Termination: Terminated due to presence of bulk asbestos fragments in inspection pit.					

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.20 - 0.50	ES	PID 0.20m, 0.0ppm	26.65	0.05		Stiff to firm brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular, fine to medium clinker and brick. MADE GROUND		
0.45 - 0.50	ES		26.20	(0.45) 0.50		*At 0.00 - 0.50mbgl, remnant wall structure and pipe fragments present along northern side of trial pit.*		
			25.70	(0.50) 1.00		Dark grey and black very gravelly fine to medium SAND. Gravel is subangular to angular, fine to coarse of coal, ash, clinker, whole bricks, brick fragments, and concrete. Frequent rubber fragments. Possible asbestos fragments (tiles and fibrous sheeting) identified at 0.45mbgl. MADE GROUND		
						Not excavated. Installation pipe advanced to this depth. MADE GROUND		
						End of Inspection Pit at 1.00m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 1.00m



General Remarks:

1. Borehole advanced for environmental sampling for planning purposes.
2. Borehole installed with 19mm groundwater and ground gas monitoring well on completion, response zone 0.50 - 1.00 mbgl. Pipe advanced in soft, non cohesive ground below inspection pit.
3. Large bulk fragments of possible asbestos present in hand pit. Spoil was double bagged and removed from site in designated waste skips.

Water Strikes

Strike (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-03

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	02/02/2018	06/03/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368298.9	374053.9	26.30mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Terminated at design depth.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.10	0.20		Concrete hardstanding CONCRETE		
0.30	B						Black very sandy sub- angular to angular fine to coarse GRAVEL of concrete, ash, coal. Sand is fine to coarse. MADE GROUND		
0.30 - 0.40	ES		PID 0.30m, 0.1ppm		(0.70)				
				25.40	0.90		Very soft yellowish grey very sandy gravelly CLAY. Gravel is of ash, concrete and Lime made ground. LIME MADE GROUND		
0.95 - 1.10	ES		PID 0.95m, 0.0ppm		(0.30)				
				25.10	1.20		Very soft white slightly sandy CLAY (Lime made ground). LIME MADE GROUND		
1.30 - 1.50	ES		PID 1.30m, 0.0ppm		(0.97)				
1.95	EW1								
				24.13	2.17		Greyish brown mottled grey fine to coarse SAND. MADE GROUND		
2.20 - 2.40	ES		PID 2.20m, 0.0ppm						
2.36	EW2				(0.63)				
				23.50	2.80		Firm reddish brown mottled grey slightly sandy CLAY. GLACIAL TILL		
3.00 - 3.20	ES		PID 3.00m, 0.0ppm				*At 3.45 mbgl: Becoming firm to stiff.*		
					(2.45)				
				21.05	5.25		Stiff reddish brown slightly sandy CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP		
					(1.85)				
6.80 - 7.00	ES		PID 6.80m, 0.0ppm				*At 6.70 mbgl: becoming very stiff.*		
				19.20	7.10		Extremely weak reddish brown very fine grained MUDSTONE with occasional greenish grey reduction spots. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 7.10 - 10.00mbgl Strata weathered*		
					(2.90)				
9.80 - 10.00	ES		PID 9.80m, 0.1ppm	16.30	10.00		End of Borehole at 10.00m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	3.00	PLAIN	50
1	3.00	7.00	SLOTTED	50

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 7.00 mbgl.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.70	100
2	101	3.00	4.50	100
3	101	4.50	6.00	100
4	101	6.00	7.50	100
5	101	7.50	10.00	100

Casing

Depth (m)	Diameter (mm)
6.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS WLS Template Issue Number: 2 Issue Date: 02/01/2018

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-04

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	15/02/2018	15/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368397.5	373994.4	26.68mOD	Beretta T44 (Rotary)	AK	1:50

Weather: Cloudy

Termination: Terminated at design depth.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.30	ES		PID 0.30m, 0.4ppm		(0.65)		Moss vegetation over black very gravelly medium to coarse SAND. Gravel is is angular to subrounded, fine to medium of concrete and brick, rare possible mudstone/limestone. MADE GROUND		
0.65 - 0.90	ES		PID 0.65m, 0.6ppm	26.03	0.65		*Between 0.00 - 0.65mbgl: Throughout strata, pockets of Very soft light brown very sandy CLAY. Sand is medium to coarse.*		
							Very soft white gravelly SILT (Lime made ground). Gravel is subrounded, coarse, brown of clinker. LIME MADE GROUND		
							Between 0.65-0.90: Start very gravelly, gravels description as rest of strata.		
1.63 1.64	EW1 EW2				(1.85)				
				24.18	2.50		No recovery. Assumed to be due to very wet / loose consistency of lime made ground. NO RECOVERY		
					(2.80)				
				21.38	5.30		Reddish brown CLAY. MADE GROUND		
				21.18	5.50		Firm reddish brown sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular, fine to medium of sandstone and limestone. GLACIAL TILL		
5.60 - 6.00	ES		PID 5.60m, 0.0ppm						
					(2.00)				
				19.18	7.50		Firm reddish brown gravelly CLAY. Gravel is subangular to angular, fine to medium of sandstone and limestone. GLACIAL TILL		
7.80 - 8.40	ES								
							Between 8.50-10.00mbgl: Becomes slightly gravelly.		
					(2.50)		*Between 8.75-10.00mbgl: Becomes firm to stiff*		
				16.68	10.00		End of Borehole at 10.00m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
15-02-2018	08:00	0.00		
15-02-2018	17:00	1.20		
21-02-2018	08:00	1.20		
21-02-2018	17:00	10.00	5.50	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	5.50	PLAIN	50
1	5.50	7.50	SLOTTED	50

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 5.50-7.50 mbgl.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.50	55
2	101	2.50	5.50	0
3	101	5.50	7.00	65

Casing

Depth (m)	Diameter (mm)
5.50	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.40			0		Seepage

RPS WLS Template Issue Number: 2 Issue Date: 02/01/2018

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-05
	Contract Number: JER1100	Start Date: 31/01/2018	End Date: 06/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 2
Windowless Borehole Log	Easting: 368312.3	Northing: 373951.8	Ground Level: 26.68mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50
Weather:		Termination: Terminated at design depth.				

Samples & In Situ Testing

Depths	Type/ Ref	SPT	Testing
0.30	ES		
0.80	ES		
0.97	EW1		
1.10	ES		
1.14	EW2		
3.00 - 3.20	ES		
4.00 - 4.40			100
4.40 - 5.90	ES		98 N/A N/A
5.90 - 7.40			97 N/A N/A
7.40 - 8.90			97 N/A N/A
8.90 - 10.40			98 N/A N/A
	Type/Ref		TCR / Fracture

Strata Details

Level (mAOD)	Depth (m) (Thickness)	Strata Description
26.58	0.10	Concrete hardstanding CONCRETE
26.48	0.20	Light grey sandy angular fine to coarse GRAVEL. MADE GROUND
26.28	0.40	Dark grey / black sandy angular fine to coarse GRAVEL of Flint, concrete and coal. MADE GROUND
	(0.60)	
25.68	1.00	Orangish brown slightly clayey fine to coarse SAND. MADE GROUND
25.48	1.20	Light greyish white clayey fine to coarse SAND. MADE GROUND
	(1.20)	Light greyish white fine to coarse sandy CLAY (Lime made ground). LIME MADE GROUND
24.28	2.40	Grey very sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine. MADE GROUND
24.18	2.50	Firm reddish brown mottled grey slightly sandy CLAY. Sand is fine to coarse. GLACIAL TILL
	(1.90)	*At 4.00mbgl: becoming sandy.*
22.28	4.40	Firm to stiff reddish brown mottled grey sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to angular, fine to medium of sandstone. GLACIAL TILL
	(3.00)	*Between 7.25 - 7.30mbgl lens of sandy clayey gravel.*
19.28	7.40	Firm reddish brown slightly sandy CLAY. (Weathering Grade V). MERCIA MUDSTONE GROUP
	(0.59)	*Between 7.80 - 7.99mbgl: becoming green/grey.*
18.69	7.99	Stiff to very stiff reddish brown CLAY with frequent green/grey reduction spots and occasional white gypsum bands. (Weathering Grade IV). MERCIA MUDSTONE GROUP
	(2.41)	*Between 8.90 - 9.10mbgl: recovered as reddish brown sandy clayey gravel of mudstone.* *Between 9.30 - 9.35mbgl: lens of reddish brown sandy clayey gravel of mudstone.*

Groundwater: Water Strike; Backfill/ Installation

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
31-01-2018	08:00	0.00		
31-01-2018	17:00	1.20		
06-02-2018	08:00	1.20		
06-02-2018	17:00	10.40	5.50	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	3.00	PLAIN	50
1	3.00	7.50	SLOTTED	50

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.50	77
2	101	2.50	4.00	100
3	101	4.00	4.40	100

Casing

Depth (m)	Diameter (mm)
5.50	130

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 7.50 mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-05
	Contract Number: JER1100	Start Date: 31/01/2018	End Date: 06/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 2
Rotary Core Drilling Log	Easting: 368312.3	Northing: 373951.8	Ground Level: 26.68mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather:

Termination: Terminated at design depth.

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					16.28	10.40		End of Borehole at 10.40m		

10 11 12 13 14 15 16 17 18 19

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
31-01-2018	08:00	0.00		
31-01-2018	17:00	1.20		
06-02-2018	08:00	1.20		
06-02-2018	17:00	10.40	5.50	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	3.00	PLAIN	50
1	3.00	7.50	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
4.40	101
10.40	76

Casing Diameter

Depth (m)	Dia (mm)
5.50	130

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 7.50 mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-06

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 2
JER1100	31/01/2018	31/01/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368325.5	373910.1	26.74mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Terminated at design depth.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.10 - 0.20	ES			26.64	0.10		Dark grey CONCRETE containing ballast. CONCRETE		
0.40 - 0.50	ES			26.54	0.20		Grey very gravelly SAND. Gravel is sub-rounded to sub-angular fine to coarse. Slight hydrocarbon odour MADE GROUND		
					(0.90)				
0.86	EW1						Black slightly gravelly SAND of ash. Gravel is subangular fine of ash. MADE GROUND		
0.87	EW2								
1.10 - 1.50	ES			25.64	1.10		White soft to firm CLAY of Lime made ground. LIME MADE GROUND		
					(0.40)				
				25.24	1.50		Firm brown ,mottled grey slightly sandy CLAY. Sand is fine to medium. MADE GROUND		
1.90 - 2.20	ES								
					(1.20)				
							Between 2.50-2.60mbgl: Strat soft.		
				24.04	2.70		Stiff to very stiff reddish brown slightly sandy CLAY. Sand is fine to medium. Gravel is sub-angular medium of mudstone. MERCIA MUDSTONE GROUP		
2.90 - 3.10	ES						*Between 2.70 - 2.90mbgl: Recovered as slightly gravelly clay.* *Between 2.70 - 3.20mbgl: Strata becoming mottled grey.*		
					(1.50)				
				22.54	4.20		Very stiff reddish brown CLAY becoming Extremely weak MUDSTONE. MERCIA MUDSTONE GROUP		
4.10 - 5.50	ES		33 N/A N/A						
5.50 - 7.00			100 N/A N/A						
					(5.80)				
7.00 - 8.50			100 N/A N/A						
							Between 8.30 and 8.50 mbgl: Recovered as Reddish brown sandy gravel of mudstone		
							Between 8.70 - 8.75 mbgl: greenish grey reduction spots		
8.50 - 10.00			100 N/A N/A						
	Type/Ref		TCR	Fracture					

1 2 3 4 5 6 7 8 9

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
31-01-2018	08:00	0.00		
31-01-2018	17:00	10.00	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	3.00	PLAIN	50
1	3.00	6.00	SLOTTED	50

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 6.00 mbgl.
3.Hydrocarbon odour noted 0.10-0.20mbgl.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.50	100
2	101	2.50	4.00	100
3	101	4.00	4.10	100

Casing

Depth (m)	Diameter (mm)
4.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-06
	Contract Number: JER1100	Start Date: 31/01/2018	End Date: 31/01/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 2
Rotary Core Drilling Log	Easting: 368325.5	Northing: 373910.1	Ground Level: 26.74mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather:

Termination: Terminated at design depth.

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					16.74	10.00		End of Borehole at 10.00m		

10 11 12 13 14 15 16 17 18 19

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
31-01-2018	08:00	0.00		
31-01-2018	17:00	10.00	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	3.00	PLAIN	50
1	3.00	6.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
4.10	101
10.40	76

Casing Diameter

Depth (m)	Dia (mm)
4.00	130

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 6.00 mbgl.
3.Hydrocarbon odour noted 0.10-0.20mbgl.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-07
	Contract Number: JER1100	Start Date: 01/02/2018	End Date: 08/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 2
Windowless Borehole Log	Easting: 368308.0	Northing: 373867.0	Ground Level: 26.75mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50
Weather:		Termination: Terminated at design depth.				

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.65	0.10		Black and grey angular fine to medium GRAVEL of mixed lithologies. MADE GROUND		
					(0.50)				
0.60 - 1.00	ES			26.15	0.60		White and grey angular fine to coarse GRAVEL of concrete with a high cobble content MADE GROUND		
1.13 1.25	EW1 EW2				(1.00)		Black angular to subangular fine to medium GRAVEL of ash and ballast. Rare angular coarse fragments of possible pumice or limestone. MADE GROUND		
1.60 - 1.80	ES			25.15	1.60		Reddish brown gravelly slightly clayey fine to medium SAND. Gravel is angular to subangular, fine to medium of sandstone. Poor recovery. GLACIAL TILL		
					(1.40)				
3.00 - 3.30	ES			23.75	3.00		Firm reddish brown mottled grey slightly sandy CLAY. Sand is fine to medium. GLACIAL TILL		
					(0.44)				
				23.31	3.44		*Between 3.00-3.15mbgl: Black staining present within strata* Firm reddish brown mottled grey sandy slightly gravelly CLAY. Sand is fine to medium. gravel is subangular to angular fine sandstone. GLACIAL TILL		
					(2.21)				
							Between 5.45-5.65mbgl: Strata becoming firm to stiff.		
				21.10	5.65		Firm to stiff reddish brown slightly sandy CLAY. sand is fine to medium. (Weathering Grade III).		
6.00 - 6.20	ES ES						MERCIA MUDSTONE GROUP		
					(0.85)				
				20.25	6.50		Extremely weak reddish brown very fine grained MUDSTONE with rare gypsum lenses. Weathering Grade II). MERCIA MUDSTONE GROUP		
6.00 - 7.50			95 N/A N/A						
					(1.00)				
							Between 7.30-7.50mbgl: Recovered as subangular to angular, fine to medium GRAVEL.		
				19.25	7.50		Very weak reddish brown very fine grained MUDSTONE with occasional green / grey reduction spots and frequent gypsum lenses. (Weathering Grade I). MERCIA MUDSTONE GROUP		
PID 0.0ppm									
7.50 - 9.00			100 N/A N/A		(1.50)				
							Between 8.90-9.00mbgl: Recovered as very gravelly CLAY.		
				17.75	9.00		Very weak reddish brown very fine grained MUDSTONE with frequent green / grey reduction spots and frequent gypsum lenses. (Weathering Grade I). MERCIA MUDSTONE GROUP		
9.00 - 10.00			100 N/A N/A		(0.85)				
				16.90	9.85				
	Type/Ref		TCR	Fracture					

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
08-02-2018	08:00	0.00		
08-02-2018	17:00	10.00		

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	3.00	PLAIN	50
1	3.00	6.50	SLOTTED	50

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 6.50 mbgl.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.70	45
2	101	3.00	4.50	98
3	101	4.50	6.00	90

Casing

Depth (m)	Diameter (mm)
	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-07
	Contract Number: JER1100	Start Date: 01/02/2018	End Date: 08/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 2
Rotary Core Drilling Log	Easting: 368308.0	Northing: 373867.0	Ground Level: 26.75mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather:

Termination: Terminated at design depth.

Samples & Core Recovery					Strata Details					Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation
					16.75	10.00		Very weak green / grey very fine grained MUDSTONE with occasional white gypsum bands. (Weathering Grade I). MERCIA MUDSTONE GROUP	10		
								End of Borehole at 10.00m	11		
									12		
									13		
									14		
									15		
									16		
									17		
									18		
									19		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
08-02-2018	08:00	0.00		
08-02-2018	17:00	10.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	3.00	PLAIN	50
1	3.00	6.50	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.00	101		130
10.00	76		

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 6.50 mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-08
	Contract Number: JER1100	Start Date: 16/02/2018	End Date: 22/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Rotary Open Hole Drilling Log	Easting: 368401.5	Northing: 374141.1	Ground Level: 26.55mOD	Plant Used:	Logged By:	Scale: 1:50

Termination: Terminated due to encountering basement , borehole unsafe to continue.

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	Duration (mm:ss)	Flush Return	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.10 - 0.40					26.25	(0.30) 0.30		Very hard reinforced concrete and brick hardstanding. CONCRETE		
0.40 - 2.00						(1.80)		Void in ground. Possible former basement structure. Appears to have wall underneath western and southern extents, and void under northern and eadstern extent. base appears to be concrete or other similar hardstanding with demolition rubble / debris. VOID		
					24.45	2.10		End of Borehole at 2.10m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
22-02-2018	08:00	0.00		
22-02-2018	17:00	2.10		

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole left open and fenced off on completion at request of TATA site personnel.
3. No significant visual or olfactory contamination noted.

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-09

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	20/02/2018	21/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368476.8	374024.0	26.50mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Terminated at design depth.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.20 - 0.65	ES		PID 0.20m, 0.2ppm	26.30	0.20		Concrete hardstanding		
					(0.45)		MADE GROUND		
0.65 - 1.00	ES		PID 0.65m, 0.5ppm	25.85	0.65		Yellow and white very gravelly medium to coarse SAND. Gravel is angular fine to coarse of concrete, sandstone and limestone		
					(0.45)		MADE GROUND		
1.10	EW2			25.40	1.10		Very soft black, locally mottled grey sandy CLAY (possibly reworked). Organic odour.		
1.12	EW1						MADE GROUND		
1.30 - 1.50	ES		PID 1.30m, 0.0ppm		(0.72)		White sandy CLAY (Lime made ground). Sand is fine to medium. LIME MADE GROUND		
1.82 - 2.22	ES		PID 1.82m, 0.2ppm	24.68	1.82		Firm black sandy CLAY. Sand is fine to medium. GLACIAL TILL		
					(1.00)				
				23.68	2.82		Firm reddish brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular fine to medium sandstone. GLACIAL TILL		
3.50 - 4.00	ES		PID 3.50m, 0.0ppm		(1.38)				
							At 3.95mbgl: becoming very sandy.		
				22.30	4.20		Firm reddish brown mottled grey sandy CLAY. Sand is fine to medium. GLACIAL TILL		
					(1.90)				
5.50 - 6.00	ES		PID 5.50m, 0.0ppm						
							Between 5.75-5.85mbgl: Strata becoming very sandy.		
				20.40	6.10		Firm to stiff reddish brown mottled grey CLAY. (Weathering Grade IV). MERCIA MUDSTONE GROUP		
					(1.30)				
				19.10	7.40		Stiff reddish brown CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP		
					(1.30)				
				17.80	8.70		End of Borehole at 8.70m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
20-02-2018	17:00	1.20		
21-02-2018	08:00	1.20		
21-02-2018	17:00	8.70	6.00	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	2.50	PLAIN	50
1	2.50	6.00	SLOTTED	50

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using dynamic sampling and rotary coring.
2. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 2.50 - 6.00 mbgl.
3. Organic odour noted 0.65 - 1.10mbgl.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.70	100
2	101	3.00	4.50	100
3	101	4.50	6.00	100
4	101	6.00	7.50	100
5	101	7.50	8.70	100

Casing

Depth (m)	Diameter (mm)
6.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-10

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER1100	09/02/2018	09/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368326.0	374095.0	26.20mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Terminated at design depth (10m), then extended to 20.50mbgl (design depth)

Samples & In Situ Testing

Depths	Type/ Ref	SPT	Testing
0.10 - 0.30	ES		PID 0.30m, 0.0ppm
0.70 - 0.90	ES		PID 0.90m, 0.0ppm
1.55	EW1		
1.60	EW2		
3.50 - 3.80	ES		PID 3.80m, 0.1ppm
4.70 - 4.85	ES		PID 4.85m, 0.1ppm
6.00 - 6.20	ES		PID 6.20m, 0.0ppm
7.00 - 8.50			50 N/A N/A
8.50 - 10.00			57 N/A N/A

Type/Ref	TCR	Fracture

Strata Details

Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description
26.13	0.07		Moss over brown slightly sandy gravelly clayey SILT. Gravel is of brick fragments. MADE GROUND
25.86	0.34		Grey sandy fine sub-angular to angular GRAVEL of brick, Sandstone, concrete and tarmac. MADE GROUND
	(1.91)		Dark grey very sandy slightly clayey GRAVEL of coal, ash, brick fragments and concrete. MADE GROUND
23.95	2.25		Brown slightly clayey fine to coarse SAND. MADE GROUND
23.70	2.50		Very soft to soft white slightly sandy CLAY (Lime made ground). LIME MADE GROUND
	(1.70)		
22.00	4.20		Soft to firm reddish brown sandy slightly mottled grey CLAY. Sand is fine to medium. GLACIAL TILL
	(0.50)		
21.50	4.70		Black slightly clayey, slightly gravelly fine to medium SAND. Gravel is sub-rounded to sub-angular of sandstone. Strata has organic odour GLACIAL TILL
21.35	4.85		Reddish brown very clayey slightly gravelly fine to medium SAND. Gravel is sub-angular to sub-rounded fine to medium of sandstone. GLACIAL TILL
21.08	5.12		Reddish brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine of sandstone. GLACIAL TILL
	(0.77)		Firm reddish brown sandy CLAY. Sand is fine to medium. (Weathering Grade IV) MERCIA MUDSTONE GROUP
20.31	5.89		Stiff reddish brown occasionally mottled green / grey CLAY. (Weathering Grade III) MERCIA MUDSTONE GROUP
	(1.15)		
19.00	7.20		Stiff to very stiff reddish brown CLAY. Localised greenish grey reduction spots. (Weathering Grade III) MERCIA MUDSTONE GROUP
17.85	8.35		Firm to stiff reddish brown CLAY. Localised greenish grey reduction spots. (Weathering Grade IV) MERCIA MUDSTONE GROUP
	(0.30)		
17.55	8.65		
	(1.35)		*Between 9.50 - 9.65mbgl: recovered as gravelly clay. Gravel is sub-angular to angular fine to medium.*

Groundwater

Water Strike	Backfill/ Installation

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
07-03-2018	08:00	0.00		
07-03-2018	17:00	10.00		
12-03-2018	08:00	10.00		
12-03-2018	17:00	20.50	10.00	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	5.00	PLAIN	
1	5.00	7.00	SLOTTED	

Remarks:

1. Borehole advanced for environmental sampling and geotechnical purposes using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. Organic odour 4.70-4.85mbgl
4. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 5.00 - 7.00 mbgl.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	0.20	1.50	50
2	101	2.50	4.00	0
3	101	4.00	5.50	100
4	101	5.50	7.00	100

Casing

Depth (m)	Diameter (mm)
10.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-10
	Contract Number: JER1100	Start Date: 09/02/2018	End Date: 09/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368326.0	Northing: 374095.0	Ground Level: 26.20mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50
Weather:		Termination: Terminated at design depth (10m), then extended to 20.50mbgl (design depth)				

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50	ES C C C		100 85 61		16.20 15.00	10.00 (1.20) 11.20		Extremely weak reddish very thinly laminated reddish brown MUDSTONE with occasional laminated white gypsum lenses approximately 1cm in width. Discontinuities are 25 to 35 degrees, generally very closely spaced undulating smooth with 1-3mm calcareous infill. (Weathering Grade II). MERCIA MUDSTONE GROUP		
11.50 - 13.00	ES C C C		85 65 60		14.75 14.70 14.48	11.45 11.50 11.72 (1.28)		Extremely weak reddish brown MUDSTONE recovered as sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular, fine of mudstone. (Weathering Grade II). MERCIA MUDSTONE GROUP Extremely weak very thinly laminated reddish brown very fine grained MUDSTONE. (Weathering Grade II). MERCIA MUDSTONE GROUP Extremely weak reddish brown mudstone recovered as slightly clayey, subangular to angular fine to medium GRAVEL due to CPT disturbance. (Weathering Grade II). MERCIA MUDSTONE GROUP		
13.00 - 14.50	ES C C C		98 85 69		13.20	13.00 (1.60)		Extremely weak very thinly laminated reddish brown MUDSTONE with occasional laminated white gypsum lenses approximately 1 - 1.5cm in width. Discontinuities are 10-25 degrees closely spaced generally planar smooth with partial or no calcareous infill. (Weathering Grade II). MERCIA MUDSTONE GROUP Very weak very thinly laminated reddish brown MUDSTONE. Frequent greenish grey reduction spots less than 1.5mm across and white gypsum bands up to 1.3mm width. Discontinuities are 0-10 degrees, generally planar smooth with calcareous infill. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 13.17-13.28 mbgl: Lens of very clayey GRAVEL* *Between 14.53-14.60 mbgl: Lens of very clayey GRAVEL*		
14.50 - 16.00	C C C C ES		95 80 73		11.60	14.60 (1.40)		Extremely weak very thinly laminated reddish brown MUDSTONE. Occasionally recovered as reddish brown clayey gravel. Common greenish grey reduction spots less than 30mm across and white gypsum ;enses less than 5cm across. Discontinuities are 0-20 degrees, generally very closely spaced with calcareous infill of 2-3mm. (Weathering Grade II). MERCIA MUDSTONE GROUP		
16.00 - 17.50	C		60 25 20		10.20 9.92 9.71	16.00 16.28 16.49 (1.01)		Extremely weak reddish brown MUDSTONE recovered as subangular to angular fine to medium GRAVEL. (Weathering Grade II). MERCIA MUDSTONE GROUP Extremely weak reddish brown MUDSTONE recovered as slightly gravelly clay, gravel is subangular to angular, fine of mudstone. (Weathering Grade II). MERCIA MUDSTONE GROUP Extremely weak reddish brown MUDSTONE with rare greenish grey reduction spots and white gypsum lenses. Poor recovery. (Weathering Grade II). MERCIA MUDSTONE GROUP		
17.50 - 19.00	C C ES C C C		98 90 78		8.70	17.50 (1.50)		Very weak reddish brown MUDSTONE occasionally recovered as reddish brown clayey gravel. Common greenish grey reduction spots up to 20mm across and white gypsum lenses up to 3mm width. Discontinuities are 0-5 degrees generally closely spaced with partial or no calcareous infill up to 3mm. (Weathering Grade I). MERCIA MUDSTONE GROUP		
19.00 - 20.50	C C C		100 83 72		7.20	19.00 (1.50)		Very weak reddish brown MUDSTONE occasionally recovered as reddish brown clayey gravel. Common greenish grey reduction spots (up to 19.86mbgl) and white gypsum lenses up to 3mm. Discontinuities are 0-15 degrees, generally closely spaced undulating smooth to planar smooth with calcareous infill. (Weathering Grade I).		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
07-03-2018	08:00	0.00		
07-03-2018	17:00	10.00		
12-03-2018	08:00	10.00		
12-03-2018	17:00	20.50	10.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	5.00	PLAIN	
1	5.00	7.00	SLOTTED	

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
7.00	101
20.50	76

Casing Diameter

Depth (m)	Dia (mm)
10.00	130

Remarks:

1. Borehole advanced for environmental sampling and geotechnical purposes using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. Organic odour 4.70-4.85mbgl
4. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 5.00 - 7.00 mbgl.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-10

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	09/02/2018	09/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368326.0	374095.0	26.20mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Terminated at design depth (10m), then extended to 20.50mbgl (design depth)

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	ES							MERCIA MUDSTONE GROUP *Between 20.05-20.50mbgl: Strata becoming greenish grey.*		
	C				5.70	20.50		End of Borehole at 20.50m		

20 21 22 23 24 25 26 27 28 29

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	5.00	PLAIN	
1	5.00	7.00	SLOTTED	

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
7.00	101	10.00	130
20.50	76		

Remarks:

1. Borehole advanced for environmental sampling and geotechnical purposes using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. Organic odour 4.70-4.85mbgl
4. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 5.00 - 7.00 mbgl.

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

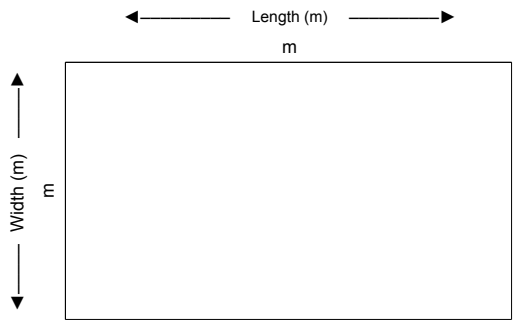
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: BH-RPS-10a
	Contract Number: JER1100	Start Date: 07/03/2018	End Date: 07/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368325.0	Northing: 374094.0	Ground Level: 26.20mOD	Plant Used: Hand Tools	Logged By: AK	Scale: 1:50
Weather: Cloudy.		Hole Termination: Terminated due to possible service / metal obstruction at base of inspection pit.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			26.15	0.05		Brown sandy CLAY. TOPSOIL		
0.30 - 0.45	ES	PID 0.30m, 0.0ppm	25.95	0.25		Grey clayey gravelly SAND. Sand is fine to medium. Gravel is angulr to subangular, fine to medium of clinker, mudstone and brick. MADE GROUND		
			25.75	0.45		Dark grey and black gravelly SAND. Sand is fine to medium of ash. Gravel is subangular to subrounded, fine to medium of ash, concrete, clinker and brick. MADE GROUND		
						End of Inspection Pit at 0.45m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 0.45m



General Remarks:

1. Borehole advanced for geotechnical design
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

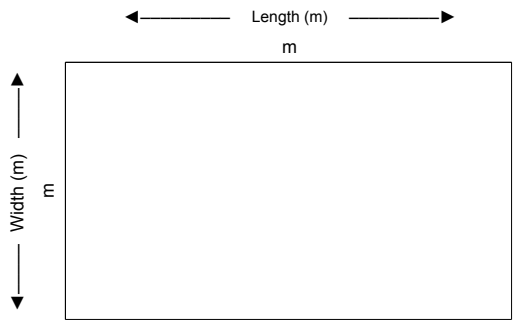
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: BH-RPS-10b
	Contract Number: JER1100	Start Date: 07/03/2018	End Date: 07/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368327.0	Northing: 374094.0	Ground Level: 26.20mOD	Plant Used: Hand Tools	Logged By: AK	Scale: 1:50
Weather: Cloudy.		Hole Termination: Terminated due to railway sleeper that could not be removed at based of inspection pit.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.10 - 0.25	ES	PID 0.10m, 0.0ppm	26.15	0.05		Brown sandy CLAY. Sand is fine to medium. TOPSOIL		
0.35 - 0.50	ES	PID 0.35m, 0.0ppm	25.90	0.30		Grey clayey gravelly SAND. Sand is fine to medium. Gravel is subangular to angular, fine to medium of mudstone, ash, clinker, brick and concrete. MADE GROUND		
			25.70	0.50		Dark grey and black gravelly SAND. Sand is fine to medium of ash. Gravel is subangular to angular fine to medium of clinker, ash, coal, concrete and brick. MADE GROUND		
			25.70			Railway Sleeper. MADE GROUND		
						End of Inspection Pit at 0.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 0.50m



General Remarks:

1. Borehole advanced for geotechnical design
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-11

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	12/02/2018	13/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368308.0	374079.0	26.25mOD	Beretta T44 (Rotary)	AK	1:50

Weather: Cold/Rain

Termination: Terminated at 3.28m due to obstruction.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.20	0.05		Tarmac hardstanding.		
					(0.42)		MADE GROUND		
				25.78	0.47		Light grey very sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to angular fine to medium of sandstone.		
					(0.66)		MADE GROUND		
							Reddish brown fine to coarse gravelly SAND. Gravel is subangular to angular fine to medium of sandstone.		
							MADE GROUND		
1.20	D1	SPT(S) 1.20m, N=3 (0,0/1,1,1,0)		25.12	1.13		Very loose reddish brown very gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded of sandstone.		
					(2.15)		MADE GROUND		
3.00	D2	SPT(S) 3.00m, 50 (7,13/50 for 125mm)		22.97	3.28		End of Borehole at 3.28m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
12-02-2018	08:00	0.00		
12-02-2018	17:00	3.28	2.70	

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	1.70	100

Casing	
Depth (m)	Diameter (mm)
3.00	130

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.15			0		

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-11a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	08/02/2018	08/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368313.0	374078.0	26.20mOD	Dando Terrier	GC	1:50

Weather: Cloudy

Termination: Terminated due to unknown obstruction at base of borehole. Casing jammed in obstruction during drilling.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.12	0.08		Black tarmac MADE GROUND		
0.20 - 0.40	ES				(0.45)		Grey gravelly fine to coarse SAND. Gravel is sub-angular to angular fine to medium mudstone concrete and clinker. MADE GROUND		
				25.67	0.53		Reddish brown gravelly fine to medium SAND. Gravel is sub-angular to sub-rounded fine to medium sandstone and mudstone MADE GROUND		
0.70 - 1.00	ES				(1.96)				
				23.71 23.70	2.49 2.50		Concrete obstruction MADE GROUND End of Borehole at 2.50m		

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Start & End of Shift Observations					Installation				
Date	Time	Depth (m)	Casing (m)	Water (m)	Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for geotechnical design
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details					Casing	
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)	Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-12

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	08/02/2018	08/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368298.5	374074.3	25.82mOD	Beretta T44 (Rotary)	GC / AK	1:50

Weather:

Termination: Terminated at design depth.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				25.72	0.10		Moss vegetation covering a layer of whole bricks. MADE GROUND		
0.30 - 0.60	ES				(2.90)		Reddish brown medium to coarse slightly sandy GRAVEL. Gravel is rounded to sub-rounded, firm to medium of chert, mudstone and rare brick fragments. MADE GROUND		
3.10 - 3.30	ES		PID 3.00m, 0.0ppm PID 3.30m, 0.0ppm	22.82	3.00		No recovery. noted to be due to granular material causing casing to jam. NO RECOVERY		
					(1.50)				
				21.32	4.50		Firm to stiff reddish brown slightly sandy CLAY. Sand is fine to medium. GLACIAL TILL		
					(3.00)				
6.50 - 6.80	ES		PID 6.80m, 0.0ppm				*Between 7.20 - 7.50mbgl: Occasional green/grey mottling.*		
				18.32	7.50		Firm to very stiff reddish brown CLAY with occasional green/ grey reduction spots present. (Weathering Grade III). MERCIA MUDSTONE GROUP *Between 7.70 - 7.80mbgl: recovered as Gravel.* *Between 8.20 - 9.00 mbgl: Recovered as Gravel.*		
					(2.50)				
				15.82	10.00		End of Borehole at 10.00m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
08-02-2018	08:00	0.00		
08-02-2018	17:00	10.00		

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for environmental sampling using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.70	50
2	101	3.00	4.50	100
3	101	4.50	6.00	100

Casing

Depth (m)	Diameter (mm)
4.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS WLS Template Issue Number: 2 Issue Date: 02/01/2018

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-14
	Contract Number: JER1100	Start Date: 12/02/2018	End Date: 14/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 3
Windowless Borehole Log	Easting: 368327.0	Northing: 374075.0	Ground Level: 26.35mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: Rain | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.30	0.05		Tarmac hardstanding TARMACADAM		
				26.05	0.30		Grey very sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to angular fine to coarse of coal, brick, concrete. MADE GROUND		
					(0.70)		Recovered as ark grey very sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to angular fine to coarse of ash, brick fragments. (Possible remnant wall structure of wall). MADE GROUND		
		SPT(C) 1.20m, 50 (25 for 30mm/50 for 20mm)		25.35	1.00		Grey fine to coarse SAND and GRAVEL of subangular to angular fine to coarse sandstone and brick fragments. MADE GROUND		
					(2.60)				
2.50 - 4.00		SPT(C) 2.50m, 50 (25 for 0mm/50 for 0mm)	0 N/A N/A						
				22.75	3.60		Firm reddish brown slightly sandy CLAY. Sand is fine to medium. MADE GROUND		
4.00 - 5.50			100 N/A N/A		(1.50)		*At 4.90mbgl: Becomes sandy.*		
				21.25	5.10		Black fine to coarse SAND. MADE GROUND		
				21.14 21.10	5.24 5.25		*Between 5.10 - 5.21mbgl: Organic smell to section.*		
5.50 - 7.00		SPT(S) 5.50m, N=36 (4,7/9,10,8,9)	91 N/A N/A	20.85	5.50		Reddish brown clayey fine to coarse SAND. MADE GROUND Firm to stiff reddish brown sandy CLAY. Sand is fine to coarse. GLACIAL TILL Stiff reddish brown CLAY with occasional greenish grey reduction spots. GLACIAL TILL		
					(1.60)				
7.00 - 8.50	B C	SPT(S) 7.00m, N=36 (6,6/7,9,10,10)	27 N/A N/A	19.25	7.10		Very stiff reddish brown slightly gravelly CLAY with occasional grey/green reduction spots. Gravel is subrounded to angular fine to medium of sandstone. GLACIAL TILL		
					(1.40)				
		SPT(C) 8.50m, N=40 (5,9/8,10,11,11)		17.85	8.50		No recovery. NO RECOVERY		
					(0.30)				
				17.55	8.80		Stiff reddish brown CLAY with some relic rock fabric structure and laminations. (Weathering Grade IV). MERCIA MUDSTONE GROUP		
8.50 - 10.00			80 N/A N/A		(0.60)				
				16.95	9.40		Very stiff reddish brown CLAY with frequent 1 - 2mm lithorelics. (Weathering Grade IV). MERCIA MUDSTONE GROUP		
				16.75	9.60				
					(0.40)				
	Type/Ref		TCR	Fracture					

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
12-02-2018	08:00	0.00		
12-02-2018	17:00	7.00	5.50	
13-02-2018	08:00	7.00	5.50	
13-02-2018	17:00	20.65	5.50	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.50	20

Casing

Depth (m)	Diameter (mm)
5.50	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-14

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER1100	12/02/2018	14/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368327.0	374075.0	26.35mOD	Beretta T44 (Rotary)	AK	1:50

Weather: Rain | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50	B C	SPT(C) 10.00m, 50 (9,15/50 for 175mm)	67 N/A N/A		16.35	10.00		Extremely weak reddish brown thinlly laminated friable MUDSTONE (Weathering Grade III). MERCIA MUDSTONE GROUP Extremely weak reddish brown MUDSTONE with occasional green/grey reduction spots and white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 10.1-10.3m: recovered as clayey gravel.*		
11.50 - 13.00	C	SPT(C) 11.50m, 50 (6,15/50 for 140mm)	100 N/A N/A			(3.15)		*Between 11.5-11.67m: recovered as clayey gravel.*		
13.00 - 14.50		SPT(C) 13.00m, 50 (19,6/50 for 100mm)	60 N/A N/A		13.20	13.15 (1.35)		*Between 13.1-13.15m: recovered as clayey gravel.* Very weak reddish brown MUDSTONE with occasional green/grey reduction spots and white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP		
14.50 - 16.00		SPT(C) 14.50m, 50 (25 for 75mm/50 for 100mm)	100 N/A N/A		11.85	14.50		Very weak reddish brown MUDSTONE with frequent greenish grey reduction spots and white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 14.5-14.55m: recovered as subangular to angular fine to medium, gravel.* *Between 14.75-14.8m: recovered as subangular to angular fine to medium, gravel.*		
16.00 - 17.50	B C	SPT(C) 16.00m, 50 (25 for 75mm/50 for 80mm)	87 N/A N/A			(3.00)				
17.50 - 19.00		SPT(C) 17.50m, 50 (25 for 70mm/50 for 75mm)	100 N/A N/A		8.85	17.50 (3.15)		Very weak reddish brown MUDSTONE with frequent white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 17.5-17.6m: recovered as subangular to angular fine to medium, gravel.* *Between 18.25-18.35m: recovered as subangular to angular fine to medium, gravel.*		
19.00 - 20.50	B C	SPT(C) 19.00m, 50 (25 for 75mm/50 for 75mm)	100 N/A N/A					*Between 18.95-19.0m: recovered as subangular to angular fine to medium, gravel.* *Between 19.05-19.15m: recovered as subangular to angular fine to medium, gravel.* *Between 19.3-20.0m: occasional green/grey reduction spots.*		

Groundwater: Water Strike | Backfill/ Installation

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
12-02-2018	08:00	0.00		
12-02-2018	17:00	7.00	5.50	
13-02-2018	08:00	7.00	5.50	
13-02-2018	17:00	20.65	5.50	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
2.50	101
20.65	76

Casing Diameter

Depth (m)	Dia (mm)
5.50	130

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-14

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	12/02/2018	14/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368327.0	374075.0	26.35mOD	Beretta T44 (Rotary)	AK	1:50

Weather: Rain | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
		SPT(C) 20.50m, 50 (25 for 75mm/50 for 75mm)			5.70	20.65		End of Borehole at 20.65m		

20 21 22 23 24 25 26 27 28 29

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
2.50	101	5.50	130
20.65	76		

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-14a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER1100	23/03/2018	23/03/2018	LRW	FINAL	

Rotary Open Hole Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368323.0	374076.0	26.35mOD	Beretta T44 (Rotary)	GE	1:50

Weather: | Termination: Terminated at design depth | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	Duration (mm:ss)	Flush Return	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								Open hole drilling. NO RECOVERY		
						(8.50)				
					17.85	8.50		No recovery. NO RECOVERY		
						(0.35)				
					17.50	8.85		Firm to stiff light reddish brown slightly gravelly CLAY. Fine subrounded mudstone gravel. MERCIA MUDSTONE GROUP *At 8.93mbgl: Light green grey reduction spot.*		
8.50 - 10.00	C C			77 77 77		(1.50)				
	Type/Ref			TCR / Fracture						

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
27-03-2018	08:00	0.00		
27-03-2018	17:00	8.50	7.00	
28-03-2018	08:00	8.50	7.00	
28-03-2018	17:00	20.50	7.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
7.00	101
20.50	76

Casing Diameter

Depth (m)	Dia (mm)
7.00	130

Remarks:

1. Borehole advanced for geotechnical design and sampling, using rotary open hole and rotary coring techniques.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-14a
	Contract Number: JER1100	Start Date: 23/03/2018	End Date: 23/03/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368323.0	Northing: 374076.0	Ground Level: 26.35mOD	Plant Used: Beretta T44 (Rotary)	Logged By: GE	Scale: 1:50

Weather: | Termination: Terminated at design depth | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50	C C		100 93 87		16.00	10.35 (1.45)		Extremely weak reddish brown MUDSTONE with greenish grey reduction spots. MERCIA MUDSTONE GROUP		
11.50 - 13.00			80 69 56		14.55 14.25 13.65	11.80 (0.30) 12.10 (0.60) 12.70		No recovery. NO RECOVERY Soft light reddish brown gravelly CLAY. Angular fine to medium mudstone gravel. MERCIA MUDSTONE GROUP		
13.00 - 14.50			100 83 72		12.45	(1.20) 13.90		Extremely weak reddish brown MUDSTONE with greenish grey reduction spots. Discontinuities are medium spaced, undulating, rough, 90 degrees from vertical, mostly infilled with angular fine mudstone gravel. MERCIA MUDSTONE GROUP *At 13.88mbgl: sub-vertical planar fracture.*		
14.50 - 16.00	C		87 87 80					Extremely weak reddish brown MUDSTONE with frequent gypsum lenes and grey reduction spots. MERCIA MUDSTONE GROUP *At 14.50mbgl: Undulating rough fracture with clay infill.*		
16.00 - 17.50	C C		100 100 100			(6.60)				
17.50 - 19.00	C		93 76 66							
19.00 - 20.50	C		100 90 83							

11 12 13 14 15 16 17 18 19 20

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
27-03-2018	08:00	0.00		
27-03-2018	17:00	8.50	7.00	
28-03-2018	08:00	8.50	7.00	
28-03-2018	17:00	20.50	7.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
7.00	101
20.50	76

Casing Diameter

Depth (m)	Dia (mm)
7.00	130

Remarks:

1. Borehole advanced for geotechnical design and sampling, using rotary open hole and rotary coring techniques.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-14a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	23/03/2018	23/03/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368323.0	374076.0	26.35mOD	Beretta T44 (Rotary)	GE	1:50

Weather: | Termination: Terminated at design depth | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	C				5.85	20.50		End of Borehole at 20.50m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
7.00	101	7.00	130
20.50	76		

Remarks:

1. Borehole advanced for geotechnical design and sampling, using rotary open hole and rotary coring techniques.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-15
	Contract Number: JER1100	Start Date: 13/02/2018	End Date: 15/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 3
Windowless Borehole Log	Easting: 368341.0	Northing: 374086.0	Ground Level: 26.40mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: Cold/Wet | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					(0.30)		Moss over concrete hardstanding CONCRETE		
				26.10	0.30		Grey very sandy subangular to angular fine to medium GRAVEL of brick and concrete. Sand is fine to coarse. MADE GROUND		
				25.95	0.45				
					(0.35)				
				25.60	0.80		Dark grey very sandy subangular to angular fine to medium GRAVEL of ash, concrete, brick and coal. Sand is fine to coarse. MADE GROUND		
1.20	D1	SPT(S) 1.20m, N=2 (0,0/1,1,0,0)			(1.20)		Very soft to soft white sandy CLAY (Lime made ground). LIME MADE GROUND		
				24.40	2.00		No recovery, likely due to consistency of lime made ground. NO RECOVERY		
					(1.00)				
3.00	B3	SPT(S) 3.00m, N=1 (0,0/1,0,0,0)		23.40	3.00		Very soft brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to angular fine to medium ALLUVIUM		
3.00	D2			23.11	3.29		Very soft reddish brown sandy CLAY. Sand is fine to medium. ALLUVIUM		
					(1.21)				
							Between 4.25-4.5m: black mottling within section.		
4.50	D4	SPT(S) 4.50m, N=4 (1,1/1,1,1,1)		21.90	4.50		Very soft brown mottled grey sandy CLAY. Sand is fine to medium. ALLUVIUM		
					(1.35)				
				20.55	5.85		Medium dense dark grey/black clayey fine to coarse SAND. Organic odour present ALLUVIUM		
6.00	B6	SPT(S) 6.00m, N=21 (6,5/5,5,5,6)			(0.50)				
6.00	D5			20.05	6.35		Medium dense reddish brown clayey fine to medium SAND. ALLUVIUM		
					(0.35)				
				19.70	6.70		Firm reddish brown sandy CLAY. Sand is fine to medium. (Weathering Grade IV). GLACIAL TILL		
					(1.05)				
7.50	D7	SPT(S) 7.50m, N=20 (5,5/6,6,5,3)		18.65	7.75		Firm to stiff reddish brown slightly sandy CLAY with occasional green/grey reduction spots. Sand is fine to medium. (Weathering Grade III). MERCIA MUDSTONE GROUP		
					(1.25)				
9.00	B9	SPT(S) 9.00m, 40 (10,11/40 for 110mm)		17.40	9.00		Very weak reddish brown, very fine grained MUDSTONE with occasional white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP		
9.00	D8								
9.00 - 10.50			70 67 67						
	Type/Ref		TCR / Fracture						

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
13-02-2018	08:00	0.00		
13-02-2018	17:00	9.00	7.50	
14-02-2018	08:00	9.00		
14-02-2018	17:00	18.00	7.50	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. Organic odour 5.85-6.35mbgl.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.70	100
2	101	3.00	4.50	87
3	101	4.50	6.00	100
4	101	6.00	7.50	100
5	101	7.50	9.00	100

Casing

Depth (m)	Diameter (mm)
7.50	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Within hand pit.

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-15
	Contract Number: JER1100	Start Date: 13/02/2018	End Date: 15/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368341.0	Northing: 374086.0	Ground Level: 26.40mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: Cold/Wet | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.50 - 12.00		SPT(C) 10.50m, 50 (17,7/50 for 130mm)	87 87 87			(3.00)		*Between11.35 and 12.00mbgl: Rare green/grey reduction spots.*		
12.00 - 13.50	B10	SPT(C) 12.00m, 50 (25 for 135mm/50 for 110mm)	90 67 52		14.40	12.00		Very weak reddish brown very fine grained MUDSTONE with rare green/grey reduction spots and occasional gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP		
13.50 - 15.00		SPT(C) 13.50m, 50 (25 for 60mm/50 for 85mm)	93 93 93			(3.00)		*Between 13.25-13.70m: recovered as clayey gravel.* *At 13.50mbgl: Gypsum bands become less frequent (rare).*		
15.00 - 16.50	B11	SPT(C) 15.00m, 50 (25 for 45mm/50 for 40mm)	92 92 62		11.40	15.00 (1.50)		Very weak reddish brown very fine grained MUDSTONE with occasional white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP		
16.50 - 18.00	C12	SPT(C) 16.50m, 50 (25 for 35mm/50 for 25mm)	100 41 21		9.90 / 9.50 / 8.70	16.50 (0.40) / 16.90 (0.80) / 17.70 (0.30)		Extremely Weak MEDSTONE recovered as reddish brown angular fine to coarse friable mudstone gravel. (Weathering Grade III). MERCIA MUDSTONE GROUP; Very weak reddish brown thinly laminated friable MUDSTONE with occasional gypsum bands and minor clay infill on joint surfaces. (Weathering Grade II). MERCIA MUDSTONE GROUP; Extremely Weak MEDSTONE recovered as reddish brown angular fine to coarse friable mudstone gravel. (Weathering Grade III). MERCIA MUDSTONE GROUP		
18.00 - 19.50	B13	SPT(C) 18.00m, 50 (25 for 75mm/50 for 25mm)	95 N/A N/A		8.40	18.00 (1.78)		Very weak reddish brown very fine grained MUDSTONE with frequent greenish grey reduction spots and white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP		
		SPT(C) 19.50m, 50 (25 for 70mm/50 for 55mm)			6.62	19.78		Very weak reddish brown very fine grained MUDSTONE with		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
13-02-2018	08:00	0.00		
13-02-2018	17:00	9.00	7.50	
14-02-2018	08:00	9.00		
14-02-2018	17:00	18.00	7.50	
15-02-2018	08:00	18.00		
15-02-2018	17:00	20.61	7.50	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
9.00	101
20.61	76

Casing Diameter

Depth (m)	Dia (mm)
7.50	130

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. Organic odour 5.85-6.35mbgl.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Within hand pit.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-15

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	13/02/2018	15/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368341.0	374086.0	26.40mOD	Beretta T44 (Rotary)	AK	1:50

Weather: Cold/Wet | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
19.50 - 20.50	B14	SPT(C) 20.50m, 50 (25 for 65mm/50 for 45mm)	100 N/A N/A		5.79	(0.83) 20.61		frequent white gypsum bands and rare green/grey reduction spots. (Weathering Grade II). MERCIA MUDSTONE GROUP		
								End of Borehole at 20.61m		

20 21 22 23 24 25 26 27 28 29

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. Organic odour 5.85-6.35mbgl.

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Within hand pit.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
9.00	101	7.50	130
20.61	76		

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-16
	Contract Number: JER1100	Start Date: 14/02/2018	End Date: 19/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 3
Windowless Borehole Log	Easting: 368360.0	Northing: 374082.0	Ground Level: 26.40mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details					Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation
				26.25	0.15		Metal plate over very strong reinforced concrete. MADE GROUND			
				26.00	0.40		Brownish grey very sandy subangular to angular, fine to coarse GRAVEL of concrete, ash and brick fragments. Sand is fine to medium. Frequent large diameter reinforcing bar in grid pattern across hand pit. MADE GROUND			
				25.72	0.68					
					(0.67)		Black very sandy subangular to angular, fine to medium GRAVEL of ash, concrete and possible coal fragments. Sand is fine to coarse. MADE GROUND	1		
		SPT(S) 1.20m, N=0 (1,0/0,0,0,0)		25.05	1.35		Very soft white sandy CLAY (Lime made ground). LIME MADE GROUND			
							No recovery, likely due to very wet / loose consistency of lime made ground material. NO RECOVERY	2		
								3		
					(5.65)			4		
								5		
								6		
7.00 - 7.50	ES	SPT(S) 7.00m, N=23 (2,3/3,6,7,7)		19.40	7.00		Medium dense black clayey fine to medium SAND. Hydrocarbon odour. MADE GROUND	7		
					(0.56)					
				18.84	7.56		Dark grey very gravelly fine to medium SAND. Gravel is sub angular to angular, fine to medium of clinker and ash. MADE GROUND			
				18.70	7.70		Firm to stiff reddish brown CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP	8		
		SPT(C) 8.50m: 50 (9,15/50 for 145mm)								
8.50 - 10.00					(2.30)			9		
	Type/Ref		TCR / Fracture							

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
14-02-2018	08:00	0.00		
14-02-2018	17:00	10.00	8.50	
15-02-2018	08:00	10.00	8.50	
15-02-2018	17:00	16.45	8.50	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. Hydrocarbon odour noted at 7.00-7.56mbgl.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.70	20
2	101	3.00	4.50	0
3	101	4.50	6.00	0
4	101	6.00	7.50	0
5	101	7.50	8.50	0
6	101	19.00	20.50	94

Casing

Depth (m)	Diameter (mm)
8.50	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-16

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER1100	14/02/2018	19/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368360.0	374082.0	26.40mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Terminated at design depth.

SPT Hammer: N/R, Energy Ratio: N/R

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50	C	SPT(C) 10.00m, 50 (25 for 130mm/50 for 150mm)	100 87 83		16.40	10.00 (1.50)		Very weak reddish brown MUDSTONE. (Weathering Grade II). MERCIA MUDSTONE GROUP		
11.50 - 13.00		SPT(C) 11.50m, 50 (25 for 145mm/50 for 140mm)	85 59 48		14.90	11.50 (0.40)		Extremely weak reddish brown thinly laminated friable MUDSTONE with clay portions. (Weathering Grade III). MERCIA MUDSTONE GROUP		
					14.50	11.90		No Recovery. NO RECOVERY		
					14.25	12.15 (0.85)		Extremely weak reddish brown thinly laminated friable MUDSTONE with bands of mudstone gravel. (Weathering Grade III). MERCIA MUDSTONE GROUP		
13.00 - 14.50		SPT(C) 13.00m, 50 (10,14/50 for 150mm)	100 N/A N/A		13.40	13.00		Very weak reddish brown MUDSTONE with occasional white gypsum bands Greenish grey reduction spots from 10.72mbgl. (Weathering Grade II). MERCIA MUDSTONE GROUP		
14.50 - 16.00		SPT(C) 14.50m, 50 (25 for 100mm/50 for 110mm)	30 N/A N/A			(3.00)				
16.00 - 17.50		SPT(C) 16.00m, N=16 (6,6/,6,6,4)	20 7 7		10.40	16.00 (1.50)		Extremely weak reddish brown MUDSTONE with rare white gypsum bands, recovered as clayey sub angular to angular fine to medium gravel. Poor recovery. (Weathering Grade II). MERCIA MUDSTONE GROUP		
17.50 - 19.00		SPT(C) 17.50m, 830 (25 for 130mm/830 for 0mm)	100 100 93		8.90	17.50 (1.50)		Very weak reddish brown MUDSTONE with occasional white gypsum bands Greenish grey reduction spots from 17.50 mbgl. (Weathering Grade II). MERCIA MUDSTONE GROUP		
19.00 - 20.50		SPT(C) 19.00m, 130 (25 for 90mm/130 for 0mm)	100 87 82		7.40	19.00 (1.65)		Reddish brown extremely weak MUDSTONE with occasional white gypsum bands and greenish grey reduction spots. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 19.00-19.25m: recovered as reddish brown, fine to medium, subangular to angular gravel.*		

Samples & Core Recovery — Strata Details — Groundwater

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
14-02-2018	08:00	0.00		
14-02-2018	17:00	10.00	8.50	
15-02-2018	08:00	10.00	8.50	
15-02-2018	17:00	16.45	8.50	
16-02-2018	08:00	16.45	8.50	
16-02-2018	17:00	19.00	8.50	
19-02-2018	08:00	19.00	8.50	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter Depth (m)	Borehole Diameter Dia (mm)	Casing Diameter Depth (m)	Casing Diameter Dia (mm)
8.50	101	8.50	130
20.65	76		

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. Hydrocarbon odour noted at 7.00-7.56mbgl.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-16
	Contract Number: JER1100	Start Date: 14/02/2018	End Date: 19/02/2018	Checked By: LRW	Status: FINAL	Sheet 3 of 3
Rotary Core Drilling Log	Easting: 368360.0	Northing: 374082.0	Ground Level: 26.40mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather:

Termination: Terminated at design depth.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
		SPT(C) 20.50m, 50 (25 for 75mm/50 for 75mm)			5.75	20.65		End of Borehole at 20.65m		

20 21 22 23 24 25 26 27 28 29

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
19-02-2018	17:00	20.65	8.50	

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. Hydrocarbon odour noted at 7.00-7.56mbgl.

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
8.50	101	8.50	130
20.65	76		

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant			Client: Copenhagen Infrastructure Partners (CIP)		Borehole ID: BH-RPS-16a
	Contract Number: JER1100	Start Date: 29/03/2018	End Date: 03/04/2018	Checked By:	Status: FINAL	Sheet 1 of 3
Rotary Open Hole Drilling Log	Easting: 368362.0	Northing: 374074.0	Ground Level: 26.40mOD	Plant Used: Beretta T44 (Rotary)	Logged By: GC	Scale: 1:50

Weather:

Termination: Terminated at design depth

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	Duration (mm:ss)	Flush Return	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								Rotary open hole NO RECOVERY		
						(8.50)				
					17.90	8.50		Extremely weak reddish brown MUDSTONE. Discontinuities are 0-15 degrees, generally closely spaced. (Weathering Grade II). MERCIA MUDSTONE GROUP		
8.50 - 10.00				100 85 75		(1.50)				
	Type/Ref			TCR / Fracture	16.40	10.00				

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
29-03-2018	08:00	0.00		
29-03-2018	17:00	13.00	8.50	
03-04-2018	08:00	13.00	8.50	
03-04-2018	17:00	20.50	8.50	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	10.00	PLAIN	19
1	10.00	20.00	SLOTTED	19

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
8.50	101
20.50	76

Casing Diameter

Depth (m)	Dia (mm)
8.50	130

Remarks:

1. Borehole advanced for geotechnical design, using rotary open hole and rotary coring.
2. Borehole installed with 19mm diameter monitoring well as shown, response zone 10.00-20.00mbgl.
3. No significant visual or olfactory contamination noted

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-16a
	Contract Number: JER1100	Start Date: 29/03/2018	End Date: 03/04/2018	Checked By:	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368362.0	Northing: 374074.0	Ground Level: 26.40mOD	Plant Used: Beretta T44 (Rotary)	Logged By: GC	Scale: 1:50

Weather:

Termination: Terminated at design depth

Samples & Core Recovery					Strata Details					Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation
10.00 - 11.50			93 70 63		15.35	(1.05) 11.05		Extremely weak reddish brown MUDSTONE with occasional beds of clay. Abundant light greenish grey reductions spots. Discontinuities are 0-30 degrees, generally closely spaced undulating and smooth. (Weathering Grade II). MERCIA MUDSTONE GROUP	11		
					14.90	(0.45) 11.50		Very weak reddish brown MUDSTONE with rare light greenish grey reduction spots and white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP			
11.50 - 13.00			97 73 73		14.64	11.76		Very weak reddish brown MUDSTONE with occasional beds of very stiff clay. MERCIA MUDSTONE GROUP Extremely weak to very weak reddish brown MUDSTONE with rare light greenish grey reduction spots and white gypsum bands. Discontinuities are 0-15 degrees, generally closely spaced. (Weathering Grade II). MERCIA MUDSTONE GROUP	12		
13.00 - 14.50			95 87 81						13 14		
14.50 - 16.00			53 43 43			(8.74)			15 16		
16.00 - 17.50			73 50 36						17		
17.50 - 19.00			100 80 80						18		
19.00 - 20.50			100 100 100						19 20		W

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
29-03-2018	08:00	0.00		
29-03-2018	17:00	13.00	8.50	
03-04-2018	08:00	13.00	8.50	
03-04-2018	17:00	20.50	8.50	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	10.00	PLAIN	19
1	10.00	20.00	SLOTTED	19

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
8.50	101
20.50	76

Casing Diameter

Depth (m)	Dia (mm)
8.50	130

Remarks:

1. Borehole advanced for geotechnical design, using rotary open hole and rotary coring.
2. Borehole installed with 19mm diameter monitoring well as shown, response zone 10.00-20.00mbgl.
3. No significant visual or olfactory contamination noted

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-16a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	29/03/2018	03/04/2018		FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368362.0	374074.0	26.40mOD	Beretta T44 (Rotary)	GC	1:50

Weather:

Termination: Terminated at design depth

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					5.90	20.50		End of Borehole at 20.50m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	10.00	PLAIN	19
1	10.00	20.00	SLOTTED	19

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
8.50	101	8.50	130
20.50	76		

Remarks:

1. Borehole advanced for geotechnical design, using rotary open hole and rotary coring.
2. Borehole installed with 19mm diameter monitoring well as shown, response zone 10.00-20.00mbgl.
3. No significant visual or olfactory contamination noted

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

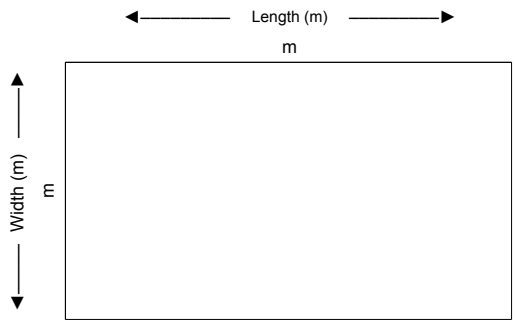
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: BH-RPS-17
	Contract Number: JER1100	Start Date: 08/03/2018	End Date: 08/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368349.0	Northing: 374069.0	Ground Level: 26.45mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50
Weather: Cloudy		Hole Termination: Terminated due to presence of concrete slab. BH location moved further away from possible services.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.10 - 0.30	ES	PID 0.10m, 0.0ppm	26.42	0.03		Tarmac hardstanding. TARMACADAM		
			26.15	0.30		Grey clayey sandy GRAVEL. Sand is medium to coarse. Gravel is subangular to angular fine to medium of concrete, clinker and mudstone. MADE GROUND		
			26.05	0.40		Concrete Slab. CONCRETE		
						End of Inspection Pit at 0.40m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 0.40m



General Remarks:

1. Borehole advanced for geotechnical design
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
0.30	

HBSI IP Template Issue Number: 1R Issue Date: 21/07/2016

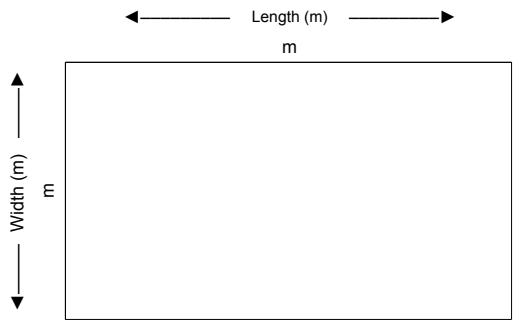
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: BH-RPS-17a
	Contract Number: JER1100	Start Date: 08/03/2018	End Date: 08/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368345.0	Northing: 374069.0	Ground Level: 26.60mOD	Plant Used: Hand tools	Logged By: GC	Scale: 1:50
Weather:	Hole Termination: Terminated due to presence of concrete slab of unknown thickness with 1 inch wide metal reinfocring bar. Unable to penetrate with Rig due to small gaps in rebar.					

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.10 - 0.30	ES		26.57	0.03		Tarmac hardstanding. TARMACADAM		
			26.30	0.30		Grey clayey sandy GRAVEL. Sand is medium to coarse. Gravel is subangular to angular fine to medium of concrete, clinker and mudstone. TARMACADAM		
			26.20	0.40		Concrete Slab. TARMACADAM		
						End of Inspection Pit at 0.40m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 0.40m



General Remarks:

1. Borehole advanced for geotechnical design
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-19
	Contract Number: JER1100	Start Date: 06/02/2018	End Date: 08/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 3
Windowless Borehole Log	Easting: 368324.0	Northing: 374040.0	Ground Level: 26.20mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather:

Termination: Terminated at design depth.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.00	0.20		Moss and vegetation over brown clayey sandy medium, angular GRAVEL of brick fragments. TOPSOIL		
				25.80	0.40		Dark grey very sandy subangular to angular fine to coarse GRAVEL of concrete, ash and coal. Sand is fine to coarse. MADE GROUND		
					(0.60)				
				25.20	1.00		Black very sandy subangular to angular fine to coarse GRAVEL of concrete, ash and coal. Sand i fine to coarse. MADE GROUND		
		SPT(S) 1.20m, N=4 (1,0/0,0,0,4)			(0.85)		Very soft white slightly sandy CLAY (Lime made ground). LIME MADE GROUND *At 1.30mbgl: becomes sandy.*		
				24.35	1.85		Soft to firm reddish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular fine to medium of mudstone. GLACIAL TILL		
				24.13	2.07				
					(0.43)				
		SPT(S) 2.50m, N=10 (1,1/1,2,3,4)		23.70	2.50		Soft to firm reddish brown slightly sandy CLAY. Sand is fine to medium. GLACIAL TILL *Between 2.07-2.15mbgl: black staining on outside of drill run.*		
				23.43	2.77				
3.00	B						Soft to firm light brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular fine to medium of sandstone. GLACIAL TILL		
							Firm reddish brown mottled grey/green slightly sandy CLAY. Sand is fine to medium. GLACIAL TILL		
		SPT(S) 4.00m, N=24 (2,3/5,5,6,8)			(2.73)		*Between 4.00 - 4.25mbgl: Strata becoming soft.* *Between 4.20 and 5.50mbgl: Becomes slightly gravelly. Gravel is grey fine to medium, subangular to angular of sandstone.*		
		SPT(S) 5.50m, N=49 (5,9/9,11,14,15)		20.70	5.50		Firm reddish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to fine to medium of grey/white sandstone. GLACIAL TILL		
5.50 - 7.00	B		63 N/A N/A		(1.50)				
		SPT(C) 7.00m, N=50 (4,6/7,10,15, 18)		19.20	7.00		Firm to stiff reddish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular, fine to medium of white/grey sandstone. GLACIAL TILL		
7.00 - 8.50			97 N/A N/A		(2.45)				
		SPT(C) 8.50m, N=41 (6,6/8,10,10, 13)					*At 8.50mbgl Becoming sandy.*		
8.50 - 10.00	B		95 N/A N/A						
				16.75	9.45		Stiff to very stiff reddish brown with occasional green/grey reduction spots CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP		
					(0.70)				
	Type/Ref		TCR / Fracture						

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
07-02-2018	08:00	0.00		
07-02-2018	17:00	14.50	5.50	
08-02-2018	08:00	14.50		
08-02-2018	17:00	20.62	5.50	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.50	100
2	101	2.50	4.00	100
3	101	4.00	5.50	100

Casing

Depth (m)	Diameter (mm)
5.50	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-19
	Contract Number: JER1100	Start Date: 06/02/2018	End Date: 08/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368324.0	Northing: 374040.0	Ground Level: 26.20mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50
Weather:		Termination: Terminated at design depth.			SPT Hammer: N/R, Energy Ratio: N/R	

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50	B	SPT(C) 10.00m, 50 (11,12/50 for 150mm)	91 N/A N/A		16.05	10.15		*Between 9.75 - 10.15 mbgl: Rare white gypsum bands present* Very weak reddish brown very fine grained MUDSTONE with occasional green/grey reduction spots and frequent white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 10.50-10.57m: recovered as clayey subangular to angular fine gravel.*		
11.50 - 13.00		SPT(C) 11.50m, 50 (4,12/50 for 150mm)	98 N/A N/A			(2.85)		*Between 12.45-12.53m: recovered as clayey subangular to angular fine gravel.* *Between 12.6-12.64m: recovered as clayey subangular to angular fine gravel.*		
13.00 - 14.00	C	SPT(C) 13.00m, 50 (20,5/50 for 150mm)	100 39 11		13.20 12.90 12.80 12.70	13.00 (0.30) 13.30 13.40 13.50 (0.50)		Very weak reddish brown thinly laminated friable MUDSTONE with 1-2mm clay infill on joint surfaces. (Weathering Grade III). MERCIA MUDSTONE GROUP Reddish brown angular fine to coarse friable mudstone GRAVEL. (Weathering Grade IV). MERCIA MUDSTONE GROUP		
14.00 - 14.50			0 N/A N/A		12.20	14.00 (0.65)		Very weak reddish brown thinly laminated friable MUDSTONE with 1-2mm clay infill on joint surfaces. (Weathering Grade III). MERCIA MUDSTONE GROUP		
14.50 - 16.00	B	SPT(C) 14.50m, 50 (19,6/50 for 80mm)	98 N/A N/A		11.55	14.65 (2.25)		Reddish brown clayey angular fine to coarse friable mudstone GRAVEL, with residual weathered gypsum. (Weathering Grade IV). MERCIA MUDSTONE GROUP Very weak reddish brown very fine grained MUDSTONE with occasional green/grey reduction spots and frequent white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 14.5-14.65m: recovered as clayey subangular to angular fine to medi gravel.*		
16.00 - 17.50		SPT(C) 16.00m, 50 (25 for 110mm/50 for 110mm)	73 N/A N/A		9.30	16.90		Very weak reddish brown very fine grained MUDSTONE with rare green/grey reduction spots and occasional white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 16.63-16.70m: recovered as clayey gravel.* Very weak greenish grey very fine grained MUDSTONE with frequent white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 16.90-16.95m: recovered as subangular to angular fine to medium, gravel.*		
17.50 - 19.00	B	SPT(C) 17.50m, 50 (25 for 80mm/50 for 110mm)	86 N/A N/A		7.93	18.27 (1.37)		Very weak reddish brown very fine grained MUDSTONE with frequent white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 18.37-18.42m: recovered as subangular to angular fine to medium, gravel.* *Between 18.57-18.65m: recovered as subangular to angular fine to medium, gravel.*		
19.00 - 20.50		SPT(C) 19.00m, 50 (25 for 75mm/50 for 75mm)	84 N/A N/A			(2.35)		*Between 19.00-19.70m: recovered as subangular to angular fine to medium, gravel.*		

Samples & Core Recovery — Strata Details — Groundwater

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
07-02-2018	08:00	0.00		
07-02-2018	17:00	14.50	5.50	
08-02-2018	08:00	14.50		
08-02-2018	17:00	20.62	5.50	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
5.50	101
20.62	76

Casing Diameter

Depth (m)	Dia (mm)
5.50	130

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-19

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	06/02/2018	08/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368324.0	374040.0	26.20mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Terminated at design depth.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	B	SPT(C) 20.50m, 50 (25 for 70mm/50 for 50mm)			5.58	20.62		End of Borehole at 20.62m		

20 21 22 23 24 25 26 27 28 29

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Flush Information					Borehole Diameter		Casing Diameter	
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
					5.50 20.62	101 76	5.50	130

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-19a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER1100	21/03/2018	21/02/2018	LRW	FINAL	

Rotary Open Hole Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368323.0	374040.0	26.20mOD	Beretta T44 (Rotary)	GC	1:50

Weather: | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	Duration (mm:ss)	Flush Return	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(5.50)		Open hole drilling. NO RECOVERY		
5.50 - 7.00	C C	SPT(C) 5.50m, 50 (6,10/50 for 275mm)		100 100 100	20.70	5.50		Firm to stiff reddish brown slightly gravelly sandy CLAY. Sand is fine to medium with rounded fine mudstone gravel. Rare pockets of grey sand. GLACIAL TILL		
7.00 - 8.50	C			100 100 100		(3.55)		*Recovered as angular fine to medium gravel.*		
8.50 - 10.00	C C			100 57 57	17.15	9.05		Very weak to extremely weak reddish brown MUDSTONE with frequent 2mm gypsum lenses. Rare light green to grey reduction spots up to 50mm in width. Fractures are medium spaced planar rough. MERCIA MUDSTONE GROUP *Fracture - Sub horizontal infilled with fine grey angular mudstone,.*		
	Type/Ref			TCR / Fracture						

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
22-03-2018	08:00	0.00		
22-03-2018	17:00	22.00	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
4.00	101
22.00	76

Casing Diameter

Depth (m)	Dia (mm)
4.00	130

Remarks:

1. Borehole advanced for geotechnical design and sampling, using rotary open hole and rotary coring techniques.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-19a
	Contract Number: JER1100	Start Date: 21/03/2018	End Date: 21/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368323.0	Northing: 374040.0	Ground Level: 26.20mOD	Plant Used: Beretta T44 (Rotary)	Logged By: GC	Scale: 1:50

Weather: | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details					Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation
10.00 - 11.50			100 93 93			(2.13)		*Fracture - Sub vertical infilled with blocky tabular fine to medium gypsum.*	11		
					15.02	11.18		Very weak reddish brown MUDSTONE with frequent light green to grey reduction spots and frequent 5mm gypsum lenses. Undulating rough vertical fractures. MERCIA MUDSTONE GROUP			
11.50 - 13.00	C		100 92 92			(1.02)		*Band of fine to medium angular gravel.*	12		
					14.00	12.20		*Band of fine to medium angular gravel.* Very weak reddish brown MUDSTONE with frequent 10mm gypsum lenses. MERCIA MUDSTONE GROUP			
						(0.80)					
					13.20	13.00		Very weak reddish brown MUDSTONE recovered as angular fine to medium mudstone GRAVEL. MERCIA MUDSTONE GROUP	13		
						(0.45)					
13.00 - 14.50	C		73 35 25		12.75	13.45		Extremely weak reddish brown MUDSTONE. Closely spaced smooth fractures. MERCIA MUDSTONE GROUP			
						(0.65)					
					12.10	14.10		No recovery. NO RECOVERY	14		
14.50 - 16.00			0 0 0						15		
16.00 - 17.50			0 0 0						16		
						(6.80)			17		
17.50 - 19.00			0 0 0						18		
19.00 - 20.50			0 0 0						19		
									20		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
22-03-2018	08:00	0.00		
22-03-2018	17:00	22.00	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
4.00	101
22.00	76

Casing Diameter

Depth (m)	Dia (mm)
4.00	130

Remarks:

1. Borehole advanced for geotechnical design and sampling, using rotary open hole and rotary coring techniques.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-19a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	21/03/2018	21/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368323.0	374040.0	26.20mOD	Beretta T44 (Rotary)	GC	1:50

Weather:

Termination: Terminated at design depth.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
20.50 - 22.00	C C C		73 73 73		5.30	20.90 (1.10)		Very weak reddish brown MUDSTONE with frequent 10mm gypsum lenses. Medium spaced sub horizontal undulating rough fractures. MERCIA MUDSTONE GROUP		
					4.20	22.00		End of Borehole at 22.00m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for geotechnical design and sampling, using rotary open hole and rotary coring techniques.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Flush Information					Borehole Diameter		Casing Diameter	
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
					4.00 22.00	101 76	4.00	130

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-20
	Contract Number: JER1100	Start Date: 05/02/2018	End Date: 06/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 3
Windowless Borehole Log	Easting: 368325.0	Northing: 374011.0	Ground Level: 26.55mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: Cold/Snow | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.35	0.20 (0.30)		Dark grey angular coarse GRAVEL of brick and concrete and cobbles (Demolition rubble). MADE GROUND		
				26.05	0.50 (0.50)		Dark grey very sandy subangular to angular fine to coarse GRAVEL of concrete, ash and coal. Sand is fine to coarse. MADE GROUND		
				25.55	1.00 (1.00)		Black very sandy subangular to angular fine to coarse GRAVEL of concrete, ash and coal. Sand is fine to coarse. MADE GROUND; Very soft white Sandy CLAY (lime made ground). LIME MADE GROUND		
1.20	D1	SPT(S) 1.20m, 0 (1 for 75mm/0 for 0mm)							
				24.55	2.00 (0.70)		Brown sandy clayey angular to rounded, fine to coarse GRAVEL of mudstone/sandstone. MADE GROUND		
				23.85	2.70 (1.80)		Firm reddish Brown mottled grey slightly sandy CLAY. Sand is fine to medium. GLACIAL TILL		
3.00	B3	SPT(S) 3.00m, N=17 (2,3/3,4,5,5)							
3.00	D2								
4.50	D4	SPT(S) 4.50m, N=25 (2,2/4,5,7,9)		22.05	4.50 (0.60)		Firm reddish brown mottled grey sandy slightly gravelly CLAY. Sand is fine. Gravel is sub-angular to angular medium of sandstone. GLACIAL TILL		
				21.45	5.10 (0.90)		Firm reddish brown mottled grey sandy CLAY. Sand is fine to medium. GLACIAL TILL; *At 5.50mbgl: Becoming firm*		
6.00	B5	SPT(S) 6.00m, N=24 (3,3/5,5,5,9)		20.55	6.00 (1.50)		Firm to stiff reddish brown slightly sandy CLAY. Sand is fine. GLACIAL TILL		
6.00	D6								
7.50	D7	SPT(S) 7.50m, N=43 (4,6/7,8,9,19)		19.05	7.50 (1.25)		Stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is sub-rounded to sub-angular fine of sandstone. GLACIAL TILL		
7.50 - 9.00			100 N/A N/A						
				17.80	8.75		Recovered as very soft reddish brown CLAY. MERCIA MUDSTONE GROUP		
9.00 - 10.50	B8	SPT(C) 9.00m, 50 (25 for 115mm/50 for 145mm)	100 93 93	17.55	9.00 (0.80)		Very weak reddish brown mottled grey MUDSTONE with occasional green/grey reduction spots and rare white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP		
				16.75	9.80		Very weak reddish brown very finely grained MUDSTONE		
	Type/Ref		TCR	Fracture					

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
05-02-2018	08:00	0.00		
05-02-2018	17:00	13.50	6.00	
06-02-2018	08:00	13.50		
06-02-2018	17:00	20.60		

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring. Moved from original inspection pit location due to presence of a redundant cable.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.70	100
2	101	3.00	4.50	87
3	101	4.50	6.00	100
4	101	6.00	7.50	100

Casing

Depth (m)	Diameter (mm)
6.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-20
	Contract Number: JER1100	Start Date: 05/02/2018	End Date: 06/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368325.0	Northing: 374011.0	Ground Level: 26.55mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: Cold/Snow | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								with green/grey reduction spots throughout. Frequent white gypsum bands present. (Weathering Grade II). MERCIA MUDSTONE GROUP		
10.50 - 12.00		SPT(C) 10.50m, 50 (25 for 140mm/50 for 110mm)	100 100 100			(2.20)				
12.00 - 13.50	B9	SPT(C) 12.00m, 50 (25 for 85mm/50 for 120mm)	100 30 30		14.55	12.00 (1.50)		Very weak reddish brown very finely grained MUDSTONE with occasional green/grey reduction spots and frequent gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 12.25 - 13.30mbgl: Recovered as gravelly Clay.*		
13.50 - 15.00		SPT(C) 13.50m, 50 (25 for 130mm/50 for 100mm)	100 97 97		13.05	13.50 (1.50)		Very weak reddish brown very finely grained MUDSTONE with occasional white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 13.50 - 13.65mbgl: Recovered as slightly gravelly firm clay*		
15.00 - 16.50	B10	SPT(C) 15.00m, 50 (25 for 85mm/50 for 130mm)	67 67 67		11.55	15.00 (1.60)		Very weak reddish brown very finely grained MUDSTONE with occasional green/grey reduction spots and frequent white crystalline gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 15.00-15.29mbgl: recovered as slightly gravelly soft to firm clay* *Between 16.50-16.60mbgl: recovered as soft to firm slightly gravelly clay*		
16.50 - 18.00		SPT(C) 16.50m, 50 (25 for 75mm/50 for 45mm)	100 N/A N/A		9.95	16.60 (1.40)		Very weak greenish grey (reddish brown at surface) finely grained MUDSTONE with frequent white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP		
18.00 - 19.50	B11	SPT(C) 18.00m, 50 (25 for 50mm/50 for 65mm)	100 N/A N/A		8.55	18.00 (1.00)		Very weak reddish brown very finely grained MUDSTONE with occasional green/grey reduction spots and frequent gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 18.10-18.25mbgl: Recovered as clayey fine to medium Gravel*		
		SPT(C) 19.50m, 50 (25 for 35mm/50 for 85mm)			7.55	19.00 (1.60)		Very weak reddish brown very finely grained MUDSTONE with occasional gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
05-02-2018	08:00	0.00		
05-02-2018	17:00	13.50	6.00	
06-02-2018	08:00	13.50		
06-02-2018	17:00	20.60		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring. Moved from original inspection pit location due to presence of a redundant cable.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
7.50	101	6.00	130
20.60	76		

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-20

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	05/02/2018	06/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368325.0	374011.0	26.55mOD	Beretta T44 (Rotary)	AK	1:50

Weather: Cold/Snow | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
19.50 - 20.50	B12	SPT(C) 20.50m, 50 (25 for 20mm/50 for 75mm)	67 N/A N/A		5.95	20.60		End of Borehole at 20.60m		

20 21 22 23 24 25 26 27 28 29

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
7.50	101	6.00	130
20.60	76		

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring. Moved from original inspection pit location due to presence of a redundant cable.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-21
	Contract Number: JER1100	Start Date: 31/01/2018	End Date: 02/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 3
Windowless Borehole Log	Easting: 368338.0	Northing: 373967.0	Ground Level: 26.50mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather:

Termination: Terminated at design depth.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.25	0.25		Angular medium GRAVEL of limestone. MADE GROUND		
				26.10	0.40		Asphalt. TARMACADAM		
					(0.55)		Black very sandy subangular to angular fine to coarse GRAVEL of concrete, ash and coal. Sand is fine to coarse. MADE GROUND		
				25.55	0.95		Very soft light greyish white silty sandy CLAY. Sand is fine to coarse. (lime made ground) LIME MADE GROUND		
					(2.35)				
3.00	B2	SPT(S) 3.00m, N=13 (6,4/1,4,3,5)		23.20	3.30		Firm to stiff brown mottled whitish grey silty gravelly CLAY. Sand is find to coarse. Gravel is angular fine to coarse (Lime made ground). LIME MADE GROUND		
					(1.20)				
		SPT(S) 4.50m, N=20 (6,4/2,4,6,8)		22.00	4.50		Reddish brown MUDSTONE. Recovered as soft to firm silty gravelly clay. (Weathering Grade IV). MERCIA MUDSTONE GROUP		
				21.70	(0.30) 4.80		Firm to stiff sandy gravelly CLAY. Gravel is angular, fine to medium of mudstone. (Weathering Grade IV). MERCIA MUDSTONE GROUP		
				21.30	(0.40) 5.20		Firm to very stiff CLAY. (Weathering Grade IV). MERCIA MUDSTONE GROUP		
		SPT(S) 6.00m, N=42 (5,7/8,10,11, 13)							
7.00 - 8.00		SPT(S) 7.00m, 100 (11,14/100 for 255mm)	70 N/A N/A						
8.00 - 9.50	B6	SPT(S) 8.00m, 50 (10,13/50 for 160mm)	33 N/A N/A		(4.30)				
		SPT(S) 9.50m, N=46 (17,7/10,10,1 3,13)		17.00	9.50		Extremely weak reddish brown MUDSTONE. Recovered as firm gravelly clay. (Weathering Grade III). MERCIA MUDSTONE GROUP		
	Type/Ref		TCR / Fracture						

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
31-01-2018	08:00	0.00		
31-01-2018	17:00	4.50	4.50	
01-02-2018	08:00	4.50	4.50	
01-02-2018	17:00	15.00	6.00	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.50	3.00	87
2	101	3.00	4.50	33
3	101	4.50	6.00	100
4	101	6.00	7.00	100

Casing

Depth (m)	Diameter (mm)
6.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-21

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER1100	31/01/2018	02/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368338.0	373967.0	26.50mOD	Beretta T44 (Rotary)	AK	1:50

Weather: | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
9.50 - 10.50			50 N/A N/A			(1.00)				
10.50 - 11.00		SPT(C) 10.50m, 50 (25 for 85mm/50 for 95mm)	100 N/A N/A		16.00	10.50 (0.50)		Extremely weak reddish brown MUDSTONE with sandstone gravels within surface. (Weathering Grade II). MERCIA MUDSTONE GROUP		
11.00 - 12.00			100 N/A N/A		15.50	11.00 (1.00)		Extremely weak reddish brown MUDSTONE with occasional gypsum bands (Weathering Grade II). MERCIA MUDSTONE GROUP		
12.00 - 13.50	B9	SPT(C) 12.00m, 50 (25 for 65mm/50 for 120mm)	100 N/A N/A		14.50	12.00		Extremely weak to very weak reddish brown MUDSTONE with occasional green-grey reduction patches. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 12.00-12.12mbgl: Recovered as sub angular to angular fine to coarse of mudstone* *Between 12.0-12.1mbgl: Recovered as sub angular to angular fine to coarse of mudstone* *Between 12.50-13.50mbgl: Frequent Gypsum band present*		
13.50 - 15.00		SPT(C) 13.50m, 50 (25 for 40mm/50 for 100mm)	100 N/A N/A			(3.00)		*Between 13.50-15.00mbgl: Recovered as sub angular to angular fine to coarse of mudstone*		
15.00 - 16.00	B10 C11	SPT(C) 15.00m, 50 (25 for 50mm/50 for 85mm)	95 74 66		11.50	15.00		Extremely weak to weak reddish brown thinly laminated MUDSTONE with occasional white gypsum bands up to 5mm in thickness. accompanied with green/grey reduction spots. (Weathering Grade II). MERCIA MUDSTONE GROUP		
16.00 - 16.50			0 N/A N/A							
16.50 - 18.00			100 N/A N/A			(4.50)		*Between 16.60-16.70mbgl: Recovered as sub angular to angular medium to coarse gravel of mudstone with occasional gypsum bands.* *Between 17.10-17.20mbgl: Recovered as sub angular to angular medium to coarse gravel of mudstone with occasional gypsum bands* *Between 17.80-17.90mbgl: Recovered as sub angular to angular medium to coarse gravel of mudstone with occasional gypsum bands*		
18.00 - 19.50	B12	SPT(C) 18.00m, 50 (25 for 41mm/50 for 103mm)	100 N/A N/A					*Between 18.00-18.15mbgl: Recovered as sub angular to angular medium to coarse gravel of mudstone with occasional gypsum bands* *Between 18.50-18.58mbgl: Recovered as sub angular to angular medium to coarse gravel of mudstone with occasional gypsum bands* *At 19.00mbgl: Becomes very weak*		
		SPT(C) 19.50m, 50 (25 for 30mm/50 for 65mm)			7.00	19.50		Very weak reddish brown very fine grained MUDSTONE with occasional gypsum bands and reduction spots. (Weathering Grade II).		

10 11 12 13 14 15 16 17 18 19

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
31-01-2018	08:00	0.00		
31-01-2018	17:00	4.50	4.50	
01-02-2018	08:00	4.50	4.50	
01-02-2018	17:00	15.00	6.00	
02-02-2018	08:00	15.00	6.00	
02-02-2018	17:00	20.60	6.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
7.00	101
20.60	76

Casing Diameter

Depth (m)	Dia (mm)
6.00	130

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-21

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	31/01/2018	02/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368338.0	373967.0	26.50mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Terminated at design depth.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
19.50 - 20.50	B13	SPT(C) 20.50m, 50 (25 for 35mm/50 for 60mm)	100 N/A N/A		5.90	(1.10) 20.60		MERCIA MUDSTONE GROUP *Between 19.50-19.60mbgl: Recovered as angular medium to gravel.* *Between 20.30-20.50mbgl: Large reduction spot* End of Borehole at 20.60m		

20 21 22 23 24 25 26 27 28 29

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Flush Information					Borehole Diameter		Casing Diameter	
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
					7.00 20.60	101 76	6.00	130

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-21a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER1100	20/03/2018	21/03/2018	LRW	FINAL	

Rotary Open Hole Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368341.0	373962.0	26.50mOD	Beretta T44 (Rotary)	GE	1:50

Weather: | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	Duration (mm:ss)	Flush Return	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								Open hole drilling. NO RECOVERY		
						(4.00)				
					22.50	4.00		Stiff to very stiff reddish brown sandy gravelly CLAY. Medium to coarse sand with subrounded to subangular fine mudstone gravel. MERCIA MUDSTONE GROUP		
						(0.45)				
					22.05	4.45		Extremely weak MUDSTONE recovered as stiff reddish brown slightly gravelly CLAY. Rounded fine to medium mudstone gravel. MERCIA MUDSTONE GROUP		
4.00 - 5.50	C C C									
4.00 - 5.50	C			100						
5.50 - 7.00	C			80 73 53						
7.00 - 8.50	C			100 87 87		(6.40)				
8.50 - 10.00	C			100 100 100						
	Type/Ref			TCR / Fracture						

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
20-03-2018	08:00	0.00		
20-03-2018	17:00	10.00	4.00	
21-03-2018	08:00	10.00	4.00	
21-03-2018	17:00	20.50	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
4.00	101
20.50	76

Casing Diameter

Depth (m)	Dia (mm)
4.00	130

Remarks:

1. Borehole advanced for geotechnical design and sampling, using rotary open hole and rotary coring techniques.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-21a
	Contract Number: JER1100	Start Date: 20/03/2018	End Date: 21/03/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368341.0	Northing: 373962.0	Ground Level: 26.50mOD	Plant Used: Beretta T44 (Rotary)	Logged By: GE	Scale: 1:50

Weather: | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details					Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation
10.00 - 11.50	C		76 76 67		15.65	10.85		Extremely weak reddish brown MUDSTONE with light green grey reduction spots and close to medium spaced 2mm gypsum lenses. Widely spaced rough undulating joints accompanied with bands of mudstone gravel. MERCIA MUDSTONE GROUP *Recovered as clayey rounded fine to medium mudstone gravel.*	11		
11.50 - 13.00			100 87 73			(2.15)		*Recovered as clayey rounded fine to medium mudstone gravel.*	12		
13.00 - 14.50	C		100 87 87		13.50	13.00		Very weak reddish brown MUDSTONE with light green grey reduction spots and frequent 2mm gypsum lenses. Closely spaced smooth undulating joints accompanied with bands of mudstone gravel and sand. MERCIA MUDSTONE GROUP	13 14		
14.50 - 16.00	C		100 80 80			(3.00)			15		
16.00 - 17.50			50 20 20		10.50	16.00		Extremely weak reddish brown MUDSTONE recovered as reddish brown clayey subrounded to angular GRAVEL. MERCIA MUDSTONE GROUP	16		
17.50 - 19.00	C C		100 73 60		8.70	17.80 (1.20)		Extremely weak reddish brown MUDSTONE with frequent light green grey reduction spots and close spaced gypsum lenses. Closely spaced planar joints accompanied with bands of mudstone gravel. MERCIA MUDSTONE GROUP	17 18		
19.00 - 20.50			100 0 0		7.50	19.00 (1.50)		Grey MUDSTONE recovered as very stiff grey gravelly CLAY. Angular fine to medium gravel and rare gypsum lenses. MERCIA MUDSTONE GROUP	19 20		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
20-03-2018	08:00	0.00		
20-03-2018	17:00	10.00	4.00	
21-03-2018	08:00	10.00	4.00	
21-03-2018	17:00	20.50	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
4.00	101
20.50	76

Casing Diameter

Depth (m)	Dia (mm)
4.00	130

Remarks:

1. Borehole advanced for geotechnical design and sampling, using rotary open hole and rotary coring techniques.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-21a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	20/03/2018	21/03/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368341.0	373962.0	26.50mOD	Beretta T44 (Rotary)	GE	1:50

Weather: | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					6.00	20.50		End of Borehole at 20.50m		

21
22
23
24
25
26
27
28
29
30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
4.00 20.50	101 76	4.00	130

Remarks:

1. Borehole advanced for geotechnical design and sampling, using rotary open hole and rotary coring techniques.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-22
	Contract Number: JER1100	Start Date: 01/02/2018	End Date: 05/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 3
Windowless Borehole Log	Easting: 368325.0	Northing: 373937.0	Ground Level: 26.60mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.50	0.10		Bitmac.		
				26.40	0.20		TARMACADAM		
							Light grey sandy angular fine to coarse GRAVEL. Sand is fine to coarse. MADE GROUND		
					(1.15)		Dark grey/black sandy angular fine to coarse GRAVEL of Flint, concrete, slate and coal. Frequent metal and glass fragments MADE GROUND		
		SPT(S) 1.20m, N=4 (1,0/1,0,1,2)		25.25	1.35		Loose light grey slightly gravelly fine to coarse SAND (Lime made ground). Gravel is sub-angular to sub-rounded, fine of lime. LIME MADE GROUND		
					(0.50)				
				24.75	1.85		Dark grey gravelly fine to coarse SAND (lime made ground). Gravel is sub-angular fine of lime, coal and concrete. LIME MADE GROUND		
					(0.55)				
				24.20	2.40		Dark grey very sandy clayey sub-angular fine to medium GRAVEL of lime made ground and coal. Sand is fine to coarse. MADE GROUND		
		SPT(S) 2.50m, N=12 (2,3/2,3,4,3)		24.10	2.50				
3.00	B						Firm reddish brown locally mottled grey slightly sandy CLAY. Sand is fine to medium. GLACIAL TILL		
					(1.90)				
		SPT(S) 4.00m, N=28 (3,3/3,5,9,11)					*Between 4.00-4.40mbgl: Becomes firm to stiff*		
				22.20	4.40		Stiff to very stiff reddish brown mottled grey slightly sandy CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP		
				22.00	4.60		Very weak reddish brown mottled grey very fine grained MUDSTONE. (Weathering Grade II). MERCIA MUDSTONE GROUP		
					(0.90)				
		SPT(S) 5.50m, N=47 (5,8/9,10,12, 16)		21.10	5.50		Extremely weak reddish brown very fine grained MUDSTONE. (Weathering Grade II). MERCIA MUDSTONE GROUP		
					(1.50)				
		SPT(S) 7.00m, N=46 (4,7/7,10,12, 17)		19.60	7.00		Extremely weak reddish brown very fine MUDSTONE with rare gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 7.00-7.05mbgl: Recovered as soft reddish brown clay.*		
7.00 - 8.50			40 40 40		(1.30)				
		SPT(S) 8.50m, N=50 (6,7/9,11,11, 19)		18.30	8.30		Very weak reddish brown very fine MUDSTONE with rare gypsum bands from 9.5-10m. (Weathering Grade II). MERCIA MUDSTONE GROUP		
8.50 - 10.00	B		73 63 50		(1.70)		*Between 9.10-9.20mbgl: recovered as reddish brown sub-angular to angular fine to medium gravel.* *Between 9.50-9.60mbgl: recovered as reddish brown sub-angular to angular fine to medium gravel.*		
	Type/Ref		TCR	Fracture					

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
01-01-2018	08:00	0.00		
01-01-2018	17:00	10.45	4.00	
05-02-2018	08:00	10.45		
05-02-2018	17:00	20.08		

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.50	100
2	101	2.50	4.00	100
3	101	4.00	5.50	100
4	101	5.50	7.00	100

Casing

Depth (m)	Diameter (mm)
4.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-22
	Contract Number: JER1100	Start Date: 01/02/2018	End Date: 05/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368325.0	Northing: 373937.0	Ground Level: 26.60mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather:

Termination: Terminated at design depth.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.00	B	SPT(C) 10.00m, 50 (9,16/50 for 140mm)	100 77 77		16.60	10.00 (1.00)		Very weak reddish brown with frequent green/grey reduction spots very fine grained MUDSTONE with occasional gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 10.00-10.20mbgl: Recovered as reddish brown sub-angular to angular fine to medium gravel.* *Between 10.45-10.55mbgl: Recovered as reddish brown very sandy gravelly clay*		
11.00 - 12.50	B	SPT(C) 11.00m, 50 (11,14/50 for 150mm)	97 60 40		15.60	11.00 (1.70)		Extremely weak reddish brown with occasional green/grey reduction spots MUDSTONE . Frequent white gypsum bands present. (Weathering Grade II). MERCIA MUDSTONE GROUP *From 11.00-11.25mbgl: Frequent white gypsum bands.* *Between 11.25-12.55mbgl: Recovered as very weak mudstone.* *Between 11.70-11.80mbgl: Recovered as sub-angular to angular, fine to medium Gravel.* *Between 11.90-12.10mbgl: Recovered as sub-angular to angular, fine to medium Gravel.*		
12.50 - 14.00	B	SPT(C) 12.50m, 50 (17,8/50 for 130mm)	95 68 62		13.90	12.70 (1.58)		*Between 12.50-12.60mbgl: Recovered as sub-angular to angular reddish brown fine to medium gravelly clay.* *Between 12.60-12.70mbgl: Recovered as sub-angular to angular, fine to medium Gravel.* Extremely weak reddish brown MUDSTONE with occasional green/grey reduction spots and white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 13.20-13.60mbgl: recovered as reddish brown, sub-angular to angular fine to medium Clayey Gravel*		
14.00 - 15.50	B	SPT(C) 14.00m, 50 (17,8/50 for 150mm)	97 78 67		12.32	14.28		*Between 14.00-14.28mbgl: Recovered as reddish brown, firm to medium, sub-angular to angular Clayey Gravel.* Very weak reddish brown MUDSTONE with occasional green/ grey reduction spots and white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP		
15.50 - 17.00			75 67 62			(2.72)		*Between 15.50-15.65mbgl: Recovered as reddish brown sub-angular to angular fine to medium clayey Gravel.* *At 16.70mbgl: Becoming extremely weak*		
17.00 - 18.50	B	SPT(C) 17.00m, 50 (25 for 75mm/50 for 150mm)	72 52 7		9.60 / 8.95	17.00 (0.65) 17.65		Very weak greenish grey MUDSTONE with occasional white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 17.35-17.65mbgl: Recovered as soft to firm greenish grey slightly gravelly clay. Gravel is sub-angular to angular, fine to medium* Very weak reddish brown MUDSTONE with occasional white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP		
18.50 - 20.00			94 77 30			(2.43)				

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
01-01-2018	08:00	0.00		
01-01-2018	17:00	10.45	4.00	
05-02-2018	08:00	10.45		
05-02-2018	17:00	20.08		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
7.00	101	4.00	130
20.08	76		

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-22

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	01/02/2018	05/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368325.0	373937.0	26.60mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Terminated at design depth.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
		SPT(C) 20.00m, 50 (25 for 60mm/50 for 15mm)			6.52	20.08		End of Borehole at 20.08m		

20
21
22
23
24
25
26
27
28
29

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
7.00	101	4.00	130
20.08	76		

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS RC Template Issue Number: 2 Issue Date: 02/01/2018

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-23

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	15/02/2018	15/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368359.0	374033.0	26.00mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Borehole abandoned due to localised ground collapse, due to possible void within the ground.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				25.90	0.10		Tarmac hardstanding. TARMACADAM		
				25.78	0.22		Black gravelly medium to coarse sand (ash). Gravel is angular fine to medium. MADE GROUND		
				25.52	0.48		White bricks recovered as pink/grey silty sandy angular GRAVEL of brick/concrete. Some localised rust coloured staining. Sand is medium to coarse. MADE GROUND		
					(2.52)		Orangish brown slightly gravelly fine to medium SAND. Gravel is fine, rarely medium, subrounded to rounded of mixed lithologies (flint and mudstone). MADE GROUND		
				23.00	3.00		End of Borehole at 3.00m		

1 2 3 4 5 6 7 8 9

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling.
2. Borehole backfilled with arisings on completion.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)

Casing	
Depth (m)	Diameter (mm)
3.00	130

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-23a
	Contract Number: JER1100	Start Date: 15/02/2018	End Date: 20/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 3
Windowless Borehole Log	Easting: 368353.0	Northing: 374014.0	Ground Level: 26.05mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50
Weather:		Termination: Terminated at design depth.		SPT Hammer: N/R, Energy Ratio: N/R		

Samples & In Situ Testing

Depths	Type/ Ref	SPT	Testing
0.40 - 0.85	ES		
0.85 - 1.00	ES		
1.02	EW1		
1.40 - 1.60	ES		
2.00	EW2		
3.00	B	SPT(S) 3.00m, N=4 (1,1/1,1,1,1)	
3.00	D		
3.20 - 3.50	ES		
4.50	D	SPT(S) 4.50m, N=21 (3,3/5,5,5,6)	
5.50 - 5.80	ES		
6.00	B	SPT(S) 6.00m, 50 (11,13/50 for 215mm)	
6.00	C		
6.00	D		
6.00 - 7.50	ES		47 N/A N/A
7.50 - 9.00	C	SPT(C) 7.50m, 50 (9,12/50 for 225mm)	67 N/A N/A
9.00 - 10.00	B C ES	SPT(C) 9.00m, 50 (25 for 85mm/50 for 105mm)	80 N/A N/A
	Type/Ref		TCR / Fracture

Strata Details

Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description
25.95	0.10		Tarmac hardstanding. TARMACADAM
25.75	0.30		Concrete cobbles. MADE GROUND
25.65	0.40		Black gravelly medium to coarse SAND (ash). Gravel is angular fine to medium concrete MADE GROUND
	(0.45)		
25.20	0.85		Orangish brown gravelly fine to medium SAND. Gravel is fine, rarely medium of mixed lithologies including flint and mudstone MADE GROUND
	(0.50)		
24.70	1.35		Soft reddish brown slightly sandy CLAY. MADE GROUND
	(0.60)		
24.10	1.95		Soft black organic CLAY. Strong organic odour. ALLUVIUM
	(0.75)		Soft brown mottled grey slightly sandy CLAY. GLACIAL TILL
23.35	2.70		No recovery NO RECOVERY
	(0.45)		
22.90	3.15		Soft to firm reddish brown mottled light grey slightly sandy CLAY. Sand is fine to medium. GLACIAL TILL
	(1.45)		
21.45	4.60		Firm to stiff slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine of mudstone. GLACIAL TILL
	(2.10)		
			At 5.65mbgl: Becoming very stiff
19.35	6.70		No recovery NO RECOVERY
	(0.80)		
18.55	7.50		Firm to stiff reddish brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is sub angular to sub rounded, fine to medium mudstone. GLACIAL TILL
	(1.50)		
17.05	9.00		Stiff reddish brown slightly gravelly CLAY. Gravel is sub angular to subrounded, fine to medium mudstone. Poor recovery. (Weathering Grade II). MERCIA MUDSTONE GROUP
	(1.00)		
			Between 9.75-10.00mbgl: Greenish grey reduction spots

Groundwater

Water Strike | Backfill/ Installation

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
15-02-2018	08:00	0.00		
15-02-2018	17:00	7.50	7.50	
16-02-2018	08:00	7.50		
16-02-2018	17:00	11.00	10.50	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	19
1	1.00	4.00	SLOTTED	19

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.70	80
2	101	3.00	4.50	100
3	101	4.50	6.00	100

Casing

Depth (m)	Diameter (mm)
4.50	130

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole installed with 19mm gas and groundwater monitoring well on completion, response zone 1.00 - 4.00mbgl.
3. Organic odour noted 1.35-1.95mbgl.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
17.50	10.50		0		

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-23a
	Contract Number: JER1100	Start Date: 15/02/2018	End Date: 20/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368353.0	Northing: 374014.0	Ground Level: 26.05mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather:

Termination: Terminated at design depth.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.00	B C	SPT(C) 10.00m, 50 (25 for 85mm/50 for 85mm)	50 N/A N/A		16.05	10.00 (1.00)		Recovered as reddish brown CLAY. Poor recovery (Probable drilling disturbance). (Weathering Grade II). MERCIA MUDSTONE GROUP		
11.00 - 12.00		SPT(C) 11.00m, 50 (25 for 85mm/50 for 130mm)	80 38 28		15.05 14.85	11.00 11.20		Recovered as reddish brown slightly gravelly CLAY. Gravel is sub angular to subrounded, fine to medium mudstone. Poor recovery (Probable drilling disturbance). (Weathering Grade II). MERCIA MUDSTONE GROUP		
12.00 - 13.00		SPT(C) 12.00m, 50 (25 for 40mm/50 for 75mm)	100 95 65			(1.80)		Very weak reddish brown MUDSTONE. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 12.65-13.00mbgl: greenish grey reduction spots*		
13.00 - 14.50		SPT(C) 13.00m, 50 (25 for 80mm/50 for 65mm)	100 100 97		13.05	13.00		Extremely weak reddish brown MUDSTONE with rare white gypsum bands and rare greenish grey reduction spots. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 13.00-13.15mbgl: Recovered as gravel*		
14.50 - 16.00	B C	SPT(C) 14.50m, 50 (25 for 75mm/50 for 75mm)	100 98 65					*Between 14.50-14.56mbgl: Recovered as gravel* *At 14.90mbgl: Becoming very weak*		
16.00 - 17.50		SPT(C) 16.00m, 50 (25 for 65mm/50 for 70mm)	100 100 78			(6.00)				
17.50 - 19.00	B	SPT(C) 17.50m, 50 (25 for 55mm/50 for 60mm)	100 97 67							
19.00 - 20.00	C	SPT(C) 19.00m, 50 (25 for 50mm/50 for 45mm)	100 79 59		7.05	19.00 (0.80)		Extremely weak reddish brown thinly laminated friable MUDSTONE with white 3mm gypsum bands and rare greenish grey reduction spots. 1mm clay infill on joint surfaces. (Weathering Grade II). MERCIA MUDSTONE GROUP		
					6.25 6.20	19.80 19.85		Friable angular medium mudstone GRAVEL. (Weathering		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
15-02-2018	08:00	0.00		
15-02-2018	17:00	7.50	7.50	
16-02-2018	08:00	7.50		
16-02-2018	17:00	11.00	10.50	
19-02-2018	08:00	11.00		
19-02-2018	17:00	16.00	10.50	
20-02-2018	08:00	16.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	1.00	PLAIN	19
1	1.00	4.00	SLOTTED	19

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
6.00	101
20.09	76

Casing Diameter

Depth (m)	Dia (mm)
4.50	130

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole installed with 19mm gas and groundwater monitoring well on completion, response zone 1.00 - 4.00mbgl.
3. Organic odour noted 1.35-1.95mbgl.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
17.50	10.50		0		

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-23a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	15/02/2018	20/02/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368353.0	374014.0	26.05mOD	Beretta T44 (Rotary)	AK	1:50

Weather: | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
		SPT(C) 20.00m, 50 (25 for 45mm/50 for 45mm)			5.96	20.09		Grade III). MERCIA MUDSTONE GROUP Extremely weak reddish brown thinly laminated friable MUDSTONE with white 3mm gypsum bands and rare greenish grey reduction spots. 1mm clay infill on joint surfaces. (Weathering Grade II). MERCIA MUDSTONE GROUP		

End of Borehole at 20.09m

20 21 22 23 24 25 26 27 28 29

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
20-02-2018	17:00	20.09	10.50	

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	1.00	PLAIN	19
1	1.00	4.00	SLOTTED	19

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.00	101	4.50	130
20.09	76		

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole installed with 19mm gas and groundwater monitoring well on completion, response zone 1.00 - 4.00mbgl.
3. Organic odour noted 1.35-1.95mbgl.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
17.50	10.50		0		

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-24
	Contract Number: JER1100	Start Date: 19/02/2018	End Date: 20/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 2
Windowless Borehole Log	Easting: 368352.0	Northing: 373997.0	Ground Level: 26.00mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: Cloudy

Termination: Terminated within possible broken ground as drilling tooling snagged in borehole.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				25.90	0.10		Tarmac hardstanding. TARMACADAM		
				25.80	0.20		Dark grey slightly clayey gravelly SAND with a low cobble content. Gravel is angular, fine of concrete, cobbles are of concrete. MADE GROUND		
0.75 0.84	EW1 EW2				(0.70)				
				25.10	0.90		Concrete/bricks recovered as sandy angular medium to coarse GRAVEL with a medium cobble content. Sand is medium to coarse ash. MADE GROUND		
		SPT(S) 1.20m, N=24 (1,6/6,7,7,4)		24.80	(0.30) 1.20				
				24.55	1.45		Very soft white CLAY (Lime made ground). LIME MADE GROUND		
					(1.05)		Dark grey slightly clayey sandy angular fine GRAVEL of concrete and brick fragments. Sand is fine to coarse. Clay fraction is lime made ground. LIME MADE GROUND		
		SPT(S) 2.50m, 50 (1,0/50 for 150mm)		23.50	2.50		White slightly sandy CLAY (lime made ground). LIME MADE GROUND		
					(1.50)		No Recovery. NO RECOVERY		
		SPT(S) 4.00m, N=44 (4,4/6,7,14,17)		22.00	4.00		Recovered as reddish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of sandstone. GLACIAL TILL		
4.00 - 5.50			100 N/A N/A						
		SPT(C) 5.50m, 50 (11,12/50 for 150mm)			(3.00)		*At 5.65mbgl: Strata becoming firm*		
5.50 - 7.00	C		100 N/A N/A						
		SPT(C) 7.00m, 50 (8,10/50 for 225mm)		19.00	7.00		Firm to very stiff reddish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of sandstone (Weathering Grade III). GLACIAL TILL		
7.00 - 8.50			100 N/A N/A		(1.85)				
		SPT(C) 8.50m, 50 (9,12/50 for 170mm)					*Between 8.45 - 8.85mbgl: Becoming reddish brown mottled grey.*		
				17.15	8.85		Firm to very stiff reddish brown mottled grey slightly sandy CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP		
8.50 - 10.00			100 N/A N/A		(1.15)				
	Type/Ref		TCR	Fracture					

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
19-02-2018	08:00	0.00		
19-02-2018	17:00	4.00	4.00	
20-02-2018	08:00	4.00		
20-02-2018	17:00	14.50	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	19
1	1.00	4.00	SLOTTED	19

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole installed with 19mm gas and groundwater monitoring well on completion, response zone 1.00 - 4.00mbgl.
3. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.50	100
2	101	2.50	4.00	0

Casing

Depth (m)	Diameter (mm)
4.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.00			0		within hand pit.

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: BH-RPS-24
	Contract Number: JER1100	Start Date: 19/02/2018	End Date: 20/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 2
Rotary Core Drilling Log	Easting: 368352.0	Northing: 373997.0	Ground Level: 26.00mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: Cloudy

Termination: Terminated within possible broken ground as drilling tooling snagged in borehole.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50		SPT(C) 10.00m, N=42 (7,10/11,11,10,10)	95 N/A N/A		16.00	10.00 (2.26)		Firm to very stiff reddish brown CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP *Between 11.20 - 12.26mbgl: Becoming firm to stiff.*		
11.50 - 13.00		SPT(C) 11.50m, 50 (6,8/50 for 280mm)	100 46 46		13.74	12.26		*Between 11.70-12.15m: becoming reddish brown with grey mottling.* Very weak reddish brown MUDSTONE with frequent white gypsum bands. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 12.71 - 14.50mbgl: Occasional Greenish grey reduction spots.*		
13.00 - 14.50		SPT(C) 13.00m, 50 (25 for 80mm/50 for 150mm)	100 N/A N/A			(2.24)		*Between 12.95-13.00m: recovered as clayey subangular to an angular, fine to medium GRAVEL.* *Between 13.05-13.31m: recovered as clayey subangular to an angular, fine to medium GRAVEL.*		
14.50 - 16.00			57 N/A N/A		11.50	14.50 (1.50)		*Between 14.00-14.45m: recovered as clayey subangular to an angular, fine to medium GRAVEL.* Very weak reddish brown MUDSTONE. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 14.50-16.00mbgl: Recovered as very clayey GRAVEL. Gravel is subangular to angular fine to medium of mudstone.*		
16.00 - 17.00			95 N/A N/A		10.00	16.00 (1.00)		Extremely weak reddish brown MUDSTONE. (Weathering Grade II). MERCIA MUDSTONE GROUP *Between 16-16.52m: recovered as clayey gravel.*		
					9.00	17.00		End of Borehole at 17.00m		

10 11 12 13 14 15 16 17 18 19

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
19-02-2018	08:00	0.00		
19-02-2018	17:00	4.00	4.00	
20-02-2018	08:00	4.00		
20-02-2018	17:00	14.50	4.00	
21-02-2018	12:00	17.00	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	1.00	PLAIN	19
1	1.00	4.00	SLOTTED	19

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
4.00	101
17.00	76

Casing Diameter

Depth (m)	Dia (mm)
4.00	130

Remarks:

1. Borehole advanced for geotechnical design, using dynamic sampling and rotary coring.
2. Borehole installed with 19mm gas and groundwater monitoring well on completion, response zone 1.00 - 4.00mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.00			0		within hand pit.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-24a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER1100	03/04/2018	05/04/2018		FINAL	

Rotary Open Hole Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368368.0	373969.0	26.59mOD	Beretta T44 (Rotary)	GC	1:50

Weather: Cloudy | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	Duration (mm:ss)	Flush Return	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								Open hole drilling. Concrete Slab at 1.4m. NO RECOVERY		
						(4.00)				
					22.59	4.00		Firm to stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel is sub-rounded, fine to medium mudstone and gypsum. Sand is fine to medium. GLACIAL TILL		
4.00 - 5.50		SPT(C) 5.50m, 51 (6,10/51 for 290mm)		83 83 83						
5.50 - 7.00		SPT(C) 7.00m, 50 (5,5/50 for 210mm)		90 90 77		(4.50)				
7.00 - 8.50		SPT(C) 8.50m, 50 (7,14/50 for 225mm)		100 100 100	18.09	8.50		No Recovery (Boulder caught in catcher). Likely to be transition between Glacial Till and Weathered Mercia Mudstone) NO RECOVERY		
8.50 - 10.00				0 0 0		(1.50)				
	Type/Ref			TCR / Fracture	16.59	10.00				

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
03-04-2018	08:00	0.00		
03-04-2018	17:00	11.95	4.00	
04-04-2018	08:00	11.95	4.00	
04-04-2018	17:00	20.61	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	10.00	PLAIN	19
1	10.00	20.00	SLOTTED	19

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
4.00	101
20.61	76

Casing Diameter

Depth (m)	Dia (mm)
4.00	130

Remarks:

1. Borehole advanced for geotechnical design, using rotary open hole and rotary coring.
2. Borehole installed with 19mm diameter monitoring well as shown, response zone 10.00-20.00mbgl.
3. No significant visual or olfactory contamination noted

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant			Client: Copenhagen Infrastructure Partners (CIP)		Borehole ID: BH-RPS-24a
	Contract Number: JER1100	Start Date: 03/04/2018	End Date: 05/04/2018	Checked By:	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 368368.0	Northing: 373969.0	Ground Level: 26.59mOD	Plant Used: Beretta T44 (Rotary)	Logged By: GC	Scale: 1:50

Weather: Cloudy | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50		SPT(C) 10.00m, 50 (9,11/50 for 150mm)	100 100 100		15.29	(1.30) 11.30		Very stiff reddish brown CLAY. Very rare greyish green reduction spots and gypsum fragments. (Weathering Grade III) MERCIA MUDSTONE GROUP		
11.50 - 13.00		SPT(C) 11.50m, 50 (25 for 100mm/50 for 145mm)	87 70 63		14.84	(0.45) 11.75		Extremely weak to very weak reddish brown MUDSTONE recovered as coarse angular gravel. MERCIA MUDSTONE GROUP		
13.00 - 14.50		SPT(C) 13.00m, 50 (25 for 120mm/50 for 140mm)	80 75 75			(4.91)		Extremely weak occasionally very weak reddish brown MUDSTONE occasionally weathering to stiff clay. Discontinuities are 0-20 degrees, generally medium spaced stepped planar rough. (Weathering Grade II) MERCIA MUDSTONE GROUP		
14.50 - 16.00		SPT(C) 14.50m, 50 (9,12/50 for 230mm)	80 67 63							
16.00 - 17.50		SPT(C) 16.00m, 50 (25 for 120mm/50 for 150mm)	100 100 100		9.93	16.66 (0.84)		Very weak reddish brown MUDSTONE. One vertical discontinuity undulating rough between 19.95 to 17.10. (Weathering Grade I) MERCIA MUDSTONE GROUP		
17.50 - 19.00		SPT(C) 17.50m, 50 (7,11/50 for 170mm)	80 56 50		9.09	17.50 (0.60)		Very weak reddish brown MUDSTONE recovered as angular coarse gravel and one cobble. MERCIA MUDSTONE GROUP		
					8.49	18.10 (0.90)		Very weak reddish brown MUDSTONE. Rare greenish grey reduction spots. Discontinuities are 0-20 degrees, generally closely spaced. (Weathering Grade II) MERCIA MUDSTONE GROUP		
19.00 - 20.50		SPT(C) 19.00m, 125 (9,9/125 for 125mm)	100 100 100		7.59	19.00 (1.61)		Extremely weak reddish brown MUDSTONE. Frequent greenish grey reduction spots and gypsum fragments. MERCIA MUDSTONE GROUP		

Depth scale: 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
03-04-2018	08:00	0.00		
03-04-2018	17:00	11.95	4.00	
04-04-2018	08:00	11.95	4.00	
04-04-2018	17:00	20.61	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	10.00	PLAIN	19
1	10.00	20.00	SLOTTED	19

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
4.00	101
20.61	76

Casing Diameter

Depth (m)	Dia (mm)
4.00	130

Remarks:

1. Borehole advanced for geotechnical design, using rotary open hole and rotary coring.
2. Borehole installed with 19mm diameter monitoring well as shown, response zone 10.00-20.00mbgl.
3. No significant visual or olfactory contamination noted

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	BH-RPS-24a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER1100	03/04/2018	05/04/2018		FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368368.0	373969.0	26.59mOD	Beretta T44 (Rotary)	GC	1:50

Weather: Cloudy | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
		SPT(C) 20.50m, 50 (25 for 70mm/50 for 40mm)			5.98	20.61		End of Borehole at 20.61m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	10.00	PLAIN	19
1	10.00	20.00	SLOTTED	19

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
4.00	101	4.00	130
20.61	76		

Remarks:

1. Borehole advanced for geotechnical design, using rotary open hole and rotary coring.
2. Borehole installed with 19mm diameter monitoring well as shown, response zone 10.00-20.00mbgl.
3. No significant visual or olfactory contamination noted

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: CP-RPS-01
	Contract Number: JER1100	Start Date: 12/03/2018	End Date: 19/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Cable Percussion Borehole Log	Easting: 368148.4	Northing: 374147.1	Ground Level: 24.82mOD	Plant Used: Dando	Logged By: GC	Scale: 1:50
Weather:		Termination: Terminated due to obstruction in borehole.			SPT Hammer: N/R, Energy Ratio: N/R	

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.10 - 0.30	ES			24.72	0.10		Black compacted angular fine gravel of coal and limestone. MADE GROUND		
0.30 - 0.55	ES			24.52	0.30		Grey fine to coarse gravelly SAND. Gravel is angular, fine to medium of concrete MADE GROUND		
					(0.40)				
				24.12	0.70		Coarse grey and black gravelly sand with a medium cobble content. Gravel is angular, fine to coarse of concrete. Cobbles are of concrete. MADE GROUND		
1.20 - 2.00	B1	SPT(S) 1.20m, N=7 (2,3/1,1,2,3)			(1.60)		Orangish brown fine to medium gravelly SAND. Gravel is rounded, fine to medium of mudstone MADE GROUND		
2.20	D4	SPT(S) 2.20m, N=6 (1,1/2,1,1,2)		22.52	2.30		Soft white gravelly slightly sandy SILT (lime made ground). Sand is fine to coarse of ash and clinker. LIME MADE GROUND		
					(0.60)				
3.00 - 3.45	D5	SPT(S) 3.00m, N=4 (1,1/1,1,1,1)		21.92	2.90		Soft white gravelly slightly gravelly SILT (lime made ground). Gravel is fine, angular of ash and clinker. LIME MADE GROUND		
					(1.10)				
4.00 - 4.45 4.00 - 6.50	D6 B7	SPT(S) 4.00m, N=4 (1,0/1,1,1,1)		20.82	4.00		Very soft white SILT (lime made ground recovered as slurry). LIME MADE GROUND		
5.00 - 5.45	D8	SPT(S) 5.00m, N=2 (1,0/0,0,1,1)			(2.50)				
6.50 - 6.95 6.50 - 7.50	D9 B10	SPT(S) 6.50m, 53 (1,2/53 for 240mm)		18.32	6.50		Recovered as reddish brown angular fine to medium GRAVEL of sandstone. Possible brick obstruction. MADE GROUND		
					(1.00)		*From 6.00mbgl: Tooling snagged in borehole, either on obstruction or collapse of borehole below casing initially. Released after several days.*		
				17.32	7.50		End of Borehole at 7.50m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
13-02-2018	08:00	0.00		
13-02-2018	17:00	7.00	5.50	
16-02-2018	17:00	7.50	7.50	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Chiselling

From (m)	To (m)	Duration	Remarks

Borehole Diameter

Depth (m)	Dia (mm)
7.50	150

Casing Diameter

Depth (m)	Dia (mm)
7.50	150

Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using cable percussion rig.
2. No significant visual or olfactory contamination noted.
3. Borehole backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: CP-RPS-02
	Contract Number: JER1100	Start Date: 20/02/2018	End Date: 21/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 2
Cable Percussion Borehole Log	Easting: 368202.7	Northing: 374188.7	Ground Level: 25.32mOD	Plant Used: Dando	Logged By: AT	Scale: 1:50

Weather: Dry and cloudy. | Termination: Terminated due to SPT Refusal. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.10	ES		PID 0.10m, 0.0ppm	25.27	0.05		Decorative subrounded to rounded medium GRAVEL of limestone. MADE GROUND		
0.20 - 1.20	B1				(1.25)		Soft dark blackish brown gravelly SILT. Gravel is subangular to subrounded, fine to medium of brick and concrete. MADE GROUND *Between 0.20-0.30mbgl: Occasional cobbles of brick.*		
1.20 - 2.00	D3	SPT(C) 1.20m, 0 (2,1/0 for 0mm)		24.02	1.30		Light greyish brown and white SILT (Lime made ground). LIME MADE GROUND		
1.20 - 2.00	ES								
2.00 - 2.45	D4	SPT(S) 2.00m, 0 (1 for 75mm/0 for 0mm)			(1.70)				
2.00 - 3.00	D5								
2.50	ES		PID 2.50m, 0.1ppm						
3.00 - 4.00	D7	SPT(C) 3.00m, N=1 (1,/,,1,)		22.32	3.00		Medium dense black sandy subangular fine to medium GRAVEL of clinker. MADE GROUND		
3.00 - 4.00	ES								
4.00	ES	SPT(C) 4.00m, N=14 (3,2/3,4,4,3)							
4.00 - 4.45	D9		PID 4.00m, 0.4ppm						
4.50 - 6.00	B10				(3.00)		*Between 4.50-6.00mbgl: Strata becomes wet.*	▼	
		SPT(C) 5.00m, N=15 (2,3/4,4,3,4)							
6.00 - 6.45	D12	SPT(S) 6.00m, 3 (1 for 75mm/3 for 150mm)		19.32	6.00		Light greyish white and light greyish brown soft SILT (Lime made ground). Slight ammonia chemical odour. LIME MADE GROUND		
6.00 - 7.20	B13								
6.50	ES		PID 6.50m, 8.0ppm		(1.20)				
7.20 - 8.70	B15	SPT(C) 7.20m, N=11 (2,2/3,2,3,3)		18.12	7.20		Soft dark greyish brown and dark blackish grey SILT. Organic odour. ALLUVIUM		
					(2.30)				
8.70 - 9.15	D16	SPT(S) 8.70m, N=51 (3,11/8,11,14 ,18)							
8.70 - 9.50	B17								
9.50	ES	SPT(C) 9.50m, N=42 (4,10/11,11,1 0,10)	PID 9.50m, 17.5ppm	15.82	9.50		Very stiff dark reddish brown silty CLAY. Occasional light grey dark reddish brown blocky mudstone. MERCIA MUDSTONE GROUP		
9.80 - 10.50	B19								
10.00	ES								

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
20-02-2018	08:00	0.00		
20-02-2018	17:00	3.00	3.00	
21-02-2018	08:00	3.00	3.00	
21-02-2018	17:00	10.77	10.50	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using cable percussion rig.
2. Groundwater encountered at 4.50mbgl, seepage.
3. Ammonia / Chemical odour noted between 6.00-7.20mbgl, and organic odour between 7.20-9.50mbgl.
4. Borehole backfilled with arisings on completion.

Chiselling

From (m)	To (m)	Duration	Remarks

Borehole Diameter

Depth (m)	Dia (mm)
10.77	150

Casing Diameter

Depth (m)	Dia (mm)
10.50	150

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
4.50			0		

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	CP-RPS-02

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 2
JER1100	20/02/2018	21/02/2018	LRW	FINAL	

Cable Percussion Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368202.7	374188.7	25.32mOD	Dando	AT	1:50

Weather: Dry and cloudy. | Termination: Terminated due to SPT Refusal. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
		SPT(C) 10.50m, 50 (10,15/50 for 120mm)		14.55	(1.27) 10.77		End of Borehole at 10.77m		

11 12 13 14 15 16 17 18 19 20

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Chiselling			
From (m)	To (m)	Duration	Remarks

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
10.77	150	10.50	150

Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using cable percussion rig.
2. Groundwater encountered at 4.50mbgl, seepage.
3. Ammonia / Chemical odour noted between 6.00-7.20mbgl, and organic odour between 7.20-9.50mbgl.
4. Borehole backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
4.50			0		

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: CP-RPS-02a
	Contract Number: JER1100	Start Date: 06/03/2018	End Date: 06/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368202.7	Northing: 374187.5	Ground Level: 25.30mOD	Plant Used: Hand Tools.	Logged By: AT	Scale: 1:50
Weather: Cloudy.		Hole Termination: Terminated at 0.50 due to possible visual asbestos within the inspection pit.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.20	ES	PID 0.25m, 0.0ppm	25.25	0.05 (0.45)		Brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular fine to medium of clinker and brick. TOPSOIL		
0.50	ES		24.80	0.50		Dark grey/black very gravelly fine to medium SAND. Gravel is subangular to angular fine to coarse of ash, coal clinker, brick fragments, whole bricks and concrete. MADE GROUND *Between 0.05-0.50mbgl: Brick wall along northern side of the pit. Possible remnants of clay pipe also within the pit. Between 0.45-0.50mbgl: Possible red asbestos within pit at this depth. Fibrous sheeting.*		
						End of Inspection Pit at 0.50m		

1
2
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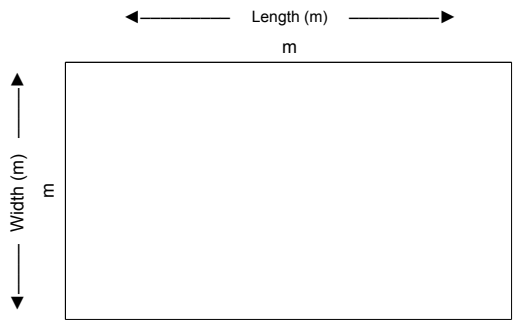
6
7

Dimensions:

Final Depth: 0.50m



General Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using cable percussion rig.
2. No groundwater encountered.
3. Possible visible asbestos fragments encountered within inspection pit.
4. Borehole backfilled with arisings on completion.

Water Strikes	
Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: CP-RPS-03
	Contract Number: JER1100	Start Date: 25/02/2018	End Date: 27/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 2
Windowless Borehole Log	Easting: 368423.1	Northing: 374148.4	Ground Level: 26.04mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: Cold and snowing. | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				25.79	0.25		Moss vegetation over black sandy subangular to angular medium GRAVEL of clinker and ash. Sand is fine to coarse. TOPSOIL		
					(0.85)		Dark grey sandy subangular to angular medium GRAVEL of clinker, brick, concrete and ash. Sand is fine to coarse. MADE GROUND		
0.93 1.03	EW1 EW2			24.94	1.10		Concrete slab CONCRETE		
					(0.80)				
				24.14	1.90		Soft reddish brown slightly sandy CLAY. ALLUVIUM		
					(0.60)				
2.50 - 3.00	ES	SPT(C) 2.50m, N=29 (2,2/4,5,9,11)	PID 2.50m, 0.0ppm	23.54	2.50		Very soft reddish brown gravelly CLAY. Gravel is subangular to angular fine to medium of limestone and sandstone. GLACIAL TILL		
					(0.35)				
				23.19	2.85		Firm reddish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular of limestone. GLACIAL TILL		
					(1.25)				
4.00 - 4.45 PID 0.0ppm	D1	SPT(S) 4.00m, N=51 (7,8/12,14,11,14)		21.94	4.10		Firm reddish brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular fine of limestone. GLACIAL TILL		
	D1 ES								
4.00 - 5.50			90 N/A N/A		(1.35)				
		SPT(C) 5.50m, 50 (10,14/50 for 150mm)		20.59	5.45		Firm to stiff reddish brown sandy CLAY. Sand is fine to medium. GLACIAL TILL		
PID 0.0ppm	ES								
5.50 - 7.00			100 N/A N/A		(1.55)				
		SPT(C) 7.00m, 50 (5,8/50 for 200mm)		19.04	7.00		Firm reddish brown CLAY with occasional greenish grey reduction spots. (Weathering Grade IV). MERCIA MUDSTONE GROUP		
PID 0.0ppm	ES								
7.00 - 8.50			100 N/A N/A		(1.30)				
				17.74	8.30		Stiff reddish brown CLAY with occasional white gypsum bands and greenish grey reduction spots. (Weathering Grade III). MERCIA MUDSTONE GROUP		
		SPT(C) 8.50m, 50 (6,12/50 for 185mm)		17.49	8.55		Very weak reddish brown MUDSTONE with occasional white gypsum bands and greenish grey reduction spots. (Weathering Grade II). MERCIA MUDSTONE GROUP		
PID 0.0ppm							*Between 8.55-8.60m: recovered as subangular to angular fine to medium gravel.*		
8.50 - 10.00	ES		92 N/A N/A				*Between 8.65-8.70m: recovered as subangular to angular fine to medium, gravel.*		
	Type/Ref		TCR	Fracture					

Strata Description: 1, 2, 3, 4, 5, 6, 7, 8, 9

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
26-02-2018	08:00	0.00		
26-02-2018	17:00	8.50	4.00	
27-02-2018	08:00	8.50	4.00	
27-02-2018	17:00	14.71	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	3.00	PLAIN	
1	3.00	6.00	SLOTTED	

Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using dynamic sampling and rotary coring techniques
2. No groundwater encountered.
3. No significant visual or olfactory contamination noted.
4. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 6.00 mbgl.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	2.50	3.25	100

Casing

Depth (m)	Diameter (mm)
4.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: CP-RPS-03
	Contract Number: JER1100	Start Date: 25/02/2018	End Date: 27/02/2018	Checked By: LRW	Status: FINAL	Sheet 2 of 2
Rotary Core Drilling Log	Easting: 368423.1	Northing: 374148.4	Ground Level: 26.04mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather: Cold and snowing. | Termination: Terminated at design depth. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50 PID 0.0ppm	ES	SPT(C) 10.00m, 50 (9,12/50 for 155mm)	100 N/A N/A			(2.95)				
11.50 - 13.00 PID 0.0ppm	ES	SPT(C) 11.50m, 50 (11,14/50 for 150mm)	100 N/A N/A		14.54	11.50		Very weak reddish brown MUDSTONE with occasional white gypsum bands. (Weathering Grade I). MERCIA MUDSTONE GROUP		
13.00 - 14.71		SPT(C) 13.00m, 50 (25 for 125mm/50 for 105mm) SPT(C) 14.50m, 50 (25 for 120mm/50 for 90mm)	100 N/A N/A			(3.21)		*Between 13.00-14.50m: gypsum bands become less common. Strata becomes extremely weak to very weak.*		
					11.33	14.71		End of Borehole at 14.71m		

10 11 12 13 14 15 16 17 18 19

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
26-02-2018	08:00	0.00		
26-02-2018	17:00	8.50	4.00	
27-02-2018	08:00	8.50	4.00	
27-02-2018	17:00	14.71	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	3.00	PLAIN	
1	3.00	6.00	SLOTTED	

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)
4.00	130

Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using dynamic sampling and rotary coring techniques
2. No groundwater encountered.
3. No significant visual or olfactory contamination noted.
4. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 6.00 mbgl.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	CP-RPS-03a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	20/02/2018	20/02/2018	LRW	FINAL	

Cable Percussion Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368423.1	374148.4	26.04mOD	Dando	AT	1:50

Weather:

Termination: Terminated due to solid obstruction at base of pit.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.10 - 1.20	D2			25.98	0.06		Concrete slab CONCRETE		
					(1.22)		Blackish grey subangular fine to coarse GRAVEL of clinker, brick and concrete. MADE GROUND		
		SPT(S) 1.20m, 50 (25 for 35mm/50 for 45mm)		24.76	1.28		End of Borehole at 1.28m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
20-02-2018	08:00	0.00		
20-02-2018	17:00	1.28		

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using cable percussion rig
2. No groundwater encountered.
3. No significant visual or olfactory contamination noted.

Chiselling			
From (m)	To (m)	Duration	Remarks
1.20	1.30	00:30	

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
1.28	150	1.10	150

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	CP-RPS-04

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	20/02/2018	20/02/2018	LRW	FINAL	

Cable Percussion Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368419.4	374108.5	26.22mOD	Dando	AT	1:50

Weather: Dry and cold.

Termination: Terminated due to refusal on concrete slab. Position unsuitable for rotary rig, position relocated to CP-RPS-04a.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.20	ES			26.12	0.10		Dark blackish grey slightly sandy subangular, medium to coarse GRAVEL. MADE GROUND		
0.20 - 0.50	B1		PID 0.20m, 0.1ppm	25.76	(0.35) 0.45		Slightly dark blackish grey very gravelly SILT. Gravel is subangular to subrounded fine to coarse of brick, asphalt and concrete. MADE GROUND *Occasional fragments of glass and cobbles of brick.*		
0.50 - 1.20	D2								
0.60	ES		PID 0.60m, 0.1ppm						
		SPT(C) 1.20m, 50 (25 for 35mm/50 for 0mm)			(1.20)		Very fine light whitish grey and dark brownish grey very silty subangular, fine to medium GRAVEL of lime made ground and concrete. LIME MADE GROUND		
				24.56	1.65		End of Borehole at 1.65m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
20-02-2018	08:00	0.00		
20-02-2018	17:00	1.65		

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

1. Borehole advanced for environmental sampling for planning purposes, using cable percussive drilling.
2. Groundwater encountered at 1.10m.
3. No significant visual or olfactory contamination noted.
4. Borehole backfilled with arisings on completion.

Chiselling			
From (m)	To (m)	Duration	Remarks
1.20	1.50	00:30	

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
1.65	150	1.30	150

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.10			0		

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: CP-RPS-04a
	Contract Number: JER1100	Start Date: 28/02/2018	End Date: 05/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 2
Windowless Borehole Log	Easting: 368403.6	Northing: 374105.0	Ground Level: 26.43mOD	Plant Used: Beretta T44 (Rotary)	Logged By: AK	Scale: 1:50

Weather:

Termination: Terminated due to CPT failure.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.30 - 0.50	ES		PID 0.30m, 0.2ppm	26.38	0.05		Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is of brick. Occasional rootlets and metal fragments. TOPSOIL		
				25.63	(0.75) 0.80		Dark grey and black gravelly fine to medium SAND / ash. Sand is fine to medium. Gravel is subangular to angular fine to medium of ash, clinker, brick and concrete. MADE GROUND		
				25.53	0.90		Concrete slab. CONCRETE		
1.86	EW2				(1.60)		Firm reddish brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular fine of sandstone and mudstone. GLACIAL TILL		
2.03	EW1								
		SPT(C) 2.50m, N=14 (2,1/3,3,4,4)		23.93	2.50		Firm reddish brown mottled grey sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular fine of sandstone and mudstone. GLACIAL TILL		
3.00 - 3.50	ES				(3.00)				
4.00 - 5.50	ES	SPT(C) 4.00m, N=24 (4,5/6,6,6,6)	30 N/A N/A				*Between 4.80-5.50mbgl: Strata locally soft.*		
5.50 - 7.00	ES	SPT(C) 5.50m, N=38 (4,6/7,9,10,12)	100 N/A N/A	20.93	5.50 (1.55)		Stiff reddish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to angular fine to coarse of mudstone and sandstone. GLACIAL TILL		
7.00 - 8.50		SPT(C) 7.00m, N=39 (6,7/8,10,10,11)	30 N/A N/A	19.38	7.05 (1.60)		Stiff reddish brown slightly sandy gravelly CLAY. Gravel is subangular to angular fine to medium of mudstone. GLACIAL TILL *Between 7.10-7.20mbgl: Recovered as clayey gravel*		
8.50 - 10.00	ES	SPT(C) 8.50m, 50 (5,9/50 for 200mm)	100 N/A N/A	17.78	8.65 (1.55)		Very stiff reddish brown CLAY with occasional greenish grey reduction spots and white gypsum bands. (Weathering Grade III). MERCIA MUDSTONE GROUP		
	Type/Ref		TCR / Fracture						

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
28-02-2018	08:00	0.00		
28-02-2018	17:00	2.50	2.50	
05-03-2018	08:00	2.50	2.50	
05-03-2018	17:00	10.20	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	3.00	PLAIN	
1	3.00	6.00	SLOTTED	

Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using rotary rig (dynamic sampling and coring).
2. No groundwater encountered.
3. No significant visual or olfactory contamination noted.
4. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 6.00 mbgl.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	2.50	4.00	100

Casing

Depth (m)	Diameter (mm)
4.00	130

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	CP-RPS-04a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 2
JER1100	28/02/2018	05/03/2018	LRW	FINAL	

Rotary Core Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368403.6	374105.0	26.43mOD	Beretta T44 (Rotary)	AK	1:50

Weather:

Termination: Terminated due to CPT failure.

SPT Hammer: N/R, Energy Ratio: N/R

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
		SPT(C) 10.00m, 50 (25 for 100mm/50 for 95mm)			16.23	10.20		End of Borehole at 10.20m		

10 11 12 13 14 15 16 17 18 19

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
28-02-2018	08:00	0.00		
28-02-2018	17:00	2.50	2.50	
05-03-2018	08:00	2.50	2.50	
05-03-2018	17:00	10.20	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
1	0.00	3.00	PLAIN	
1	3.00	6.00	SLOTTED	

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)
4.00	130

Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using rotary rig (dynamic sampling and coring).
2. No groundwater encountered.
3. No significant visual or olfactory contamination noted.
4. Borehole installed with 50mm groundwater and ground gas monitoring well on completion, response zone 3.00 - 6.00 mbgl.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	CP-RPS-05

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	22/02/2018	23/02/2018	LRW	FINAL	

Cable Percussion Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368214.7	374355.9	24.34mOD	Beretta T44 (Rotary)	MA	1:50

Weather: | Termination: Terminated due to SPT refusal. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing

Depths	Type/ Ref	SPT	Testing
0.00 - 1.20	B1		
0.50	ES		PID 0.50m, 0.0ppm
1.20 - 2.00	B3	SPT(C) 1.20m, N=3 (4,3/1,1,1,0)	
2.00 - 3.00	ES		PID 2.00m, 0.0ppm
2.20 - 3.00	B5	SPT(C) 2.20m, N=9 (1,1/2,2,2,3)	
3.00 - 3.45	D6	SPT(S) 3.00m, N=25 (3,3/3,4,8,10)	
3.00 - 4.00	B7		
4.00	ES	SPT(C) 4.00m, 50 (4,6/50 for 256mm)	
4.00 - 4.45	D8		PID 4.00m, 0.2ppm
4.80	D9	SPT(C) 5.00m, 50 (10,15/50 for 55mm) SPT(C) 5.30m, 50 (25 for 10mm/50 for 0mm)	

Strata Details

Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description
24.14	0.20		Asphalt / concrete hardstanding over brown clayey sandy fine to coarse GRAVEL of brick and concrete. MADE GROUND
	(0.40)		
23.74	0.60		Black sandy angular fine to coarse GRAVEL of ash and clinker. MADE GROUND
	(0.40)		
23.34	1.00		Brown and black silty sandy angular fine to coarse GRAVEL of ash and brick. Frequent ceramic, metal and wood fragments. MADE GROUND
	(2.00)		Grey silty gravelly fine to coarse SAND. Gravel is fine to coarse of brick. Poor recovery. MADE GROUND
21.34	3.00		Firm to very stiff reddish brown mottled grey sandy slightly gravelly CLAY. Gravel is angular fine to medium, of mudstone. Sand is fine. GLACIAL TILL
	(2.31)		
19.03	5.31		End of Borehole at 5.31m

Groundwater

Water Strike: 0.60

Backfill/ Installation

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Chiselling

From (m)	To (m)	Duration	Remarks
5.00	5.30	01:00	

Borehole Diameter

Depth (m)	Dia (mm)
5.31	150

Casing Diameter

Depth (m)	Dia (mm)
4.70	150

Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using cable percussion rig.
2. Groundwater encountered at 2.50m.
3. No significant visual or olfactory contamination noted.
4. Borehole backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.60			0		

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	CP-RPS-06

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	21/02/2018	21/02/2018	LRW	FINAL	

Cable Percussion Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368212.5	374389.7	24.84mOD	Dando	AT / MA	1:50

Weather: Dry and mild. | Termination: Terminated due to SPT refusal. | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing

Depths	Type/ Ref	SPT	Testing
0.10 - 0.70	B1		
0.30	ES		PID 0.30m, 0.5ppm
0.70 - 1.20	B2		
0.70 - 1.20	ES		PID 0.70m, 0.2ppm
1.20 - 1.65	D3	SPT(S) 1.20m, N=6 (3,2/1,1,2,2)	
1.20 - 1.65	ES		
1.20 - 2.00	D4		
1.65 - 2.00	ES		
2.00 - 2.45	D5	SPT(S) 2.00m, N=5 (1,0/1,1,1,2)	
2.00 - 2.45	ES		
2.00 - 4.00	B6		
2.70	ES		PID 2.70m, 0.1ppm
3.00 - 3.45	D7	SPT(S) 3.00m, N=12 (1,2/1,3,3,5)	
3.00 - 4.00	D8		
3.00 - 4.00	ES		
3.30 - 3.45	ES		
4.00 - 4.45	D9	SPT(S) 4.00m, N=19 (3,3/3,5,5,6)	
5.00	ES		
5.00 - 5.45	U11		PID 5.00m, 0.0ppm
5.40 - 5.60	D10		
5.70 - 5.94	D13	SPT(C) 5.70m, 50 (9,10/50 for 89mm) SPT(C) 5.80m, 50 (25 for 31mm/50 for 0mm)	

Strata Details

Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description
24.74	0.10		Asphalt Hardstanding TARMACADAM
	(0.60)		Black sandy angular to subrounded, fine to coarse GRAVEL of clinker. Rare cobbles of clinker. MADE GROUND
24.14	0.70		Soft dark blackish grey and dark brownish grey slightly sandy SILT/CLAY. Organic odour present in strata. ALLUVIUM
	(1.60)		
22.54	2.30		Firm dark reddish brown sandy slightly gravelly SILT/CLAY. Gravel is subrounded to rounded fine of mudstone and sandstone. GLACIAL TILL
	(1.70)		*Between 3.20 - 4.00mbgl: Becoming slightly gravelly CLAY.*
20.84	4.00		Firm brown silty sandy CLAY. Sand is fine. GLACIAL TILL
	(1.00)		
19.84	5.00		Stiff brown laminated slightly sandy CLAY. Sand is fine. (Weathering Grade III). MERCIA MUDSTONE GROUP
	(0.94)		
18.90	5.94		End of Borehole at 5.94m

Groundwater

Water Strike	Backfill/ Installation

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
21-02-2018	08:00	0.00		
21-02-2018	17:00	5.94		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Chiselling

From (m)	To (m)	Duration	Remarks
5.70	5.80	01:00	

Borehole Diameter

Depth (m)	Dia (mm)
5.94	150

Casing Diameter

Depth (m)	Dia (mm)
5.80	150

Remarks:

1. Borehole advanced for combined geotechnical and environmental sampling using cable percussion rig.
2. Groundwater encountered at 2.50m.
3. Organic odour noted between 0.70-2.30mbgl
4. Borehole backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-01
	Contract Number: JER1100	Start Date: 26/02/2018	End Date: 26/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368358.5	Northing: 374464.6	Ground Level: 24.97mOD	Plant Used: Hand tools	Logged By: GC	Scale: 1:50
Weather:	Hole Termination: Terminated at design depth.					

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.00 - 0.25	ES		24.72	0.25		Grass over dark grey gravelly fine to medium SAND. Gravel is angular fine to medium chert, concrete and brick. TOPSOIL		
0.35	ES			(0.40)		Black slightly gravelly clayey fine to medium SAND. Gravel is angular fine of brick. COncrete cobble / coarse gravel at 0.40-0.65mbgl. MADE GROUND		
0.65 - 0.80	ES		24.32	0.65		Orangish brown gravelly clayey fine to medium SAND with a low cobble content. Gravel is rounded medium mudstone. GLACIAL TILL		
			24.17	0.80		End of Inspection Pit at 0.80m		

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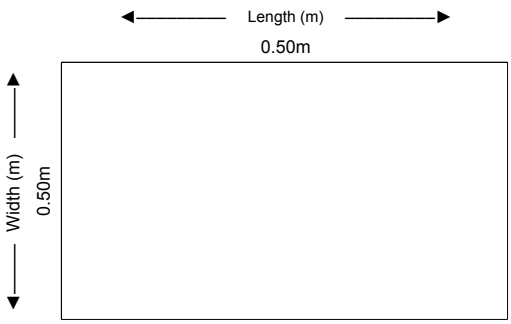
Dimensions:

Final Depth: 0.80m



General Remarks:

1. Advanced as hand dug inspection pit as area unsuitable for GPR clearance and JCB excavation.
2. Location backfilled with arisings on completion.
3. Groundwater encountered at 0.80mbgl, slow seepage.
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
0.80	Small seepage at base.

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-02
	Contract Number: JER1100	Start Date: 26/02/2018	End Date: 26/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368446.0	Northing: 374411.2	Ground Level: 25.18mOD	Plant Used: Hand tools	Logged By: GC	Scale: 1:50
Weather:	Hole Termination: Terminated at design depth.					

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.15 - 0.40	ES		25.03	0.15		Dead vegetation over soft reddish brown sandy CLAY, MADE GROUND		
0.40 - 0.95	ES		24.78	0.40		Black clayey fine to medium SAND with frequent organic material. MADE GROUND		
				(0.55)		Soft to firm reddish brown gravelly very sandy CLAY. Gravel is rounded fine to medium mudstone. MADE GROUND		
0.95 - 1.20	ES		24.23	0.95		Mixed strata of Soft to firm reddish brown gravelly very sandy CLAY. Gravel is rounded fine to medium mudstone, and black gravelly medium to coarse sand (ash), gravel is medium, angular of ash, clinker, brick and concrete. MADE GROUND		
			23.98	1.20		End of Inspection Pit at 1.20m		

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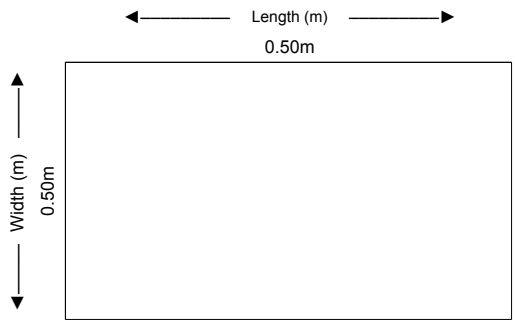
Dimensions:

Final Depth: 1.20m



General Remarks:

1. Advanced as hand dug inspection pit as area unsutiable for GPR clearance and JCB excavation.
2. Location backfilled with arisings on completion.
3. No groundwater encountered in exploratory location.
4. No significant visual or olfactory contamination noted.

Water Strikes	
Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-03
	Contract Number: JER1100	Start Date: 23/02/2018	End Date: 23/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368042.3	Northing: 374068.9	Ground Level: 22.43mOD	Plant Used: Hand tools	Logged By: AK	Scale: 1:50
Weather:	Hole Termination: Terminated at design depth.					

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.00 - 0.30	ES			(0.37)		Grey very sandy angular to subangular fine to medium GRAVEL of limestone and clinker. Sand is fine to medium. Mesh geotextile at base of strata MADE GROUND		
0.40 - 0.90	ES		22.06	0.37		Black sandy angular to subangular fine to medium GRAVEL of limestone, clinker, ash, coal and brick. Sand is fine to medium. MADE GROUND		
				(0.60)				
1.10 - 1.50	ES		21.46	0.97		Soft to very soft white sandy CLAY (lime made ground). LIME MADE GROUND		
				(0.63)				
			20.83	1.60		End of Inspection Pit at 1.60m		

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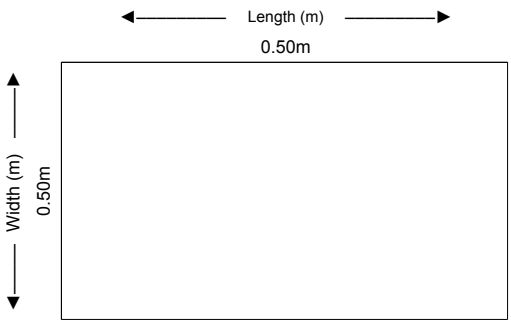
Dimensions:

Final Depth: 1.60m



General Remarks:

1. Advanced as hand dug inspection pit as area unsuitable for GPR clearance and JCB excavation.
2. Location backfilled with arisings on completion.
3. No groundwater encountered in trial pit.
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

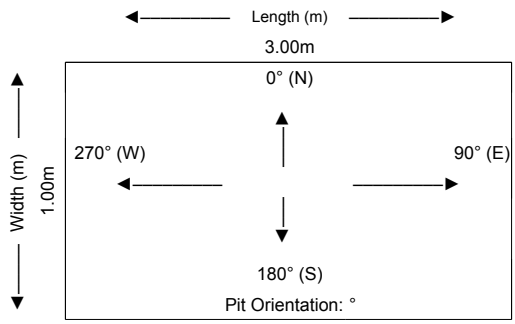
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-04
	Contract Number: JER1100	Start Date: 28/02/2018	End Date: 28/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368165.2	Northing: 374127.6	Ground Level: 24.38mOD	Plant Used: JCB 3CX	Logged By: GC	Scale: 1:50
Weather:		Hole Termination: Terminated due to instability of sides.		Stability: Localised collapse throughout, then collapse from base to 2.20mbgl.		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			24.13	0.25 (0.30)		Black / grey fine to medium SAND / Black Angular medium GRAVEL of coal. MADE GROUND		
			23.83	0.55 (0.50)		Yellowish grey angular to subrounded medium to coarse GRAVEL of sandstone with a low cobble content. Cobbles are of sandstone. MADE GROUND		
0.75	ES		23.33	1.05 (0.45)		Grey and yellowish grey very gravelly fine to medium SAND. Gravel is angular fine to medium Sandstone with rare brick fragments. MADE GROUND		
1.20	ES		22.88	1.50 (0.50)		White stained brown and grey sandy SILT (lime made ground) with localised orange rust coloured staining LIME MADE GROUND		
1.60	ES		22.38	2.00 (1.00)		Black medium to coarse ash SAND. Depth is estimated due to collapse of trial pit. MADE GROUND		
2.50	ES		21.38	3.00		Very soft white, stained grey CLAY (lime made ground). Excavation sides very unstable. LIME MADE GROUND		
						End of Trial Pit at 3.00m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.00m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. No groundwater encountered in trial pit.
3. No significant visual or olfactory contamination noted.

Water Strikes	
Strike (m)	Remarks

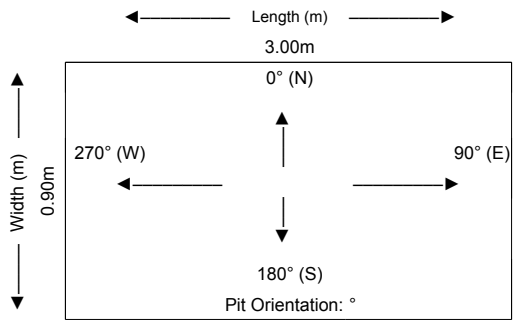
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-11
	Contract Number: JER1100	Start Date: 15/02/2018	End Date: 15/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368262.4	Northing: 374122.0	Ground Level: 25.14mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50

Weather: Dry, Windy. | Hole Termination: Terminated at design depth. | Stability: Stable throughout

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description			
				(0.40)		Grey limestone chippings. MADE GROUND			
0.50	ES	PID 0.50m, 0.2ppm	24.74	0.40		Dark brown and black very sandy subangular, fine GRAVEL of mixed lithologies. Rare brick cobbles. MADE GROUND			
				(0.50)					
1.00	ES	PID 1.00m, 0.3ppm	24.24	0.90		Soft light grey brown silty CLAY. MADE GROUND	1	▼	
				(0.60)					
1.60	ES	PID 1.60m, 0.7ppm	23.64	1.50		Soft white CLAY (Lime made ground). LIME MADE GROUND			
				(0.90)			2		
2.60	ES		22.74	2.40		Firm to stiff dark reddish brown and light grey mottled CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP			
				(0.60)					
			22.14	3.00		End of Trial Pit at 3.00m	3		
							4		
							5		
							6		
							7		

Dimensions:

Final Depth: 3.00m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 1.00mb
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
1.00	

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-17
	Contract Number: JER1100	Start Date: 15/02/2018	End Date: 15/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368268.2	Northing: 374061.1	Ground Level: 25.49mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50
Weather:		Hole Termination: Terminated at design depth.			Stability: Stable throughout	

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.05	ES		25.39	0.10		Soft dark brownish grey gravelly SILT. Frequent organic matter. MADE GROUND		
0.20	ES		25.19	0.30		Yellowish white slightly sandy angular medium to coarse GRAVEL o possible limestone MADE GROUND		
			24.99	0.50		Dark grey coarse GRAVEL. MADE GROUND		
0.80	ES			(0.40)		Dark grey and black sandy subangular fine to medium GRAVEL of mixed lithologies including flint MADE GROUND		
1.20	ES		24.59	0.90		Concrete and brick. Possible remnant structure MADE GROUND		
1.50	ES		24.39	1.10		Dark grey and black SILT / CLAY. Frequent organic material including rootlets, organic odour. TOPSOIL		
			24.19	1.30		Very stiff dark reddish brown mottled grey CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP		
				(2.10)		*At 3.30mbgl: Becoming sa*		
			22.09	3.40		End of Trial Pit at 3.40m		

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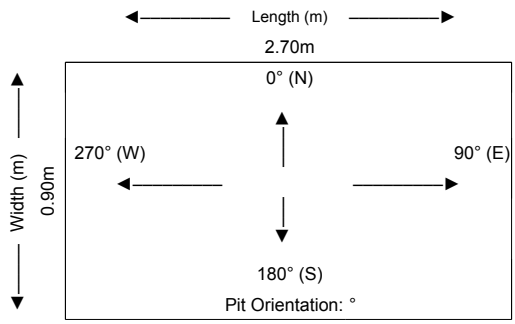
Dimensions:

Final Depth: 3.40m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 0.60mbgl, fast inflow.
3. Organic odour noted between 1.10-1.30mbgl.

Water Strikes	
Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-19
	Contract Number: JER1100	Start Date: 15/02/2018	End Date: 15/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368407.2	Northing: 374053.9	Ground Level: 26.53mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50

Weather: Dry, warm.

Hole Termination: Terminated due to difficulty in excavating material and groundwater levels.

Stability: Unstable below 1.7m.

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.20	ES	PID 0.20m, 0.4ppm	26.28	0.25		Compacted gravel over soft dark brown gravelly SILT. Gravel is subangular, fine of asphalt and various lithologies. MADE GROUND		
				(0.55)		Brick courses. Possible remnant wall structure. MADE GROUND *Brick courses in the North of pit.*		
0.90	ES	PID 0.90m, 0.3ppm	25.73	0.80		Light greyish white, slightly gravelly SAND. Gravel is compacted sand. MADE GROUND		
				(1.20)				
1.90	ES	PID 1.90m, 0.3ppm	24.53	2.00		Brick courses. Possible remnant wall material. MADE GROUND		
			24.33	2.20		*Difficulty digging due to brick courses.* End of Trial Pit at 2.20m		

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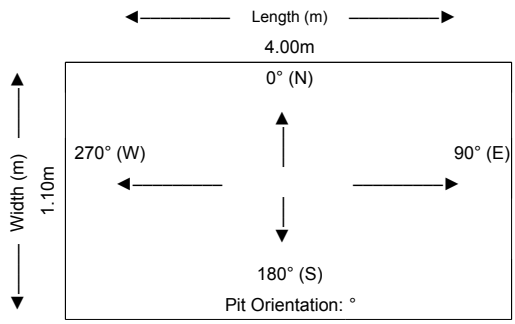
Dimensions:

Final Depth: 2.20m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 1.70mbgl
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
1.70	

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-21
	Contract Number: JER1100	Start Date: 15/02/2018	End Date: 15/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368404.3	Northing: 374038.8	Ground Level: 26.60mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50
Weather:		Hole Termination: Terminated due to difficult digging.			Stability: Dry, cold.	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.10	ES	PID 0.10m, 0.5ppm	26.46	0.15		Soft dark brown slightly gravelly SILT. Frequent rootlets. Gravel is subangular, fine to coarse of Flint, Brick and possibly Reworked Slag. MADE GROUND		
0.50	ES	PID 0.50m, 0.5ppm	25.80	(0.65) 0.80		Subangular coarse GRAVEL of yellowish brown limestone, whole bricks and brick fragments. MADE GROUND		
1.00	ES	PID 1.00m, 0.6ppm	25.10	(0.70) 1.50		Light yellowish brown gravelly SAND. Gravel is subangular fine of limestone. MADE GROUND		
2.50	ES	PID 2.50m, 0.6ppm	23.20	(1.90) 3.40		Light grey and white very sandy GRAVEL. Gravel is subangular to rounded, fine to coarse of various lithologies. MADE GROUND		
						End of Trial Pit at 3.40m		

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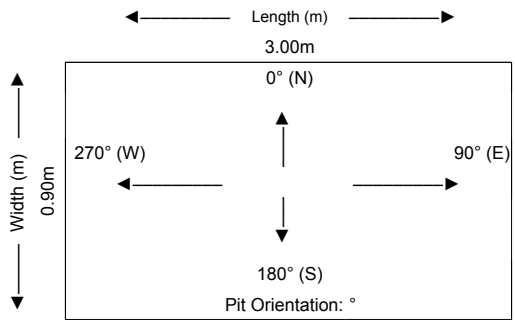
Dimensions:

Final Depth: 3.40m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 1.00 mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
1.00	

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-24
	Contract Number: JER1100	Start Date: 12/02/2018	End Date: 12/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368301.9	Northing: 374030.9	Ground Level: 26.34mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50

Weather:

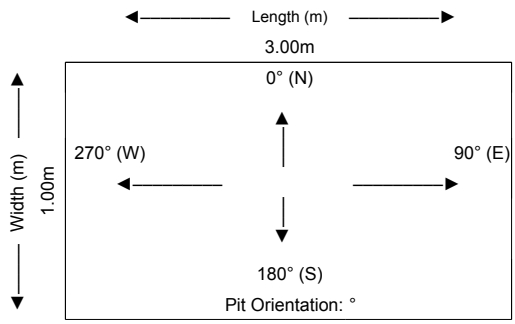
Hole Termination: Terminated due to instability of sides

Stability: Unstable below 1.70mbgl

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description			
				(0.30)		Very strong concrete with 5mm diameter reinforcing bar. MADE GROUND			
0.30 - 0.40	ES		26.04	0.30		Light grey clayey slightly gravelly coarse SAND. Gravel is of brick and concrete. Clay fraction is lime made ground LIME MADE GROUND			
			25.94	0.40		Soft white SILT (lime made ground) with rare black flecks LIME MADE GROUND			
1.00 - 1.20	ES			(1.60)			1		
1.80 - 2.00	ES					*At 1.80mbgl: Concrete present at western end of trial pit.*			
			24.34	2.00		End of Trial Pit at 2.00m	2		
							3		
							4		
							5		
							6		
							7		

Dimensions:

Final Depth: 2.00m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 1.70mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes	
Strike (m)	Remarks

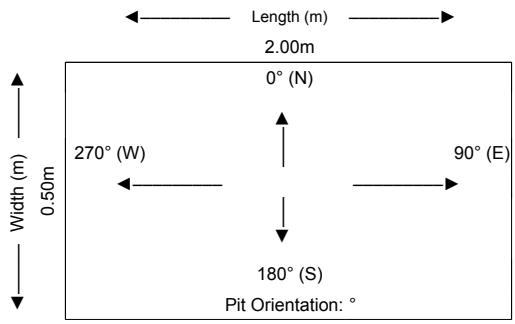
RPS	Contract Name: Lostock Sustainable Energy Plant			Client: Copenhagen Infrastructure Partners (CIP)		Trial Pit ID: TP-RPS-25
	Contract Number: JER1100	Start Date: 12/02/2018	End Date: 12/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368311.4	Northing: 374028.1	Ground Level: 26.33mOD	Plant Used: JCB 3CX	Logged By: A.T	Scale: 1:50

Weather: Dry, cold | Hole Termination: Terminated due to obstruction at base of trial pit. | Stability: Stable throughout

Samples & In Situ Testing			Strata Details						
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water	Backfill
0.20	ES			(0.40)		Dark greyish brown very sandy angular fine to medium GRAVEL of brick and concrete with frequent organic plant matter. MADE GROUND			
			25.93	0.40		Soft white CLAY (Lime made ground) LIME MADE GROUND			
0.90 - 1.00	ES						1		
				(2.30)					
1.90 - 2.00	ES						2		
			23.63	2.70					
			23.63			Concrete or other hard ground. Possible obstruction. MADE GROUND			
						End of Trial Pit at 2.70m	3		
							4		
							5		
							6		
							7		

Dimensions:

Final Depth: 2.70m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 1.20mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
1.20	

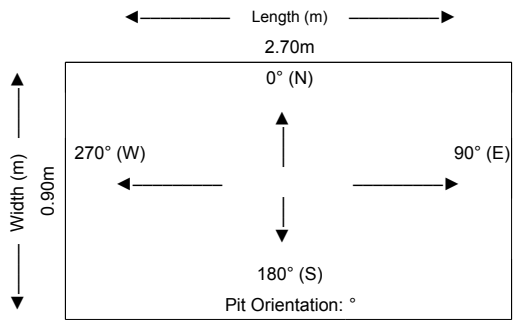
RPS	Contract Name: Lostock Sustainable Energy Plant			Client: Copenhagen Infrastructure Partners (CIP)		Trial Pit ID: TP-RPS-28
	Contract Number: JER1100	Start Date: 15/02/2018	End Date: 15/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368401.1	Northing: 374009.9	Ground Level: 26.71mOD	Plant Used: JCB 3CX	Logged By: A.T	Scale: 1:50

Weather: Dry, cold | Hole Termination: Terminated at design depth. | Stability: Spalling from 0.02 mbgl to 0.9 mbgl

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
			26.69	0.02		Asphalt Hardstanding		
0.20	ES					MADE GROUND		
				(0.88)		Black sandy GRAVEL of subangular fine to medium asphalt subangular medium limestone. Rare pockets of dark reddish brown CLAY. MADE GROUND		
0.60	ES							
			25.81	0.90		Very soft white SILT (lime made ground) LIME MADE GROUND		
1.00 - 1.10	ES							1
2.00 - 2.10	ES							2
				(3.10)				
								3
			22.71	4.00		End of Trial Pit at 4.00m		4
								5
								6
								7

Dimensions:

Final Depth: 4.00m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 2.20mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

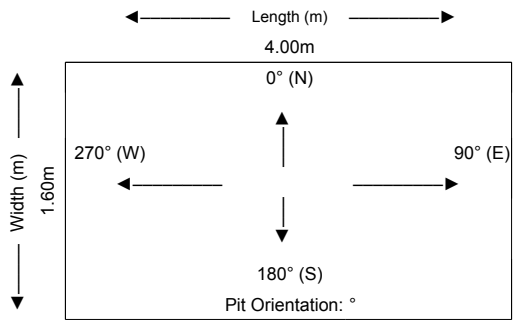
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-30
	Contract Number: JER1100	Start Date: 13/02/2018	End Date: 13/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368316.5	Northing: 374006.2	Ground Level: 26.38mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50

Weather: Dry, very cold and windy. | Hole Termination: Terminated due to difficult digging and possible brick obstruction. | Stability: Stable.

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description			
0.20	ES		26.08	(0.30) 0.30		Layer of demolition rubble including Whole bricks, metal fragments, and frequent organic matter. MADE GROUND			
			25.28	(0.80) 1.10		Remnant brick wall or channel structure. MADE GROUND	1		
						End of Trial Pit at 1.10m	2		
							3		
							4		
							5		
							6		
							7		

Dimensions:

Final Depth: 1.10m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Slight groundwater seepage at 1.0mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
1.00	

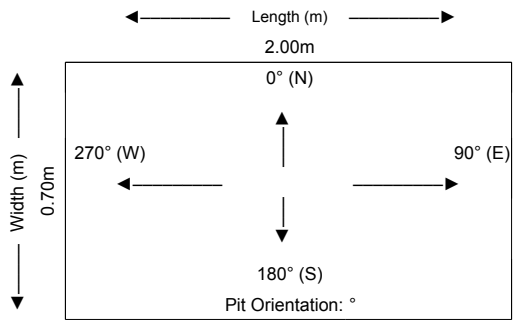
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-35
	Contract Number: JER1100	Start Date: 13/02/2018	End Date: 13/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368312.1	Northing: 373982.1	Ground Level: 26.54mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50

Weather: Dry and cold. | Hole Termination: Terminated at design depth. | Stability: Stable throughout.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.20	ES			(0.55)		Black subangular fine to coarse GRAVEL of brick, concrete and asphalt. MADE GROUND		
0.60	ES		25.98	0.55		Soft white SILT (lime made ground) with abundant pockets of stiff reddish brown mottled grey MUDSTONE. LIME MADE GROUND *At 0.70mbgl: Hydrocarbon sheen observed on groundwater.*		
				(1.55)			1	
1.60	ES							
			24.44	2.10			2	
2.20	ES		24.24	2.30		Soft dark green and black silty CLAY. Organic odour ALLUVIUM		
2.40	ES					Firm dark reddish brown mottled light grey CLAY. (Weathering Grade IV). MERCIA MUDSTONE GROUP		
				(1.50)			3	
			22.74	3.80		End of Trial Pit at 3.80m		
							4	
							5	
							6	
							7	

Dimensions:

Final Depth: 3.80m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Slight seepage of groundwater at 0.70mbgl.
3. Hydrocarbon sheen observed on groundwater within trial pit. Organic odour noted from 2.0-2.30mbgl in soil

Water Strikes

Strike (m)	Remarks
0.70	

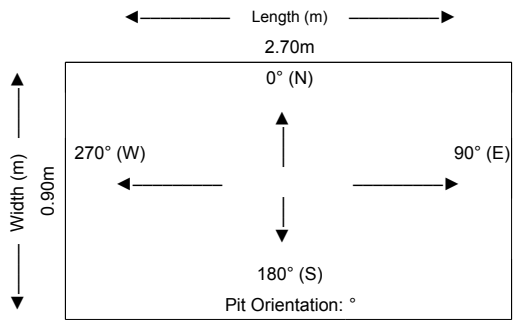
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-37
	Contract Number: JER1100	Start Date: 14/02/2018	End Date: 14/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368386.3	Northing: 373967.5	Ground Level: 26.59mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50

Weather: Dry and cold with slight snow. | Hole Termination: Terminated due to difficult excavation / obstruction. | Stability: Spalling from the top layer.

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description			
0.20	ES	PID 0.20m, 0.1ppm		(0.60)		Soft dark brownish black slightly sandy SILT. Frequent rootlets and organic matter. Occasional fragments of wood, plastic, glass, brick. Rare concrete boulders. MADE GROUND			
0.70	ES	PID 0.70m, 0.0ppm	25.99	0.60		Soft white, light grey and pink SILT (Lime made ground). LIME MADE GROUND	1		
1.70	ES			(3.00)			2		
							3		
3.60	ES		22.99	3.60		End of Trial Pit at 3.60m	4		
							5		
							6		
							7		

Dimensions:

Final Depth: 3.60m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Slight groundwater seepage at 2.00mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
2.00	

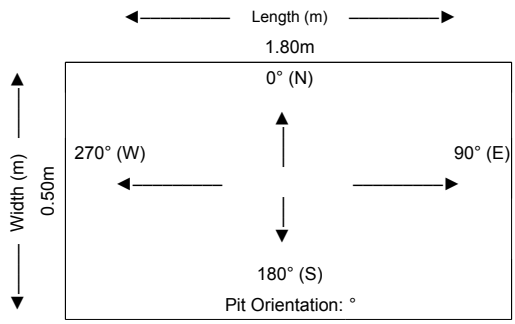
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-38
	Contract Number: JER1100	Start Date: 13/02/2018	End Date: 13/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368315.6	Northing: 373959.5	Ground Level: 26.69mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50

Weather: | Hole Termination: Terminated at design depth. | Stability: Stable throughout.

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description			
				(0.50)		Concrete with 5mm diameter reinforcing bar. CONCRETE			
			26.19	0.50					
0.60	ES			(0.40)		Sandy GRAVEL of concrete, brick and asphalt. MADE GROUND			
0.80	ES								
1.00	ES		25.79	0.90		Soft white SILT (Lime made ground.) LIME MADE GROUND	1		
				(1.10)					
1.80	ES								
2.10	ES		24.69	2.00		Soft dark grey organic CLAY. ALLUVIUM	2		
				(0.40)					
2.60	ES		24.29	2.40		Firm to very stiff dark reddish brown CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP			
				(1.10)			3		
			23.19	3.50		End of Trial Pit at 3.50m			
							4		
							5		
							6		
							7		

Dimensions:

Final Depth: 3.50m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Slight seepage of groundwater at 0.90mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
0.90	

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-39
	Contract Number: JER1100	Start Date: 12/02/2018	End Date: 12/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368303.5	Northing: 373961.0	Ground Level: 26.57mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50

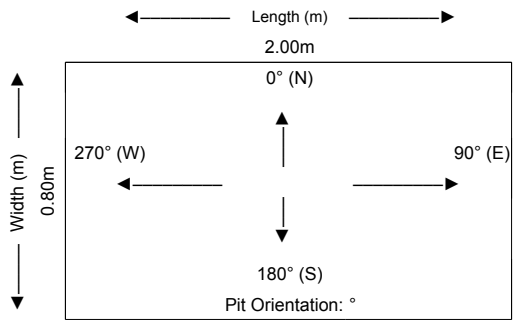
Weather: Dry and cold. | Hole Termination: Terminated at design depth. | Stability: Stable throughout.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.20	ES	PID 0.20m, 0.1ppm	26.47	0.10		Black subangular fine to coarse GRAVEL of brick, concrete and asphalt. MADE GROUND		
				(0.80)		Dark grey and black slightly gravelly silty SAND / ash. Gravel is fine to coarse of brick and concrete. MADE GROUND		
0.90 - 1.20	ES	PID 0.90m, 1.2ppm	25.67	0.90		Soft white SILT (Lime made ground). LIME MADE GROUND		
				(0.60)				
			25.07	1.50		Firm to very stiff dark reddish brown mottled light greyish brown CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP		
2.00	ES	PID 2.00m, 0.3ppm				*Between 2.20-3.60mbgl: Frequent Sand lenses throughout strata.*		
				(2.10)				
			22.97	3.60		End of Trial Pit at 3.60m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.60m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Slight seepage of groundwater at 0.90mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
0.90	

Contract Name:	Client:	Trial Pit ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	TP-RPS-40

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	14/02/2018	14/02/2018	LRW	FINAL	

Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368357.2	373944.9	26.67mOD	JCB 3CX	AT	1:50

Weather: Dry, cold and windy. | Hole Termination: Terminated at design depth. | Stability: Spalling from top layer.

Samples & In Situ Testing

Depths	Type/Ref	Testing
0.20	ES	PID 0.20m, 0.1ppm
0.65	ES	PID 0.65m, 0.1ppm
0.80	ES	PID 0.80m, 3.4ppm
2.40	ES	PID 2.40m, 0.3ppm

Strata Details

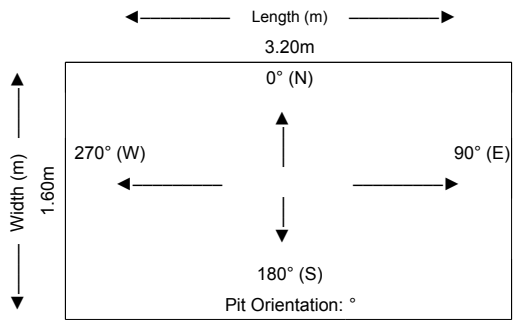
Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description
	(0.60)		Soft dark brownish black sandy fine to medium asphalt, whole bricks and rare brick fragments. MADE GROUND
26.07	0.60		
25.97	0.70		Dark grey and black subangular fine to medium GRAVEL of asphalt. MADE GROUND
	(1.60)		Soft white SILT (Lime made ground) LIME MADE GROUND
24.37	2.30		Very stiff dark reddish brown mottled light grey CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUND
	(1.30)		
23.07	3.60		End of Trial Pit at 3.60m

Water | Backfill

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.60m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 0.7mbgl.
3. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
0.70	

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-41
	Contract Number: JER1100	Start Date: 12/02/2018	End Date: 12/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368308.0	Northing: 373936.0	Ground Level: 26.40mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50

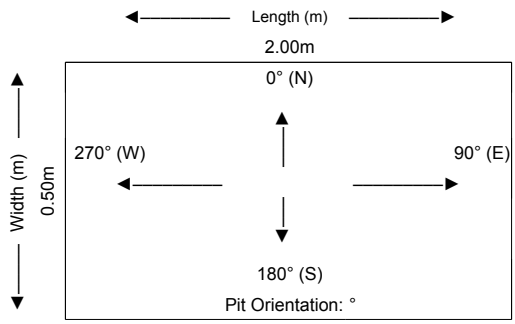
Weather: Dry and cold. | Hole Termination: Terminated due to instability of sides. | Stability: Unstable when advanced to 3.2m.

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.20	ES	PID 0.20m, 0.4ppm		(1.00)		Black sandy GRAVEL of mixed lithologies. Hydrocarbon odour MADE GROUND		
1.00 - 1.30	ES	PID 1.00m, 1.3ppm	25.40	1.00		Soft white SILT (Lime made ground). LIME MADE GROUND		
1.60 - 1.80	ES	PID 1.60m, 0.3ppm	24.90	(0.50) 1.50		Firm to stiff dark reddish brown and lightly greyish brown mottled CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP *Between 1.50-3.20mbgl: Frequent Sand lenses throughout strata*		
2.60 - 2.80	ES	PID 2.60m, 0.1ppm		(1.70)				
			23.20	3.20		End of Trial Pit at 3.20m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.20m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 0.40mbgl.
3. Possible organic or hydrocarbon odour between 0.00-1.00m.

Water Strikes

Strike (m)	Remarks
0.40	

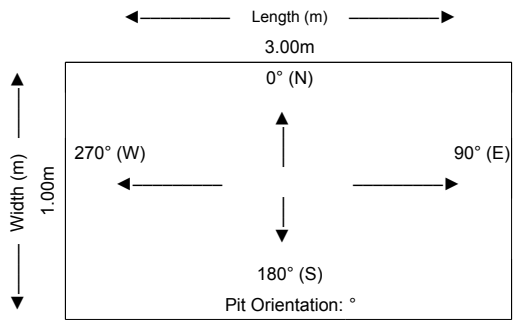
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-44
	Contract Number: JER1100	Start Date: 14/02/2018	End Date: 14/02/2018	Checked By: LRW	Status: PROPOSED	Sheet 1 of 1
Trial Pit Log	Easting: 368328.0	Northing: 373946.2	Ground Level: 26.78mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50
Weather:		Hole Termination: Terminated as unable to break through reinforced concrete, assumed to be former HFO tank base.			Stability: Stable thoughout	

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description			
			26.48	(0.30) 0.30		Extremely hard concrete with large diameter reinforcing bar. JCB unable to penetrate or excavate after 1 hour of attempts CONCRETE End of Trial Pit at 0.30m			

1 2 3 4 5 6 7

Dimensions:

Final Depth: 0.30m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. No groundwater encountered in exploratory hole location.
3. No significant visual or olfactory contamination noted.

Water Strikes	
Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-45
	Contract Number: JER1100	Start Date: 28/02/2018	End Date: 28/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368160.9	Northing: 374157.8	Ground Level: 24.92mOD	Plant Used: JCB 3CX	Logged By: GC	Scale: 1:50

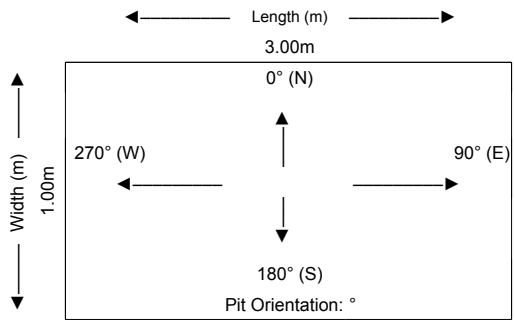
Weather: Snow and very cold. | Hole Termination: Terminated due to collapse. | Stability: Frequent collapses.

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.00 - 0.50	ES					Black and light grey gravelly medium to coarse SAND with a high cobble content. Gravel is angular to subangular, fine to coarse of brick, concrete and limestone. Cobbles of brick, concrete and limestone material. Frequent ceramic, plastic bag, brick and possible refuse fragments. MADE GROUND		
0.50	B			(1.00)				
			23.92	1.00		White, mottled grey SILT (lime made ground) LIME MADE GROUND		
			23.77	1.15		Black medium to coarse ash/sand. MADE GROUND		
1.30	B							
1.30	ES			(0.50)				
			23.27	1.65		*At 1.60mbgl: Redundant (cut, filled and capped) outfall drain encountered running north to south across trial pit*		
				(0.55)		White, locally mottled brown SILT (lime made ground) LIME MADE GROUND		
2.00	B							
2.00	ES							
			22.72	2.20		End of Trial Pit at 2.20m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 2.20m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. No groundwater encountered. in trial pit
3. Easy excavation,, no contaminants found.

Water Strikes	
Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-46
	Contract Number: JER1100	Start Date: 16/02/2018	End Date: 16/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368233.0	Northing: 374233.0	Ground Level: 25.10mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50

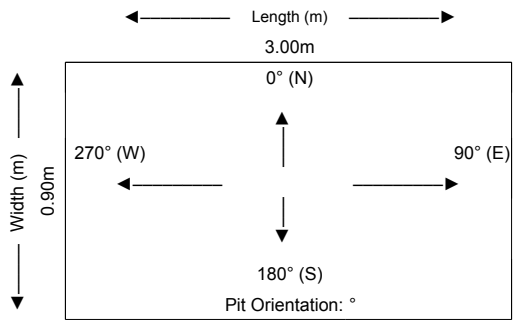
Weather: Dry and cold. | Hole Termination: Terminated due to damage to a drain. | Stability: Stable throughout

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.20	ES	PID 0.20m, 0.5ppm		(0.60)		Light grey decorative stone chippings. MADE GROUND		
0.70	ES	PID 0.70m, 0.3ppm	24.50	0.60 (0.30)		Dark brownish black very gravelly SAND. Gravel is subangular, fine to medium of clinker, brick and concrete. MADE GROUND		
1.00	D		24.20	0.90		Light yellowish brown, white and dark greyish brown sandy gravelly SILT. Gravel is compacted silt and sand. (Possible Lime made ground). LIME MADE GROUND		
1.00	ES	PID 1.00m, 0.6ppm		(1.20)				
2.20	B		23.00	2.10 (0.30)		Soft white SILT (lime made ground) and light brown and dark brownish grey soft SILT. LIME MADE GROUND		
2.20	D		22.70	2.40		End of Trial Pit at 2.40m		
2.20	ES	PID 2.20m, 0.5ppm						

1 2 3 4 5 6 7

Dimensions:

Final Depth: 2.40m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. No groundwater encountered.
3. No significant visual or olfactory contamination noted.
4. Drain hit at 2.4mbgl, fast flow from south East to north West.

Water Strikes

Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-50
	Contract Number: JER1100	Start Date: 28/02/2018	End Date: 28/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368214.8	Northing: 374360.6	Ground Level: 24.35mOD	Plant Used: JCB 3CX	Logged By: GC	Scale: 1:50

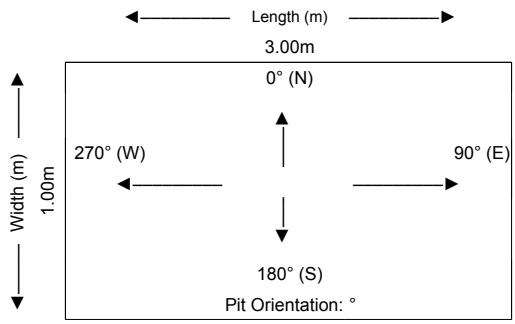
Weather: Snow and cold. | Hole Termination: Terminated due to rapid water ingress. | Stability: Stable throughout

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
			24.20	0.15		Concrete hardstanding.		
0.50 0.50	B ES	PID 0.50m, 0.0ppm		(0.75)		MADE GROUND Mixed horizon of backfill materials: Soft reddish brown sandy clay (10% of strata). Black clayey fine to medium sand (20%). Black angular to subrounded sandy fine to coarse GRAVEL (ballast) of brick, limestone, clinker. Sand is medium to coarse. Frequent plastic, ceramic and wood fragments (70%).		
			23.45	0.90		MADE GROUND *At 0.15mbgl: Northern end of trial pit contains a large brick structure, running east to west beyond extent of trial pit excavation (adjacent ground starting to lift). Unable to break through.*		
						End of Trial Pit at 0.90m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 0.90m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 0.90mgbl.
3. No significant visual or olfactory contamination noted.

Water Strikes

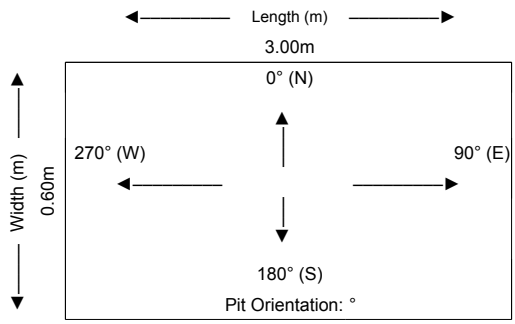
Strike (m)	Remarks
0.90	Extremely rapid ingress

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: TP-RPS-51
	Contract Number: JER1100	Start Date: 14/02/2018	End Date: 14/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 368345.0	Northing: 373883.0	Ground Level: 26.25mOD	Plant Used: JCB 3CX	Logged By: AT	Scale: 1:50
Weather:		Hole Termination: Terminated due to fast groundwater ingress.			Stability: Stable throughout	

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description			
0.20	ES			(0.35)		Soft dark brown and black slightly gravelly SILT. Frequent organic matter. Gravel is fine to medium of asphalt and brick.			
0.40	B	PID 0.20m, 0.2ppm	25.90	0.35		TOPSOIL			
0.40	D					Dark grey and black sandy fine to medium GRAVEL of asphalt, clinker and brick. MADE GROUND			
0.40	ES								
0.60	B	PID 0.40m, 0.2ppm							
0.60	D								
				(1.25)			1		
1.60	ES	PID 1.60m, 0.1ppm	24.65	1.60		Firm dark reddish brown mottled dark greyish brown CLAY. GLACIAL TILL			
				(0.40)					
			24.25	2.00		End of Trial Pit at 2.00m	2		
							3		
							4		
							5		
							6		
							7		

Dimensions:

Final Depth: 2.00m



General Remarks:

1. Trial pit backfilled with arisings on completion.
2. Groundwater encountered at 0.80mbgl ,fast ingress noted.
3. No significant visual or olfactory contamination noted.
4. Terminated early due to water ingress causing trial pit side instability.

Water Strikes

Strike (m)	Remarks
0.80	

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: WS-RPS-01
	Contract Number: JER1100	Start Date: 23/02/2018	End Date: 23/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Windowless Borehole Log	Easting: 368302.4	Northing: 374102.1	Ground Level: 25.73mOD	Plant Used: Dando Terrier	Logged By: GC	Scale: 1:50

Weather: Cold, dry and sunny.

Termination: Terminated at design depth.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.50	ES		PID 0.50m, 0.0ppm		(1.50)		Grass over black very gravelly medium to coarse SAND of ash. Gravel is subrounded to angular, fine to coarse of brick, clinker, concrete and limestone. TOPSOIL		
				24.23	1.50		Soft white, locally stained light brown SILT (lime made ground) LIME MADE GROUND		
2.50	ES		PID 2.50m, 0.0ppm		(2.30)				
				21.93	3.80		Soft dark brown gravelly sandy CLAY. Sand is fine to medium. Gravel is angular to subrounded fine mudstone. (Weathering Grade III). MERCIA MUDSTONE GROUP		
				21.73	4.00		End of Borehole at 4.00m		

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Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
23-02-2018	08:00	0.00		
23-02-2018	17:00	4.00		

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. No groundwater encountered within exploratory hole.
3. No significant visual or olfactory contamination noted.
4. Location backfilled with arisings on completion.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.00	20
2	87	2.00	3.00	30
3	78	3.00	4.00	50

Casing

Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS WLS Template Issue Number: 2 Issue Date: 02/01/2018

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-08
	Contract Number: JER1100	Start Date: 19/02/2018	End Date: 19/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368394.9	Northing: 373989.1	Ground Level: 26.74mOD	Plant Used: Hand tools	Logged By: GC	Scale: 1:50
Weather:	Hole Termination: Terminated due to concrete obstruction at base.					

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.20 - 0.50	ES	PID 0.20m, 0.0ppm	26.54	0.20 (0.30)		Reinforced concrete slab. MADE GROUND		
0.50 - 0.90	ES	PID 0.50m, 0.0ppm	26.24	0.50 (0.40)		Black gravelly medium to coarse SAND / ash. Gravel is angular, fine to medium of brick, concrete, limestone and clinker. MADE GROUND		
			25.84	0.90		Mixed strata of Black gravelly medium to coarse SAND / ash. Gravel is angular, fine to medium of brick, concrete, limestone and clinker And very soft white/brown silt with rare brown angular fine gravels of clinker. MADE GROUND		
						End of Inspection Pit at 0.90m		

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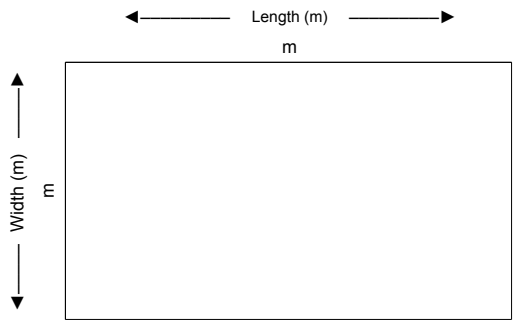
Dimensions:

Final Depth: 0.90m



General Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	WS-RPS-09

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	19/02/2018	19/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368324.8	373973.7	26.56mOD	Dando terrier	GC	1:50

Weather: Dry and cold

Termination: Terminated at design depth.

Samples & In Situ Testing

Depths	Type/ Ref	SPT	Testing
0.80	ES		
0.97	EW1		PID 0.80m, 0.1ppm
1.08	EW2		
1.20	ES		PID 1.20m, 0.2ppm
2.00	ES		PID 2.00m, 0.3ppm

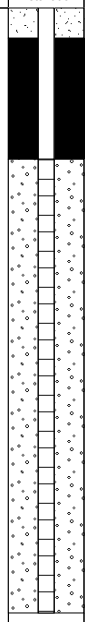
Strata Details

Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description
	(0.30)		Medium subrounded GRAVEL of limestone (Decorative) MADE GROUND
26.26	0.30		Asphalt hardstanding MADE GROUND
26.06	0.50		Black sandy subangular to subrounded, fine to medium GRAVEL of clinker and mixed lithologies. MADE GROUND
	(0.60)		
25.46	1.10		Soft white SILT (Lime made ground) LIME MADE GROUND
	(0.70)		
24.76	1.80		Soft dark grey and black and organic rich SILT/CLAY. Frequent organic matter and organic odour. MADE GROUND
	(0.30)		
24.46	2.10		Stiff dark reddish brown mottled dark grey CLAY. (Weathering Grade III). MERCIA MUDSTONE GROUP
	(1.90)		
22.56	4.00		End of Borehole at 4.00m

Groundwater

Water Strike

Backfill/ Installation



Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
19-02-2018	08:00	0.00		
19-02-2018	17:00	4.00		1.80

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	19
1	1.00	4.00	SLOTTED	19

Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location installed with 19mm diameter monitoring installation (with geomembrane wrap) on completion as shown, response zone 1.00 to 4.00 mbgl.
3. No groundwater encountered within exploratory hole.
4. Organic odour noted between 1.80-2.10mbgl.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1		1.00	2.00	10
2	87	2.00	3.00	100
3	78	3.00	4.00	100

Casing

Depth (m)	Diameter (mm)
2.00	110

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.80			0		

RPS WLS Template Issue Number: 2 Issue Date: 02/01/2018

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	WS-RPS-10

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	19/02/2018	19/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368345.8	373950.0	26.64mOD	Dando terrier	GC	1:50

Weather: Dry and cold.

Termination: Terminated at design depth.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.42	0.22		Black very sandy subangular, fine to coarse GRAVEL of asphalt and flint. Sand is fine to coarse. MADE GROUND		
0.40 - 0.50	ES			26.30	0.34		Reddish brown very sandy slightly clayey subangular, fine to coarse GRAVEL of mixed lithologies. Sand is fine to coarse. MADE GROUND		
					(0.42)				
				25.88	0.76		Dark grey and black sandy angular to subangular, fine to coarse GRAVEL of flint, concrete and coal. MADE GROUND		
0.90 - 1.10	ES								
0.95	EW1								
1.05	EW2								
							White slightly sandy CLAY (Lime made ground) LIME MADE GROUND		
					(2.09)				
2.60 - 2.80	ES		PID 2.60m, 0.3ppm						
				23.79	2.85		Stiff dark reddish brown mottled light grey slightly gravelly CLAY. Gravel is rare subrounded, medium to coarse mudstone. (Weathering Grade III). MERCIA MUDSTONE GROUP		
					(1.15)				
3.80 - 4.00	ES		PID 3.80m, 0.4ppm						
				22.64	4.00		End of Borehole at 4.00m		

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Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
19-02-2018	08:00	0.00		
19-02-2018	17:00	4.00		

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	19
1	1.00	4.00	SLOTTED	19

Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location installed with 19mm diameter monitoring installation (with geomembrane wrap) on completion as shown, response zone 1.00 to 4.00 mbgl.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1		1.00	2.00	85
2	87	2.00	3.00	60
3	78	3.00	4.00	50

Casing

Depth (m)	Diameter (mm)
2.00	110

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS WLS Template Issue Number: 2 Issue Date: 02/01/2018

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: WS-RPS-11
	Contract Number: JER1100	Start Date: 19/02/2018	End Date: 19/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Windowless Borehole Log	Easting: 368374.5	Northing: 373939.8	Ground Level: 26.83mOD	Plant Used: Dando Terrier	Logged By: GC	Scale: 1:50
Weather:		Termination: Terminated at design depth.				

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					(0.80)		Blackish brown clayey sandy GRAVEL of brick, concrete, ash, flint, mudstone, clinker and coal. MADE GROUND		
0.60	ES			26.03	0.80				
1.10	ES			25.83	1.00		Very soft off white sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular fine to coarse of flint and limestone (lime made ground). LIME MADE GROUND		
				25.63	1.20		Very soft greyish white sandy CLAY. Sand is fine to coarse (lime made ground). LIME MADE GROUND		
			PID 2.00m, 0.8ppm				Soft white SILT (Lime made ground). Generally very poor recovery. LIME MADE GROUND		
2.50 - 3.00	ES				(2.80)				
				22.83	4.00		End of Borehole at 4.00m		

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Start & End of Shift Observations					Installation				
Date	Time	Depth (m)	Casing (m)	Water (m)	Ref	Top (m)	Base (m)	Type	Diameter (mm)
19-02-2018	08:00	0.00							
19-02-2018	17:00	4.00							

Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Windowless Sample Run Details					Casing	
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)	Depth (m)	Diameter (mm)
1		1.50	2.00	100	2.00	110
2	87	2.00	3.00	50		
3	78	3.00	4.00	20		

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-12
	Contract Number: JER1100	Start Date: 26/02/2018	End Date: 26/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368276.0	Northing: 373914.0	Ground Level: 26.75mOD	Plant Used: Hnad Tools	Logged By: GC	Scale: 1:50
Weather: Cold, dry and cloudy.		Hole Termination: Terminated at 0.80m due to obstruction. (Gypsum cobble across base),				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.20 - 0.50	ES	PID 0.20m, 0.2ppm	26.55	0.20 (0.30)		Tarmac/concrete cobble hard standing. TARMACADAM		
0.50 - 0.80	ES	PID 0.50m, 0.0ppm	26.25	0.50 (0.30)		Black and grey very gravelly medium to coarse SAND. Gravel is angular, fine to medium of concrete, limestone and brick fragments. MADE GROUND		
			25.95	0.80		Stiff reddish brown sandy slightly gravelly CLAY. Sand is orangish, brown, fine to medium. Gravel is rounded, fine to medium mudstone and rare medium sized crystal gypsum. GLACIAL TILL		
						End of Inspection Pit at 0.80m		

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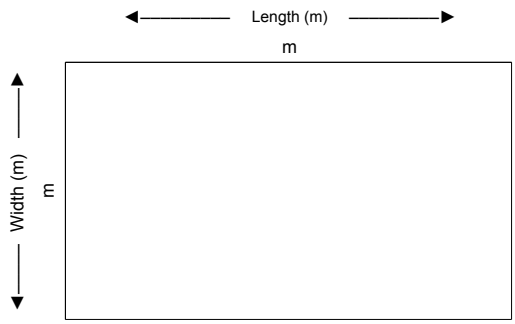
Dimensions:

Final Depth: 0.80m



General Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location installed with 19mm diameter monitoring installation (with geomembrane wrap) on completion as shown, response zone 0.30 to 0.80 mbgl.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-13
	Contract Number: JER1100	Start Date: 20/02/2018	End Date: 20/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368283.0	Northing: 374014.0	Ground Level: 26.25mOD	Plant Used: Dando Terrier	Logged By: GC	Scale: 1:50

Weather: Warm and dry.

Hole Termination: Terminated due to obstruction at pit base.

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.05 - 0.45	ES	PID 0.05m, 0.0ppm	26.20	0.05 (0.40)		Thin layer of grey decorative shingle. MADE GROUND		
0.45 - 0.85	ES	PID 0.45m, 0.0ppm	25.80	0.45 (0.40)		Dark greyish brown very gravelly medium to coarse SAND with a low cobble content. Gravel is angular to subangular, medium to coarse of concrete, limestone and brick. Cobbles are of concrete. MADE GROUND		
			25.40	0.85		Black slightly gravelly medium to coarse SAND (ash). Gravel is subangular, fine to medium (rarely coarse) of concrete, sandstone and brick. MADE GROUND		
			25.25	1.00		Black angular, medium GRAVEL of possible limestone/ sandstone. Large metal bolt present. MADE GROUND		
						End of Inspection Pit at 1.00m		

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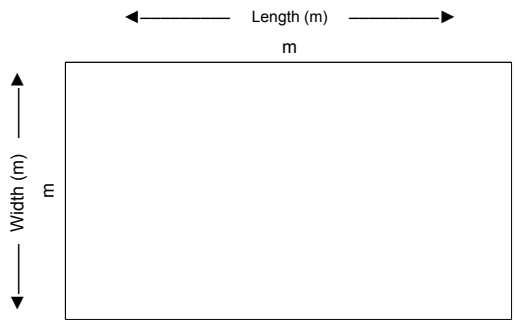
Dimensions:

Final Depth: 1.00m



General Remarks:

1. Location advanced as a hand dug inspection pit for contamination sampling purposes.
2. Location installed with 19mm diameter monitoring installation (with geomembrane wrap) on completion as shown, response zone 0.50 to 1.00 mbgl.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-14
	Contract Number: JER1100	Start Date: 23/02/2018	End Date: 23/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368244.5	Northing: 374093.5	Ground Level: 24.90mOD	Plant Used: Hand tools	Logged By: AK	Scale: 1:50
Weather:		Hole Termination: Terminated at 1.10m due to inflow of water and possible obstruction.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.20 - 0.40	ES	PID 0.20m, 0.0ppm	24.80	0.10		Grass over brown clayey SILT. TOPSOIL		
				(0.40)		Dark grey slightly clayey sandy subangular to angular fine to medium GRAVEL of ash, coal, brick, concrete and clinker. Sand is fine to medium. MADE GROUND		
0.70 - 0.90	ES	PID 0.70m, 0.0ppm	24.40	0.50				
			24.30	0.60				
				(0.50)		Grey slightly clayey sandy subangular to angular fine to medium GRAVEL of ash, coal, concrete and clinker. Sand is fine to medium. MADE GROUND		
			23.80	1.10		Soft white slightly sandy CLAY (lime made ground). LIME MADE GROUND		
						End of Inspection Pit at 1.10m		

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Dimensions:

Final Depth: 1.10m

Length (m) m

Width (m) m

General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks
0.20	

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: WS-RPS-15
	Contract Number: JER1100	Start Date: 23/02/2018	End Date: 23/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Windowless Borehole Log	Easting: 368252.8	Northing: 374131.1	Ground Level: 25.35mOD	Plant Used: Dando Terrier	Logged By: AK	Scale: 1:50

Weather: Cool, sunny and dry.

Termination: Terminated at design depth. During installation collapsed to 3.00mbgl.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.50 - 1.00	ES		PID 0.50m, 0.0ppm		(1.35)		Thin layer of decorative subangular to angular fine to coarse GRAVEL of limestone over black very sandy slightly clayey subangular to angular fine to medium GRAVEL of ash, coal and brick. MADE GROUND		
1.30 - 1.60	ES		PID 1.30m, 0.0ppm	24.00	1.35		White and grey slightly gravelly clayey SAND. Sand is fine to coarse. Gravel is subangular to angular fine of brick and concrete (Lime made ground). LIME MADE GROUND		
2.50 - 3.00	ES		PID 2.00m, 0.0ppm		(1.85)				
				22.15	3.20		Grey very sandy slightly clayey subangular to angular fine to medium GRAVEL of concrete, brick and clinker. Sand is fine to medium. MADE GROUND		
					(0.80)				
				21.35	4.00		End of Borehole at 4.00m		

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Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
23-02-2018	08:00	0.00		
23-02-2018	17:00	4.00		

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	19
1	1.00	3.00	SLOTTED	19

Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location installed with 19mm diameter monitoring installation (with geomembrane wrap) on completion as shown, response zone 1.00 to 3.00 mbgl.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.00	70
2	87	2.00	3.00	60
3	78	3.00	4.00	40

Casing

Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS WLS Template Issue Number: 2 Issue Date: 02/01/2018

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-16
	Contract Number: JER1100	Start Date: 22/02/2018	End Date: 22/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368413.4	Northing: 374102.0	Ground Level: 26.32mOD	Plant Used: Hand tools.	Logged By: GC	Scale: 1:50
Weather:		Hole Termination: Terminated due to possible visible asbestos fragments at 0.50mbgl.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.50 0.50	ES ES2		25.82	(0.50) 0.50		Grass over black sandy clayey angular to subangular fine to coarse GRAVEL of brick, concrete and clinker. Frequent whole bricks. Possible asbestos fragments and debris at base of pit. TOPSOIL End of Inspection Pit at 0.50m		

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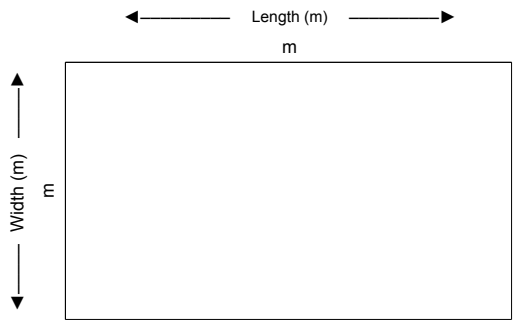
Dimensions:

Final Depth: 0.50m



General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. Possible visible bulk fragments of asbestos present within inspection pit.

Water Strikes	
Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-16a
	Contract Number: JER1100	Start Date: 22/02/2018	End Date: 22/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368412.4	Northing: 374102.3	Ground Level: 26.32mOD	Plant Used: Hand tools	Logged By: AK	Scale: 1:50
Weather:		Hole Termination: Terminated due to concrete slab at 0.50m.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			25.82	(0.50) 0.50		Brown clayey gravelly fine to medium SAND with a medium cobble content. Gravel is angular, fine to medium of slate and brick. Frequent whole brick cobbles. MADE GROUND End of Inspection Pit at 0.50m		

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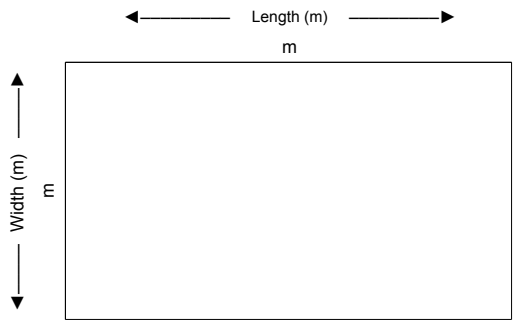
Dimensions:

Final Depth: 0.50m



General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes	
Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-17
	Contract Number: JER1100	Start Date: 20/02/2018	End Date: 20/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368481.6	Northing: 374046.7	Ground Level: 26.53mOD	Plant Used: Hand tools	Logged By: AK	Scale: 1:50
Weather:	Hole Termination: Terminated at 0.95m due to obstruction.					

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.40 - 0.60	ES	PID 0.40m, 0.0ppm		(0.72)		Grass vegetation over grey slightly clayey sandy subangular to subrounded fine to medium GRAVEL of concrete, limestone and sandstone. Sand is fine to medium. TOPSOIL		
0.75 - 0.90	ES	PID 0.75m, 0.0ppm	25.81	0.72		Light grey sandy subangular to angular fine to medium GRAVEL of lime made ground / sand / concrete aggregate. Sand is fine to medium. LIME MADE GROUND		
			25.58	0.95		End of Inspection Pit at 0.95m		

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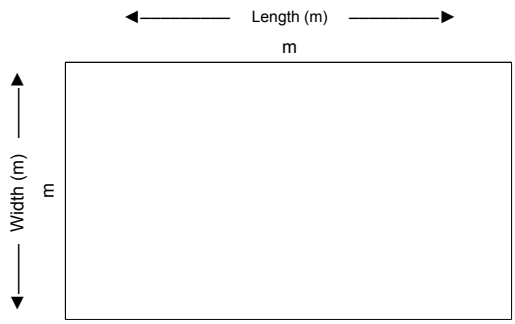
Dimensions:

Final Depth: 0.95m



General Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location installed with 19mm diameter monitoring installation (with geomembrane wrap) on completion as shown, response zone 0.45 to 0.95 mbgl.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-18
	Contract Number: JER1100	Start Date: 20/02/2018	End Date: 20/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368481.6	Northing: 373997.8	Ground Level: 26.31mOD	Plant Used: Dando Terrier	Logged By: GC/AK	Scale: 1:50
Weather:	Hole Termination: Terminated at 1.00m due to obstruction.					

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.20 - 0.70	ES	PID 0.20m, 0.0ppm	26.11	0.20 (0.50)		Concrete with plastic membrane at base of strata. CONCRETE		
0.70 - 1.00	ES	PID 0.70m, 0.1ppm	25.61	0.70 (0.30)		Yellow and white very gravelly medium to coarse SAND. Gravel is angular fine to coarse of concrete, sandstone and limestone. MADE GROUND		
			25.31	1.00		Very soft black locally mottled grey sandy organic CLAY. Organic odour (Possibly reworked). MADE GROUND		
						End of Inspection Pit at 1.00m		

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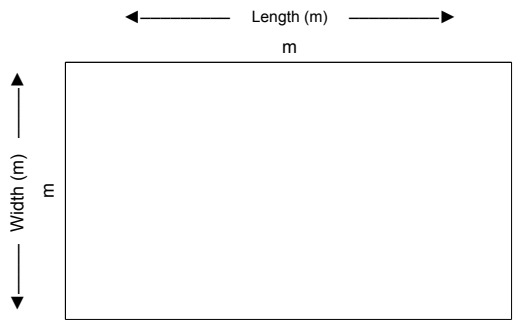
Dimensions:

Final Depth: 1.00m



General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. Organic odour noted 0.70-1.00mbgl..

Water Strikes

Strike (m)	Remarks

HBSI IP Template Issue Number: 1R Issue Date: 21/07/2016

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: WS-RPS-19
	Contract Number: JER1100	Start Date: 20/02/2018	End Date: 20/02/2018	Checked By:	Status: PRELIMINARY	Sheet 1 of 1
Windowless Borehole Log	Easting: 368457.4	Northing: 374002.7	Ground Level: 26.89mOD	Plant Used: Dando Terrier	Logged By: GC	Scale: 1:50
Weather:		Termination: Terminated at design depth.				

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.20 - 0.30	ES			26.69	0.20		Concrete with plastic membrane at base of strata. CONCRETE		
0.40 - 0.60	ES				(0.55)		Yellow and white very gravelly medium to coarse SAND. Gravel is angular fine to coarse of concrete, sandstone and limestone. MADE GROUND		
0.90 - 1.50	ES			26.14	0.75		Firm, locally firm to stiff reddish brown CLAY. (Possibly reworked) MADE GROUND		
				25.39	1.50 (0.30)		Very soft black locally mottled grey sandy organic CLAY. Organic odour (Possibly reworked). MADE GROUND		
2.52	EW2			25.09	1.80		Soft light brown CLAY. Slight organic odour throughout strata GLACIAL TILL		
2.63	EW1				(2.20)				
3.50 - 4.00	ES								
				22.89	4.00		End of Borehole at 4.00m		

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Start & End of Shift Observations					Installation				
Date	Time	Depth (m)	Casing (m)	Water (m)	Ref	Top (m)	Base (m)	Type	Diameter (mm)
20-02-2018	09:00	0.00			1	0.00	1.00	PLAIN	19
20-02-2018	17:00	4.00			1	1.00	4.00	SLOTTED	19

Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location installed with 19mm diameter monitoring installation (with geomembrane wrap) on completion as shown, response zone 1.00 to 4.00 mbgl.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Windowless Sample Run Details					Casing	
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)	Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	WS-RPS-20

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	20/02/2018	20/02/2018		PRELIMINARY	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368290.9	374073.5	25.88mOD	Dando Terrier	GC	1:50

Weather:

Termination: Terminated at design depth

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.15 - 0.30	ES			25.73	0.15		Grass and Moss vegetation over black slightly gravelly SAND. Gravel is angular, fine to medium of mixed lithologies. MADE GROUND		
0.30 - 0.85	ES				(0.70)		Black very sandy sub- angular to angular fine to coarse GRAVEL of concrete, ash, coal. Sand is fine to coarse. MADE GROUND		
0.85 - 1.00	ES			25.03	0.85		Very soft white slightly sandy CLAY (Lime made ground) LIME MADE GROUND		
1.36	EW2								
1.46	EW1								
					(2.35)				
2.50 - 3.00	ES								
				22.68	3.20		Firm reddish brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to medium mudstone GLACIAL TILL		
3.40 - 4.00	ES				(0.80)				
				21.88	4.00		End of Borehole at 4.00m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
20-02-2018	09:00	0.00		
20-02-2018	17:00	4.00		

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	19
1	1.00	4.00	SLOTTED	19

Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location installed with 19mm diameter monitoring installation (with geomembrane wrap) on completion as shown, response zone 1.00 to 4.00 mbgl.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)

Casing

Depth (m)	Diameter (mm)
2.00	110

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

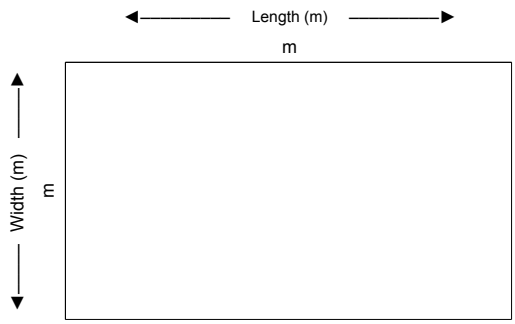
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-21
	Contract Number: JER1100	Start Date: 23/02/2018	End Date: 23/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368116.1	Northing: 374074.5	Ground Level: 24.03mOD	Plant Used: Hand Tools	Logged By: GC	Scale: 1:50
Weather:	Hole Termination: Terminated at 1.00m due to obstruction.					

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.20	ES	PID 0.20m, 0.0ppm	23.98	0.05		Angular, medium to coarse gravel of limestone (track ballast). MADE GROUND		
0.60 - 0.75	ES		23.38	(0.60) 0.65		Black very gravelly medium to coarse SAND. Gravel is angular, fine to medium of concrete and limestone. Localised pockets of reddish brown slightly gravelly fine to medium SAND. Rare wire / rope fragments. Rare organic material. 1 pocket of soft light brown clay. MADE GROUND		
0.75 - 1.00	ES	PID 0.65m, 0.0ppm PID 0.75m, 0.0ppm	23.28	0.75		Black angular fine to medium sandy GRAVEL of limestone, ash and clinker. Sand is medium to coarse. Strata damp. MADE GROUND		
			23.03	1.00		Reddish orange fine to medium slightly gravelly SAND. Gravel is rounded fine to medium flint. GLACIAL TILL		
						End of Inspection Pit at 1.00m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 1.00m



General Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location installed with 19mm diameter monitoring installation (with geomembrane wrap) on completion as shown, response zone 0.50 to 1.00mbgl.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	WS-RPS-23

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	21/02/2018	21/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368338.3	374124.0	26.15mOD	Dando Terrier	AK	1:50

Weather: Cloudy.

Termination: Terminated due to window sample refusal.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.00 - 0.40	ES				(0.40)		Grass over black medium to coarse gravelly SAND / ash. Gravel is subrounded, fine of ash, clinker and concrete. Rare whole bricks. TOPSOIL		
			PID 0.40m, 0.2ppm	25.75	0.40				
					(0.30)		Yellowish brown very gravelly medium to coarse SAND. Gravel is angular, fine, rarely medium to coarse of concrete and limestone. MADE GROUND		
0.70 - 1.00	ES		PID 0.70m, 0.2ppm	25.45	0.70		Very soft sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to angular fine to medium of grey / white, locally stained purple limestone (Lime made ground) LIME MADE GROUND		
2.00 - 2.50	ES		PID 2.00m, 0.0ppm		(2.70)				
							Between 3.10 - 3.40mbgl: Becomes very sandy		
				22.75	3.40		End of Borehole at 3.40m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
21-02-2018	08:00	0.00		
21-02-2018	17:00	3.40		

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.00	100
2	87	2.00	3.00	95
3	78	3.00	3.40	100

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	WS-RPS-24

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	21/02/2018	21/02/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	368326.3	374107.3	26.49mOD	Dando Terrier	GC	1:50

Weather:

Termination: Terminated at design depth.

Samples & In Situ Testing

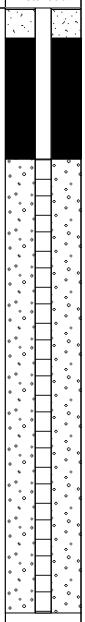
Depths	Type/ Ref	SPT	Testing
0.50	ES		PID 0.50m, 0.0ppm
1.00	ES		PID 1.00m, 0.0ppm
1.46	EW2		
1.68	EW1		
2.60 - 3.00	ES		PID 2.60m, 0.2ppm

Strata Details

Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description
26.34	0.15		Tarmac or weak concrete hard standing. TARMACADAM
25.79	(0.55)		Black very gravelly medium to coarse SAND (ash). Gravel is angular to subrounded, fine to medium of concrete and limestone. MADE GROUND
24.89	0.70		Very soft light orangish brown locally mottled grey very sandy CLAY. MADE GROUND
24.49	(0.90)		Off white gravelly fine to medium SAND. Gravel is locally stained light brown angular fine of clinker. MADE GROUND
23.89	1.60 (0.40)		Soft reddish brown CLAY. MADE GROUND
23.29	2.00 (0.60)		Very soft black SILT. Strong possible sulphur/hydrocarbon odour. MADE GROUND
22.49	2.60 (0.60)		Poor recovery due to rounded coarse mudstone gravel blocking cutting shoe. NO RECOVERY
	3.20 (0.80)		
	4.00		End of Borehole at 4.00m

Groundwater

Water Strike	Backfill/ Installation



Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
21-02-2018	08:00	0.00		
21-02-2018	17:00	4.00		

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	19
1	1.00	4.00	SLOTTED	19

Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location installed with 19mm diameter monitoring installation (with geomembrane wrap) on completion as shown, response zone 1.00 to 4.00 mbgl.
3. No groundwater encountered within exploratory hole.
4. Hydrocarbon / sulphur odour noted 2.60-3.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.00	90
2	87	2.00	3.00	90
3	78	3.00	4.00	10

Casing

Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-25
	Contract Number: JER1100	Start Date: 22/02/2018	End Date: 22/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368409.7	Northing: 374116.2	Ground Level: 26.24mOD	Plant Used: Hand Tools	Logged By: AK	Scale: 1:50

Weather: Cold and cloudy.

Hole Termination: Terminated at 1.10m due to concrete obstruction.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.20 - 0.60	ES		26.19	0.05		Soft brown gravelly sandy CLAY. Gravel is subangular to angular fine to medium of limestone, brick and concrete. TOPSOIL		
0.35 - 0.50	ES	PID 0.20m, 0.0ppm PID 0.35m, 0.0ppm		(1.05)		Brown mottled reddish brown clayey, very gravelly SAND. Sand is fine to coarse. Gravel is subangular to angular fine to coarse of limestone, concrete and bricks., with 1 whole brick noted MADE GROUND *Between 0.30 - 0.97mbgl: At Eastern side of hand pit, material is reddish brown fine to medium SAND.*		
			25.14	1.10		End of Inspection Pit at 1.10m		

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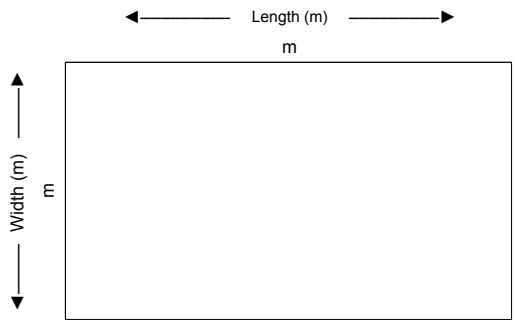
Dimensions:

Final Depth: 1.10m



General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

HBSI IP Template Issue Number: 1R Issue Date: 21/07/2016

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-26
	Contract Number: JER1100	Start Date: 21/01/2018	End Date: 21/01/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368338.4	Northing: 374106.8	Ground Level: 26.34mOD	Plant Used: Hand tools	Logged By: AK	Scale: 1:50
Weather:		Hole Termination: Terminated at 0.20m due to presence of already cut redundant cable.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			26.14	0.20		Black gravelly fine to medium SAND / ash. Gravel is subangular to angular fine to medium of clinker. MADE GROUND		
						End of Inspection Pit at 0.20m		

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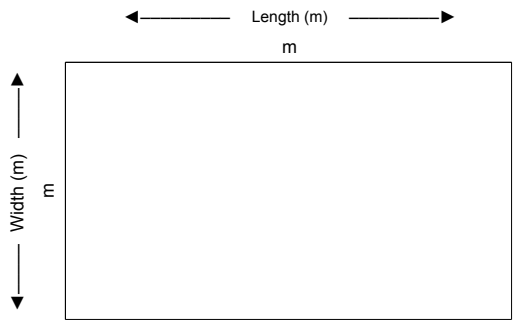
Dimensions:

Final Depth: 0.20m



General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes	
Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-28
	Contract Number: JER1100	Start Date: 21/02/2018	End Date: 21/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368357.2	Northing: 374106.4	Ground Level: 26.41mOD	Plant Used: Dando Terrier	Logged By: GC	Scale: 1:50
Weather:		Hole Termination: Terminated at 0.70m due to obstruction at pit base.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.20	ES	PID 0.20m, 0.0ppm		(0.70)		Black very gravelly medium to coarse ash SAND. Gravel is angular to subrounded, fine to medium of concrete, limestone and brick. MADE GROUND		
			25.71	0.70		End of Inspection Pit at 0.70m		

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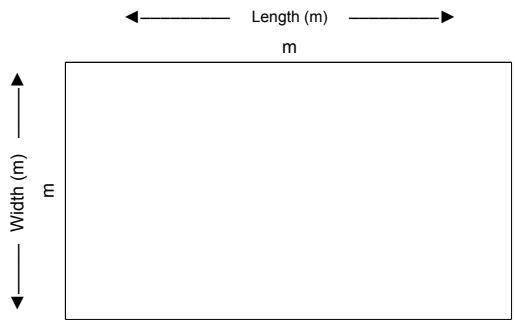
Dimensions:

Final Depth: 0.70m



General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes	
Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-29
	Contract Number: JER1100	Start Date: 22/02/2018	End Date: 22/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 368420.2	Northing: 374093.1	Ground Level: 26.46mOD	Plant Used: Dando Terrier	Logged By: GC	Scale: 1:50

Weather: Cold, dry and cloudy.

Hole Termination: Terminated at 0.90 due to concrete slab at base.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.25 - 0.60	ES	PID 0.25m, 0.0ppm	26.21	0.25 (0.35)		Concrete cobbles with some dark brown clayey fine to coarse SAND. MADE GROUND		
0.60 - 0.90	ES	PID 0.60m, 0.0ppm	25.86	0.60 (0.30)		Grey very gravelly medium to coarse SAND. Gravel is angular to subangular, fine to medium of concrete, brick and limestone. MADE GROUND		
			25.56	0.90		Black gravelly medium to coarse SAND (ash). Gravel is angular to subrounded, fine to medium of concrete, brick and possible limestone. MADE GROUND		
						End of Inspection Pit at 0.90m		

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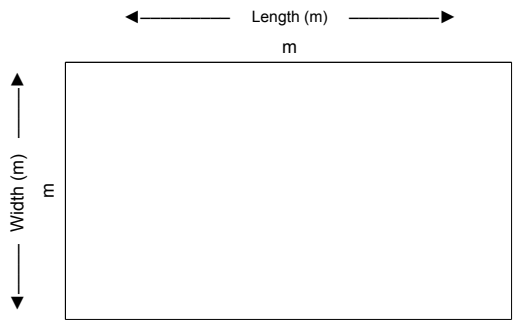
Dimensions:

Final Depth: 0.90m



General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

HBSI IP Template Issue Number: 1R Issue Date: 21/07/2016

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: WS-RPS-29a
	Contract Number: JER1100	Start Date: 23/02/2018	End Date: 23/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Windowless Borehole Log	Easting: 368419.0	Northing: 374087.0	Ground Level: 26.35mOD	Plant Used: Dando Terrier	Logged By: GC	Scale: 1:50

Weather: Cool sunny and windy | Termination: Terminated at design depth | SPT Hammer: N/R, Energy Ratio: N/R

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				26.30	0.05		Moss over black very gravelly fine to medium SAND. Gravel is angular fine to medium brick concrete and limestone. MADE GROUND		
				26.12	0.23		Grey slightly gravelly fine to medium SAND. Gravel is angular fine to medium sandstone concrete and rare brick MADE GROUND		
0.40	ES								
0.75	ES								
		SPT(C) 1.20m, N=9 (4,3/3,3,2,1)			(2.27)		Reddish brown locally white sandy sub-angular to angular GRAVEL of brick and concrete. MADE GROUND		
				23.85	2.50				
2.60	ES	SPT(C) 2.70m, N=21 (1,2/3,3,6,9)			(0.70)		Black sandy angular fine GRAVEL of sandstone. MADE GROUND		
				23.15	3.20		End of Borehole at 3.20m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations					Installation				
Date	Time	Depth (m)	Casing (m)	Water (m)	Ref	Top (m)	Base (m)	Type	Diameter (mm)
23-03-2018	08:00								
23-03-2018	17:00	3.20							

Remarks:
1. Location advanced using hand excavation and windowless sampling for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Windowless Sample Run Details					Casing	
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)	Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Borehole ID: WS-RPS-30
	Contract Number: JER1100	Start Date: 21/02/2018	End Date: 21/02/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Windowless Borehole Log	Easting: 368326.1	Northing: 374117.4	Ground Level: 26.22mOD	Plant Used: Dando Terrier	Logged By: AK	Scale: 1:50

Weather: Cloudy.

Termination: Terminated at design depth.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.00 - 0.30	ES				(0.38)		Decorative gravel and moss vegetation over black fine to coarse SAND / ash. TOPSOIL		
0.38 - 0.49	ES		PID 0.30m, 0.3ppm	25.84	0.38		Light grey gravelly fine to coarse SAND / ash. Gravel is subangular to angular fine of ash, concrete, brick fragments and clinker. MADE GROUND		
0.50 - 0.80	ES		PID 0.38m, 0.2ppm PID 0.50m, 0.2ppm	25.73	0.49				
					(0.86)		Black gravelly slightly clayey fine to coarse SAND / ash. Gravel is subangular to angular fine to medium of ash, clinker, concrete and sandstone. MADE GROUND		
1.40 - 2.00	ES		PID 1.40m, 0.1ppm	24.87	1.35		Very soft yellowish white sandy gravelly CLAY. Gravel is subangular fine to medium of limestone. Sand is fine to medium. (Lime made ground) LIME MADE GROUND		
					(0.65)				
				24.22	2.00		Very soft white sandy slightly gravelly CLAY Sand is fine to medium. Gravel is subangular to angular fine to medium of limestone. (Lime made ground) LIME MADE GROUND		
					(1.50)				
				22.72	3.50		Very soft white slightly sandy CLAY (Lime made ground) LIME MADE GROUND		
					(0.50)				
				22.22	4.00		End of Borehole at 4.00m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
21-02-2018	08:00	0.00		
21-02-2018	17:00	4.00		

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Location advanced using windowless sampling tracked rig for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.00	70
2	87	2.00	3.00	90
3	78	3.00	4.00	70

Casing

Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
4.00			0		

RPS WLS Template Issue Number: 2 Issue Date: 02/01/2018

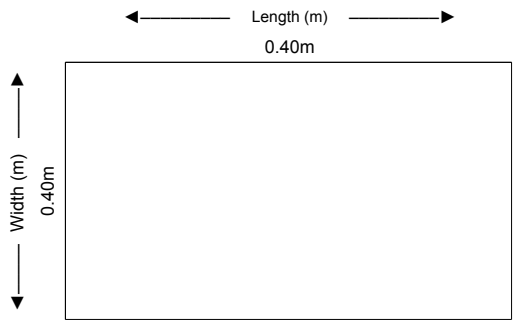
RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-31
	Contract Number: JER1100	Start Date: 20/03/2018	End Date: 20/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 367991.4	Northing: 373978.3	Ground Level: 22.21mOD	Plant Used: Hand tools	Logged By: GC	Scale: 1:50
Weather: Cloudy	Hole Termination: Terminated at 0.42 due to wood obstruction					

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			22.00	0.21		Black very sandy sub-angular to angular GRAVEL of coke and ash. Sand is fine to coarse ash. MADE GROUND		
			21.85	0.36		Yellowish grey, very sandy sub-angular to angular fine to medium GRAVEL of concrete sandstone and ash. MADE GROUND		
			21.79	0.42		Brown wood sleeper. MADE GROUND		
						End of Inspection Pit at 0.42m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 0.42m



General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. Groundwater seepage in pit at 0.2m
4. No significant visual or olfactory contamination noted.

Water Strikes

Strike (m)	Remarks

HBSI IP Template Issue Number: 1R Issue Date: 21/07/2016

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-32a
	Contract Number: JER1100	Start Date: 21/03/2018	End Date: 21/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 367944.2	Northing: 373956.1	Ground Level: 22.42mOD	Plant Used: Hand tools	Logged By: GC	Scale: 1:50
Weather: Cloudy	Hole Termination: Terminated at 0.2 due to wire obstruction					

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			22.37	0.05		Black sandy sub-angular to angular fine to medium GRAVEL of coke. Sand is fine to medium. MADE GROUND		
			22.24	0.18		Yellowish brown sandy sub-angular to angular, fine to medium MADE GROUND		
			22.22	0.20		Wood fragments with green wire. MADE GROUND		
						End of Inspection Pit at 0.20m		

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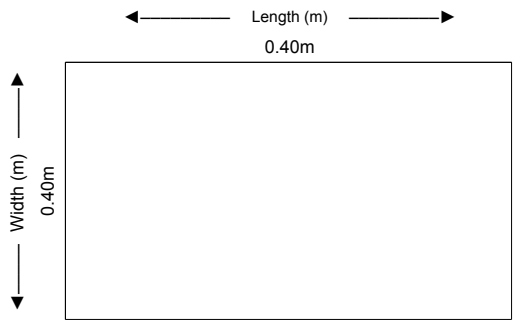
Dimensions:

Final Depth: 0.20m



General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. Groundwater seepage in pit at 0.2m
4. Oil noted at 0.15m.

Water Strikes	
Strike (m)	Remarks

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-33
	Contract Number: JER1100	Start Date: 21/03/2018	End Date: 21/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 367911.3	Northing: 373960.1	Ground Level: 22.30mOD	Plant Used: Concrete Coring unit	Logged By: GC	Scale: 1:50
Weather: Cloudy		Hole Termination: Terminated at 0.3 due to difficult digging and groundwater seepage				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			22.28	0.02		Black very sandy sub-angular to angular fine to medium Fravel of coke. Sand is fine to medium. MADE GROUND		
			22.12	0.18		Yellowish brown CONCRETE MADE GROUND		
			22.00	0.30		Brown wooden sleeper MADE GROUND		
						End of Inspection Pit at 0.30m		

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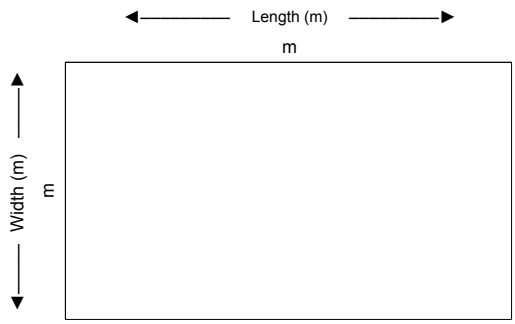
Dimensions:

Final Depth: 0.30m



General Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. Ground Water strike at 0.15m.
4. Water in pit was grey/black colour.

Water Strikes	
Strike (m)	Remarks

HBSI IP Template Issue Number: 1R Issue Date: 21/07/2016

RPS	Contract Name: Lostock Sustainable Energy Plant		Client: Copenhagen Infrastructure Partners (CIP)			Trial Pit ID: WS-RPS-36
	Contract Number: JER1100	Start Date: 20/03/2018	End Date: 20/03/2018	Checked By: LRW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 367962.7	Northing: 374003.2	Ground Level: 22.32mOD	Plant Used:	Logged By:	Scale: 1:50
		Hole Termination: Terminated at 0.4 due to difficulty concrete coring.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			22.31	0.01		Black sandy sub-angular to angular fine to medium GRAVEL of coke. Sand is fine to medium. MADE GROUND		
				(0.39)				
			21.92	0.40		CONCRETE MADE GROUND		
						End of Inspection Pit at 0.40m		

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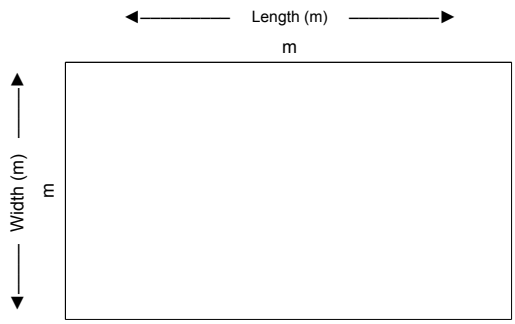
Dimensions:

Final Depth: 0.40m



General Remarks:

1. Location advanced using concrete coring .
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Water Strikes	
Strike (m)	Remarks

Contract Name:	Client:	Borehole ID:
Lostock Sustainable Energy Plant	Copenhagen Infrastructure Partners (CIP)	WS-RPS-36a

Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER1100	21/03/2018	21/03/2018	LRW	FINAL	

Windowless Borehole Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	367982.7	374013.5	22.50mOD	Hand tools	GC	1:50

Weather: Cloudy

Termination: Terminated at 0.57 due to metal obstruction.

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.10 - 0.30	ES				(0.35)		Dark grey/black clayey gravelly fine to medium SAND of ash. Gravel is fine to medium sub-angular to angular coke ash concrete and clinker. MADE GROUND		
0.35 - 0.42	ES			22.15	0.35		Grey gravelly fine to medium SAND. Gravel is sub-angular to angular fine to medium concrete and clinker. MADE GROUND		
				22.08	0.42		Reddish brown fine to medium SAND. At 0.57m round metal pipe within hand pit. MADE GROUND		
				21.93	0.57		End of Borehole at 0.57m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

1. Location advanced using hand excavation for contamination sampling purposes.
2. Location backfilled with arisings on completion.
3. No groundwater encountered within exploratory hole.
4. No significant visual or olfactory contamination noted.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Appendix 2

Chemical laboratory data

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	26 February 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180206-84
Your Reference:	JER1100
Location:	Lostock
Report No:	445997

We received 18 samples on Tuesday February 06, 2018 and 10 of these samples were scheduled for analysis which was completed on Monday February 26, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17000116	BH-RPS-05	ESSchedule_1	0.30	01/02/2018
17000124	BH-RPS-05	ESSchedule_1	0.80	01/02/2018
17000133	BH-RPS-05	ESSchedule_1	1.10	01/02/2018
17000233	BH-RPS-06	ESSchedule_1	0.10 - 0.20	01/02/2018
17000077	BH-RPS-06	ESSchedule_1	0.40 - 0.50	31/01/2018
17000086	BH-RPS-06	ESSchedule_1	1.10 - 1.50	31/01/2018
17000090	BH-RPS-06	ESSchedule_1	1.90 - 2.20	31/01/2018
17000215	BH-RPS-06	ESSchedule_1	2.90 - 3.10	31/01/2018
17000224	BH-RPS-06	ESSchedule_1	4.80 - 5.00	31/01/2018
17000186	BH-RPS-07	ESSchedule_1	0.60 - 1.00	01/02/2018
17000204	BH-RPS-12	ESSchedule_1	0.30 - 0.60	01/02/2018
17000099	WS-RPS-10	ESSchedule_1	0.40 - 0.50	01/02/2018
17000107	WS-RPS-10	ESSchedule_1	0.90 - 1.10	01/02/2018
17000147	WS-RPS-11	ESSchedule_1	0.60	01/02/2018
17000066	WS-RPS-11	ESSchedule_1	1.10	01/02/2018
17000176	WS-RPS-20	ESSchedule_1	0.15 - 0.30	01/02/2018
17000164	WS-RPS-20	ESSchedule_1	0.30 - 0.85	01/02/2018
17000195	WS-RPS-20	ESSchedule_1	0.85 - 1.00	01/02/2018

Maximum Sample/Coolbox Temperature (°C) : 6.4

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17000116			17000133	17000077			17000090		17000186			17000204			17000099			17000066	
Customer Sample Reference			BH-RPS-05			BH-RPS-05	BH-RPS-06			BH-RPS-06		BH-RPS-07			BH-RPS-12			WS-RPS-10			WS-RPS-11	
AGS Reference			ESSchedule_1			ESSchedule_1	ESSchedule_1			ESSchedule_1		ESSchedule_1			ESSchedule_1			ESSchedule_1			ESSchedule_1	
Depth (m)			0.30			1.10	0.40 - 0.50			1.90 - 2.20		0.60 - 1.00			0.30 - 0.60			0.40 - 0.50			1.10	
Container			250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 1								X												
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 7	X				X					X			X			X			X	
Anions by Kone (soil)	All	NDPs: 0 Tests: 1								X												
Anions by Kone (w)	All	NDPs: 0 Tests: 8		X				X					X			X			X			X
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 8		X				X					X			X			X			X
Asbestos Quantification - Full	All	NDPs: 0 Tests: 1											X									
CEN Readings	All	NDPs: 0 Tests: 8		X				X					X			X			X			X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2					X														X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 8		X				X					X			X			X			X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 8		X				X					X			X			X			X
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 9	X				X			X		X			X			X			X	
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 9	X				X			X		X			X			X			X	
Fluoride	All	NDPs: 0 Tests: 8		X				X					X			X			X			X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 9			X				X		X			X			X			X		
Loss on Ignition in soils	All	NDPs: 1 Tests: 7	X				X					N			X			X			X	

17000195	WS-RPS-20	ESSchedule_1	0.85 - 1.00	60g VOC (ALE215)	S															X	
				400g Tub (ALE214)	S				X	X		X			X	X			X		
				250g Amber Jar (ALE210)	S												X	X			X
17000164	WS-RPS-20	ESSchedule_1	0.30 - 0.85	60g VOC (ALE215)	S															X	
				400g Tub (ALE214)	S				X	X		X			X	X			X		
				250g Amber Jar (ALE210)	S		X										X	X			X
17000066	WS-RPS-11	ESSchedule_1	1.10	60g VOC (ALE215)	S															X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17000116	17000133	17000077				17000090		17000186			17000204			17000099			17000066	
Customer Sample Reference			BH-RPS-05	BH-RPS-05	BH-RPS-06				BH-RPS-06		BH-RPS-07			BH-RPS-12			WS-RPS-10			WS-RPS-11	
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1				ESSchedule_1		ESSchedule_1			ESSchedule_1			ESSchedule_1			ESSchedule_1	
Depth (m)			0.30	1.10	0.40 - 0.50				1.90 - 2.20		0.60 - 1.00			0.30 - 0.60			0.40 - 0.50			1.10	
Container			250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Magnesium (BRE)	All	NDPs: 0 Tests: 1								X												
Mercury Dissolved	All	NDPs: 0 Tests: 8		X				X					X			X			X			X
Metals in solid samples by OES	All	NDPs: 0 Tests: 9	X				X			X		X			X			X			X	
Mineral Oil	All	NDPs: 0 Tests: 8	X				X					X			X			X			X	
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 1								X												
PAH by GCMS	All	NDPs: 0 Tests: 9	X				X			X		X			X			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 8	X				X					X			X			X			X	
pH	All	NDPs: 0 Tests: 10	X			X	X			X		X			X			X			X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 8		X				X					X			X			X			X
Sample description	All	NDPs: 0 Tests: 10	X			X	X			X		X			X			X			X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 9	X				X			X		X			X			X			X	
Total Dissolved Solids	All	NDPs: 0 Tests: 8		X				X					X			X			X			X
Total Organic Carbon	All	NDPs: 0 Tests: 9	X				X			X		X			X			X			X	
Total Sulphate	All	NDPs: 0 Tests: 1								X												
Total Sulphur	All	NDPs: 0 Tests: 1								X												

17000195	WS-RPS-20	ESSchedule_1	0.85 - 1.00	60g VOC (ALE215)	S																		
				400g Tub (ALE214)	S			X									X				X			
				250g Amber Jar (ALE210)	S				X		X			X		X		X		X			X		
17000164	WS-RPS-20	ESSchedule_1	0.30 - 0.85	60g VOC (ALE215)	S																		
				400g Tub (ALE214)	S			X									X				X			
				250g Amber Jar (ALE210)	S				X		X			X		X		X		X			X		
17000066	WS-RPS-11	ESSchedule_1	1.10	60g VOC (ALE215)	S																		

Results Legend

- X Test
- N No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

Lab Sample No(s)			17000116			17000133	17000077			17000090		17000186			17000204			17000099			17000066	
Customer Sample Reference			BH-RPS-05			BH-RPS-05	BH-RPS-06			BH-RPS-06		BH-RPS-07			BH-RPS-12			WS-RPS-10			WS-RPS-11	
AGS Reference			ESSchedule_1			ESSchedule_1	ESSchedule_1			ESSchedule_1		ESSchedule_1			ESSchedule_1			ESSchedule_1			ESSchedule_1	
Depth (m)			0.30			1.10	0.40 - 0.50			1.90 - 2.20		0.60 - 1.00			0.30 - 0.60			0.40 - 0.50			1.10	
Container			250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
TPH CWG GC (S)	All	NDPs: 0 Tests: 9	X				X			X		X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 9			X				X		X			X			X			X		

17000195	WS-RPS-20	ESSchedule_1	0.85 - 1.00	60g VOC (ALE215)	S				X
				400g Tub (ALE214)	S				
				250g Amber Jar (ALE210)	S		X		
17000164	WS-RPS-20	ESSchedule_1	0.30 - 0.85	60g VOC (ALE215)	S				X
				400g Tub (ALE214)	S				
				250g Amber Jar (ALE210)	S		X		
17000066	WS-RPS-11	ESSchedule_1	1.10	60g VOC (ALE215)	S				X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17000116	BH-RPS-05	0.30	Dark Brown	Sand	Stones	Vegetation
17000133	BH-RPS-05	1.10	Cream	Chalk	None	None
17000077	BH-RPS-06	0.40 - 0.50	Dark Brown	Sand	Stones	Vegetation
17000090	BH-RPS-06	1.90 - 2.20	Dark Brown	Clay Loam	Stones	Vegetation
17000186	BH-RPS-07	0.60 - 1.00	Dark Brown	Sand	Stones	Vegetation
17000204	BH-RPS-12	0.30 - 0.60	Dark Brown	Sand	Stones	Vegetation
17000099	WS-RPS-10	0.40 - 0.50	Dark Brown	Sand	Stones	Vegetation
17000066	WS-RPS-11	1.10	Cream	Chalk	None	None
17000164	WS-RPS-20	0.30 - 0.85	Dark Brown	Sand	Stones	Vegetation
17000195	WS-RPS-20	0.85 - 1.00	White	Clay Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-05	BH-RPS-05	BH-RPS-06	BH-RPS-06	BH-RPS-07	BH-RPS-12
Depth (m)			0.30	1.10	0.40 - 0.50	1.90 - 2.20	0.60 - 1.00	0.30 - 0.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			01/02/2018	01/02/2018	31/01/2018	31/01/2018	01/02/2018	01/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018
SDG Ref			180206-84	180206-84	180206-84	180206-84	180206-84	180206-84
Lab Sample No.(s)			17000116	17000133	17000077	17000090	17000186	17000204
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	29	67	15	21	23	9.5
Loss on ignition	<0.7 %	TM018	11.7 M		16.2 M			<0.7 M
Mineral oil >C10-C40	<1 mg/kg	TM061	126		192		60.2	11.9
Mineral Oil Surrogate % recovery**	%	TM061	86.9		87.8		85.9	94.2
Organic Carbon, Total	<0.2 %	TM132	11.9 M		37.5 M		34.8 M	0.279 M
Sulphur, Total	<0.02 %	TM132				0.127		
Soil Organic Matter (SOM)	<0.35 %	TM132				4.33 #		
pH	1 pH Units	TM133	9 M	12.5 #	8.58 M	8.59 M	8.63 M	9.01 M
Cyanide, Free	<1 mg/kg	TM153			<1 M			
PCB congener 28	<3 µg/kg	TM168	<3 M		<3 M		<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168	<3 M		<3 M		<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168	<3 M		<3 M		<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168	<3 M		<3 M		<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168	<3 M		<3 M		<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168	<3 M		<3 M		<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168	<3 M		<3 M		<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21		<21		<21	<21
Antimony	<0.6 mg/kg	TM181	1.3 #		2.45 #	1.05 #	1.43 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181	10.2 M		24.5 M	6.85 M	59.8 M	3.99 M
Cadmium	<0.02 mg/kg	TM181	0.884 M		0.262 M	0.236 M	1.22 M	0.0592 M
Chromium	<0.9 mg/kg	TM181	12.9 M		5.17 M	14.8 M	<0.9 M	6.52 M
Cobalt	<0.1 mg/kg	TM181	20.5 M		13.1 M	8.72 M	17.3 M	4.77 M
Copper	<1.4 mg/kg	TM181	61.6 M		74.3 M	13.9 M	99 M	7.45 M
Lead	<0.7 mg/kg	TM181	28.8 M		229 M	11.7 M	62.3 M	27.1 M
Manganese	<0.13 mg/kg	TM181	436 M		372 M	179 M	729 M	253 M
Mercury	<0.14 mg/kg	TM181	<0.14 M		0.991 M	<0.14 M	1.34 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181	4.23 #		7.8 #	0.679 #	10.7 #	0.274 #
Nickel	<0.2 mg/kg	TM181	67.1 M		51.9 M	23.3 M	49.6 M	34.2 M
Selenium	<1 mg/kg	TM181	<1 #		<1 #	<1 #	<1 #	<1 #
Tin	<0.24 mg/kg	TM181	0.711 #		2.18 #	0.833 #	1.63 #	0.346 #
Thallium	<0.7 mg/kg	TM181	<0.7 #		<0.7 #	<0.7 #	0.995 #	<0.7 #
Vanadium	<0.2 mg/kg	TM181	60.7 #		38.9 #	23.7 #	74 #	14 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-05	BH-RPS-05	BH-RPS-06	BH-RPS-06	BH-RPS-07	BH-RPS-12
Depth (m)			0.30	1.10	0.40 - 0.50	1.90 - 2.20	0.60 - 1.00	0.30 - 0.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			01/02/2018	01/02/2018	31/01/2018	31/01/2018	01/02/2018	01/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018
SDG Ref			180206-84	180206-84	180206-84	180206-84	180206-84	180206-84
Lab Sample No.(s)			17000116	17000133	17000077	17000090	17000186	17000204
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1
Component	**LOD/Units**	**Method**						
Zinc	<1.9 mg/kg	TM181	150 M		71.5 M	79.5 M	101 M	25.2 M
ANC @ pH 4	<0.03 mol/kg	TM182	0.584		0.231		0.164	0.182
ANC @ pH 6	<0.03 mol/kg	TM182	0.153		0.09		0.0612	0.134
Sulphate, acid soluble (total)	<0.02 %	TM221				0.0322		
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243				0.0576 M		
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243				0.633 M		
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243				<0.0003		
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248				0.00617		
Magnesium (BRE)	<0.008 g/l	TM282				<0.008		
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304					0.0037 #	
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304					<0.001 #	
Additional Asbestos Components (Using TM048)		TM304					None #	
Analysts Comments		TM304					N/C	
Asbestos Quantification - Total - %	<0.001 %	TM304					0.0039 #	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-10	WS-RPS-11	WS-RPS-20	WS-RPS-20		
Depth (m)			0.40 - 0.50	1.10	0.30 - 0.85	0.85 - 1.00		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			01/02/2018	01/02/2018	01/02/2018	01/02/2018		
Sampled Time			.	.	.	.		
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018		
SDG Ref			180206-84	180206-84	180206-84	180206-84		
Lab Sample No.(s)			17000099	17000066	17000164	17000195		
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1		
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	15	38	28	41		
Loss on ignition	<0.7 %	TM018	9.56 M	19.5 #	17.6 M	20 M		
Mineral oil >C10-C40	<1 mg/kg	TM061	105	243	41.7	64.5		
Mineral Oil Surrogate % recovery**	%	TM061	84	83.6	80.1	80.4		
Organic Carbon, Total	<0.2 %	TM132	6.59 M	0.513 #	47.8 M	0.961 M		
pH	1 pH Units	TM133	8.72 M	12.8 #	8.73 M	12.8 M		
Cyanide, Free	<1 mg/kg	TM153		<1 #				
PCB congener 28	<3 µg/kg	TM168	<3 M	<3 #	<3 M	<3 M		
PCB congener 52	<3 µg/kg	TM168	<3 M	<3 #	<3 M	<3 M		
PCB congener 101	<3 µg/kg	TM168	<3 M	<3 #	<3 M	<3 M		
PCB congener 118	<3 µg/kg	TM168	<3 M	<3 #	<3 M	<3 M		
PCB congener 138	<3 µg/kg	TM168	3.34 M	<3 #	<3 M	<3 M		
PCB congener 153	<3 µg/kg	TM168	3.8 M	<3 #	<3 M	<3 M		
PCB congener 180	<3 µg/kg	TM168	3.85 M	<3 #	<3 M	<3 M		
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21	<21	<21	<21		
Antimony	<0.6 mg/kg	TM181	0.726 #	<0.6 #	1.24 #	<0.6 #		
Arsenic	<0.6 mg/kg	TM181	12.5 M	10.8 #	29.2 M	14.6 M		
Cadmium	<0.02 mg/kg	TM181	0.272 M	0.863 #	0.261 M	0.92 M		
Chromium	<0.9 mg/kg	TM181	2.11 M	11.5 #	1.17 M	10.4 M		
Cobalt	<0.1 mg/kg	TM181	14.8 M	2.42 #	13.3 M	1.52 M		
Copper	<1.4 mg/kg	TM181	50.7 M	19.6 #	69.8 M	10.1 M		
Lead	<0.7 mg/kg	TM181	46.1 M	7.01 #	24.8 M	5.92 M		
Manganese	<0.13 mg/kg	TM181	658 M	368 #	747 M	277 M		
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 #	<0.14 M	<0.14 M		
Molybdenum	<0.1 mg/kg	TM181	3.47 #	0.625 #	4.2 #	0.423 #		
Nickel	<0.2 mg/kg	TM181	51.7 M	8.03 #	33.6 M	6.07 M		
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<1 #		
Tin	<0.24 mg/kg	TM181	0.868 #	0.743 #	0.687 #	0.357 #		
Thallium	<0.7 mg/kg	TM181	1 #	<0.7 #	1.3 #	<0.7 #		
Vanadium	<0.2 mg/kg	TM181	35.6 #	13.8 #	35.5 #	10.5 #		
Zinc	<1.9 mg/kg	TM181	49.2 M	50.5 #	78.6 M	28.4 M		
ANC @ pH 4	<0.03 mol/kg	TM182	0.527	15.3	0.311	12.2		

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-10	WS-RPS-11	WS-RPS-20	WS-RPS-20		
Depth (m)			0.40 - 0.50	1.10	0.30 - 0.85	0.85 - 1.00		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			01/02/2018	01/02/2018	01/02/2018	01/02/2018		
Sampled Time			-	-	-	-		
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018		
SDG Ref			180206-84	180206-84	180206-84	180206-84		
Lab Sample No.(s)			17000099	17000066	17000164	17000195		
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1		
Component	**LOD/Units**	**Method**						
ANC @ pH 6	<0.03 mol/kg	TM182	0.107	12.6	0.0719	10.1		

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-05	BH-RPS-06	BH-RPS-06	BH-RPS-07	BH-RPS-12	WS-RPS-10
Depth (m)			0.30	0.40 - 0.50	1.90 - 2.20	0.60 - 1.00	0.30 - 0.60	0.40 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			01/02/2018	31/01/2018	31/01/2018	01/02/2018	01/02/2018	01/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018
SDG Ref			180206-84	180206-84	180206-84	180206-84	180206-84	180206-84
Lab Sample No.(s)			17000116	17000077	17000090	17000186	17000204	17000099
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	97.8	99	103	96.3	97.9	98.5
Acenaphthene-d10 % recovery**	%	TM218	93.4	95.2	98.2	92.7	94.9	102
Phenanthrene-d10 % recovery**	%	TM218	88.7	94.2	98.1	92.9	94.9	102
Chrysene-d12 % recovery**	%	TM218	75.7	87.9	90.5	89.1	85.6	91.8
Perylene-d12 % recovery**	%	TM218	73.7	87	93	91.9	83.5	92.4
Naphthalene	<9 µg/kg	TM218	278 M	1060 M	93.9 M	1000 M	<9 M	736 M
Acenaphthylene	<12 µg/kg	TM218	<12 M	72.7 M	15.3 M	232 M	<12 M	47.9 M
Acenaphthene	<8 µg/kg	TM218	15.7 M	372 M	30 M	30.7 M	<8 M	21.4 M
Fluorene	<10 µg/kg	TM218	29.8 M	493 M	39.9 M	61.6 M	<10 M	31.7 M
Phenanthrene	<15 µg/kg	TM218	243 M	2690 M	138 M	1490 M	<15 M	757 M
Anthracene	<16 µg/kg	TM218	55.8 M	775 M	42.2 M	366 M	<16 M	122 M
Fluoranthene	<17 µg/kg	TM218	126 M	3470 M	93.5 M	3300 M	<17 M	862 M
Pyrene	<15 µg/kg	TM218	113 M	2850 M	71 M	2890 M	<15 M	932 M
Benz(a)anthracene	<14 µg/kg	TM218	74.4 M	1520 M	20.4 M	1900 M	<14 M	513 M
Chrysene	<10 µg/kg	TM218	47.8 M	1240 M	25.4 M	1800 M	<10 M	495 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	43.2 M	1890 M	30.6 M	3110 M	<15 M	1010 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M	616 M	<14 M	1140 M	<14 M	319 M
Benzo(a)pyrene	<15 µg/kg	TM218	37.9 M	1260 M	24.4 M	2060 M	<15 M	618 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M	595 M	<18 M	1210 M	<18 M	365 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M	193 M	<23 M	369 M	<23 M	99.9 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	37.6 M	890 M	<24 M	1550 M	<24 M	599 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	1100	20000	625	22500	<118	7530
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218	<10	20.2		23	<10	<10

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-11	WS-RPS-20	WS-RPS-20			
Depth (m)			1.10	0.30 - 0.85	0.85 - 1.00			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			01/02/2018	01/02/2018	01/02/2018			
Sampled Time			.	.	.			
Date Received			06/02/2018	06/02/2018	06/02/2018			
SDG Ref			180206-84	180206-84	180206-84			
Lab Sample No.(s)			17000066	17000164	17000195			
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1			
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	91.4	94.6	120			
Acenaphthene-d10 % recovery**	%	TM218	87.5	87.4	119			
Phenanthrene-d10 % recovery**	%	TM218	86.2	81.7	118			
Chrysene-d12 % recovery**	%	TM218	81	73.5	116			
Perylene-d12 % recovery**	%	TM218	85.8	72.4	114			
Naphthalene	<9 µg/kg	TM218	26.9 #	1650 M	58 M			
Acenaphthylene	<12 µg/kg	TM218	<12 #	36 M	452 M			
Acenaphthene	<8 µg/kg	TM218	<8 #	33.4 M	15.3 M			
Fluorene	<10 µg/kg	TM218	<10 #	36 M	42.6 M			
Phenanthrene	<15 µg/kg	TM218	93.9 #	780 M	6960 M			
Anthracene	<16 µg/kg	TM218	<16 #	107 M	1680 M			
Fluoranthene	<17 µg/kg	TM218	95.5 #	604 M	20900 M			
Pyrene	<15 µg/kg	TM218	78.8 #	505 M	17700 M			
Benz(a)anthracene	<14 µg/kg	TM218	27.3 #	355 M	9520 M			
Chrysene	<10 µg/kg	TM218	61.7 #	368 M	8680 M			
Benzo(b)fluoranthene	<15 µg/kg	TM218	111 #	530 M	9600 M			
Benzo(k)fluoranthene	<14 µg/kg	TM218	68.8 #	179 M	3770 M			
Benzo(a)pyrene	<15 µg/kg	TM218	91.1 #	321 M	6730 M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	84.7 #	199 M	3120 M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 #	68.7 M	995 M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218	104 #	317 M	4020 M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	843	6090	94200			
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218	<10	<10	94.8			

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-05	BH-RPS-06	BH-RPS-06	BH-RPS-07	BH-RPS-12	WS-RPS-10
Depth (m)			0.30	0.40 - 0.50	1.90 - 2.20	0.60 - 1.00	0.30 - 0.60	0.40 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			01/02/2018	31/01/2018	31/01/2018	01/02/2018	01/02/2018	01/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018
SDG Ref			180206-84	180206-84	180206-84	180206-84	180206-84	180206-84
Lab Sample No.(s)			17000116	17000077	17000090	17000186	17000204	17000099
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1
Component	**LOD/Units**	**Method**						
Phenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157	<100	295	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-05	BH-RPS-06	BH-RPS-06	BH-RPS-07	BH-RPS-12	WS-RPS-10
Depth (m)			0.30	0.40 - 0.50	1.90 - 2.20	0.60 - 1.00	0.30 - 0.60	0.40 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			01/02/2018	31/01/2018	31/01/2018	01/02/2018	01/02/2018	01/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018
SDG Ref			180206-84	180206-84	180206-84	180206-84	180206-84	180206-84
Lab Sample No.(s)			17000116	17000077	17000090	17000186	17000204	17000099
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157	<100	615	<100	277	<100	196
Acenaphthylene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157	<100	202	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157	<100	376	<100	216	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157	<100	519	<100	1460	<100	174
Benzo(b)fluoranthene	<100 µg/kg	TM157	<100	328	<100	1260	<100	181
Benzo(k)fluoranthene	<100 µg/kg	TM157	<100	308	<100	1280	<100	128
Benzo(a)pyrene	<100 µg/kg	TM157	<100	352	<100	1430	<100	181
Benzo(g,h,i)perylene	<100 µg/kg	TM157	<100	295	<100	1050	<100	187
Chrysene	<100 µg/kg	TM157	<100	486	<100	1480	<100	158
Fluoranthene	<100 µg/kg	TM157	<100	1340	<100	2760	<100	220
Fluorene	<100 µg/kg	TM157	<100	257	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	<100	236	<100	1200	<100	169
Phenanthrene	<100 µg/kg	TM157	<100	1210	<100	1060	<100	166
Pyrene	<100 µg/kg	TM157	<100	1260	<100	2850	<100	277
Naphthalene	<100 µg/kg	TM157	<100	460	<100	270	<100	196
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100	<100	<100	264	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-11	WS-RPS-20	WS-RPS-20			
Depth (m)			1.10	0.30 - 0.85	0.85 - 1.00			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			01/02/2018	01/02/2018	01/02/2018			
Sampled Time			.	.	.			
Date Received			06/02/2018	06/02/2018	06/02/2018			
SDG Ref			180206-84	180206-84	180206-84			
Lab Sample No.(s)			17000066	17000164	17000195			
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1			
Component	**LOD/Units**	**Method**						
Phenol	<100 µg/kg	TM157	<100	<100	<100			
Pentachlorophenol	<100 µg/kg	TM157	<100	<100	<100			
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100	<100			
Nitrobenzene	<100 µg/kg	TM157	<100	<100	<100			
Isophorone	<100 µg/kg	TM157	<100	<100	<100			
Hexachloroethane	<100 µg/kg	TM157	<100	<100	<100			
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100	<100			
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100	<100			
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100	<100			
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100	<100			
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100	<100			
Diethyl phthalate	<100 µg/kg	TM157	<100	<100	<100			
n-Dibutyl phthalate	<100 µg/kg	TM157	<100	<100	<100			
Dibenzofuran	<100 µg/kg	TM157	<100	<100	<100			
Carbazole	<100 µg/kg	TM157	<100	<100	<100			
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100	<100			
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100	<100			
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100	<100			
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100	<100			
Azobenzene	<100 µg/kg	TM157	<100	<100	<100			
4-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100			
4-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100			
4-Methylphenol	<100 µg/kg	TM157	<100	<100	<100			
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100	<100			
4-Chloroaniline	<100 µg/kg	TM157	<100	<100	<100			
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100	<100			
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100	<100			
3-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100			
2-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100			
2-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100			
2-Methylphenol	<100 µg/kg	TM157	<100	<100	<100			
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100	<100			

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-11	WS-RPS-20	WS-RPS-20			
Depth (m)			1.10	0.30 - 0.85	0.85 - 1.00			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			01/02/2018	01/02/2018	01/02/2018			
Sampled Time			-	-	-			
Date Received			06/02/2018	06/02/2018	06/02/2018			
SDG Ref			180206-84	180206-84	180206-84			
Lab Sample No.(s)			17000066	17000164	17000195			
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1			
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100	<100	<100			
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<100			
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<100			
2,4-Dimethylphenol	<100 µg/kg	TM157	<100	<100	<100			
2,4-Dichlorophenol	<100 µg/kg	TM157	<100	<100	<100			
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<100			
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<100			
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100			
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100			
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100			
2-Chloronaphthalene	<100 µg/kg	TM157	<100	<100	<100			
2-Methylnaphthalene	<100 µg/kg	TM157	<100	228	<100			
Acenaphthylene	<100 µg/kg	TM157	<100	<100	<100			
Acenaphthene	<100 µg/kg	TM157	<100	<100	<100			
Anthracene	<100 µg/kg	TM157	<100	<100	449			
Benzo(a)anthracene	<100 µg/kg	TM157	<100	213	2520			
Benzo(b)fluoranthene	<100 µg/kg	TM157	<100	213	1190			
Benzo(k)fluoranthene	<100 µg/kg	TM157	<100	149	1570			
Benzo(a)pyrene	<100 µg/kg	TM157	<100	194	1970			
Benzo(g,h,i)perylene	<100 µg/kg	TM157	<100	<100	979			
Chrysene	<100 µg/kg	TM157	<100	210	2320			
Fluoranthene	<100 µg/kg	TM157	<100	332	4670			
Fluorene	<100 µg/kg	TM157	<100	<100	<100			
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	<100	149	1040			
Phenanthrene	<100 µg/kg	TM157	<100	237	2230			
Pyrene	<100 µg/kg	TM157	<100	365	4960			
Naphthalene	<100 µg/kg	TM157	<100	257	<100			
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100	<100	298			
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100	<100	<100			

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-05	BH-RPS-06	BH-RPS-06	BH-RPS-07	BH-RPS-12	WS-RPS-10
Depth (m)			0.30	0.40 - 0.50	1.90 - 2.20	0.60 - 1.00	0.30 - 0.60	0.40 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			01/02/2018	31/01/2018	31/01/2018	01/02/2018	01/02/2018	01/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018
SDG Ref			180206-84	180206-84	180206-84	180206-84	180206-84	180206-84
Lab Sample No.(s)			17000116	17000077	17000090	17000186	17000204	17000099
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	45	13	127	34	115	18
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	181 M	501 M	<44 M	<44 M	114 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	13 #	<5 #	<5 #	<5 #	<5 #
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<2 µg/kg	TM089	2.8 M	3.54 M	2.52 M	3.9 M	<2 M	3.54 M
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M	4.72 M	5.04 M	<3 M	<3 M	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	20.1	10.1	<10	<10	13
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	51.9	45.4	<10	<10	17.7
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	27.1	173	<10	<10	16.5
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	20.1	85.7	<10	<10	29.5
Aliphatics >C12-C16	<100 µg/kg	TM173	6950	9800	<100	2690	<100	15200
Aliphatics >C16-C21	<100 µg/kg	TM173	14500	14700	<100	4310	<100	14500
Aliphatics >C21-C35	<100 µg/kg	TM173	104000	73400	1200	39100	1510	30900
Aliphatics >C35-C44	<100 µg/kg	TM173	50900	19400	<100	18300	<100	5780
Total Aliphatics >C12-C44	<100 µg/kg	TM173	176000	117000	1200	64500	1510	66300
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	29.5	125	<10	<10	15.3
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	13	56.7	<10	<10	18.9
Aromatics >EC12-EC16	<100 µg/kg	TM173	6360	23600	<100	3590	<100	13300
Aromatics >EC16-EC21	<100 µg/kg	TM173	12800	47400	1010	20600	<100	23100
Aromatics >EC21-EC35	<100 µg/kg	TM173	70000	153000	6380	88200	1030	75600
Aromatics >EC35-EC44	<100 µg/kg	TM173	21100	38100	1010	34000	<100	17600
Aromatics >EC40-EC44	<100 µg/kg	TM173	7610	14200	<100	14200	<100	6270
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	110000	262000	8400	146000	1030	130000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	287000	380000	10100	211000	2540	196000

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-11	WS-RPS-20	WS-RPS-20			
Depth (m)			1.10	0.30 - 0.85	0.85 - 1.00			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			01/02/2018	01/02/2018	01/02/2018			
Sampled Time			.	.	.			
Date Received			06/02/2018	06/02/2018	06/02/2018			
SDG Ref			180206-84	180206-84	180206-84			
Lab Sample No.(s)			17000066	17000164	17000195			
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1			
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	95	38	91			
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 #	<44 M	<44 M			
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5 #	<5 #			
Benzene	<10 µg/kg	TM089	<10 #	<10 M	<10 M			
Toluene	<2 µg/kg	TM089	<2 #	11.1 M	<2 M			
Ethylbenzene	<3 µg/kg	TM089	<3 #	<3 M	<3 M			
m,p-Xylene	<6 µg/kg	TM089	<6 #	<6 M	<6 M			
o-Xylene	<3 µg/kg	TM089	<3 #	<3 M	<3 M			
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9			
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24			
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10			
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	<10			
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	<10			
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	<10			
Aliphatics >C12-C16	<100 µg/kg	TM173	1630	6250	3440000			
Aliphatics >C16-C21	<100 µg/kg	TM173	<100	6610	1010000			
Aliphatics >C21-C35	<100 µg/kg	TM173	129000	16400	1220000			
Aliphatics >C35-C44	<100 µg/kg	TM173	104000	4830	186000			
Total Aliphatics >C12-C44	<100 µg/kg	TM173	235000	34100	5850000			
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10			
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	11.1	<10			
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	11.1	<10			
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10			
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	7180	227000			
Aromatics >EC16-EC21	<100 µg/kg	TM173	716	9590	403000			
Aromatics >EC21-EC35	<100 µg/kg	TM173	28100	29600	1970000			
Aromatics >EC35-EC44	<100 µg/kg	TM173	24000	8340	586000			
Aromatics >EC40-EC44	<100 µg/kg	TM173	9710	2950	185000			
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	52900	54700	3180000			
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	288000	88900	9030000			

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-05	BH-RPS-06	BH-RPS-06	BH-RPS-07	BH-RPS-12	WS-RPS-10
Depth (m)			0.30	0.40 - 0.50	1.90 - 2.20	0.60 - 1.00	0.30 - 0.60	0.40 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			01/02/2018	31/01/2018	31/01/2018	01/02/2018	01/02/2018	01/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018
SDG Ref			180206-84	180206-84	180206-84	180206-84	180206-84	180206-84
Lab Sample No.(s)			17000116	17000077	17000090	17000186	17000204	17000099
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	118	103	104	103	120	104
Toluene-d8**	%	TM116	91.3	93.2	97.7	98.4	96.8	94.8
4-Bromofluorobenzene**	%	TM116	71.2	75.2	86	85.9	96.8	84.6
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 M	<120 M	<6 M	<60 M	<6 M	<120 M
Chloromethane	<7 µg/kg	TM116	<7 #	<140 #	<7 #	<70 #	<7 #	<140 #
Vinyl Chloride	<6 µg/kg	TM116	<6 M	<120 M	<6 M	<60 M	<6 M	<120 M
Bromomethane	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Chloroethane	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Trichlorofluorormethane	<6 µg/kg	TM116	<6 M	<120 M	<6 M	<60 M	<6 M	<120 M
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<200 #	<10 #	<100 #	<10 #	<200 #
Carbon Disulphide	<7 µg/kg	TM116	<7 M	<140 M	<7 M	<70 M	<7 M	<140 M
Dichloromethane	<10 µg/kg	TM116	<10 #	<200 #	13.8 #	<100 #	<10 #	<200 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
1,1-Dichloroethane	<8 µg/kg	TM116	<8 M	<160 M	<8 M	<80 M	<8 M	<160 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 M	<120 M	<6 M	<60 M	<6 M	<120 M
2,2-Dichloropropane	<10 µg/kg	TM116	<10	<200	<10	<100	<10	<200
Bromochloromethane	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Chloroform	<8 µg/kg	TM116	<8 M	<160 M	<8 M	<80 M	<8 M	<160 M
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 M	<140 M	<7 M	<70 M	<7 M	<140 M
1,1-Dichloropropene	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Carbontetrachloride	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
1,2-Dichloroethane	<5 µg/kg	TM116	<5 M	<100 M	<5 M	<50 M	<5 M	<100 M
Benzene	<9 µg/kg	TM116	<9 M	<180 M	<9 M	<90 M	<9 M	<180 M
Trichloroethene	<9 µg/kg	TM116	<9 #	<180 #	<9 #	<90 #	<9 #	<180 #
1,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Dibromomethane	<9 µg/kg	TM116	<9 M	<180 M	<9 M	<90 M	<9 M	<180 M
Bromodichloromethane	<7 µg/kg	TM116	<7 M	<140 M	<7 M	<70 M	<7 M	<140 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Toluene	<7 µg/kg	TM116	<7 M	<140 M	<7 M	<70 M	<7 M	<140 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<200	<10	<100	<10	<200
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-05	BH-RPS-06	BH-RPS-06	BH-RPS-07	BH-RPS-12	WS-RPS-10
Depth (m)			0.30	0.40 - 0.50	1.90 - 2.20	0.60 - 1.00	0.30 - 0.60	0.40 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			01/02/2018	31/01/2018	31/01/2018	01/02/2018	01/02/2018	01/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018
SDG Ref			180206-84	180206-84	180206-84	180206-84	180206-84	180206-84
Lab Sample No.(s)			17000116	17000077	17000090	17000186	17000204	17000099
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<7 M	<140 M	<7 M	<70 M	<7 M	<140 M
Tetrachloroethene	<5 µg/kg	TM116	<5 M	<100 M	<5 M	<50 M	<5 M	<100 M
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
1,2-Dibromoethane	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Chlorobenzene	<5 µg/kg	TM116	<5 M	<100 M	<5 M	<50 M	<5 M	<100 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Ethylbenzene	<4 µg/kg	TM116	<4 M	<80 M	<4 M	<40 M	<4 M	<80 M
p/m-Xylene	<10 µg/kg	TM116	<10 #	<200 #	<10 #	<100 #	<10 #	<200 #
o-Xylene	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Styrene	<10 µg/kg	TM116	<10 #	<200 #	<10 #	<100 #	<10 #	<200 #
Bromoform	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Isopropylbenzene	<5 µg/kg	TM116	<5 #	<100 #	<5 #	<50 #	<5 #	<100 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 #	<200 #	<10 #	<100 #	<10 #	<200 #
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 M	<320 M	<16 M	<160 M	<16 M	<320 M
Bromobenzene	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
Propylbenzene	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
2-Chlorotoluene	<9 µg/kg	TM116	<9 M	<180 M	<9 M	<90 M	<9 M	<180 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 M	<160 M	<8 M	<80 M	<8 M	<160 M
4-Chlorotoluene	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
tert-Butylbenzene	<14 µg/kg	TM116	<14 M	<280 M	<14 M	<140 M	<14 M	<280 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #	<180 #	<9 #	<90 #	<9 #	<180 #
sec-Butylbenzene	<10 µg/kg	TM116	<10	<200	<10	<100	<10	<200
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 M	<160 M	<8 M	<80 M	<8 M	<160 M
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 M	<100 M	<5 M	<50 M	<5 M	<100 M
n-Butylbenzene	<11 µg/kg	TM116	<11	<220	<11	<110	<11	<220
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 M	<200 M	<10 M	<100 M	<10 M	<200 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 M	<280 M	<14 M	<140 M	<14 M	<280 M
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<200 #	<10 #	<100 #	<10 #	<200 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<400	<20	<200	<20	<400
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<400	<20	<200	<20	<400
Naphthalene	<13 µg/kg	TM116	<13 M	<260 M	<13 M	<130 M	<13 M	<260 M

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-05	BH-RPS-06	BH-RPS-06	BH-RPS-07	BH-RPS-12	WS-RPS-10
Depth (m)			0.30	0.40 - 0.50	1.90 - 2.20	0.60 - 1.00	0.30 - 0.60	0.40 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			01/02/2018	31/01/2018	31/01/2018	01/02/2018	01/02/2018	01/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018	06/02/2018
SDG Ref			180206-84	180206-84	180206-84	180206-84	180206-84	180206-84
Lab Sample No.(s)			17000116	17000077	17000090	17000186	17000204	17000099
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #	<400 #	<20 #	<200 #	<20 #	<400 #

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-11	WS-RPS-20	WS-RPS-20			
Depth (m)			1.10	0.30 - 0.85	0.85 - 1.00			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			01/02/2018	01/02/2018	01/02/2018			
Sampled Time			.	.	.			
Date Received			06/02/2018	06/02/2018	06/02/2018			
SDG Ref			180206-84	180206-84	180206-84			
Lab Sample No.(s)			17000066	17000164	17000195			
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1			
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	67.6	104	0.66			
Toluene-d8**	%	TM116	98.3	97.8	99.4			
4-Bromofluorobenzene**	%	TM116	96	84.3	95.7			
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 #	<60 M	<6 M			
Chloromethane	<7 µg/kg	TM116	<7 #	<70 #	<7 #			
Vinyl Chloride	<6 µg/kg	TM116	<6 #	<60 M	<6 M			
Bromomethane	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Chloroethane	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Trichlorofluorormethane	<6 µg/kg	TM116	<6 #	<60 M	<6 M			
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<100 #	<10 #			
Carbon Disulphide	<7 µg/kg	TM116	<7 #	<70 M	<7 M			
Dichloromethane	<10 µg/kg	TM116	<10 #	<100 #	<10 #			
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
1,1-Dichloroethane	<8 µg/kg	TM116	<8 #	<80 M	<8 M			
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 #	<60 M	<6 M			
2,2-Dichloropropane	<10 µg/kg	TM116	<10	<100	<10			
Bromochloromethane	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Chloroform	<8 µg/kg	TM116	<8 #	<80 M	<8 M			
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 #	<70 M	<7 M			
1,1-Dichloropropene	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Carbontetrachloride	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
1,2-Dichloroethane	<5 µg/kg	TM116	<5 #	<50 M	<5 M			
Benzene	<9 µg/kg	TM116	<9 #	<90 M	<9 M			
Trichloroethene	<9 µg/kg	TM116	<9 #	<90 #	<9 #			
1,2-Dichloropropane	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Dibromomethane	<9 µg/kg	TM116	<9 #	<90 M	<9 M			
Bromodichloromethane	<7 µg/kg	TM116	<7 #	<70 M	<7 M			
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Toluene	<7 µg/kg	TM116	<7 #	<70 M	<7 M			
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<100	<10			
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 #	<100 M	<10 M			

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-11	WS-RPS-20	WS-RPS-20			
Depth (m)			1.10	0.30 - 0.85	0.85 - 1.00			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			01/02/2018	01/02/2018	01/02/2018			
Sampled Time			-	-	-			
Date Received			06/02/2018	06/02/2018	06/02/2018			
SDG Ref			180206-84	180206-84	180206-84			
Lab Sample No.(s)			17000066	17000164	17000195			
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1			
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<7 #	<70 M	<7 M			
Tetrachloroethene	<5 µg/kg	TM116	<5 #	<50 M	<5 M			
Dibromochloromethane	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
1,2-Dibromoethane	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Chlorobenzene	<5 µg/kg	TM116	<5 #	<50 M	<5 M			
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Ethylbenzene	<4 µg/kg	TM116	<4 #	<40 M	<4 M			
p/m-Xylene	<10 µg/kg	TM116	<10 #	<100 #	<10 #			
o-Xylene	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Styrene	<10 µg/kg	TM116	<10 #	<100 #	<10 #			
Bromoform	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Isopropylbenzene	<5 µg/kg	TM116	<5 #	<50 #	<5 #			
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 #	<100 #	<10 #			
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 #	<160 M	<16 M			
Bromobenzene	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
Propylbenzene	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
2-Chlorotoluene	<9 µg/kg	TM116	<9 #	<90 M	<9 M			
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 #	<80 M	<8 M			
4-Chlorotoluene	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
tert-Butylbenzene	<14 µg/kg	TM116	<14 #	<140 M	<14 M			
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #	<90 #	<9 #			
sec-Butylbenzene	<10 µg/kg	TM116	<10	<100	<10			
4-Isopropyltoluene	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 #	<80 M	<8 M			
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 #	<50 M	<5 M			
n-Butylbenzene	<11 µg/kg	TM116	<11	<110	<11			
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 #	<100 M	<10 M			
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 #	<140 M	<14 M			
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<100 #	<10 #			
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<200	<20			
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<200	<20			
Naphthalene	<13 µg/kg	TM116	<13 #	<130 M	<13 M			

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-11	WS-RPS-20	WS-RPS-20			
Depth (m)			1.10	0.30 - 0.85	0.85 - 1.00			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			01/02/2018	01/02/2018	01/02/2018			
Sampled Time			-	-	-			
Date Received			06/02/2018	06/02/2018	06/02/2018			
SDG Ref			180206-84	180206-84	180206-84			
Lab Sample No.(s)			17000066	17000164	17000195			
AGS Reference			ESSchedule_1	ESSchedule_1	ESSchedule_1			
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #	<200 #	<20 #			

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-05 ES Schedule_1 0.30 SOLID 01/02/2018 00:00:00 07/02/2018 09:57:10 180206-84 17000116 TM048	13/02/2018	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-06 ES Schedule_1 0.40 - 0.50 SOLID 31/01/2018 00:00:00 07/02/2018 10:04:51 180206-84 17000077 TM048	13/02/2018	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-07 ES Schedule_1 0.60 - 1.00 SOLID 01/02/2018 00:00:00 07/02/2018 11:02:24 180206-84 17000186 TM048	13/02/2018	Barbara Urbanek-Walsh	Loose fibres in soil.	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-12 ES Schedule_1 0.30 - 0.60 SOLID 01/02/2018 00:00:00 07/02/2018 11:27:22 180206-84 17000204 TM048	13/02/2018	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-10 ES Schedule_1 0.40 - 0.50 SOLID 01/02/2018 00:00:00 07/02/2018 11:56:41 180206-84 17000099 TM048	13/02/2018	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-11 ES Schedule_1 1.10 SOLID 01/02/2018 00:00:00 07/02/2018 12:26:20 180206-84 17000066 TM048	13/02/2018	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-20 ES Schedule_1 0.30 - 0.85 SOLID 01/02/2018 00:00:00 07/02/2018 11:00:44 180206-84 17000164 TM048	13/02/2018	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-20 ES Schedule_1 0.85 - 1.00 SOLID 01/02/2018 00:00:00 07/02/2018 11:29:20 180206-84 17000195 TM048	13/02/2018	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Asbestos Quantification - Full

		Additional Asbestos Components (Using TM048)	Analysts Comments	Asbestos Quantification - Gravimetric - %	Asbestos Quantification - PCOM Evaluation - %	Asbestos Quantification - Total - %
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-07 ES Schedule_1 0.60 - 1.00 SOLID 01/02/2018 00:00:00 15/02/2018 13:03:39 180206-84 17000186 TM304	None (#)	N/C	0.0037 (#)	<0.001 (#)	0.0039 (#)

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.145	**Natural Moisture Content (%)**	61.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	62
Particle Size <4mm	>95%		

Case	
SDG	180206-84
Lab Sample Number(s)	17000066
Sampled Date	01-Feb-2018
Customer Sample Ref.	WS-RPS-11 ESSchedule_1
Depth (m)	1.10

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.513	3	5	6
Loss on Ignition (%)	19.5	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	243	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	12.8	-	>6	-
ANC to pH 6 (mol/kg)	12.6	-	-	-
ANC to pH 4 (mol/kg)	15.3	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.253	<0.0002	2.53	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00145	<0.001	0.0145	<0.01	0.5	10	70
Copper	0.00244	<0.0003	0.0244	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00699	<0.0005	0.0699	<0.005	0.5	10	30
Nickel	0.000577	<0.0004	0.00577	<0.004	0.4	10	40
Lead	0.0238	<0.0002	0.238	<0.002	0.5	10	50
Antimony	<0.0001	<0.0001	<0.001	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	0.0134	<0.001	0.134	<0.01	4	50	200
Chloride	12.9	<2	129	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	81.5	<2	815	<20	1000	20000	50000
Total Dissolved Solids	7050	<25	70500	<250	4000	60000	100000
Total Monohydric Phenols (W)	0.02	<0.016	0.2	<0.16	1	-	-
Dissolved Organic Carbon	4.58	<3	45.8	<30	500	800	1000

Leach Test Information

Date Prepared	08-Feb-2018
pH (pH Units)	12.47
Conductivity (µS/cm)	8,240.00
Temperature (ºC)	20.80
Volume Leachant (Litres)	0.845

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.106	**Natural Moisture Content (%)**	17.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	85
Particle Size <4mm	>95%		

Case	
SDG	180206-84
Lab Sample Number(s)	17000077
Sampled Date	31-Jan-2018
Customer Sample Ref.	BH-RPS-06 ESSchedule_1
Depth (m)	0.40 - 0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	37.5	3	5	6
Loss on Ignition (%)	16.2	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	192	500	-	-
PAH Sum of 17 (mg/kg)	20.2	100	-	-
pH (pH Units)	8.58	-	>6	-
ANC to pH 6 (mol/kg)	0.09	-	-	-
ANC to pH 4 (mol/kg)	0.231	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0101	<0.0005	0.101	<0.005	0.5	2	25
Barium	0.0878	<0.0002	0.878	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00238	<0.0003	0.0238	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000253	<0.00001	0.000253	<0.0001	0.01	0.2	2
Molybdenum	0.117	<0.0005	1.17	<0.005	0.5	10	30
Nickel	0.00237	<0.0004	0.0237	<0.004	0.4	10	40
Lead	0.00872	<0.0002	0.0872	<0.002	0.5	10	50
Antimony	0.00702	<0.0001	0.0702	<0.001	0.06	0.7	5
Selenium	0.0017	<0.0005	0.017	<0.005	0.1	0.5	7
Zinc	0.00426	<0.001	0.0426	<0.01	4	50	200
Chloride	5.9	<2	59	<20	800	15000	25000
Fluoride	0.528	<0.5	5.28	<5	10	150	500
Sulphate (soluble)	26.4	<2	264	<20	1000	20000	50000
Total Dissolved Solids	122	<5	1220	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	3.26	<3	32.6	<30	500	800	1000

Leach Test Information

Date Prepared	08-Feb-2018
pH (pH Units)	8.51
Conductivity (µS/cm)	158.00
Temperature (ºC)	20.10
Volume Leachant (Litres)	0.884

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.106	**Natural Moisture Content (%)**	17.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	85
Particle Size <4mm	>95%		

Case	
SDG	180206-84
Lab Sample Number(s)	17000099
Sampled Date	01-Feb-2018
Customer Sample Ref.	WS-RPS-10 ESSchedule_1
Depth (m)	0.40 - 0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	6.59	3	5	6
Loss on Ignition (%)	9.56	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	105	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.72	-	>6	-
ANC to pH 6 (mol/kg)	0.107	-	-	-
ANC to pH 4 (mol/kg)	0.527	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.0413	<0.0002	0.413	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	<0.0003	<0.0003	<0.003	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00633	<0.0005	0.0633	<0.005	0.5	10	30
Nickel	0.00217	<0.0004	0.0217	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	0.000382	<0.0001	0.00382	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	0.00384	<0.001	0.0384	<0.01	4	50	200
Chloride	11.1	<2	111	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	778	<10	7780	<100	1000	20000	50000
Total Dissolved Solids	1080	<5	10800	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	3.3	<3	33	<30	500	800	1000

Leach Test Information

Date Prepared	08-Feb-2018
pH (pH Units)	7.47
Conductivity (µS/cm)	1,450.00
Temperature (ºC)	20.80
Volume Leachant (Litres)	0.884

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.126	**Natural Moisture Content (%)**	40.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	71
Particle Size <4mm	>95%		

Case	
SDG	180206-84
Lab Sample Number(s)	17000116
Sampled Date	01-Feb-2018
Customer Sample Ref.	BH-RPS-05 ESSchedule_1
Depth (m)	0.30

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	11.9	3	5	6
Loss on Ignition (%)	11.7	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	126	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	9	-	>6	-
ANC to pH 6 (mol/kg)	0.153	-	-	-
ANC to pH 4 (mol/kg)	0.584	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00126	<0.0005	0.0126	<0.005	0.5	2	25
Barium	0.0272	<0.0002	0.272	<0.002	20	100	300
Cadmium	0.0000808	<0.00008	0.000808	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	<0.0003	<0.0003	<0.003	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00637	<0.0005	0.0637	<0.005	0.5	10	30
Nickel	0.00558	<0.0004	0.0558	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	0.00206	<0.0001	0.0206	<0.001	0.06	0.7	5
Selenium	0.000626	<0.0005	0.00626	<0.005	0.1	0.5	7
Zinc	0.00442	<0.001	0.0442	<0.01	4	50	200
Chloride	28.8	<2	288	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	635	<10	6350	<100	1000	20000	50000
Total Dissolved Solids	956	<5	9560	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	3.27	<3	32.7	<30	500	800	1000

Leach Test Information

Date Prepared	08-Feb-2018
pH (pH Units)	7.10
Conductivity (µS/cm)	1,290.00
Temperature (ºC)	20.90
Volume Leachant (Litres)	0.863

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

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Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.125	**Natural Moisture Content (%)**	38.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	72
Particle Size <4mm	>95%		

Case	
SDG	180206-84
Lab Sample Number(s)	17000164
Sampled Date	01-Feb-2018
Customer Sample Ref.	WS-RPS-20 ESSchedule_1
Depth (m)	0.30 - 0.85

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	47.8	3	5	6
Loss on Ignition (%)	17.6	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	41.7	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.73	-	>6	-
ANC to pH 6 (mol/kg)	0.0719	-	-	-
ANC to pH 4 (mol/kg)	0.311	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.012	<0.0005	0.12	<0.005	0.5	2	25
Barium	0.0677	<0.0002	0.677	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00515	<0.0003	0.0515	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000107	<0.00001	0.000107	<0.0001	0.01	0.2	2
Molybdenum	0.00169	<0.0005	0.0169	<0.005	0.5	10	30
Nickel	0.00113	<0.0004	0.0113	<0.004	0.4	10	40
Lead	0.00266	<0.0002	0.0266	<0.002	0.5	10	50
Antimony	0.000947	<0.0001	0.00947	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	0.00739	<0.001	0.0739	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	0.722	<0.5	7.22	<5	10	150	500
Sulphate (soluble)	5.1	<2	51	<20	1000	20000	50000
Total Dissolved Solids	77.1	<5	771	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	3.65	<3	36.5	<30	500	800	1000

Leach Test Information

Date Prepared	08-Feb-2018
pH (pH Units)	9.05
Conductivity (µS/cm)	97.00
Temperature (ºC)	20.00
Volume Leachant (Litres)	0.865

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26/02/2018 16:35:02

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.117	**Natural Moisture Content (%)**	29.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	77
Particle Size <4mm	>95%		

Case	
SDG	180206-84
Lab Sample Number(s)	17000186
Sampled Date	01-Feb-2018
Customer Sample Ref.	BH-RPS-07 ESSchedule_1
Depth (m)	0.60 - 1.00

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	34.8	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	60.2	500	-	-
PAH Sum of 17 (mg/kg)	23	100	-	-
pH (pH Units)	8.63	-	>6	-
ANC to pH 6 (mol/kg)	0.0612	-	-	-
ANC to pH 4 (mol/kg)	0.164	-	-	-

Eluate Analysis	**C2** Concⁿ in 10:1 eluate (mg/l)		**A2** 10:1 concⁿ leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0365	<0.0005	0.365	<0.005	0.5	2	25
Barium	0.0628	<0.0002	0.628	<0.002	20	100	300
Cadmium	0.000259	<0.00008	0.00259	<0.0008	0.04	1	5
Chromium	0.00578	<0.001	0.0578	<0.01	0.5	10	70
Copper	0.00555	<0.0003	0.0555	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.000537	<0.00001	0.00537	<0.0001	0.01	0.2	2
Molybdenum	0.00182	<0.0005	0.0182	<0.005	0.5	10	30
Nickel	0.00136	<0.0004	0.0136	<0.004	0.4	10	40
Lead	0.0134	<0.0002	0.134	<0.002	0.5	10	50
Antimony	0.00122	<0.0001	0.0122	<0.001	0.06	0.7	5
Selenium	0.000596	<0.0005	0.00596	<0.005	0.1	0.5	7
Zinc	0.0222	<0.001	0.222	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	3.1	<2	31	<20	1000	20000	50000
Total Dissolved Solids	58.2	<5	582	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	3.63	<3	36.3	<30	500	800	1000

Leach Test Information

Date Prepared	08-Feb-2018
pH (pH Units)	8.79
Conductivity (µS/cm)	72.70
Temperature (ºC)	20.10
Volume Leachant (Litres)	0.873

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26/02/2018 16:35:02

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CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.152	**Natural Moisture Content (%)**	69.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	59
Particle Size <4mm	>95%		

Case	
SDG	180206-84
Lab Sample Number(s)	17000195
Sampled Date	01-Feb-2018
Customer Sample Ref.	WS-RPS-20 ESSchedule_1
Depth (m)	0.85 - 1.00

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.961	3	5	6
Loss on Ignition (%)	20	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	64.5	500	-	-
PAH Sum of 17 (mg/kg)	94.8	100	-	-
pH (pH Units)	12.8	-	>6	-
ANC to pH 6 (mol/kg)	10.1	-	-	-
ANC to pH 4 (mol/kg)	12.2	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.136	<0.0002	1.36	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00264	<0.001	0.0264	<0.01	0.5	10	70
Copper	0.0181	<0.0003	0.181	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00367	<0.0005	0.0367	<0.005	0.5	10	30
Nickel	0.000982	<0.0004	0.00982	<0.004	0.4	10	40
Lead	0.00683	<0.0002	0.0683	<0.002	0.5	10	50
Antimony	<0.0001	<0.0001	<0.001	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	0.00911	<0.001	0.0911	<0.01	4	50	200
Chloride	6.3	<2	63	<20	800	15000	25000
Fluoride	0.502	<0.5	5.02	<5	10	150	500
Sulphate (soluble)	54.4	<2	544	<20	1000	20000	50000
Total Dissolved Solids	6950	<25	69500	<250	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	6.45	<3	64.5	<30	500	800	1000

Leach Test Information

Date Prepared	08-Feb-2018
pH (pH Units)	12.40
Conductivity (µS/cm)	8.00
Temperature (ºC)	19.90
Volume Leachant (Litres)	0.837

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CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.099	**Natural Moisture Content (%)**	10.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.5
Particle Size <4mm	>95%		

Case	
SDG	180206-84
Lab Sample Number(s)	17000204
Sampled Date	01-Feb-2018
Customer Sample Ref.	BH-RPS-12 ESSchedule_1
Depth (m)	0.30 - 0.60

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.279	3	5	6
Loss on Ignition (%)	<0.7	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	11.9	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	9.01	-	>6	-
ANC to pH 6 (mol/kg)	0.134	-	-	-
ANC to pH 4 (mol/kg)	0.182	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00615	<0.0005	0.0615	<0.005	0.5	2	25
Barium	0.0033	<0.0002	0.033	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	<0.0003	<0.0003	<0.003	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00226	<0.0005	0.0226	<0.005	0.5	10	30
Nickel	0.000991	<0.0004	0.00991	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	0.000349	<0.0001	0.00349	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	0.66	<0.5	6.6	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	35.3	<5	353	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	3.31	<3	33.1	<30	500	800	1000

Leach Test Information

Date Prepared	08-Feb-2018
pH (pH Units)	9.49
Conductivity (µS/cm)	43.90
Temperature (ºC)	20.80
Volume Leachant (Litres)	0.891

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
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26/02/2018 16:35:02

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CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Notification of NDPs (No determination possible)

Date Received : 06/02/2018 14:38:00

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
17000186	BH-RPS-07 ESSchedule_1	0.60 - 1.00	Loss on Ignition in soils	Unsuitable sample for analysis

Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM282		Extraction of Magnesium by BRE Method
TM304	HSE Contract research Report no 83/1996	Asbestos Quantification in Soil: Fibres identified by morphology only

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	17000116	17000133	17000077	17000090	17000186	17000204	17000099	17000066	17000164	17000195
Customer Sample Ref.	BH-RPS-05	BH-RPS-05	BH-RPS-06	BH-RPS-06	BH-RPS-07	BH-RPS-12	WS-RPS-10	WS-RPS-11	WS-RPS-20	WS-RPS-20
AGS Ref.	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1	ESSchedule_1
Depth	0.30	1.10	0.40 - 0.50	1.90 - 2.20	0.60 - 1.00	0.30 - 0.60	0.40 - 0.50	1.10	0.30 - 0.85	0.85 - 1.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract				09-Feb-2018						
ANC at pH4 and ANC at pH 6	13-Feb-2018		13-Feb-2018		13-Feb-2018	13-Feb-2018	13-Feb-2018	15-Feb-2018	13-Feb-2018	13-Feb-2018
Anions by Kone (soil)				09-Feb-2018						
Anions by Kone (w)	12-Feb-2018		12-Feb-2018		12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018
Asbestos ID in Solid Samples	13-Feb-2018		13-Feb-2018		13-Feb-2018	13-Feb-2018	13-Feb-2018	13-Feb-2018	13-Feb-2018	13-Feb-2018
Asbestos Quantification - Full					26-Feb-2018					
CEN 10:1 Leachate (1 Stage)	08-Feb-2018		08-Feb-2018		08-Feb-2018	08-Feb-2018	08-Feb-2018	08-Feb-2018	08-Feb-2018	08-Feb-2018
CEN Readings	10-Feb-2018		09-Feb-2018		09-Feb-2018	10-Feb-2018	10-Feb-2018	10-Feb-2018	09-Feb-2018	09-Feb-2018
Cyanide Comp/Free/Total/Thiocyanate			09-Feb-2018					09-Feb-2018		
Dissolved Metals by ICP-MS	13-Feb-2018		13-Feb-2018		13-Feb-2018	13-Feb-2018	13-Feb-2018	13-Feb-2018	13-Feb-2018	13-Feb-2018
Dissolved Organic/Inorganic Carbon	12-Feb-2018		12-Feb-2018		12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018
EPH CWG (Aliphatic) GC (S)	09-Feb-2018		09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	12-Feb-2018
EPH CWG (Aromatic) GC (S)	09-Feb-2018		09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	12-Feb-2018
Fluoride	12-Feb-2018		12-Feb-2018		12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018
GRO by GC-FID (S)	12-Feb-2018		12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018
Loss on Ignition in soils	14-Feb-2018		14-Feb-2018			14-Feb-2018	14-Feb-2018	14-Feb-2018	14-Feb-2018	14-Feb-2018
Magnesium (BRE)				11-Feb-2018						
Mercury Dissolved	13-Feb-2018		13-Feb-2018		13-Feb-2018	13-Feb-2018	13-Feb-2018	13-Feb-2018	13-Feb-2018	12-Feb-2018
Metals in solid samples by OES	13-Feb-2018		13-Feb-2018	13-Feb-2018	14-Feb-2018	13-Feb-2018	13-Feb-2018	13-Feb-2018	14-Feb-2018	13-Feb-2018
Mineral Oil	12-Feb-2018		12-Feb-2018		12-Feb-2018	12-Feb-2018	12-Feb-2018	13-Feb-2018	12-Feb-2018	12-Feb-2018
NO3, NO2 and TON by KONE (s)				09-Feb-2018						
PAH by GCMS	13-Feb-2018		13-Feb-2018	13-Feb-2018	13-Feb-2018	12-Feb-2018	12-Feb-2018	14-Feb-2018	13-Feb-2018	13-Feb-2018
PCBs by GCMS	12-Feb-2018		12-Feb-2018		12-Feb-2018	12-Feb-2018	12-Feb-2018	13-Feb-2018	12-Feb-2018	12-Feb-2018
pH	09-Feb-2018	08-Feb-2018	09-Feb-2018	08-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	08-Feb-2018
Phenols by HPLC (W)	11-Feb-2018		11-Feb-2018		11-Feb-2018	11-Feb-2018	11-Feb-2018	11-Feb-2018	11-Feb-2018	11-Feb-2018
Sample description	07-Feb-2018	07-Feb-2018	07-Feb-2018	07-Feb-2018	07-Feb-2018	07-Feb-2018	07-Feb-2018	07-Feb-2018	07-Feb-2018	07-Feb-2018
Semi Volatile Organic Compounds	09-Feb-2018		09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018	09-Feb-2018
Total Dissolved Solids	12-Feb-2018		12-Feb-2018		12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018
Total Organic Carbon	13-Feb-2018		13-Feb-2018	09-Feb-2018	13-Feb-2018	13-Feb-2018	09-Feb-2018	13-Feb-2018	13-Feb-2018	13-Feb-2018
Total Sulphate				12-Feb-2018						
Total Sulphur				08-Feb-2018						
TPH CWG GC (S)	12-Feb-2018		12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018
VOC MS (S)	12-Feb-2018		12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018	12-Feb-2018

ASSOCIATED AQC DATA

ANC at pH4 and ANC at pH 6

Component	Method Code	QC 1706	QC 1777
ANC pH_4 dry soil	TM182	**100.96** 86.12 : 113.88	**95.92** 86.12 : 113.88
ANC pH_6 dry soil	TM182	**109.15** 61.00 : 139.00	**104.51** 61.00 : 139.00

Anions by Kone (soil)

Component	Method Code	QC 1748
Chloride (soluble)	TM243	**66.19** 89.30 : 110.70
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**57.06** 70.45 : 129.55

Anions by Kone (w)

Component	Method Code	QC 1743
Chloride	TM184	**109.0** 92.93 : 115.43
Phosphate (Ortho as PO4)	TM184	96.40 : 108.40
Sulphate (soluble)	TM184	**94.4** 90.53 : 113.03
TON as NO3	TM184	96.26 : 111.21

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 1798	QC 1712
Free Cyanide	TM153	**95.1** 84.60 : 110.40	**99.3** 84.60 : 110.40
Thiocyanate	TM153	**94.61** 83.02 : 103.47	**94.01** 83.02 : 103.47
Total Cyanide	TM153	**102.86** 87.53 : 111.13	**104.29** 87.53 : 111.13

Dissolved Metals by ICP-MS

Component	Method Code	QC 1747
Aluminium	TM152	**99.33** 88.00 : 112.00
Antimony	TM152	**98.5** 88.00 : 112.00
Arsenic	TM152	**97.5** 88.00 : 112.00
Barium	TM152	**102.67** 88.00 : 112.00
Beryllium	TM152	**97.0** 88.00 : 112.00
Bismuth	TM152	**100.0** 88.90 : 106.90

Dissolved Metals by ICP-MS

		QC 1747
Borate	TM152	**97.53** 88.00 : 112.00
Boron	TM152	**97.33** 88.00 : 112.00
Cadmium	TM152	**98.17** 88.00 : 112.00
Chromium	TM152	**96.17** 88.00 : 112.00
Cobalt	TM152	**92.33** 88.00 : 112.00
Copper	TM152	**95.0** 85.52 : 115.00
Lead	TM152	**98.67** 88.00 : 112.00
Lithium	TM152	**99.33** 88.00 : 112.00
Manganese	TM152	**95.83** 88.00 : 112.00
Molybdenum	TM152	**98.0** 88.00 : 112.00
Nickel	TM152	**95.83** 88.00 : 112.00
Niobium	TM152	88.00 : 112.00
Phosphorus	TM152	**101.83** 88.00 : 112.00
Selenium	TM152	**101.67** 88.00 : 112.00
Silver	TM152	**99.5** 88.00 : 112.00
Strontium	TM152	**102.0** 88.00 : 112.00
Tellurium	TM152	**97.83** 88.00 : 112.00
Thallium	TM152	**95.83** 88.00 : 112.00
Titanium	TM152	**97.5** 88.00 : 112.00
Tungsten	TM152	**96.0** 88.00 : 112.00
Uranium	TM152	**98.0** 88.00 : 112.00
Vanadium	TM152	**95.5** 88.00 : 112.00
Zinc	TM152	**97.0** 88.00 : 112.00
Zirconium	TM152	88.00 : 112.00

Dissolved Organic/Inorganic Carbon

Dissolved Organic/Inorganic Carbon

Component	Method Code	QC 1754
Dissolved Inorganic Carbon	TM090	**97.0** 91.15 : 111.35
Dissolved Organic Carbon	TM090	**103.67** 94.18 : 111.18

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1767	QC 1745
Total Aliphatics >C12-C35	TM173	**88.75** 70.61 : 106.16	**87.5** 70.76 : 104.69

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1767	QC 1745
Total Aromatics >EC12-EC35	TM173	**94.67** 67.75 : 104.04	**85.33** 68.16 : 102.29

Fluoride

Component	Method Code	QC 1775	QC 1784
Fluoride	TM104	**101.33** 92.67 : 104.67	**101.33** 92.67 : 104.67

GRO by GC-FID (S)

Component	Method Code	QC 1787	QC 1732
Benzene by GC (Moisture Corrected)	TM089	**105.5** 83.15 : 118.53	**93.0** 80.70 : 121.69
Ethylbenzene by GC (Moisture Corrected)	TM089	**110.5** 81.56 : 117.75	**94.0** 76.65 : 121.92
m & p Xylene by GC (Moisture Corrected)	TM089	**110.5** 80.40 : 118.80	**95.5** 76.25 : 122.54
MTBE GC-FID (Moisture Corrected)	TM089	**105.0** 83.25 : 126.67	**95.0** 77.67 : 125.50
o Xylene by GC (Moisture Corrected)	TM089	**108.5** 80.82 : 119.41	**95.0** 76.37 : 122.94
QC	TM089	**89.1** 64.83 : 116.17	**76.02** 68.07 : 103.94
Toluene by GC (Moisture Corrected)	TM089	**110.0** 83.39 : 118.40	**97.0** 75.95 : 122.88

Loss on Ignition in soils

Loss on Ignition in soils

Component	Method Code	QC 1788
Loss on Ignition	TM018	**101.18** 89.27 : 104.90

Magnesium (BRE)

Component	Method Code	QC 1731
Magnesium Raw	TM282	**104.5** 85.00 : 115.00

Mercury Dissolved

Component	Method Code	QC 1708	QC 1710
Mercury Dissolved (CVAF)	TM183	**99.5** 73.51 : 120.83	**97.1** 73.51 : 120.83

Metals in solid samples by OES

Component	Method Code	QC 1779	QC 1718	QC 1702	QC 1740
Aluminium	TM181	**93.33** 75.13 : 109.48	**91.85** 75.13 : 109.48	**85.93** 75.13 : 109.48	**82.22** 75.13 : 109.48
Antimony	TM181	**96.91** 84.48 : 110.90	**98.46** 84.48 : 110.90	**99.23** 84.48 : 110.90	**100.39** 84.48 : 110.90
Arsenic	TM181	**91.77** 83.14 : 108.73	**94.86** 83.14 : 108.73	**92.8** 83.14 : 108.73	**88.69** 83.14 : 108.73
Barium	TM181	**95.31** 77.47 : 102.53	**95.31** 77.47 : 102.53	**96.88** 77.47 : 102.53	**91.41** 77.47 : 102.53
Beryllium	TM181	**94.18** 84.19 : 106.77	**93.84** 84.19 : 106.77	**95.89** 84.19 : 106.77	**95.55** 84.19 : 106.77
Boron	TM181	**86.72** 76.55 : 106.69	**88.42** 76.55 : 106.69	**86.72** 76.55 : 106.69	**86.16** 76.55 : 106.69
Cadmium	TM181	**97.87** 86.37 : 111.59	**98.4** 86.37 : 111.59	**96.81** 86.37 : 111.59	**93.62** 86.37 : 111.59
Chromium	TM181	**95.99** 81.29 : 118.71	**97.05** 81.29 : 118.71	**98.1** 81.29 : 118.71	**97.47** 81.29 : 118.71
Cobalt	TM181	**94.67** 85.45 : 109.14	**96.24** 85.45 : 109.14	**94.98** 85.45 : 109.14	**90.6** 85.45 : 109.14
Copper	TM181	**89.81** 81.33 : 103.33	**91.7** 81.33 : 103.33	**92.43** 81.33 : 103.33	**93.6** 81.33 : 103.33
Iron	TM181	**95.14** 82.44 : 111.71	**97.22** 82.44 : 111.71	**93.75** 82.44 : 111.71	**91.67** 82.44 : 111.71
Lead	TM181	**89.57** 83.33 : 106.95	**96.6** 83.33 : 106.95	**95.74** 83.33 : 106.95	**89.79** 83.33 : 106.95
Manganese	TM181	**88.28** 80.56 : 102.33	**89.7** 80.56 : 102.33	**89.49** 80.56 : 102.33	**89.7** 80.56 : 102.33

Metals in solid samples by OES

		QC 1779	QC 1718	QC 1702	QC 1740
Mercury	TM181	**98.04** 84.13 : 111.85	**97.65** 84.13 : 111.85	**95.69** 84.13 : 111.85	**92.16** 84.13 : 111.85
Molybdenum	TM181	**95.37** 84.19 : 110.39	**94.98** 84.19 : 110.39	**94.59** 84.19 : 110.39	**94.21** 84.19 : 110.39
Nickel	TM181	**95.57** 84.19 : 109.77	**95.8** 84.19 : 109.77	**95.1** 84.19 : 109.77	**93.47** 84.19 : 109.77
Phosphorus	TM181	**88.62** 73.47 : 116.86	**88.47** 73.47 : 116.86	**91.92** 73.47 : 116.86	**89.67** 73.47 : 116.86
Selenium	TM181	**91.69** 81.32 : 108.59	**93.47** 81.32 : 108.59	**92.28** 81.32 : 108.59	**91.69** 81.32 : 108.59
Strontium	TM181	**92.18** 84.70 : 105.87	**91.75** 84.70 : 105.87	**92.18** 84.70 : 105.87	**90.91** 84.70 : 105.87
Thallium	TM181	**94.53** 81.19 : 105.37	**96.87** 81.19 : 105.37	**97.66** 81.19 : 105.37	**100.39** 81.19 : 105.37
Tin	TM181	**96.81** 85.92 : 110.00	**95.39** 85.92 : 110.00	**94.68** 85.92 : 110.00	**92.55** 85.92 : 110.00
Titanium	TM181	**88.46** 73.44 : 113.17	**88.46** 73.44 : 113.17	**86.92** 73.44 : 113.17	**86.92** 73.44 : 113.17
Vanadium	TM181	**89.88** 78.62 : 101.47	**89.88** 78.62 : 101.47	**90.49** 78.62 : 101.47	**90.49** 78.62 : 101.47
Zinc	TM181	**95.29** 85.64 : 110.14	**96.68** 85.64 : 110.14	**96.16** 85.64 : 110.14	**95.99** 85.64 : 110.14

Mineral Oil

Component	Method Code	QC 1761	QC 1755	QC 1790
Mineral Oil	TM061	**92.17** 77.93 : 101.39	**91.83** 77.93 : 101.39	**86.5** 77.93 : 101.39

NO3, NO2 and TON by KONE (s)

Component	Method Code	QC 1760
Nitrate/TON as N QC	TM243	**112.13** 42.63 : 157.37
Nitrite (soluble) as NO2	TM243	**105.26** 92.68 : 121.96

PAH by GCMS

Component	Method Code	QC 1765	QC 1753	QC 1703	QC 1734
Acenaphthene	TM218	**93.0** 82.60 : 105.38	**98.5** 78.95 : 114.22	**99.5** 78.95 : 114.22	**94.0** 82.60 : 105.38
Acenaphthylene	TM218	**86.0** 73.64 : 111.66	**82.5** 72.87 : 102.50	**84.5** 72.87 : 102.50	**84.5** 73.64 : 111.66
Anthracene	TM218	**90.0** 73.49 : 107.13	**93.0** 77.17 : 105.56	**94.5** 77.17 : 105.56	**89.5** 73.49 : 107.13
Benz(a)anthracene	TM218	**100.0** 87.82 : 118.79	**98.5** 80.47 : 122.11	**100.5** 80.47 : 122.11	**104.5** 87.82 : 118.79
Benzo(a)pyrene	TM218	**98.5** 83.39 : 123.49	**97.0** 86.85 : 124.60	**98.5** 86.85 : 124.60	**103.5** 83.39 : 123.49

PAH by GCMS

		QC 1765	QC 1753	QC 1703	QC 1734
Benzo(b)fluoranthene	TM218	**102.5** 80.60 : 126.56	**96.0** 81.46 : 113.62	**101.5** 81.46 : 113.62	**108.0** 80.60 : 126.56
Benzo(ghi)perylene	TM218	**98.0** 80.86 : 109.92	**98.0** 79.07 : 113.26	**92.5** 79.07 : 113.26	**100.5** 80.86 : 109.92
Benzo(k)fluoranthene	TM218	**101.5** 87.91 : 119.03	**94.5** 86.00 : 117.59	**101.0** 86.00 : 117.59	**104.5** 87.91 : 119.03
Chrysene	TM218	**98.0** 85.34 : 115.46	**95.0** 88.35 : 118.80	**101.0** 88.35 : 118.80	**99.5** 85.34 : 115.46
Dibenzo(ah)anthracene	TM218	**99.0** 82.98 : 121.47	**95.5** 85.70 : 123.10	**93.5** 85.70 : 123.10	**105.5** 82.98 : 121.47
Fluoranthene	TM218	**95.5** 82.03 : 107.26	**97.5** 80.37 : 111.80	**100.0** 80.37 : 111.80	**98.0** 82.03 : 107.26
Fluorene	TM218	**92.0** 81.48 : 108.26	**98.0** 79.98 : 109.78	**98.5** 79.98 : 109.78	**94.5** 81.48 : 108.26
Indeno(123cd)pyrene	TM218	**97.0** 84.02 : 120.55	**94.5** 85.41 : 122.03	**93.0** 85.41 : 122.03	**107.0** 84.02 : 120.55
Naphthalene	TM218	**94.0** 84.06 : 108.38	**94.5** 82.33 : 112.21	**95.5** 82.33 : 112.21	**94.5** 84.06 : 108.38
Phenanthrene	TM218	**93.5** 78.68 : 107.87	**99.5** 80.52 : 110.11	**100.0** 80.52 : 110.11	**93.5** 78.68 : 107.87
Pyrene	TM218	**95.0** 81.96 : 108.90	**97.0** 79.57 : 110.12	**100.0** 79.57 : 110.12	**97.0** 81.96 : 108.90

PCBs by GCMS

Component	Method Code	QC 1722	QC 1739
PCB congener 101	TM168	**96.1** 76.50 : 116.94	**93.2** 76.50 : 116.94
PCB congener 105	TM168	**94.1** 75.93 : 120.03	**85.5** 75.93 : 120.03
PCB congener 114	TM168	**97.0** 76.64 : 119.06	**89.9** 76.64 : 119.06
PCB congener 118	TM168	**96.3** 75.18 : 118.08	**88.8** 75.18 : 118.08
PCB congener 123	TM168	**94.0** 75.72 : 117.84	**87.1** 75.72 : 117.84
PCB congener 126	TM168	**96.8** 76.10 : 125.90	**85.5** 76.10 : 125.90
PCB congener 138	TM168	**97.6** 78.04 : 121.72	**89.8** 78.04 : 121.72
PCB congener 153	TM168	**94.2** 77.67 : 119.31	**87.4** 77.67 : 119.31
PCB congener 156	TM168	**98.6** 73.48 : 118.60	**88.3** 73.48 : 118.60
PCB congener 157	TM168	**95.4** 77.47 : 123.91	**85.7** 77.47 : 123.91
PCB congener 167	TM168	**96.5** 75.77 : 121.97	**88.2** 75.77 : 121.97
PCB congener 169	TM168	**101.0** 74.49 : 130.71	**87.4** 74.49 : 130.71
PCB congener 180	TM168	**99.3** 77.34 : 121.26	**88.5** 77.34 : 121.26
PCB congener 189	TM168	**95.8** 75.60 : 127.20	**86.6** 75.60 : 127.20

PCBs by GCMS

		QC 1722	QC 1739
PCB congener 28	TM168	**95.0** 79.43 : 121.67	**91.9** 79.43 : 121.67
PCB congener 52	TM168	**101.0** 78.72 : 119.28	**97.9** 78.72 : 119.28
PCB congener 77	TM168	**96.5** 74.04 : 120.60	**86.9** 74.04 : 120.60
PCB congener 81	TM168	**91.5** 78.47 : 124.85	**85.5** 78.47 : 124.85

pH

Component	Method Code	QC 1796	QC 1718	QC 1761
pH	TM133	**100.65** 99.63 : 103.42	**101.17** 99.63 : 103.42	**100.52** 99.63 : 103.42

Phenols by HPLC (W)

Component	Method Code	QC 1738	QC 1742
2.3.5 Trimethyl-Phenol by HPLC (W)	TM259	**95.0** 92.00 : 110.00	**93.0** 92.00 : 110.00
2-Isopropyl Phenol by HPLC (W)	TM259	**100.0** 84.00 : 138.00	**99.0** 84.00 : 138.00
Cresols by HPLC (W)	TM259	**92.67** 88.33 : 106.33	**93.0** 88.33 : 106.33
Napthol by HPLC (W)	TM259	**94.0** 84.00 : 108.00	**94.0** 84.00 : 108.00
Phenol by HPLC (W)	TM259	**97.0** 93.00 : 111.00	**98.0** 93.00 : 111.00
Xylenols by HPLC (W)	TM259	**98.0** 90.50 : 113.50	**98.33** 90.50 : 113.50

Semi Volatile Organic Compounds

Component	Method Code	QC 1729
4-Bromophenylphenylether (Soil)	TM157	**100.0** 65.45 : 121.76
Benzo(a)anthracene (Soil)	TM157	**107.0** 71.89 : 120.91
Hexachlorobutadiene (Soil)	TM157	**103.5** 69.80 : 117.77
Naphthalene (Soil)	TM157	**104.0** 71.89 : 120.16
Nitrobenzene (Soil)	TM157	**106.5** 70.00 : 118.00
Phenol (Soil)	TM157	**103.0** 68.54 : 114.86

Total Dissolved Solids

Total Dissolved Solids

Component	Method Code	QC 1773	QC 1784	QC 1794
Total Dissolved Solids	TM123	**99.4** 97.30 : 101.58	**99.9** 97.30 : 101.58	**99.2** 97.30 : 101.58

Total Organic Carbon

Component	Method Code	QC 1737	QC 1762	QC 1749	QC 1737
Total Organic Carbon	TM132	**93.75** 83.00 : 101.77	**88.67** 83.00 : 101.77	**90.63** 83.00 : 101.77	**88.67** 83.00 : 101.77

Total Sulphur

Component	Method Code	QC 1791
Total Sulphur %	TM132	**103.25** 81.05 : 118.95

VOC MS (S)

Component	Method Code	QC 1702	QC 1735
1,1,1,2-tetrachloroethane	TM116	**95.6** 77.56 : 115.55	**101.4** 77.56 : 115.55
1,1,1-Trichloroethane	TM116	**102.6** 74.97 : 113.76	**103.4** 74.97 : 113.76
1,1,2-Trichloroethane	TM116	**98.4** 77.12 : 116.04	**100.4** 77.12 : 116.04
1,1-Dichloroethane	TM116	**112.6** 74.46 : 129.15	**114.0** 74.46 : 129.15
1,2-Dichloroethane	TM116	**110.8** 92.57 : 128.78	**116.6** 92.57 : 128.78
1,4-Dichlorobenzene	TM116	**87.2** 72.76 : 126.34	**98.0** 72.76 : 126.34
2-Chlorotoluene	TM116	**79.8** 69.73 : 114.13	**95.6** 69.73 : 114.13
4-Chlorotoluene	TM116	**78.4** 66.90 : 112.46	**88.0** 66.90 : 112.46
Benzene	TM116	**106.6** 81.05 : 117.28	**107.6** 81.05 : 117.28
Carbon Disulphide	TM116	**98.6** 74.91 : 122.14	**102.6** 74.91 : 122.14
Carbontetrachloride	TM116	**104.2** 77.80 : 119.23	**109.8** 77.80 : 119.23
Chlorobenzene	TM116	**97.0** 75.00 : 115.53	**98.8** 75.00 : 115.53
Chloroform	TM116	**106.4** 77.34 : 121.84	**109.8** 77.34 : 121.84

VOC MS (S)

		QC 1702	QC 1735
Chloromethane	TM116	**112.4** 52.63 : 138.74	**106.4** 52.63 : 138.74
Cis-1,2-Dichloroethene	TM116	**111.6** 80.67 : 126.72	**114.0** 80.67 : 126.72
Dibromomethane	TM116	**98.0** 67.80 : 121.75	**106.0** 67.80 : 121.75
Dichloromethane	TM116	**118.2** 81.11 : 133.25	**116.6** 81.11 : 133.25
Ethylbenzene	TM116	**88.6** 72.53 : 109.84	**97.4** 72.53 : 109.84
Hexachlorobutadiene	TM116	**39.0** 12.82 : 152.73	**83.2** 12.82 : 152.73
Isopropylbenzene	TM116	**63.0** 54.46 : 125.44	**89.2** 54.46 : 125.44
Naphthalene	TM116	**109.8** 80.86 : 128.81	**106.6** 80.86 : 128.81
o-Xylene	TM116	**80.4** 67.46 : 102.22	**89.0** 67.46 : 102.22
p/m-Xylene	TM116	**79.1** 68.32 : 108.91	**90.5** 68.32 : 108.91
Sec-Butylbenzene	TM116	**47.6** 46.09 : 121.51	**86.0** 46.09 : 121.51
Tetrachloroethene	TM116	**93.6** 76.95 : 121.02	**105.2** 76.95 : 121.02
Toluene	TM116	**93.8** 74.24 : 107.42	**97.0** 74.24 : 107.42
Trichloroethene	TM116	**99.6** 77.61 : 111.54	**101.0** 77.61 : 111.54
Trichlorofluoromethane	TM116	**102.8** 71.31 : 128.41	**98.4** 71.31 : 128.41
Vinyl Chloride	TM116	**115.2** 68.26 : 133.45	**111.4** 68.26 : 133.45

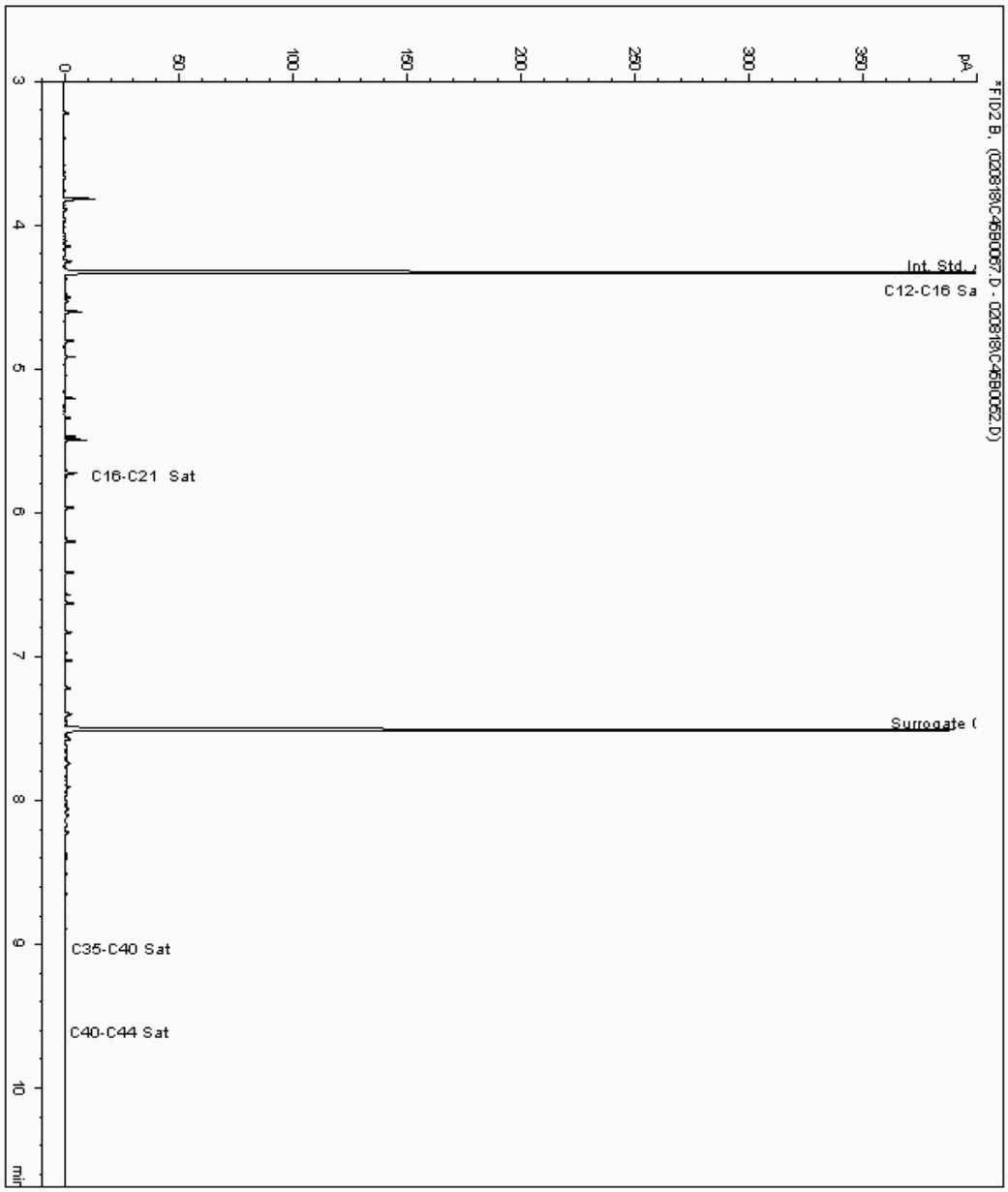
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17003806 **Sample ID :** WS-RPS-20 **Depth :** 0.30 - 0.85

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956318-
Date Acquired : 09/02/2018 07:41:47 PM
Units : ppb
Dilution: WS-RPS-20[0.30 - 0.85] ->

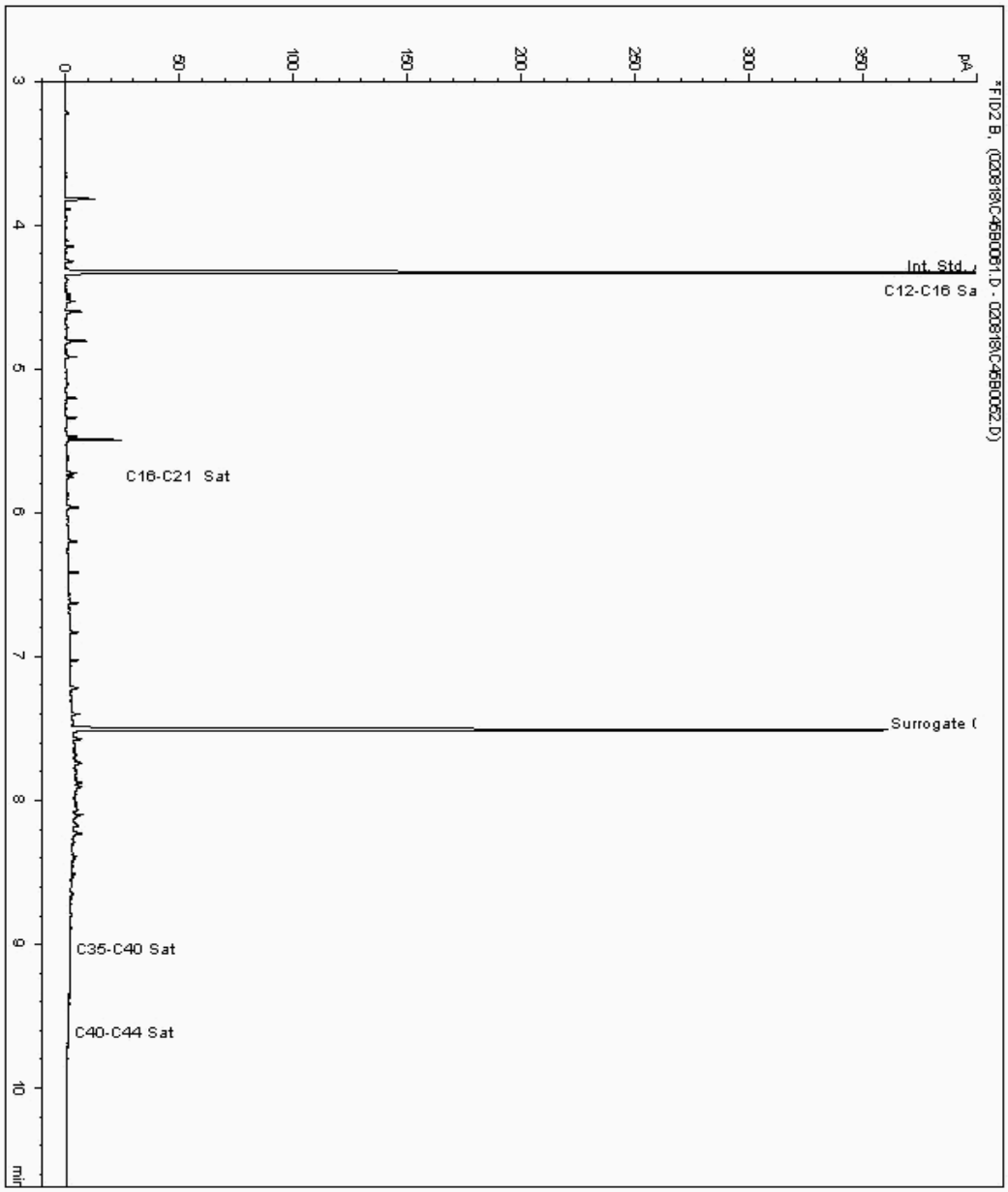


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17003883 **Sample ID :** BH-RPS-06 **Depth :** 0.40 - 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956206-
Date Acquired : 09/02/2018 05:50:17 PM
Units : ppb
Dilution: BH-RPS-06[0.40 - 0.50] ->

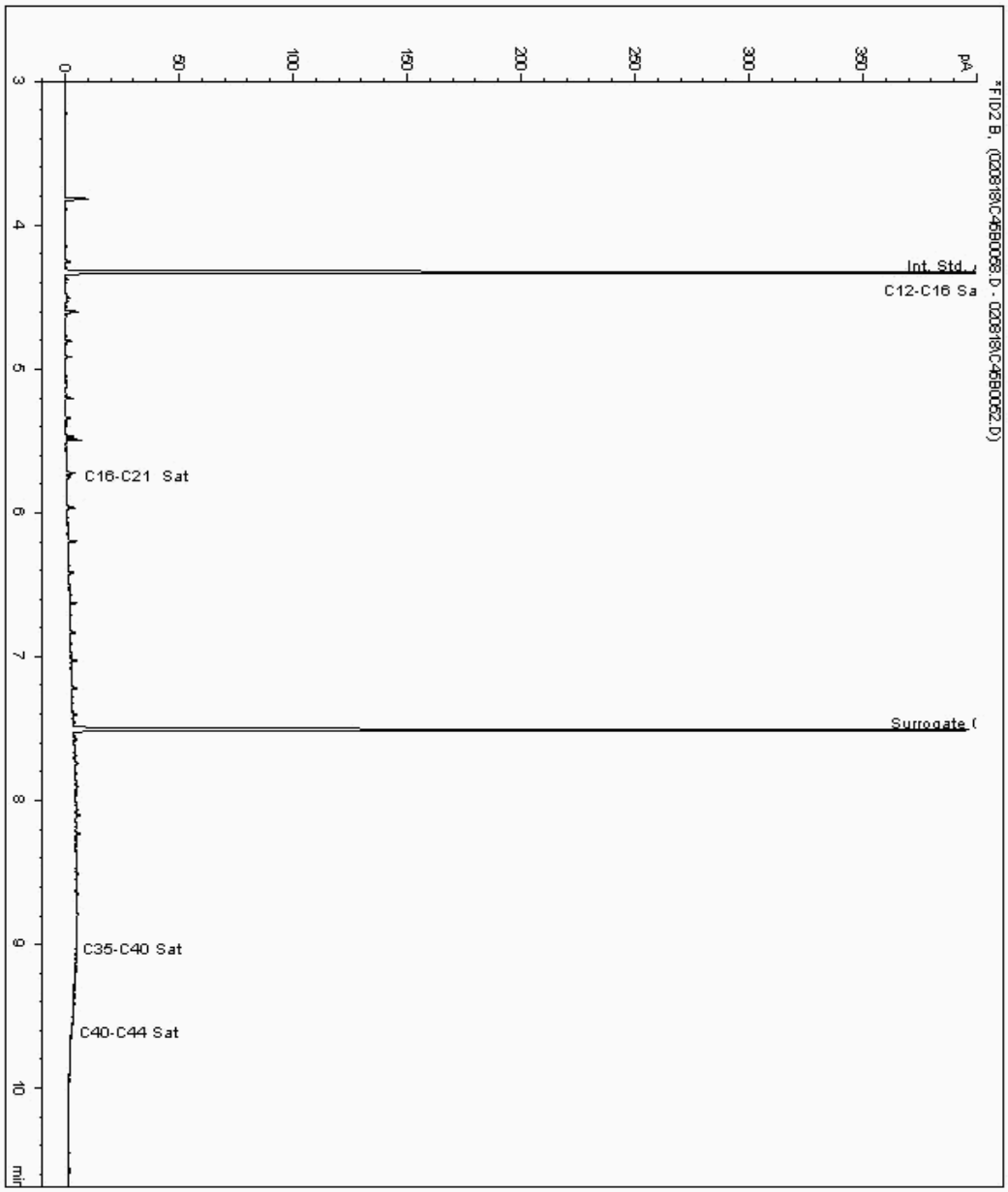


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17003949 **Sample ID :** BH-RPS-05 **Depth :** 0.30

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956289-
Date Acquired : 09/02/2018 04:58:01 PM
Units : ppb
Dilution: BH-RPS-05[0.30] ->

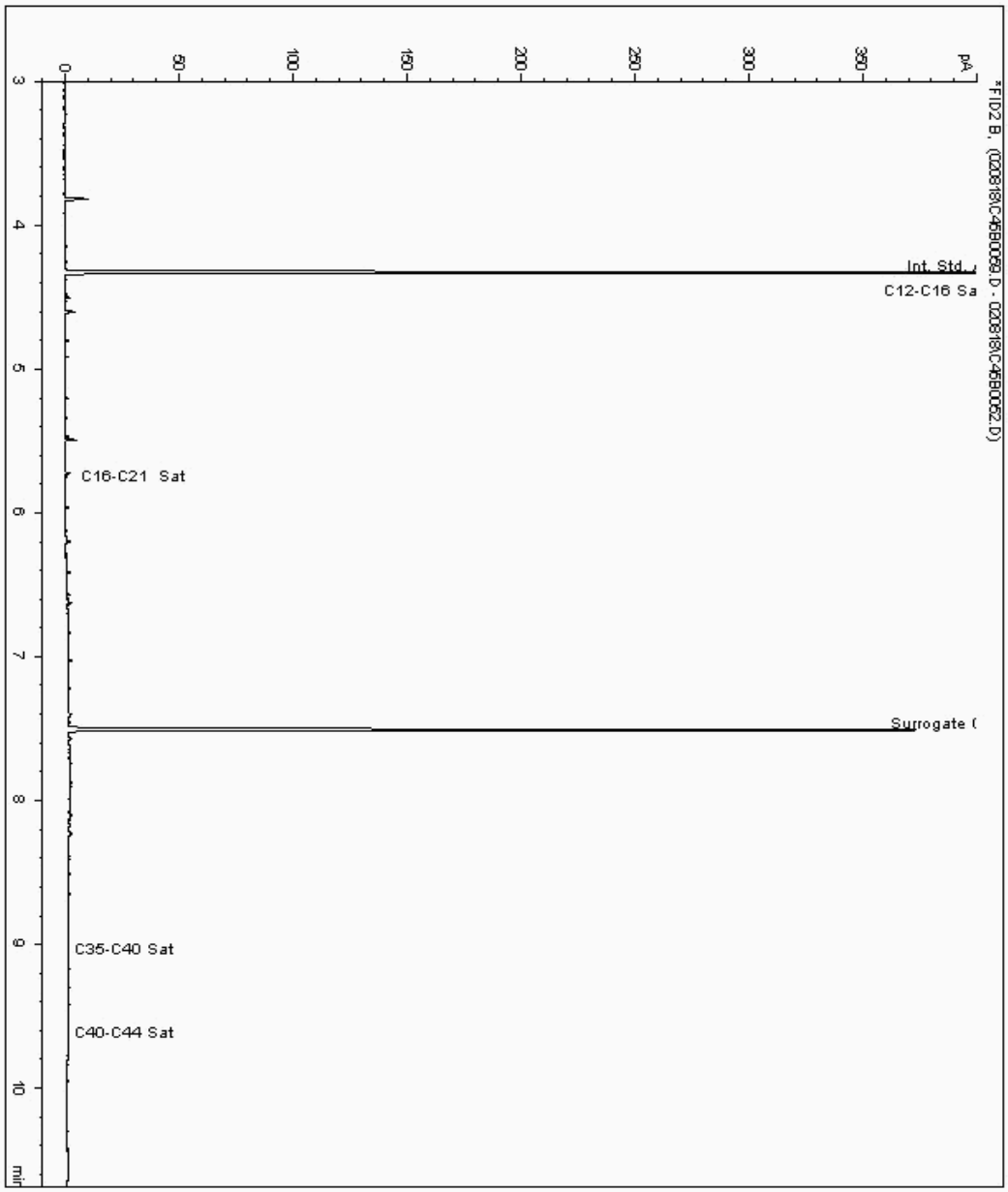


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17003995 **Sample ID :** BH-RPS-07 **Depth :** 0.60 - 1.00

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956343-
Date Acquired : 09/02/2018 05:17:54 PM
Units : ppb
Dilution: BH-RPS-07[0.60 - 1.00] ->



Validated

CERTIFICATE OF ANALYSIS

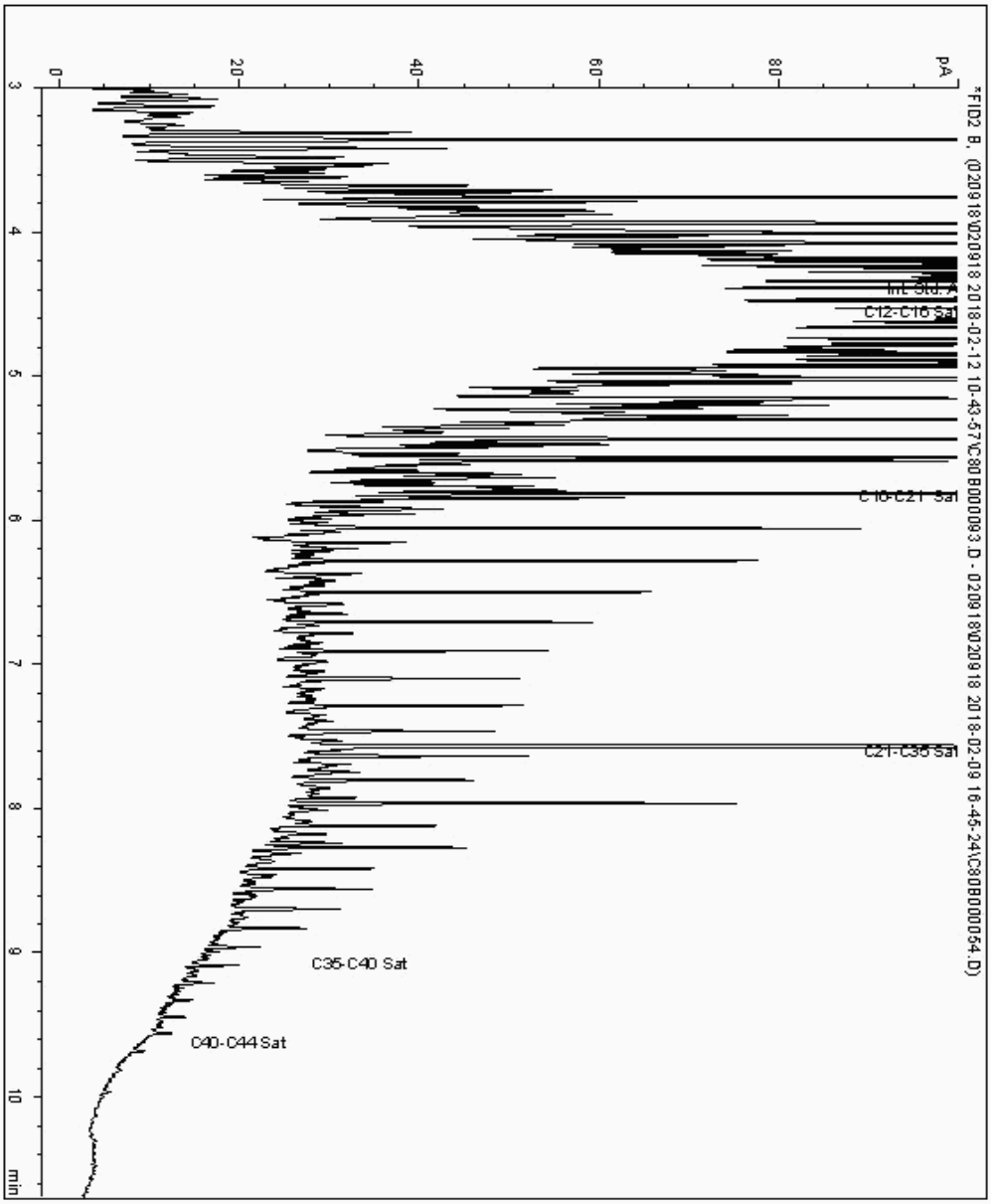
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17004136 **Sample ID :** WS-RPS-20 **Depth :** 0.85 - 1.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 15956367-
Date Acquired : 12/02/18 11:09:49
Units : ppb
Dilution :
CF : 1
Multiplier : 1.980

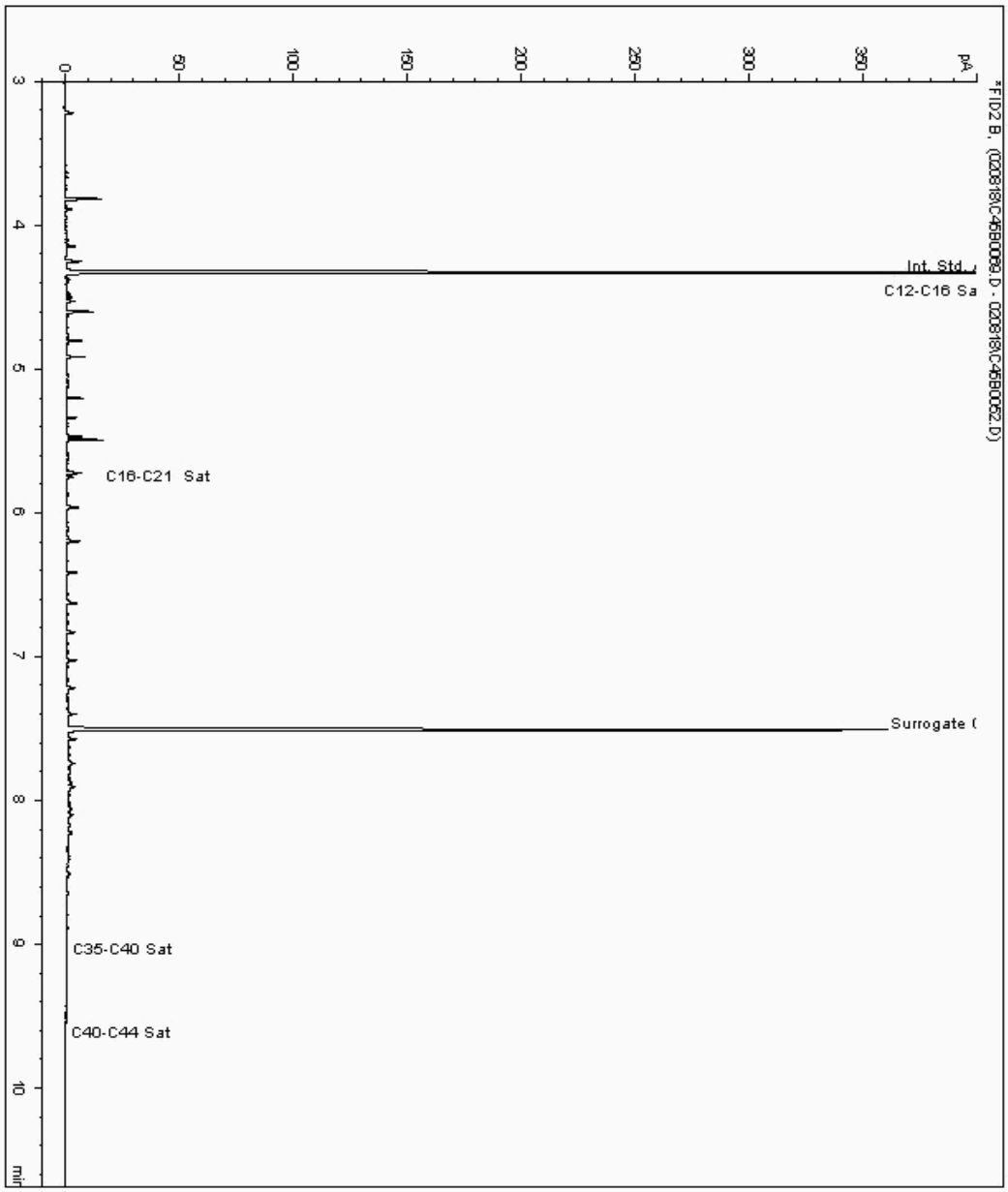


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17004259 **Sample ID :** WS-RPS-10 **Depth :** 0.40 - 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956262-
Date Acquired : 09/02/2018 08:21:53 PM
Units : ppb
Dilution: WS-RPS-10[0.40 - 0.50] ->

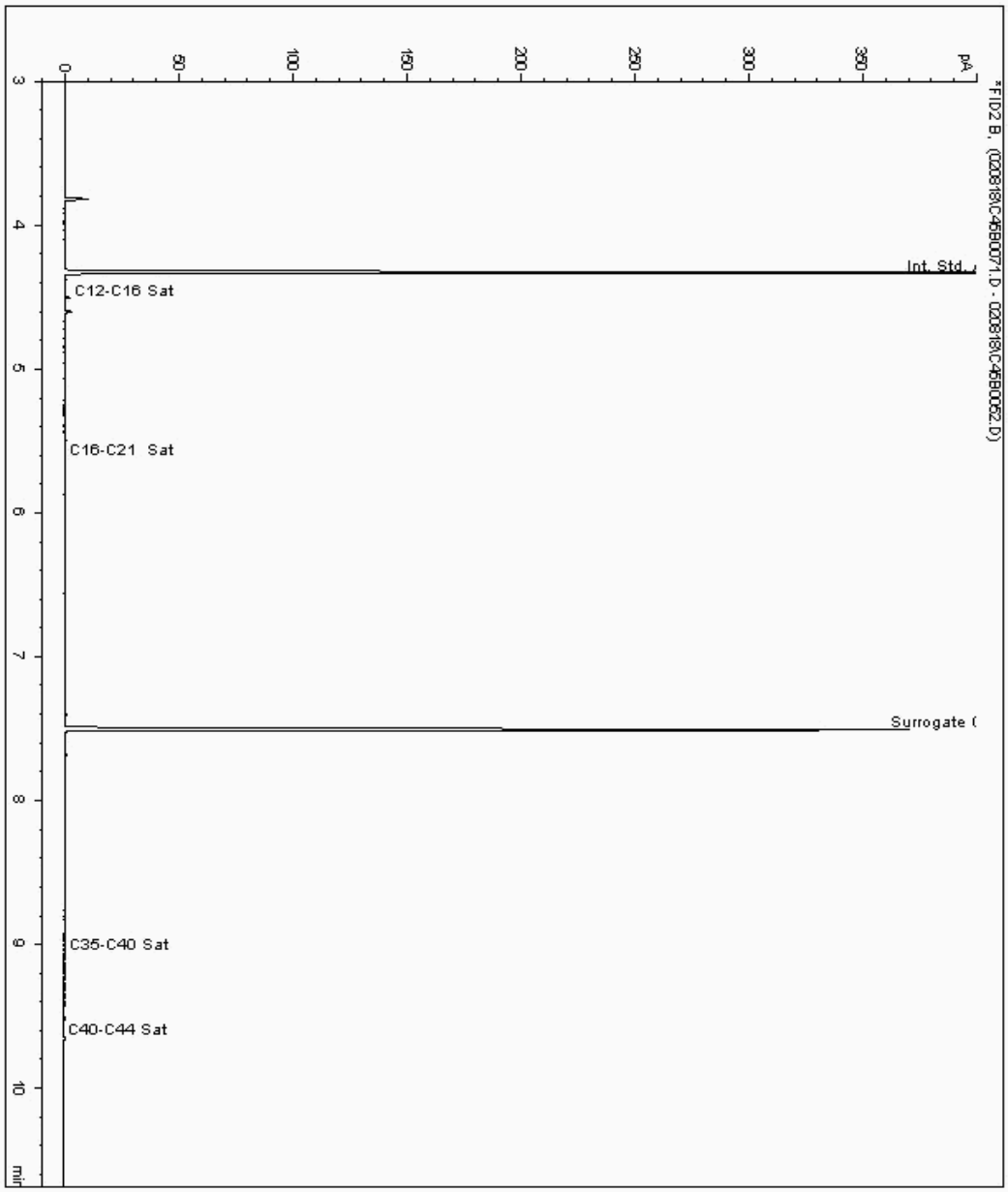


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17004366 **Sample ID :** BH-RPS-06 **Depth :** 1.90 - 2.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956239-
Date Acquired : 09/02/2018 08:54:08 PM
Units : ppb
Dilution: BH-RPS-06[1.90 - 2.20] ->

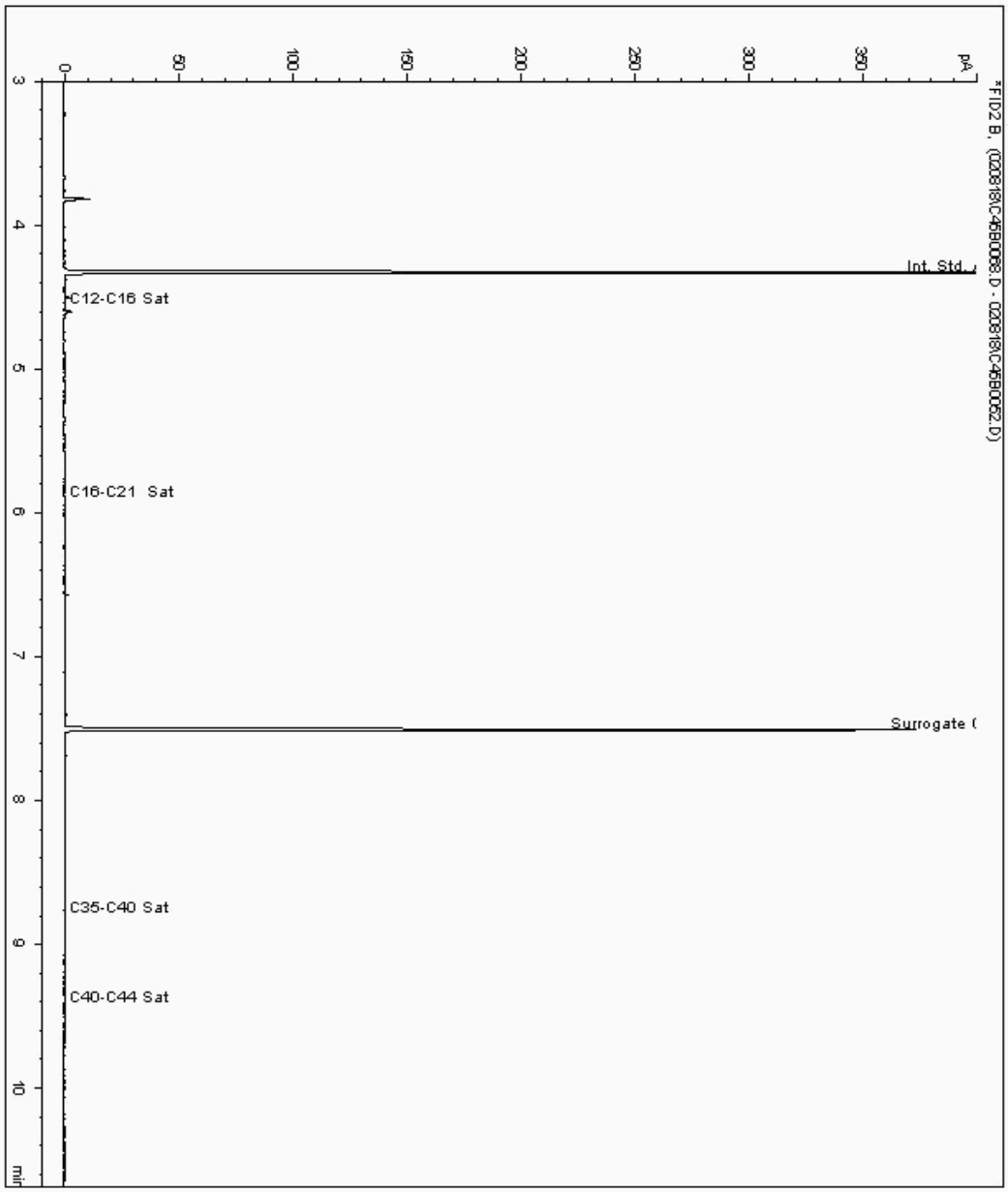


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17004460 **Sample ID :** BH-RPS-12 **Depth :** 0.30 - 0.60

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956391-
Date Acquired : 09/02/2018 08:01:57 PM
Units : ppb
Dilution: BH-RPS-12[0.30 - 0.60] ->

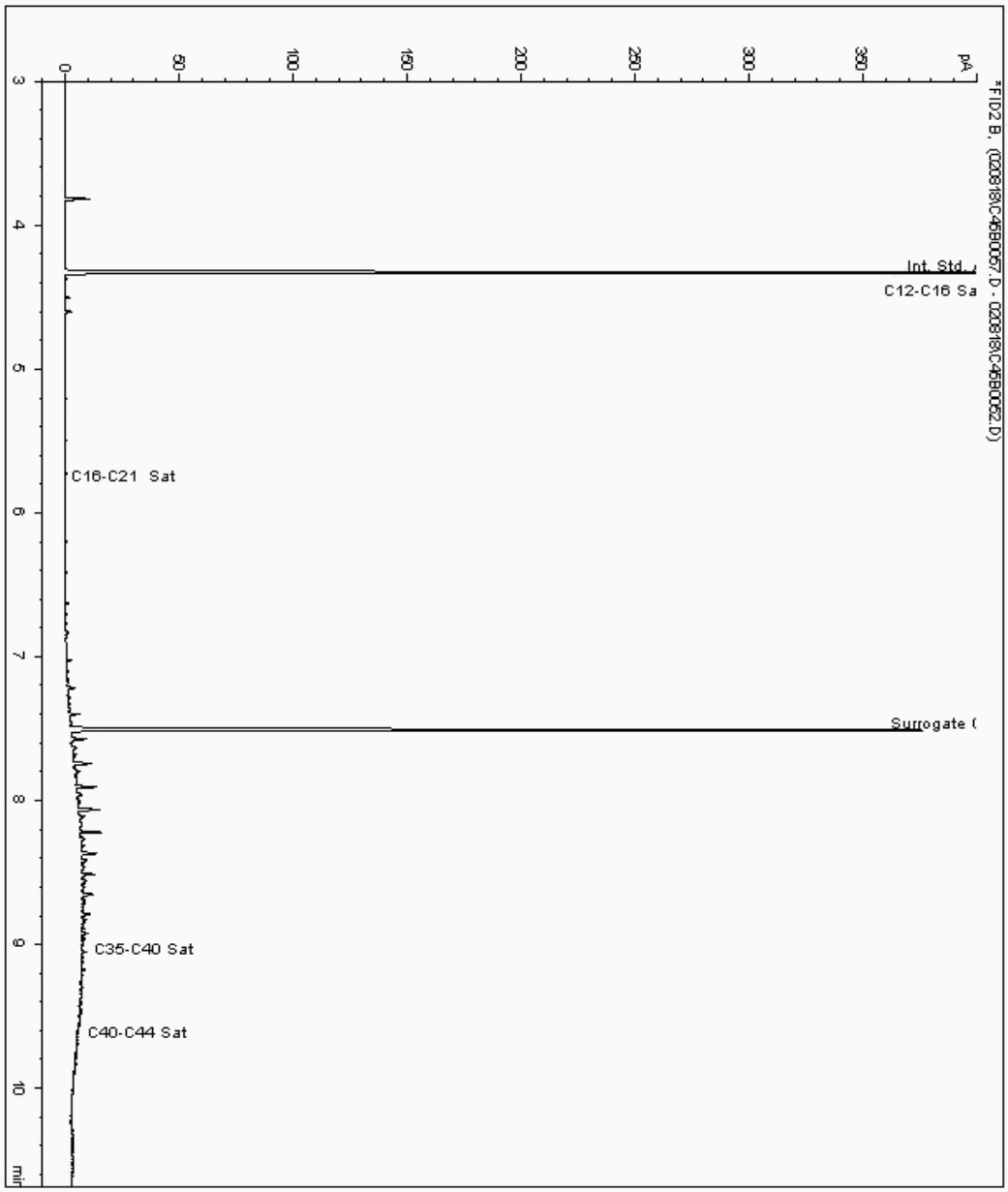


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17005126 **Sample ID :** WS-RPS-11 **Depth :** 1.10

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956166-
Date Acquired : 09/02/2018 04:37:59 PM
Units : ppb
Dilution: WS-RPS-11[1.10] ->



Validated

CERTIFICATE OF ANALYSIS

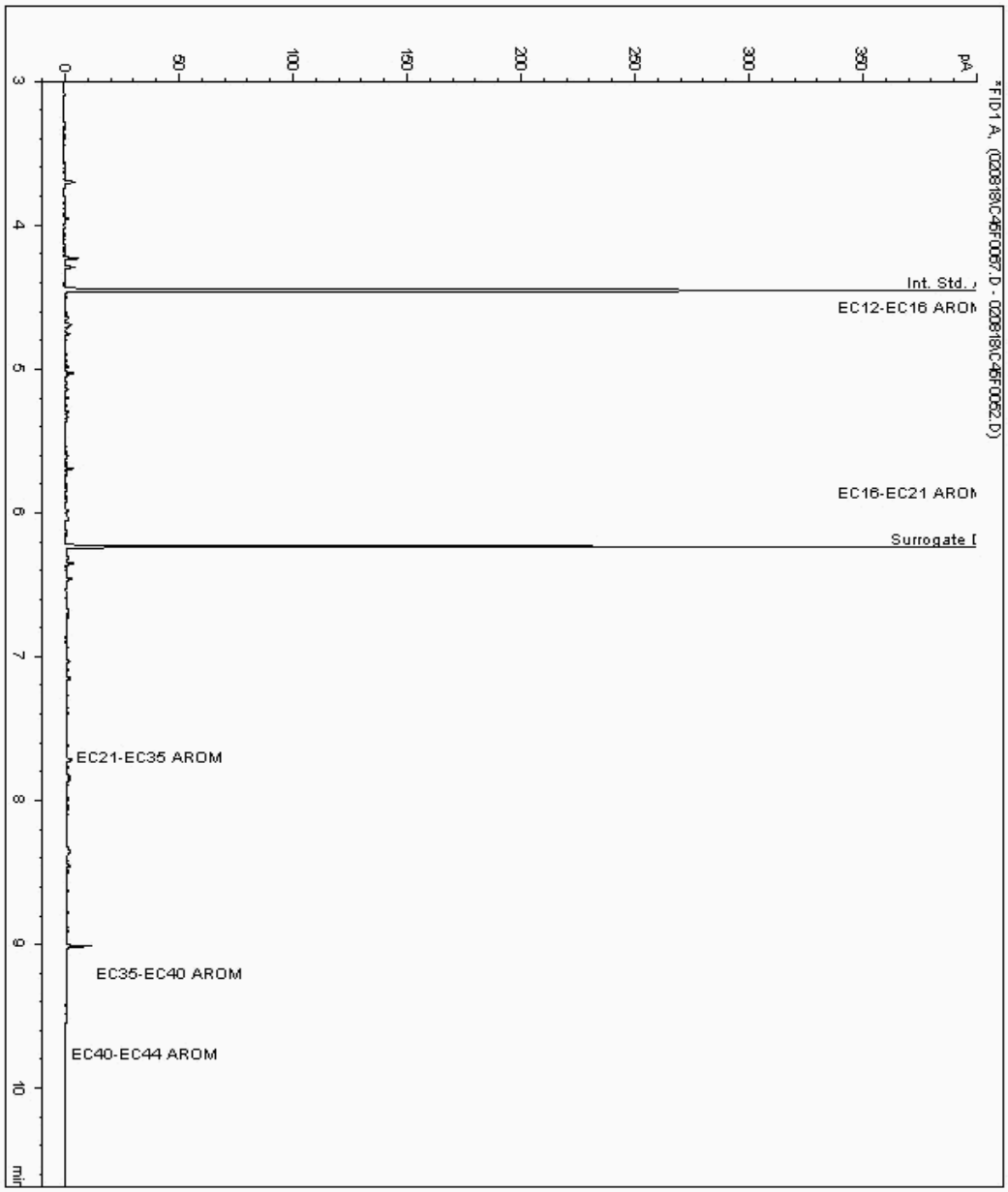
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17003806 **Sample ID :** WS-RPS-20 **Depth :** 0.30 - 0.85

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956319-
Date Acquired : 09/02/2018 07:41:47 PM
Units : ppb
Dilution: WS-RPS-20[0.30 - 0.85] ->



Validated

CERTIFICATE OF ANALYSIS

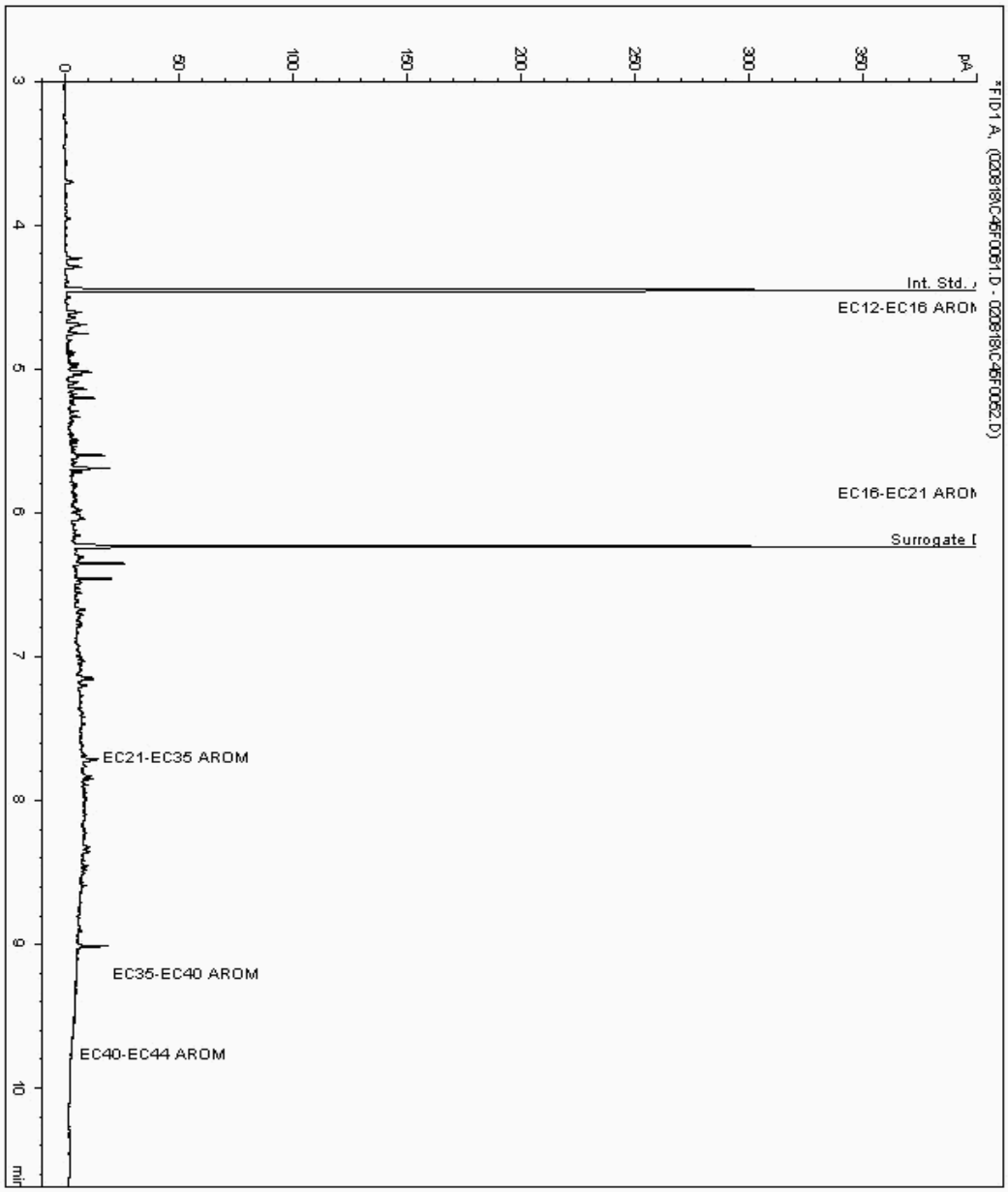
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17003883 **Sample ID :** BH-RPS-06 **Depth :** 0.40 - 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956207-
Date Acquired : 09/02/2018 05:50:17 PM
Units : ppb
Dilution: BH-RPS-06[0.40 - 0.50] ->

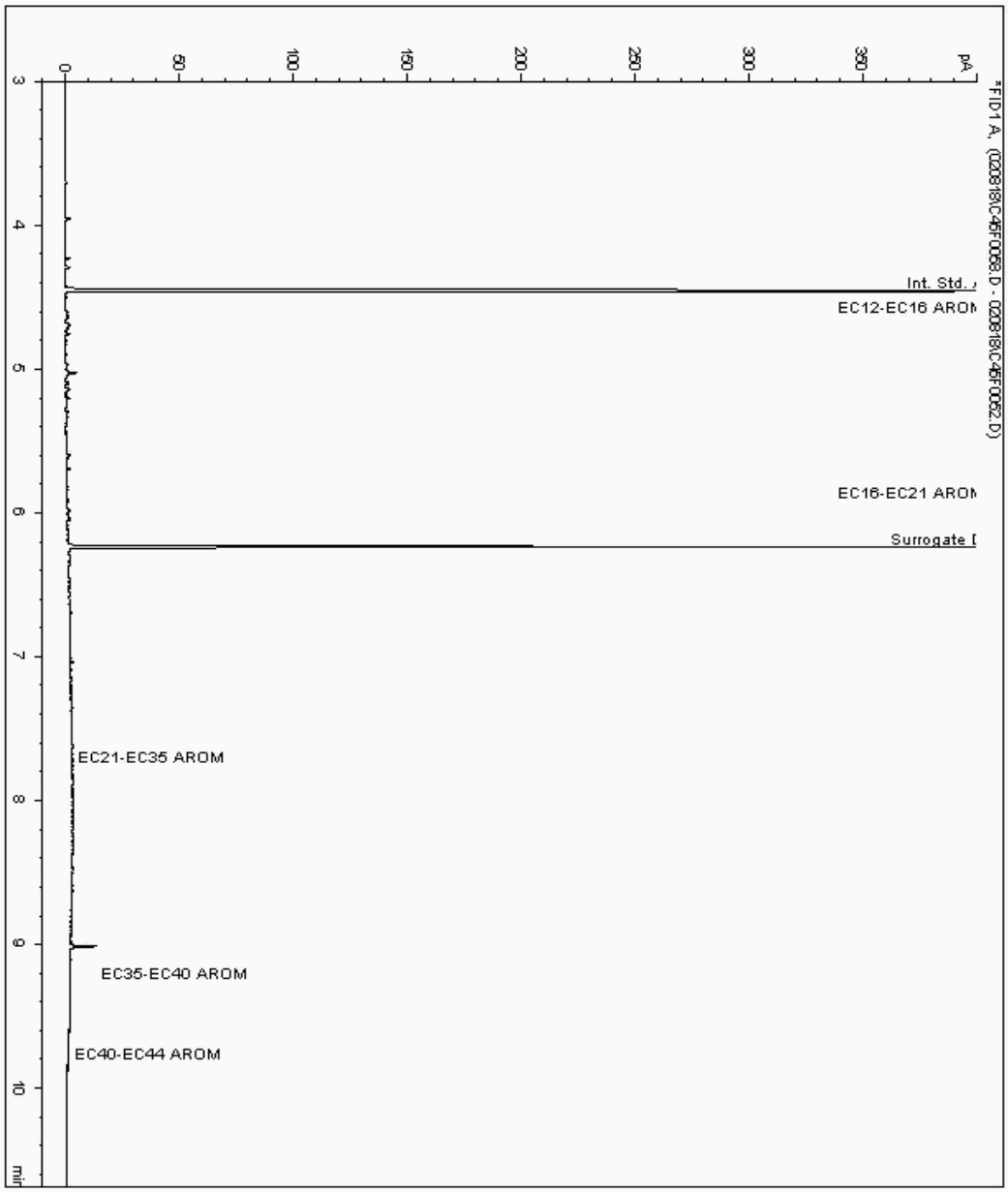


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17003949 **Sample ID :** BH-RPS-05 **Depth :** 0.30

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956290-
Date Acquired : 09/02/2018 04:58:01 PM
Units : ppb
Dilution: BH-RPS-05[0.30] ->



CERTIFICATE OF ANALYSIS

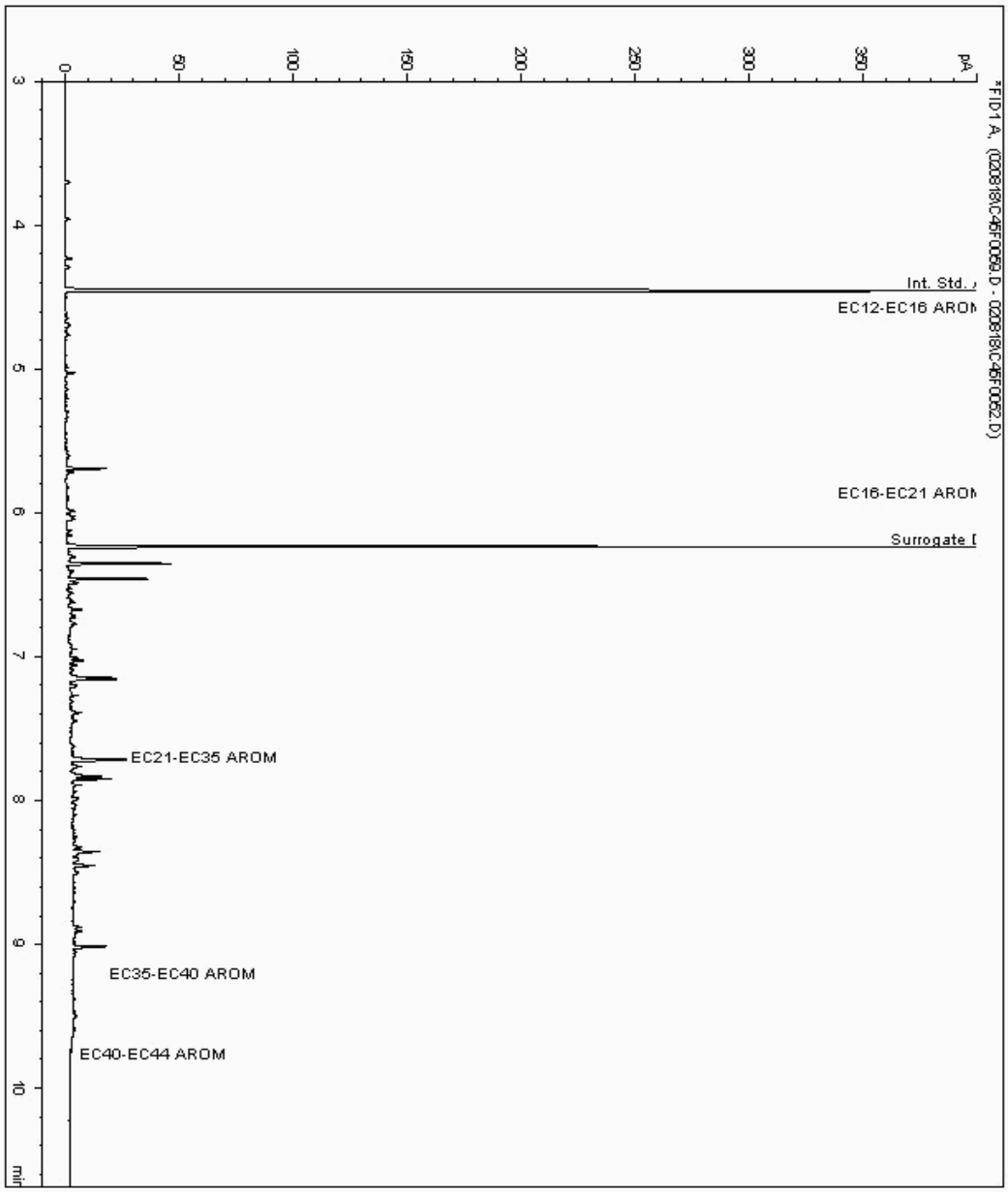
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17003995 **Sample ID :** BH-RPS-07 **Depth :** 0.60 - 1.00

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956344-
Date Acquired : 09/02/2018 05:17:54 PM
Units : ppb
Dilution: BH-RPS-07[0.60 - 1.00] ->



Validated

CERTIFICATE OF ANALYSIS

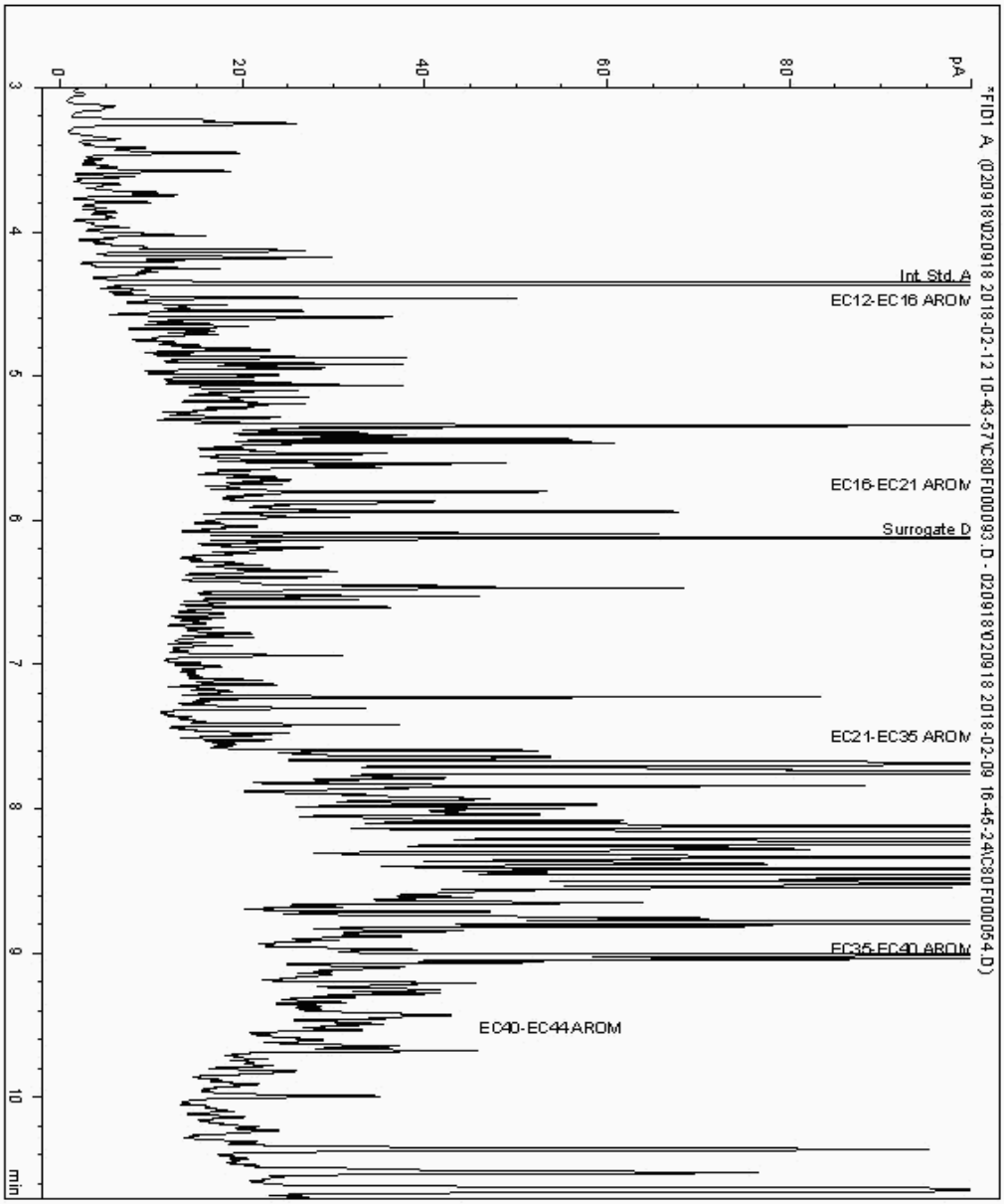
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17004136 **Sample ID :** WS-RPS-20 **Depth :** 0.85 - 1.00

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 15956368-
Date Acquired : 12/02/18 11:09:48
Units : ppb
Dilution :
CF : 1
Multiplier : 1.980

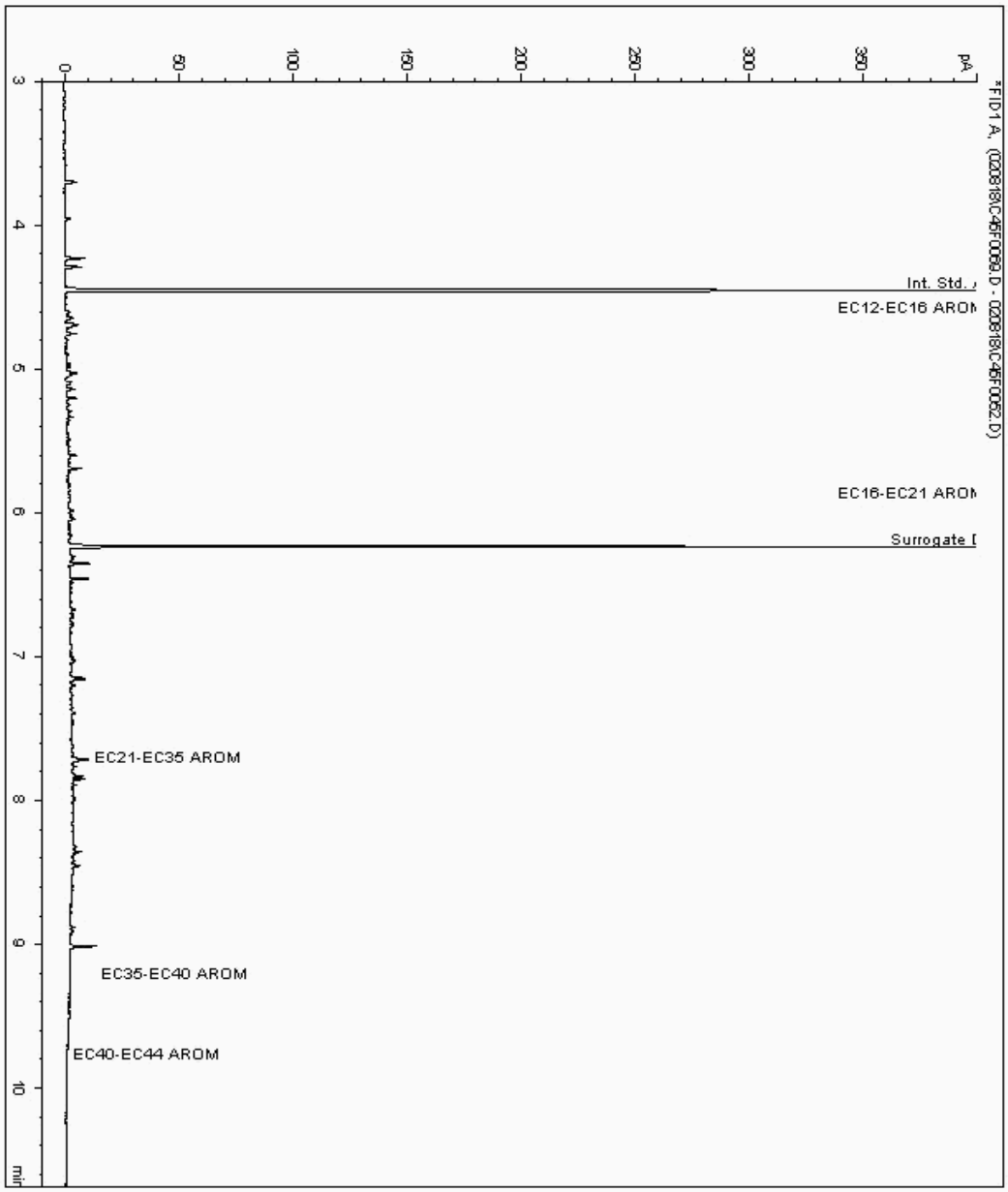


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17004259 **Sample ID :** WS-RPS-10 **Depth :** 0.40 - 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956263-
Date Acquired : 09/02/2018 08:21:53 PM
Units : ppb
Dilution: WS-RPS-10[0.40 - 0.50] ->

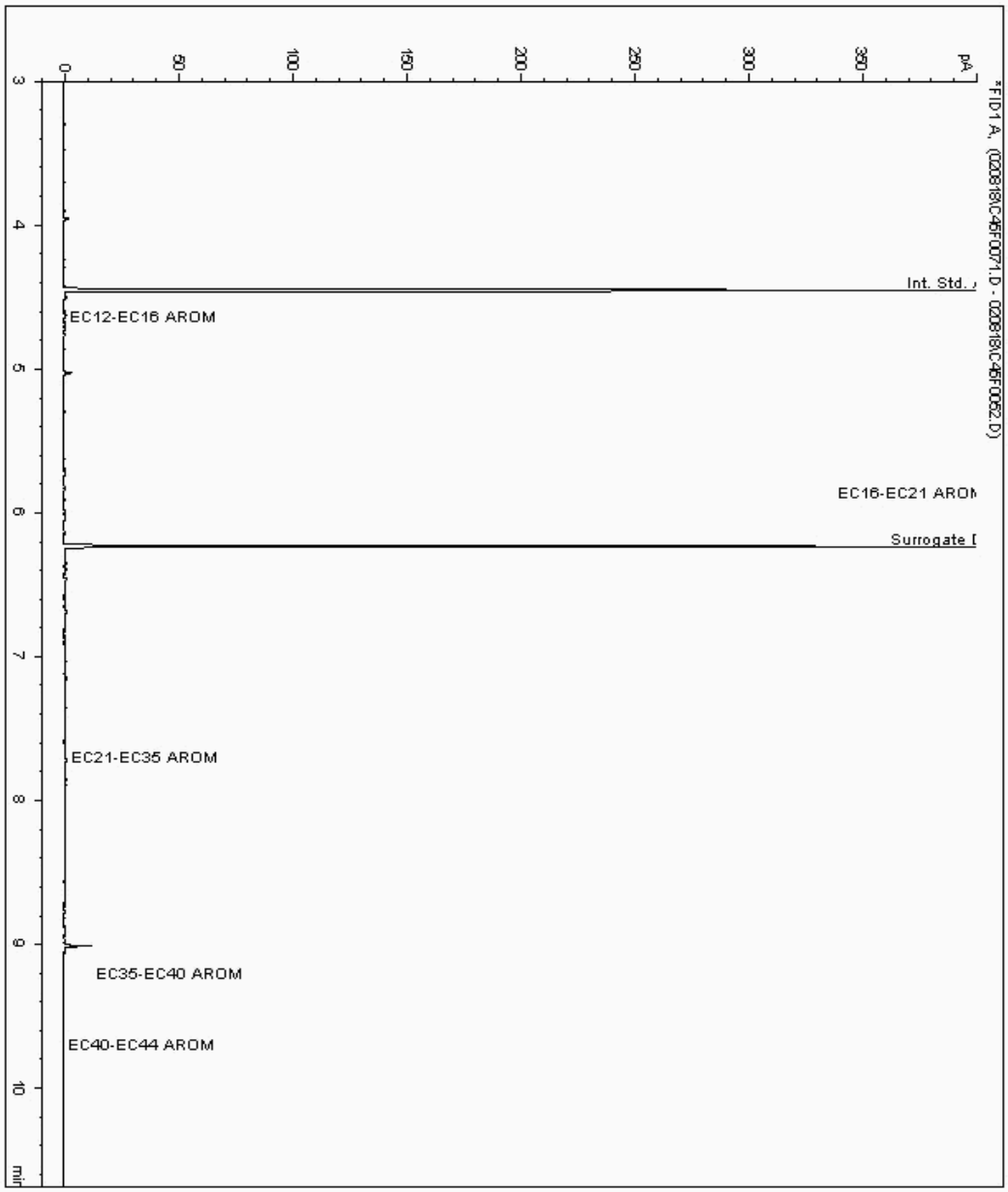


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17004366 **Sample ID :** BH-RPS-06 **Depth :** 1.90 - 2.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956240-
Date Acquired : 09/02/2018 08:54:08 PM
Units : ppb
Dilution: BH-RPS-06[1.90 - 2.20] ->

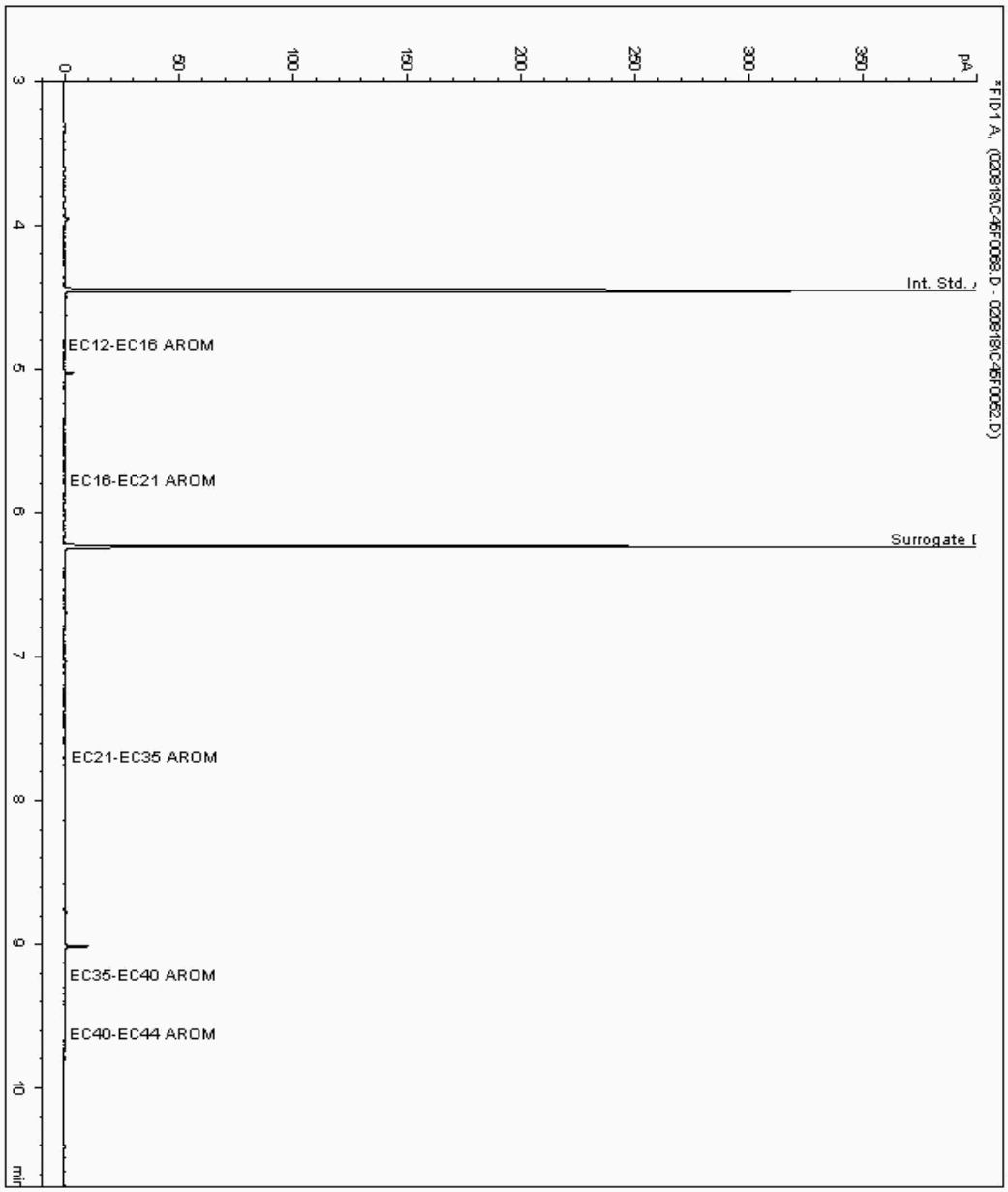


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17004460 **Sample ID :** BH-RPS-12 **Depth :** 0.30 - 0.60

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956392-
Date Acquired : 09/02/2018 08:01:57 PM
Units : ppb
Dilution: BH-RPS-12[0.30 - 0.60] ->

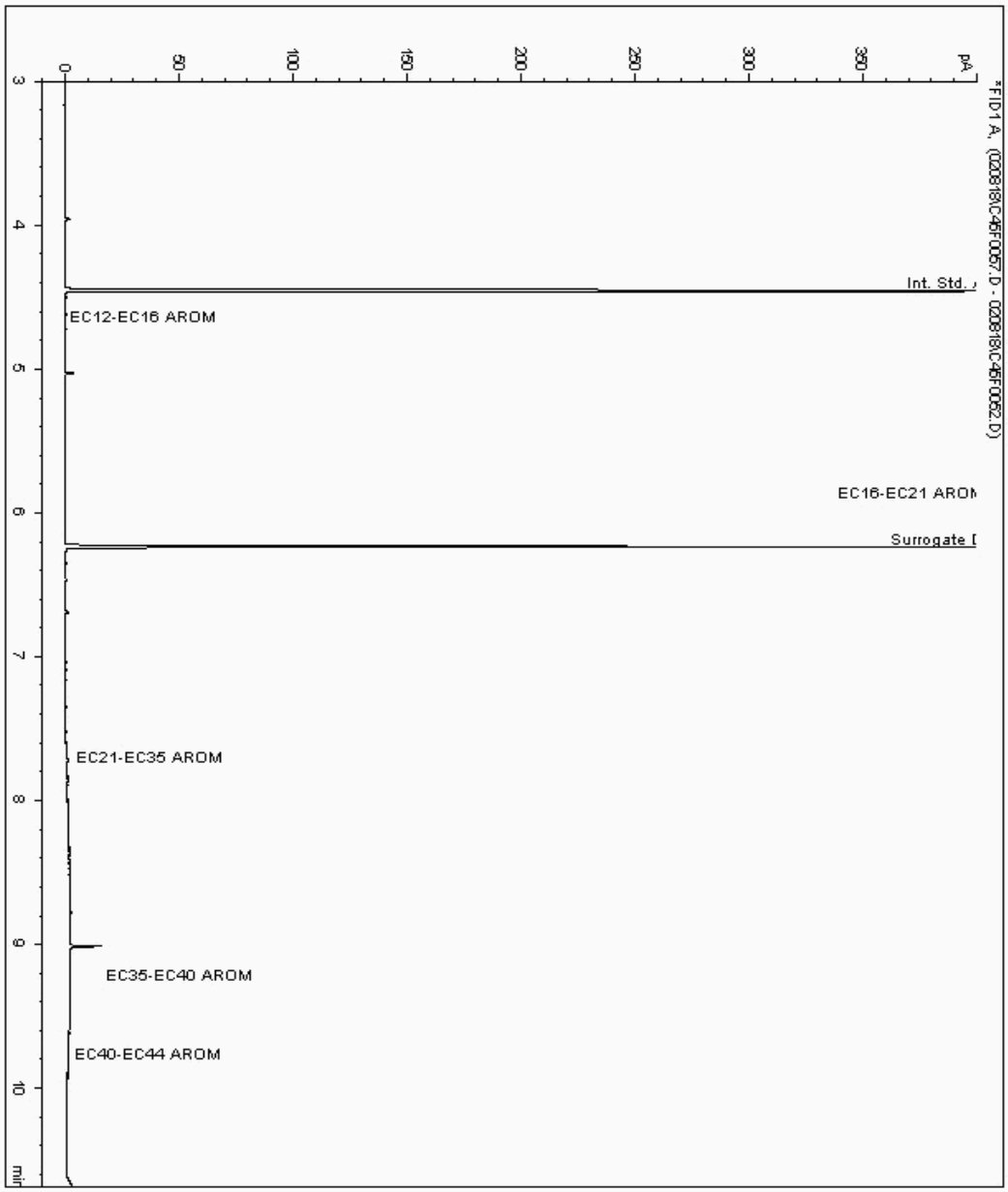


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17005126 **Sample ID :** WS-RPS-11 **Depth :** 1.10

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15956167-
Date Acquired : 09/02/2018 04:37:59 PM
Units : ppb
Dilution: WS-RPS-11[1.10] ->



Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

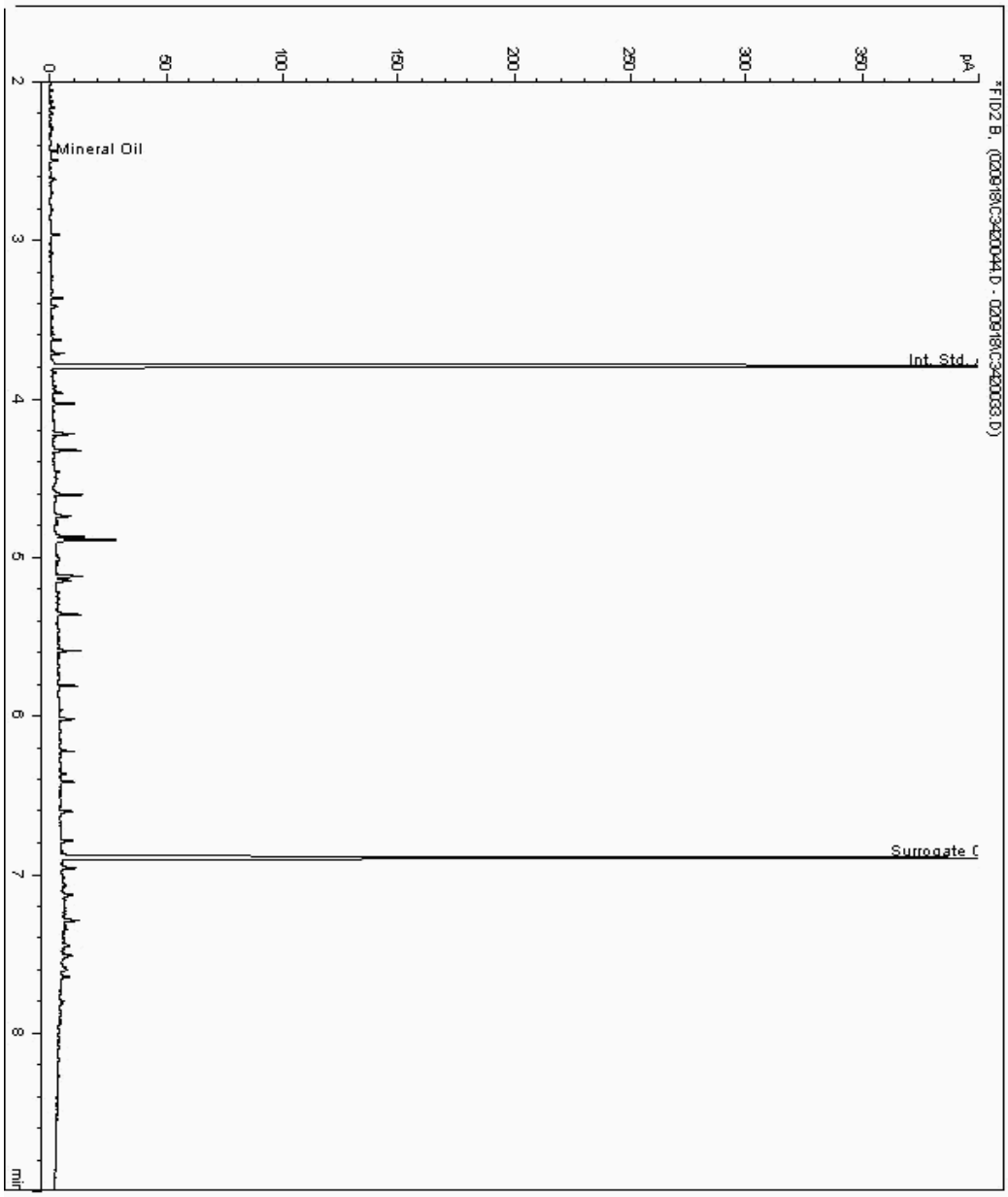
Analysis: Mineral Oil

Sample No : 17013275
Sample ID : WS-RPS-10

Depth : 0.40 - 0.50

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 15956249-
Date Acquired : 09/02/18 20:55:28 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

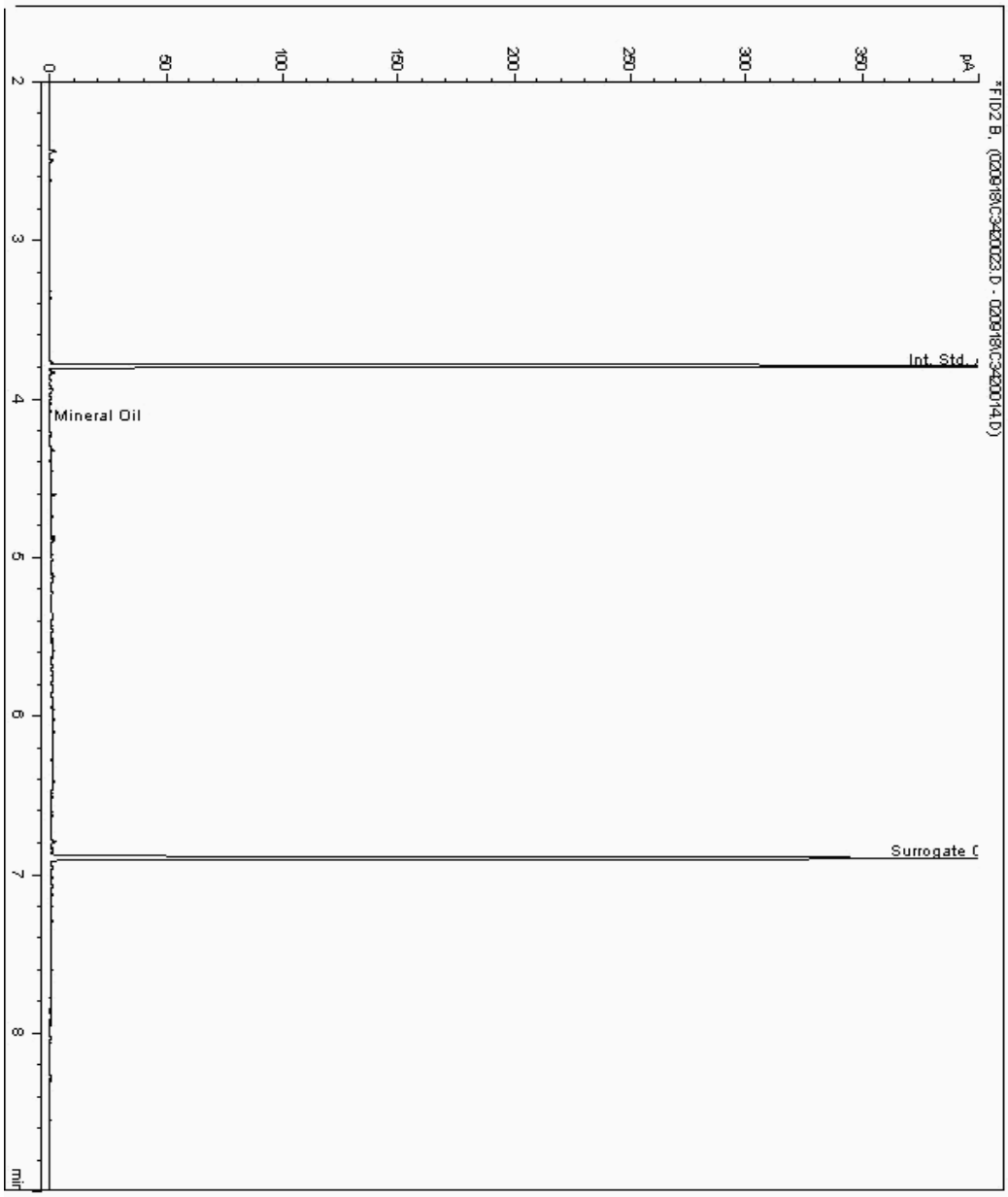
Analysis: Mineral Oil

Sample No : 17015369
Sample ID : BH-RPS-12

Depth : 0.30 - 0.60

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 15956378-
Date Acquired : 09/02/18 14:36:43 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

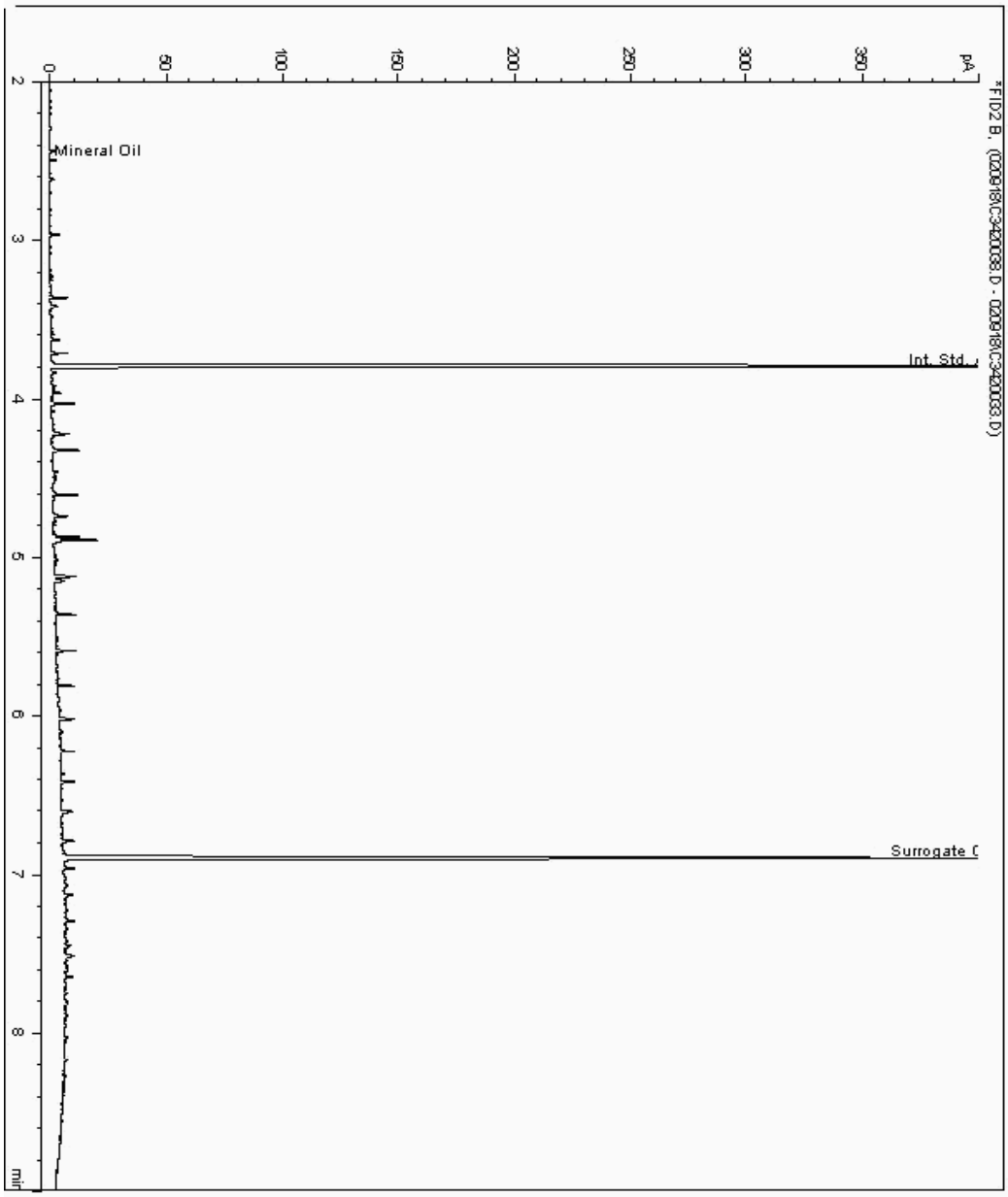
Analysis: Mineral Oil

Sample No : 17015376
Sample ID : BH-RPS-05

Depth : 0.30

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 15956275-
Date Acquired : 09/02/18 19:24:20 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

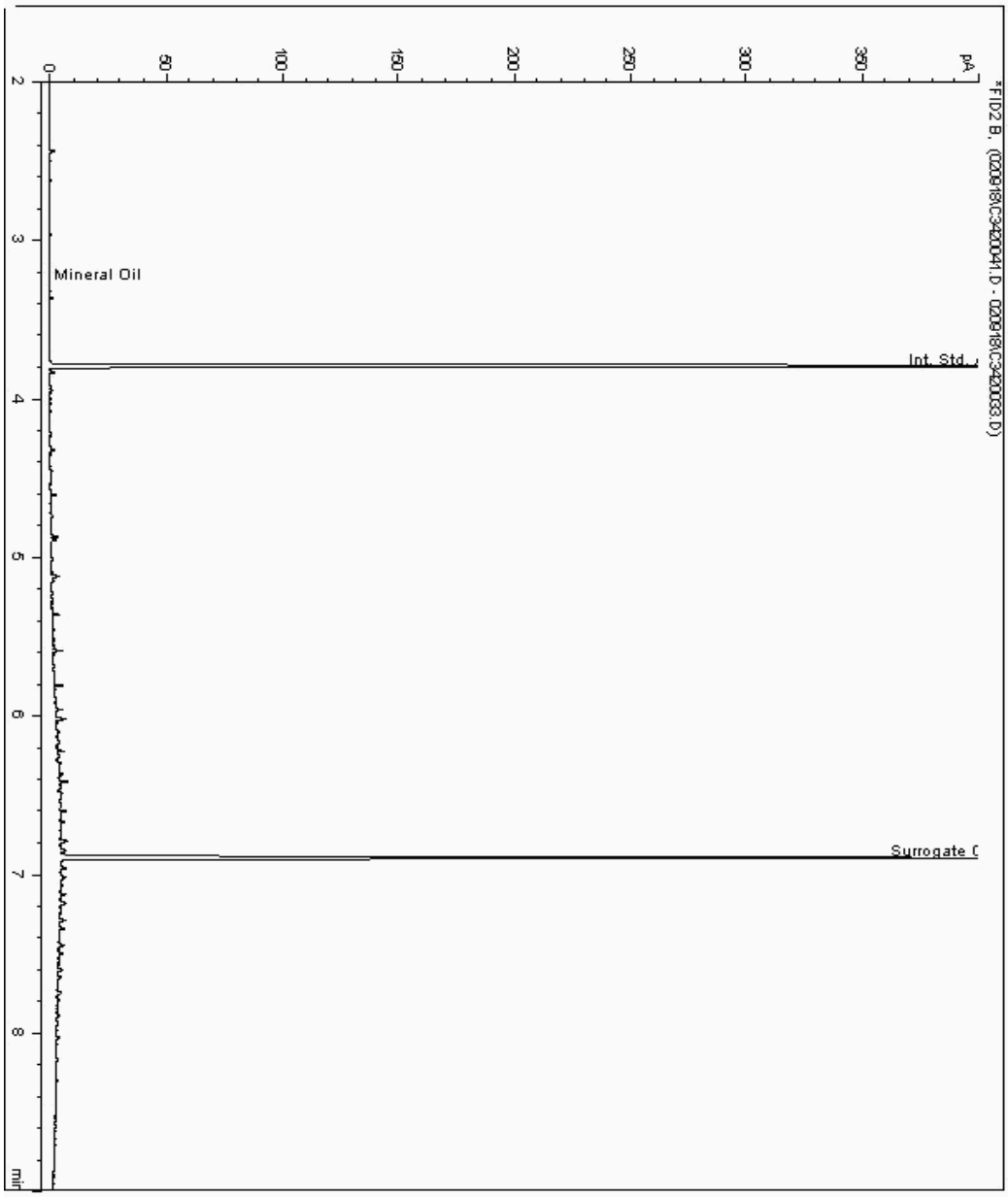
Analysis: Mineral Oil

Sample No : 17015383
Sample ID : WS-RPS-20

Depth : 0.85 - 1.00

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 15956354-
Date Acquired : 09/02/18 20:09:44 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

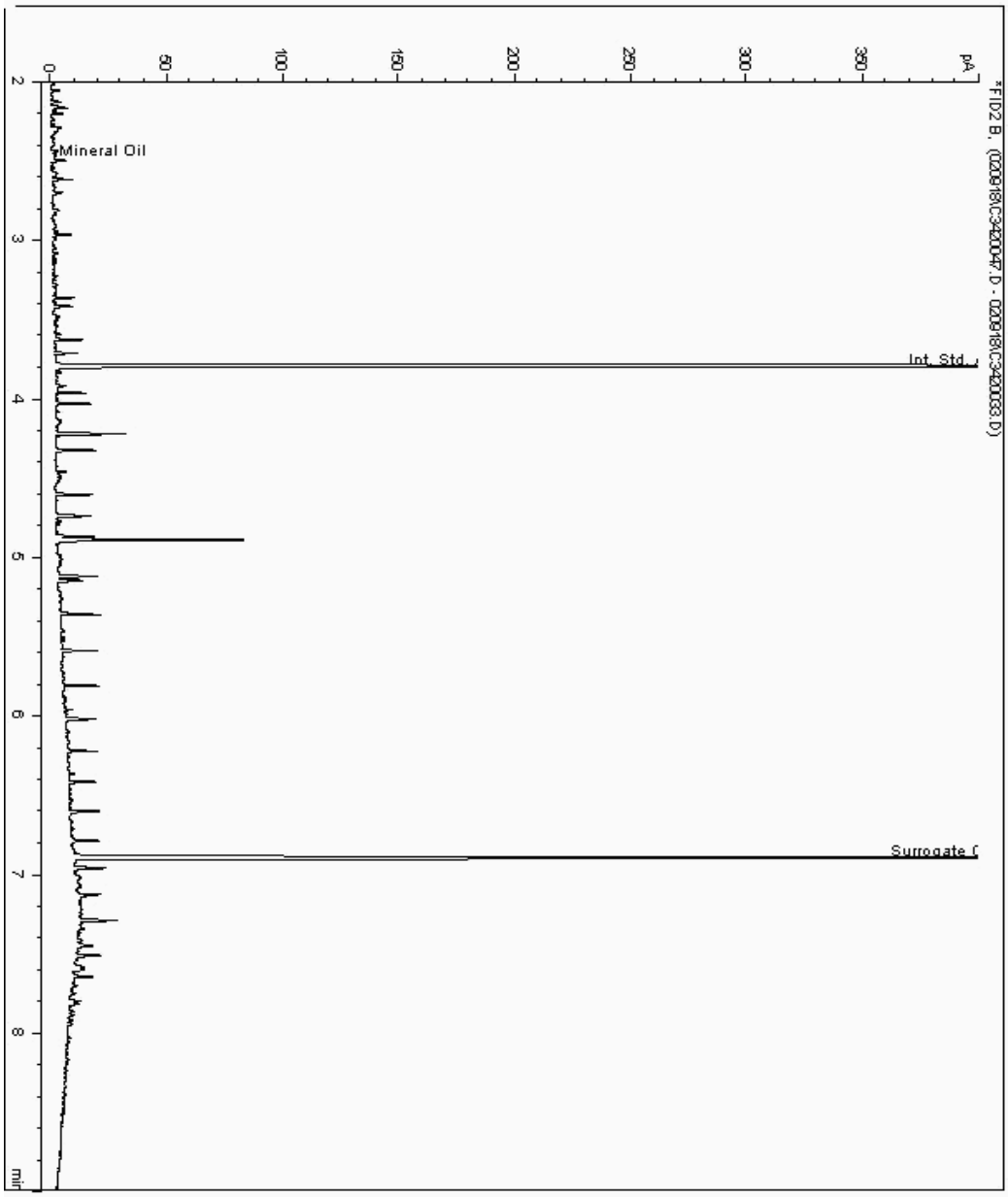
Analysis: Mineral Oil

Sample No : 17015536
Sample ID : BH-RPS-06

Depth : 0.40 - 0.50

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 15956190-
Date Acquired : 09/02/18 21:40:58 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

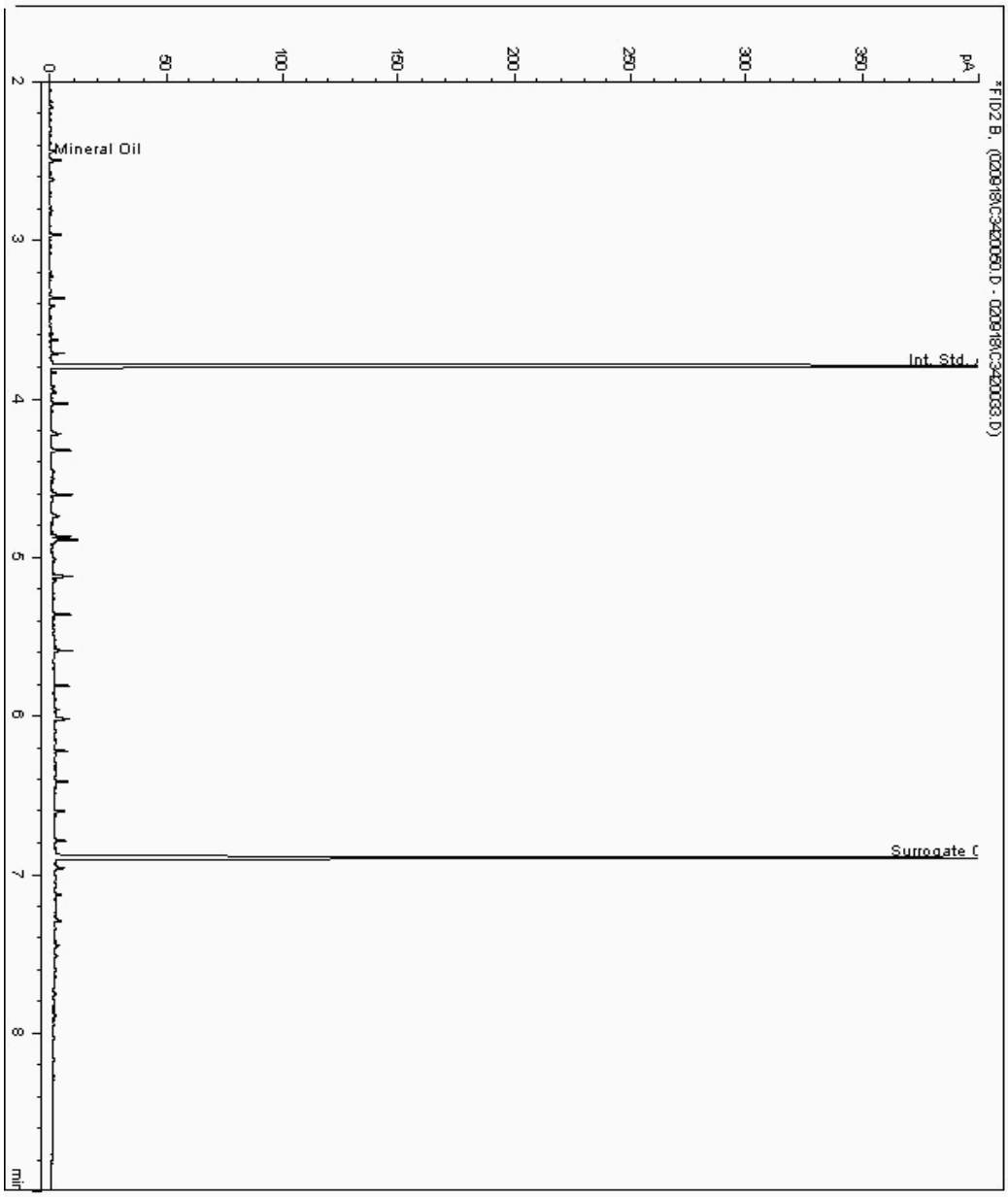
Analysis: Mineral Oil

Sample No : 17015548
Sample ID : WS-RPS-20

Depth : 0.30 - 0.85

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 15956305-
Date Acquired : 09/02/18 22:27:04 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

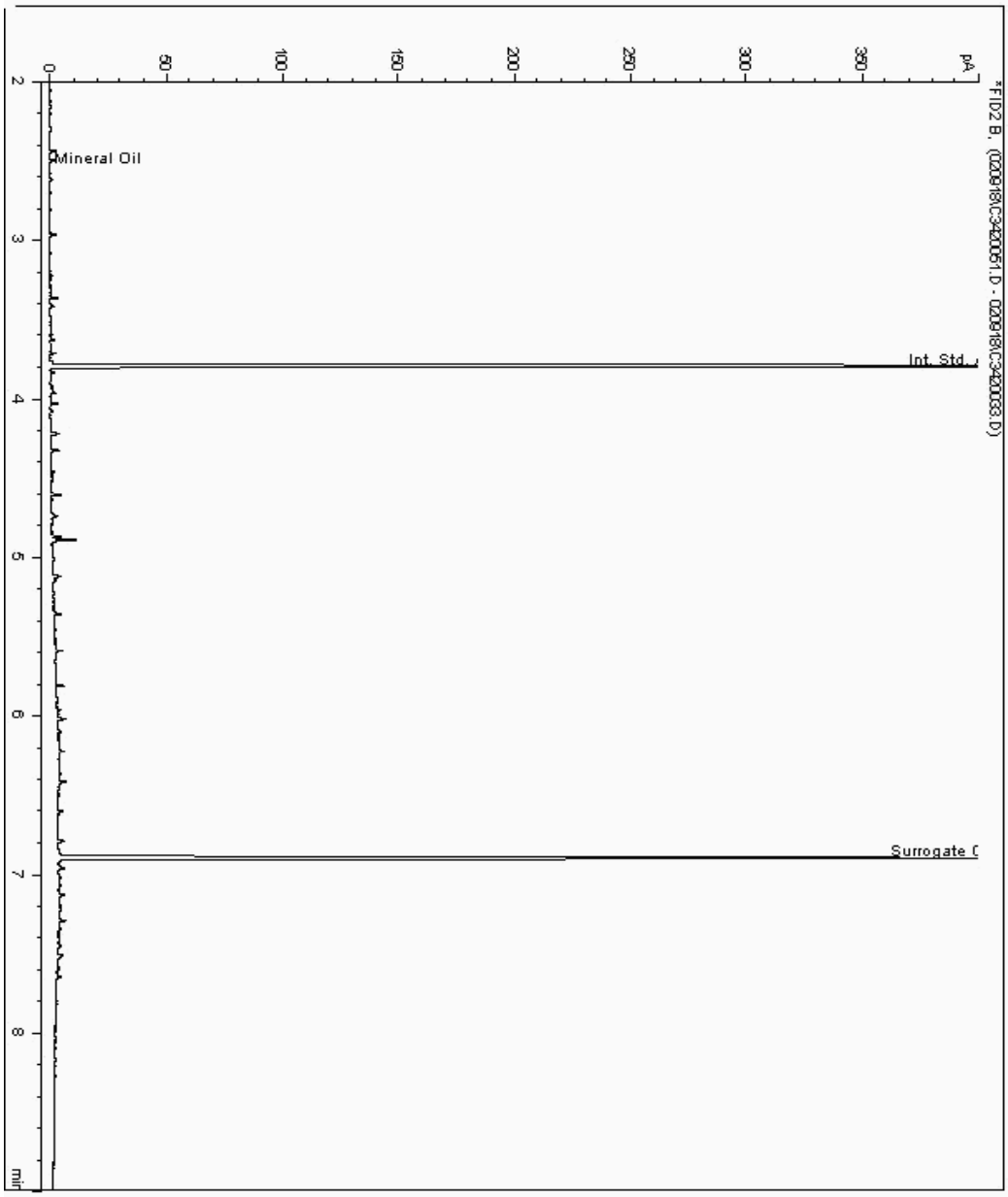
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: Mineral Oil **Sample No :** 17015566 **Sample ID :** BH-RPS-07 **Depth :** 0.60 - 1.00

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 15956330-
Date Acquired : 09/02/18 22:48:37 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

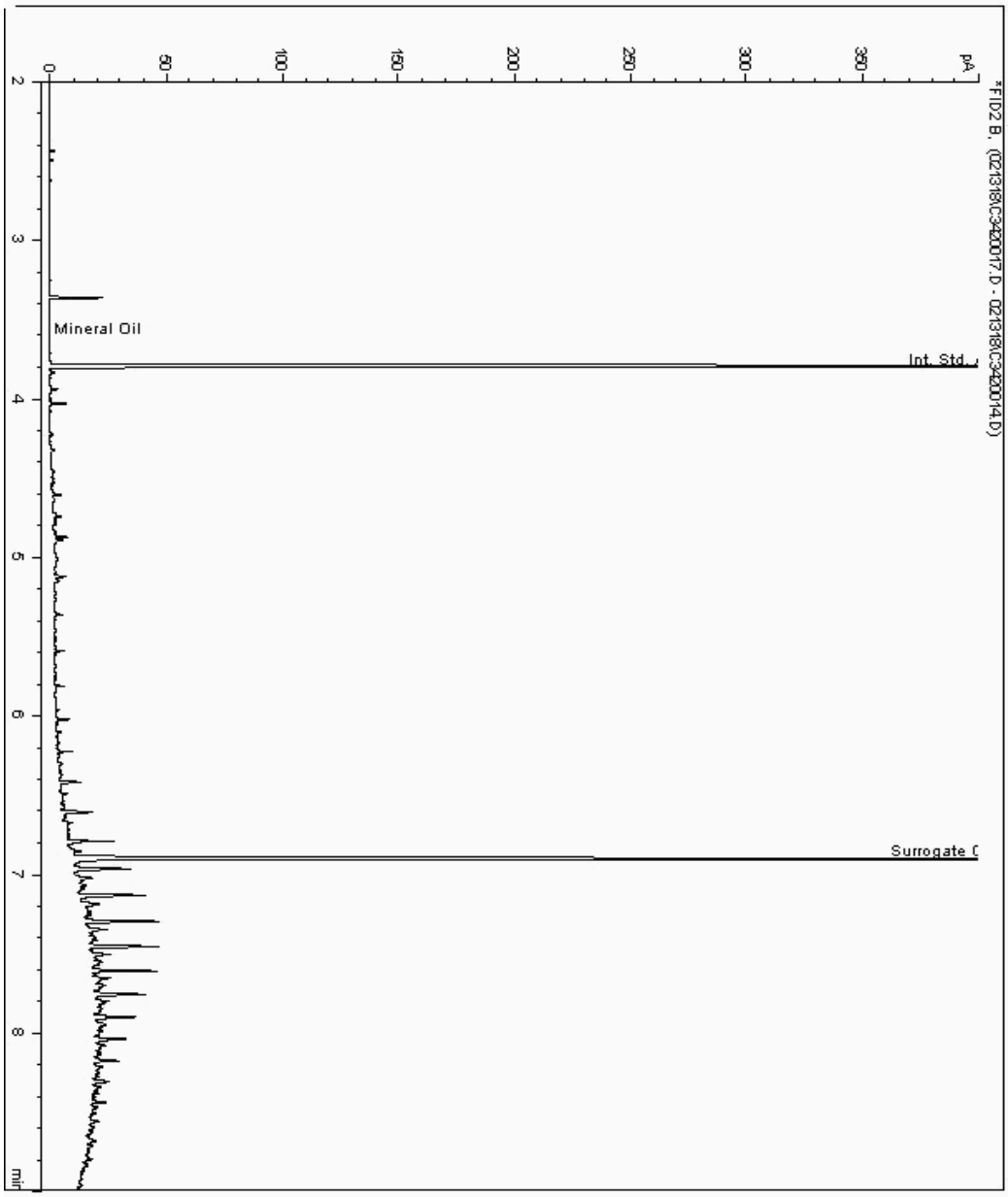
Analysis: Mineral Oil

Sample No : 17036029
Sample ID : WS-RPS-11

Depth : 1.10

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 15956152-
Date Acquired : 13/02/18 13:31:17 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

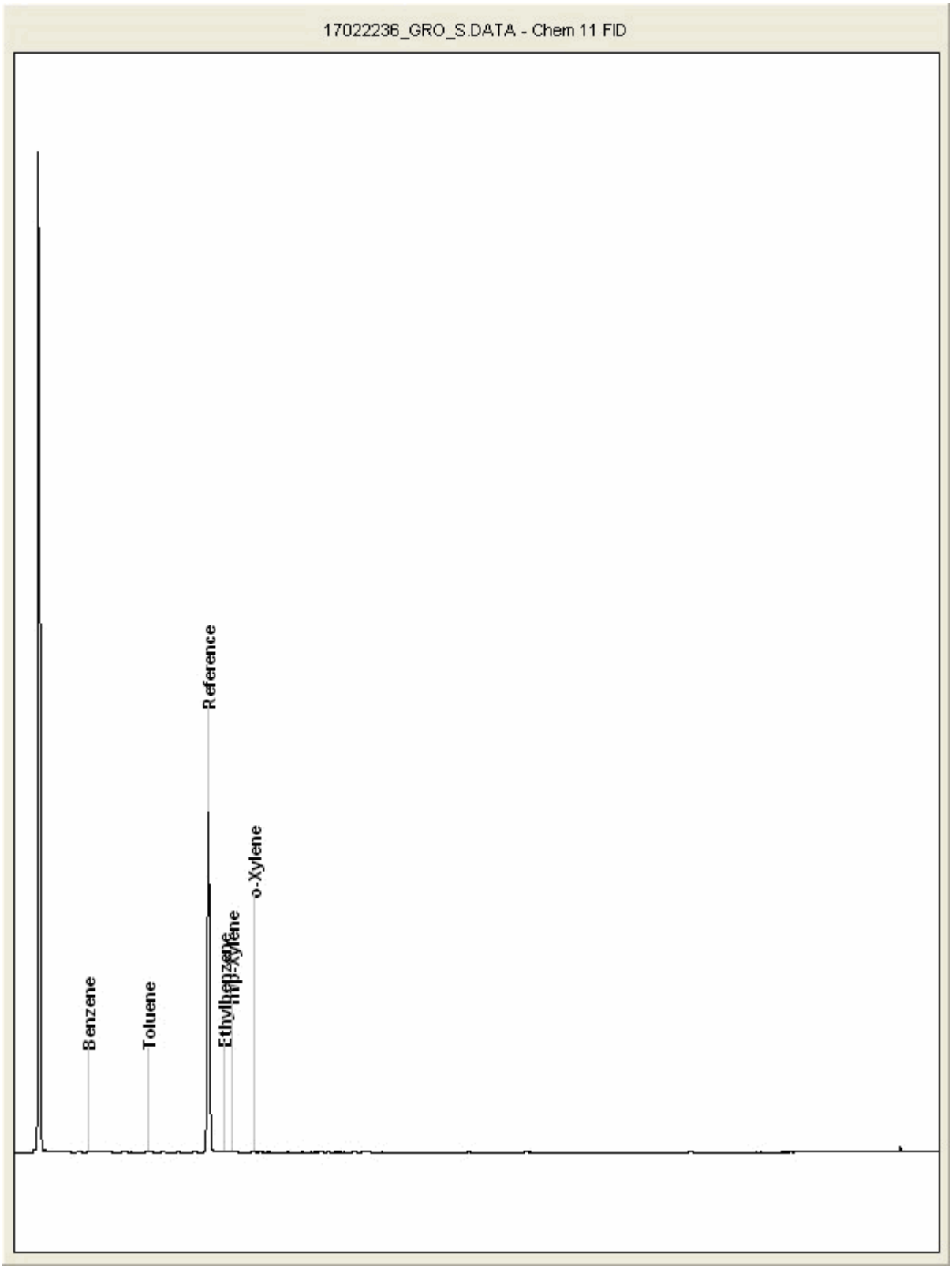
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17022236
Sample ID : BH-RPS-07

Depth : 0.60 - 1.00



Validated

CERTIFICATE OF ANALYSIS

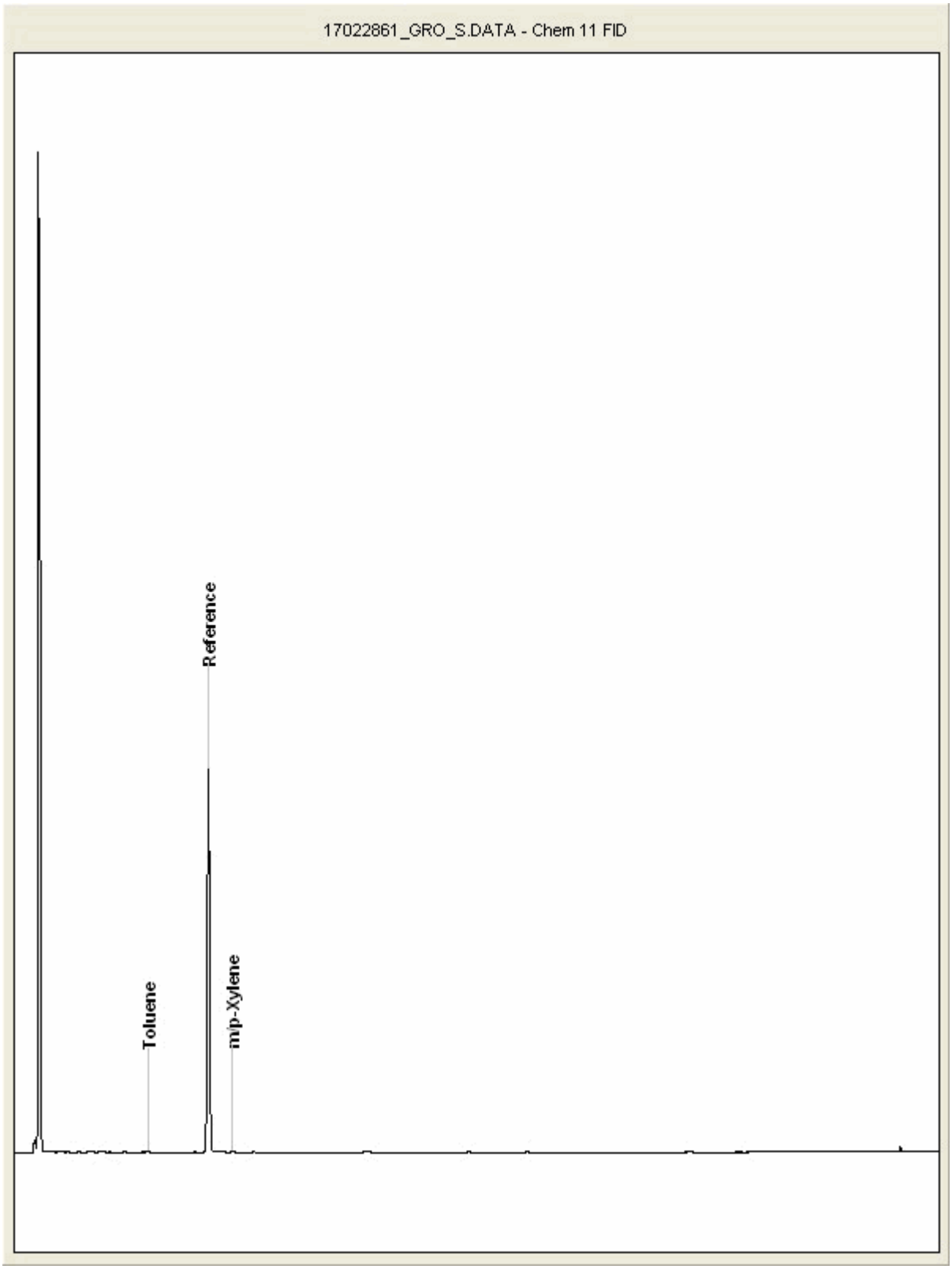
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17022861
Sample ID : BH-RPS-05

Depth : 0.30



Validated

CERTIFICATE OF ANALYSIS

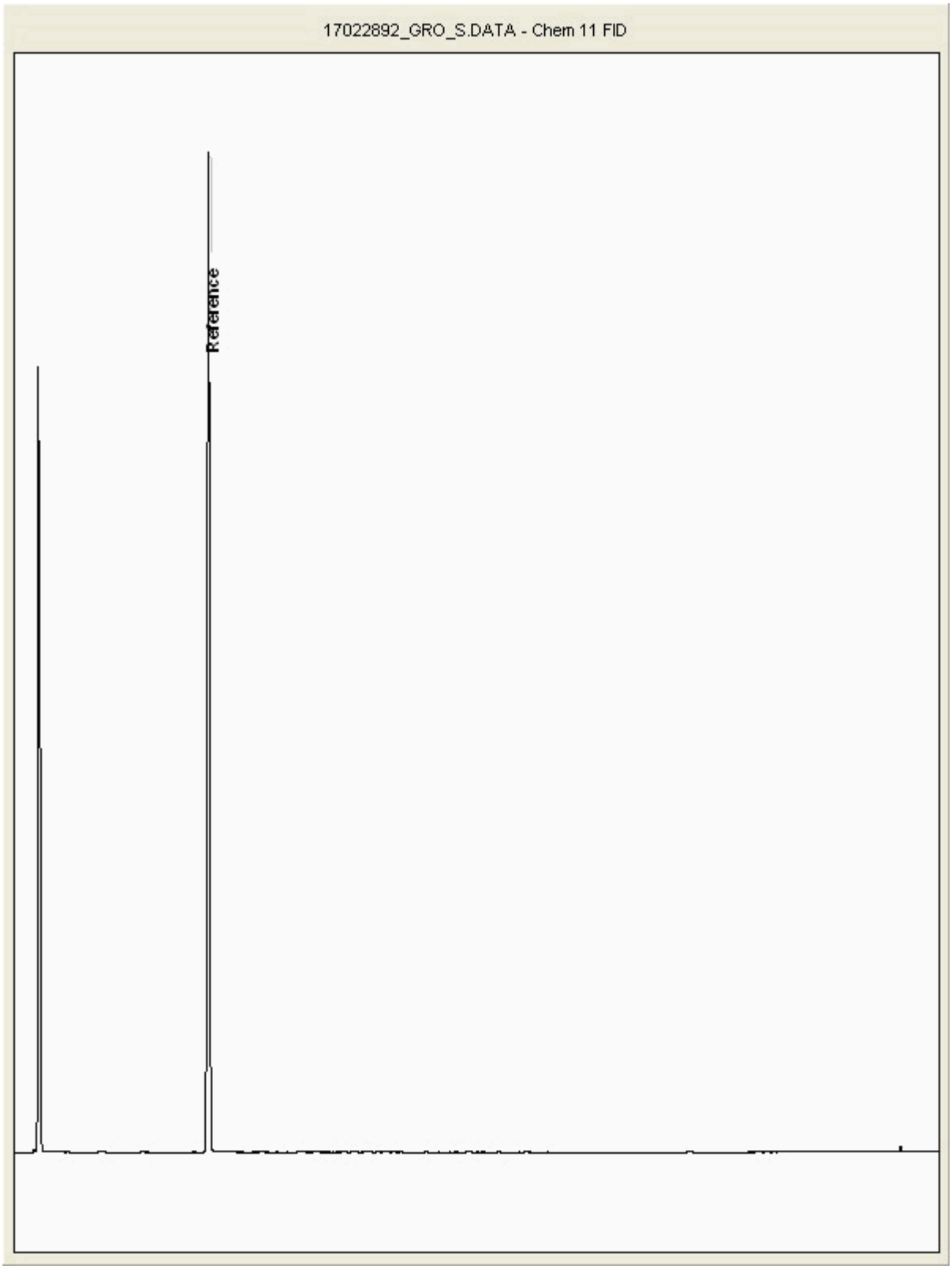
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17022892
Sample ID : WS-RPS-11

Depth : 1.10



Validated

CERTIFICATE OF ANALYSIS

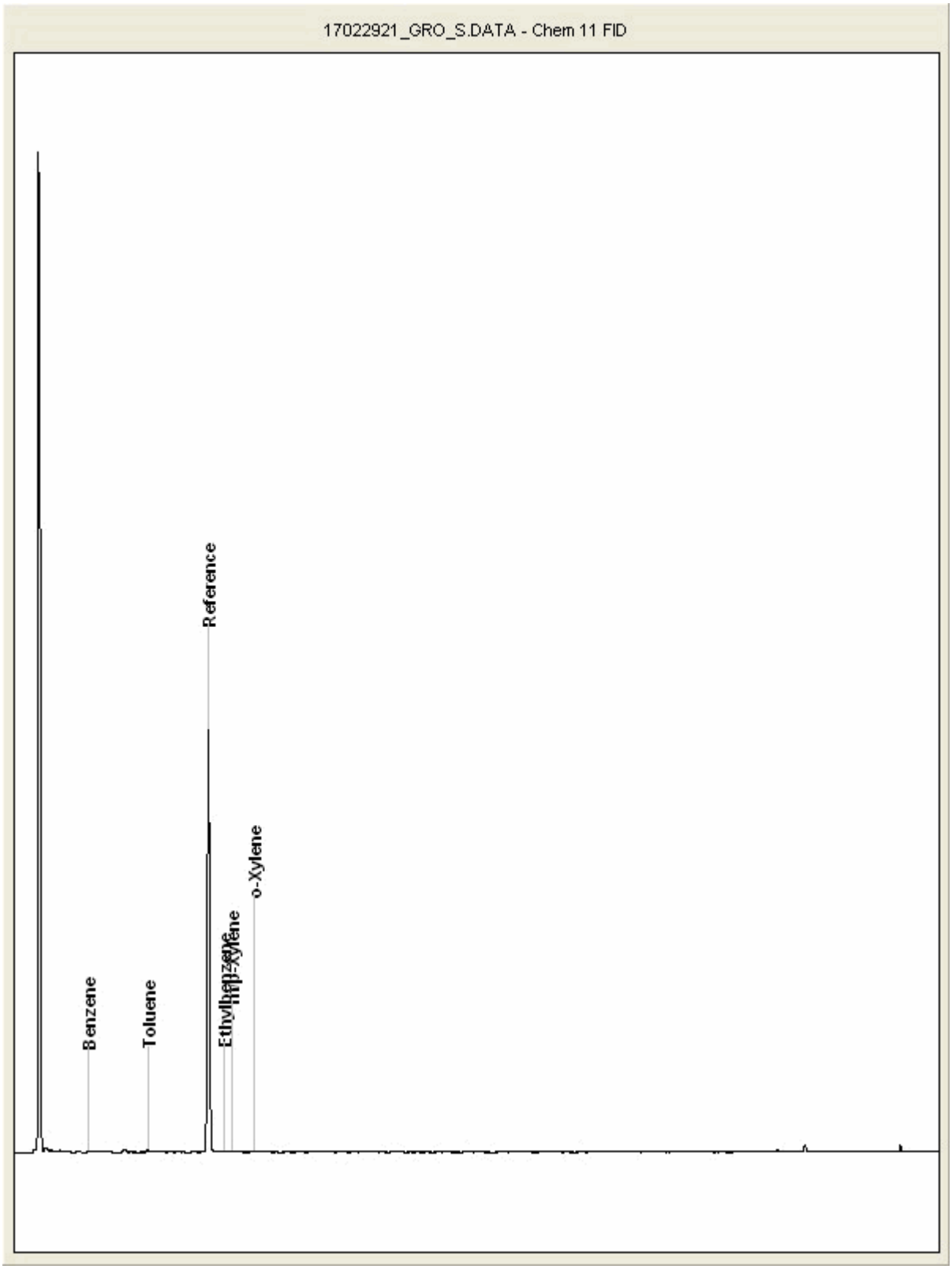
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17022921
Sample ID : WS-RPS-20

Depth : 0.30 - 0.85



Validated

CERTIFICATE OF ANALYSIS

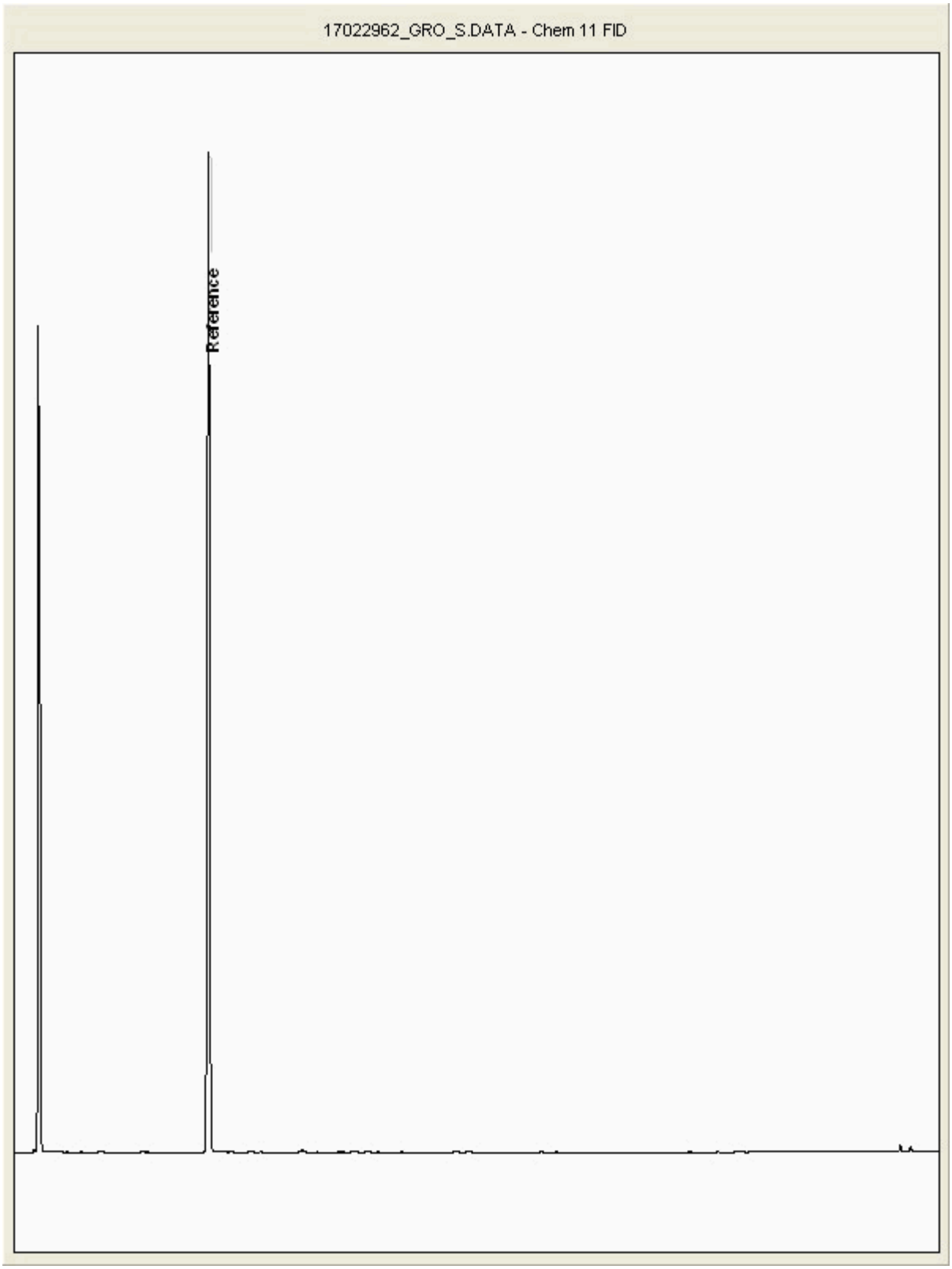
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17022962
Sample ID : WS-RPS-20

Depth : 0.85 - 1.00



Validated

CERTIFICATE OF ANALYSIS

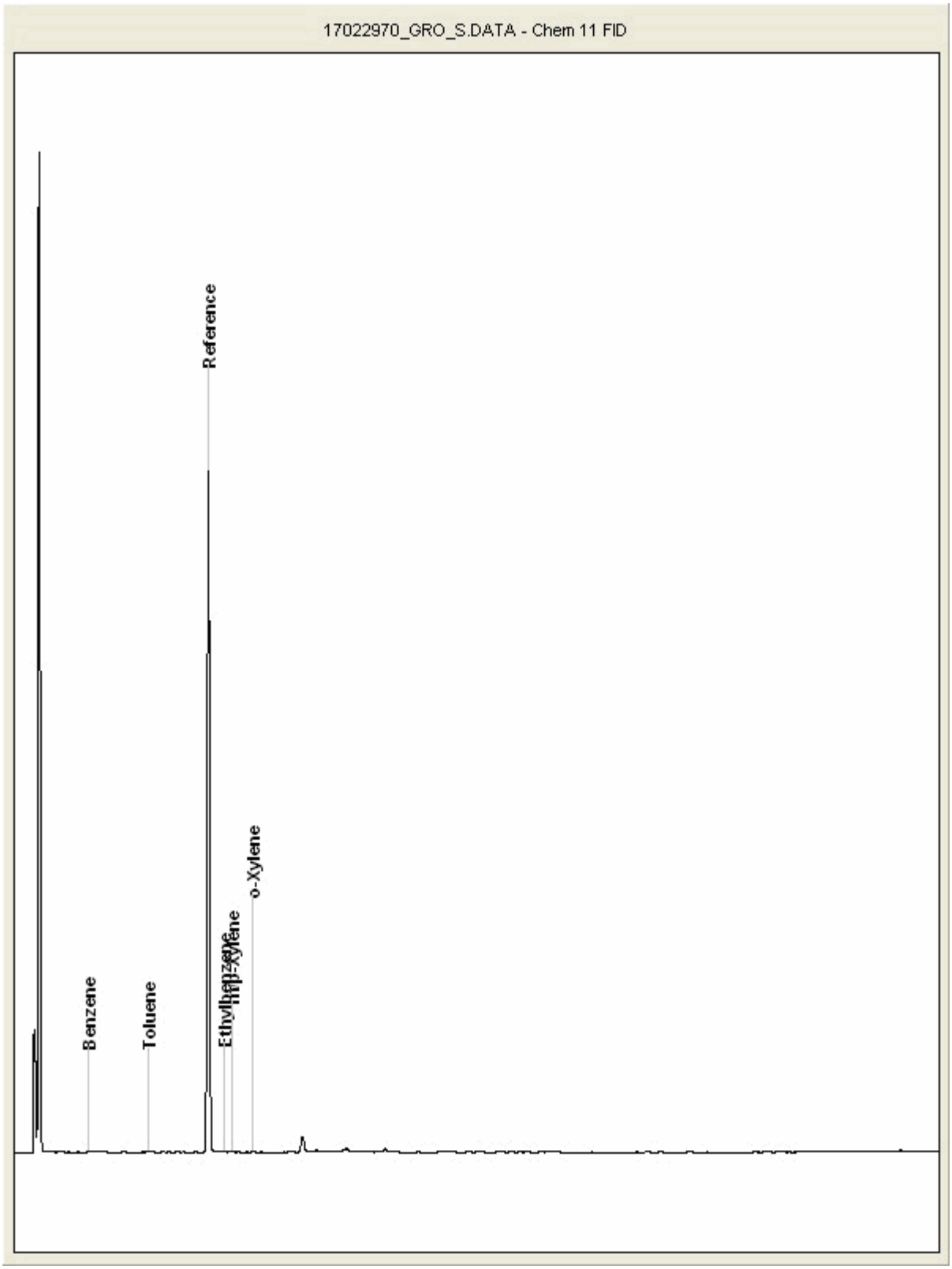
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17022970
Sample ID : BH-RPS-06

Depth : 1.90 - 2.20



Validated

CERTIFICATE OF ANALYSIS

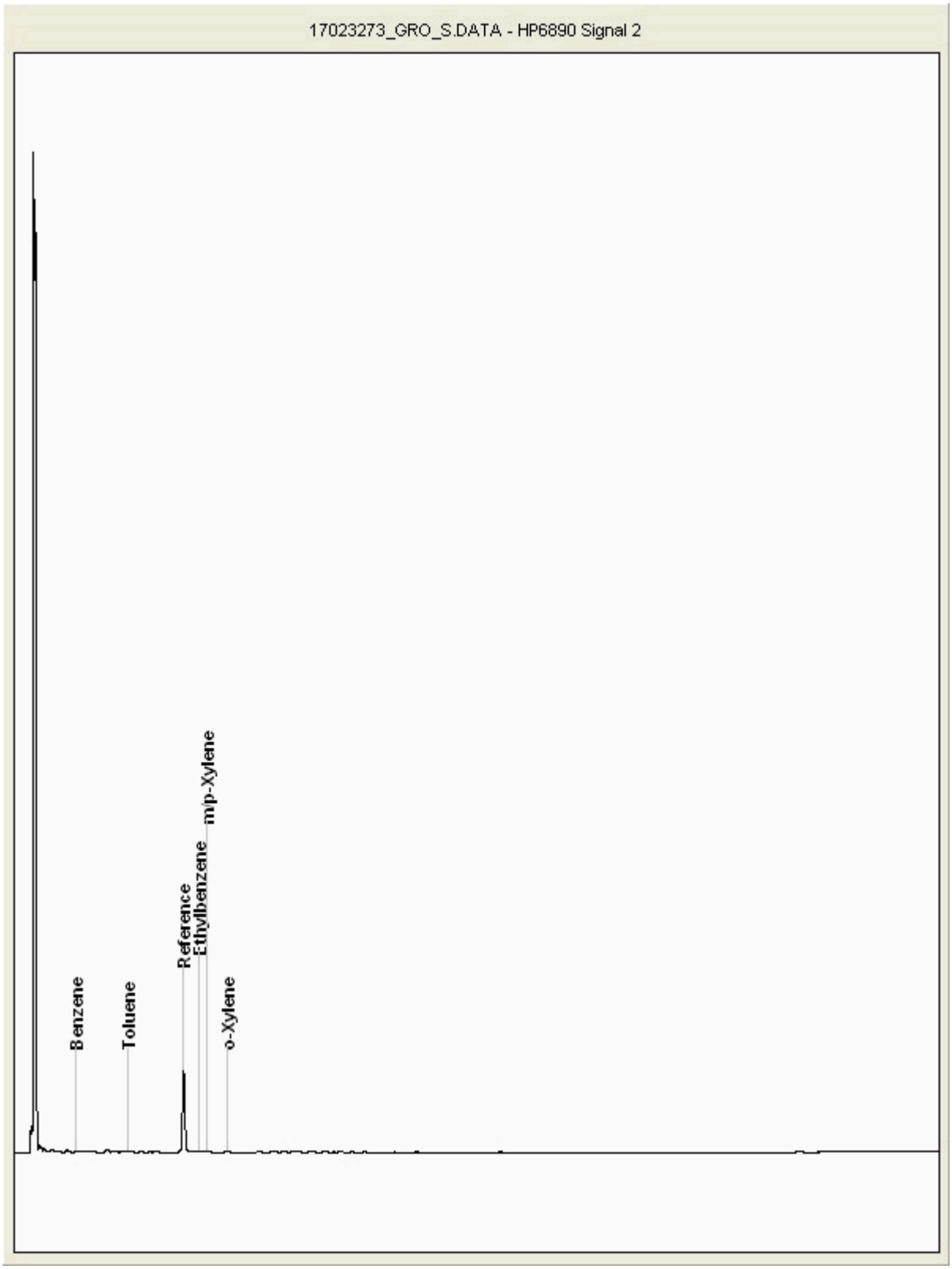
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17023273
Sample ID : BH-RPS-06

Depth : 0.40 - 0.50



Validated

CERTIFICATE OF ANALYSIS

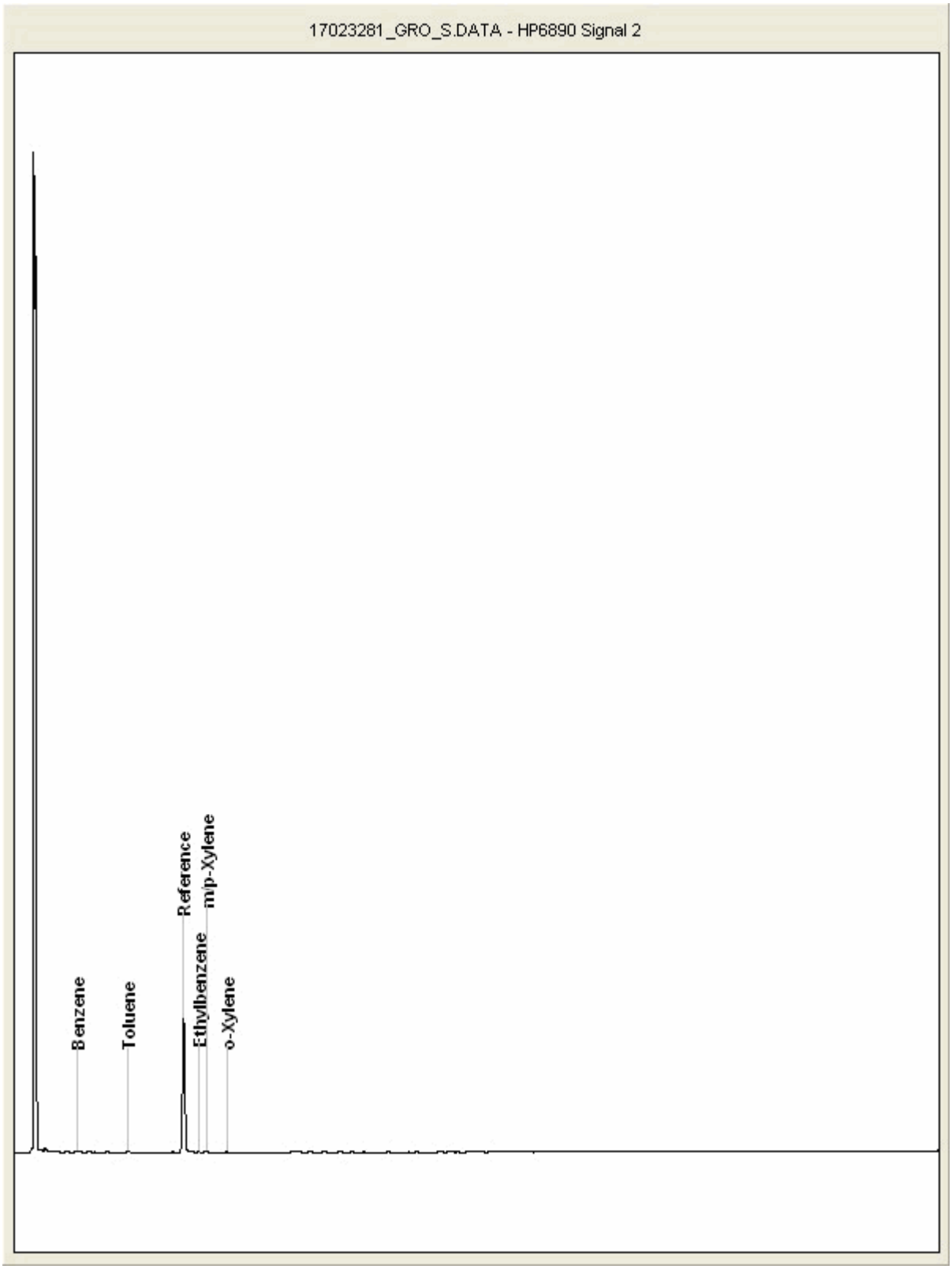
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17023281
Sample ID : WS-RPS-10

Depth : 0.40 - 0.50



Validated

CERTIFICATE OF ANALYSIS

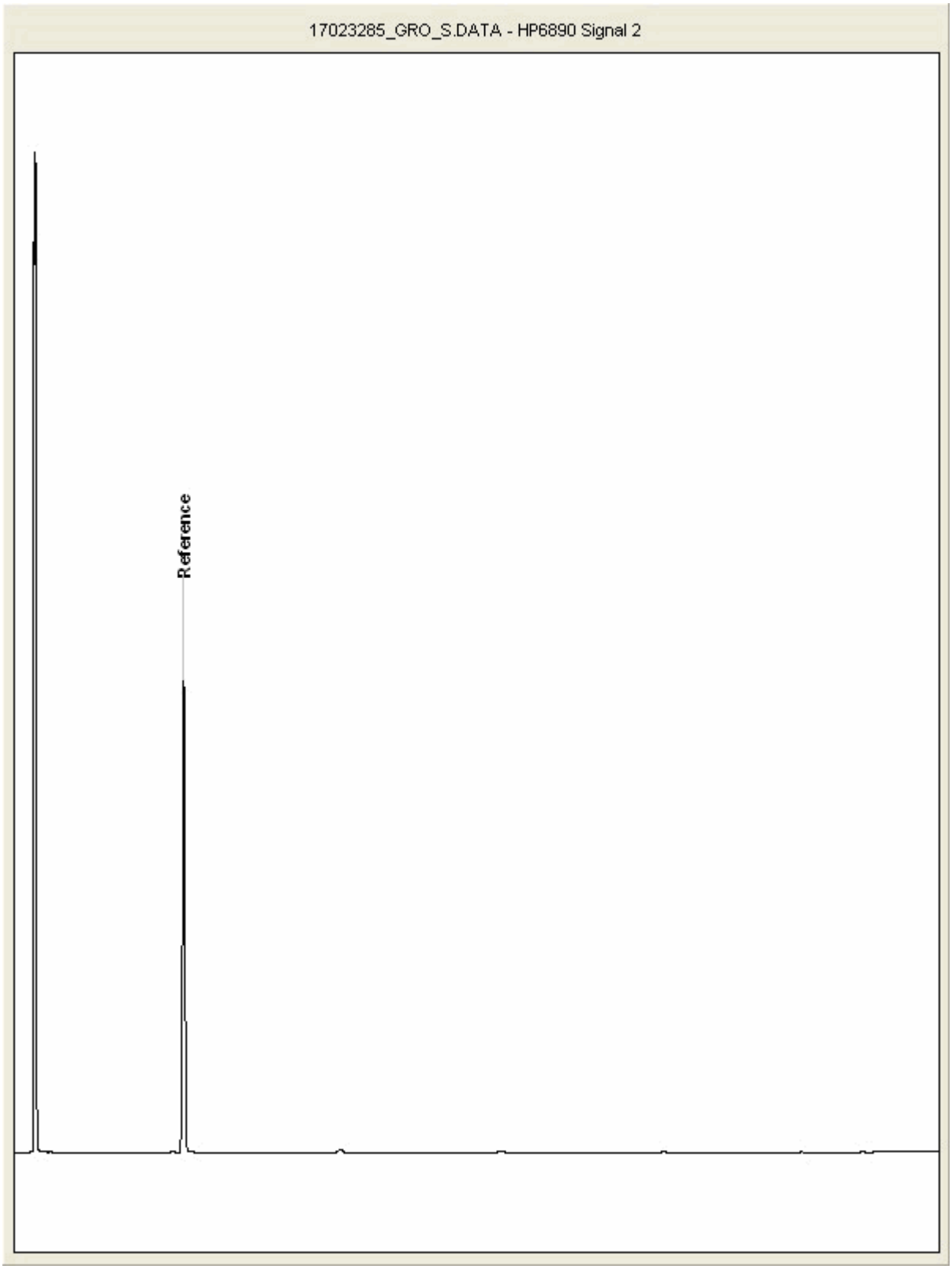
SDG:	180206-84	**Client Reference:**	JER1100	**Report Number:**	445997
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17023285
Sample ID : BH-RPS-12

Depth : 0.30 - 0.60



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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260 Park Avenue
Aztec West
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BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	21 February 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180210-92
Your Reference:	JER1100
Location:	Lostock
Report No:	445332

We received 12 samples on Saturday February 10, 2018 and 2 of these samples were scheduled for analysis which was completed on Wednesday February 21, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17028987	BH-RPS-03	ES-	0.30 - 0.40	02/02/2018
17029024	BH-RPS-03	ES-	0.95 - 1.10	02/02/2018
17029052	BH-RPS-03	ES-	1.30 - 1.50	07/02/2018
17029058	BH-RPS-03	ES-	2.20 - 2.40	07/02/2018
17029066	BH-RPS-03	ES-	3.00 - 3.20	07/02/2018
17029073	BH-RPS-03	ES-	6.80 - 7.00	07/02/2018
17029081	BH-RPS-03	ES-	9.80	07/02/2018
17029032	BH-RPS-05	ES-	3.00 - 3.20	06/02/2018
17029040	BH-RPS-05	ES-	4.80 - 5.00	06/02/2018
17029001	BH-RPS-07	ES-	1.60 - 1.80	08/02/2018
17029009	BH-RPS-07	ES-	3.00 - 3.30	08/02/2018
17029017	BH-RPS-07	ES-	6.00 - 6.20	08/02/2018

Maximum Sample/Coolbox Temperature (°C) : 7.2

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)					17029024	17029052
Customer Sample Reference					BH-RPS-03	BH-RPS-03
AGS Reference					ES-	ES-
Depth (m)					0.95 - 1.10	1.30 - 1.50
Container			250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1		X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 1	X			
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 1	X			
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 1	X			
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 1	X			
PAH by GCMS	All	NDPs: 0 Tests: 1	X			
PCBs by GCMS	All	NDPs: 0 Tests: 1	X			
pH	All	NDPs: 0 Tests: 2	X			X
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1	X			
Sample description	All	NDPs: 0 Tests: 2	X			X
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 1	X			
Total Organic Carbon	All	NDPs: 0 Tests: 1	X			
TPH CWG GC (S)	All	NDPs: 0 Tests: 1	X			
VOC MS (S)	All	NDPs: 0 Tests: 1			X	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17029024	BH-RPS-03	0.95 - 1.10	Cream	Sandy Loam	Stones	None
17029052	BH-RPS-03	1.30 - 1.50	White	Clay Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-03	BH-RPS-03				
Depth (m)			0.95 - 1.10	1.30 - 1.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			02/02/2018	07/02/2018				
Sampled Time			.	.				
Date Received			10/02/2018	10/02/2018				
SDG Ref			180210-92	180210-92				
Lab Sample No.(s)			17029024	17029052				
AGS Reference			ES-	ES-				
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	45	53				
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M					
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 M					
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 M					
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)	<0.01 M					
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)	<0.015 M					
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)	<0.06 M					
Soil Organic Matter (SOM)	<0.35 %	TM132	33.3 #					
pH	1 pH Units	TM133	10.5 M	12.5 M				
Cyanide, Free	<1 mg/kg	TM153	<1 @ M					
PCB congener 118	<3 µg/kg	TM168	<3 M					
PCB congener 81	<3 µg/kg	TM168	<3 M					
PCB congener 77	<3 µg/kg	TM168	<3 M					
PCB congener 123	<3 µg/kg	TM168	<3 M					
PCB congener 114	<3 µg/kg	TM168	<3 M					
PCB congener 105	<3 µg/kg	TM168	<3 M					
PCB congener 126	<3 µg/kg	TM168	<3 M					
PCB congener 167	<3 µg/kg	TM168	<3 M					
PCB congener 156	<3 µg/kg	TM168	<3 M					
PCB congener 157	<3 µg/kg	TM168	<3 M					
PCB congener 169	<3 µg/kg	TM168	<3 M					
PCB congener 189	<3 µg/kg	TM168	<3 M					
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168	<36					
Antimony	<0.6 mg/kg	TM181	1.08 #					
Arsenic	<0.6 mg/kg	TM181	23.4 M					
Cadmium	<0.02 mg/kg	TM181	1.71 M					
Chromium	<0.9 mg/kg	TM181	10.9 M					
Cobalt	<0.1 mg/kg	TM181	5.83 M					
Copper	<1.4 mg/kg	TM181	21.2 M					
Lead	<0.7 mg/kg	TM181	10.9 M					
Manganese	<0.13 mg/kg	TM181	605 M					
Mercury	<0.14 mg/kg	TM181	<0.14 M					

Validated

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	BH-RPS-03	BH-RPS-03
Depth (m)	0.95 - 1.10	1.30 - 1.50
Sample Type	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	02/02/2018	07/02/2018
Sampled Time	-	-
Date Received	10/02/2018	10/02/2018
SDG Ref	180210-92	180210-92
Lab Sample No.(s)	17029024	17029052
AGS Reference	ES-	ES-

Component	LOD/Units	Method		
Molybdenum	<0.1 mg/kg	TM181	0.665 #	
Nickel	<0.2 mg/kg	TM181	13.5 M	
Selenium	<1 mg/kg	TM181	<1 #	
Tin	<0.24 mg/kg	TM181	0.799 #	
Thallium	<0.7 mg/kg	TM181	<0.7 #	
Vanadium	<0.2 mg/kg	TM181	27.7 #	
Zinc	<1.9 mg/kg	TM181	50.1 M	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	BH-RPS-03
Depth (m)	0.95 - 1.10
Sample Type	Soil/Solid (S)
Date Sampled	02/02/2018
Sampled Time	.
Date Received	10/02/2018
SDG Ref	180210-92
Lab Sample No.(s)	17029024
AGS Reference	ES-

Component	LOD/Units	Method	BH-RPS-03
Naphthalene-d8 % recovery**	%	TM218	133
Acenaphthene-d10 % recovery**	%	TM218	126
Phenanthrene-d10 % recovery**	%	TM218	123
Chrysene-d12 % recovery**	%	TM218	113
Perylene-d12 % recovery**	%	TM218	110
Naphthalene	<9 µg/kg	TM218	77.7 M
Acenaphthylene	<12 µg/kg	TM218	52.5 M
Acenaphthene	<8 µg/kg	TM218	<8 M
Fluorene	<10 µg/kg	TM218	<10 M
Phenanthrene	<15 µg/kg	TM218	151 M
Anthracene	<16 µg/kg	TM218	40.4 M
Fluoranthene	<17 µg/kg	TM218	786 M
Pyrene	<15 µg/kg	TM218	726 M
Benz(a)anthracene	<14 µg/kg	TM218	506 M
Chrysene	<10 µg/kg	TM218	543 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	642 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	245 M
Benzo(a)pyrene	<15 µg/kg	TM218	417 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	264 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	75.3 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	400 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	4930

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	BH-RPS-03
Depth (m)	0.95 - 1.10
Sample Type	Soil/Solid (S)
Date Sampled	02/02/2018
Sampled Time	.
Date Received	10/02/2018
SDG Ref	180210-92
Lab Sample No.(s)	17029024
AGS Reference	ES-

Component	LOD/Units	Method	BH-RPS-03					
Phenol	<100 µg/kg	TM157	<100					
Pentachlorophenol	<100 µg/kg	TM157	<100					
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100					
Nitrobenzene	<100 µg/kg	TM157	<100					
Isophorone	<100 µg/kg	TM157	<100					
Hexachloroethane	<100 µg/kg	TM157	<100					
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100					
Hexachlorobutadiene	<100 µg/kg	TM157	<100					
Hexachlorobenzene	<100 µg/kg	TM157	<100					
n-Dioctyl phthalate	<100 µg/kg	TM157	<100					
Dimethyl phthalate	<100 µg/kg	TM157	<100					
Diethyl phthalate	<100 µg/kg	TM157	<100					
n-Dibutyl phthalate	<100 µg/kg	TM157	<100					
Dibenzofuran	<100 µg/kg	TM157	<100					
Carbazole	<100 µg/kg	TM157	<100					
Butylbenzyl phthalate	<100 µg/kg	TM157	<100					
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100					
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100					
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100					
Azobenzene	<100 µg/kg	TM157	<100					
4-Nitrophenol	<100 µg/kg	TM157	<100					
4-Nitroaniline	<100 µg/kg	TM157	<100					
4-Methylphenol	<100 µg/kg	TM157	<100					
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100					
4-Chloroaniline	<100 µg/kg	TM157	<100					
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100					
4-Bromophenylphenylether	<100 µg/kg	TM157	<100					
3-Nitroaniline	<100 µg/kg	TM157	<100					
2-Nitrophenol	<100 µg/kg	TM157	<100					
2-Nitroaniline	<100 µg/kg	TM157	<100					
2-Methylphenol	<100 µg/kg	TM157	<100					
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100					

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-03					
Depth (m)			0.95 - 1.10					
Sample Type			Soil/Solid (S)					
Date Sampled			02/02/2018					
Sampled Time			-					
Date Received			10/02/2018					
SDG Ref			180210-92					
Lab Sample No.(s)			17029024					
AGS Reference			ES-					
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100					
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100					
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100					
2,4-Dimethylphenol	<100 µg/kg	TM157	<100					
2,4-Dichlorophenol	<100 µg/kg	TM157	<100					
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100					
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100					
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100					
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100					
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100					
2-Chloronaphthalene	<100 µg/kg	TM157	<100					
2-Methylnaphthalene	<100 µg/kg	TM157	<100					
Acenaphthylene	<100 µg/kg	TM157	<100					
Acenaphthene	<100 µg/kg	TM157	<100					
Anthracene	<100 µg/kg	TM157	<100					
Benzo(a)anthracene	<100 µg/kg	TM157	<100					
Benzo(b)fluoranthene	<100 µg/kg	TM157	<100					
Benzo(k)fluoranthene	<100 µg/kg	TM157	<100					
Benzo(a)pyrene	<100 µg/kg	TM157	<100					
Benzo(g,h,i)perylene	<100 µg/kg	TM157	<100					
Chrysene	<100 µg/kg	TM157	<100					
Fluoranthene	<100 µg/kg	TM157	<100					
Fluorene	<100 µg/kg	TM157	<100					
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	<100					
Phenanthrene	<100 µg/kg	TM157	<100					
Pyrene	<100 µg/kg	TM157	<100					
Naphthalene	<100 µg/kg	TM157	<100					
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100					
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100					

Validated

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	BH-RPS-03
Depth (m)	0.95 - 1.10
Sample Type	Soil/Solid (S)
Date Sampled	02/02/2018
Sampled Time	.
Date Received	10/02/2018
SDG Ref	180210-92
Lab Sample No.(s)	17029024
AGS Reference	ES-

Component	LOD/Units	Method	BH-RPS-03
GRO Surrogate % recovery**	%	TM089	101
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #
Benzene	<10 µg/kg	TM089	<10 M
Toluene	<2 µg/kg	TM089	<2 M
Ethylbenzene	<3 µg/kg	TM089	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	3710
Aliphatics >C16-C21	<100 µg/kg	TM173	2010
Aliphatics >C21-C35	<100 µg/kg	TM173	5760
Aliphatics >C35-C44	<100 µg/kg	TM173	3000
Total Aliphatics >C12-C44	<100 µg/kg	TM173	14500
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	291
Aromatics >EC16-EC21	<100 µg/kg	TM173	1350
Aromatics >EC21-EC35	<100 µg/kg	TM173	10100
Aromatics >EC35-EC44	<100 µg/kg	TM173	1960
Aromatics >EC40-EC44	<100 µg/kg	TM173	705
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	13700
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	28200

Validated

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	BH-RPS-03
Depth (m)	0.95 - 1.10
Sample Type	Soil/Solid (S)
Date Sampled	02/02/2018
Sampled Time	.
Date Received	10/02/2018
SDG Ref	180210-92
Lab Sample No.(s)	17029024
AGS Reference	ES-

Component	LOD/Units	Method	BH-RPS-03					
Dibromofluoromethane**	%	TM116	119					
Toluene-d8**	%	TM116	103					
4-Bromofluorobenzene**	%	TM116	90.3					
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 M					
Chloromethane	<7 µg/kg	TM116	<7 #					
Vinyl Chloride	<6 µg/kg	TM116	<6 M					
Bromomethane	<10 µg/kg	TM116	<10 M					
Chloroethane	<10 µg/kg	TM116	<10 M					
Trichlorofluorormethane	<6 µg/kg	TM116	<6 M					
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #					
Carbon Disulphide	<7 µg/kg	TM116	<7 M					
Dichloromethane	<10 µg/kg	TM116	<10 #					
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M					
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 M					
1,1-Dichloroethane	<8 µg/kg	TM116	<8 M					
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 M					
2,2-Dichloropropane	<10 µg/kg	TM116	<10					
Bromochloromethane	<10 µg/kg	TM116	<10 M					
Chloroform	<8 µg/kg	TM116	<8 M					
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 M					
1,1-Dichloropropene	<10 µg/kg	TM116	<10 M					
Carbontetrachloride	<10 µg/kg	TM116	<10 M					
1,2-Dichloroethane	<5 µg/kg	TM116	<5 M					
Benzene	<9 µg/kg	TM116	<9 M					
Trichloroethene	<9 µg/kg	TM116	<9 #					
1,2-Dichloropropane	<10 µg/kg	TM116	<10 M					
Dibromomethane	<9 µg/kg	TM116	<9 M					
Bromodichloromethane	<7 µg/kg	TM116	<7 M					
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 M					
Toluene	<7 µg/kg	TM116	<7 M					
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10					
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 M					

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	BH-RPS-03
Depth (m)	0.95 - 1.10
Sample Type	Soil/Solid (S)
Date Sampled	02/02/2018
Sampled Time	-
Date Received	10/02/2018
SDG Ref	180210-92
Lab Sample No.(s)	17029024
AGS Reference	ES-

Component	LOD/Units	Method	BH-RPS-03					
1,3-Dichloropropane	<7 µg/kg	TM116	<7	M				
Tetrachloroethene	<5 µg/kg	TM116	<5	M				
Dibromochloromethane	<10 µg/kg	TM116	<10	M				
1,2-Dibromoethane	<10 µg/kg	TM116	<10	M				
Chlorobenzene	<5 µg/kg	TM116	<5	M				
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10	M				
Ethylbenzene	<4 µg/kg	TM116	<4	M				
p/m-Xylene	<10 µg/kg	TM116	<10	#				
o-Xylene	<10 µg/kg	TM116	<10	M				
Styrene	<10 µg/kg	TM116	<10	#				
Bromoform	<10 µg/kg	TM116	<10	M				
Isopropylbenzene	<5 µg/kg	TM116	<5	#				
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10	#				
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16	M				
Bromobenzene	<10 µg/kg	TM116	<10	M				
Propylbenzene	<10 µg/kg	TM116	<10	M				
2-Chlorotoluene	<9 µg/kg	TM116	<9	M				
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8	M				
4-Chlorotoluene	<10 µg/kg	TM116	<10	M				
tert-Butylbenzene	<14 µg/kg	TM116	<14	M				
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9	#				
sec-Butylbenzene	<10 µg/kg	TM116	<10					
4-Isopropyltoluene	<10 µg/kg	TM116	<10	M				
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8	M				
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5	M				
n-Butylbenzene	<11 µg/kg	TM116	<11					
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10	M				
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14	M				
Tert-amyl methyl ether	<10 µg/kg	TM116	<10	#				
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20					
Hexachlorobutadiene	<20 µg/kg	TM116	<20					
Naphthalene	<13 µg/kg	TM116	<13	M				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	BH-RPS-03
Depth (m)	0.95 - 1.10
Sample Type	Soil/Solid (S)
Date Sampled	02/02/2018
Sampled Time	-
Date Received	10/02/2018
SDG Ref	180210-92
Lab Sample No.(s)	17029024
AGS Reference	ES-

Component	LOD/Units	Method	BH-RPS-03
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-03 ES - 0.95 - 1.10 SOLID 02/02/2018 00:00:00 11/02/2018 12:12:41 180210-92 17029024 TM048	20/02/2018	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Test Completion Dates

Lab Sample No(s)	17029024	17029052
Customer Sample Ref.	BH-RPS-03	BH-RPS-03
AGS Ref.	ES-	ES-
Depth	0.95 - 1.10	1.30 - 1.50
Type	Soil/Solid (S)	Soil/Solid (S)
Asbestos ID in Solid Samples	20-Feb-2018	
Cyanide Comp/Free/Total/Thiocyanate	21-Feb-2018	
EPH CWG (Aliphatic) GC (S)	20-Feb-2018	
EPH CWG (Aromatic) GC (S)	20-Feb-2018	
GRO by GC-FID (S)	15-Feb-2018	
Metals in solid samples by OES	20-Feb-2018	
PAH by GCMS	20-Feb-2018	
PCBs by GCMS	19-Feb-2018	
pH	16-Feb-2018	13-Feb-2018
Phenols by HPLC (S)	15-Feb-2018	
Sample description	11-Feb-2018	11-Feb-2018
Semi Volatile Organic Compounds	14-Feb-2018	
Total Organic Carbon	16-Feb-2018	
TPH CWG GC (S)	20-Feb-2018	
VOC MS (S)	17-Feb-2018	

ASSOCIATED AQC DATA

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 1792
Free Cyanide	TM153	**91.1** 84.60 : 110.40
Thiocyanate	TM153	**88.02** 83.02 : 103.47
Total Cyanide	TM153	**100.0** 87.53 : 111.13

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1744
Total Aliphatics >C12-C35	TM173	**90.83** 70.61 : 106.16

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1744
Total Aromatics >EC12-EC35	TM173	**90.0** 67.75 : 104.04

GRO by GC-FID (S)

Component	Method Code	QC 1720
Benzene by GC (Moisture Corrected)	TM089	**96.0** 83.15 : 118.53
Ethylbenzene by GC (Moisture Corrected)	TM089	**105.5** 81.56 : 117.75
m & p Xylene by GC (Moisture Corrected)	TM089	**105.25** 80.40 : 118.80
MTBE GC-FID (Moisture Corrected)	TM089	**97.0** 83.25 : 126.67
o Xylene by GC (Moisture Corrected)	TM089	**103.5** 80.82 : 119.41
QC	TM089	**101.89** 64.83 : 116.17
Toluene by GC (Moisture Corrected)	TM089	**102.0** 83.39 : 118.40

Metals in solid samples by OES

Component	Method Code	QC 1767
Aluminium	TM181	**94.81** 75.13 : 109.48
Antimony	TM181	**98.46** 84.48 : 110.90
Arsenic	TM181	**94.6** 83.14 : 108.73

Metals in solid samples by OES

		QC 1767
Barium	TM181	**95.31** 77.47 : 102.53
Beryllium	TM181	**95.55** 84.19 : 106.77
Boron	TM181	**94.35** 76.55 : 106.69
Cadmium	TM181	**99.47** 86.37 : 111.59
Chromium	TM181	**100.0** 81.29 : 118.71
Cobalt	TM181	**97.18** 85.45 : 109.14
Copper	TM181	**91.99** 81.33 : 103.33
Iron	TM181	**100.0** 82.44 : 111.71
Lead	TM181	**92.55** 83.33 : 106.95
Manganese	TM181	**89.09** 80.56 : 102.33
Mercury	TM181	**97.25** 84.13 : 111.85
Molybdenum	TM181	**97.3** 84.19 : 110.39
Nickel	TM181	**98.14** 84.19 : 109.77
Phosphorus	TM181	**87.57** 73.47 : 116.86
Selenium	TM181	**94.07** 81.32 : 108.59
Strontium	TM181	**95.98** 84.70 : 105.87
Thallium	TM181	**96.09** 81.19 : 105.37
Tin	TM181	**98.58** 85.92 : 110.00
Titanium	TM181	**96.15** 73.44 : 113.17
Vanadium	TM181	**94.17** 78.62 : 101.47
Zinc	TM181	**97.38** 85.64 : 110.14

PAH by GCMS

Component	Method Code	QC 1749
Acenaphthene	TM218	**103.0** 82.09 : 110.18
Acenaphthylene	TM218	**93.0** 77.92 : 100.70
Anthracene	TM218	**94.5** 79.96 : 103.02
Benz(a)anthracene	TM218	**103.5** 80.00 : 122.30

PAH by GCMS

		QC 1749
Benzo(a)pyrene	TM218	**105.0** 86.92 : 126.33
Benzo(b)fluoranthene	TM218	**106.5** 84.53 : 122.14
Benzo(ghi)perylene	TM218	**99.5** 77.49 : 119.12
Benzo(k)fluoranthene	TM218	**100.5** 88.94 : 117.08
Chrysene	TM218	**100.0** 87.67 : 116.32
Dibenzo(ah)anthracene	TM218	**101.5** 85.66 : 119.61
Fluoranthene	TM218	**103.0** 84.49 : 109.33
Fluorene	TM218	**102.5** 84.28 : 107.54
Indeno(123cd)pyrene	TM218	**102.5** 86.46 : 120.70
Naphthalene	TM218	**107.0** 82.88 : 115.56
Phenanthrene	TM218	**101.5** 81.59 : 110.61
Pyrene	TM218	**100.0** 83.25 : 107.60

PCBs by GCMS

Component	Method Code	QC 1755
PCB congener 101	TM168	**93.3** 80.77 : 111.39
PCB congener 105	TM168	**88.3** 79.28 : 115.39
PCB congener 114	TM168	**90.1** 81.30 : 114.31
PCB congener 118	TM168	**90.4** 80.32 : 112.22
PCB congener 123	TM168	**89.0** 80.25 : 114.57
PCB congener 126	TM168	**91.4** 75.17 : 124.58
PCB congener 138	TM168	**91.3** 82.92 : 114.57
PCB congener 153	TM168	**86.7** 83.90 : 111.70
PCB congener 156	TM168	**92.3** 75.33 : 115.33
PCB congener 157	TM168	**90.5** 80.94 : 117.86
PCB congener 167	TM168	**90.9** 78.02 : 117.22
PCB congener 169	TM168	**95.0** 73.31 : 125.29
PCB congener 180	TM168	**89.5** 79.60 : 113.91

PCBs by GCMS

		QC 1755
PCB congener 189	TM168	**92.3** 71.41 : 124.18
PCB congener 28	TM168	**92.2** 83.25 : 112.46
PCB congener 52	TM168	**95.9** 85.30 : 110.14
PCB congener 77	TM168	**95.4** 73.92 : 120.16
PCB congener 81	TM168	**89.3** 81.05 : 122.39

pH

Component	Method Code	QC 1723	QC 1763
pH	TM133	**101.3** 100.64 : 103.51	**100.52** 99.63 : 103.42

Phenols by HPLC (S)

Component	Method Code	QC 1740
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**101.95** 85.25 : 114.75
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**100.0** 75.71 : 124.29
Catechol by HPLC (S)	TM062 (S)	**116.19** 64.10 : 135.90
Cresols by HPLC (S)	TM062 (S)	**98.33** 78.85 : 107.41
Napthol by HPLC (S)	TM062 (S)	**120.71** 75.62 : 124.38
Phenol by HPLC (S)	TM062 (S)	**105.3** 79.53 : 120.47
Resorcinol HPLC (S)	TM062 (S)	**99.37** 86.85 : 145.65
Xylenols by HPLC (S)	TM062 (S)	**100.62** 84.65 : 109.70

Semi Volatile Organic Compounds

Component	Method Code	QC 1796
4-Bromophenylphenylether (Soil)	TM157	**76.0** 65.45 : 121.76
Benzo(a)anthracene (Soil)	TM157	**80.0** 71.89 : 120.91
Hexachlorobutadiene (Soil)	TM157	**79.0** 69.80 : 117.77
Naphthalene (Soil)	TM157	**77.0** 71.89 : 120.16
Nitrobenzene (Soil)	TM157	**79.0** 70.00 : 118.00
Phenol (Soil)	TM157	**87.0** 68.54 : 114.86

Semi Volatile Organic Compounds

Total Organic Carbon

Component	Method Code	QC 1747
Total Organic Carbon	TM132	**89.84** 83.00 : 101.77

VOC MS (S)

Component	Method Code	QC 1763
1,1,1,2-tetrachloroethane	TM116	**101.4** 77.56 : 115.55
1,1,1-Trichloroethane	TM116	**104.0** 74.97 : 113.76
1,1,2-Trichloroethane	TM116	**101.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**107.2** 74.46 : 129.15
1,2-Dichloroethane	TM116	**112.6** 92.57 : 128.78
1,4-Dichlorobenzene	TM116	**96.2** 72.76 : 126.34
2-Chlorotoluene	TM116	**94.0** 69.73 : 114.13
4-Chlorotoluene	TM116	**85.4** 66.90 : 112.46
Benzene	TM116	**102.8** 81.05 : 117.28
Carbon Disulphide	TM116	**93.4** 74.91 : 122.14
Carbontetrachloride	TM116	**110.4** 77.80 : 119.23
Chlorobenzene	TM116	**97.0** 75.00 : 115.53
Chloroform	TM116	**106.2** 77.34 : 121.84
Chloromethane	TM116	**107.4** 52.63 : 138.74
Cis-1,2-Dichloroethene	TM116	**105.2** 80.67 : 126.72
Dibromomethane	TM116	**100.0** 67.80 : 121.75
Dichloromethane	TM116	**111.0** 81.11 : 133.25
Ethylbenzene	TM116	**92.0** 72.53 : 109.84
Hexachlorobutadiene	TM116	**73.0** 12.82 : 152.73
Isopropylbenzene	TM116	**75.0** 54.46 : 125.44
Naphthalene	TM116	**111.8** 80.86 : 128.81

VOC MS (S)

		QC 1763
o-Xylene	TM116	**83.0** 67.46 : 102.22
p/m-Xylene	TM116	**85.6** 68.32 : 108.91
Sec-Butylbenzene	TM116	**69.0** 46.09 : 121.51
Tetrachloroethene	TM116	**97.6** 76.95 : 121.02
Toluene	TM116	**95.4** 74.24 : 107.42
Trichloroethene	TM116	**97.0** 77.61 : 111.54
Trichlorofluoromethane	TM116	**99.4** 71.31 : 128.41
Vinyl Chloride	TM116	**109.6** 68.26 : 133.45

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Validated

CERTIFICATE OF ANALYSIS

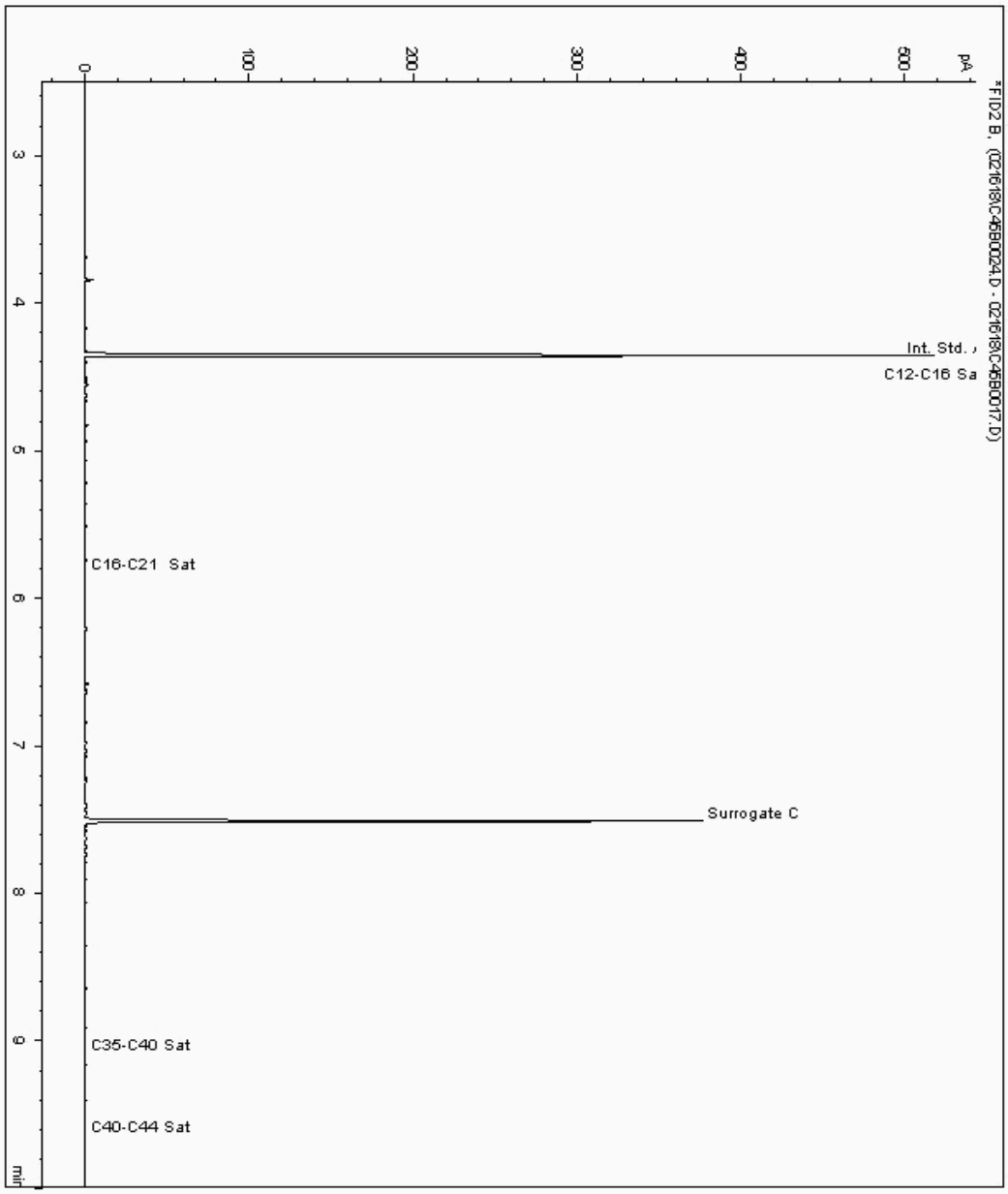
SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17030927 **Sample ID :** BH-RPS-03 **Depth :** 0.95 - 1.10

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 15981816-
Date Acquired : 2/16/2018 9:42:43 PM
Units : ppb
Dilution : BH-RPS-03[0.95 - 1.10] ->
CF : 1
Multiplier : 1.000



Validated

CERTIFICATE OF ANALYSIS

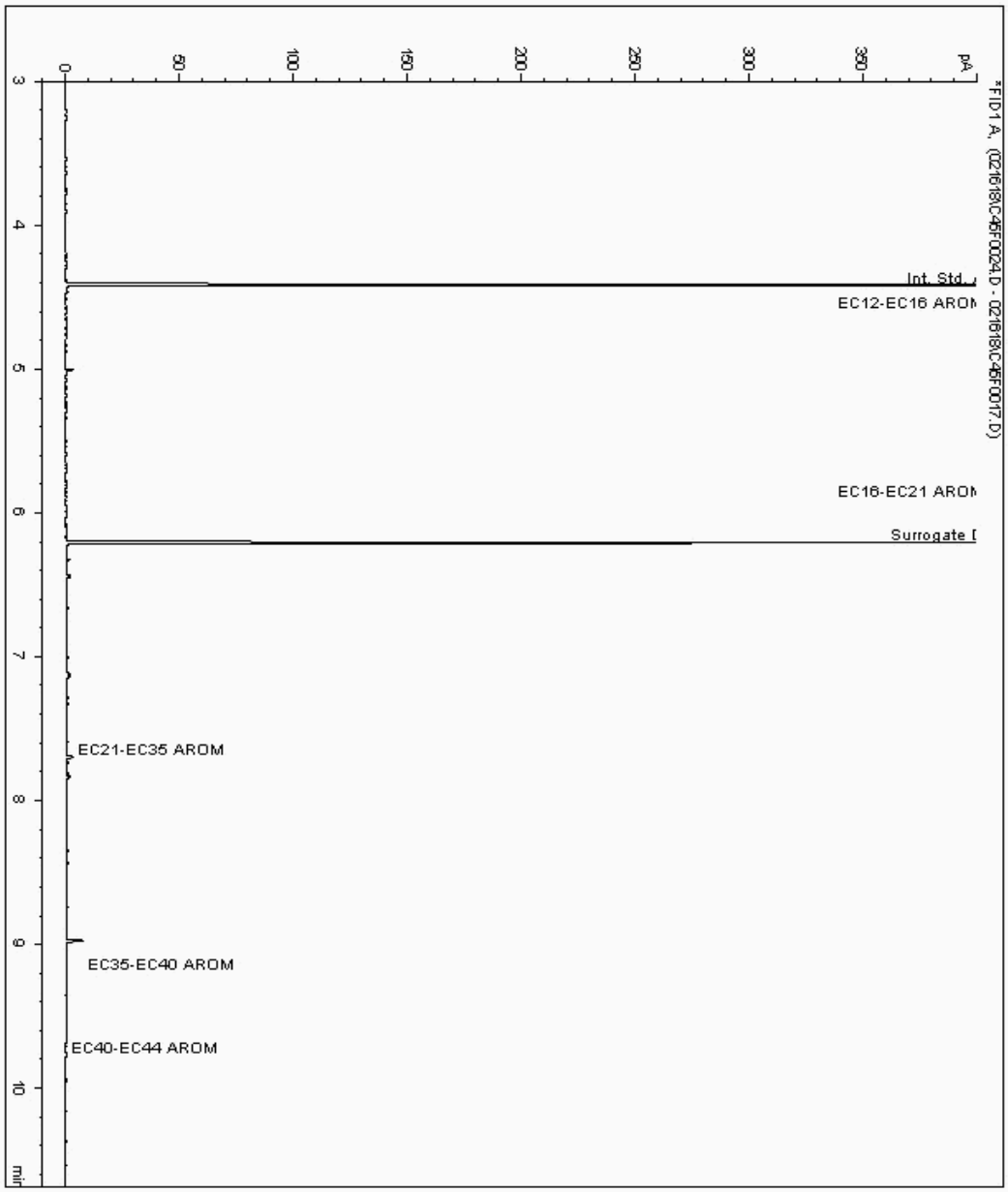
SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17030927 **Sample ID :** BH-RPS-03 **Depth :** 0.95 - 1.10

Speciated TPH - AROM (C12 - C40)

Sample Identity: 15981817-
Date Acquired : 2/16/2018 9:42:43 PM
Units : ppb
Dilution: BH-RPS-03[0.95 - 1.10] ->



Validated

CERTIFICATE OF ANALYSIS

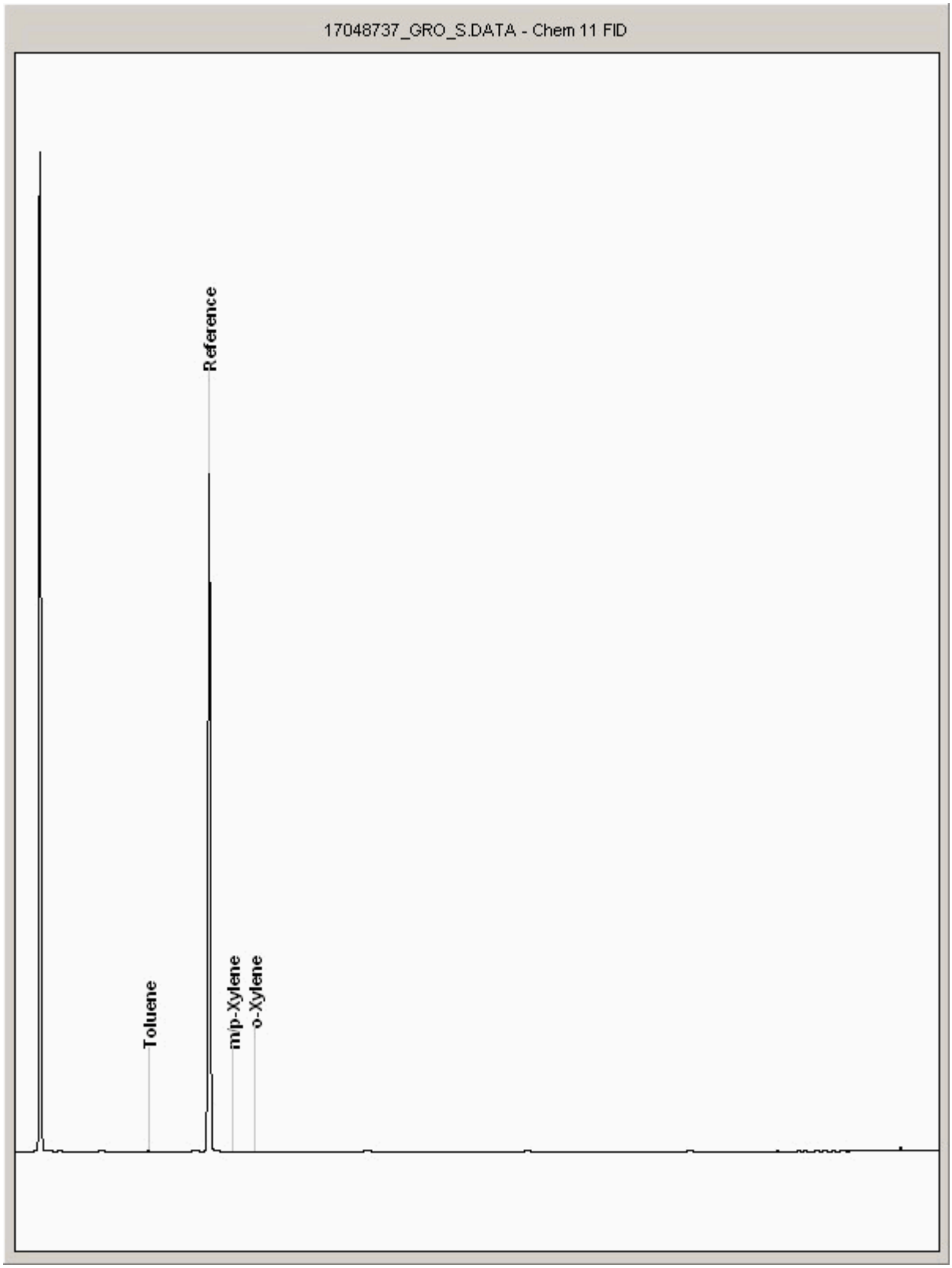
SDG:	180210-92	**Client Reference:**	JER1100	**Report Number:**	445332
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17048737
Sample ID : BH-RPS-03

Depth : 0.95 - 1.10



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	23 February 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180215-74
Your Reference:	JER1100
Location:	Lostock
Report No:	445804

This report has been revised and directly supersedes 445656 in its entirety.

We received 24 samples on Thursday February 15, 2018 and 6 of these samples were scheduled for analysis which was completed on Friday February 23, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17053322	BH-RPS-01	ES1	0.30 - 0.40	09/02/2018
17053328	BH-RPS-01	ES1	1.20 - 1.50	09/02/2018
17053337	BH-RPS-01	ES1	2.70 - 3.00	09/02/2018
17053350	BH-RPS-01	ES1	5.00 - 5.50	09/02/2018
17053358	BH-RPS-10	ES1	0.10 - 0.30	09/02/2018
17053364	BH-RPS-10	ES1	0.70 - 0.90	09/02/2018
17053372	BH-RPS-10	ES1	3.50 - 3.80	09/02/2018
17053204	BH-RPS-10	ES1	4.70 - 4.85	09/02/2018
17053213	BH-RPS-10	ES1	6.00 - 6.20	09/02/2018
17053193	BH-RPS-12	ES1	3.10 - 3.30	08/02/2018
17053275	BH-RPS-12	ES1	6.50 - 6.80	08/02/2018
17053238	TP-RPS-24	ES1	0.30 - 0.40	12/02/2018
17053219	TP-RPS-24	ES1	1.00 - 1.20	12/02/2018
17053227	TP-RPS-24	ES1	1.80 - 2.00	12/02/2018
17053245	TP-RPS-25	ES1	0.20	12/02/2018
17053251	TP-RPS-25	ES1	0.90 - 1.00	12/02/2018
17053257	TP-RPS-25	ES1	1.90 - 2.00	12/02/2018
17053295	TP-RPS-39	ES1	0.20	12/02/2018
17053301	TP-RPS-39	ES1	0.90 - 1.20	12/02/2018
17053312	TP-RPS-39	ES1	2.00	12/02/2018
17053269	TP-RPS-41	ES1	0.20	12/02/2018
17053281	TP-RPS-41	ES1	1.00 - 1.30	12/02/2018
17053287	TP-RPS-41	ES1	1.60 - 1.80	12/02/2018
17053263	TP-RPS-41	ES1	2.60 - 2.80	12/02/2018

Maximum Sample/Coolbox Temperature (°C) : 4.2

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17053238			17053219	17053245			17053295			17053312			17053269
Customer Sample Reference			TP-RPS-24			TP-RPS-24	TP-RPS-25			TP-RPS-39			TP-RPS-39			TP-RPS-41
AGS Reference			ES1			ES1	ES1			ES1			ES1			ES1
Depth (m)			0.30 - 0.40			1.00 - 1.20	0.20			0.20			2.00			0.20
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 3		X		X							X			
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 1		X												
Anions by Kone (soil)	All	NDPs: 0 Tests: 3		X		X							X			
Anions by Kone (w)	All	NDPs: 0 Tests: 1	X													
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 4	X				X				X				X	
CEN Readings	All	NDPs: 0 Tests: 1	X													
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1	X													
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 1	X													
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 4		X				X		X				X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 4		X				X		X				X		
Fluoride	All	NDPs: 0 Tests: 1	X													
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4			X				X			X				X
Loss on Ignition in soils	All	NDPs: 0 Tests: 1		X												
Magnesium (BRE)	All	NDPs: 0 Tests: 3		X		X							X			
Mercury Dissolved	All	NDPs: 0 Tests: 1	X													

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)					17053238			17053219			17053245			17053295		
Customer Sample Reference					TP-RPS-24			TP-RPS-24			TP-RPS-25			TP-RPS-39		
AGS Reference					ES1			ES1			ES1			ES1		
Depth (m)					0.30 - 0.40			1.00 - 1.20			0.20			0.20		
Container					1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type					S	S	S	S	S	S	S	S	S	S	S	S
Metals in solid samples by OES	All	NDPs: 0 Tests: 4				X				X		X				X
Mineral Oil	All	NDPs: 0 Tests: 1				X										
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 3				X		X							X	
PAH by GCMS	All	NDPs: 0 Tests: 4				X				X		X				X
PCBs by GCMS	All	NDPs: 0 Tests: 2				X										X
pH	All	NDPs: 0 Tests: 6				X		X		X		X			X	X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1			X											
Sample description	All	NDPs: 0 Tests: 6				X		X		X		X			X	X
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 1														X
Total Dissolved Solids	All	NDPs: 0 Tests: 1			X											
Total Organic Carbon	All	NDPs: 0 Tests: 1				X										
Total Sulphate	All	NDPs: 0 Tests: 3				X		X							X	
Total Sulphur	All	NDPs: 0 Tests: 3				X		X							X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 4				X				X		X				X
VOC MS (S)	All	NDPs: 0 Tests: 1														

Lab Sample No(s)					17053312			17053269								
Customer Sample Reference					TP-RPS-39			TP-RPS-41								
AGS Reference					ES1			ES1								
Depth (m)					2.00			0.20								
Container					250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)								
Sample Type					S	S	S	S								
Metals in solid samples by OES	All	NDPs: 0 Tests: 4				X										
Mineral Oil	All	NDPs: 0 Tests: 1														
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 3			X											
PAH by GCMS	All	NDPs: 0 Tests: 4				X										
PCBs by GCMS	All	NDPs: 0 Tests: 2				X										
pH	All	NDPs: 0 Tests: 6			X	X										
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1														
Sample description	All	NDPs: 0 Tests: 6			X	X										
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 1														
Total Dissolved Solids	All	NDPs: 0 Tests: 1														
Total Organic Carbon	All	NDPs: 0 Tests: 1														
Total Sulphate	All	NDPs: 0 Tests: 3			X											
Total Sulphur	All	NDPs: 0 Tests: 3			X											
TPH CWG GC (S)	All	NDPs: 0 Tests: 4				X										
VOC MS (S)	All	NDPs: 0 Tests: 1						X								

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17053219	TP-RPS-24	1.00 - 1.20	White	Silt Loam	None	None
17053238	TP-RPS-24	0.30 - 0.40	Cream	Sandy Clay Loam	Stones	None
17053245	TP-RPS-25	0.20	Dark Brown	Loamy Sand	Stones	Vegetation
17053295	TP-RPS-39	0.20	Black	Sandy Loam	Stones	Brick
17053312	TP-RPS-39	2.00	Dark Brown	Clay	None	None
17053269	TP-RPS-41	0.20	Dark Brown	Loamy Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-24	TP-RPS-24	TP-RPS-25	TP-RPS-39	TP-RPS-39	TP-RPS-41
Depth (m)			0.30 - 0.40	1.00 - 1.20	0.20	0.20	2.00	0.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			12/02/2018	12/02/2018	12/02/2018	12/02/2018	12/02/2018	12/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
SDG Ref			180215-74	180215-74	180215-74	180215-74	180215-74	180215-74
Lab Sample No.(s)			17053238	17053219	17053245	17053295	17053312	17053269
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	35	54	21	19	15	24
Loss on ignition	<0.7 %	TM018	13.8 M					
Mineral oil >C10-C40	<1 mg/kg	TM061	87.1					
Mineral Oil Surrogate % recovery**	%	TM061	88.6					
Organic Carbon, Total	<0.2 %	TM132	6.04 M					
Sulphur, Total	<0.02 %	TM132	1.73	2.43			<0.02	
pH	1 pH Units	TM133	12.4 M	12.4 M	9.4 M	8.24 M	7.92 M	8.77 M
PCB congener 28	<3 µg/kg	TM168	<3 M					
PCB congener 52	<3 µg/kg	TM168	<3 M					
PCB congener 101	<3 µg/kg	TM168	<3 M					
PCB congener 118	<3 µg/kg	TM168	<3 M					<3 M
PCB congener 138	<3 µg/kg	TM168	<3 M					
PCB congener 153	<3 µg/kg	TM168	<3 M					
PCB congener 180	<3 µg/kg	TM168	<3 M					
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21					
PCB congener 81	<3 µg/kg	TM168						<3 M
PCB congener 77	<3 µg/kg	TM168						<3 M
PCB congener 123	<3 µg/kg	TM168						<3 M
PCB congener 114	<3 µg/kg	TM168						<3 M
PCB congener 105	<3 µg/kg	TM168						<3 M
PCB congener 126	<3 µg/kg	TM168						<3 M
PCB congener 167	<3 µg/kg	TM168						<3 M
PCB congener 156	<3 µg/kg	TM168						<3 M
PCB congener 157	<3 µg/kg	TM168						<3 M
PCB congener 169	<3 µg/kg	TM168						<3 M
PCB congener 189	<3 µg/kg	TM168						<3 M
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168						<36
Antimony	<0.6 mg/kg	TM181	0.824 #		2.46 #	1.87 #		1.64 #
Arsenic	<0.6 mg/kg	TM181	13.2 M		32.3 M	54.5 M		32.3 M
Cadmium	<0.02 mg/kg	TM181	0.709 M		0.92 M	0.986 M		1.07 M
Chromium	<0.9 mg/kg	TM181	9.65 M		14.8 M	8.23 M		11.2 M
Cobalt	<0.1 mg/kg	TM181	2.35 M		19.3 M	16.6 M		22.5 M

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-24	TP-RPS-24	TP-RPS-25	TP-RPS-39	TP-RPS-39	TP-RPS-41
Depth (m)			0.30 - 0.40	1.00 - 1.20	0.20	0.20	2.00	0.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			12/02/2018	12/02/2018	12/02/2018	12/02/2018	12/02/2018	12/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
SDG Ref			180215-74	180215-74	180215-74	180215-74	180215-74	180215-74
Lab Sample No.(s)			17053238	17053219	17053245	17053295	17053312	17053269
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Copper	<1.4 mg/kg	TM181	14.9 M		88.8 M	58.5 M		93.3 M
Lead	<0.7 mg/kg	TM181	18 M		65.4 M	45.9 M		30.1 M
Manganese	<0.13 mg/kg	TM181	317 M		808 M	432 M		909 M
Mercury	<0.14 mg/kg	TM181	0.401 M		0.753 M	0.432 M		0.28 M
Molybdenum	<0.1 mg/kg	TM181	0.709 #		8 #	4.02 #		7.52 #
Nickel	<0.2 mg/kg	TM181	7.52 M		52.6 M	49.9 M		56.6 M
Selenium	<1 mg/kg	TM181	<1 #		1.43 #	1.18 #		1.42 #
Tin	<0.24 mg/kg	TM181	0.516 #		2.1 #	1.59 #		1.88 #
Thallium	<0.7 mg/kg	TM181	<0.7 #		<0.7 #	<0.7 #		<0.7 #
Vanadium	<0.2 mg/kg	TM181	17.7 #		85.9 #	34 #		84.5 #
Zinc	<1.9 mg/kg	TM181	38.6 M		158 M	99.2 M		150 M
ANC @ pH 4	<0.03 mol/kg	TM182	4.25					
ANC @ pH 6	<0.03 mol/kg	TM182	0.638					
Sulphate, acid soluble (total)	<0.02 %	TM221	4.46	7.55			<0.02	
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243	0.355 M	0.217 M			0.0429 M	
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243	0.041 M	0.0898 M			1.85 M	
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243	0.0146	0.057			<0.0003	
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248	0.000318	0.00346			0.0143	
Magnesium (BRE)	<0.008 g/l	TM282	<0.008	<0.008			<0.008	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-24	TP-RPS-25	TP-RPS-39	TP-RPS-41		
Depth (m)			0.30 - 0.40	0.20	0.20	0.20		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			12/02/2018	12/02/2018	12/02/2018	12/02/2018		
Sampled Time			.	.	.	.		
Date Received			15/02/2018	15/02/2018	15/02/2018	15/02/2018		
SDG Ref			180215-74	180215-74	180215-74	180215-74		
Lab Sample No.(s)			17053238	17053245	17053295	17053269		
AGS Reference			ES1	ES1	ES1	ES1		
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	122	96.8	94.6	102		
Acenaphthene-d10 % recovery**	%	TM218	118	94.4	97.5	104		
Phenanthrene-d10 % recovery**	%	TM218	115	91.9	94.9	102		
Chrysene-d12 % recovery**	%	TM218	110	87.2	79.6	90.5		
Perylene-d12 % recovery**	%	TM218	118	87.9	75.2	90.6		
Naphthalene	<9 µg/kg	TM218	23.1 M	527 M	1090 M	433 M		
Acenaphthylene	<12 µg/kg	TM218	38.8 M	34.2 M	53 M	37.4 M		
Acenaphthene	<8 µg/kg	TM218	<8 M	<8 M	42 M	20.3 M		
Fluorene	<10 µg/kg	TM218	<10 M	14 M	42.3 M	31.6 M		
Phenanthrene	<15 µg/kg	TM218	142 M	424 M	1470 M	473 M		
Anthracene	<16 µg/kg	TM218	30.4 M	56.6 M	226 M	78.2 M		
Fluoranthene	<17 µg/kg	TM218	239 M	402 M	708 M	421 M		
Pyrene	<15 µg/kg	TM218	206 M	364 M	757 M	372 M		
Benz(a)anthracene	<14 µg/kg	TM218	214 M	293 M	443 M	256 M		
Chrysene	<10 µg/kg	TM218	183 M	261 M	379 M	224 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218	393 M	371 M	662 M	347 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218	141 M	127 M	111 M	112 M		
Benzo(a)pyrene	<15 µg/kg	TM218	295 M	264 M	444 M	227 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	281 M	145 M	278 M	129 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	81.7 M	42.6 M	99 M	43.8 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218	363 M	221 M	558 M	215 M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	2630	3540	7360	3420		
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218	<10					

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	TP-RPS-41
Depth (m)	0.20
Sample Type	Soil/Solid (S)
Date Sampled	12/02/2018
Sampled Time	.
Date Received	15/02/2018
SDG Ref	180215-74
Lab Sample No.(s)	17053269
AGS Reference	ES1

Component	LOD/Units	Method	TP-RPS-41
Phenol	<100 µg/kg	TM157	<100
Pentachlorophenol	<100 µg/kg	TM157	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100
Nitrobenzene	<100 µg/kg	TM157	<100
Isophorone	<100 µg/kg	TM157	<100
Hexachloroethane	<100 µg/kg	TM157	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100
Hexachlorobutadiene	<100 µg/kg	TM157	<100
Hexachlorobenzene	<100 µg/kg	TM157	<100
n-Dioctyl phthalate	<100 µg/kg	TM157	<100
Dimethyl phthalate	<100 µg/kg	TM157	<100
Diethyl phthalate	<100 µg/kg	TM157	<100
n-Dibutyl phthalate	<100 µg/kg	TM157	<100
Dibenzofuran	<100 µg/kg	TM157	<100
Carbazole	<100 µg/kg	TM157	<100
Butylbenzyl phthalate	<100 µg/kg	TM157	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100
Azobenzene	<100 µg/kg	TM157	<100
4-Nitrophenol	<100 µg/kg	TM157	<100
4-Nitroaniline	<100 µg/kg	TM157	<100
4-Methylphenol	<100 µg/kg	TM157	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100
4-Chloroaniline	<100 µg/kg	TM157	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100
4-Bromophenylphenylether	<100 µg/kg	TM157	<100
3-Nitroaniline	<100 µg/kg	TM157	<100
2-Nitrophenol	<100 µg/kg	TM157	<100
2-Nitroaniline	<100 µg/kg	TM157	<100
2-Methylphenol	<100 µg/kg	TM157	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-41					
Depth (m)			0.20					
Sample Type			Soil/Solid (S)					
Date Sampled			12/02/2018					
Sampled Time			-					
Date Received			15/02/2018					
SDG Ref			180215-74					
Lab Sample No.(s)			17053269					
AGS Reference			ES1					
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100					
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100					
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100					
2,4-Dimethylphenol	<100 µg/kg	TM157	<100					
2,4-Dichlorophenol	<100 µg/kg	TM157	<100					
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100					
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100					
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100					
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100					
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100					
2-Chloronaphthalene	<100 µg/kg	TM157	<100					
2-Methylnaphthalene	<100 µg/kg	TM157	<100					
Acenaphthylene	<100 µg/kg	TM157	<100					
Acenaphthene	<100 µg/kg	TM157	<100					
Anthracene	<100 µg/kg	TM157	<100					
Benzo(a)anthracene	<100 µg/kg	TM157	<100					
Benzo(b)fluoranthene	<100 µg/kg	TM157	<100					
Benzo(k)fluoranthene	<100 µg/kg	TM157	<100					
Benzo(a)pyrene	<100 µg/kg	TM157	<100					
Benzo(g,h,i)perylene	<100 µg/kg	TM157	<100					
Chrysene	<100 µg/kg	TM157	<100					
Fluoranthene	<100 µg/kg	TM157	<100					
Fluorene	<100 µg/kg	TM157	<100					
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	<100					
Phenanthrene	<100 µg/kg	TM157	<100					
Pyrene	<100 µg/kg	TM157	<100					
Naphthalene	<100 µg/kg	TM157	<100					
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100					
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100					

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-24	TP-RPS-25	TP-RPS-39	TP-RPS-41		
Depth (m)			0.30 - 0.40	0.20	0.20	0.20		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			12/02/2018	12/02/2018	12/02/2018	12/02/2018		
Sampled Time			.	.	.	.		
Date Received			15/02/2018	15/02/2018	15/02/2018	15/02/2018		
SDG Ref			180215-74	180215-74	180215-74	180215-74		
Lab Sample No.(s)			17053238	17053245	17053295	17053269		
AGS Reference			ES1	ES1	ES1	ES1		
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	116	60	15	34		
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	<44 M	86.5 M		
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5 #	<5 #	<5 #		
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M		
Toluene	<2 µg/kg	TM089	<2 M	<2 M	<2 M	5.24 M		
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M		
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M	<6 M		
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M		
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9		
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24		
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	12.7	<10	21		
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	<10	13.1		
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	<10	15.7		
Aliphatics >C12-C16	<100 µg/kg	TM173	1560	<100	19200	2580		
Aliphatics >C16-C21	<100 µg/kg	TM173	5150	4400	49600	6470		
Aliphatics >C21-C35	<100 µg/kg	TM173	43000	37600	157000	43900		
Aliphatics >C35-C44	<100 µg/kg	TM173	12000	5940	26200	9910		
Total Aliphatics >C12-C44	<100 µg/kg	TM173	61700	47900	252000	62800		
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	<10	14.4		
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10	10.5		
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	10700	29000	4120		
Aromatics >EC16-EC21	<100 µg/kg	TM173	1540	17800	66700	8770		
Aromatics >EC21-EC35	<100 µg/kg	TM173	13000	60100	191000	37500		
Aromatics >EC35-EC44	<100 µg/kg	TM173	3650	13300	45700	11800		
Aromatics >EC40-EC44	<100 µg/kg	TM173	1160	3150	15600	4070		
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	18200	102000	333000	62200		
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	79900	150000	585000	125000		

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	TP-RPS-41
Depth (m)	0.20
Sample Type	Soil/Solid (S)
Date Sampled	12/02/2018
Sampled Time	.
Date Received	15/02/2018
SDG Ref	180215-74
Lab Sample No.(s)	17053269
AGS Reference	ES1

Component	LOD/Units	Method	TP-RPS-41
Dibromofluoromethane**	%	TM116	105
Toluene-d8**	%	TM116	97
4-Bromofluorobenzene**	%	TM116	84.2
Dichlorodifluoromethane	<6 µg/kg	TM116	<60 M
Chloromethane	<7 µg/kg	TM116	<70 #
Vinyl Chloride	<6 µg/kg	TM116	<60 M
Bromomethane	<10 µg/kg	TM116	<100 M
Chloroethane	<10 µg/kg	TM116	<100 M
Trichlorofluorormethane	<6 µg/kg	TM116	<60 M
1,1-Dichloroethene	<10 µg/kg	TM116	<100 #
Carbon Disulphide	<7 µg/kg	TM116	<70 M
Dichloromethane	<10 µg/kg	TM116	<100 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<100 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<100 M
1,1-Dichloroethane	<8 µg/kg	TM116	<80 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<60 M
2,2-Dichloropropane	<10 µg/kg	TM116	<100
Bromochloromethane	<10 µg/kg	TM116	<100 M
Chloroform	<8 µg/kg	TM116	<80 M
1,1,1-Trichloroethane	<7 µg/kg	TM116	<70 M
1,1-Dichloropropene	<10 µg/kg	TM116	<100 M
Carbontetrachloride	<10 µg/kg	TM116	<100 M
1,2-Dichloroethane	<5 µg/kg	TM116	<50 M
Benzene	<9 µg/kg	TM116	<90 M
Trichloroethene	<9 µg/kg	TM116	<90 #
1,2-Dichloropropane	<10 µg/kg	TM116	<100 M
Dibromomethane	<9 µg/kg	TM116	<90 M
Bromodichloromethane	<7 µg/kg	TM116	<70 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<100 M
Toluene	<7 µg/kg	TM116	<70 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<100
1,1,2-Trichloroethane	<10 µg/kg	TM116	<100 M

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	TP-RPS-41
Depth (m)	0.20
Sample Type	Soil/Solid (S)
Date Sampled	12/02/2018
Sampled Time	-
Date Received	15/02/2018
SDG Ref	180215-74
Lab Sample No.(s)	17053269
AGS Reference	ES1

Component	LOD/Units	Method	TP-RPS-41					
1,3-Dichloropropane	<7 µg/kg	TM116	<70	M				
Tetrachloroethene	<5 µg/kg	TM116	<50	M				
Dibromochloromethane	<10 µg/kg	TM116	<100	M				
1,2-Dibromoethane	<10 µg/kg	TM116	<100	M				
Chlorobenzene	<5 µg/kg	TM116	<50	M				
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<100	M				
Ethylbenzene	<4 µg/kg	TM116	<40	M				
p/m-Xylene	<10 µg/kg	TM116	<100	#				
o-Xylene	<10 µg/kg	TM116	<100	M				
Styrene	<10 µg/kg	TM116	<100	#				
Bromoform	<10 µg/kg	TM116	<100	M				
Isopropylbenzene	<5 µg/kg	TM116	<50	#				
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<100	#				
1,2,3-Trichloropropane	<16 µg/kg	TM116	<160	M				
Bromobenzene	<10 µg/kg	TM116	<100	M				
Propylbenzene	<10 µg/kg	TM116	<100	M				
2-Chlorotoluene	<9 µg/kg	TM116	<90	M				
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<80	M				
4-Chlorotoluene	<10 µg/kg	TM116	<100	M				
tert-Butylbenzene	<14 µg/kg	TM116	<140	M				
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<90	#				
sec-Butylbenzene	<10 µg/kg	TM116	<100					
4-Isopropyltoluene	<10 µg/kg	TM116	<100	M				
1,3-Dichlorobenzene	<8 µg/kg	TM116	<80	M				
1,4-Dichlorobenzene	<5 µg/kg	TM116	<50	M				
n-Butylbenzene	<11 µg/kg	TM116	<110					
1,2-Dichlorobenzene	<10 µg/kg	TM116	<100	M				
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<140	M				
Tert-amyl methyl ether	<10 µg/kg	TM116	<100	#				
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<200					
Hexachlorobutadiene	<20 µg/kg	TM116	<200					
Naphthalene	<13 µg/kg	TM116	<130	M				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	TP-RPS-41
Depth (m)	0.20
Sample Type	Soil/Solid (S)
Date Sampled	12/02/2018
Sampled Time	-
Date Received	15/02/2018
SDG Ref	180215-74
Lab Sample No.(s)	17053269
AGS Reference	ES1

Component	LOD/Units	Method	TP-RPS-41
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<200 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-24 ES 1 0.30 - 0.40 SOLID 12/02/2018 00:00:00 16/02/2018 19:05:13 180215-74 17053238 TM048	22/02/2018	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-25 ES 1 0.20 SOLID 12/02/2018 00:00:00 16/02/2018 18:24:26 180215-74 17053245 TM048	21/02/2018	Renata Bozhkov	Soil containing ACM debris and fibre bundles	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-39 ES 1 0.20 SOLID 12/02/2018 00:00:00 16/02/2018 18:39:30 180215-74 17053295 TM048	22/02/2018	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-41 ES 1 0.20 SOLID 12/02/2018 00:00:00 16/02/2018 18:41:55 180215-74 17053269 TM048	21/02/2018	Renata Bozhkov	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.139	**Natural Moisture Content (%)**	53.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	65
Particle Size <4mm	>95%		

Case	
SDG	180215-74
Lab Sample Number(s)	17053238
Sampled Date	12-Feb-2018
Customer Sample Ref.	TP-RPS-24 ES1
Depth (m)	0.30 - 0.40

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits: Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	6.04	3	5	6
Loss on Ignition (%)	13.8	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	87.1	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	12.4	-	>6	-
ANC to pH 6 (mol/kg)	0.638	-	-	-
ANC to pH 4 (mol/kg)	4.25	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	3.13	<0.00101	31.3	<0.0101	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00255	<0.001	0.0255	<0.01	0.5	10	70
Copper	0.00251	<0.0003	0.0251	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00207	<0.0005	0.0207	<0.005	0.5	10	30
Nickel	0.000539	<0.0004	0.00539	<0.004	0.4	10	40
Lead	0.0148	<0.0002	0.148	<0.002	0.5	10	50
Antimony	<0.0001	<0.0001	<0.001	<0.001	0.06	0.7	5
Selenium	0.000638	<0.0005	0.00638	<0.005	0.1	0.5	7
Zinc	0.0589	<0.001	0.589	<0.01	4	50	200
Chloride	6.4	<2	64	<20	800	15000	25000
Fluoride	0.622	<0.5	6.22	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	6510	<25	65100	<250	4000	60000	100000
Total Monohydric Phenols (W)	0.28	<0.016	2.8	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	21-Feb-2018
pH (pH Units)	12.54
Conductivity (µS/cm)	7,400.00
Temperature (ºC)	17.80
Volume Leachant (Litres)	0.852

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

23/02/2018 17:06:39

Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM282		Extraction of Magnesium by BRE Method

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Test Completion Dates

Lab Sample No(s)	17053219	17053238	17053245	17053295	17053312	17053269
Customer Sample Ref.	TP-RPS-24	TP-RPS-24	TP-RPS-25	TP-RPS-39	TP-RPS-39	TP-RPS-41
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1
Depth	1.00 - 1.20	0.30 - 0.40	0.20	0.20	2.00	0.20
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	20-Feb-2018	20-Feb-2018			20-Feb-2018	
ANC at pH4 and ANC at pH 6		21-Feb-2018				
Anions by Kone (soil)	21-Feb-2018	23-Feb-2018			21-Feb-2018	
Anions by Kone (w)		23-Feb-2018				
Asbestos ID in Solid Samples		22-Feb-2018	21-Feb-2018	22-Feb-2018		21-Feb-2018
CEN 10:1 Leachate (1 Stage)		21-Feb-2018				
CEN Readings		22-Feb-2018				
Dissolved Metals by ICP-MS		23-Feb-2018				
Dissolved Organic/Inorganic Carbon		23-Feb-2018				
EPH CWG (Aliphatic) GC (S)		22-Feb-2018	21-Feb-2018	22-Feb-2018		22-Feb-2018
EPH CWG (Aromatic) GC (S)		22-Feb-2018	21-Feb-2018	22-Feb-2018		22-Feb-2018
Fluoride		23-Feb-2018				
GRO by GC-FID (S)		21-Feb-2018	21-Feb-2018	21-Feb-2018		21-Feb-2018
Loss on Ignition in soils		23-Feb-2018				
Magnesium (BRE)	19-Feb-2018	22-Feb-2018			22-Feb-2018	
Mercury Dissolved		23-Feb-2018				
Metals in solid samples by OES		21-Feb-2018	21-Feb-2018	21-Feb-2018		21-Feb-2018
Mineral Oil		22-Feb-2018				
NO3, NO2 and TON by KONE (s)	22-Feb-2018	22-Feb-2018			22-Feb-2018	
PAH by GCMS		22-Feb-2018	22-Feb-2018	22-Feb-2018		22-Feb-2018
PCBs by GCMS		21-Feb-2018				21-Feb-2018
pH	19-Feb-2018	21-Feb-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018
Phenols by HPLC (W)		23-Feb-2018				
Sample description	16-Feb-2018	16-Feb-2018	16-Feb-2018	17-Feb-2018	16-Feb-2018	16-Feb-2018
Semi Volatile Organic Compounds						20-Feb-2018
Total Dissolved Solids		23-Feb-2018				
Total Organic Carbon		21-Feb-2018				
Total Sulphate	22-Feb-2018	21-Feb-2018			21-Feb-2018	
Total Sulphur	21-Feb-2018	21-Feb-2018			21-Feb-2018	
TPH CWG GC (S)		22-Feb-2018	21-Feb-2018	22-Feb-2018		22-Feb-2018
VOC MS (S)						21-Feb-2018

ASSOCIATED AQC DATA

ANC at pH4 and ANC at pH 6

Component	Method Code	QC 1710
ANC pH_4 dry soil	TM182	**91.13** 86.12 : 113.88
ANC pH_6 dry soil	TM182	**99.51** 61.00 : 139.00

Anions by Kone (soil)

Component	Method Code	QC 1736	QC 1790
Chloride (soluble)	TM243	89.30 : 110.70	**63.81** 89.30 : 110.70
Water Soluble Sulphate as SO4 2:1 Extract	TM243	88.38 : 118.74	**57.06** 88.38 : 118.74

Anions by Kone (w)

Component	Method Code	QC 1757
Chloride	TM184	**108.0** 92.93 : 115.43
Phosphate (Ortho as PO4)	TM184	96.40 : 108.40
Sulphate (soluble)	TM184	**98.8** 90.53 : 113.03
TON as NO3	TM184	96.26 : 111.21

Dissolved Metals by ICP-MS

Component	Method Code	QC 1717
Aluminium	TM152	**101.33** 88.00 : 112.00
Antimony	TM152	**101.5** 88.00 : 112.00
Arsenic	TM152	**99.83** 88.00 : 112.00
Barium	TM152	**103.33** 88.00 : 112.00
Beryllium	TM152	**101.17** 88.00 : 112.00
Bismuth	TM152	**100.0** 88.90 : 106.90
Borate	TM152	**100.62** 88.00 : 112.00
Boron	TM152	**100.33** 88.00 : 112.00
Cadmium	TM152	**98.83** 88.00 : 112.00
Chromium	TM152	**98.0** 88.00 : 112.00
Cobalt	TM152	**95.17** 88.00 : 112.00

Dissolved Metals by ICP-MS

		QC 1717
Copper	TM152	**97.17** 85.52 : 115.00
Lead	TM152	**98.67** 88.00 : 112.00
Lithium	TM152	**102.67** 88.00 : 112.00
Manganese	TM152	**98.33** 88.00 : 112.00
Molybdenum	TM152	**97.67** 88.00 : 112.00
Nickel	TM152	**96.83** 88.00 : 112.00
Niobium	TM152	88.00 : 112.00
Phosphorus	TM152	**106.17** 88.00 : 112.00
Selenium	TM152	**102.83** 88.00 : 112.00
Silver	TM152	**95.5** 88.00 : 112.00
Strontium	TM152	**103.33** 88.00 : 112.00
Tellurium	TM152	**101.33** 88.00 : 112.00
Thallium	TM152	**90.67** 88.00 : 112.00
Titanium	TM152	**105.0** 88.00 : 112.00
Tungsten	TM152	**96.67** 88.00 : 112.00
Uranium	TM152	**96.83** 88.00 : 112.00
Vanadium	TM152	**98.17** 88.00 : 112.00
Zinc	TM152	**98.67** 88.00 : 112.00
Zirconium	TM152	88.00 : 112.00

Dissolved Organic/Inorganic Carbon

Component	Method Code	QC 1737
Dissolved Inorganic Carbon	TM090	**102.5** 94.43 : 110.53
Dissolved Organic Carbon	TM090	**103.67** 99.25 : 108.95

EPH CWG (Aliphatic) GC (S)

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1741	QC 1745
Total Aliphatics >C12-C35	TM173	**90.63** 66.17 : 105.28	**87.08** 70.76 : 104.69

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1741	QC 1745
Total Aromatics >EC12-EC35	TM173	**86.0** 65.78 : 102.90	**82.67** 68.16 : 102.29

Fluoride

Component	Method Code	QC 1751
Fluoride	TM104	**94.67** 92.67 : 104.67

GRO by GC-FID (S)

Component	Method Code	QC 1705
Benzene by GC (Moisture Corrected)	TM089	**91.5** 84.09 : 122.62
Ethylbenzene by GC (Moisture Corrected)	TM089	**95.5** 78.42 : 121.07
m & p Xylene by GC (Moisture Corrected)	TM089	**94.75** 77.69 : 121.76
MTBE GC-FID (Moisture Corrected)	TM089	**92.5** 77.69 : 125.19
o Xylene by GC (Moisture Corrected)	TM089	**94.0** 77.88 : 121.47
QC	TM089	**90.36** 69.62 : 106.27
Toluene by GC (Moisture Corrected)	TM089	**95.0** 78.31 : 121.42

Loss on Ignition in soils

Component	Method Code	QC 1721
Loss on Ignition	TM018	**100.95** 89.27 : 104.90

Magnesium (BRE)

Magnesium (BRE)

Component	Method Code	QC 1740
Magnesium Raw	TM282	**105.75** 85.00 : 115.00

Mercury Dissolved

Component	Method Code	QC 1774
Mercury Dissolved (CVAF)	TM183	**92.8** 73.51 : 120.83

Metals in solid samples by OES

Component	Method Code	QC 1707	QC 1700	QC 1740	QC 1745
Aluminium	TM181	**94.81** 79.04 : 112.63	**92.59** 79.04 : 112.63	**90.37** 79.04 : 112.63	**89.63** 79.04 : 112.63
Antimony	TM181	**98.46** 86.83 : 114.87	**101.93** 86.83 : 114.87	**101.16** 86.83 : 114.87	**101.54** 86.83 : 114.87
Arsenic	TM181	**97.69** 82.60 : 102.80	**97.17** 82.60 : 102.80	**97.94** 82.60 : 102.80	**97.43** 82.60 : 102.80
Barium	TM181	**96.09** 81.38 : 110.22	**93.75** 81.38 : 110.22	**90.63** 81.38 : 110.22	**88.28** 81.38 : 110.22
Beryllium	TM181	**95.21** 84.81 : 107.80	**92.81** 84.81 : 107.80	**94.52** 84.81 : 107.80	**94.52** 84.81 : 107.80
Boron	TM181	**92.94** 85.36 : 111.96	**94.07** 85.36 : 111.96	**94.63** 85.36 : 111.96	**93.22** 85.36 : 111.96
Cadmium	TM181	**95.21** 87.76 : 109.47	**95.74** 87.76 : 109.47	**95.74** 87.76 : 109.47	**95.74** 87.76 : 109.47
Chromium	TM181	**101.05** 81.29 : 118.71	**99.79** 81.29 : 118.71	**99.79** 81.29 : 118.71	**99.79** 81.29 : 118.71
Cobalt	TM181	**96.24** 88.00 : 108.30	**96.55** 88.00 : 108.30	**96.87** 88.00 : 108.30	**96.55** 88.00 : 108.30
Copper	TM181	**96.8** 84.91 : 106.21	**95.78** 84.91 : 106.21	**96.36** 84.91 : 106.21	**95.92** 84.91 : 106.21
Iron	TM181	**95.83** 82.96 : 114.27	**92.36** 82.96 : 114.27	**91.67** 82.96 : 114.27	**90.97** 82.96 : 114.27
Lead	TM181	**96.6** 85.19 : 108.04	**94.89** 85.19 : 108.04	**95.96** 85.19 : 108.04	**97.87** 85.19 : 108.04
Manganese	TM181	**90.1** 82.29 : 105.35	**88.28** 82.29 : 105.35	**89.9** 82.29 : 105.35	**88.69** 82.29 : 105.35
Mercury	TM181	**100.0** 87.62 : 110.64	**102.35** 87.62 : 110.64	**102.35** 87.62 : 110.64	**101.96** 87.62 : 110.64
Molybdenum	TM181	**96.53** 86.47 : 109.19	**98.46** 86.47 : 109.19	**98.07** 86.47 : 109.19	**98.46** 86.47 : 109.19
Nickel	TM181	**94.87** 87.56 : 108.11	**98.6** 87.56 : 108.11	**98.6** 87.56 : 108.11	**99.53** 87.56 : 108.11
Phosphorus	TM181	**89.67** 77.53 : 107.97	**89.52** 77.53 : 107.97	**89.82** 77.53 : 107.97	**90.42** 77.53 : 107.97

Metals in solid samples by OES

		QC 1707	QC 1700	QC 1740	QC 1745
Selenium	TM181	**96.44** 85.50 : 107.61	**97.63** 85.50 : 107.61	**97.92** 85.50 : 107.61	**98.81** 85.50 : 107.61
Strontium	TM181	**95.77** 82.37 : 105.96	**93.23** 82.37 : 105.96	**94.29** 82.37 : 105.96	**93.87** 82.37 : 105.96
Thallium	TM181	**96.48** 85.06 : 112.06	**99.61** 85.06 : 112.06	**98.44** 85.06 : 112.06	**98.05** 85.06 : 112.06
Tin	TM181	**94.68** 85.70 : 112.34	**100.0** 85.70 : 112.34	**98.58** 85.70 : 112.34	**96.81** 85.70 : 112.34
Titanium	TM181	**96.92** 80.40 : 114.25	**89.23** 80.40 : 114.25	**90.0** 80.40 : 114.25	**91.54** 80.40 : 114.25
Vanadium	TM181	**95.09** 79.08 : 102.49	**93.25** 79.08 : 102.49	**93.56** 79.08 : 102.49	**92.64** 79.08 : 102.49
Zinc	TM181	**97.21** 86.18 : 108.79	**97.91** 86.18 : 108.79	**97.38** 86.18 : 108.79	**97.73** 86.18 : 108.79

Mineral Oil

Component	Method Code	QC 1761
Mineral Oil	TM061	**90.17** 77.93 : 101.39

NO3, NO2 and TON by KONE (s)

Component	Method Code	QC 1790
Nitrate/TON as N QC	TM243	**123.93** 42.63 : 157.37
Nitrite (soluble) as NO2	TM243	**105.26** 92.68 : 121.96

PAH by GCMS

Component	Method Code	QC 1756	QC 1763	QC 1767
Acenaphthene	TM218	**88.5** 82.97 : 108.44	**102.0** 78.17 : 114.45	**92.5** 82.60 : 105.38
Acenaphthylene	TM218	**83.5** 77.27 : 104.05	**89.5** 73.70 : 105.55	**84.0** 73.64 : 111.66
Anthracene	TM218	**85.5** 78.18 : 102.20	**94.0** 50.58 : 133.35	**87.5** 73.49 : 107.13
Benz(a)anthracene	TM218	**97.0** 80.40 : 121.27	**92.5** 73.03 : 124.35	**98.0** 87.82 : 118.79
Benzo(a)pyrene	TM218	**96.5** 86.92 : 120.63	**91.0** 76.86 : 123.01	**98.5** 83.39 : 123.49
Benzo(b)fluoranthene	TM218	**97.0** 82.24 : 121.86	**88.5** 75.92 : 130.86	**100.5** 80.60 : 126.56
Benzo(ghi)perylene	TM218	**97.0** 76.26 : 118.18	**90.0** 80.30 : 117.80	**95.5** 80.86 : 109.92
Benzo(k)fluoranthene	TM218	**96.5** 86.60 : 115.15	**91.0** 81.49 : 113.89	**97.5** 87.91 : 119.03
Chrysene	TM218	**95.0** 86.11 : 112.00	**91.0** 77.31 : 114.50	**96.0** 85.34 : 115.46

PAH by GCMS

		QC 1756	QC 1763	QC 1767
Dibenzo(ah)anthracene	TM218	**94.5** 83.84 : 116.37	**90.0** 77.77 : 118.30	**95.0** 82.98 : 121.47
Fluoranthene	TM218	**91.0** 81.23 : 104.94	**95.0** 80.77 : 108.59	**92.0** 82.03 : 107.26
Fluorene	TM218	**89.5** 83.68 : 108.62	**98.0** 79.13 : 110.70	**93.0** 81.48 : 108.26
Indeno(123cd)pyrene	TM218	**96.0** 83.72 : 116.90	**90.5** 78.65 : 117.12	**95.0** 84.02 : 120.55
Naphthalene	TM218	**86.5** 81.32 : 109.34	**98.5** 77.09 : 108.37	**97.0** 84.06 : 108.38
Phenanthrene	TM218	**88.0** 82.06 : 103.85	**97.5** 76.02 : 112.05	**91.0** 78.68 : 107.87
Pyrene	TM218	**91.5** 81.04 : 103.65	**92.5** 79.98 : 107.66	**92.0** 81.96 : 108.90

PCBs by GCMS

Component	Method Code	QC 1752	QC 1787
PCB congener 101	TM168	**100.0** 76.50 : 116.94	**102.0** 76.50 : 116.94
PCB congener 105	TM168	**98.8** 75.93 : 120.03	**103.0** 75.93 : 120.03
PCB congener 114	TM168	**101.0** 76.64 : 119.06	**104.0** 76.64 : 119.06
PCB congener 118	TM168	**101.0** 75.18 : 118.08	**104.0** 75.18 : 118.08
PCB congener 123	TM168	**99.1** 75.72 : 117.84	**103.0** 75.72 : 117.84
PCB congener 126	TM168	**99.3** 76.10 : 125.90	**105.0** 76.10 : 125.90
PCB congener 138	TM168	**100.0** 78.04 : 121.72	**104.0** 78.04 : 121.72
PCB congener 153	TM168	**97.6** 77.67 : 119.31	**100.0** 77.67 : 119.31
PCB congener 156	TM168	**101.0** 73.48 : 118.60	**105.0** 73.48 : 118.60
PCB congener 157	TM168	**99.3** 77.47 : 123.91	**103.0** 77.47 : 123.91
PCB congener 167	TM168	**101.0** 75.77 : 121.97	**106.0** 75.77 : 121.97
PCB congener 169	TM168	**103.0** 74.49 : 130.71	**109.0** 74.49 : 130.71
PCB congener 180	TM168	**99.6** 77.34 : 121.26	**103.0** 77.34 : 121.26
PCB congener 189	TM168	**101.0** 75.60 : 127.20	**107.0** 75.60 : 127.20
PCB congener 28	TM168	**102.0** 79.43 : 121.67	**102.0** 79.43 : 121.67
PCB congener 52	TM168	**107.0** 78.72 : 119.28	**106.0** 78.72 : 119.28
PCB congener 77	TM168	**103.0** 74.04 : 120.60	**109.0** 74.04 : 120.60
PCB congener 81	TM168	**96.5** 78.47 : 124.85	**100.0** 78.47 : 124.85

pH

Component	Method Code	QC 1721	QC 1779	QC 1717
pH	TM133	**100.39** 99.25 : 102.83	**100.26** 99.63 : 103.42	**102.08** 100.64 : 103.51

Phenols by HPLC (W)

Component	Method Code	QC 1786
2.3.5 Trimethyl-Phenol by HPLC (W)	TM259	**97.0** 89.00 : 113.00
2-Isopropyl Phenol by HPLC (W)	TM259	**97.0** 95.00 : 113.00
Cresols by HPLC (W)	TM259	**94.33** 84.57 : 102.57
Napthol by HPLC (W)	TM259	**89.0** 90.22 : 121.54
Phenol by HPLC (W)	TM259	**101.0** 89.00 : 107.00
Xylenols by HPLC (W)	TM259	**103.67** 88.83 : 112.83

Semi Volatile Organic Compounds

Component	Method Code	QC 1750
4-Bromophenylphenylether (Soil)	TM157	**85.5** 65.45 : 121.76
Benzo(a)anthracene (Soil)	TM157	**92.0** 71.89 : 120.91
Hexachlorobutadiene (Soil)	TM157	**90.0** 69.80 : 117.77
Naphthalene (Soil)	TM157	**87.0** 71.89 : 120.16
Nitrobenzene (Soil)	TM157	**90.0** 70.00 : 118.00
Phenol (Soil)	TM157	**94.5** 68.54 : 114.86

Total Dissolved Solids

Component	Method Code	QC 1799
Total Dissolved Solids	TM123	**99.5** 97.30 : 101.58

Total Organic Carbon

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Total Organic Carbon

Component	Method Code	QC 1712
Total Organic Carbon	TM132	**89.84** 83.00 : 101.77

Total Sulphate

Component	Method Code	QC 1713
Total Sulphate	TM221	**93.94** 70.57 : 128.43

Total Sulphur

Component	Method Code	QC 1754	QC 1784
Total Sulphur %	TM132	**95.62** 81.05 : 118.95	**98.3** 81.05 : 118.95

VOC MS (S)

Component	Method Code	QC 1767
1,1,1,2-tetrachloroethane	TM116	**100.6** 77.56 : 115.55
1,1,1-Trichloroethane	TM116	**99.4** 74.97 : 113.76
1,1,2-Trichloroethane	TM116	**99.8** 77.12 : 116.04
1,1-Dichloroethane	TM116	**100.6** 74.46 : 129.15
1,2-Dichloroethane	TM116	**121.4** 92.57 : 128.78
1,4-Dichlorobenzene	TM116	**95.0** 72.76 : 126.34
2-Chlorotoluene	TM116	**87.4** 69.73 : 114.13
4-Chlorotoluene	TM116	**87.4** 66.90 : 112.46
Benzene	TM116	**101.8** 81.05 : 117.28
Carbon Disulphide	TM116	**82.0** 74.91 : 122.14
Carbontetrachloride	TM116	**107.2** 77.80 : 119.23
Chlorobenzene	TM116	**94.2** 75.00 : 115.53
Chloroform	TM116	**106.0** 77.34 : 121.84

VOC MS (S)

		QC 1767
Chloromethane	TM116	**102.0** 52.63 : 138.74
Cis-1,2-Dichloroethene	TM116	**104.4** 80.67 : 126.72
Dibromomethane	TM116	**105.4** 67.80 : 121.75
Dichloromethane	TM116	**105.8** 81.11 : 133.25
Ethylbenzene	TM116	**93.4** 72.53 : 109.84
Hexachlorobutadiene	TM116	**110.4** 12.82 : 152.73
Isopropylbenzene	TM116	**83.2** 54.46 : 125.44
Naphthalene	TM116	**96.0** 80.86 : 128.81
o-Xylene	TM116	**84.0** 67.46 : 102.22
p/m-Xylene	TM116	**84.6** 68.32 : 108.91
Sec-Butylbenzene	TM116	**87.8** 46.09 : 121.51
Tetrachloroethene	TM116	**96.6** 76.95 : 121.02
Toluene	TM116	**92.0** 74.24 : 107.42
Trichloroethene	TM116	**92.4** 77.61 : 111.54
Trichlorofluoromethane	TM116	**91.0** 71.31 : 128.41
Vinyl Chloride	TM116	**93.8** 68.26 : 133.45

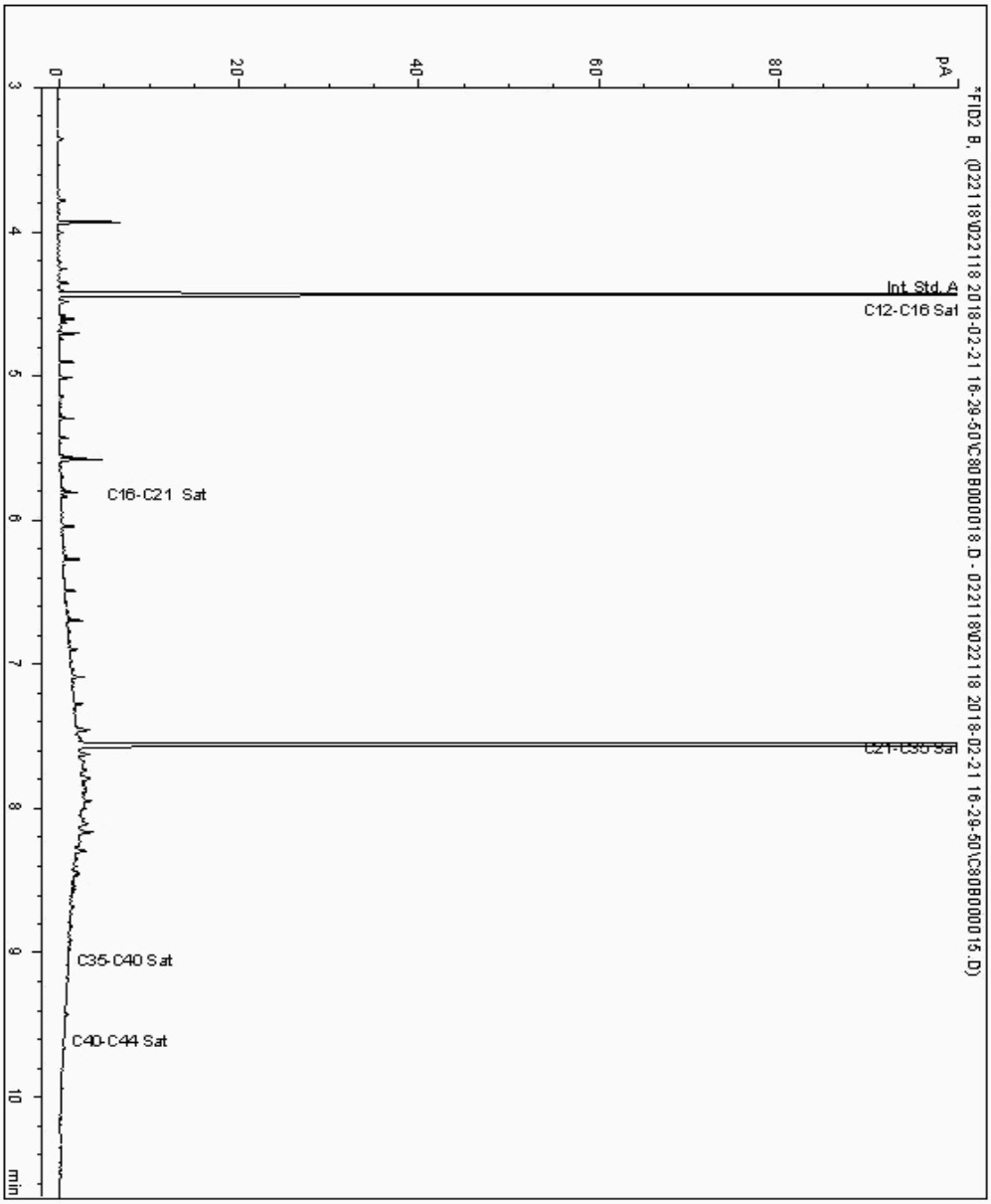
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17064731 **Sample ID :** TP-RPS-41 **Depth :** 0.20

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16007339-
Date Acquired : 21/02/18 20:10:42
Units : ppb
Dilution :
CF : 1
Multiplier : 0.980



Validated

CERTIFICATE OF ANALYSIS

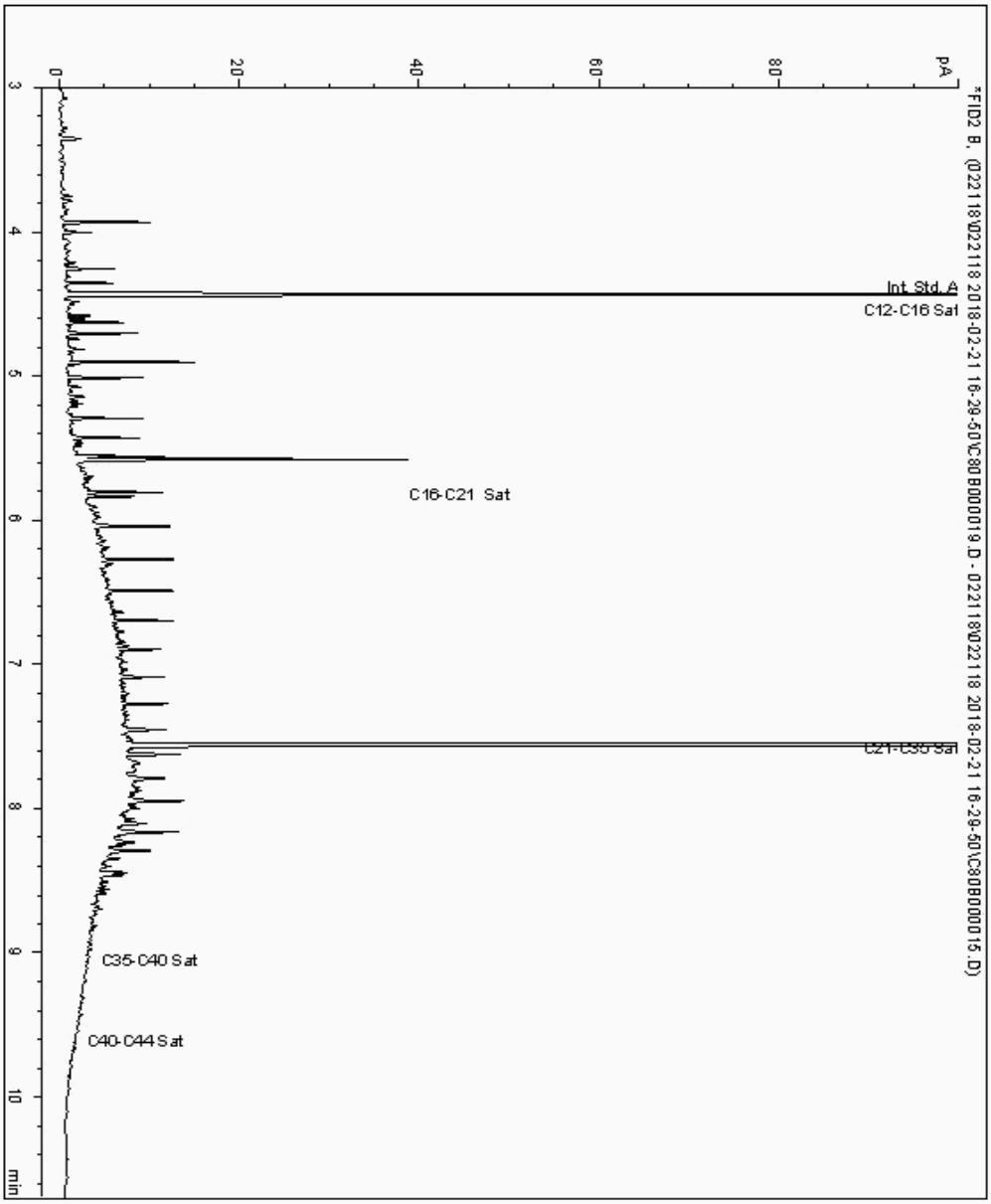
SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17064744 **Sample ID :** TP-RPS-39 **Depth :** 0.20

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16007370-
Date Acquired : 21/02/18 20:30:38
Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 17064804
Sample ID : TP-RPS-24

Depth : 0.30 - 0.40

Validated

CERTIFICATE OF ANALYSIS

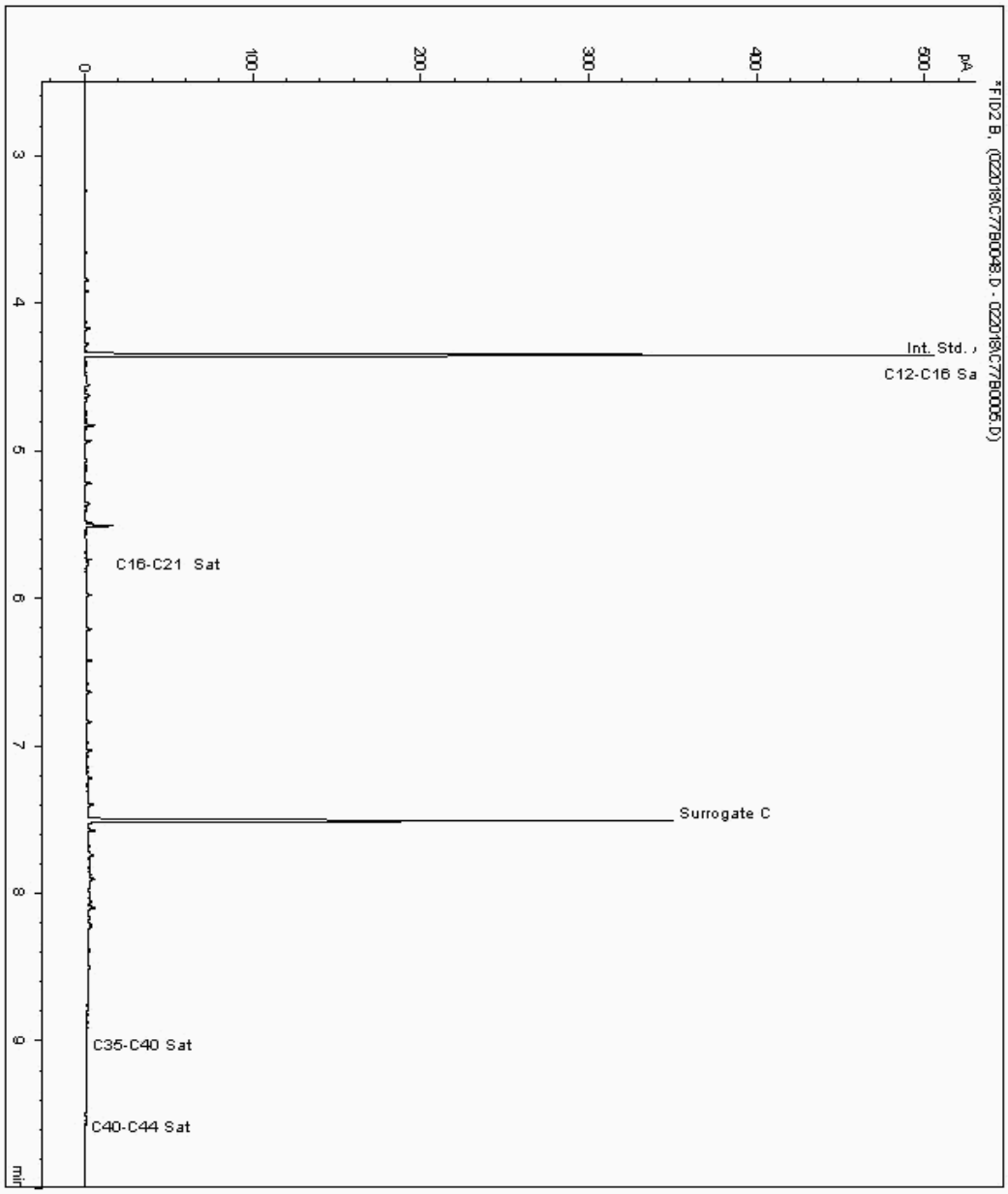
SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17064930 **Sample ID :** TP-RPS-25 **Depth :** 0.20

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16007319-
Date Acquired : 2/21/2018 1:07:14 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



Validated

CERTIFICATE OF ANALYSIS

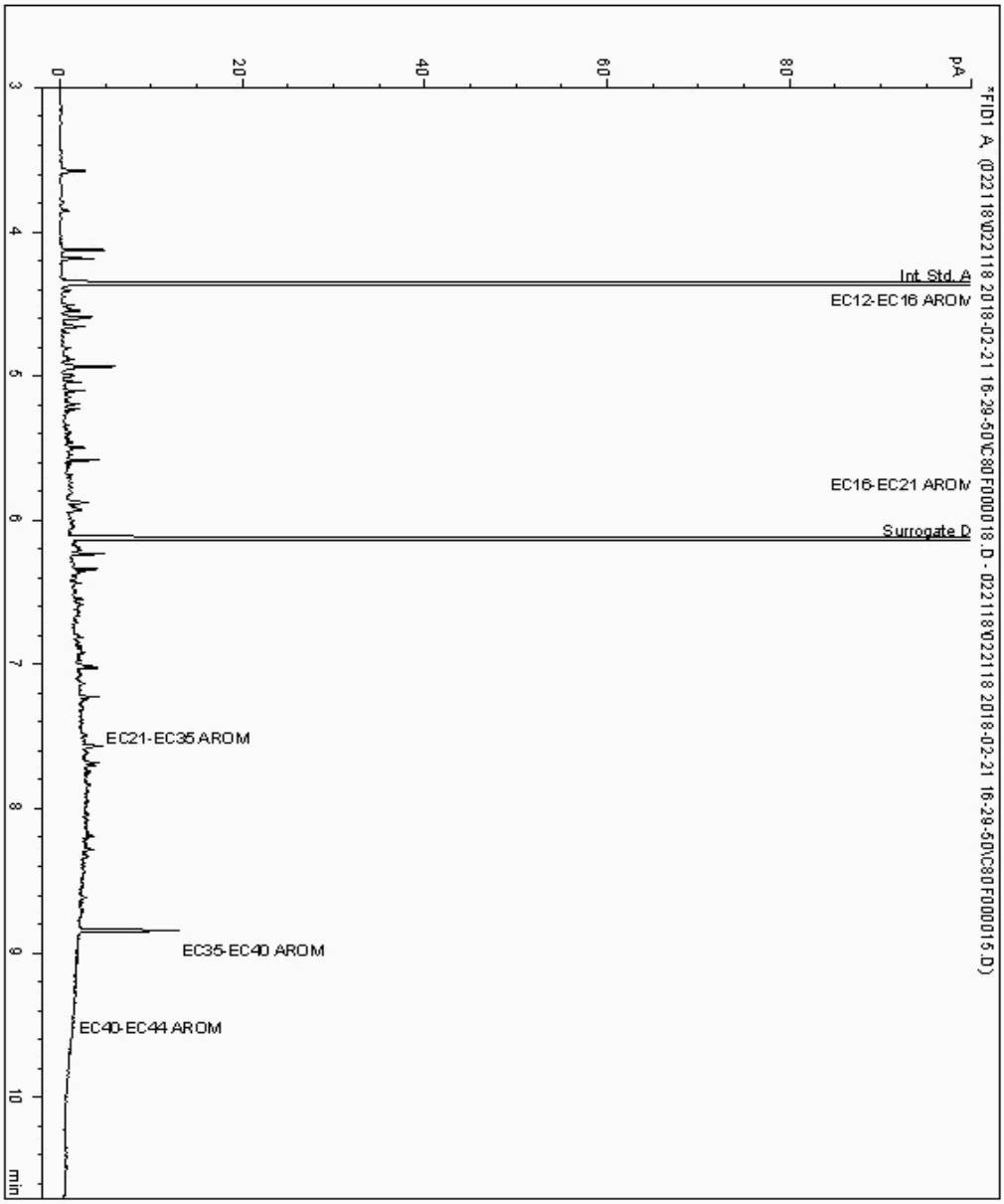
SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17064731 **Sample ID :** TP-RPS-41 **Depth :** 0.20

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16007340-
Date Acquired : 21/02/18 20:10:42
Units : ppb
Dilution :
CF : 1
Multiplier : 0.980



Validated

CERTIFICATE OF ANALYSIS

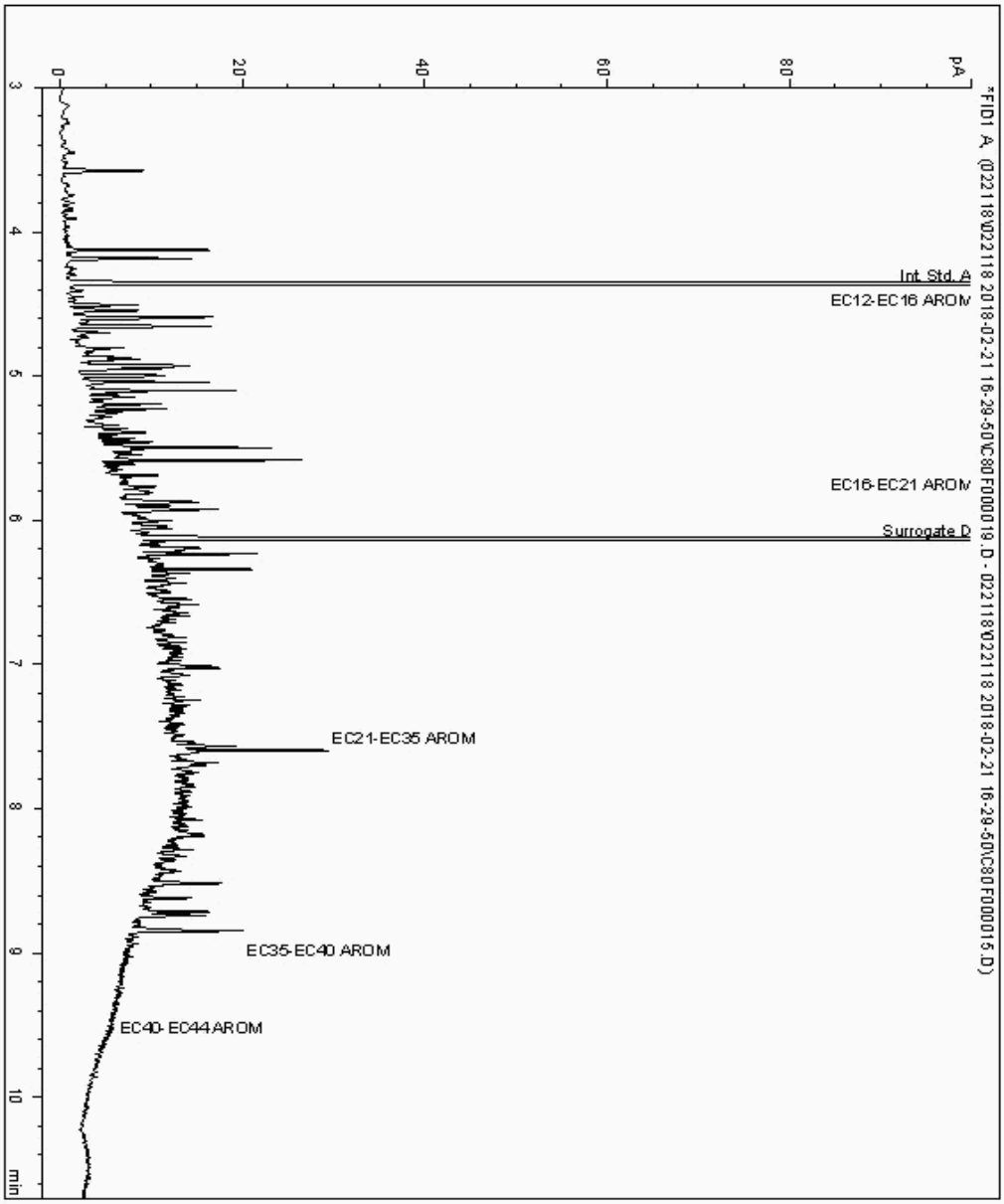
SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17064744 **Sample ID :** TP-RPS-39 **Depth :** 0.20

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16007371-
Date Acquired : 21/02/18 20:30:38
Units : ppb
Dilution :
CF : 1
Multiplier : 0.990

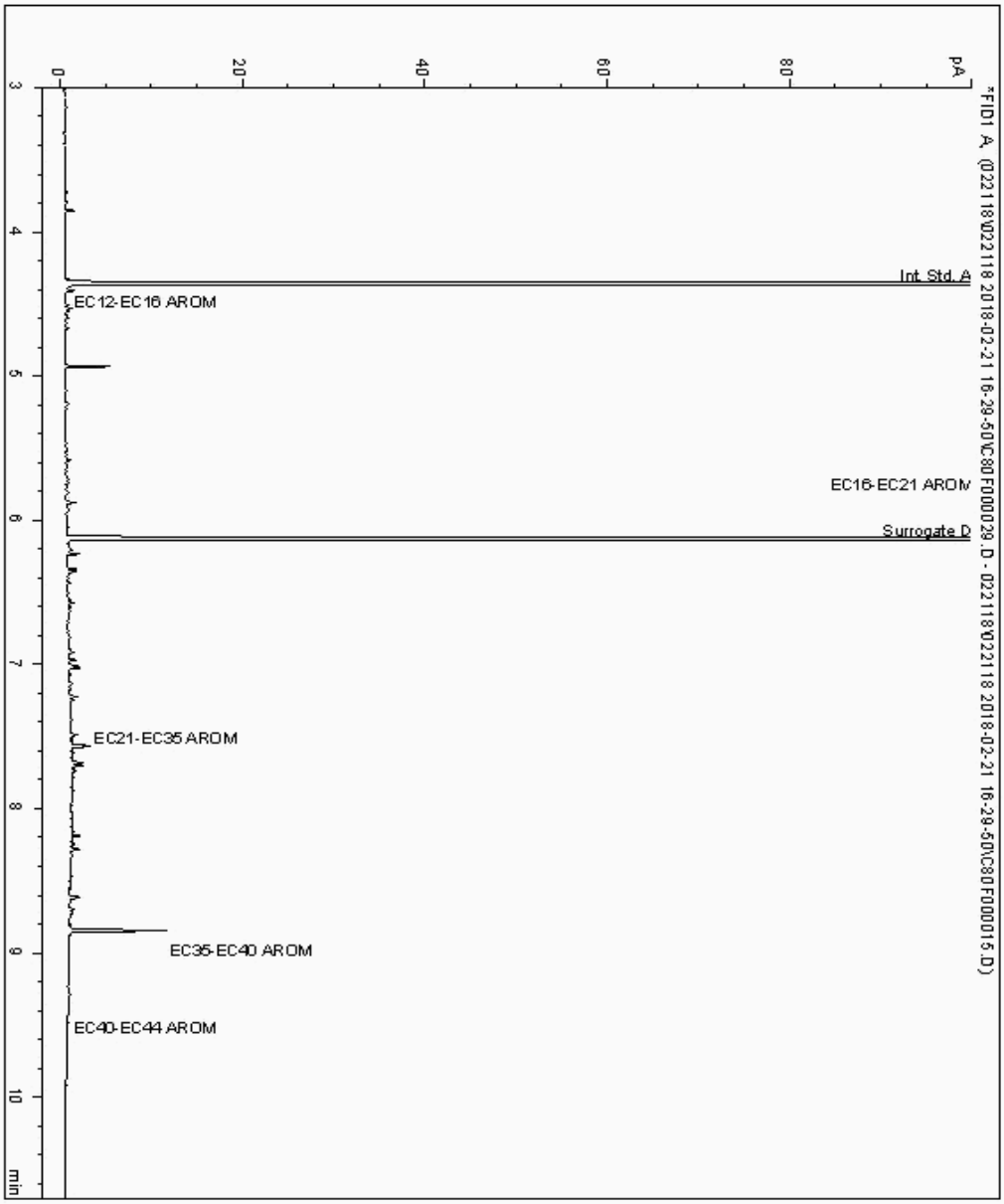


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17064804 **Sample ID :** TP-RPS-24 **Depth :** 0.30 - 0.40

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16011603-
Date Acquired : 21/02/18 23:35:40
Units : ppb
Dilution :
CF : 1
Multiplier : 1.010



Validated

CERTIFICATE OF ANALYSIS

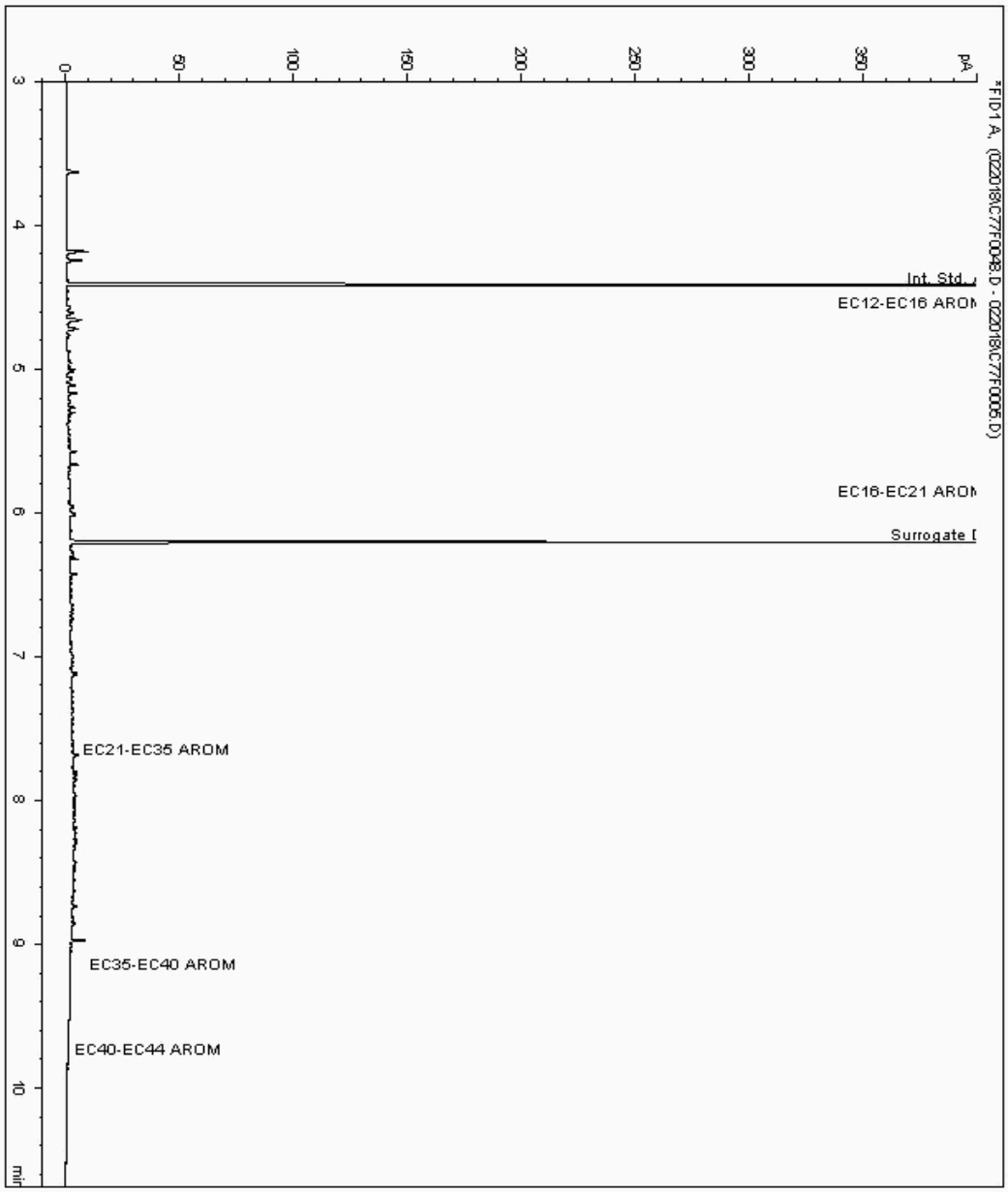
SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17064930 **Sample ID :** TP-RPS-25 **Depth :** 0.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16007320-
Date Acquired : 2/21/2018 1:07:14 AM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

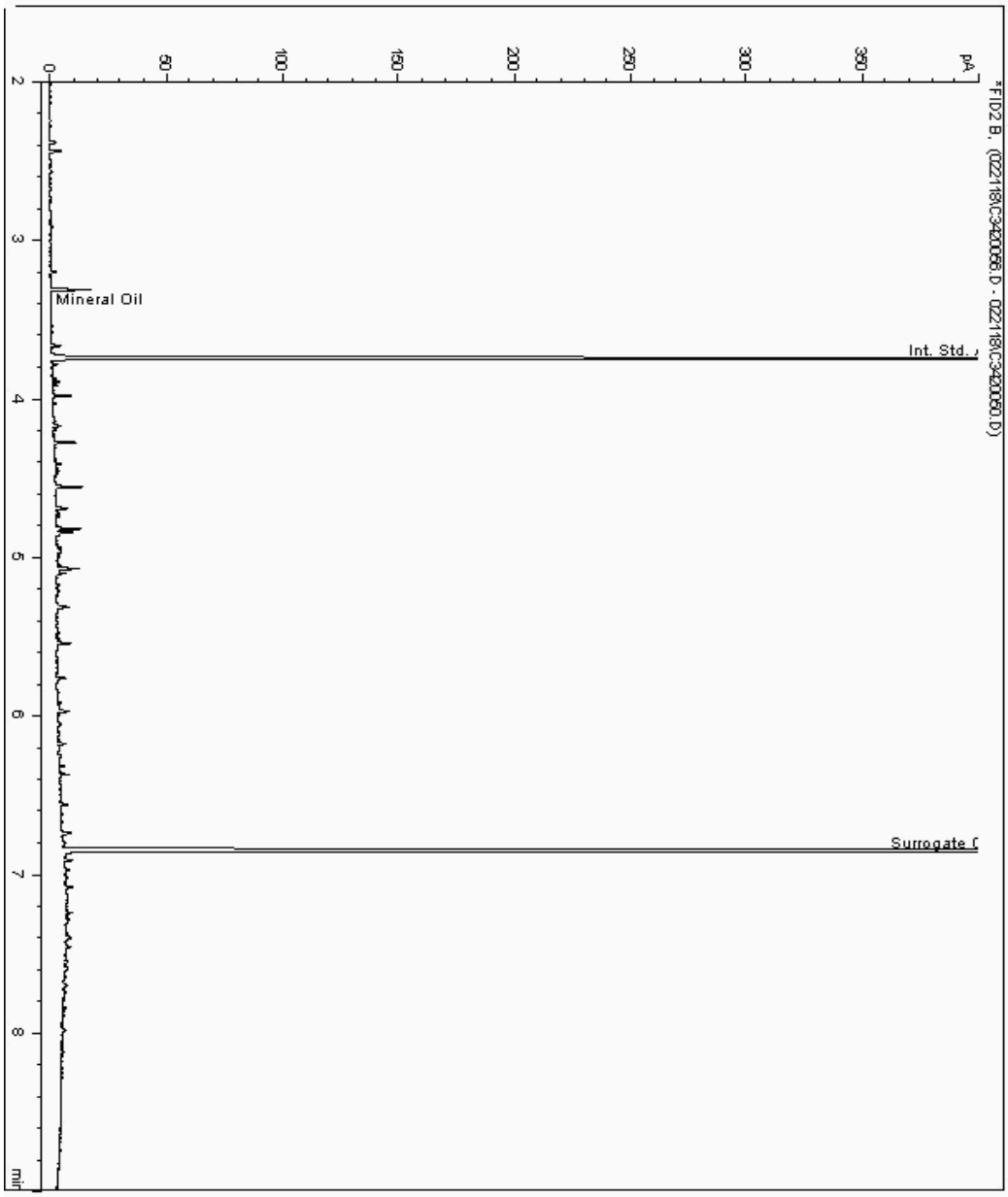
Analysis: Mineral Oil

Sample No : 17077331
Sample ID : TP-RPS-24

Depth : 0.30 - 0.40

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16011584-
Date Acquired : 22/02/18 04:03:15 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

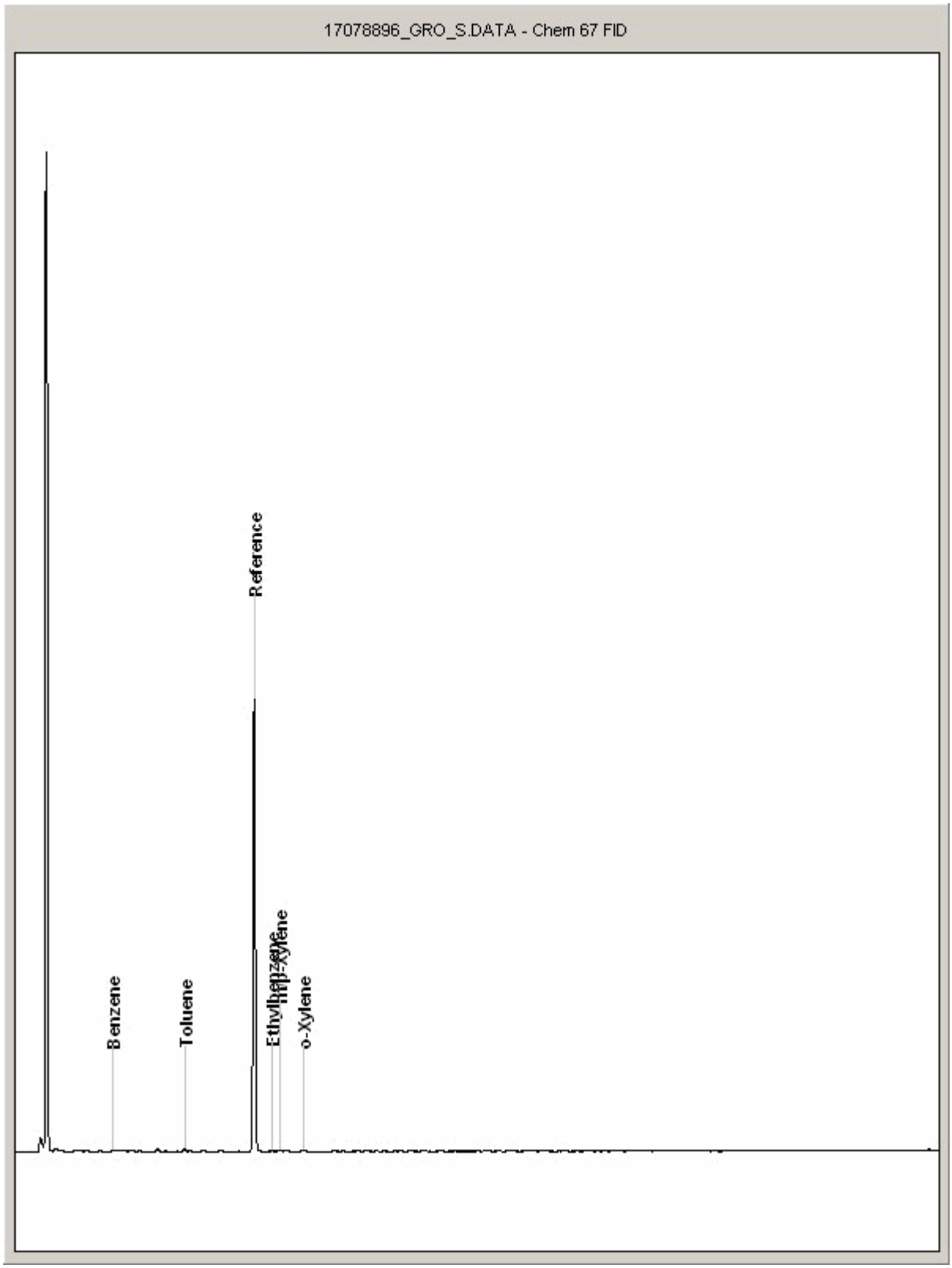
SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17078896
Sample ID : TP-RPS-41

Depth : 0.20



Validated

CERTIFICATE OF ANALYSIS

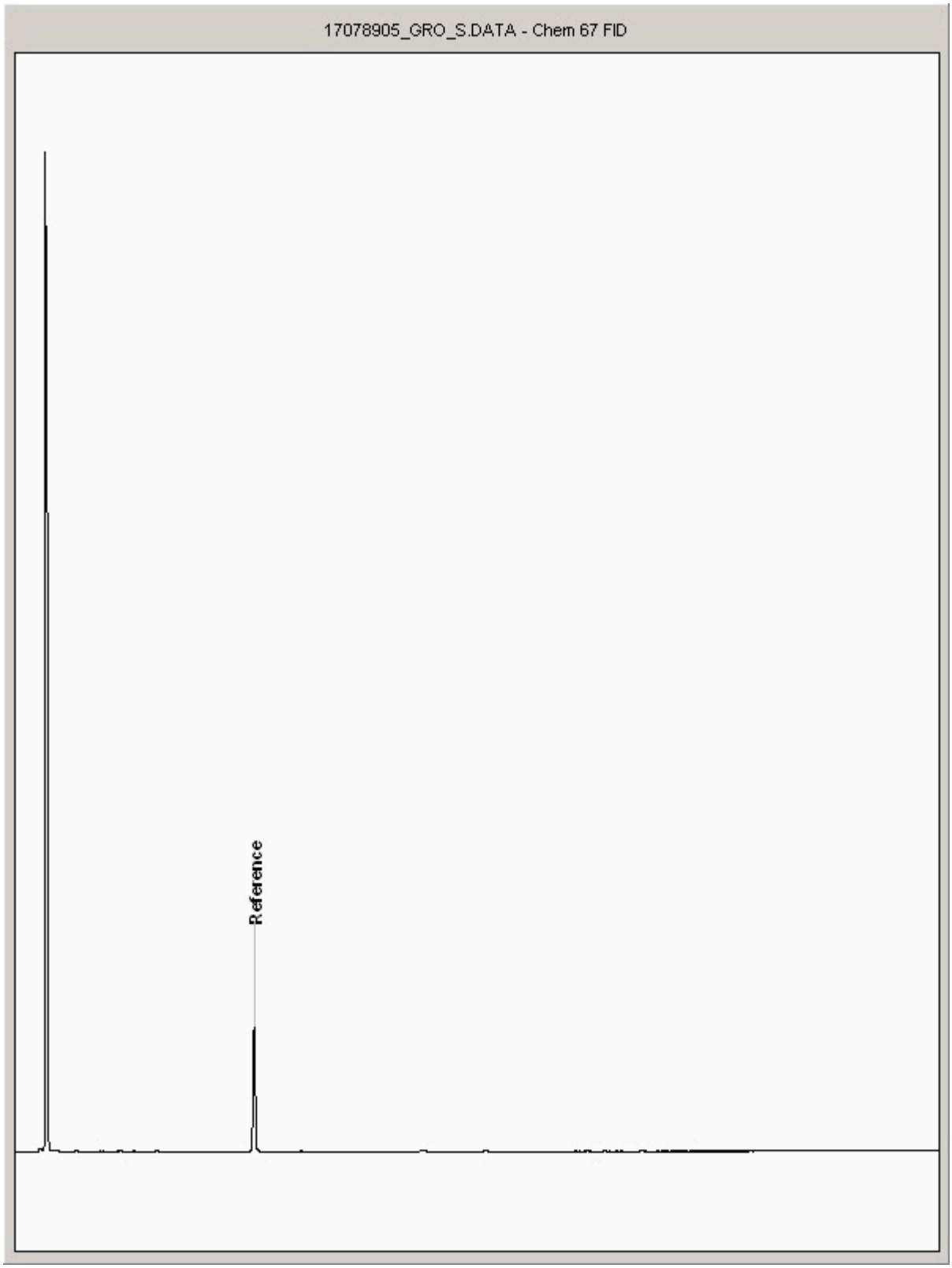
SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17078905
Sample ID : TP-RPS-39

Depth : 0.20



Validated

CERTIFICATE OF ANALYSIS

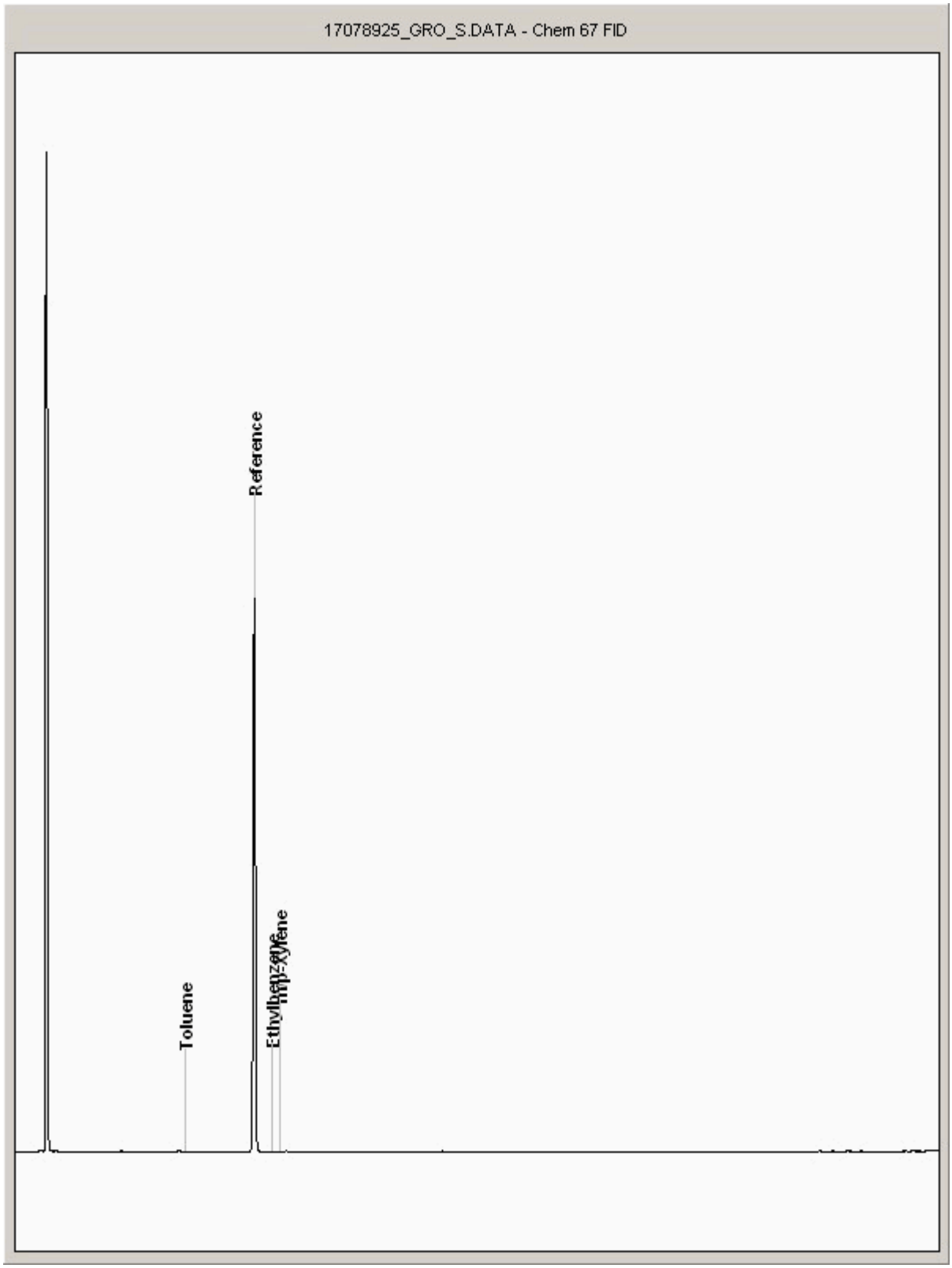
SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17078925
Sample ID : TP-RPS-24

Depth : 0.30 - 0.40



Validated

CERTIFICATE OF ANALYSIS

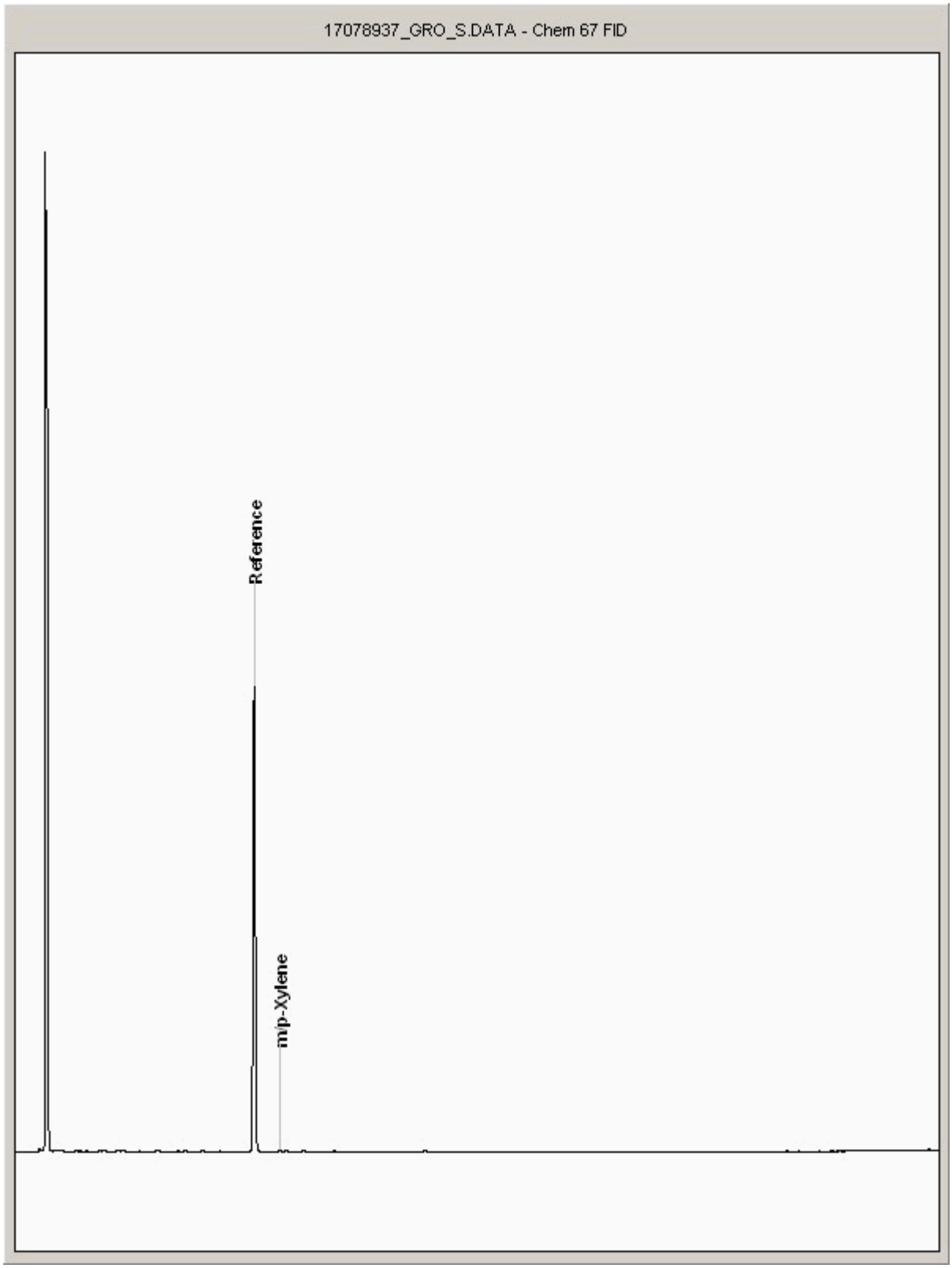
SDG:	180215-74	**Client Reference:**	JER1100	**Report Number:**	445804
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	445656

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17078937
Sample ID : TP-RPS-25

Depth : 0.20



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Hawarden
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RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	09 March 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180220-56
Your Reference:	JER1100
Location:	Lostock
Report No:	447614

This report has been revised and directly supersedes 447412 in its entirety.

We received 28 samples on Tuesday February 20, 2018 and 15 of these samples were scheduled for analysis which was completed on Thursday March 08, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17080644	BH-RPS-16	ES1	7.00 - 7.50	14/02/2018
17080705	CP-RPS-01	ES1	0.10 - 0.30	13/02/2018
17080712	CP-RPS-01	ES1	0.30 - 0.55	13/02/2018
17080547	TP-RPS-30	ES1	0.20	13/02/2018
17080501	TP-RPS-35	ES1	0.20	13/02/2018
17080592	TP-RPS-35	ES1	0.60	13/02/2018
17080675	TP-RPS-35	ES1	1.60	13/02/2018
17080683	TP-RPS-35	ES1	2.20	13/02/2018
17080694	TP-RPS-35	ES1	2.40	13/02/2018
17080555	TP-RPS-37	ES1	0.20	14/02/2018
17080562	TP-RPS-37	ES1	0.70	14/02/2018
17080572	TP-RPS-37	ES1	1.70	14/02/2018
17080578	TP-RPS-37	ES1	3.60	14/02/2018
17080719	TP-RPS-38	ES1	0.60	13/02/2018
17080510	TP-RPS-38	ES1	0.80	13/02/2018
17080728	TP-RPS-38	ES1	1.00	13/02/2018
17080520	TP-RPS-38	ES1	1.80	13/02/2018
17080531	TP-RPS-38	ES1	2.10	13/02/2018
17080539	TP-RPS-38	ES1	2.60	13/02/2018
17080586	TP-RPS-40	ES1	0.20	14/02/2018
17080600	TP-RPS-40	ES1	0.65	14/02/2018
17080607	TP-RPS-40	ES1	0.80	14/02/2018
17080617	TP-RPS-40	ES1	2.40	14/02/2018
17080658	TP-RPS-51	ES1	0.20	14/02/2018
17080651	TP-RPS-51	ES1	0.40	14/02/2018
17080666	TP-RPS-51	ES1	1.60	14/02/2018
17080626	WS-RPS-27	ES1	0.40 - 0.85	14/02/2018
17080635	WS-RPS-27	ES1	0.85 - 1.00	14/02/2018

Maximum Sample/Coolbox Temperature (°C) : 4.8

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17080644			17080712			17080547			17080501			17080675		17080694			17080555		17080572
Customer Sample Reference			BH-RPS-16			CP-RPS-01			TP-RPS-30			TP-RPS-35			TP-RPS-35		TP-RPS-35			TP-RPS-37		TP-RPS-37
AGS Reference			ES1			ES1			ES1			ES1			ES1		ES1			ES1		ES1
Depth (m)			7.00 - 7.50			0.30 - 0.55			0.20			0.20			1.60		2.40			0.20		1.70
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 4		X											X		X					
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 4		X			X															
Anions by Kone (soil)	All	NDPs: 0 Tests: 4		X											X		X					
Anions by Kone (w)	All	NDPs: 0 Tests: 4	X			X																X
Asbestos fibres in Soil*	All	NDPs: 0 Tests: 9	X			X			X			X							X			
CEN Readings	All	NDPs: 0 Tests: 4	X			X																X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 4	X			X																X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 4	X			X																X
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 11		X			X			X			X		X		X			X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 11		X			X			X			X		X		X			X		
Fluoride	All	NDPs: 0 Tests: 4	X			X																X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 12			X			X			X			X		X		X			X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 4		X			X															
Magnesium (BRE)	All	NDPs: 0 Tests: 4		X											X		X					
Mercury Dissolved	All	NDPs: 0 Tests: 4	X			X																X

17080626	WS-RPS-27	ES1	0.40 - 0.85	60g VOC (ALE215)	S													X				
				250g Amber Jar (ALE210)	S	X	X	X						X	X			X	X		
				1kg TUB	S				X	X	X	X	X			X					X
17080651	TP-RPS-51	ES1	0.40	60g VOC (ALE215)	S													X				
				250g Amber Jar (ALE210)	S									X	X						
				1kg TUB	S					X											
17080607	TP-RPS-40	ES1	0.80	250g Amber Jar (ALE210)	S																
17080586	TP-RPS-40	ES1	0.20	60g VOC (ALE215)	S													X			
				250g Amber Jar (ALE210)	S									X	X						
				1kg TUB	S					X											
17080728	TP-RPS-38	ES1	1.00	250g Amber Jar (ALE210)	S																
17080510	TP-RPS-38	ES1	0.80	60g VOC (ALE215)	S													X			
				250g Amber Jar (ALE210)	S									X	X						
				1kg TUB	S					X											
17080578	TP-RPS-37	ES1	3.60	250g Amber Jar (ALE210)	S																
17080572	TP-RPS-37	ES1	1.70	60g VOC (ALE215)	S													X			
				250g Amber Jar (ALE210)	S		X												X		

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17080644			17080712			17080547			17080501			17080675			17080694			17080555		17080572
Customer Sample Reference			BH-RPS-16			CP-RPS-01			TP-RPS-30			TP-RPS-35			TP-RPS-35			TP-RPS-35			TP-RPS-37		TP-RPS-37
AGS Reference			ES1			ES1			ES1			ES1			ES1			ES1			ES1		ES1
Depth (m)			7.00 - 7.50			0.30 - 0.55			0.20			0.20			1.60			2.40			0.20		1.70
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Metals in solid samples by OES	All	NDPs: 0 Tests: 11		X			X			X			X		X		X			X			
Mineral Oil	All	NDPs: 0 Tests: 4		X			X																
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 4		X											X		X						
PAH by GCMS	All	NDPs: 0 Tests: 12		X			X			X			X		X		X			X			
PCBs by GCMS	All	NDPs: 0 Tests: 5		X			X													X			
pH	All	NDPs: 0 Tests: 15		X			X			X			X		X		X			X			
Phenols by HPLC (S)	All	NDPs: 0 Tests: 2		X																			
Phenols by HPLC (W)	All	NDPs: 0 Tests: 4	X			X																	X
Sample description	All	NDPs: 0 Tests: 15		X			X			X			X		X		X			X			
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 6		X			X						X							X			
Total Dissolved Solids	All	NDPs: 0 Tests: 4	X			X																	X
Total Organic Carbon	All	NDPs: 0 Tests: 4		X			X																
Total Sulphate	All	NDPs: 0 Tests: 4		X											X		X						
Total Sulphur	All	NDPs: 0 Tests: 4		X											X		X						
TPH CWG GC (S)	All	NDPs: 0 Tests: 11		X			X			X			X		X		X			X			

17080626	WS-RPS-27	ES1	0.40 - 0.85	60g VOC (ALE215)	S																
				250g Amber Jar (ALE210)	S	X	X	X	X	X	X	X		X	X		X	X	X	X
				1kg TUB	S								X			X					
17080651	TP-RPS-51	ES1	0.40	60g VOC (ALE215)	S																
				250g Amber Jar (ALE210)	S	X			X		X			X							X
				1kg TUB	S																
17080607	TP-RPS-40	ES1	0.80	250g Amber Jar (ALE210)	S						X			X							
17080586	TP-RPS-40	ES1	0.20	60g VOC (ALE215)	S																
				250g Amber Jar (ALE210)	S	X			X		X			X							X
				1kg TUB	S																
17080728	TP-RPS-38	ES1	1.00	250g Amber Jar (ALE210)	S						X			X							
17080510	TP-RPS-38	ES1	0.80	60g VOC (ALE215)	S																
				250g Amber Jar (ALE210)	S	X			X		X			X	X						X
				1kg TUB	S																
17080578	TP-RPS-37	ES1	3.60	250g Amber Jar (ALE210)	S						X			X							
17080572	TP-RPS-37	ES1	1.70	60g VOC (ALE215)	S																
				250g Amber Jar (ALE210)	S		X		X	X	X			X			X				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)																							
			17080644			17080712			17080547			17080501			17080675		17080694			17080555			17080572
Customer Sample Reference			BH-RPS-16			CP-RPS-01			TP-RPS-30			TP-RPS-35			TP-RPS-35		TP-RPS-35			TP-RPS-37			TP-RPS-37
AGS Reference			ES1			ES1			ES1			ES1			ES1		ES1			ES1			ES1
Depth (m)			7.00 - 7.50			0.30 - 0.55			0.20			0.20			1.60		2.40			0.20			1.70
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
VOC MS (S)	All	NDPs: 0 Tests: 6			X			X						X							X		

17080626	WS-RPS-27	ES1	0.40 - 0.85	60g VOC (ALE215)	S		X
				250g Amber Jar (ALE210)	S		
				1kg TUB	S		
17080651	TP-RPS-51	ES1	0.40	60g VOC (ALE215)	S		
				250g Amber Jar (ALE210)	S		
				1kg TUB	S		
17080607	TP-RPS-40	ES1	0.80	250g Amber Jar (ALE210)	S		
17080586	TP-RPS-40	ES1	0.20	60g VOC (ALE215)	S		
				250g Amber Jar (ALE210)	S		
				1kg TUB	S		
17080728	TP-RPS-38	ES1	1.00	250g Amber Jar (ALE210)	S		
17080510	TP-RPS-38	ES1	0.80	60g VOC (ALE215)	S		X
				250g Amber Jar (ALE210)	S		
				1kg TUB	S		
17080578	TP-RPS-37	ES1	3.60	250g Amber Jar (ALE210)	S		
17080572	TP-RPS-37	ES1	1.70	60g VOC (ALE215)	S		
				250g Amber Jar (ALE210)	S		

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17080644	BH-RPS-16	7.00 - 7.50	Black	Silt Loam	Stones	Vegetation
17080712	CP-RPS-01	0.30 - 0.55	Grey	Loamy Sand	Stones	None
17080547	TP-RPS-30	0.20	Dark Brown	Sandy Loam	Stones	Vegetation
17080501	TP-RPS-35	0.20	Dark Brown	Loamy Sand	Stones	Vegetation
17080675	TP-RPS-35	1.60	Cream	N/A	None	None
17080694	TP-RPS-35	2.40	Dark Brown	Sandy Clay	None	None
17080555	TP-RPS-37	0.20	Dark Brown	Loamy Sand	Stones	Vegetation
17080572	TP-RPS-37	1.70	White	N/A	Stones	None
17080578	TP-RPS-37	3.60	White	N/A	Stones	None
17080510	TP-RPS-38	0.80	Grey	N/A	Stones	None
17080728	TP-RPS-38	1.00	White	N/A	Stones	None
17080586	TP-RPS-40	0.20	Black	Sand	Stones	None
17080607	TP-RPS-40	0.80	White	N/A	N/A	N/A
17080651	TP-RPS-51	0.40	Dark Brown	Sandy Loam	Stones	Vegetation
17080626	WS-RPS-27	0.40 - 0.85	Dark Brown	Sandy Loam	Concrete/Aggregate	Stones

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-16	CP-RPS-01	TP-RPS-30	TP-RPS-35	TP-RPS-35	TP-RPS-35
Depth (m)			7.00 - 7.50	0.30 - 0.55	0.20	0.20	1.60	2.40
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080644	17080712	17080547	17080501	17080675	17080694
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	15	5.2	19	16	48	13
Actinolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #	Not Detected #		
Amosite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #	Detected #		
Anthophyllite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #	Not Detected #		
Chrysotile*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #	Not Detected #		
Crocidolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #	Not Detected #		
Tremolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #	Not Detected #		
Non-Asbestos Fibres Detected		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #	Not Detected #		
Loss on ignition	<0.7 %	TM018	8.08 M	1.96 M				
Mineral oil >C10-C40	<1 mg/kg	TM061	12.8	24.5				
Mineral Oil Surrogate % recovery**	%	TM061	84.8	82.3				
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M					
Cresols	<0.01 mg/kg	TM062 (S)	0.224 M					
Xylenols	<0.015 mg/kg	TM062 (S)	0.319 M					
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)	<0.01 M					
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)	0.059 M					
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)	0.602 M					
Organic Carbon, Total	<0.2 %	TM132	1.1 M	5.28 M				
Sulphur, Total	<0.02 %	TM132	0.207				1.43	0.0488
Soil Organic Matter (SOM)	<0.35 %	TM132	1.9 #					
pH	1 pH Units	TM133	8.09 M	9.93 M	7.63 M	8.05 M	12.8	8.34 M
PCB congener 28	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 52	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 101	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 118	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 138	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 153	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 180	<3 µg/kg	TM168	<3 M	<3 M				
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21	<21				
PCB congener 81	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 77	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 123	<3 µg/kg	TM168	<3 M	<3 M				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-16	CP-RPS-01	TP-RPS-30	TP-RPS-35	TP-RPS-35	TP-RPS-35
Depth (m)			7.00 - 7.50	0.30 - 0.55	0.20	0.20	1.60	2.40
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080644	17080712	17080547	17080501	17080675	17080694
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
PCB congener 114	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 105	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 126	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 167	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 156	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 157	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 169	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 189	<3 µg/kg	TM168	<3 M	<3 M				
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168	<36	<36				
Antimony	<0.6 mg/kg	TM181	<0.6 #	<0.6 #	2.03 #	3.08 #	<0.6	1.03 #
Arsenic	<0.6 mg/kg	TM181	2.06 M	6.61 M	4.86 M	25.2 M	11	6.85 M
Cadmium	<0.02 mg/kg	TM181	0.0568 M	0.629 M	0.347 M	0.435 M	0.636	0.153 M
Chromium	<0.9 mg/kg	TM181	8.56 M	4.12 M	9.88 M	3.7 M	8.77	17 M
Cobalt	<0.1 mg/kg	TM181	2.89 M	2.38 M	6.44 M	20.7 M	3.32	7.14 M
Copper	<1.4 mg/kg	TM181	4.82 M	11.5 M	28.7 M	84.5 M	11.9	18 M
Lead	<0.7 mg/kg	TM181	4.82 M	24.9 M	44 M	59.8 M	6.59	6.4 M
Manganese	<0.13 mg/kg	TM181	57.7 M	167 M	240 M	775 M	286	207 M
Mercury	<0.14 mg/kg	TM181	<0.14 M	6.54 M	<0.14 M	<0.14 M	<0.14	<0.14 M
Molybdenum	<0.1 mg/kg	TM181	0.544 #	0.583 #	2.83 #	6.63 #	0.792	0.886 #
Nickel	<0.2 mg/kg	TM181	8.88 M	8.38 M	24.5 M	53.9 M	8.51	20.4 M
Selenium	<1 mg/kg	TM181	<1 #	<1 #	3.87 #	<1 #	<1	<1 #
Tin	<0.24 mg/kg	TM181	0.435 #	0.963 #	1.91 #	2.83 #	0.522	1.03 #
Thallium	<0.7 mg/kg	TM181	<0.7 #	<0.7 #	<0.7 #	0.819 #	<0.7	<0.7 #
Vanadium	<0.2 mg/kg	TM181	11.4 #	9.06 #	77.5 #	57.6 #	15.6	23.3 #
Zinc	<1.9 mg/kg	TM181	19.8 M	38.8 M	148 M	115 M	27.6	29.7 M
ANC @ pH 4	<0.03 mol/kg	TM182	0.0465	2.07				
ANC @ pH 6	<0.03 mol/kg	TM182	<0.03	0.226				
Sulphate, acid soluble (total)	<0.02 %	TM221	0.0203				3.43	0.032
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243	0.0448 M				0.107	0.0805 M
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243	1.47 M				0.0784	0.522 M
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243	<0.0003				0.0148	<0.0003
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248	0.00296				<0.0003	0.00858

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-16	CP-RPS-01	TP-RPS-30	TP-RPS-35	TP-RPS-35	TP-RPS-35
Depth (m)			7.00 - 7.50	0.30 - 0.55	0.20	0.20	1.60	2.40
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080644	17080712	17080547	17080501	17080675	17080694
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Magnesium (BRE)	<0.008 g/l	TM282	<0.008				<0.008	<0.008

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-37	TP-RPS-37	TP-RPS-37	TP-RPS-38	TP-RPS-38	TP-RPS-40
Depth (m)			0.20	1.70	3.60	0.80	1.00	0.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	14/02/2018	14/02/2018	13/02/2018	13/02/2018	14/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080555	17080572	17080578	17080510	17080728	17080586
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	13	50	60	41	60	18
Actinolite*		SUB (ASB)	Not Detected #			Not Detected #		Not Detected #
Amosite*		SUB (ASB)	Not Detected #			Not Detected #		Detected #
Anthophyllite*		SUB (ASB)	Not Detected #			Not Detected #		Not Detected #
Chrysotile*		SUB (ASB)	Detected #			Detected #		Not Detected #
Crocidolite*		SUB (ASB)	Not Detected #			Not Detected #		Not Detected #
Tremolite*		SUB (ASB)	Not Detected #			Not Detected #		Not Detected #
Non-Asbestos Fibres Detected		SUB (ASB)	Not Detected #			Not Detected #		Not Detected #
Loss on ignition	<0.7 %	TM018		25.1				
Mineral oil >C10-C40	<1 mg/kg	TM061		552				
Mineral Oil Surrogate % recovery**	%	TM061		79.2				
Organic Carbon, Total	<0.2 %	TM132		0.319				
pH	1 pH Units	TM133	8.6 M	12.8	12.8	11.1	11.4	8.38 M
PCB congener 28	<3 µg/kg	TM168		<3				
PCB congener 52	<3 µg/kg	TM168		<3				
PCB congener 101	<3 µg/kg	TM168		<3				
PCB congener 118	<3 µg/kg	TM168	<3 M	<3				
PCB congener 138	<3 µg/kg	TM168		<3				
PCB congener 153	<3 µg/kg	TM168		<3				
PCB congener 180	<3 µg/kg	TM168		<3				
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21				
PCB congener 81	<3 µg/kg	TM168	<3 M					
PCB congener 77	<3 µg/kg	TM168	<3 M					
PCB congener 123	<3 µg/kg	TM168	<3 M					
PCB congener 114	<3 µg/kg	TM168	<3 M					
PCB congener 105	<3 µg/kg	TM168	<3 M					
PCB congener 126	<3 µg/kg	TM168	<3 M					
PCB congener 167	<3 µg/kg	TM168	<3 M					
PCB congener 156	<3 µg/kg	TM168	<3 M					
PCB congener 157	<3 µg/kg	TM168	<3 M					
PCB congener 169	<3 µg/kg	TM168	<3 M					
PCB congener 189	<3 µg/kg	TM168	<3 M					

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-37	TP-RPS-37	TP-RPS-37	TP-RPS-38	TP-RPS-38	TP-RPS-40
Depth (m)			0.20	1.70	3.60	0.80	1.00	0.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	14/02/2018	14/02/2018	13/02/2018	13/02/2018	14/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080555	17080572	17080578	17080510	17080728	17080586
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168	<36					
Antimony	<0.6 mg/kg	TM181	11.2 #			0.989		<0.6 #
Arsenic	<0.6 mg/kg	TM181	158 M			12.9		13.9 M
Cadmium	<0.02 mg/kg	TM181	1.96 M			1.16		0.278 M
Chromium	<0.9 mg/kg	TM181	<9 M			14.5		11.9 M
Cobalt	<0.1 mg/kg	TM181	64.2 M			10.6		40 M
Copper	<1.4 mg/kg	TM181	176 M			31.1		60.3 M
Lead	<0.7 mg/kg	TM181	113 M			12.4		52.4 M
Manganese	<0.13 mg/kg	TM181	1610 M			675		961 M
Mercury	<0.14 mg/kg	TM181	289 M			<0.14		<0.14 M
Molybdenum	<0.1 mg/kg	TM181	8.68 #			3.71		5.57 #
Nickel	<0.2 mg/kg	TM181	162 M			24.2		72.4 M
Selenium	<1 mg/kg	TM181	<10 #			<1		<1 #
Tin	<0.24 mg/kg	TM181	41.4 #			1.28		2.66 #
Thallium	<0.7 mg/kg	TM181	<7 #			<0.7		1.16 #
Vanadium	<0.2 mg/kg	TM181	120 #			39.6		93.1 #
Zinc	<1.9 mg/kg	TM181	148 M			68.7		46.8 M
ANC @ pH 4	<0.03 mol/kg	TM182		9.17				
ANC @ pH 6	<0.03 mol/kg	TM182		6.72				

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-40	TP-RPS-51	WS-RPS-27			
Depth (m)			0.80	0.40	0.40 - 0.85			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			14/02/2018	14/02/2018	14/02/2018			
Sampled Time			.	.	.			
Date Received			20/02/2018	20/02/2018	20/02/2018			
SDG Ref			180220-56	180220-56	180220-56			
Lab Sample No.(s)			17080607	17080651	17080626			
AGS Reference			ES1	ES1	ES1			
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	60	21	15			
Actinolite*		SUB (ASB)		Not Detected #	Not Detected #			
Amosite*		SUB (ASB)		Not Detected #	Not Detected #			
Anthophyllite*		SUB (ASB)		Not Detected #	Not Detected #			
Chrysotile*		SUB (ASB)		Not Detected #	Not Detected #			
Crocidolite*		SUB (ASB)		Not Detected #	Not Detected #			
Tremolite*		SUB (ASB)		Not Detected #	Not Detected #			
Non-Asbestos Fibres Detected		SUB (ASB)		Not Detected #	Not Detected #			
Loss on ignition	<0.7 %	TM018			5.06 M			
Mineral oil >C10-C40	<1 mg/kg	TM061			15.8			
Mineral Oil Surrogate % recovery**	%	TM061			83.5			
Phenol	<0.01 mg/kg	TM062 (S)			<0.01 M			
Cresols	<0.01 mg/kg	TM062 (S)			<0.01 M			
Xylenols	<0.015 mg/kg	TM062 (S)			<0.015 M			
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)			<0.01 M			
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)			<0.015 M			
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)			<0.06 M			
Organic Carbon, Total	<0.2 %	TM132			0.423 M			
Sulphur, Total	<0.02 %	TM132			0.0836			
pH	1 pH Units	TM133	12.8	8.25 M	8.99 M			
PCB congener 28	<3 µg/kg	TM168			<3 M			
PCB congener 52	<3 µg/kg	TM168			<3 M			
PCB congener 101	<3 µg/kg	TM168			<3 M			
PCB congener 118	<3 µg/kg	TM168			<3 M			
PCB congener 138	<3 µg/kg	TM168			<3 M			
PCB congener 153	<3 µg/kg	TM168			<3 M			
PCB congener 180	<3 µg/kg	TM168			<3 M			
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168			<21			
PCB congener 81	<3 µg/kg	TM168			<3 M			
PCB congener 77	<3 µg/kg	TM168			<3 M			
PCB congener 123	<3 µg/kg	TM168			<3 M			
PCB congener 114	<3 µg/kg	TM168			<3 M			

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-40	TP-RPS-51	WS-RPS-27			
Depth (m)			0.80	0.40	0.40 - 0.85			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			14/02/2018	14/02/2018	14/02/2018			
Sampled Time			-	-	-			
Date Received			20/02/2018	20/02/2018	20/02/2018			
SDG Ref			180220-56	180220-56	180220-56			
Lab Sample No.(s)			17080607	17080651	17080626			
AGS Reference			ES1	ES1	ES1			
Component	**LOD/Units**	**Method**						
PCB congener 105	<3 µg/kg	TM168			<3 M			
PCB congener 126	<3 µg/kg	TM168			<3 M			
PCB congener 167	<3 µg/kg	TM168			<3 M			
PCB congener 156	<3 µg/kg	TM168			<3 M			
PCB congener 157	<3 µg/kg	TM168			<3 M			
PCB congener 169	<3 µg/kg	TM168			<3 M			
PCB congener 189	<3 µg/kg	TM168			<3 M			
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168			<36			
Antimony	<0.6 mg/kg	TM181		1.89 #	0.629 #			
Arsenic	<0.6 mg/kg	TM181		42.6 M	7.03 M			
Cadmium	<0.02 mg/kg	TM181		0.305 M	0.208 M			
Chromium	<0.9 mg/kg	TM181		14.2 M	14.5 M			
Cobalt	<0.1 mg/kg	TM181		28.2 M	7.19 M			
Copper	<1.4 mg/kg	TM181		78.4 M	12.7 M			
Lead	<0.7 mg/kg	TM181		34.5 M	9.33 M			
Manganese	<0.13 mg/kg	TM181		1520 M	560 M			
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M			
Molybdenum	<0.1 mg/kg	TM181		8.61 #	0.493 #			
Nickel	<0.2 mg/kg	TM181		61.1 M	21.4 M			
Selenium	<1 mg/kg	TM181		<1 #	<1 #			
Tin	<0.24 mg/kg	TM181		1.31 #	0.73 #			
Thallium	<0.7 mg/kg	TM181		3.28 #	0.731 #			
Vanadium	<0.2 mg/kg	TM181		98.9 #	22.3 #			
Zinc	<1.9 mg/kg	TM181		59.8 M	50.6 M			
ANC @ pH 4	<0.03 mol/kg	TM182			0.156			
ANC @ pH 6	<0.03 mol/kg	TM182			0.0454			
Sulphate, acid soluble (total)	<0.02 %	TM221			0.156			
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243			0.0085 M			
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243			0.0182 M			
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243			0.00276			
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248			0.00325			
Magnesium (BRE)	<0.008 g/l	TM282			<0.008			

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

GRO by GC-FID (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	TP-RPS-37
Depth (m)	1.70
Sample Type	Soil/Solid (S)
Date Sampled	14/02/2018
Sampled Time	.
Date Received	20/02/2018
SDG Ref	180220-56
Lab Sample No.(s)	17080572
AGS Reference	ES1

Component	LOD/Units	Method	
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5
Benzene	<10 µg/kg	TM089	<10
Toluene	<2 µg/kg	TM089	<2
Ethylbenzene	<3 µg/kg	TM089	<3
m,p-Xylene	<6 µg/kg	TM089	<6
o-Xylene	<3 µg/kg	TM089	<3
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-16	CP-RPS-01	TP-RPS-30	TP-RPS-35	TP-RPS-35	TP-RPS-35
Depth (m)			7.00 - 7.50	0.30 - 0.55	0.20	0.20	1.60	2.40
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080644	17080712	17080547	17080501	17080675	17080694
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	102	90.7	112	121	117	103
Acenaphthene-d10 % recovery**	%	TM218	104	93	114	126	122	107
Phenanthrene-d10 % recovery**	%	TM218	99.1	89.7	108	116	116	106
Chrysene-d12 % recovery**	%	TM218	89.5	81	97	95.1	106	103
Perylene-d12 % recovery**	%	TM218	104	90.7	99.3	103	118	106
Naphthalene	<9 µg/kg	TM218	<9 M	61.4 M	61 M	1470 M	87.2	<9 M
Acenaphthylene	<12 µg/kg	TM218	<12 M	<12 M	<12 M	85.7 M	44.2	<12 M
Acenaphthene	<8 µg/kg	TM218	<8 M	<8 M	9.97 M	<40 M	<8	<8 M
Fluorene	<10 µg/kg	TM218	<10 M	<10 M	12.8 M	<50 M	<10	<10 M
Phenanthrene	<15 µg/kg	TM218	<15 M	123 M	195 M	998 M	876	<15 M
Anthracene	<16 µg/kg	TM218	<16 M	21.9 M	30 M	144 M	218	<16 M
Fluoranthene	<17 µg/kg	TM218	<17 M	127 M	264 M	379 M	819	<17 M
Pyrene	<15 µg/kg	TM218	<15 M	116 M	204 M	412 M	665	<15 M
Benz(a)anthracene	<14 µg/kg	TM218	<14 M	88.7 M	164 M	229 M	530	<14 M
Chrysene	<10 µg/kg	TM218	<10 M	75.1 M	126 M	219 M	441	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 M	135 M	241 M	476 M	760	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M	51.6 M	89.1 M	137 M	348	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 M	91.1 M	149 M	275 M	712	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M	64.8 M	90.1 M	215 M	397	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M	<23 M	30.1 M	<115 M	117	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 M	106 M	125 M	438 M	527	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	1060	1790	5480	6540	<118
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218	<10	<10				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-37	TP-RPS-37	TP-RPS-38	TP-RPS-40	TP-RPS-51	WS-RPS-27
Depth (m)			0.20	1.70	0.80	0.20	0.40	0.40 - 0.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	14/02/2018	13/02/2018	14/02/2018	14/02/2018	14/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080555	17080572	17080510	17080586	17080651	17080626
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	97.7		107	96.4	113	102
Acenaphthene-d10 % recovery**	%	TM218	102		109	94.4	118	105
Phenanthrene-d10 % recovery**	%	TM218	97		103	86.9	112	100
Chrysene-d12 % recovery**	%	TM218	88.8		94	85.1	102	91.7
Perylene-d12 % recovery**	%	TM218	93.9		95.5	79	112	103
Naphthalene	<9 µg/kg	TM218	1620 M		2010 #	340 M	1480 M	59.7 M
Acenaphthylene	<12 µg/kg	TM218	62.3 M		26.8	16.6 M	20 M	22.7 M
Acenaphthene	<8 µg/kg	TM218	25.1 M		19.5	17.5 M	14.5 M	42.9 M
Fluorene	<10 µg/kg	TM218	38.9 M		29 #	13.4 M	14.7 M	15.2 M
Phenanthrene	<15 µg/kg	TM218	1270 M		776 #	713 M	703 M	126 M
Anthracene	<16 µg/kg	TM218	166 M		107	116 M	79.6 M	33.2 M
Fluoranthene	<17 µg/kg	TM218	1500 M		571 #	463 M	293 M	348 M
Pyrene	<15 µg/kg	TM218	1550 M		529 #	568 M	295 M	341 M
Benz(a)anthracene	<14 µg/kg	TM218	1040 M		419	352 M	208 M	199 M
Chrysene	<10 µg/kg	TM218	953 M		301 #	249 M	173 M	165 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	1480 M		398	561 M	263 M	340 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	445 M		150	141 M	92.7 M	129 M
Benzo(a)pyrene	<15 µg/kg	TM218	949 M		336	318 M	173 M	290 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	508 M		156 #	157 M	104 M	188 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	182 M		50.7 #	55.6 M	39.6 M	46 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	815 M		286	462 M	228 M	301 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	12600		6160	4540	4180	2650
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218		66.1				<10

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-16	CP-RPS-01	TP-RPS-35	TP-RPS-37	TP-RPS-38	WS-RPS-27
Depth (m)			7.00 - 7.50	0.30 - 0.55	0.20	0.20	0.80	0.40 - 0.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	13/02/2018	14/02/2018	13/02/2018	14/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080644	17080712	17080501	17080555	17080510	17080626
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Phenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157	<100	<100	257	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157	<100	<100	<100	193	<100	<100
Carbazole	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157	365	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-16	CP-RPS-01	TP-RPS-35	TP-RPS-37	TP-RPS-38	WS-RPS-27
Depth (m)			7.00 - 7.50	0.30 - 0.55	0.20	0.20	0.80	0.40 - 0.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	13/02/2018	14/02/2018	13/02/2018	14/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080644	17080712	17080501	17080555	17080510	17080626
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157	<100	<100	306	712	<100	<100
Acenaphthylene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157	<100	<100	<100	151	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157	<100	<100	<100	834	<100	382
Benzo(b)fluoranthene	<100 µg/kg	TM157	<100	<100	<100	733	<100	423
Benzo(k)fluoranthene	<100 µg/kg	TM157	<100	<100	<100	777	<100	465
Benzo(a)pyrene	<100 µg/kg	TM157	<100	<100	<100	790	<100	540
Benzo(g,h,i)perylene	<100 µg/kg	TM157	<100	<100	<100	568	<100	484
Chrysene	<100 µg/kg	TM157	<100	<100	<100	980	<100	432
Fluoranthene	<100 µg/kg	TM157	<100	<100	<100	1590	<100	755
Fluorene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	<100	<100	<100	600	<100	430
Phenanthrene	<100 µg/kg	TM157	<100	<100	147	942	<100	172
Pyrene	<100 µg/kg	TM157	<100	<100	<100	1590	<100	826
Naphthalene	<100 µg/kg	TM157	<100	<100	277	591	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-16	CP-RPS-01	TP-RPS-30	TP-RPS-35	TP-RPS-35	TP-RPS-35
Depth (m)			7.00 - 7.50	0.30 - 0.55	0.20	0.20	1.60	2.40
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080644	17080712	17080547	17080501	17080675	17080694
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	74	77	83	29	98	129
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	103 M	<44 M	111 M	<44 M	165	<44 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5 #	<5 #	<5 #	<5	<5 #
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M	<10	<10 M
Toluene	<2 µg/kg	TM089	5.9 M	2.11 M	<2 M	4.76 M	<2	<2 M
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	17.2 M	<6 M	<6	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	4.92 M	<3 M	<3	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	22.1	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	11.8	<10	12.3	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	13	<10	33.2	<10	19.4	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	28.3	<10	19.7	<10	17.5	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	13	<10	<10	<10	64	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	938	938	5640	27300	<100
Aliphatics >C16-C21	<100 µg/kg	TM173	<100	1790	1290	11900	29000	<100
Aliphatics >C21-C35	<100 µg/kg	TM173	5910	14400	17400	41700	9740	<100
Aliphatics >C35-C44	<100 µg/kg	TM173	<100	6090	1350	19500	<100	<100
Total Aliphatics >C12-C44	<100 µg/kg	TM173	5910	23200	20900	78700	66000	<100
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	21.2	<10	38.1	<10	13.6	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10	<10	42.7	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	1150	1620	8100	5420	<100
Aromatics >EC16-EC21	<100 µg/kg	TM173	<100	2550	2320	13000	11500	<100
Aromatics >EC21-EC35	<100 µg/kg	TM173	10700	13100	14900	50600	23100	1420
Aromatics >EC35-EC44	<100 µg/kg	TM173	1160	7910	17400	24400	3780	513
Aromatics >EC40-EC44	<100 µg/kg	TM173	<100	3320	6030	9180	681	<100
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	11800	24700	36300	96100	43900	1940
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	17800	47900	57300	175000	110000	1940

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-37	TP-RPS-38	TP-RPS-40	TP-RPS-51	WS-RPS-27
Depth (m)			0.20	0.80	0.20	0.40	0.40 - 0.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	14/02/2018	14/02/2018	14/02/2018
Sampled Time			.	.	.	.	.
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080555	17080510	17080586	17080651	17080626
AGS Reference			ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**					
GRO Surrogate % recovery**	%	TM089	20	39	23	35	104
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	695 #	1290 M	123 M	<44 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5 #	<5 #	<5 #	<5 #
Benzene	<10 µg/kg	TM089	<10 M	25.5 #	<10 M	<10 M	<10 M
Toluene	<2 µg/kg	TM089	4.6 M	74.8 #	<2 M	8.82 M	<2 M
Ethylbenzene	<3 µg/kg	TM089	<3 M	8.5 #	<3 M	<3 M	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M	34 #	<6 M	<6 M	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M	20.4 #	<3 M	<3 M	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	54.4	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	163	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	79.9	14.6	11.3	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	214	1250	35.3	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	79.9	<10	22.7	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	62.9	<10	13.9	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	7600	2410	12800	2430	<100
Aliphatics >C16-C21	<100 µg/kg	TM173	4410	5810	24500	2070	<100
Aliphatics >C21-C35	<100 µg/kg	TM173	37800	66400	54900	3950	17600
Aliphatics >C35-C44	<100 µg/kg	TM173	920	27200	25300	<100	8710
Total Aliphatics >C12-C44	<100 µg/kg	TM173	50700	102000	117000	8460	26300
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	25.5	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	74.8	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	116	<10	22.7	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	42.5	<10	<10	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	10700	6220	16700	6290	622
Aromatics >EC16-EC21	<100 µg/kg	TM173	19300	10400	41800	6860	4550
Aromatics >EC21-EC35	<100 µg/kg	TM173	59300	100000	105000	13900	31400
Aromatics >EC35-EC44	<100 µg/kg	TM173	13200	61700	23200	<100	15300
Aromatics >EC40-EC44	<100 µg/kg	TM173	4010	25100	7910	<100	5650
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	103000	178000	187000	27100	51800
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	153000	281000	306000	35700	78100

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-16	CP-RPS-01	TP-RPS-35	TP-RPS-37	TP-RPS-38	WS-RPS-27
Depth (m)			7.00 - 7.50	0.30 - 0.55	0.20	0.20	0.80	0.40 - 0.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	13/02/2018	14/02/2018	13/02/2018	14/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080644	17080712	17080501	17080555	17080510	17080626
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	101	114	113	105	112	113
Toluene-d8**	%	TM116	95.4	95.6	93.9	89.7	96.8	100
4-Bromofluorobenzene**	%	TM116	72.2	72.3	77.4	85.3	82.2	83.8
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 M	<6 M	<120 M	<120 M	<120 #	<6 M
Chloromethane	<7 µg/kg	TM116	<7 #	<7 #	<140 #	<140 #	<140 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116	<6 M	<6 M	<120 M	<120 M	<120 #	<6 M
Bromomethane	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Chloroethane	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116	<6 M	<6 M	<120 M	<120 M	<120 #	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<10 #	<200 #	<200 #	<200 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116	35.8 M	<7 M	<140 M	<140 M	<140 #	<7 M
Dichloromethane	<10 µg/kg	TM116	<10 #	<10 #	<200 #	<200 #	<200 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116	<8 M	<8 M	<160 M	<160 M	<160 #	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 M	<6 M	<120 M	<120 M	<120 #	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116	<10	<10	<200	<200	<200	<10
Bromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Chloroform	<8 µg/kg	TM116	<8 M	<8 M	<160 M	<160 M	<160 #	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 M	<7 M	<140 M	<140 M	<140 #	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Carbontetrachloride	<10 µg/kg	TM116	<10 M	32 M	<200 M	<200 M	<200 #	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116	<5 M	<5 M	<100 M	<100 M	<100 #	<5 M
Benzene	<9 µg/kg	TM116	<9 M	<9 M	<180 M	<180 M	<180 #	<9 M
Trichloroethene	<9 µg/kg	TM116	<9 #	<9 #	<180 #	<180 #	<180 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Dibromomethane	<9 µg/kg	TM116	<9 M	<9 M	<180 M	<180 M	<180 #	<9 M
Bromodichloromethane	<7 µg/kg	TM116	<7 M	<7 M	<140 M	<140 M	<140 #	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Toluene	<7 µg/kg	TM116	<7 M	<7 M	<140 M	<140 M	<140 #	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<10	<200	<200	<200	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-16	CP-RPS-01	TP-RPS-35	TP-RPS-37	TP-RPS-38	WS-RPS-27
Depth (m)			7.00 - 7.50	0.30 - 0.55	0.20	0.20	0.80	0.40 - 0.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	13/02/2018	14/02/2018	13/02/2018	14/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080644	17080712	17080501	17080555	17080510	17080626
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<7 M	<7 M	<140 M	<140 M	<140 #	<7 M
Tetrachloroethene	<5 µg/kg	TM116	<5 M	<5 M	<100 M	<100 M	<100 #	<5 M
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Chlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<100 M	<100 M	<100 #	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Ethylbenzene	<4 µg/kg	TM116	<4 M	<4 M	<80 M	<80 M	<80 #	<4 M
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #	<200 #	<200 #	<200 #	<10 #
o-Xylene	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Styrene	<10 µg/kg	TM116	<10 #	<10 #	<200 #	<200 #	<200 #	<10 #
Bromoform	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Isopropylbenzene	<5 µg/kg	TM116	<5 #	<5 #	<100 #	<100 #	<100 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 #	<10 #	<200 #	<200 #	<200 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 M	<16 M	<320 M	<320 M	<320 #	<16 M
Bromobenzene	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
Propylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
2-Chlorotoluene	<9 µg/kg	TM116	<9 M	<9 M	<180 M	<180 M	<180 #	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 M	<8 M	<160 M	<160 M	<160 #	<8 M
4-Chlorotoluene	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
tert-Butylbenzene	<14 µg/kg	TM116	<14 M	<14 M	<280 M	<280 M	<280 #	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #	<9 #	<180 #	<180 #	<180 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116	<10	<10	<200	<200	<200	<10
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 M	<8 M	<160 M	<160 M	<160 #	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<100 M	<100 M	<100 #	<5 M
n-Butylbenzene	<11 µg/kg	TM116	<11	<11	<220	<220	<220	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 M	<10 M	<200 M	<200 M	<200 #	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 M	<14 M	<280 M	<280 M	<280 #	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<10 #	<200 #	<200 #	<200 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<20	<400	<400	<400	<20
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<20	<400	<400	<400	<20
Naphthalene	<13 µg/kg	TM116	<13 M	<13 M	<260 M	<260 M	<260 #	<13 M

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-16	CP-RPS-01	TP-RPS-35	TP-RPS-37	TP-RPS-38	WS-RPS-27
Depth (m)			7.00 - 7.50	0.30 - 0.55	0.20	0.20	0.80	0.40 - 0.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			14/02/2018	13/02/2018	13/02/2018	14/02/2018	13/02/2018	14/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
SDG Ref			180220-56	180220-56	180220-56	180220-56	180220-56	180220-56
Lab Sample No.(s)			17080644	17080712	17080501	17080555	17080510	17080626
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #	<20 #	<400 #	<400 #	<400 #	<20 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.180	**Natural Moisture Content (%)**	100
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	50
Particle Size <4mm	>95%		

Case	
SDG	180220-56
Lab Sample Number(s)	17080572
Sampled Date	14-Feb-2018
Customer Sample Ref.	TP-RPS-37 ES1
Depth (m)	1.70

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.319	3	5	6
Loss on Ignition (%)	25.1	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	552	500	-	-
PAH Sum of 17 (mg/kg)	66.1	100	-	-
pH (pH Units)	12.8	-	>6	-
ANC to pH 6 (mol/kg)	6.72	-	-	-
ANC to pH 4 (mol/kg)	9.17	-	-	-

Eluate Analysis	**C2** Concⁿ in 10:1 eluate (mg/l)		**A2** 10:1 concⁿ leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.209	<0.0002	2.09	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00107	<0.0003	0.0107	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00756	<0.0005	0.0756	<0.005	0.5	10	30
Nickel	0.000505	<0.0004	0.00505	<0.004	0.4	10	40
Lead	0.0119	<0.0002	0.119	<0.002	0.5	10	50
Antimony	<0.0001	<0.0001	<0.001	<0.001	0.06	0.7	5
Selenium	0.000622	<0.0005	0.00622	<0.005	0.1	0.5	7
Zinc	0.00277	<0.001	0.0277	<0.01	4	50	200
Chloride	9.8	<2	98	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	87	<2	870	<20	1000	20000	50000
Total Dissolved Solids	6400	<20	64000	<200	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	22-Feb-2018
pH (pH Units)	12.38
Conductivity (µS/cm)	7.87
Temperature (ºC)	18.80
Volume Leachant (Litres)	0.810

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

09/03/2018 13:36:58

Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.106	**Natural Moisture Content (%)**	17.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	85
Particle Size <4mm	>95%		

Case	
SDG	180220-56
Lab Sample Number(s)	17080626
Sampled Date	14-Feb-2018
Customer Sample Ref.	WS-RPS-27 ES1
Depth (m)	0.40 - 0.85

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.423	3	5	6
Loss on Ignition (%)	5.06	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	15.8	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.99	-	>6	-
ANC to pH 6 (mol/kg)	0.0454	-	-	-
ANC to pH 4 (mol/kg)	0.156	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0124	<0.0005	0.124	<0.005	0.5	2	25
Barium	0.0171	<0.0002	0.171	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.000699	<0.0003	0.00699	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00161	<0.0005	0.0161	<0.005	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	0.000795	<0.0001	0.00795	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	51.9	<5	519	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	22-Feb-2018
pH (pH Units)	9.33
Conductivity (µS/cm)	66.80
Temperature (ºC)	18.70
Volume Leachant (Litres)	0.884

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

09/03/2018 13:36:58

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CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.106	**Natural Moisture Content (%)**	17.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	85
Particle Size <4mm	>95%		

Case	
SDG	180220-56
Lab Sample Number(s)	17080644
Sampled Date	14-Feb-2018
Customer Sample Ref.	BH-RPS-16 ES1
Depth (m)	7.00 - 7.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	1.1	3	5	6
Loss on Ignition (%)	8.08	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	12.8	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.09	-	>6	-
ANC to pH 6 (mol/kg)	<0.03	-	-	-
ANC to pH 4 (mol/kg)	0.0465	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00205	<0.0005	0.0205	<0.005	0.5	2	25
Barium	0.031	<0.0002	0.31	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	<0.0003	<0.0003	<0.003	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.031	<0.0005	0.31	<0.005	0.5	10	30
Nickel	0.00106	<0.0004	0.0106	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	0.00436	<0.0001	0.0436	<0.001	0.06	0.7	5
Selenium	0.000813	<0.0005	0.00813	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	302	<4	3020	<40	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	781	<5	7810	<50	4000	60000	100000
Total Monohydric Phenols (W)	0.03	<0.016	0.3	<0.16	1	-	-
Dissolved Organic Carbon	10.1	<3	101	<30	500	800	1000

Leach Test Information

Date Prepared	22-Feb-2018
pH (pH Units)	7.14
Conductivity (µS/cm)	979.00
Temperature (ºC)	19.10
Volume Leachant (Litres)	0.884

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
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CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.095	**Natural Moisture Content (%)**	5.49
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.8
Particle Size <4mm	>95%		

Case	
SDG	180220-56
Lab Sample Number(s)	17080712
Sampled Date	13-Feb-2018
Customer Sample Ref.	CP-RPS-01 ES1
Depth (m)	0.30 - 0.55

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	5.28	3	5	6
Loss on Ignition (%)	1.96	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	24.5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	9.93	-	>6	-
ANC to pH 6 (mol/kg)	0.226	-	-	-
ANC to pH 4 (mol/kg)	2.07	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.01	<0.0005	0.1	<0.005	0.5	2	25
Barium	0.0134	<0.0002	0.134	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00267	<0.001	0.0267	<0.01	0.5	10	70
Copper	0.00265	<0.0003	0.0265	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.000061	<0.00001	0.00061	<0.0001	0.01	0.2	2
Molybdenum	0.00272	<0.0005	0.0272	<0.005	0.5	10	30
Nickel	0.000592	<0.0004	0.00592	<0.004	0.4	10	40
Lead	0.0082	<0.0002	0.082	<0.002	0.5	10	50
Antimony	0.000845	<0.0001	0.00845	<0.001	0.06	0.7	5
Selenium	0.00134	<0.0005	0.0134	<0.005	0.1	0.5	7
Zinc	0.00294	<0.001	0.0294	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	5.9	<2	59	<20	1000	20000	50000
Total Dissolved Solids	121	<5	1210	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	22-Feb-2018
pH (pH Units)	9.35
Conductivity (µS/cm)	141.00
Temperature (ºC)	18.90
Volume Leachant (Litres)	0.895

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
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Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
SUB (ASB)		
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM282		Extraction of Magnesium by BRE Method

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

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CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Test Completion Dates

Lab Sample No(s)	17080644	17080712	17080547	17080501	17080675	17080694	17080555	17080572	17080578	17080510
Customer Sample Ref.	BH-RPS-16	CP-RPS-01	TP-RPS-30	TP-RPS-35	TP-RPS-35	TP-RPS-35	TP-RPS-37	TP-RPS-37	TP-RPS-37	TP-RPS-38
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1
Depth	7.00 - 7.50	0.30 - 0.55	0.20	0.20	1.60	2.40	0.20	1.70	3.60	0.80
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	26-Feb-2018				26-Feb-2018	26-Feb-2018				
ANC at pH4 and ANC at pH 6	26-Feb-2018	26-Feb-2018						27-Feb-2018		
Anions by Kone (soil)	27-Feb-2018				27-Feb-2018	27-Feb-2018				
Anions by Kone (w)	27-Feb-2018	27-Feb-2018						27-Feb-2018		
Asbestos fibres in Soil*	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018			06-Mar-2018			08-Mar-2018
CEN 10:1 Leachate (1 Stage)	22-Feb-2018	22-Feb-2018						22-Feb-2018		
CEN Readings	25-Feb-2018	25-Feb-2018						25-Feb-2018		
Dissolved Metals by ICP-MS	26-Feb-2018	27-Feb-2018						27-Feb-2018		
Dissolved Organic/Inorganic Carbon	26-Feb-2018	25-Feb-2018						25-Feb-2018		
EPH CWG (Aliphatic) GC (S)	27-Feb-2018	26-Feb-2018	26-Feb-2018	27-Feb-2018	26-Feb-2018	27-Feb-2018	27-Feb-2018			26-Feb-2018
EPH CWG (Aromatic) GC (S)	27-Feb-2018	27-Feb-2018	26-Feb-2018	27-Feb-2018	26-Feb-2018	27-Feb-2018	27-Feb-2018			26-Feb-2018
Fluoride	26-Feb-2018	26-Feb-2018						26-Feb-2018		
GRO by GC-FID (S)	23-Feb-2018	23-Feb-2018	24-Feb-2018	23-Feb-2018	24-Feb-2018	27-Feb-2018	23-Feb-2018	23-Feb-2018		24-Feb-2018
Loss on Ignition in soils	07-Mar-2018	07-Mar-2018						27-Feb-2018		
Magnesium (BRE)	27-Feb-2018				27-Feb-2018	27-Feb-2018				
Mercury Dissolved	27-Feb-2018	27-Feb-2018						27-Feb-2018		
Metals in solid samples by OES	27-Feb-2018	23-Feb-2018	27-Feb-2018	23-Feb-2018	27-Feb-2018	27-Feb-2018	23-Feb-2018			27-Feb-2018
Mineral Oil	26-Feb-2018	26-Feb-2018						26-Feb-2018		
NO3, NO2 and TON by KONE (s)	27-Feb-2018				27-Feb-2018	27-Feb-2018				
PAH by GCMS	27-Feb-2018	27-Feb-2018	27-Feb-2018	27-Feb-2018	27-Feb-2018	27-Feb-2018	27-Feb-2018	28-Feb-2018		27-Feb-2018
PCBs by GCMS	26-Feb-2018	26-Feb-2018					26-Feb-2018	27-Feb-2018		
pH	24-Feb-2018	24-Feb-2018	24-Feb-2018	24-Feb-2018	26-Feb-2018	26-Feb-2018	24-Feb-2018	23-Feb-2018	23-Feb-2018	24-Feb-2018
Phenols by HPLC (S)	24-Feb-2018									
Phenols by HPLC (W)	25-Feb-2018	25-Feb-2018						25-Feb-2018		
Sample description	21-Feb-2018	21-Feb-2018	22-Feb-2018	21-Feb-2018	22-Feb-2018	22-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	22-Feb-2018
Semi Volatile Organic Compounds	26-Feb-2018	26-Feb-2018		26-Feb-2018			26-Feb-2018			27-Feb-2018
Total Dissolved Solids	26-Feb-2018	26-Feb-2018						26-Feb-2018		
Total Organic Carbon	23-Feb-2018	23-Feb-2018						26-Feb-2018		
Total Sulphate	26-Feb-2018				28-Feb-2018	26-Feb-2018				
Total Sulphur	26-Feb-2018				26-Feb-2018	26-Feb-2018				
TPH CWG GC (S)	27-Feb-2018	27-Feb-2018	26-Feb-2018	27-Feb-2018	26-Feb-2018	27-Feb-2018	27-Feb-2018			26-Feb-2018
VOC MS (S)	22-Feb-2018	22-Feb-2018		23-Feb-2018			23-Feb-2018			24-Feb-2018

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CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Lab Sample No(s)	17080728	17080586	17080607	17080651	17080626
Customer Sample Ref.	TP-RPS-38	TP-RPS-40	TP-RPS-40	TP-RPS-51	WS-RPS-27
AGS Ref.	ES1	ES1	ES1	ES1	ES1
Depth	1.00	0.20	0.80	0.40	0.40 - 0.85
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract					27-Feb-2018
ANC at pH4 and ANC at pH 6					26-Feb-2018
Anions by Kone (soil)					27-Feb-2018
Anions by Kone (w)					27-Feb-2018
Asbestos fibres in Soil*		06-Mar-2018		06-Mar-2018	06-Mar-2018
CEN 10:1 Leachate (1 Stage)					22-Feb-2018
CEN Readings					25-Feb-2018
Dissolved Metals by ICP-MS					27-Feb-2018
Dissolved Organic/Inorganic Carbon					25-Feb-2018
EPH CWG (Aliphatic) GC (S)		26-Feb-2018		27-Feb-2018	26-Feb-2018
EPH CWG (Aromatic) GC (S)		26-Feb-2018		27-Feb-2018	26-Feb-2018
Fluoride					26-Feb-2018
GRO by GC-FID (S)		27-Feb-2018		23-Feb-2018	23-Feb-2018
Loss on Ignition in soils					07-Mar-2018
Magnesium (BRE)					27-Feb-2018
Mercury Dissolved					27-Feb-2018
Metals in solid samples by OES		23-Feb-2018		23-Feb-2018	27-Feb-2018
Mineral Oil					26-Feb-2018
NO3, NO2 and TON by KONE (s)					27-Feb-2018
PAH by GCMS		28-Feb-2018		27-Feb-2018	27-Feb-2018
PCBs by GCMS					26-Feb-2018
pH	23-Feb-2018	24-Feb-2018	23-Feb-2018	24-Feb-2018	24-Feb-2018
Phenols by HPLC (S)					24-Feb-2018
Phenols by HPLC (W)					25-Feb-2018
Sample description	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018
Semi Volatile Organic Compounds					26-Feb-2018
Total Dissolved Solids					26-Feb-2018
Total Organic Carbon					23-Feb-2018
Total Sulphate					26-Feb-2018
Total Sulphur					26-Feb-2018
TPH CWG GC (S)		27-Feb-2018		27-Feb-2018	26-Feb-2018
VOC MS (S)					22-Feb-2018

ASSOCIATED AQC DATA

ANC at pH4 and ANC at pH 6

Component	Method Code	QC 1715	QC 1763
ANC pH_4 dry soil	TM182	**105.76** 86.12 : 113.88	**94.48** 86.12 : 113.88
ANC pH_6 dry soil	TM182	**113.05** 61.00 : 139.00	**110.12** 61.00 : 139.00

Anions by Kone (soil)

Component	Method Code	QC 1788
Chloride (soluble)	TM243	**64.76** 89.30 : 110.70
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**52.63** 88.38 : 118.74

Anions by Kone (w)

Component	Method Code	QC 1760
Chloride	TM184	**101.0** 92.93 : 115.43
Phosphate (Ortho as PO4)	TM184	96.40 : 108.40
Sulphate (soluble)	TM184	**98.8** 90.53 : 113.03
TON as NO3	TM184	96.26 : 111.21

Dissolved Metals by ICP-MS

Component	Method Code	QC 1754	QC 1761
Aluminium	TM152	**101.33** 88.00 : 112.00	**104.0** 88.00 : 112.00
Antimony	TM152	**105.5** 88.00 : 112.00	**104.5** 88.00 : 112.00
Arsenic	TM152	**102.0** 88.00 : 112.00	**103.67** 88.00 : 112.00
Barium	TM152	**102.33** 88.00 : 112.00	**104.67** 88.00 : 112.00
Beryllium	TM152	**99.0** 88.00 : 112.00	**105.67** 88.00 : 112.00
Bismuth	TM152	**98.67** 88.90 : 106.90	**103.67** 88.90 : 106.90
Borate	TM152	**99.38** 88.00 : 112.00	**103.7** 88.00 : 112.00
Boron	TM152	**99.67** 88.00 : 112.00	**104.0** 88.00 : 112.00
Cadmium	TM152	**101.0** 88.00 : 112.00	**103.0** 88.00 : 112.00
Chromium	TM152	**98.0** 88.00 : 112.00	**105.17** 88.00 : 112.00
Cobalt	TM152	**92.0** 88.00 : 112.00	**96.67** 88.00 : 112.00

Dissolved Metals by ICP-MS

		QC 1754	QC 1761
Copper	TM152	**97.83** 85.52 : 115.00	**105.67** 85.52 : 115.00
Lead	TM152	**98.5** 88.00 : 112.00	**102.33** 88.00 : 112.00
Lithium	TM152	**101.67** 88.00 : 112.00	**104.5** 88.00 : 112.00
Manganese	TM152	**99.67** 88.00 : 112.00	**104.17** 88.00 : 112.00
Molybdenum	TM152	**98.83** 88.00 : 112.00	**102.17** 88.00 : 112.00
Nickel	TM152	**97.17** 88.00 : 112.00	**104.17** 88.00 : 112.00
Niobium	TM152	 88.00 : 112.00	 88.00 : 112.00
Phosphorus	TM152	**107.67** 88.00 : 112.00	**106.5** 88.00 : 112.00
Selenium	TM152	**100.5** 88.00 : 112.00	**104.17** 88.00 : 112.00
Silver	TM152	**97.17** 88.00 : 112.00	**100.0** 88.00 : 112.00
Strontium	TM152	**103.0** 88.00 : 112.00	**104.0** 88.00 : 112.00
Tellurium	TM152	**109.83** 88.00 : 112.00	**116.5** 88.00 : 112.00
Thallium	TM152	**89.33** 88.00 : 112.00	**104.0** 88.00 : 112.00
Titanium	TM152	**103.17** 88.00 : 112.00	**103.67** 88.00 : 112.00
Tungsten	TM152	**98.67** 88.00 : 112.00	**102.17** 88.00 : 112.00
Uranium	TM152	**96.17** 88.00 : 112.00	**99.33** 88.00 : 112.00
Vanadium	TM152	**100.0** 88.00 : 112.00	**103.0** 88.00 : 112.00
Zinc	TM152	**100.33** 88.00 : 112.00	**104.33** 88.00 : 112.00
Zirconium	TM152	 88.00 : 112.00	 88.00 : 112.00

Dissolved Organic/Inorganic Carbon

Component	Method Code	QC 1760	QC 1770
Dissolved Inorganic Carbon	TM090	**102.67** 94.43 : 110.53	**101.33** 91.15 : 111.35
Dissolved Organic Carbon	TM090	**104.5** 99.25 : 108.95	**103.67** 94.18 : 111.18

EPH CWG (Aliphatic) GC (S)

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1713	QC 1731	QC 1728	QC 1775	QC 1770
Total Aliphatics >C12-C35	TM173	**89.79** 70.76 : 104.69	**81.04** 70.71 : 106.26	**74.17** 70.71 : 106.26	**84.58** 66.17 : 105.28	**85.42** 70.61 : 106.16

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1713	QC 1731	QC 1728	QC 1775	QC 1770
Total Aromatics >EC12-EC35	TM173	**86.0** 68.16 : 102.29	**78.67** 65.82 : 105.00	**79.33** 65.82 : 105.00	**79.33** 65.78 : 102.90	**83.33** 67.75 : 104.04

Fluoride

Component	Method Code	QC 1763	QC 1780
Fluoride	TM104	**100.67** 92.67 : 104.67	**101.33** 92.67 : 104.67

GRO by GC-FID (S)

Component	Method Code	QC 1775	QC 1721	QC 1758
Benzene by GC (Moisture Corrected)	TM089	**95.0** 80.70 : 121.69	**107.5** 83.15 : 118.53	**95.0** 84.09 : 122.62
Ethylbenzene by GC (Moisture Corrected)	TM089	**94.0** 76.65 : 121.92	**107.5** 81.56 : 117.75	**100.0** 78.42 : 121.07
m & p Xylene by GC (Moisture Corrected)	TM089	**93.5** 76.25 : 122.54	**106.75** 80.40 : 118.80	**99.25** 77.69 : 121.76
MTBE GC-FID (Moisture Corrected)	TM089	**99.5** 77.67 : 125.50	**108.5** 83.25 : 126.67	**94.5** 77.69 : 125.19
o Xylene by GC (Moisture Corrected)	TM089	**93.5** 76.37 : 122.94	**106.5** 80.82 : 119.41	**97.5** 77.88 : 121.47
QC	TM089	**89.92** 68.07 : 103.94	**88.46** 64.83 : 116.17	**101.78** 69.62 : 106.27
Toluene by GC (Moisture Corrected)	TM089	**96.0** 75.95 : 122.88	**109.0** 83.39 : 118.40	**99.5** 78.31 : 121.42

Loss on Ignition in soils

Component	Method Code	QC 1773	QC 1796
Loss on Ignition	TM018	**102.37** 89.27 : 104.90	**100.47** 89.27 : 104.90

Mercury Dissolved

Mercury Dissolved

Component	Method Code	QC 1731
Mercury Dissolved (CVAF)	TM183	**99.3** 73.51 : 120.83

Metals in solid samples by OES

Component	Method Code	QC 1743	QC 1730	QC 1774	QC 1782
Aluminium	TM181	**88.89** 75.13 : 109.48	**88.15** 75.13 : 109.48	**89.63** 75.13 : 109.48	**80.0** 75.13 : 109.48
Antimony	TM181	**98.07** 84.48 : 110.90	**98.07** 84.48 : 110.90	**96.91** 84.48 : 110.90	**93.05** 84.48 : 110.90
Arsenic	TM181	**95.12** 83.14 : 108.73	**93.83** 83.14 : 108.73	**96.66** 83.14 : 108.73	**94.09** 83.14 : 108.73
Barium	TM181	**96.09** 77.47 : 102.53	**92.97** 77.47 : 102.53	**99.22** 77.47 : 102.53	**92.97** 77.47 : 102.53
Beryllium	TM181	**94.18** 84.19 : 106.77	**94.86** 84.19 : 106.77	**95.55** 84.19 : 106.77	**91.78** 84.19 : 106.77
Boron	TM181	**87.29** 76.55 : 106.69	**88.14** 76.55 : 106.69	**89.27** 76.55 : 106.69	**81.64** 76.55 : 106.69
Cadmium	TM181	**93.62** 86.37 : 111.59	**98.4** 86.37 : 111.59	**96.28** 86.37 : 111.59	**92.55** 86.37 : 111.59
Chromium	TM181	**95.78** 81.29 : 118.71	**97.26** 81.29 : 118.71	**96.41** 81.29 : 118.71	**92.62** 81.29 : 118.71
Cobalt	TM181	**99.69** 85.45 : 109.14	**96.55** 85.45 : 109.14	**102.51** 85.45 : 109.14	**100.31** 85.45 : 109.14
Copper	TM181	**90.98** 81.33 : 103.33	**91.27** 81.33 : 103.33	**90.54** 81.33 : 103.33	**88.06** 81.33 : 103.33
Iron	TM181	**97.22** 82.44 : 111.71	**95.83** 82.44 : 111.71	**97.22** 82.44 : 111.71	**90.28** 82.44 : 111.71
Lead	TM181	**93.62** 83.33 : 106.95	**92.34** 83.33 : 106.95	**98.72** 83.33 : 106.95	**95.74** 83.33 : 106.95
Manganese	TM181	**92.12** 80.56 : 102.33	**88.48** 80.56 : 102.33	**93.13** 80.56 : 102.33	**90.71** 80.56 : 102.33
Mercury	TM181	**97.65** 84.13 : 111.85	**95.69** 84.13 : 111.85	**102.35** 84.13 : 111.85	**99.22** 84.13 : 111.85
Molybdenum	TM181	**94.59** 84.19 : 110.39	**96.91** 84.19 : 110.39	**93.05** 84.19 : 110.39	**90.35** 84.19 : 110.39
Nickel	TM181	**92.77** 84.19 : 109.77	**96.27** 84.19 : 109.77	**92.77** 84.19 : 109.77	**88.34** 84.19 : 109.77
Phosphorus	TM181	**97.6** 73.47 : 116.86	**87.57** 73.47 : 116.86	**99.55** 73.47 : 116.86	**98.8** 73.47 : 116.86
Selenium	TM181	**90.21** 81.32 : 108.59	**93.47** 81.32 : 108.59	**89.32** 81.32 : 108.59	**85.46** 81.32 : 108.59
Strontium	TM181	**91.97** 84.70 : 105.87	**91.97** 84.70 : 105.87	**97.89** 84.70 : 105.87	**93.45** 84.70 : 105.87
Thallium	TM181	**95.7** 81.19 : 105.37	**94.92** 81.19 : 105.37	**98.83** 81.19 : 105.37	**94.92** 81.19 : 105.37
Tin	TM181	**92.2** 85.92 : 110.00	**97.52** 85.92 : 110.00	**92.91** 85.92 : 110.00	**89.01** 85.92 : 110.00
Titanium	TM181	**91.54** 73.44 : 113.17	**90.0** 73.44 : 113.17	**94.62** 73.44 : 113.17	**86.92** 73.44 : 113.17

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Metals in solid samples by OES

		QC 1743	QC 1730	QC 1774	QC 1782
Vanadium	TM181	**92.64** 78.62 : 101.47	**90.8** 78.62 : 101.47	**91.72** 78.62 : 101.47	**88.04** 78.62 : 101.47
Zinc	TM181	**93.89** 85.64 : 110.14	**96.51** 85.64 : 110.14	**94.42** 85.64 : 110.14	**89.88** 85.64 : 110.14

Mineral Oil

Component	Method Code	QC 1766
Mineral Oil	TM061	**85.83** 77.93 : 101.39

NO3, NO2 and TON by KONE (s)

Component	Method Code	QC 1788
Nitrate/TON as N QC	TM243	**82.3** 42.63 : 157.37
Nitrite (soluble) as NO2	TM243	**105.26** 92.68 : 121.96

PAH by GCMS

Component	Method Code	QC 1717	QC 1714	QC 1786	QC 1771
Acenaphthene	TM218	**91.0** 82.60 : 105.38	**91.5** 78.95 : 114.22	**101.0** 78.17 : 114.45	**94.0** 78.95 : 114.22
Acenaphthylene	TM218	**85.5** 73.64 : 111.66	**85.0** 72.87 : 102.50	**91.0** 73.70 : 105.55	**84.5** 72.87 : 102.50
Anthracene	TM218	**87.5** 73.49 : 107.13	**90.5** 77.17 : 105.56	**94.0** 50.58 : 133.35	**92.0** 77.17 : 105.56
Benz(a)anthracene	TM218	**99.5** 87.82 : 118.79	**100.5** 80.47 : 122.11	**97.5** 73.03 : 124.35	**94.5** 80.47 : 122.11
Benzo(a)pyrene	TM218	**104.0** 83.39 : 123.49	**107.5** 86.85 : 124.60	**95.5** 76.86 : 123.01	**99.5** 86.85 : 124.60
Benzo(b)fluoranthene	TM218	**99.5** 80.60 : 126.56	**100.5** 81.46 : 113.62	**97.0** 75.92 : 130.86	**96.5** 81.46 : 113.62
Benzo(ghi)perylene	TM218	**99.0** 80.86 : 109.92	**104.5** 79.07 : 113.26	**92.5** 80.30 : 117.80	**99.5** 79.07 : 113.26
Benzo(k)fluoranthene	TM218	**101.0** 87.91 : 119.03	**94.5** 86.00 : 117.59	**93.5** 81.49 : 113.89	**91.0** 86.00 : 117.59
Chrysene	TM218	**97.0** 85.34 : 115.46	**93.5** 88.35 : 118.80	**92.5** 77.31 : 114.50	**89.5** 88.35 : 118.80
Dibenzo(ah)anthracene	TM218	**102.5** 82.98 : 121.47	**103.0** 85.70 : 123.10	**94.0** 77.77 : 118.30	**97.5** 85.70 : 123.10
Fluoranthene	TM218	**92.0** 82.03 : 107.26	**94.0** 80.37 : 111.80	**95.5** 80.77 : 108.59	**95.5** 80.37 : 111.80
Fluorene	TM218	**89.5** 81.48 : 108.26	**91.5** 79.98 : 109.78	**99.0** 79.13 : 110.70	**93.5** 79.98 : 109.78
Indeno(123cd)pyrene	TM218	**100.5** 84.02 : 120.55	**104.0** 85.41 : 122.03	**94.0** 78.65 : 117.12	**99.0** 85.41 : 122.03
Naphthalene	TM218	**91.0** 84.06 : 108.38	**90.0** 82.33 : 112.21	**97.0** 77.09 : 108.37	**93.5** 82.33 : 112.21

PAH by GCMS

		QC 1717	QC 1714	QC 1786	QC 1771
Phenanthrene	TM218	**89.0** 78.68 : 107.87	**91.5** 80.52 : 110.11	**99.5** 76.02 : 112.05	**93.5** 80.52 : 110.11
Pyrene	TM218	**91.5** 81.96 : 108.90	**93.0** 79.57 : 110.12	**93.5** 79.98 : 107.66	**90.0** 79.57 : 110.12

PCBs by GCMS

Component	Method Code	QC 1720	QC 1768
PCB congener 101	TM168	**90.7** 76.50 : 116.94	**88.9** 80.77 : 111.39
PCB congener 105	TM168	**87.1** 75.93 : 120.03	**84.0** 79.28 : 115.39
PCB congener 114	TM168	**88.0** 76.64 : 119.06	**86.0** 81.30 : 114.31
PCB congener 118	TM168	**88.2** 75.18 : 118.08	**84.9** 80.32 : 112.22
PCB congener 123	TM168	**86.8** 75.72 : 117.84	**84.8** 80.25 : 114.57
PCB congener 126	TM168	**88.5** 76.10 : 125.90	**84.9** 75.17 : 124.58
PCB congener 138	TM168	**88.4** 78.04 : 121.72	**88.2** 82.92 : 114.57
PCB congener 153	TM168	**85.1** 77.67 : 119.31	**84.7** 83.90 : 111.70
PCB congener 156	TM168	**87.4** 73.48 : 118.60	**86.0** 75.33 : 115.33
PCB congener 157	TM168	**87.0** 77.47 : 123.91	**84.4** 80.94 : 117.86
PCB congener 167	TM168	**88.1** 75.77 : 121.97	**86.9** 78.02 : 117.22
PCB congener 169	TM168	**91.2** 74.49 : 130.71	**88.8** 73.31 : 125.29
PCB congener 180	TM168	**86.5** 77.34 : 121.26	**86.4** 79.60 : 113.91
PCB congener 189	TM168	**89.7** 75.60 : 127.20	**87.7** 71.41 : 124.18
PCB congener 28	TM168	**92.7** 79.43 : 121.67	**86.3** 83.25 : 112.46
PCB congener 52	TM168	**96.4** 78.72 : 119.28	**90.7** 85.30 : 110.14
PCB congener 77	TM168	**92.8** 74.04 : 120.60	**89.0** 73.92 : 120.16
PCB congener 81	TM168	**91.7** 78.47 : 124.85	**82.7** 81.05 : 122.39

pH

Component	Method Code	QC 1711	QC 1785	QC 1720	QC 1777
pH	TM133	**100.78** 99.63 : 103.42	**100.91** 99.63 : 103.42	**100.52** 99.63 : 103.42	**101.17** 99.63 : 103.42

Phenols by HPLC (S)

Component	Method Code	QC 1742
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**99.35** 70.10 : 89.90
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**95.91** 84.69 : 104.79
Catechol by HPLC (S)	TM062 (S)	**87.62** 24.84 : 108.44
Cresols by HPLC (S)	TM062 (S)	**92.69** 72.20 : 110.60
Napthol by HPLC (S)	TM062 (S)	**108.57** 91.99 : 139.23
Phenol by HPLC (S)	TM062 (S)	**105.3** 82.00 : 107.15
Resorcinol HPLC (S)	TM062 (S)	**122.01** 96.51 : 136.70
Xylenols by HPLC (S)	TM062 (S)	**99.9** 82.47 : 110.25

Phenols by HPLC (W)

Component	Method Code	QC 1758
2.3.5 Trimethyl-Phenol by HPLC (W)	TM259	**95.0** 92.00 : 110.00
2-Isopropyl Phenol by HPLC (W)	TM259	**106.0** 84.00 : 138.00
Cresols by HPLC (W)	TM259	**94.0** 88.33 : 106.33
Napthol by HPLC (W)	TM259	**86.0** 84.00 : 108.00
Phenol by HPLC (W)	TM259	**105.0** 93.00 : 111.00
Xylenols by HPLC (W)	TM259	**104.17** 90.50 : 113.50

Semi Volatile Organic Compounds

Component	Method Code	QC 1787	QC 1772
4-Bromophenylphenylether (Soil)	TM157	**95.0** 65.45 : 121.76	**95.5** 65.45 : 121.76
Benzo(a)anthracene (Soil)	TM157	**100.0** 71.89 : 120.91	**104.0** 71.89 : 120.91
Hexachlorobutadiene (Soil)	TM157	**97.5** 69.80 : 117.77	**102.0** 69.80 : 117.77
Naphthalene (Soil)	TM157	**104.0** 71.89 : 120.16	**100.0** 71.89 : 120.16
Nitrobenzene (Soil)	TM157	**98.0** 70.00 : 118.00	**104.0** 70.00 : 118.00
Phenol (Soil)	TM157	**101.5** 68.54 : 114.86	**103.5** 68.54 : 114.86

Total Dissolved Solids

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Total Dissolved Solids

Component	Method Code	QC 1788
Total Dissolved Solids	TM123	**99.4** 97.30 : 101.58

Total Organic Carbon

Component	Method Code	QC 1787	QC 1788	QC 1767
Total Organic Carbon	TM132	**90.23** 83.00 : 101.77	**91.8** 83.00 : 101.77	**92.97** 83.00 : 101.77

Total Sulphate

Component	Method Code	QC 1761
Total Sulphate	TM221	**92.42** 70.57 : 128.43

Total Sulphur

Component	Method Code	QC 1777
Total Sulphur %	TM132	**100.0** 81.05 : 118.95

VOC MS (S)

Component	Method Code	QC 1756	QC 1704	QC 1747	QC 1740
1,1,1,2-tetrachloroethane	TM116	**96.0** 77.56 : 115.55	**103.0** 77.56 : 115.55	**102.2** 79.10 : 119.66	**96.8** 77.56 : 115.55
1,1,1-Trichloroethane	TM116	**103.2** 74.97 : 113.76	**106.8** 74.97 : 113.76	**93.0** 80.76 : 117.81	**104.4** 73.73 : 118.05
1,1,2-Trichloroethane	TM116	**98.4** 77.12 : 116.04	**101.2** 77.12 : 116.04	**88.0** 75.16 : 112.70	**95.4** 77.12 : 116.04
1,1-Dichloroethane	TM116	**104.2** 74.46 : 129.15	**109.4** 74.46 : 129.15	**87.8** 77.84 : 124.12	**102.4** 74.46 : 129.15
1,2-Dichloroethane	TM116	**118.0** 92.57 : 128.78	**124.4** 92.57 : 128.78	**98.2** 86.58 : 129.62	**116.6** 92.57 : 128.78
1,4-Dichlorobenzene	TM116	**87.0** 72.76 : 126.34	**103.0** 72.76 : 126.34	**101.2** 71.61 : 124.63	**89.6** 72.76 : 126.34
2-Chlorotoluene	TM116	**84.6** 69.73 : 114.13	**98.2** 69.73 : 114.13	**87.6** 66.81 : 118.43	**78.6** 69.73 : 114.13
4-Chlorotoluene	TM116	**81.0** 66.90 : 112.46	**90.4** 66.90 : 112.46	**84.4** 65.88 : 114.76	**76.2** 66.90 : 112.46

VOC MS (S)

		QC 1756	QC 1704	QC 1747	QC 1740
Benzene	TM116	**100.4** 81.05 : 117.28	**105.0** 81.05 : 117.28	**95.4** 84.42 : 119.78	**100.0** 81.05 : 117.28
Carbon Disulphide	TM116	**95.4** 74.91 : 122.14	**91.4** 74.91 : 122.14	**86.2** 75.11 : 124.81	**86.6** 74.91 : 122.14
Carbontetrachloride	TM116	**112.0** 77.80 : 119.23	**111.0** 78.83 : 123.13	**102.4** 82.35 : 126.46	**109.8** 78.83 : 123.13
Chlorobenzene	TM116	**97.2** 75.00 : 115.53	**97.8** 75.00 : 115.53	**102.8** 82.88 : 122.42	**91.8** 75.00 : 115.53
Chloroform	TM116	**104.4** 77.34 : 121.84	**109.2** 77.34 : 121.84	**92.8** 82.52 : 123.25	**106.6** 77.34 : 121.84
Chloromethane	TM116	**114.8** 52.63 : 138.74	**116.6** 52.63 : 138.74	**77.8** 53.10 : 124.60	**107.0** 52.63 : 138.74
Cis-1,2-Dichloroethene	TM116	**102.0** 80.67 : 126.72	**104.2** 80.67 : 126.72	**94.2** 79.48 : 120.80	**102.8** 80.67 : 126.72
Dibromomethane	TM116	**97.0** 67.80 : 121.75	**99.2** 67.80 : 121.75	**92.8** 71.69 : 119.43	**95.4** 67.80 : 121.75
Dichloromethane	TM116	**108.8** 81.11 : 133.25	**112.4** 81.11 : 133.25	**90.6** 81.68 : 125.21	**109.0** 81.11 : 133.25
Ethylbenzene	TM116	**89.8** 72.53 : 109.84	**92.2** 72.53 : 109.84	**99.4** 80.09 : 119.91	**83.8** 72.53 : 109.84
Hexachlorobutadiene	TM116	**45.6** 12.82 : 152.73	**89.4** 12.82 : 152.73	**74.6** 9.27 : 160.19	**67.4** 12.82 : 152.73
Isopropylbenzene	TM116	**72.6** 54.46 : 125.44	**83.2** 54.46 : 125.44	**84.0** 52.15 : 132.52	**67.6** 54.46 : 125.44
Naphthalene	TM116	**97.8** 80.86 : 128.81	**107.2** 80.86 : 128.81	**102.2** 76.79 : 127.18	**103.8** 80.86 : 128.81
o-Xylene	TM116	**77.6** 67.46 : 102.22	**82.6** 67.46 : 102.22	**91.2** 68.16 : 107.61	**75.0** 67.46 : 102.22
p/m-Xylene	TM116	**81.1** 68.32 : 108.91	**84.3** 68.32 : 108.91	**96.4** 77.41 : 112.71	**77.9** 68.32 : 108.91
Sec-Butylbenzene	TM116	**53.0** 46.09 : 121.51	**79.8** 46.09 : 121.51	**72.0** 44.71 : 117.87	**58.4** 46.09 : 121.51
Tetrachloroethene	TM116	**97.2** 76.95 : 121.02	**98.2** 76.95 : 121.02	**110.8** 79.68 : 120.25	**95.6** 76.95 : 121.02
Toluene	TM116	**93.8** 74.24 : 107.42	**93.4** 74.24 : 107.42	**94.6** 82.00 : 116.10	**90.2** 74.24 : 107.42
Trichloroethene	TM116	**98.4** 77.61 : 111.54	**99.2** 77.61 : 111.54	**92.4** 79.80 : 112.33	**96.6** 77.61 : 111.54
Trichlorofluoromethane	TM116	**102.4** 71.31 : 128.41	**106.6** 71.31 : 128.41	**88.0** 72.76 : 118.80	**102.2** 71.31 : 128.41
Vinyl Chloride	TM116	**103.6** 68.26 : 133.45	**108.4** 68.26 : 133.45	**91.0** 64.90 : 133.10	**105.0** 68.26 : 133.45

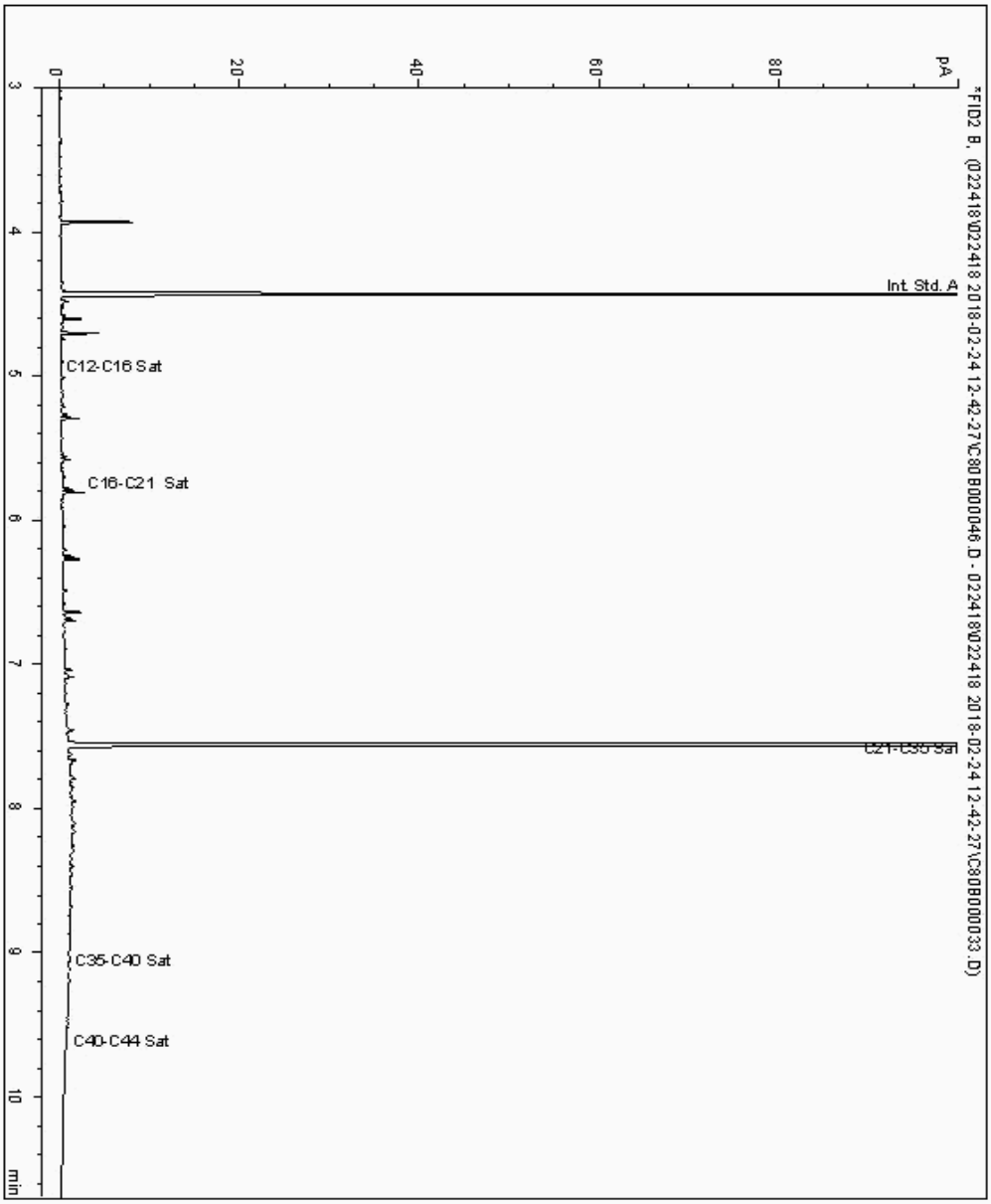
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17093622 **Sample ID :** WS-RPS-27 **Depth :** 0.40 - 0.85

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034182-
Date Acquired : 25/02/18 01:12:45
Units : ppb
Dilution :
CF : 1
Multiplier : 1.010

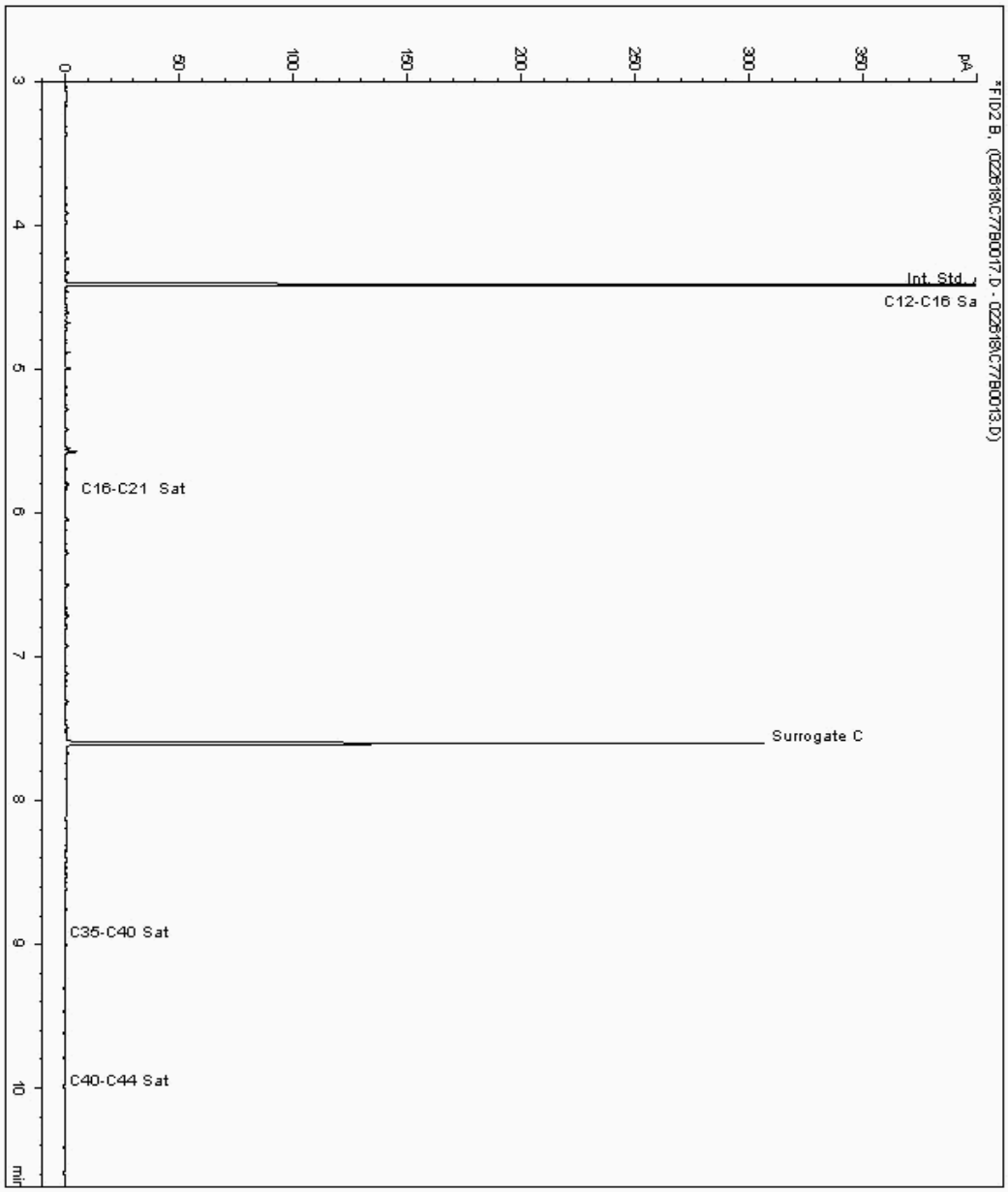


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17093709 **Sample ID :** TP-RPS-51 **Depth :** 0.40

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034386-
Date Acquired : 26/02/2018 11:46:37 PM
Units : ppb
Dilution:

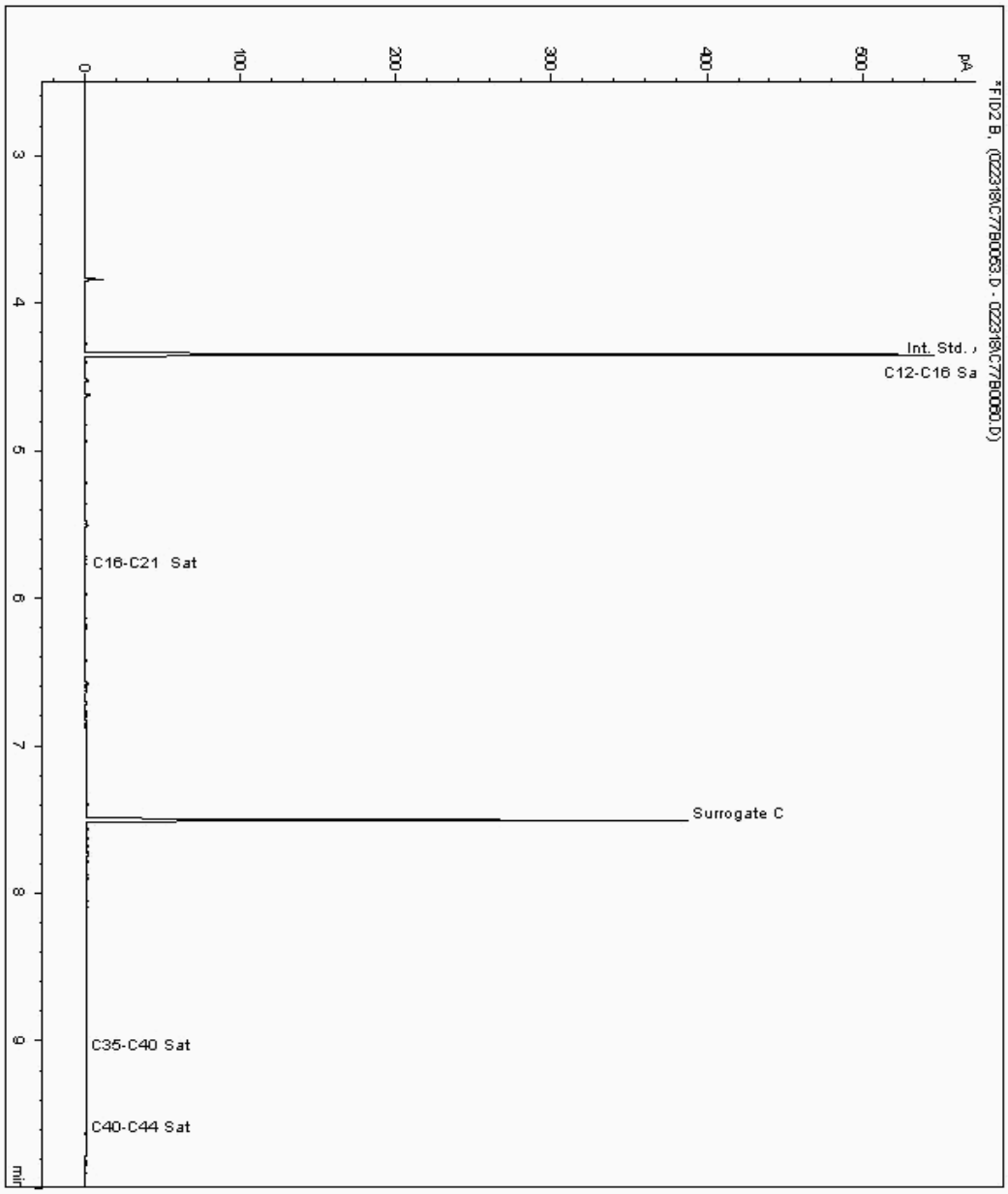


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17093831 **Sample ID :** CP-RPS-01 **Depth :** 0.30 - 0.55

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034550-
Date Acquired : 2/26/2018 6:23:29 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.980

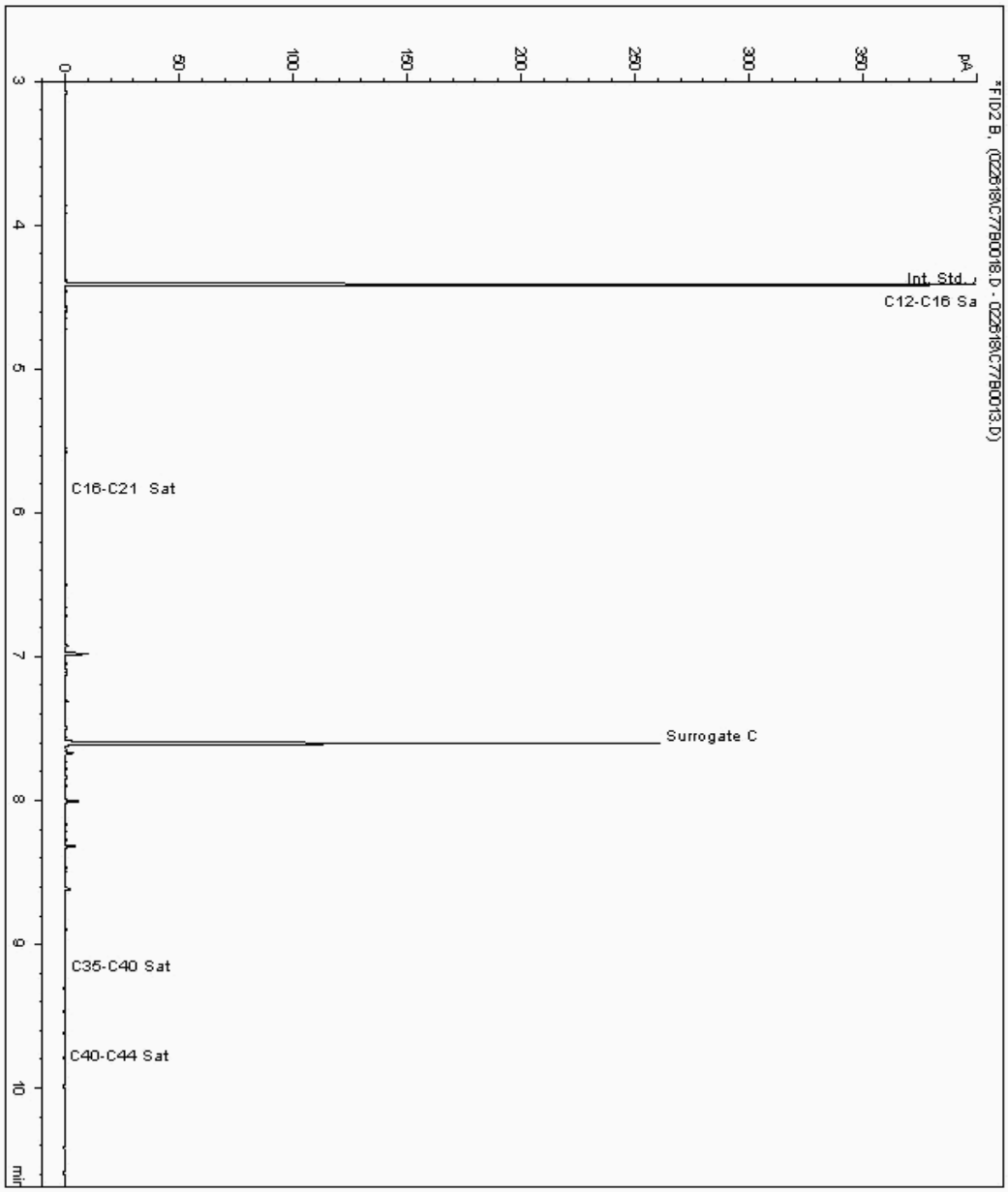


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17093970 **Sample ID :** BH-RPS-16 **Depth :** 7.00 - 7.50

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034281-
Date Acquired : 26/02/2018 12:06:20 PM
Units : ppb
Dilution:

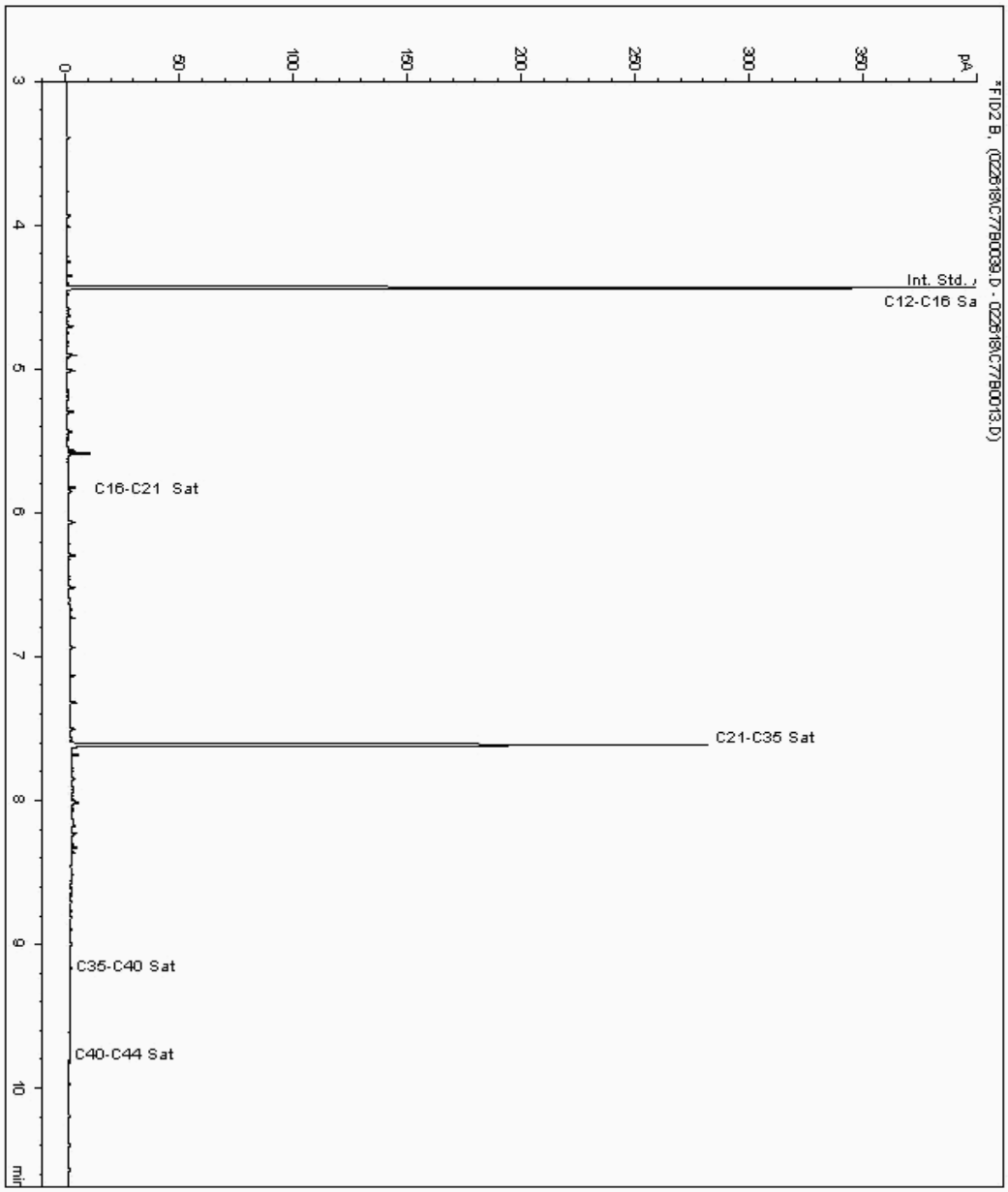


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17094081 **Sample ID :** TP-RPS-35 **Depth :** 0.20

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034013-
Date Acquired : 26/02/2018 17:49:48 PM
Units : ppb
Dilution:

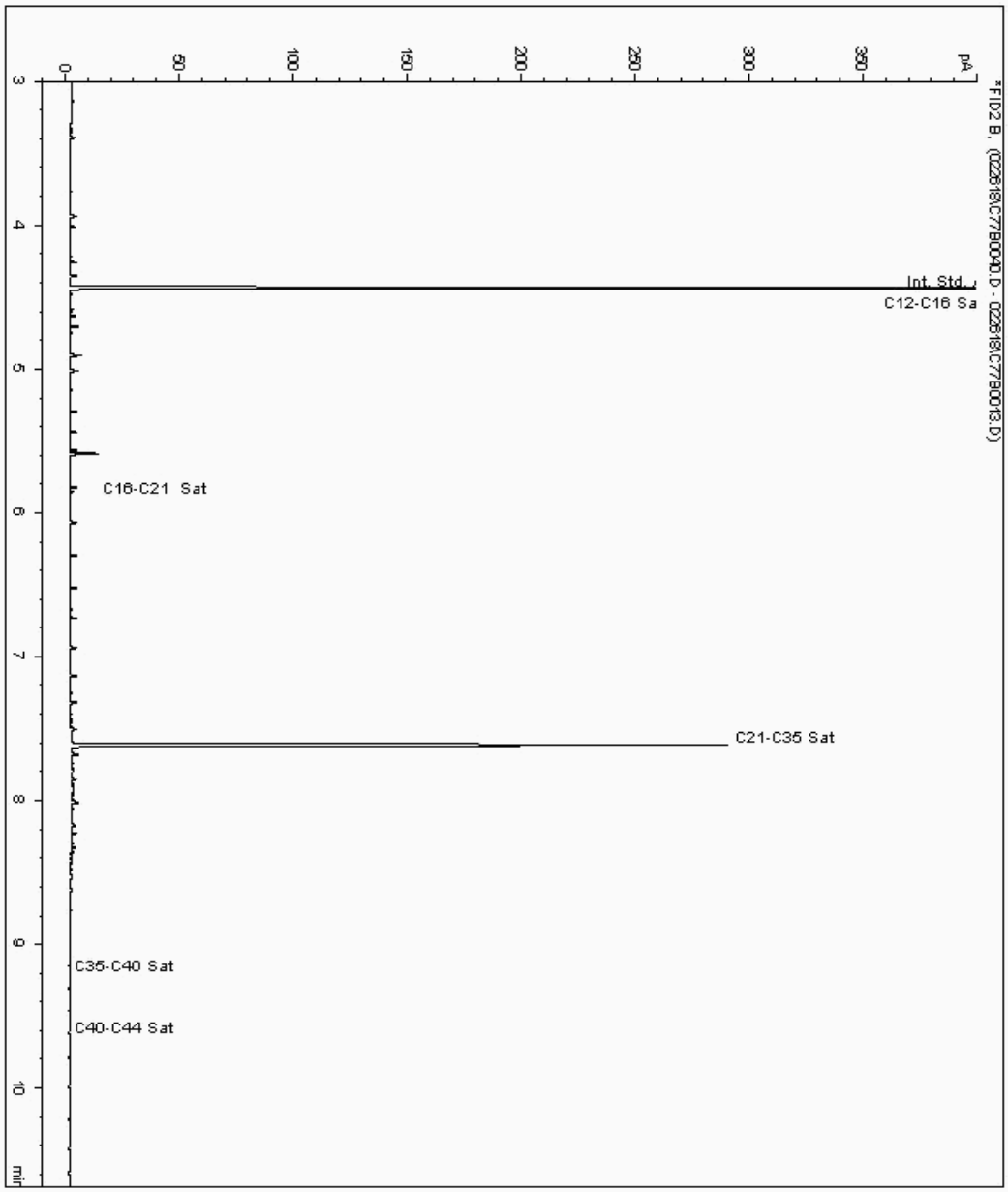


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17094118 **Sample ID :** TP-RPS-37 **Depth :** 0.20

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034091-
Date Acquired : 26/02/2018 18:09:51 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

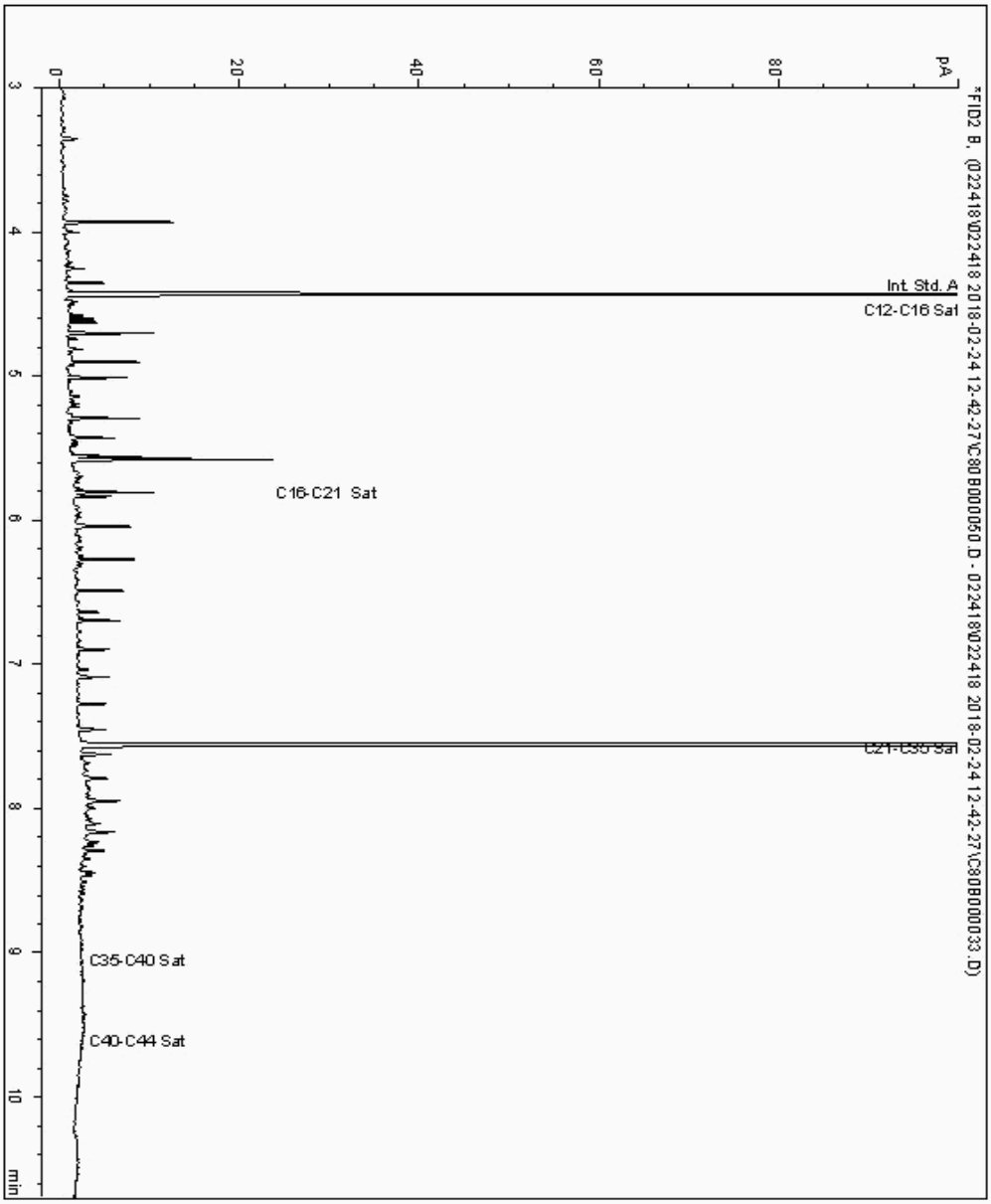
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17094225 **Sample ID :** TP-RPS-40 **Depth :** 0.20

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034131-
Date Acquired : 25/02/18 02:17:15
Units : ppb
Dilution :
CF : 1
Multiplier : 1.050

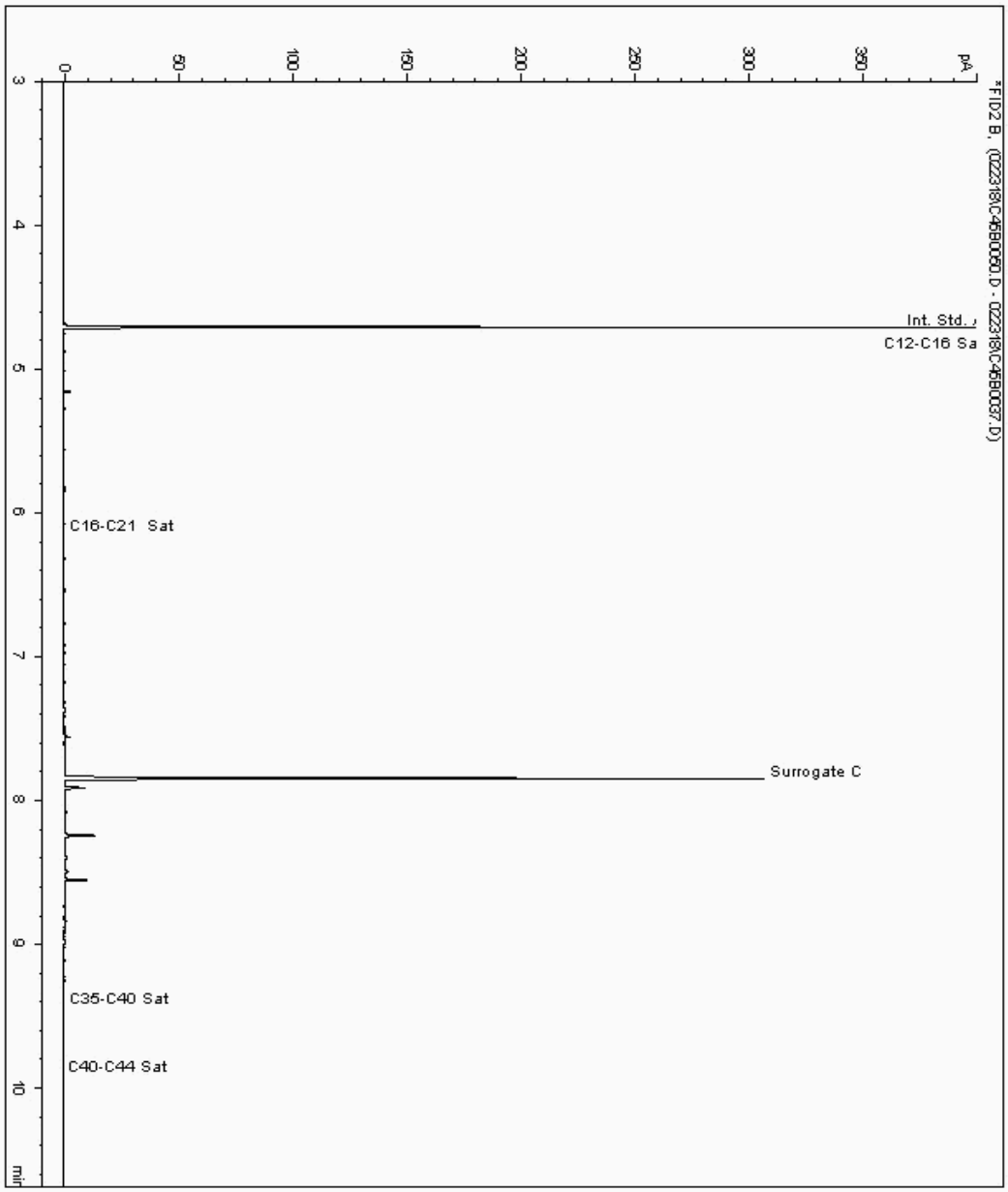


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17102945 **Sample ID :** TP-RPS-30 **Depth :** 0.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16034069-
Date Acquired : 24/02/2018 17:44:17 PM
Units : ppb
Dilution: TP-RPS-30[0.20] ->

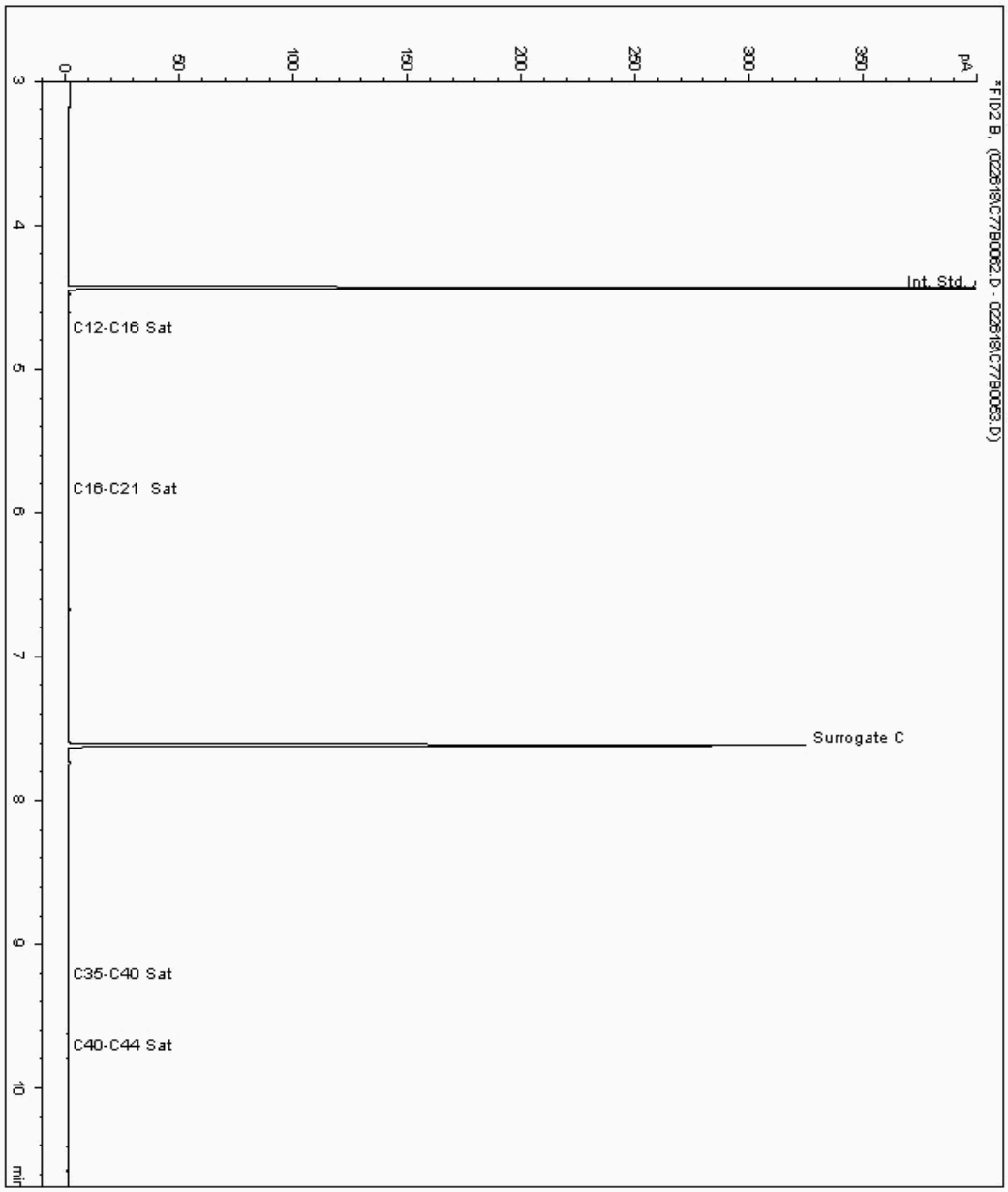


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17102973 **Sample ID :** TP-RPS-35 **Depth :** 2.40

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034487-
Date Acquired : 27/02/2018 00:28:36 PM
Units : ppb
Dilution:

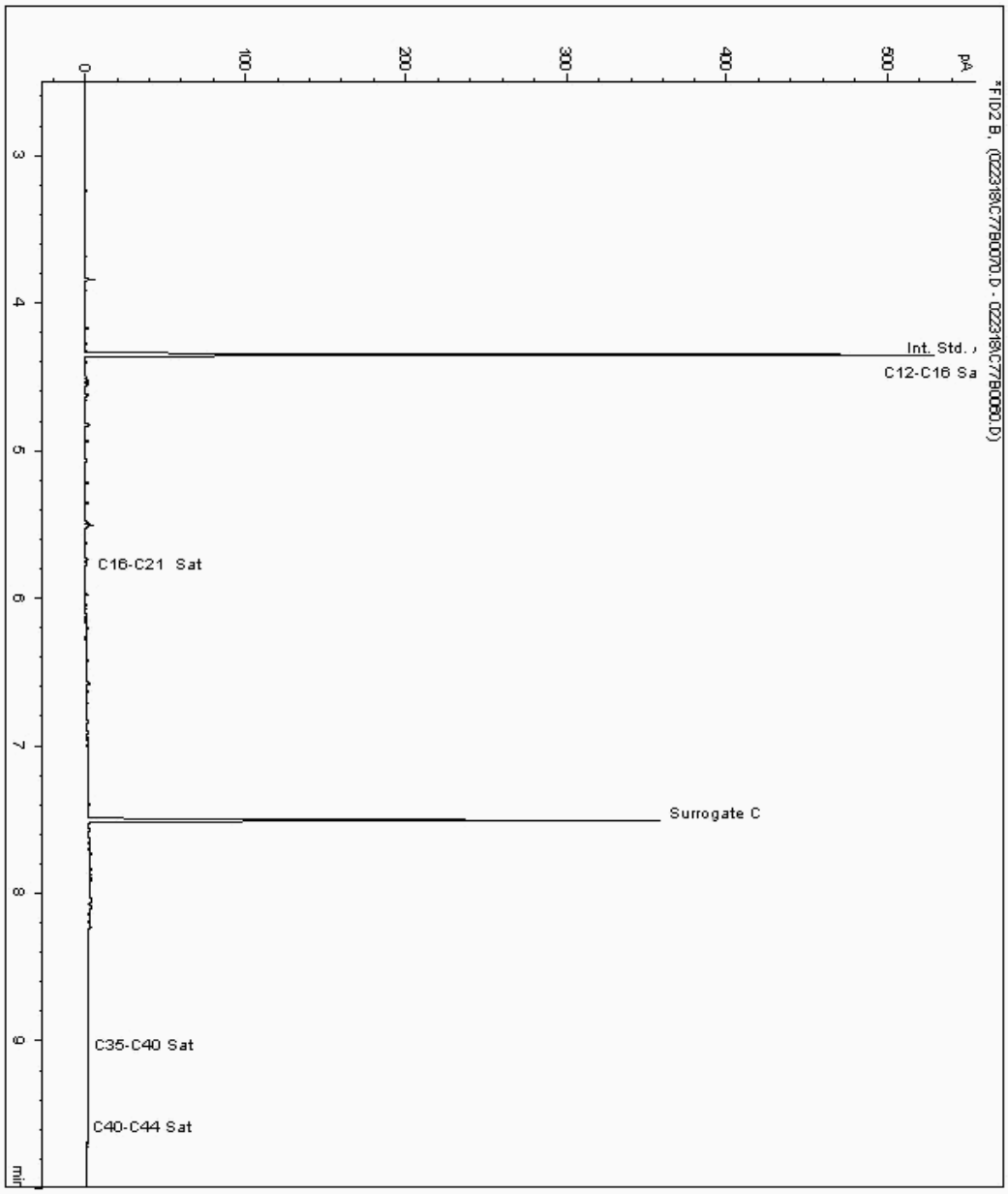


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17103014 **Sample ID :** TP-RPS-38 **Depth :** 0.80

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034040-
Date Acquired : 2/26/2018 11:16:16 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.040

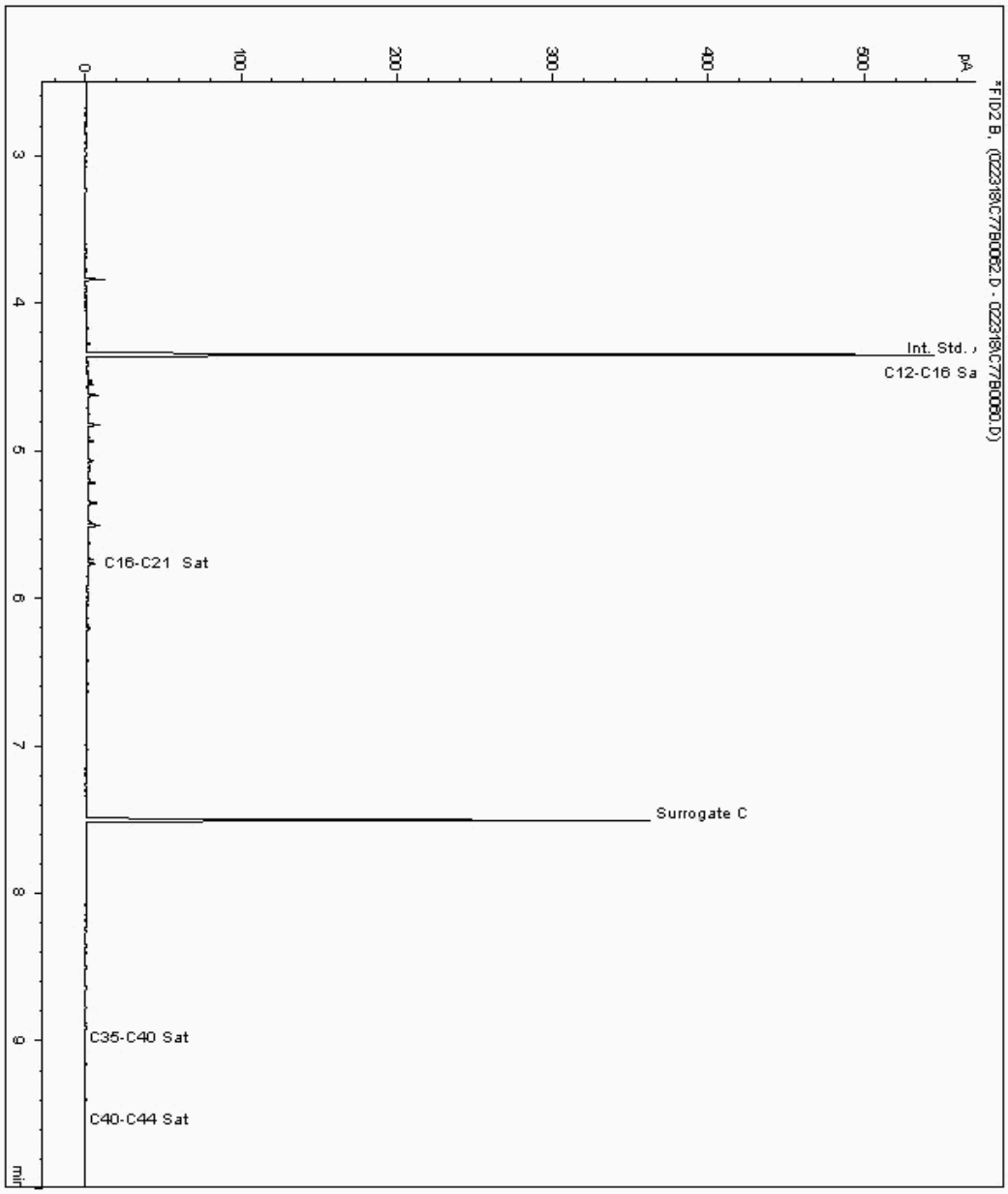


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17103048 **Sample ID :** TP-RPS-35 **Depth :** 1.60

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034434-
Date Acquired : 2/26/2018 8:55:41 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



CERTIFICATE OF ANALYSIS

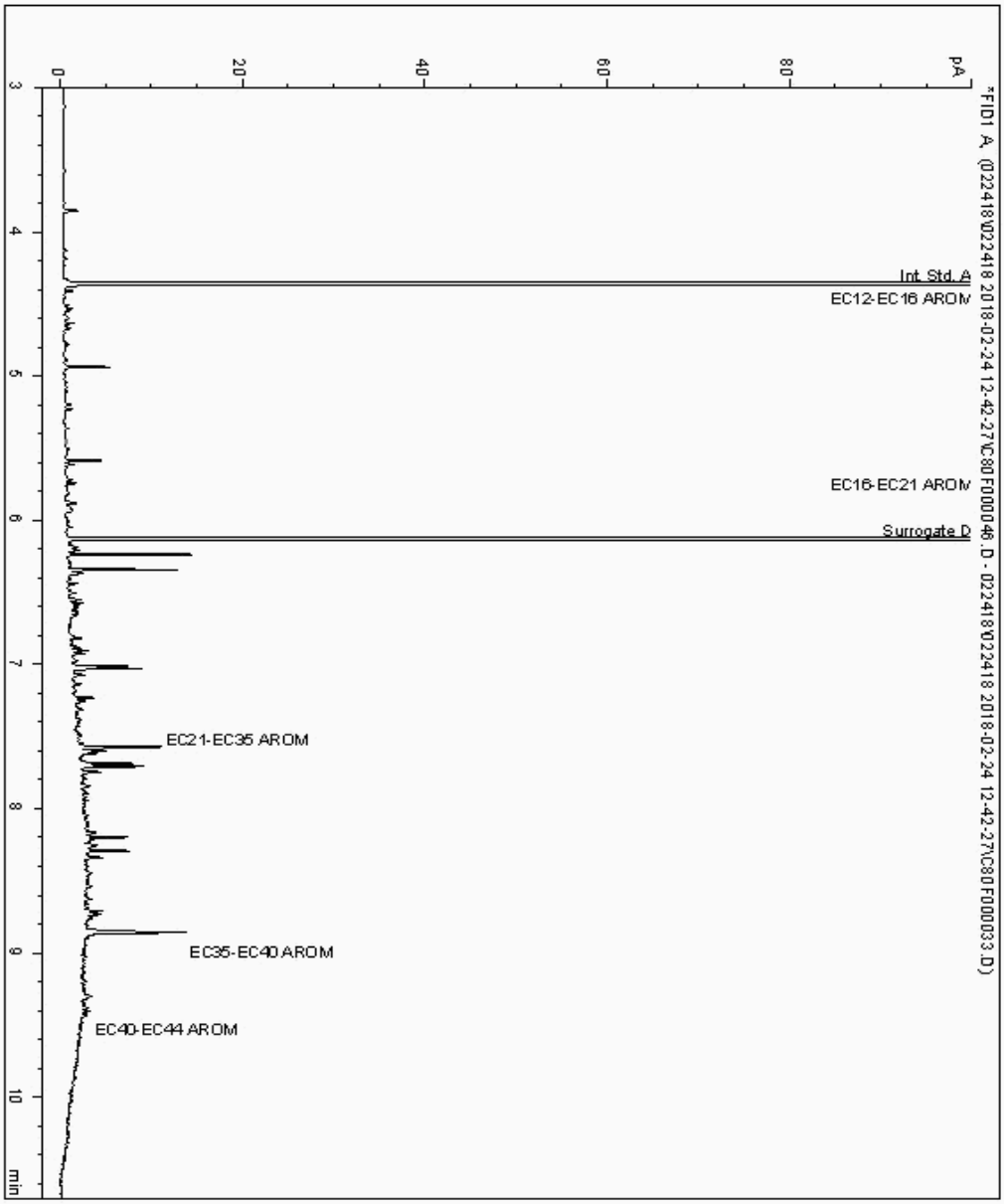
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17093622 **Sample ID :** WS-RPS-27 **Depth :** 0.40 - 0.85

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16034183-
Date Acquired : 25/02/18 01:12:45
Units : ppb
Dilution :
CF : 1
Multiplier : 1.010



Validated

CERTIFICATE OF ANALYSIS

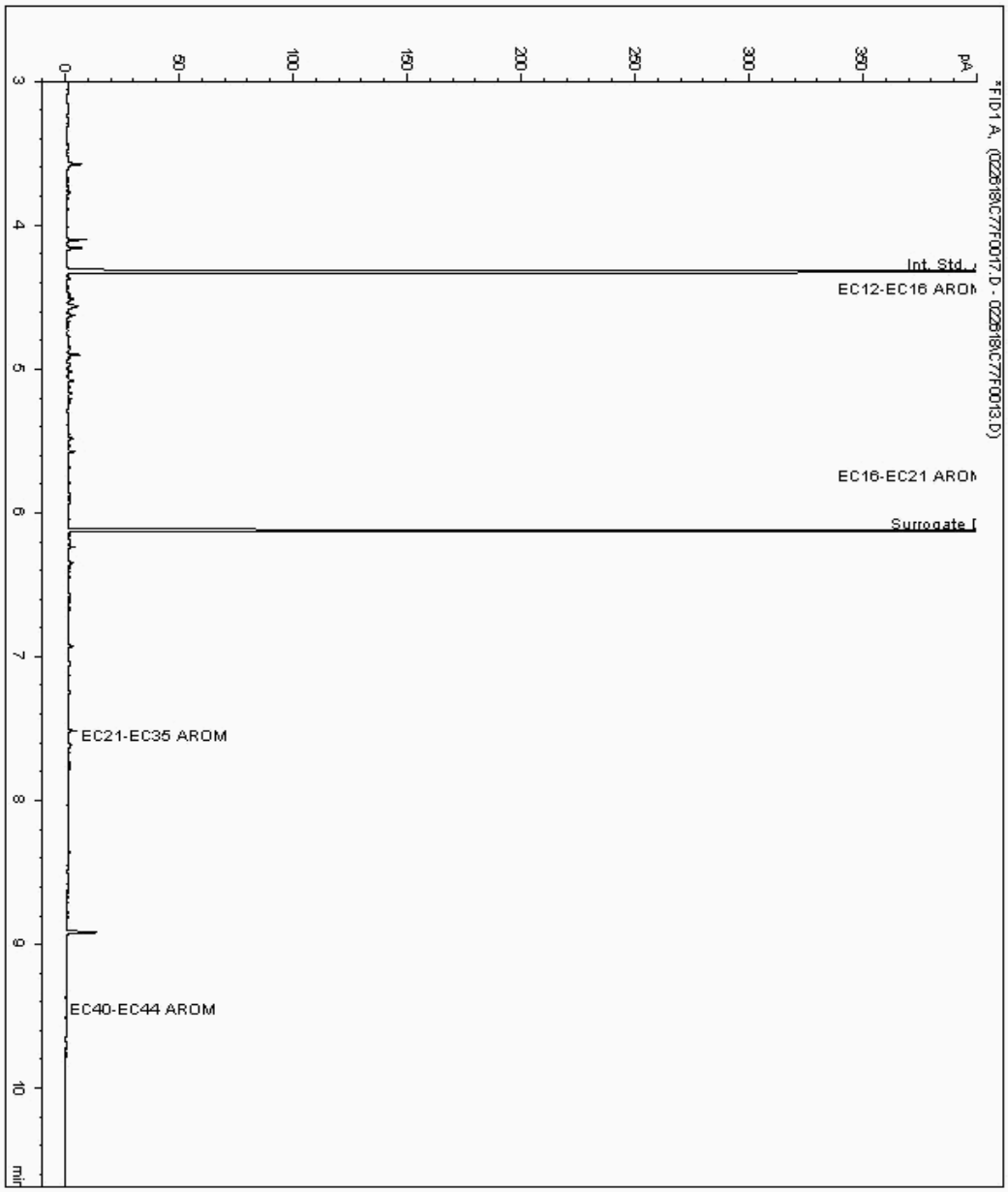
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17093709 **Sample ID :** TP-RPS-51 **Depth :** 0.40

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034387-
Date Acquired : 26/02/2018 11:46:36 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

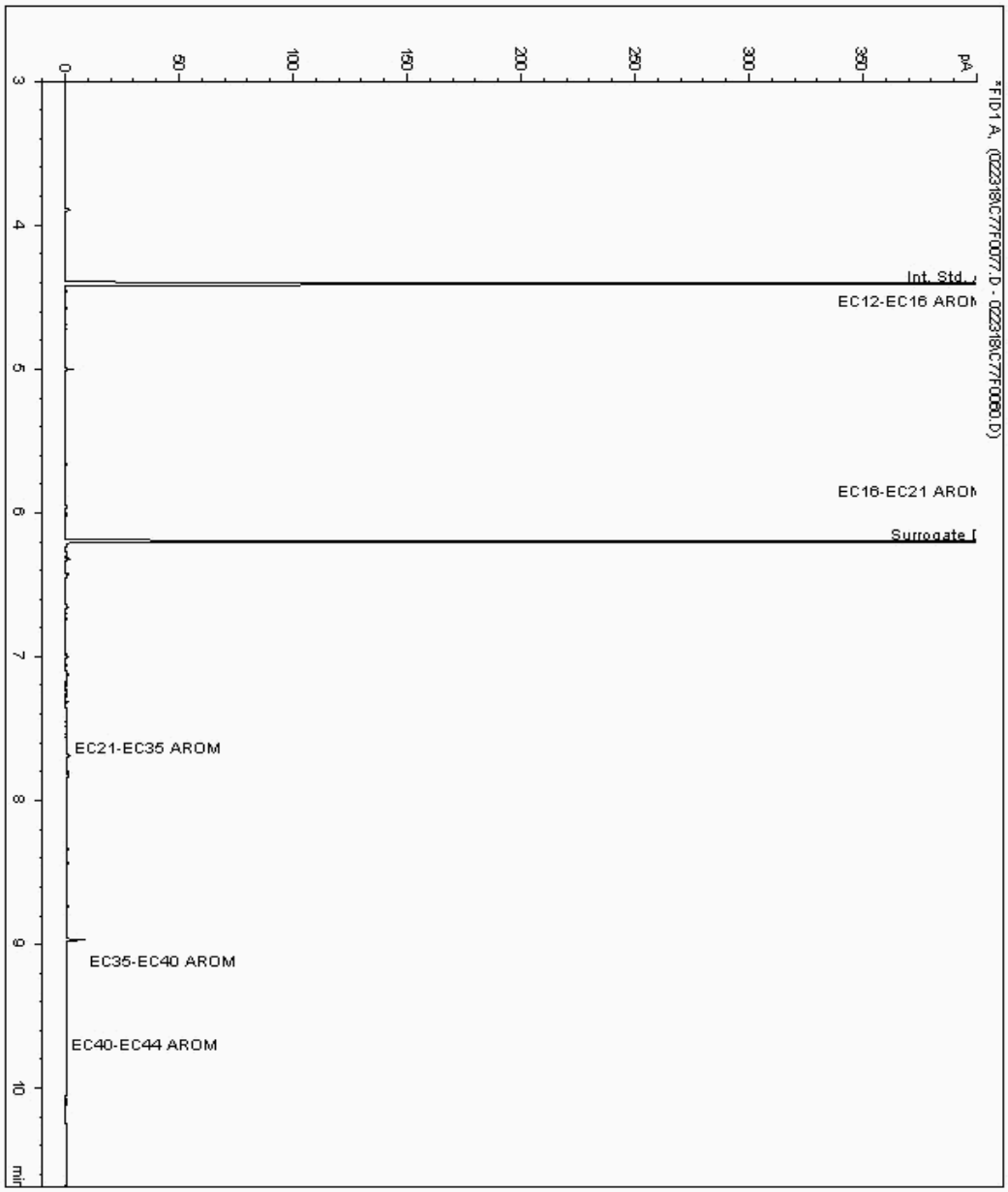
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17093831 **Sample ID :** CP-RPS-01 **Depth :** 0.30 - 0.55

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16034551-
Date Acquired : 2/26/2018 12:48:00 PM
Units : ppb
Dilution:

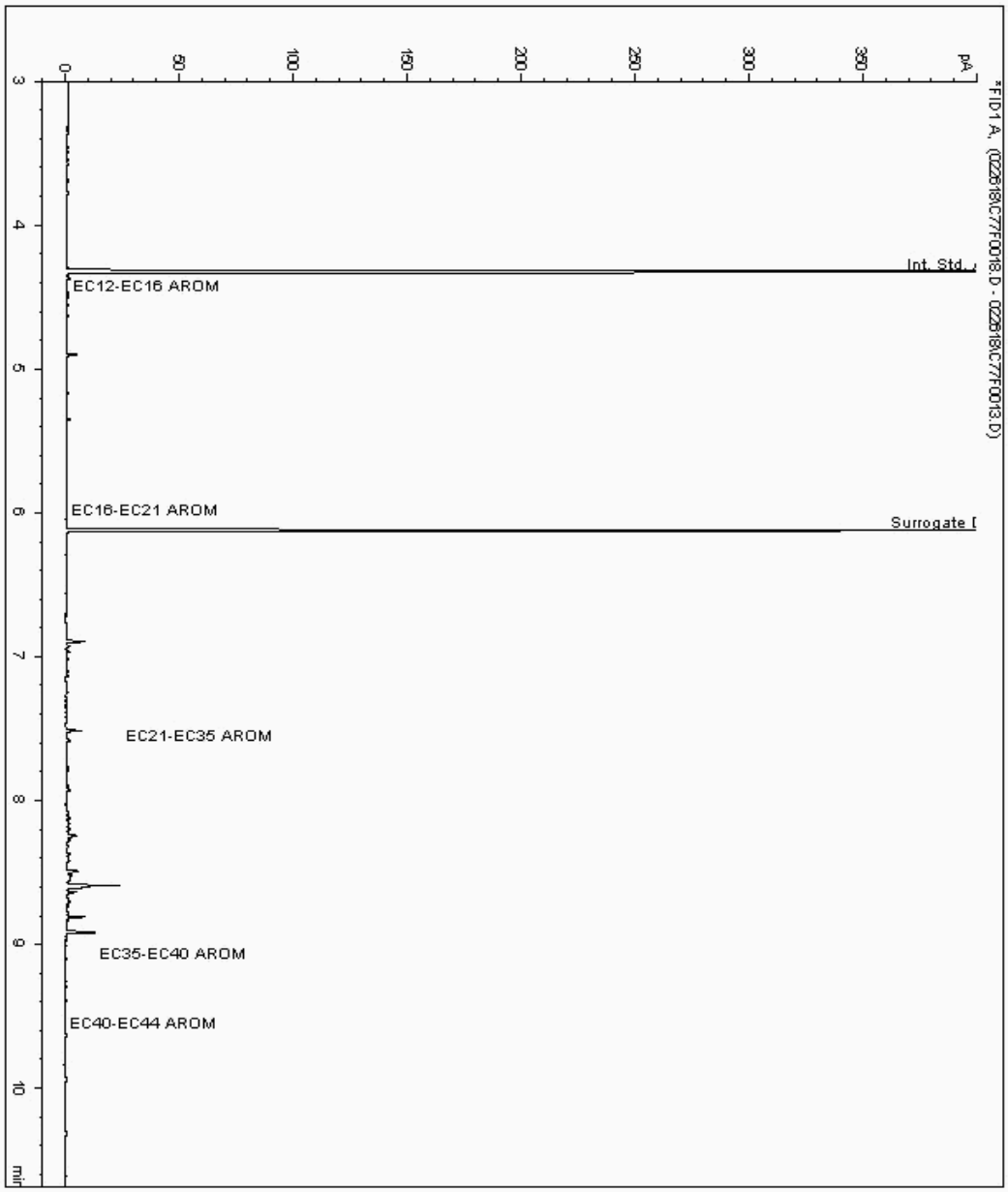


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17093970 **Sample ID :** BH-RPS-16 **Depth :** 7.00 - 7.50

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034282-
Date Acquired : 26/02/2018 12:06:21 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

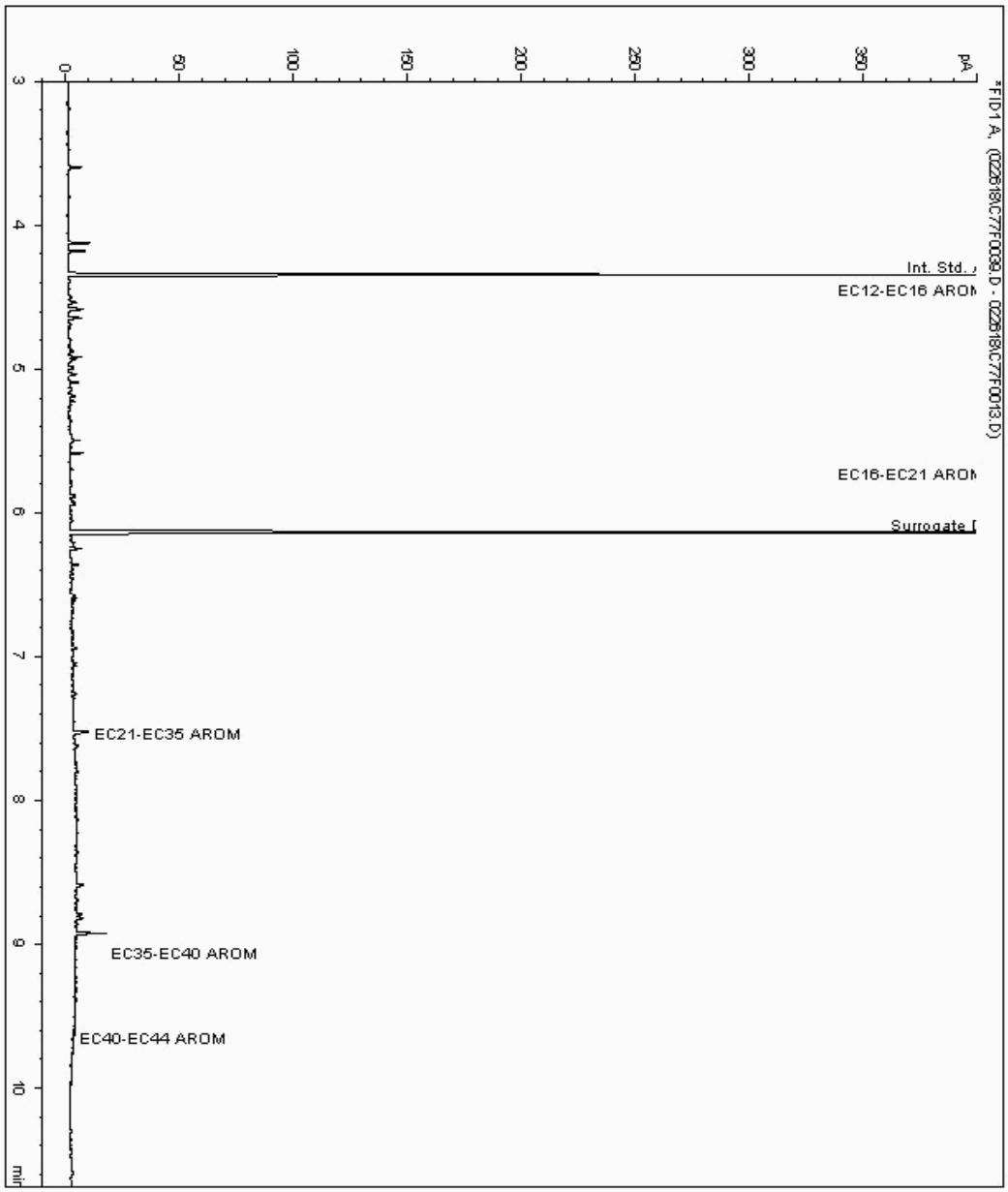
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17094081 **Sample ID :** TP-RPS-35 **Depth :** 0.20

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034014-
Date Acquired : 26/02/2018 17:49:47 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

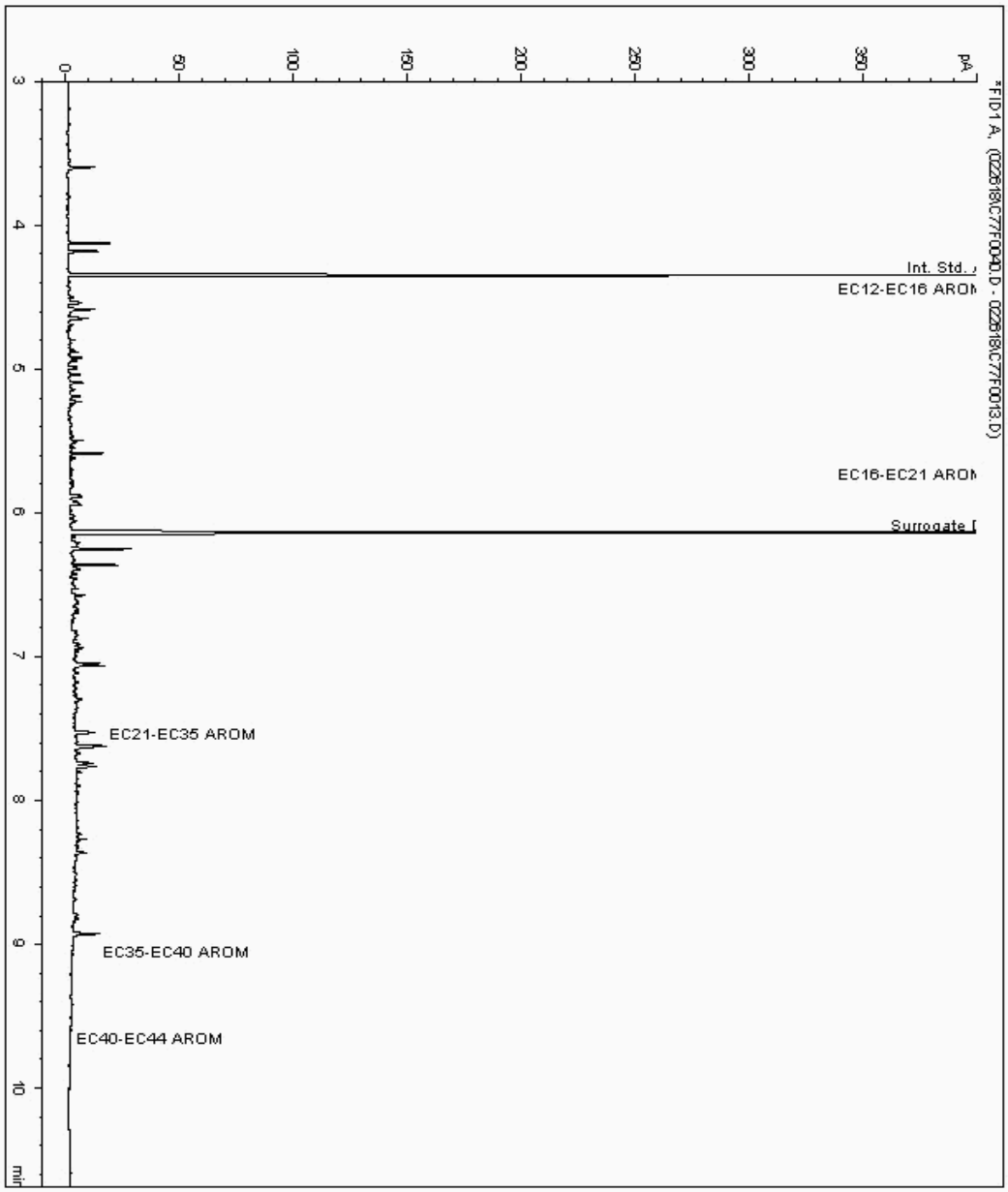
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17094118 **Sample ID :** TP-RPS-37 **Depth :** 0.20

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034092-
Date Acquired : 26/02/2018 18:09:50 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

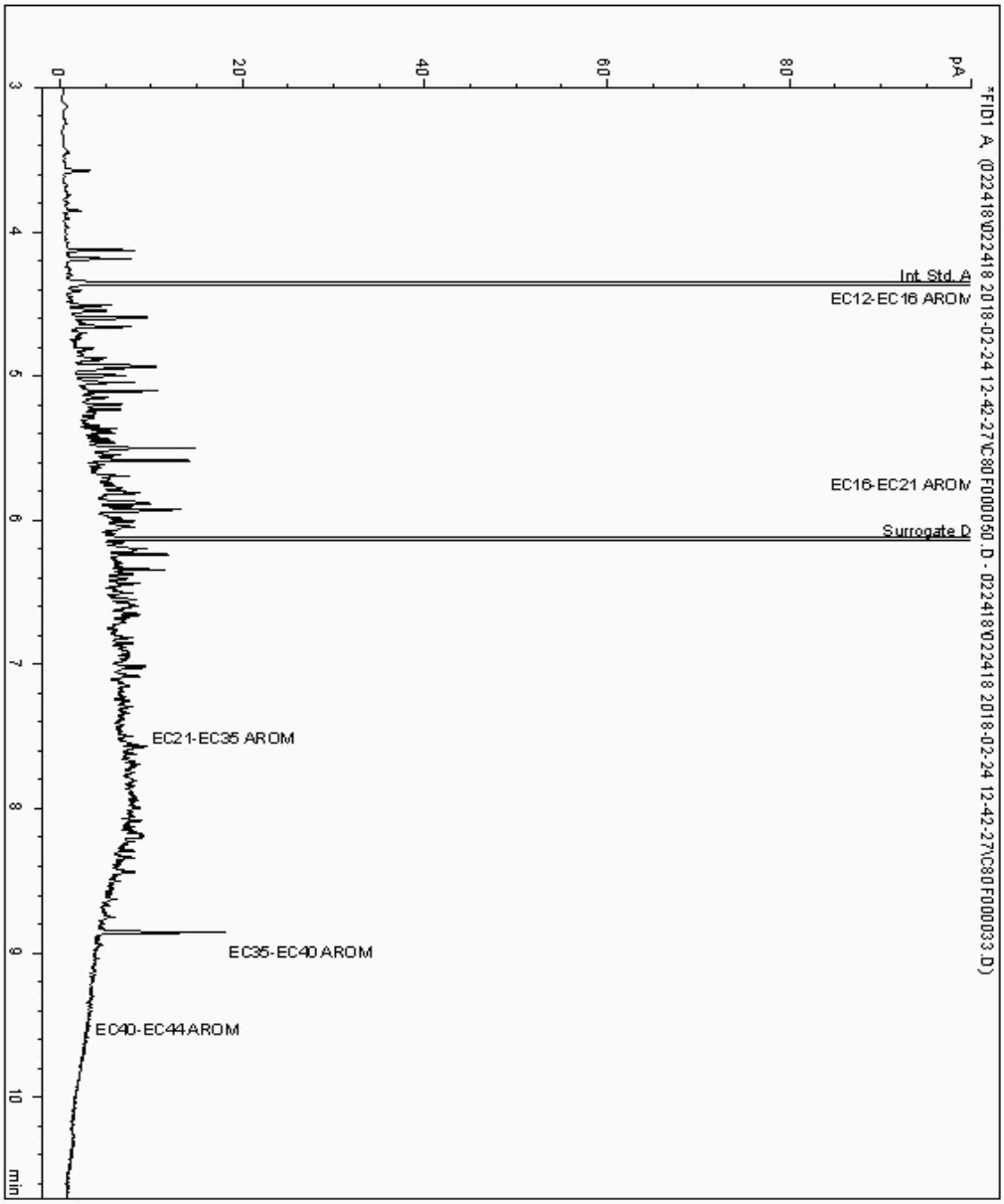
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17094225 **Sample ID :** TP-RPS-40 **Depth :** 0.20

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16034132-
Date Acquired : 25/02/18 02:17:15
Units : ppb
Dilution :
CF : 1
Multiplier : 1.050



CERTIFICATE OF ANALYSIS

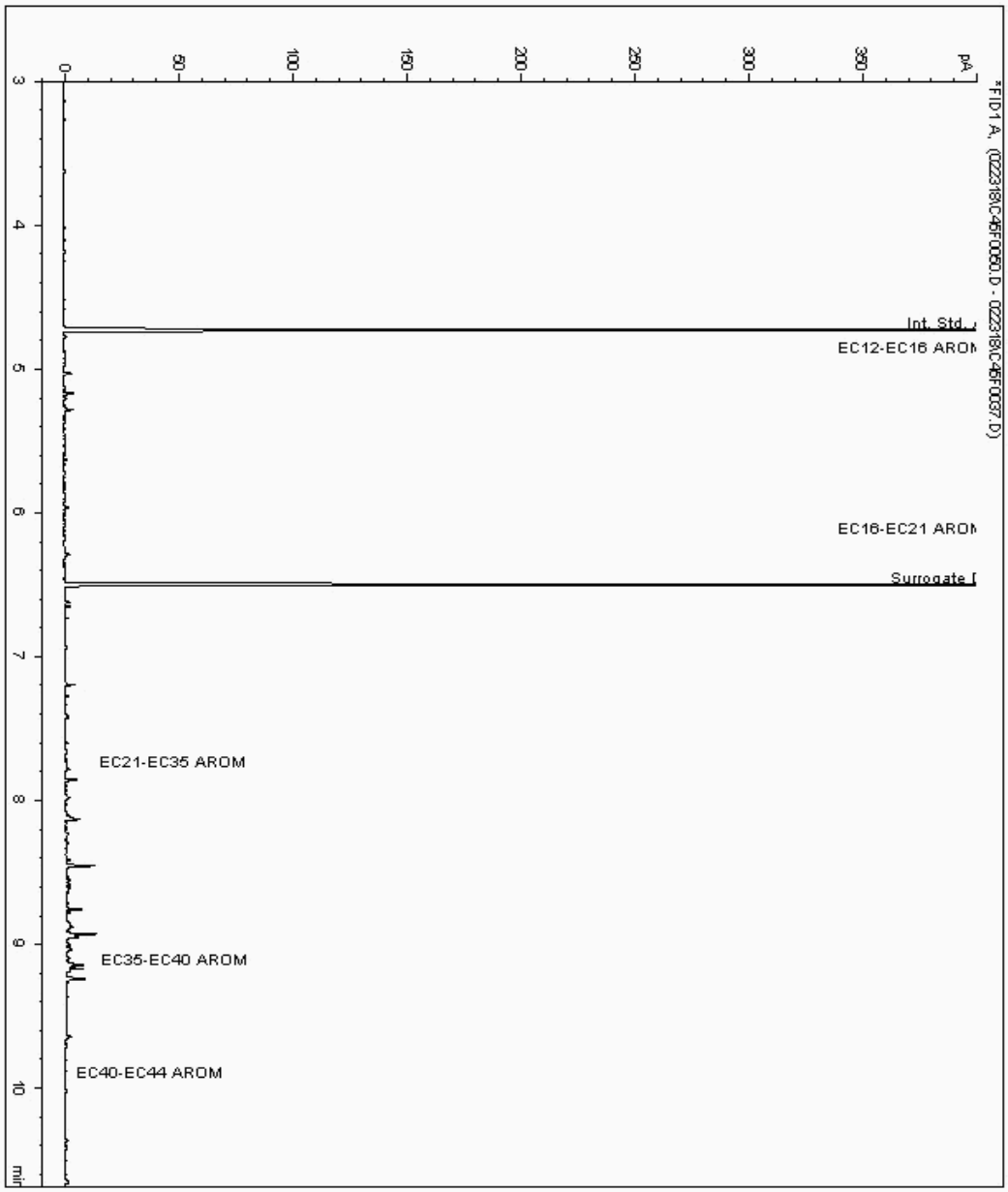
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17102945 **Sample ID :** TP-RPS-30 **Depth :** 0.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16034070-
Date Acquired : 24/02/2018 17:44:17 PM
Units : ppb
Dilution: TP-RPS-30[0.20] ->

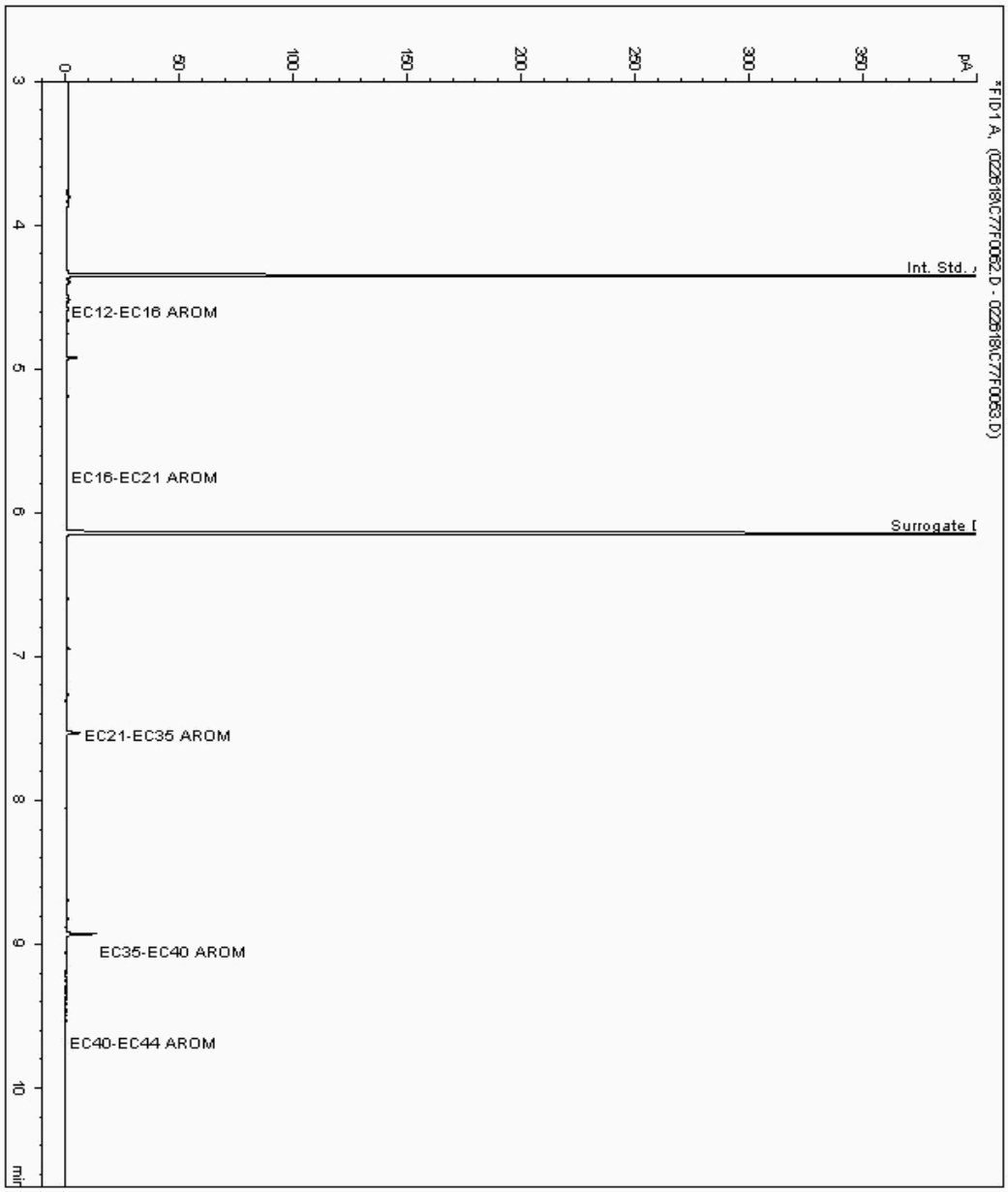


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17102973 **Sample ID :** TP-RPS-35 **Depth :** 2.40

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16034488-
Date Acquired : 27/02/2018 00:28:35 PM
Units : ppb
Dilution:

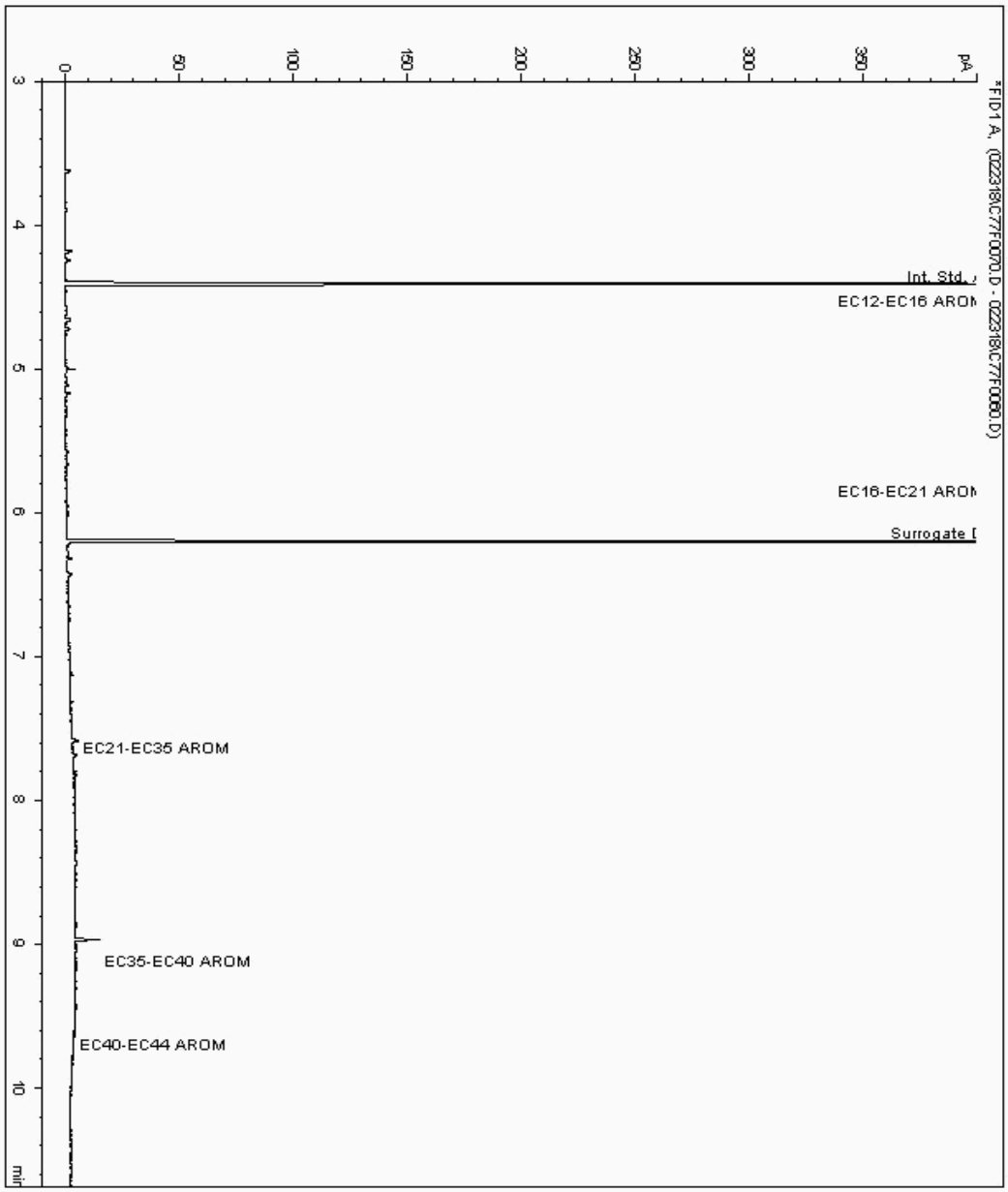


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17103014 **Sample ID :** TP-RPS-38 **Depth :** 0.80

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16034041-
Date Acquired : 2/26/2018 11:16:16 AM
Units : ppb
Dilution:

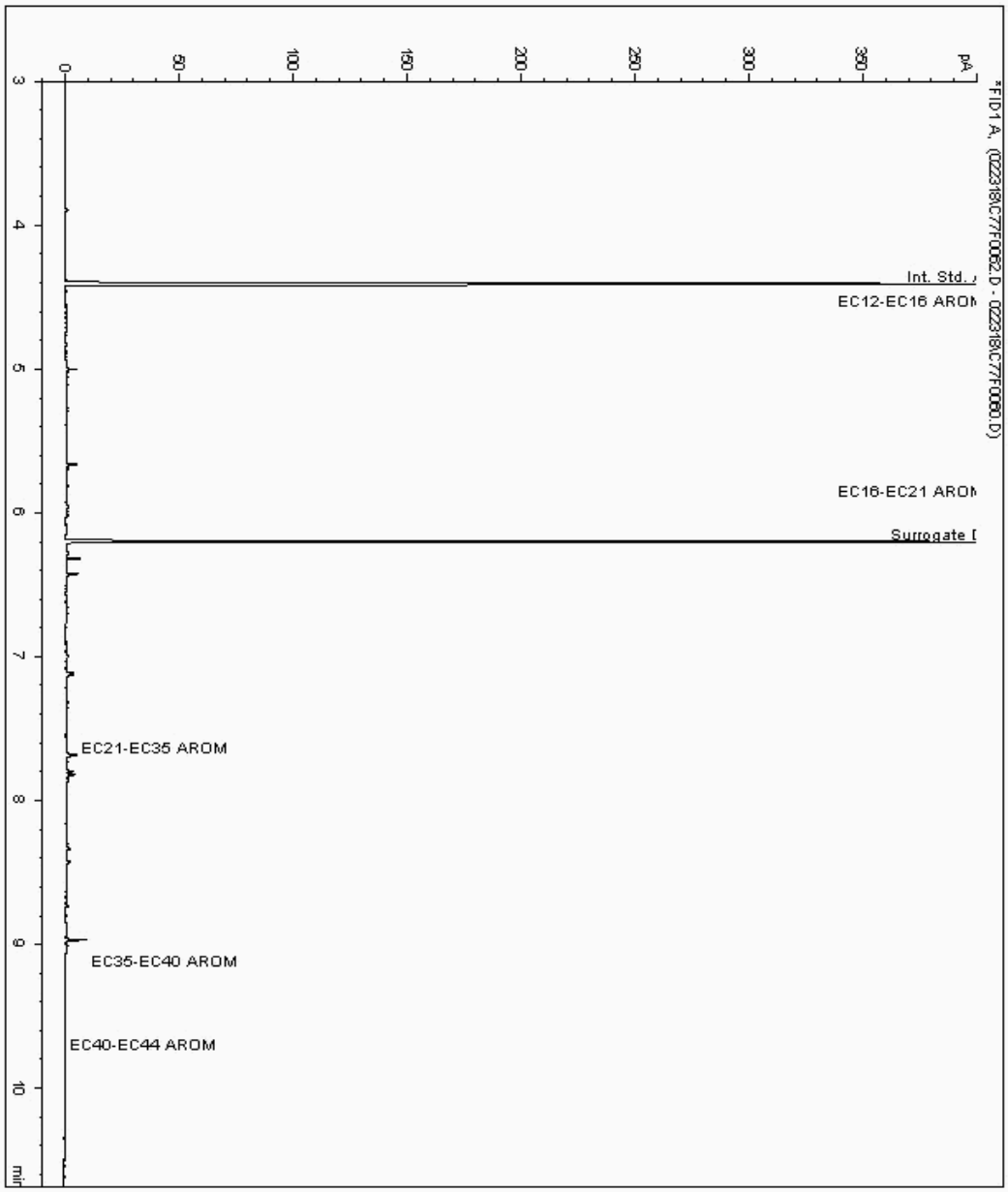


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17103048 **Sample ID :** TP-RPS-35 **Depth :** 1.60

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16034435-
Date Acquired : 2/26/2018 8:55:41 AM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

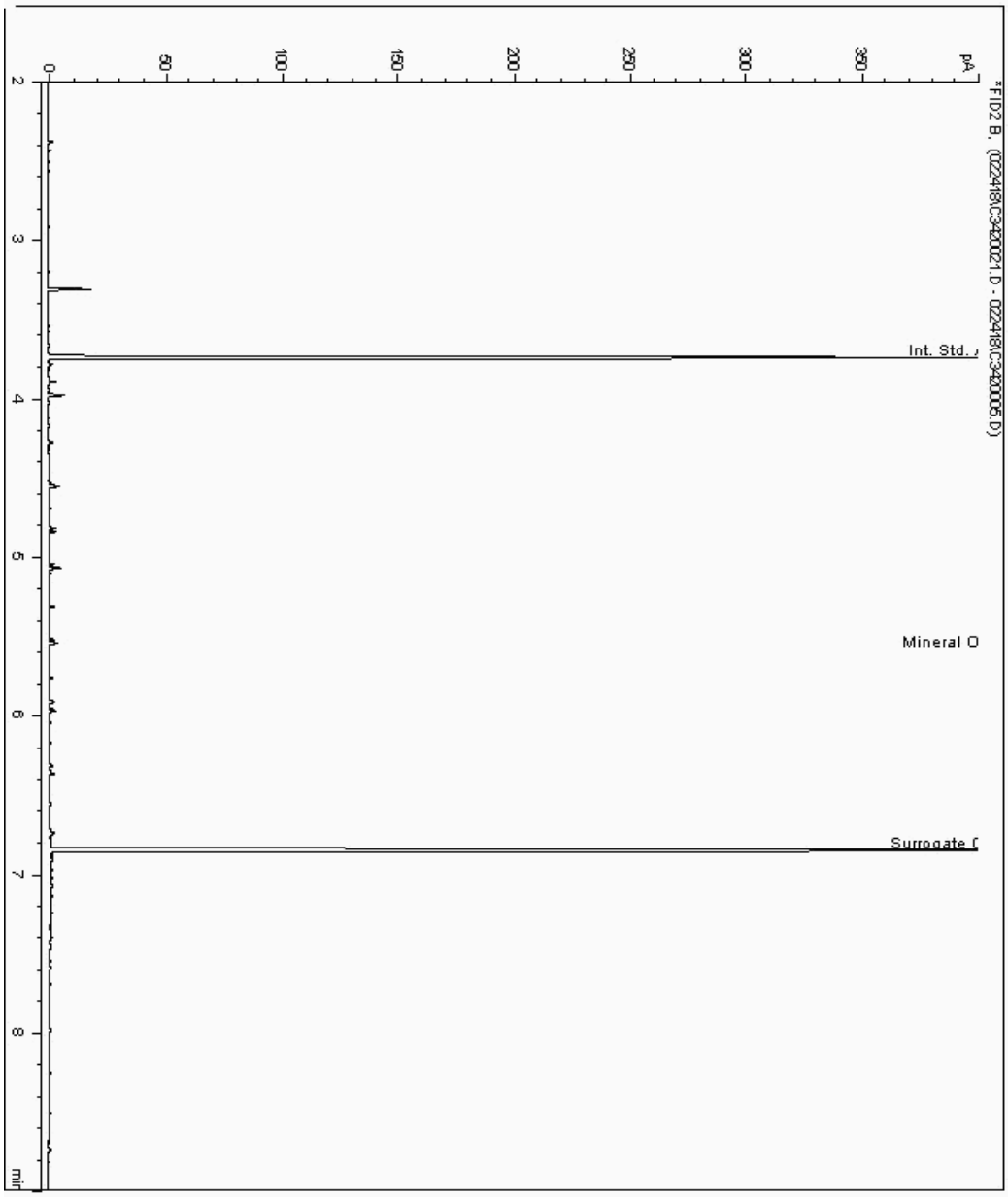
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: Mineral Oil **Sample No :** 17103330 **Sample ID :** CP-RPS-01 **Depth :** 0.30 - 0.55

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16034531-
Date Acquired : 24/02/18 15:13:36 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

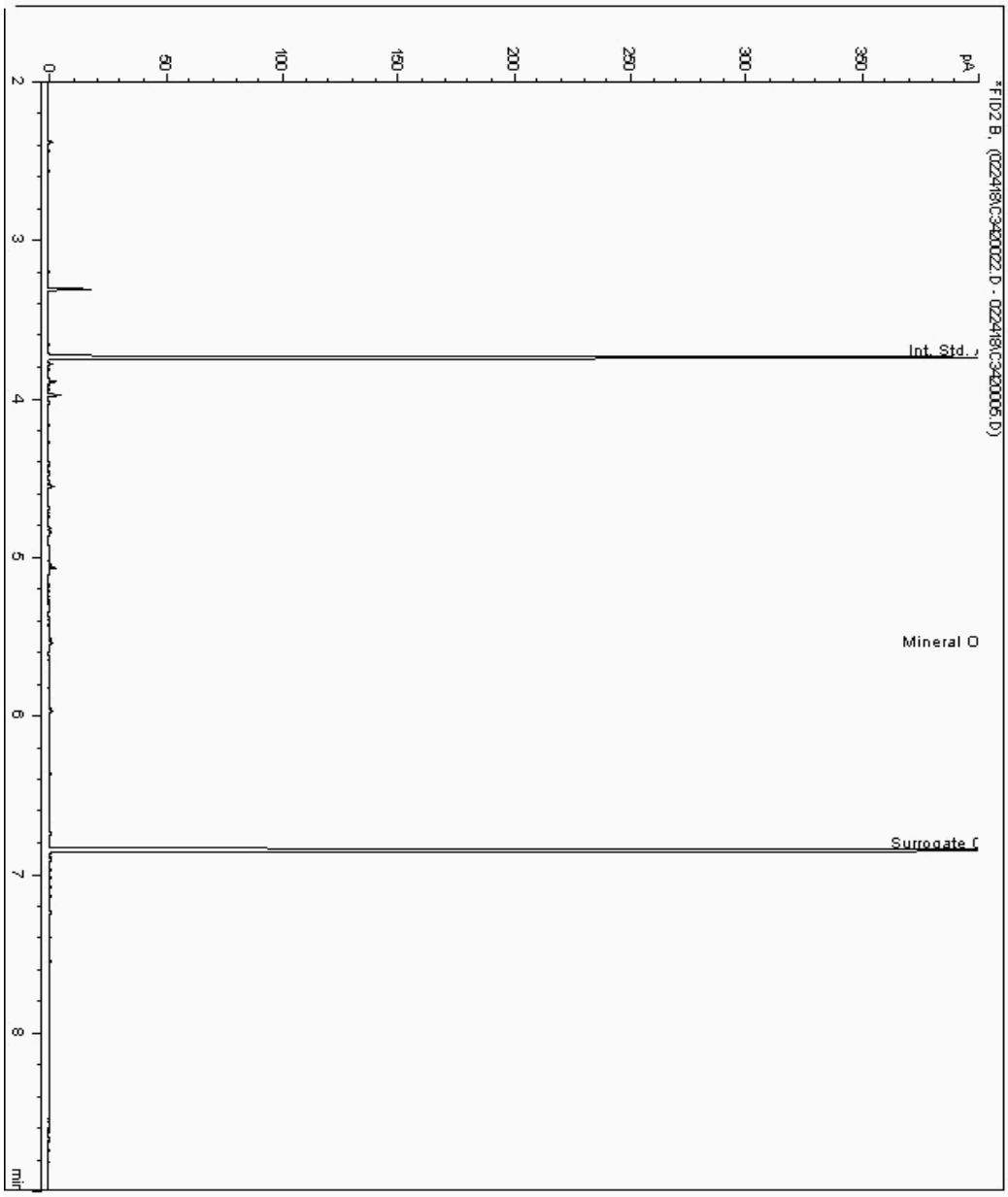
Analysis: Mineral Oil

Sample No : 17103358
Sample ID : WS-RPS-27

Depth : 0.40 - 0.85

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16034159-
Date Acquired : 24/02/18 15:35:08 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

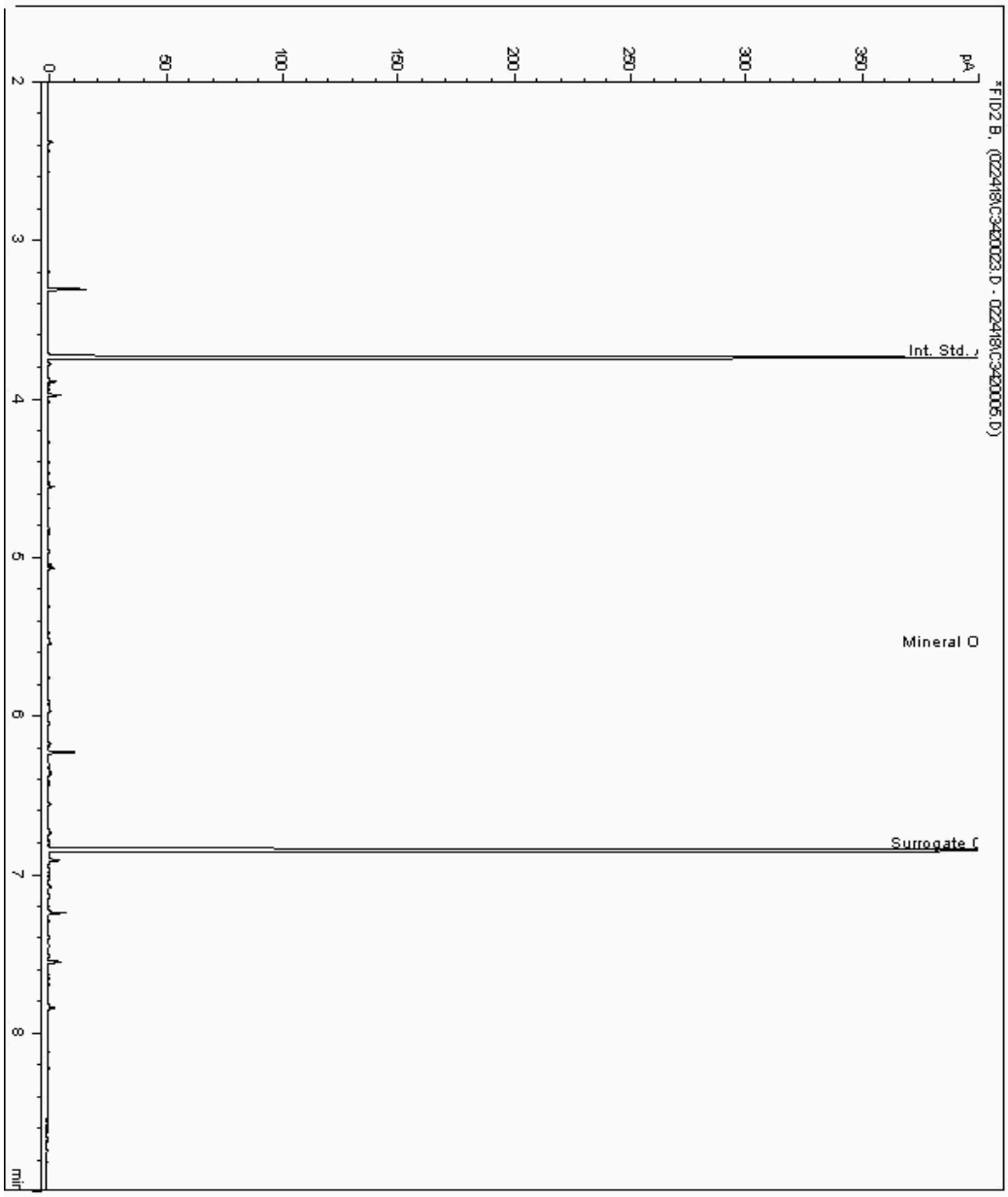
Analysis: Mineral Oil

Sample No : 17103391
Sample ID : BH-RPS-16

Depth : 7.00 - 7.50

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16034257-
Date Acquired : 24/02/18 15:56:32 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

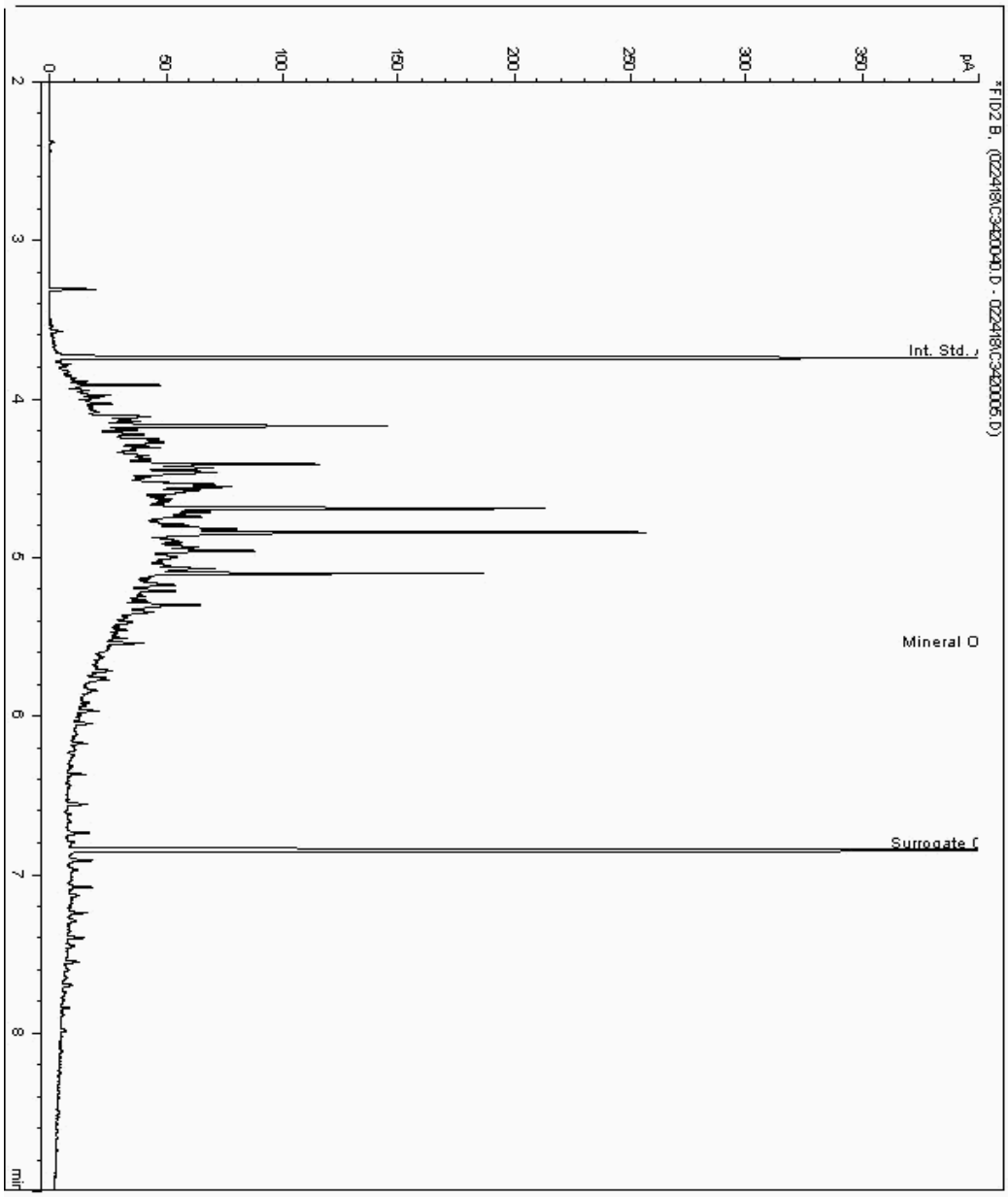
Analysis: Mineral Oil

Sample No : 17111288
Sample ID : TP-RPS-37

Depth : 1.70

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16034110-
Date Acquired : 24/02/18 21:22:49 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

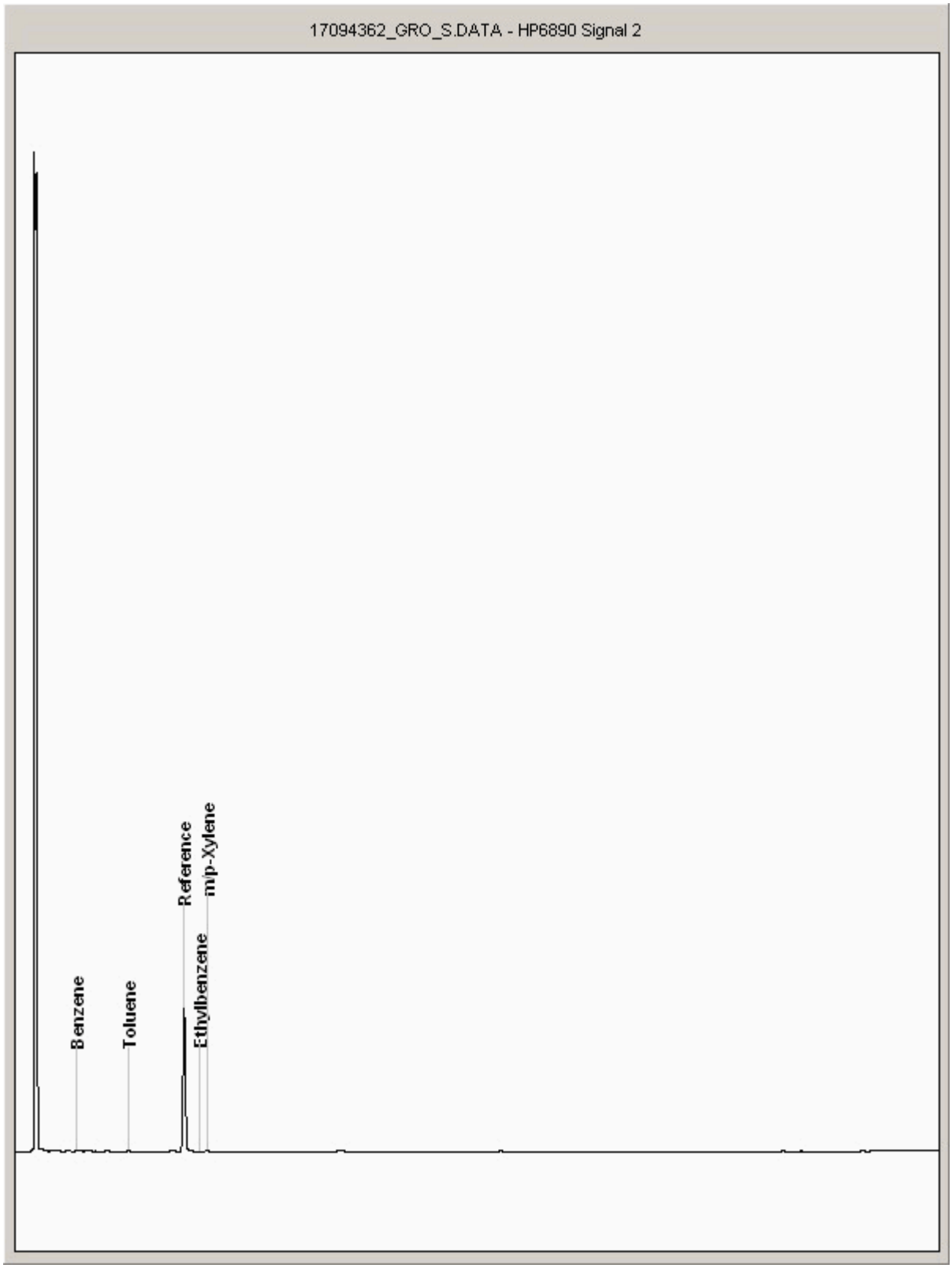
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17094362
Sample ID : TP-RPS-35

Depth : 0.20



Validated

CERTIFICATE OF ANALYSIS

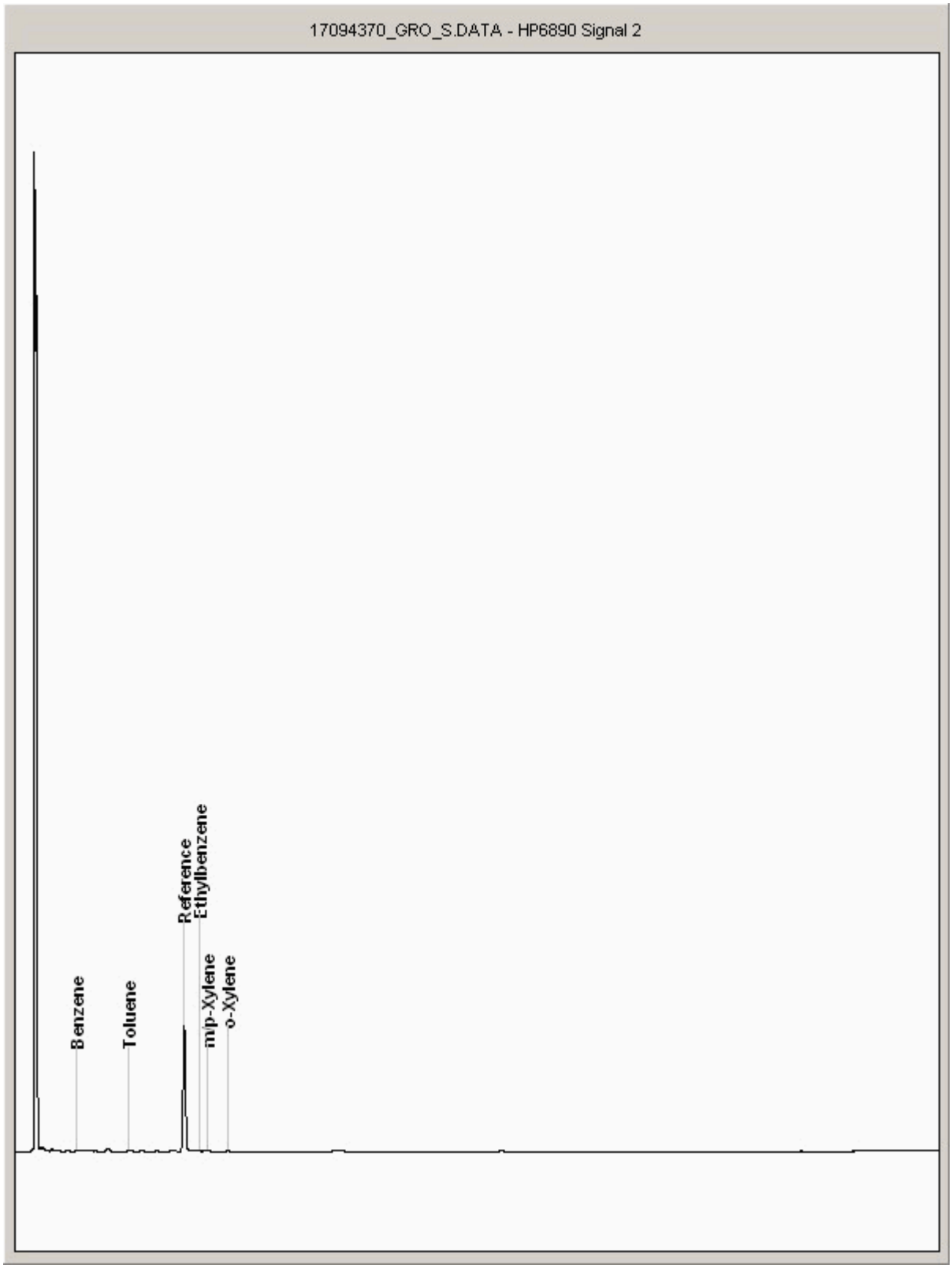
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17094370
Sample ID : TP-RPS-37

Depth : 0.20



Validated

CERTIFICATE OF ANALYSIS

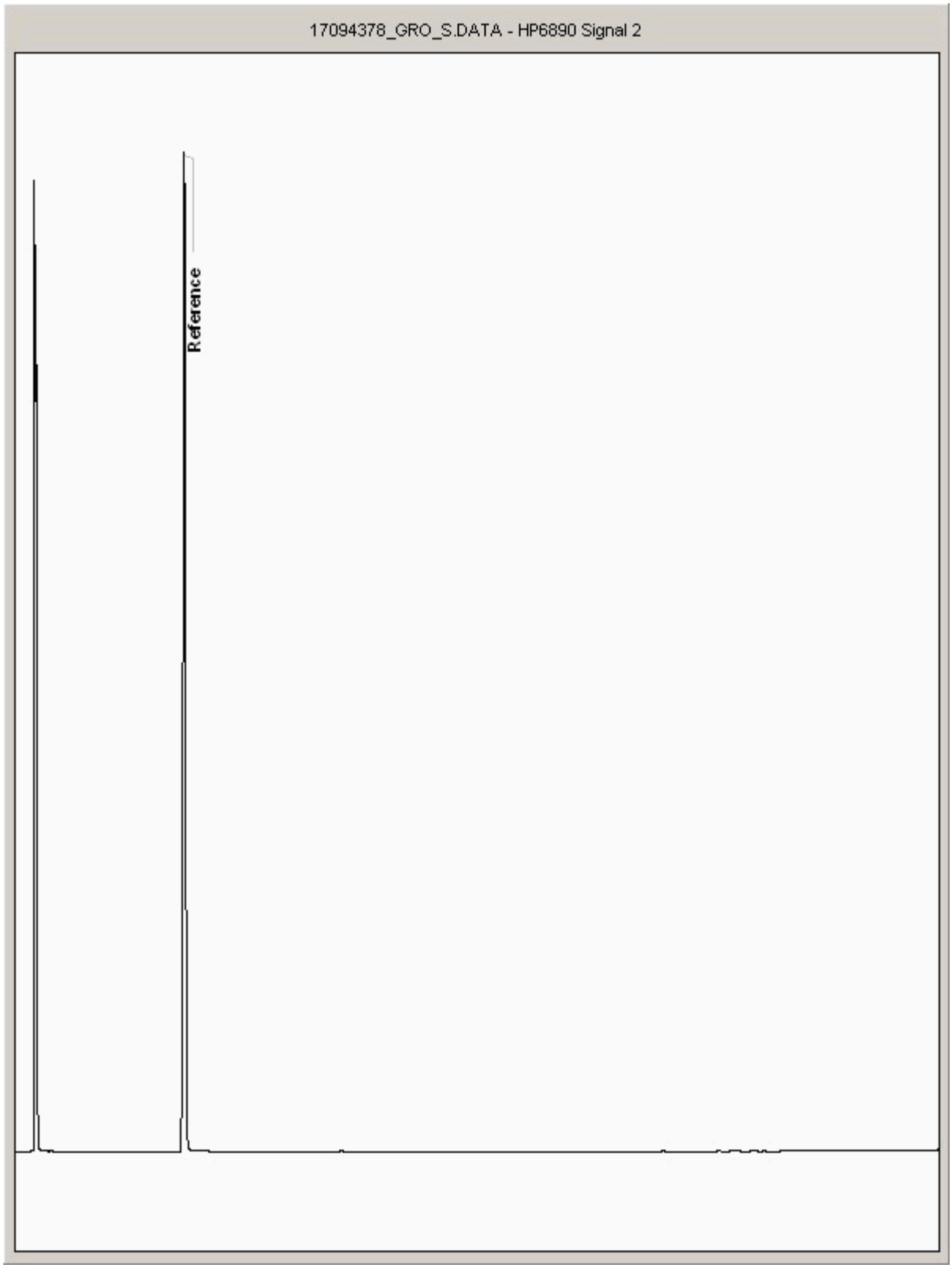
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17094378
Sample ID : TP-RPS-37

Depth : 1.70



Validated

CERTIFICATE OF ANALYSIS

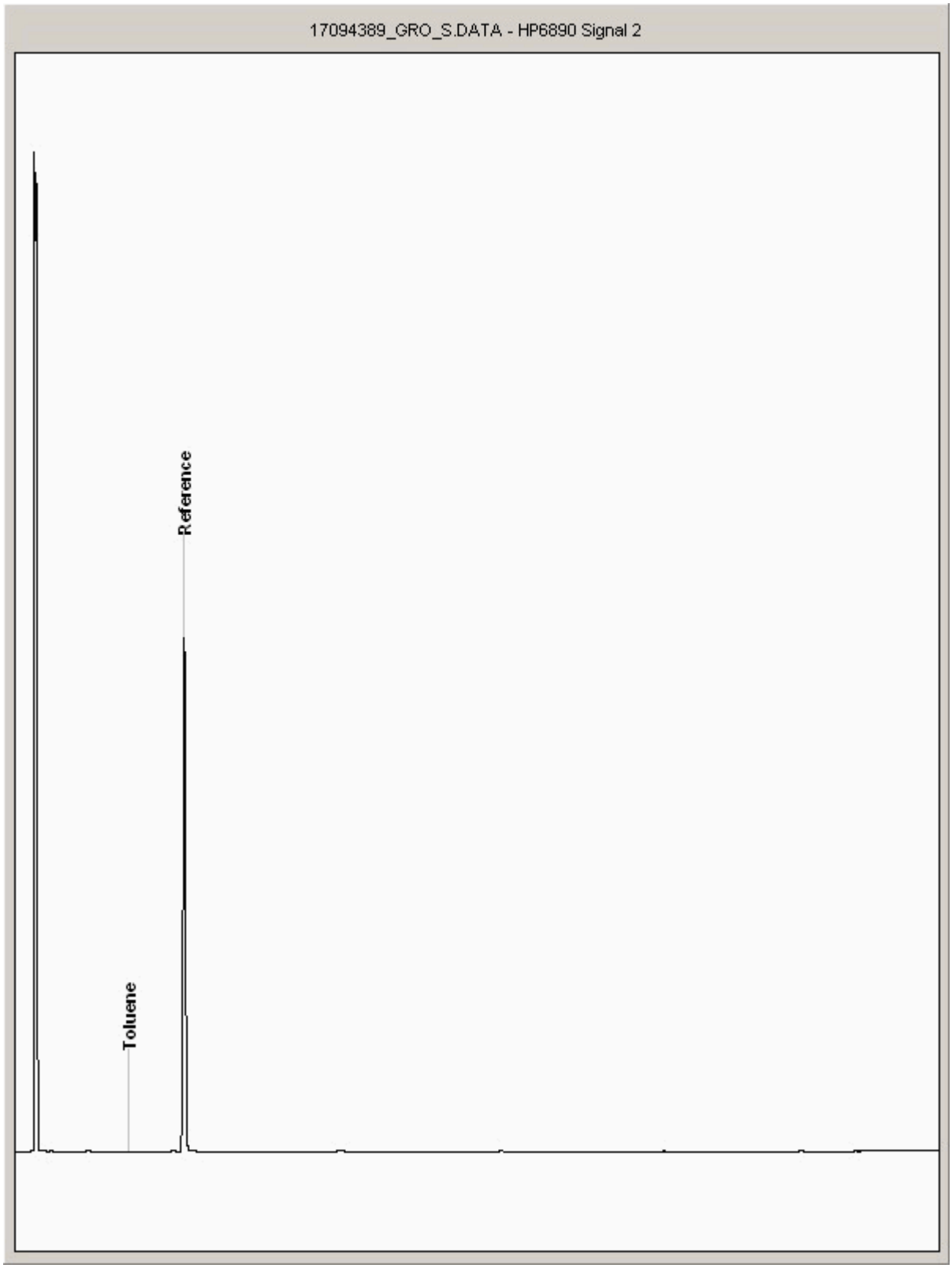
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17094389
Sample ID : WS-RPS-27

Depth : 0.40 - 0.85



Validated

CERTIFICATE OF ANALYSIS

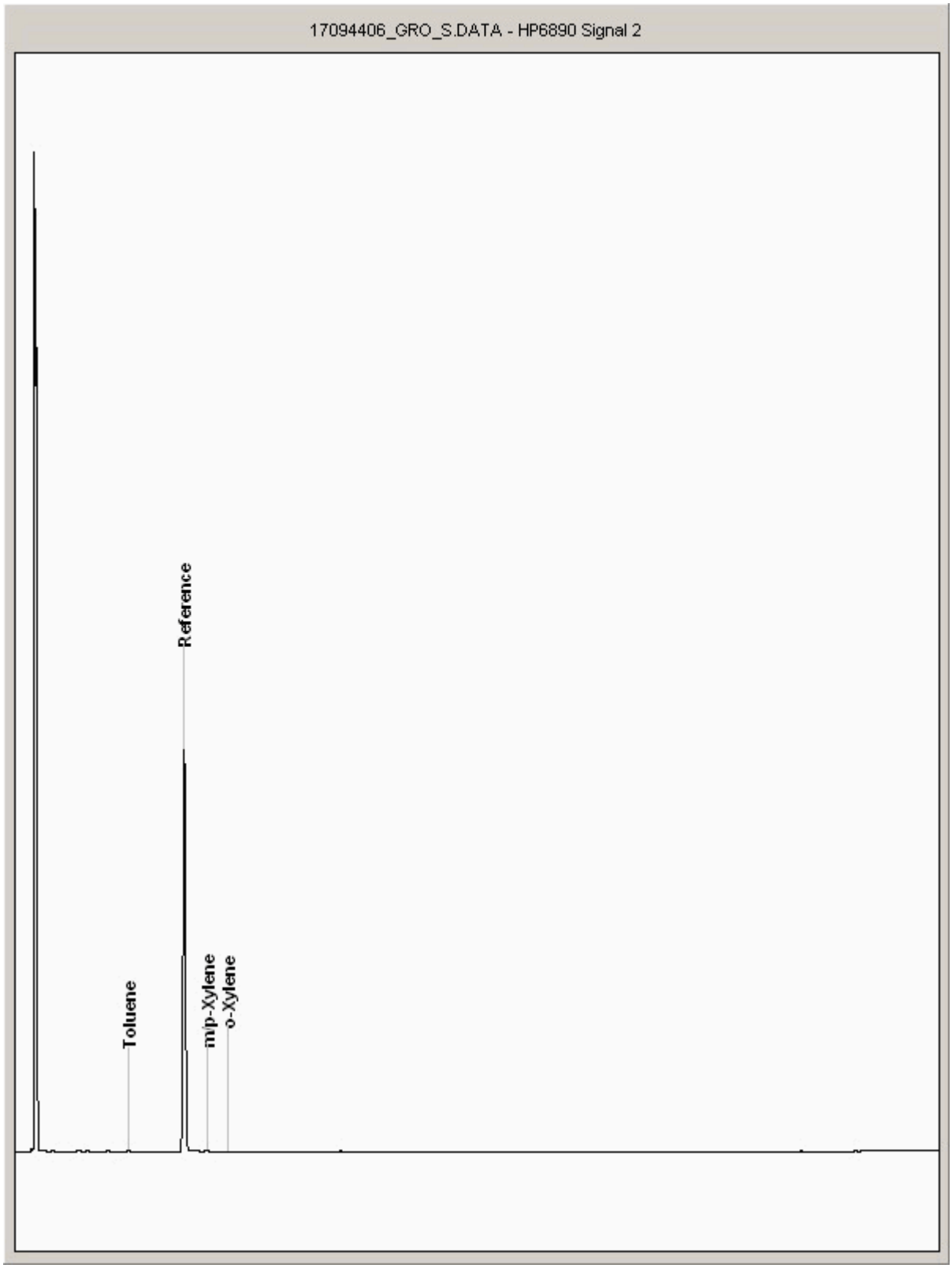
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17094406
Sample ID : CP-RPS-01

Depth : 0.30 - 0.55



Validated

CERTIFICATE OF ANALYSIS

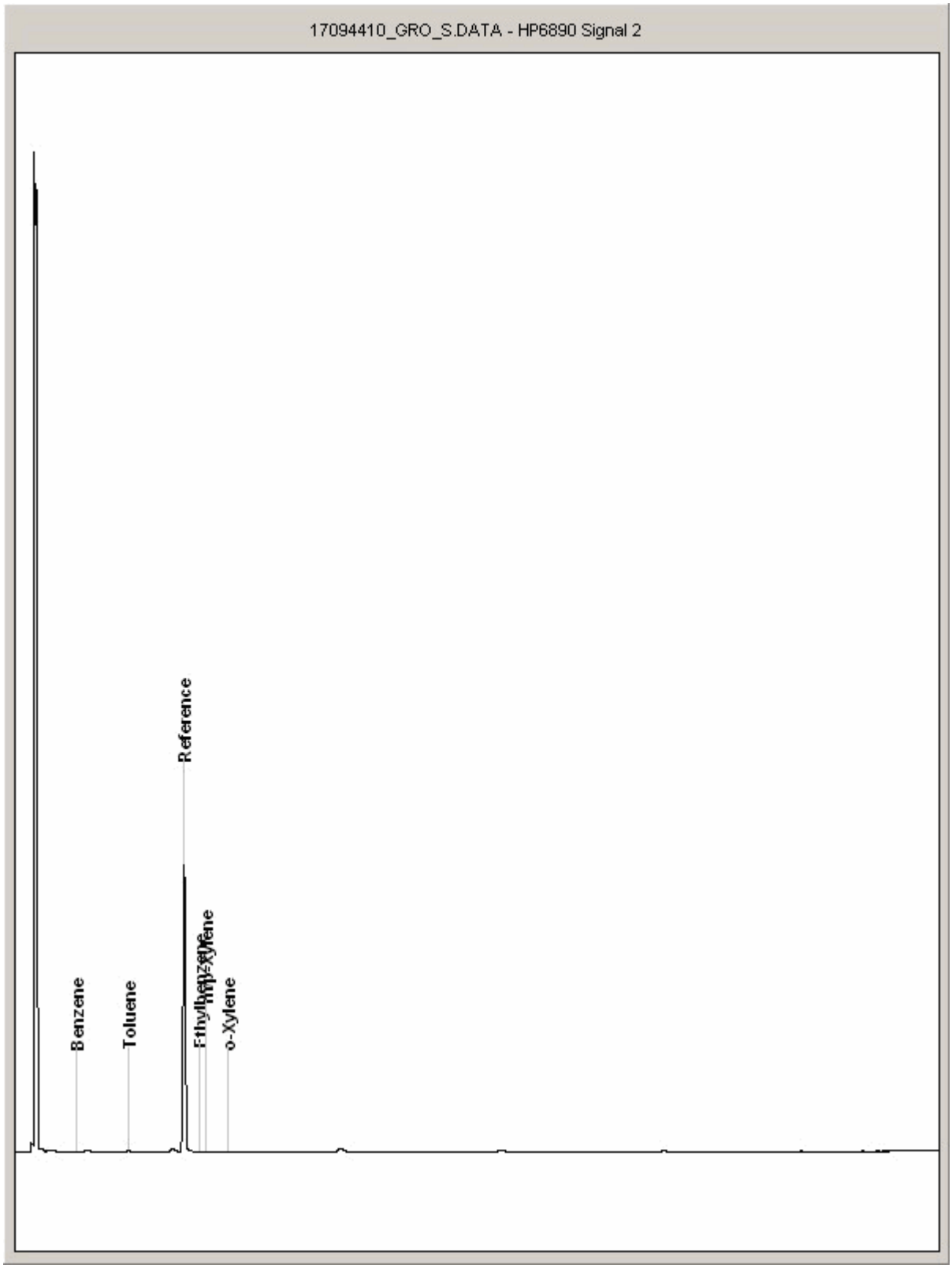
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17094410
Sample ID : BH-RPS-16

Depth : 7.00 - 7.50



Validated

CERTIFICATE OF ANALYSIS

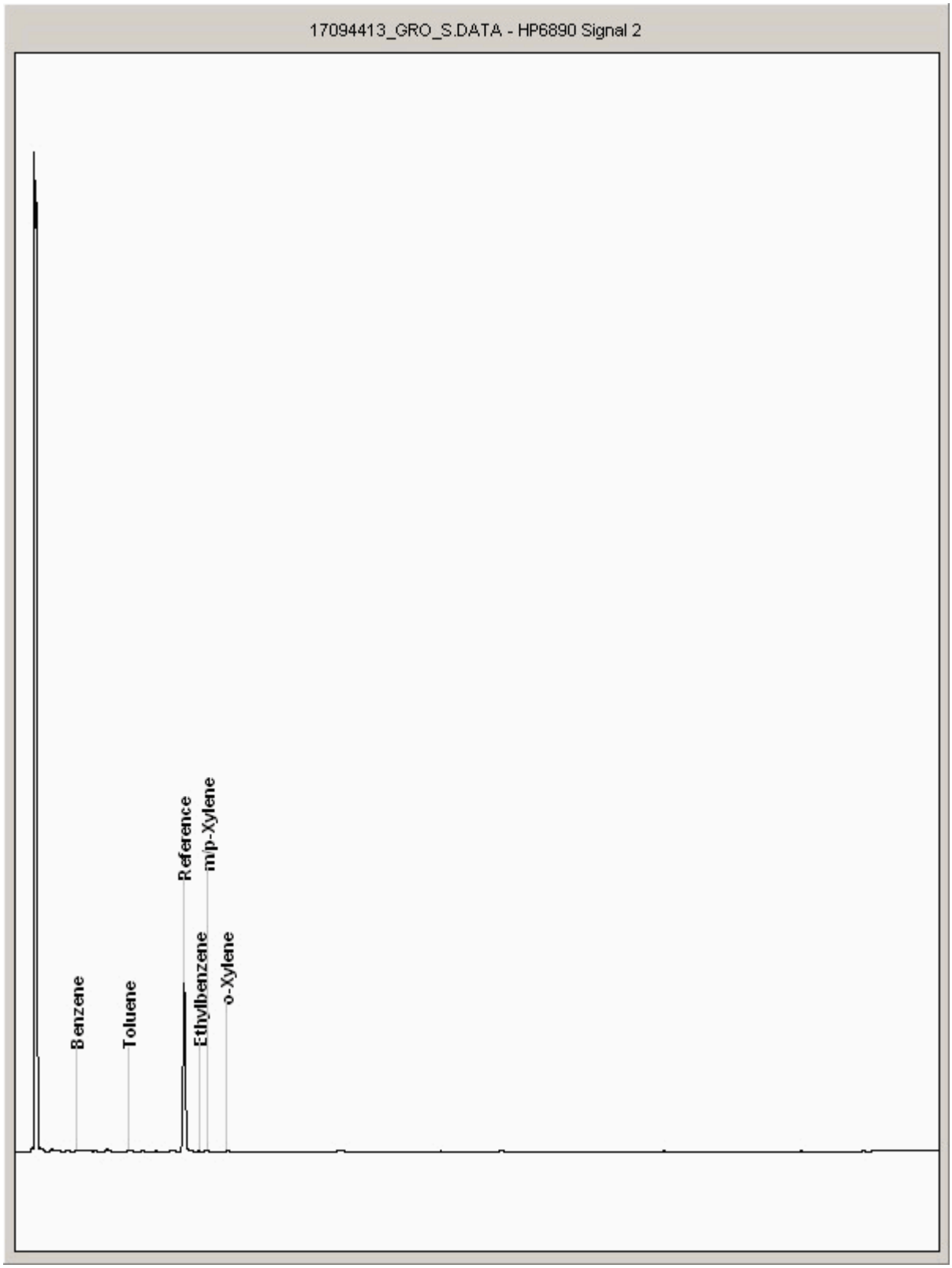
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17094413
Sample ID : TP-RPS-51

Depth : 0.40



Validated

CERTIFICATE OF ANALYSIS

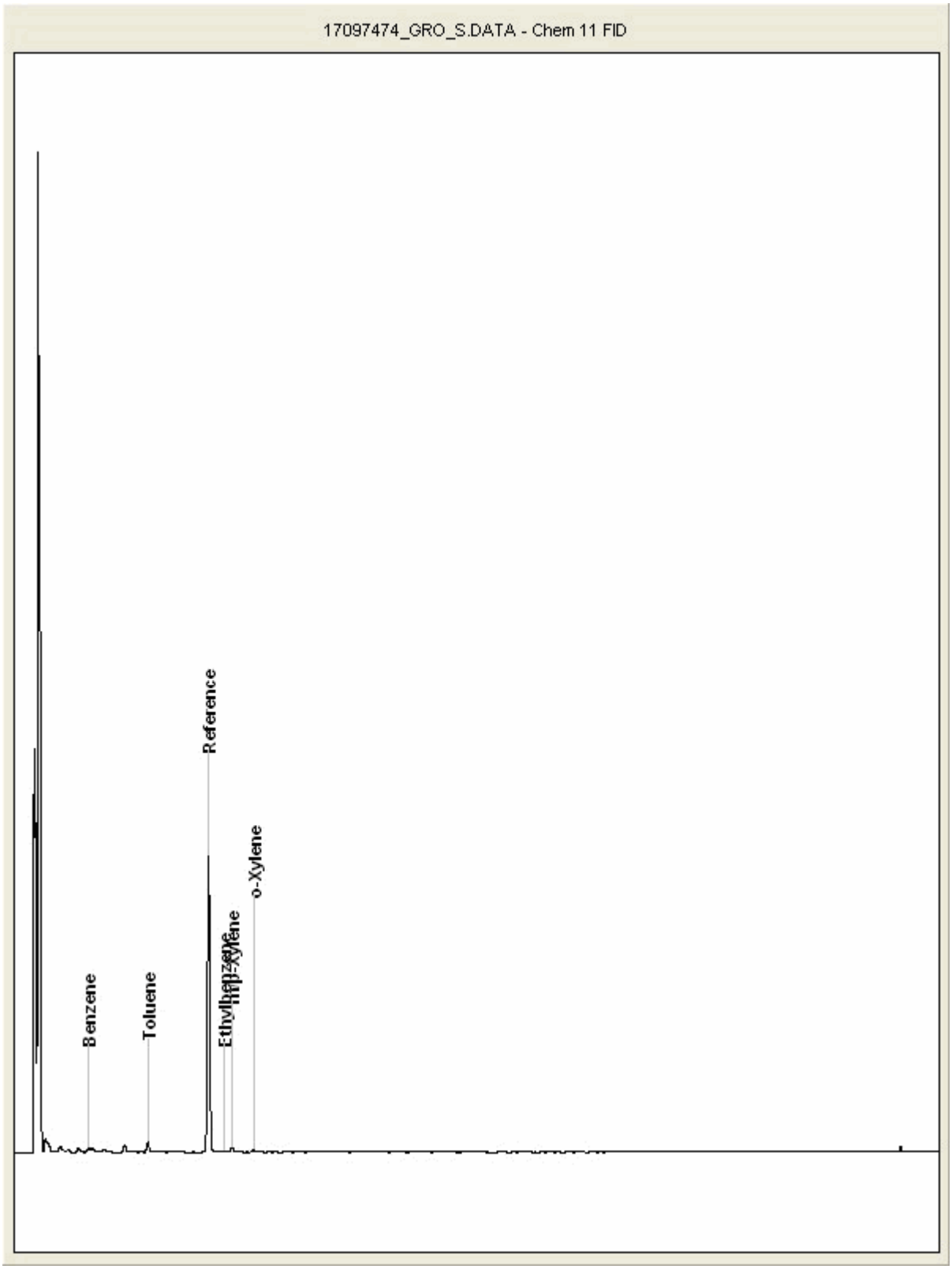
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17097474
Sample ID : TP-RPS-38

Depth : 0.80



Validated

CERTIFICATE OF ANALYSIS

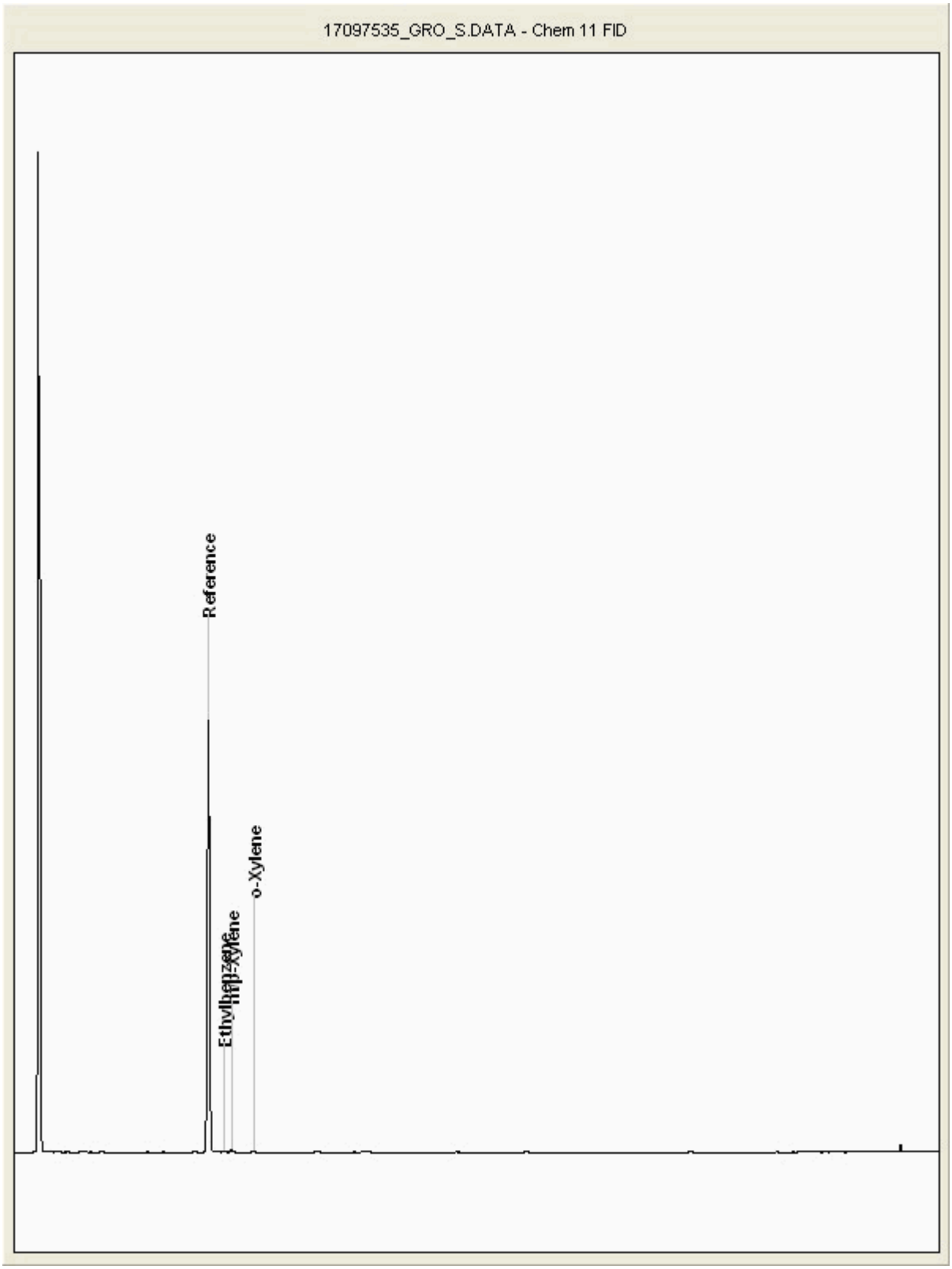
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17097535
Sample ID : TP-RPS-30

Depth : 0.20



Validated

CERTIFICATE OF ANALYSIS

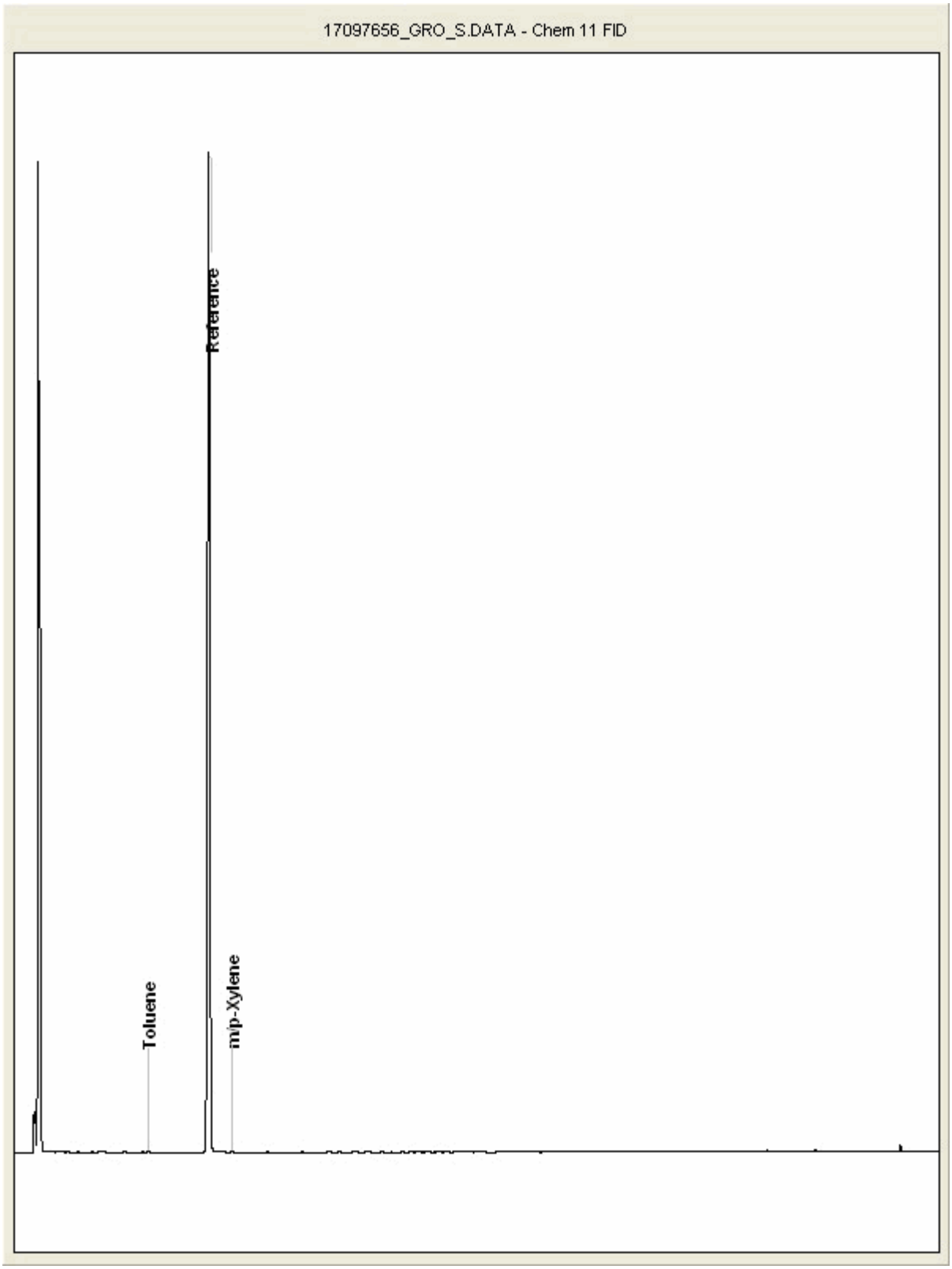
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17097656
Sample ID : TP-RPS-35

Depth : 1.60



Validated

CERTIFICATE OF ANALYSIS

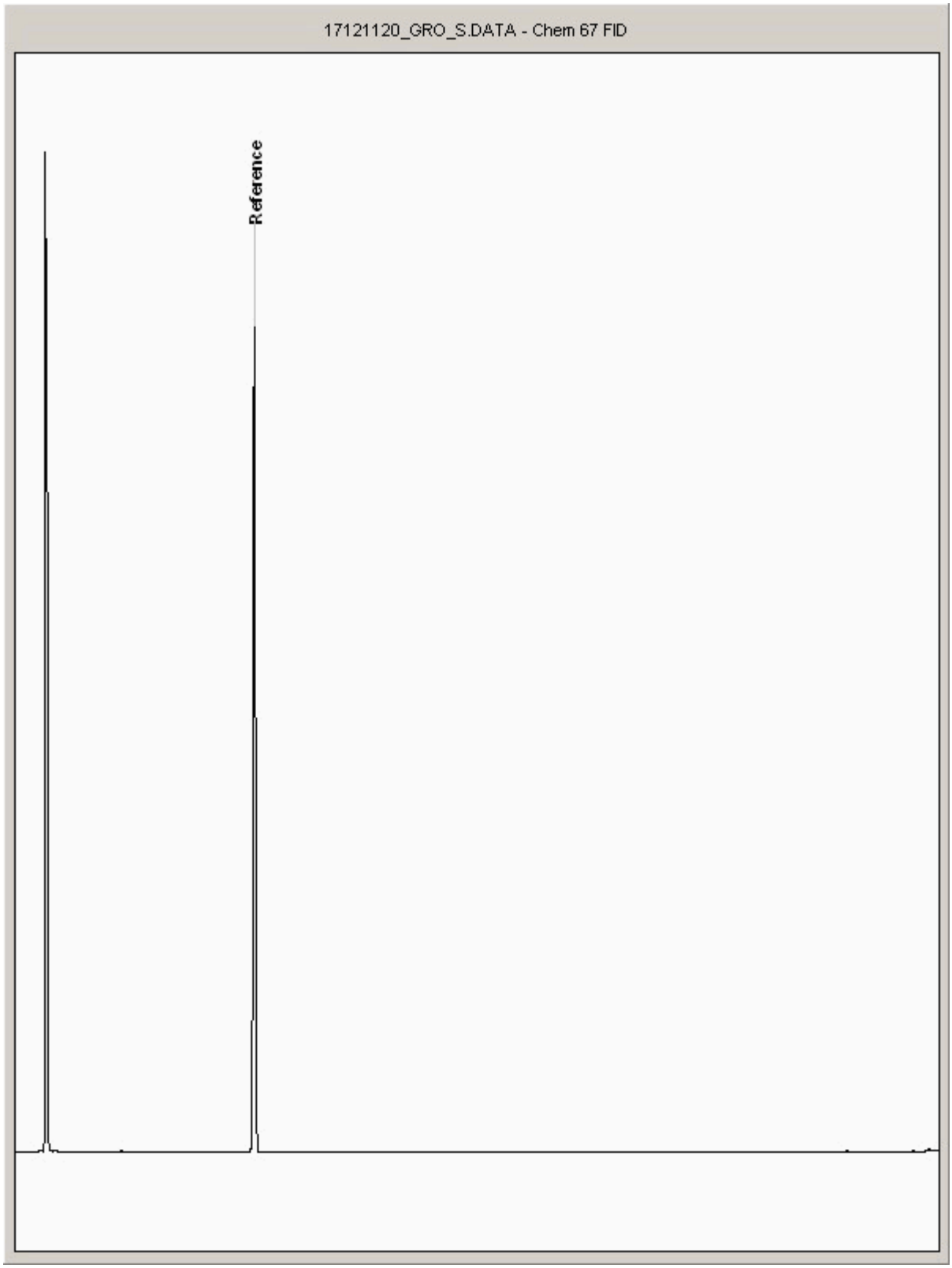
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17121120
Sample ID : TP-RPS-35

Depth : 2.40



Validated

CERTIFICATE OF ANALYSIS

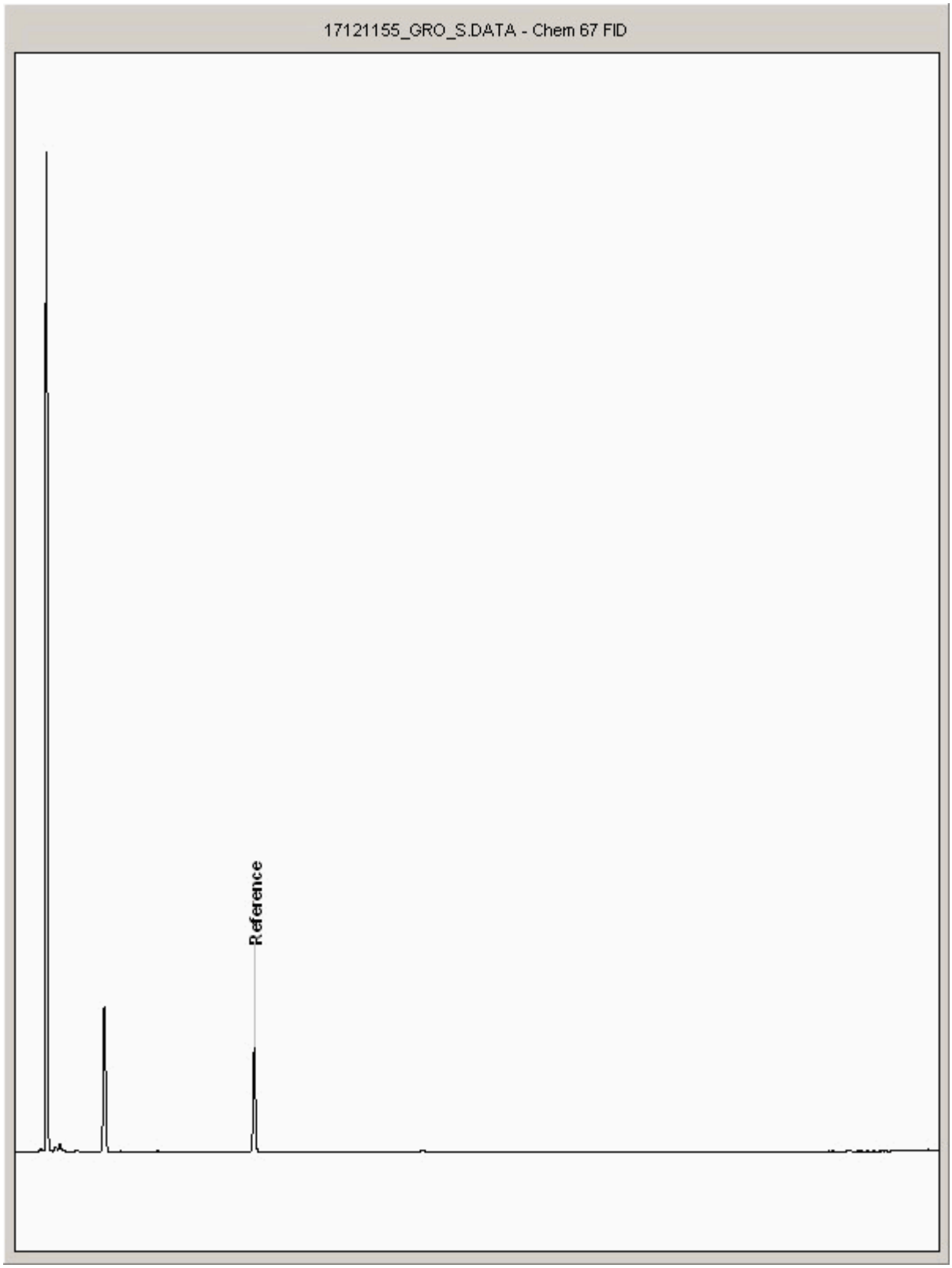
SDG:	180220-56	**Client Reference:**	JER1100	**Report Number:**	447614
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447412

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17121155
Sample ID : TP-RPS-40

Depth : 0.20



Certificate of Analysis

Certificate Number	18-04768
Client	ALS Life Sciences Limited Units 7 & 8 Hawarden Business Park Manor Road Hawarden Deeside CH5 3US
Our Reference	18-04768
Client Reference	180220-56
Order No	(not supplied)
Contract Title	180220-56
Description	9 Soil samples.
Date Received	27-Feb-18
Date Started	27-Feb-18
Date Completed	05-Mar-18
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

05-Mar-18

Approved By

Adam Fenwick
Contracts Manager

UKAS TESTING
2139

Summary of Asbestos Analysis

Soil Samples

Our Ref 18-04768
Client Ref 180220-56
Contract Title 180220-56

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1304220	17120513 BH-RPS-16 7.00-7.50	SOIL	NAD	none	Rebecca Burgess
1304221	17120610 CP-RPS-01 0.30-0.55	SOIL	NAD	none	Rebecca Burgess
1304222	17120475 TP-RPS-30 0.20	SOIL	NAD	none	Rebecca Burgess
1304223	17120694 TP-RPS-35 0.20	SOIL	Amosite	bundles of Amosite fibres	Rebecca Burgess
1304224	17120481 TP-RPS-37 0.20	SOIL	Chrysotile	bundle of Chrysotile fibres	Rebecca Burgess
1304225	17120925 TP-RPS-38 0.80	SOIL	Chrysotile	bundles of Chrysotile fibres	Rebecca Burgess
1304226	17120951 TP-RPS-40 0.20	SOIL	Amosite	bundle of Amosite fibres	Rebecca Burgess
1304227	17120928 TP-RPS-51 0.40	SOIL	NAD	none	Rebecca Burgess
1304228	17120510 WS-RPS-27 0.40-0.85	SOIL	NAD	none	Rebecca Burgess

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 18-04768
Client Ref 180220-56
Contract 180220-56

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1304220	17120513 7.00-7.50 SOIL	14/02/18	PT 500ml		
1304221	17120610 0.30-0.55 SOIL	13/02/18	PT 500ml		
1304222	17120475 0.20 SOIL	13/02/18	PT 500ml		
1304223	17120694 0.20 SOIL	13/02/18	PT 500ml		
1304224	17120481 0.20 SOIL	14/02/18	PT 500ml		
1304225	17120925 0.80 SOIL	13/02/18	PT 500ml		
1304226	17120951 0.20 SOIL	14/02/18	PT 500ml		
1304227	17120928 0.40 SOIL	14/02/18	PT 500ml		
1304228	17120510 0.40-0.85 SOIL	14/02/18	PT 500ml		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	03 April 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180223-50
Your Reference:	JER1100
Location:	Lostock
Report No:	450181

This report has been revised and directly supersedes 450180 in its entirety.

We received 31 samples on Friday February 23, 2018 and 18 of these samples were scheduled for analysis which was completed on Tuesday April 03, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17107292	BH-RPS-04	ES1	0.30	15/02/2018
17107299	BH-RPS-04	ES1	0.65 - 0.90	15/02/2018
17107203	TP-RPS-11	ES1	0.50	15/02/2018
17107285	TP-RPS-11	ES1	1.00	15/02/2018
17107363	TP-RPS-11	ES1	1.60	15/02/2018
17107386	TP-RPS-11	ES1	2.60	15/02/2018
17107392	TP-RPS-17	ES1	0.05	15/02/2018
17107399	TP-RPS-17	ES1	0.20	15/02/2018
17107405	TP-RPS-17	ES1	0.80	15/02/2018
17107249	TP-RPS-17	ES1	1.20	15/02/2018
17107242	TP-RPS-17	ES1	1.50	15/02/2018
17107419	TP-RPS-19	ES1	0.20	15/02/2018
17107209	TP-RPS-19	ES1	0.90	15/02/2018
17107413	TP-RPS-19	ES1	1.90	15/02/2018
17107216	TP-RPS-21	ES1	0.10	15/02/2018
17107222	TP-RPS-21	ES1	0.50	15/02/2018
17107229	TP-RPS-21	ES1	1.00	15/02/2018
17107236	TP-RPS-21	ES1	2.50	15/02/2018
17107306	TP-RPS-28	ES1	0.20	15/02/2018
17107312	TP-RPS-28	ES1	0.60	15/02/2018
17107321	TP-RPS-28	ES1	1.00 - 1.10	15/02/2018
17107328	TP-RPS-28	ES1	2.00 - 2.10	15/02/2018
17107351	TP-RPS-46	ES1	0.20	16/02/2018
17107357	TP-RPS-46	ES1	0.70	16/02/2018
17107372	TP-RPS-46	ES1	1.00	16/02/2018
17107379	TP-RPS-46	ES1	2.20	16/02/2018
17107259	WS-RPS-27	ES1	1.40 - 1.60	15/02/2018
17107268	WS-RPS-27	ES1	3.20 - 3.50	15/02/2018
17107278	WS-RPS-27	ES1	5.50 - 5.80	15/02/2018
17107337	WS-RPS-27	ES1	6.50 - 7.00	16/02/2018
17107345	WS-RPS-27	ES1	9.20 - 9.60	16/02/2018

Maximum Sample/Coolbox Temperature (°C) : 10.4

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17107292			17107299			17107203	17107285			17107399			17107249		17107419			17107413	
Customer Sample Reference			BH-RPS-04			BH-RPS-04			TP-RPS-11	TP-RPS-11			TP-RPS-17			TP-RPS-17		TP-RPS-19			TP-RPS-19	
AGS Reference			ES1			ES1			ES1	ES1			ES1			ES1		ES1			ES1	
Depth (m)			0.30			0.65 - 0.90			0.50	1.00			0.20			1.20		0.20			1.90	
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 4							X							X						
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 8		X							X			X					X			X
Anions by ion Chromatography	All	NDPs: 0 Tests: 2								X												
Anions by Kone (soil)	All	NDPs: 0 Tests: 4							X							X						
Anions by Kone (w)	All	NDPs: 0 Tests: 8	X							X			X					X			X	
Asbestos fibres in Soil*	All	NDPs: 0 Tests: 11	X			X				X			X					X			X	
Asbestos Quantification - Full	All	NDPs: 0 Tests: 4								X			X								X	
CEN Readings	All	NDPs: 0 Tests: 8	X							X			X					X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 8	X							X			X					X			X	
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 8	X							X			X					X			X	
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 12		X			X				X			X		X			X			X
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 12		X			X				X			X		X			X			X
Fluoride	All	NDPs: 0 Tests: 6	X										X					X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 13			X			X				X			X		X			X		
Loss on Ignition in soils	All	NDPs: 3 Tests: 5		X							N			N					X			N

17107268	WS-RPS-27	ES1	3.20 - 3.50	250g Amber Jar (ALE210)	S				X																										X
				1kg TUB	S										X						X		X		X						X				
17107259	WS-RPS-27	ES1	1.40 - 1.60	60g VOC (ALE215)	S																												X		
				250g Amber Jar (ALE210)	S				X																		X		X						X
				1kg TUB	S						X				X		X				X		X		X										
17107357	TP-RPS-46	ES1	0.70	60g VOC (ALE215)	S																												X		
				250g Amber Jar (ALE210)	S				X																		X		X						X
				1kg TUB	S										X		X				X		X		X						X				
17107351	TP-RPS-46	ES1	0.20	60g VOC (ALE215)	S																												X		
				250g Amber Jar (ALE210)	S																						X		X						
				1kg TUB	S												X																		
17107321	TP-RPS-28	ES1	1.00 - 1.10	250g Amber Jar (ALE210)	S																														
17107312	TP-RPS-28	ES1	0.60	60g VOC (ALE215)	S																												X		
				250g Amber Jar (ALE210)	S																						X		X						
				1kg TUB	S												X																		
17107236	TP-RPS-21	ES1	2.50	250g Amber Jar (ALE210)	S																														
17107222	TP-RPS-21	ES1	0.50	60g VOC (ALE215)	S																												X		
				250g Amber Jar (ALE210)	S																						X		X						
				1kg TUB	S												X		X																
17107413	TP-RPS-19	ES1	1.90	60g VOC (ALE215)	S																												X		

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17107292			17107299			17107203	17107285			17107399			17107249		17107419			17107413	
Customer Sample Reference			BH-RPS-04			BH-RPS-04			TP-RPS-11	TP-RPS-11			TP-RPS-17			TP-RPS-17		TP-RPS-19			TP-RPS-19	
AGS Reference			ES1			ES1			ES1	ES1			ES1			ES1		ES1			ES1	
Depth (m)			0.30			0.65 - 0.90			0.50	1.00			0.20			1.20		0.20			1.90	
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Magnesium (BRE)	All	NDPs: 0 Tests: 4							X							X						
Mercury Dissolved	All	NDPs: 0 Tests: 8	X							X			X					X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 12		X			X				X			X		X			X			X
Mineral Oil	All	NDPs: 0 Tests: 8		X							X			X					X			X
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 4							X							X						
PAH by GCMS	All	NDPs: 0 Tests: 13		X			X				X			X		X			X			X
PCBs by GCMS	All	NDPs: 0 Tests: 10		X							X			X					X			X
pH	All	NDPs: 0 Tests: 18		X			X		X		X			X		X			X			X
Phenols by HPLC (S)	All	NDPs: 0 Tests: 2		X																		
Phenols by HPLC (W)	All	NDPs: 0 Tests: 8	X							X			X					X			X	
Sample description	All	NDPs: 0 Tests: 18		X			X		X		X			X		X			X			X
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 4		X										X								
Total Dissolved Solids	All	NDPs: 0 Tests: 8	X							X			X					X			X	
Total Organic Carbon	All	NDPs: 0 Tests: 8		X							X			X					X			X
Total Sulphate	All	NDPs: 0 Tests: 4							X							X						

17107268	WS-RPS-27	ES1	3.20 - 3.50	250g Amber Jar (ALE210)	S								X				X		X		X						X						X		
				1kg TUB	S				X																X						X				
17107259	WS-RPS-27	ES1	1.40 - 1.60	60g VOC (ALE215)	S																														
				250g Amber Jar (ALE210)	S						X		X				X		X		X						X						X		
				1kg TUB	S				X																X						X				
17107357	TP-RPS-46	ES1	0.70	60g VOC (ALE215)	S																														
				250g Amber Jar (ALE210)	S						X		X				X		X		X						X						X		
				1kg TUB	S				X																X						X				
17107351	TP-RPS-46	ES1	0.20	60g VOC (ALE215)	S																														
				250g Amber Jar (ALE210)	S						X						X				X						X								
				1kg TUB	S																														
17107321	TP-RPS-28	ES1	1.00 - 1.10	250g Amber Jar (ALE210)	S																X						X								
17107312	TP-RPS-28	ES1	0.60	60g VOC (ALE215)	S																														
				250g Amber Jar (ALE210)	S						X						X		X		X		X				X		X						
				1kg TUB	S																														
17107236	TP-RPS-21	ES1	2.50	250g Amber Jar (ALE210)	S																X						X								
17107222	TP-RPS-21	ES1	0.50	60g VOC (ALE215)	S																														
				250g Amber Jar (ALE210)	S						X						X		X		X						X		X						
				1kg TUB	S																														
17107413	TP-RPS-19	ES1	1.90	60g VOC (ALE215)	S																														

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)																							
			17107292			17107299			17107203	17107285			17107399			17107249		17107419			17107413		
Customer Sample Reference			BH-RPS-04			BH-RPS-04			TP-RPS-11	TP-RPS-11			TP-RPS-17			TP-RPS-17		TP-RPS-19			TP-RPS-19		
AGS Reference			ES1			ES1			ES1	ES1			ES1			ES1		ES1			ES1		
Depth (m)			0.30			0.65 - 0.90			0.50	1.00			0.20			1.20		0.20			1.90		
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)		
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Total Sulphur	All	NDPs: 0 Tests: 4							X							X							
TPH CWG GC (S)	All	NDPs: 0 Tests: 12		X			X				X			X		X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 4			X										X								

17107268	WS-RPS-27	ES1	3.20 - 3.50	250g Amber Jar (ALE210)	S						
				1kg TUB	S						
17107259	WS-RPS-27	ES1	1.40 - 1.60	60g VOC (ALE215)	S						
				250g Amber Jar (ALE210)	S				X		
				1kg TUB	S						
17107357	TP-RPS-46	ES1	0.70	60g VOC (ALE215)	S						
				250g Amber Jar (ALE210)	S				X		
				1kg TUB	S						
17107351	TP-RPS-46	ES1	0.20	60g VOC (ALE215)	S						
				250g Amber Jar (ALE210)	S				X		
				1kg TUB	S						
17107321	TP-RPS-28	ES1	1.00 - 1.10	250g Amber Jar (ALE210)	S						
17107312	TP-RPS-28	ES1	0.60	60g VOC (ALE215)	S						X
				250g Amber Jar (ALE210)	S				X		
				1kg TUB	S						
17107236	TP-RPS-21	ES1	2.50	250g Amber Jar (ALE210)	S						
17107222	TP-RPS-21	ES1	0.50	60g VOC (ALE215)	S						X
				250g Amber Jar (ALE210)	S				X		
				1kg TUB	S						
17107413	TP-RPS-19	ES1	1.90	60g VOC (ALE215)	S						

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17107268	17107278	17107345
Customer Sample Reference			WS-RPS-27	WS-RPS-27	WS-RPS-27
AGS Reference			ES1	ES1	ES1
Depth (m)			3.20 - 3.50	5.50 - 5.80	9.20 - 9.60
Container			60g VOC (ALE215)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 4		X	X
Anions by Kone (soil)	All	NDPs: 0 Tests: 4		X	X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 13	X		
Magnesium (BRE)	All	NDPs: 0 Tests: 4		X	X
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 4		X	X
pH	All	NDPs: 0 Tests: 18		X	X
Sample description	All	NDPs: 0 Tests: 18		X	X
Total Sulphate	All	NDPs: 0 Tests: 4		X	X
Total Sulphur	All	NDPs: 0 Tests: 4		X	X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17107292	BH-RPS-04	0.30	Dark Brown	Loamy Sand	Stones	None
17107299	BH-RPS-04	0.65 - 0.90	Cream	N/A	Stones	None
17107203	TP-RPS-11	0.50	Black	Loamy Sand	Stones	None
17107285	TP-RPS-11	1.00	Light Brown	Loamy Sand	Stones	None
17107249	TP-RPS-17	1.20	Dark Brown	Sandy Loam	Stones	None
17107399	TP-RPS-17	0.20	Cream	Loamy Sand	Stones	None
17107413	TP-RPS-19	1.90	Cream	Sand	Stones	None
17107419	TP-RPS-19	0.20	Dark Brown	Loamy Sand	Stones	None
17107222	TP-RPS-21	0.50	Light Brown	Loamy Sand	Stones	Crushed Brick
17107236	TP-RPS-21	2.50	White	Sandy Loam	Stones	None
17107312	TP-RPS-28	0.60	Black	Loamy Sand	Stones	None
17107321	TP-RPS-28	1.00 - 1.10	White	Sandy Loam	None	None
17107351	TP-RPS-46	0.20	Grey	Loamy Sand	Stones	None
17107357	TP-RPS-46	0.70	Dark Brown	Loamy Sand	Stones	None
17107259	WS-RPS-27	1.40 - 1.60	Dark Brown	Sandy Silt Loam	None	None
17107268	WS-RPS-27	3.20 - 3.50	Dark Brown	Clay	Stones	None
17107278	WS-RPS-27	5.50 - 5.80	Dark Brown	Clay	Stones	None
17107345	WS-RPS-27	9.20 - 9.60	Dark Brown	Clay	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	BH-RPS-04	TP-RPS-11	TP-RPS-11	TP-RPS-17	TP-RPS-17
Depth (m)			0.30	0.65 - 0.90	0.50	1.00	0.20	1.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107292	17107299	17107203	17107285	17107399	17107249
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	19	45	11	37	2.6	23
Actinolite*		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
Amosite*		SUB (ASB)	Not Detected #	Not Detected #		Detected #	Not Detected #	
Anthophyllite*		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
Chrysotile*		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Detected #	
Crocidolite*		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
Tremolite*		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
Non-Asbestos Fibres Detected		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
Loss on ignition	<0.7 %	TM018	20.3 M					
Mineral oil >C10-C40	<1 mg/kg	TM061	63.8 @			31.6 @	12.7 @	
Mineral Oil Surrogate % recovery**	%	TM061	91.9 @			93.5 @	88.9 @	
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M					
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 M					
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 M					
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)	<0.01 M					
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)	<0.015 M					
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)	<0.06 M					
Organic Carbon, Total	<0.2 %	TM132	25.7 M			5.34 M	0.304 M	
Sulphur, Total	<0.02 %	TM132			0.121			0.291
pH	1 pH Units	TM133	8.46 M	12.8	8.65 M	11.1 M	9.2 M	7.73 M
PCB congener 28	<3 µg/kg	TM168	<3 M			<3 M	<3 M	
PCB congener 52	<3 µg/kg	TM168	<3 M			<3 M	<3 M	
PCB congener 101	<3 µg/kg	TM168	<3 M			<3 M	<3 M	
PCB congener 118	<3 µg/kg	TM168	<3 M			<3 M	<3 M	
PCB congener 138	<3 µg/kg	TM168	<3 M			<3 M	<3 M	
PCB congener 153	<3 µg/kg	TM168	<3 M			<3 M	<3 M	
PCB congener 180	<3 µg/kg	TM168	<3 M			<3 M	<3 M	
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21			<21	<21	
PCB congener 81	<3 µg/kg	TM168	<3 M				<3 M	
PCB congener 77	<3 µg/kg	TM168	<3 M				<3 M	
PCB congener 123	<3 µg/kg	TM168	<3 M				<3 M	
PCB congener 114	<3 µg/kg	TM168	<3 M				<3 M	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	BH-RPS-04	TP-RPS-11	TP-RPS-11	TP-RPS-17	TP-RPS-17
Depth (m)			0.30	0.65 - 0.90	0.50	1.00	0.20	1.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107292	17107299	17107203	17107285	17107399	17107249
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
PCB congener 105	<3 µg/kg	TM168	<3 M				<3 M	
PCB congener 126	<3 µg/kg	TM168	<3 M				<3 M	
PCB congener 167	<3 µg/kg	TM168	<3 M				<3 M	
PCB congener 156	<3 µg/kg	TM168	<3 M				<3 M	
PCB congener 157	<3 µg/kg	TM168	<3 M				<3 M	
PCB congener 169	<3 µg/kg	TM168	<3 M				<3 M	
PCB congener 189	<3 µg/kg	TM168	<3 M				<3 M	
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168	<36				<36	
Antimony	<0.6 mg/kg	TM181	2.11 #	1.68		1.23 #	<0.6 #	0.953 #
Arsenic	<0.6 mg/kg	TM181	30.6 M	40.4		20.8 M	1.6 M	9.13 M
Cadmium	<0.02 mg/kg	TM181	0.536 M	1.16		0.539 M	1.01 M	0.162 M
Chromium	<0.9 mg/kg	TM181	10.6 M	7.84		9.32 M	3.57 M	13.8 M
Cobalt	<0.1 mg/kg	TM181	14.9 M	5.86		5.2 M	0.955 M	6.84 M
Copper	<1.4 mg/kg	TM181	75 M	33.8		20.1 M	3.74 M	22.2 M
Lead	<0.7 mg/kg	TM181	376 M	120		17.8 M	29 M	32.7 M
Manganese	<0.13 mg/kg	TM181	586 M	856		475 M	468 M	201 M
Mercury	<0.14 mg/kg	TM181	5.6 M	6.94		<0.14 M	<0.14 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181	4.46 #	3.02		1.02 #	0.3 #	3.29 #
Nickel	<0.2 mg/kg	TM181	45.3 M	17.1		15.3 M	3.95 M	18.6 M
Selenium	<1 mg/kg	TM181	<1 #	<1		<1 #	<1 #	<1 #
Tin	<0.24 mg/kg	TM181	5.7 #	3.44		0.919 #	0.395 #	1.33 #
Thallium	<0.7 mg/kg	TM181	<0.7 #	0.704		<0.7 #	<0.7 #	<0.7 #
Vanadium	<0.2 mg/kg	TM181	65.3 #	33.9		28.6 #	4.89 #	23.5 #
Zinc	<1.9 mg/kg	TM181	127 M	66.1		53.5 M	19.6 M	55.1 M
ANC @ pH 4	<0.03 mol/kg	TM182	1.92			3.4	0.224	
ANC @ pH 6	<0.03 mol/kg	TM182	1.6			0.276	0.0727	
Sulphate, acid soluble (total)	<0.02 %	TM221			0.0298			0.0863
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243			0.0461 M			0.0538 M
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243			0.026 M			3.44 M
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243			0.00453			0.000889
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248			0.0046			0.00851
Magnesium (BRE)	<0.008 g/l	TM282			<0.008			<0.008

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	BH-RPS-04	TP-RPS-11	TP-RPS-11	TP-RPS-17	TP-RPS-17
Depth (m)			0.30	0.65 - 0.90	0.50	1.00	0.20	1.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107292	17107299	17107203	17107285	17107399	17107249
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304				<0.001 #	<0.001 #	
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304				<0.001 #	<0.001 #	
Additional Asbestos Components (Using TM048)		TM304				None #	None #	
Analysts Comments		TM304				N/C	N/C	
Asbestos Quantification - Total - %	<0.001 %	TM304				<0.001 #	<0.001 #	

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-19	TP-RPS-19	TP-RPS-21	TP-RPS-21	TP-RPS-28	TP-RPS-28
Depth (m)			0.20	1.90	0.50	2.50	0.60	1.00 - 1.10
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107419	17107413	17107222	17107236	17107312	17107321
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	6.5	24	26	43	21	54
Actinolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #		Not Detected #	
Amosite*		SUB (ASB)	Detected #	Detected #	Detected #		Not Detected #	
Anthophyllite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #		Not Detected #	
Chrysotile*		SUB (ASB)	Detected #	Detected #	Detected #		Not Detected #	
Crocidolite*		SUB (ASB)	Detected #	Not Detected #	Detected #		Not Detected #	
Tremolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #		Not Detected #	
Non-Asbestos Fibres Detected		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #		Not Detected #	
Loss on ignition	<0.7 %	TM018	2.85 M					
Mineral oil >C10-C40	<1 mg/kg	TM061	40.4 @	15.4 @				
Mineral Oil Surrogate % recovery**	%	TM061	90.9 @	92.4 @				
Phenol	<0.01 mg/kg	TM062 (S)					<0.01 M	
Cresols	<0.01 mg/kg	TM062 (S)					<0.01 M	
Xylenols	<0.015 mg/kg	TM062 (S)					<0.015 M	
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)					<0.01 M	
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)					<0.015 M	
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)					<0.06 M	
Organic Carbon, Total	<0.2 %	TM132	8.21 M	0.947 M				
pH	1 pH Units	TM133	8.75 M	7.88 M	8.97 M	11.4 M	8.8 M	12.9 M
PCB congener 28	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 52	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 101	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 118	<3 µg/kg	TM168	<3 M	<3 M	<3 M		<3 M	
PCB congener 138	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 153	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 180	<3 µg/kg	TM168	<3 M	<3 M				
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21	<21				
PCB congener 81	<3 µg/kg	TM168			<3 M		<3 M	
PCB congener 77	<3 µg/kg	TM168			<3 M		<3 M	
PCB congener 123	<3 µg/kg	TM168			<3 M		<3 M	
PCB congener 114	<3 µg/kg	TM168			<3 M		<3 M	
PCB congener 105	<3 µg/kg	TM168			<3 M		<3 M	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-19	TP-RPS-19	TP-RPS-21	TP-RPS-21	TP-RPS-28	TP-RPS-28
Depth (m)			0.20	1.90	0.50	2.50	0.60	1.00 - 1.10
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107419	17107413	17107222	17107236	17107312	17107321
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
PCB congener 126	<3 µg/kg	TM168			<3 M		<3 M	
PCB congener 167	<3 µg/kg	TM168			<3 M		<3 M	
PCB congener 156	<3 µg/kg	TM168			<3 M		<3 M	
PCB congener 157	<3 µg/kg	TM168			<3 M		<3 M	
PCB congener 169	<3 µg/kg	TM168			<3 M		<3 M	
PCB congener 189	<3 µg/kg	TM168			<3 M		<3 M	
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168			<36		<36	
Antimony	<0.6 mg/kg	TM181	2.42 #	0.842 #	3.06 #		1.86 #	
Arsenic	<0.6 mg/kg	TM181	14.8 M	30.8 M	93.1 M		38.1 M	
Cadmium	<0.02 mg/kg	TM181	0.822 M	0.522 M	2.12 M		0.199 M	
Chromium	<0.9 mg/kg	TM181	4.77 M	6.52 M	10.5 M		16.2 M	
Cobalt	<0.1 mg/kg	TM181	3.85 M	5.57 M	23.6 M		30.7 M	
Copper	<1.4 mg/kg	TM181	21.9 M	24.9 M	111 M		71.7 M	
Lead	<0.7 mg/kg	TM181	317 M	20.9 M	63.4 M		21.5 M	
Manganese	<0.13 mg/kg	TM181	251 M	381 M	883 M		1760 M	
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	<0.14 M		<0.14 M	
Molybdenum	<0.1 mg/kg	TM181	1.3 #	2.64 #	7.23 #		7.26 #	
Nickel	<0.2 mg/kg	TM181	13.2 M	15.6 M	66.8 M		61 M	
Selenium	<1 mg/kg	TM181	<1 #	<1 #	1.07 #		<1 #	
Tin	<0.24 mg/kg	TM181	1.97 #	0.801 #	2.1 #		2.22 #	
Thallium	<0.7 mg/kg	TM181	<0.7 #	<0.7 #	1.15 #		1.94 #	
Vanadium	<0.2 mg/kg	TM181	13.3 #	25.1 #	62.3 #		122 #	
Zinc	<1.9 mg/kg	TM181	81.2 M	62.2 M	469 M		39 M	
ANC @ pH 4	<0.03 mol/kg	TM182	1.75	2.12				
ANC @ pH 6	<0.03 mol/kg	TM182	0.136	0.0639				
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304		<0.001 #	3.04 #			
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304		<0.001 #	0.0087 #			
Additional Asbestos Components (Using TM048)		TM304		None #	None #			
Analysts Comments		TM304		N/C	Unidentifiable loose in			
Asbestos Quantification - Total - %	<0.001 %	TM304		<0.001 #	3.05 #			

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-46	TP-RPS-46	WS-RPS-27	WS-RPS-27	WS-RPS-27	WS-RPS-27
Depth (m)			0.20	0.70	1.40 - 1.60	3.20 - 3.50	5.50 - 5.80	9.20 - 9.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			16/02/2018	16/02/2018	15/02/2018	15/02/2018	15/02/2018	16/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107351	17107357	17107259	17107268	17107278	17107345
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	14	29	21	12	8	17
Actinolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Amosite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Anthophyllite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Chrysotile*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Crocidolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Tremolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Non-Asbestos Fibres Detected		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Loss on ignition	<0.7 %	TM018		11.6 M	4.34 M	2.51 M		
Mineral oil >C10-C40	<1 mg/kg	TM061		119	17.9 @	51.5 @		
Mineral Oil Surrogate % recovery**	%	TM061		90.7	95.1 @	98.4 @		
Organic Carbon, Total	<0.2 %	TM132		13.9 M	1.39 M	0.325 M		
Sulphur, Total	<0.02 %	TM132					0.0497	1.3
pH	1 pH Units	TM133	9.47 M	8.76 M	8.14 M	8.4 M	8.02 M	8.08 M
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M		
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M		
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M		
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 M		
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M		
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M		
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M		
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21		
Antimony	<0.6 mg/kg	TM181	0.616 #	2.29 #	1.03 #			
Arsenic	<0.6 mg/kg	TM181	4.02 M	60 M	6.42 M			
Cadmium	<0.02 mg/kg	TM181	3.57 M	0.661 M	0.0874 M			
Chromium	<0.9 mg/kg	TM181	8.88 M	9.03 M	19 M			
Cobalt	<0.1 mg/kg	TM181	2 M	16.9 M	7.83 M			
Copper	<1.4 mg/kg	TM181	14.9 M	82.1 M	14.6 M			
Lead	<0.7 mg/kg	TM181	134 M	89.7 M	24.1 M			
Manganese	<0.13 mg/kg	TM181	162 M	878 M	187 M			
Mercury	<0.14 mg/kg	TM181	<0.14 M	0.638 M	<0.14 M			
Molybdenum	<0.1 mg/kg	TM181	1.05 #	4.65 #	0.846 #			

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-46	TP-RPS-46	WS-RPS-27	WS-RPS-27	WS-RPS-27	WS-RPS-27
Depth (m)			0.20	0.70	1.40 - 1.60	3.20 - 3.50	5.50 - 5.80	9.20 - 9.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			16/02/2018	16/02/2018	15/02/2018	15/02/2018	15/02/2018	16/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107351	17107357	17107259	17107268	17107278	17107345
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Nickel	<0.2 mg/kg	TM181	10.6 M	40.3 M	24 M			
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #			
Tin	<0.24 mg/kg	TM181	1.03 #	3.26 #	1.19 #			
Thallium	<0.7 mg/kg	TM181	<0.7 #	1.2 #	<0.7 #			
Vanadium	<0.2 mg/kg	TM181	9.36 #	64.5 #	25.9 #			
Zinc	<1.9 mg/kg	TM181	145 M	87.6 M	47.2 M			
ANC @ pH 4	<0.03 mol/kg	TM182		0.63	0.114	0.083		
ANC @ pH 6	<0.03 mol/kg	TM182		0.0583	0.0442	0.0401		
Sulphate, acid soluble (total)	<0.02 %	TM221					<0.02	3.42
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243					0.0251 M	1.84 M
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243					0.808 M	0.0265 M
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243					0.000708	0.00135
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248					0.00424	0.00519
Magnesium (BRE)	<0.008 g/l	TM282					0.0204	0.057

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

GRO by GC-FID (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	WS-RPS-27
Depth (m)	3.20 - 3.50
Sample Type	Soil/Solid (S)
Date Sampled	15/02/2018
Sampled Time	.
Date Received	23/02/2018
SDG Ref	180223-50
Lab Sample No.(s)	17107268
AGS Reference	ES1

Component	LOD/Units	Method	WS-RPS-27
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #
Benzene	<10 µg/kg	TM089	<10 M
Toluene	<2 µg/kg	TM089	<2 M
Ethylbenzene	<3 µg/kg	TM089	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	BH-RPS-04	TP-RPS-11	TP-RPS-17	TP-RPS-17	TP-RPS-19
Depth (m)			0.30	0.65 - 0.90	1.00	0.20	1.20	0.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107292	17107299	17107285	17107399	17107249	17107419
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	89.2	125	107	103	108	88.4
Acenaphthene-d10 % recovery**	%	TM218	88.3	126	109	100	112	89
Phenanthrene-d10 % recovery**	%	TM218	88.9	120	106	99.6	104	84.8
Chrysene-d12 % recovery**	%	TM218	94.9	116	92.8	80	95.6	79.3
Perylene-d12 % recovery**	%	TM218	88.9	117	100	71.6	101	77.8
Naphthalene	<9 µg/kg	TM218	1970 M	709	1200 M	<9 M	25.8 @ M	213 M
Acenaphthylene	<12 µg/kg	TM218	461 M	233	32.4 M	<12 M	<12 @ M	97.6 M
Acenaphthene	<8 µg/kg	TM218	31.2 M	17.6	34.9 M	<8 M	<8 @ M	12.9 M
Fluorene	<10 µg/kg	TM218	73.9 M	29	<10 M	<10 M	<10 @ M	13.4 M
Phenanthrene	<15 µg/kg	TM218	2390 M	719	1050 M	<15 M	85.7 @ M	426 M
Anthracene	<16 µg/kg	TM218	656 M	170	88.7 M	<16 M	22.5 @ M	112 M
Fluoranthene	<17 µg/kg	TM218	6080 M	1200	643 M	<17 M	97.1 @ M	890 M
Pyrene	<15 µg/kg	TM218	5360 M	1080	606 M	<15 M	71.5 @ M	733 M
Benz(a)anthracene	<14 µg/kg	TM218	3970 M	1710	405 M	<14 M	79.9 @ M	483 M
Chrysene	<10 µg/kg	TM218	3540 M	1600	411 M	<10 M	59.7 @ M	483 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	5530 M	3310	694 M	<15 M	120 @ M	739 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	2250 M	1130	227 M	<14 M	31.1 @ M	303 M
Benzo(a)pyrene	<15 µg/kg	TM218	3620 M	2410	486 M	<15 M	67.7 @ M	486 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	2020 M	1310	332 M	<18 M	53.5 @ M	334 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	757 M	400	88.7 M	<23 M	<23 @ M	110 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	2480 M	1830	529 M	<24 M	70.6 @ M	439 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	41200	17800	6830	<118	785	5880
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218	41.6		<10	<10		<10

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-19	TP-RPS-21	TP-RPS-28	TP-RPS-46	TP-RPS-46	WS-RPS-27
Depth (m)			1.90	0.50	0.60	0.20	0.70	1.40 - 1.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			15/02/2018	15/02/2018	15/02/2018	16/02/2018	16/02/2018	15/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107413	17107222	17107312	17107351	17107357	17107259
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	127	113	98.8	89.6	120	106
Acenaphthene-d10 % recovery**	%	TM218	132	112	102	87.6	122	107
Phenanthrene-d10 % recovery**	%	TM218	122	107	97.6	86.5	121	104
Chrysene-d12 % recovery**	%	TM218	114	96.8	83.5	87.4	110	85.5
Perylene-d12 % recovery**	%	TM218	117	94.7	79.4	85.3	108	87.3
Naphthalene	<9 µg/kg	TM218	<9 @ M	326 M	4860 M	15.3 M	1060 M	<9 M
Acenaphthylene	<12 µg/kg	TM218	<12 @ M	<12 M	29.2 M	30.9 M	94.5 M	<12 M
Acenaphthene	<8 µg/kg	TM218	<8 @ M	<8 M	11.3 M	<8 M	22.5 M	<8 M
Fluorene	<10 µg/kg	TM218	<10 @ M	<10 M	14.2 M	<10 M	27.6 M	<10 M
Phenanthrene	<15 µg/kg	TM218	<15 @ M	200 M	2310 M	64.7 M	919 M	<15 M
Anthracene	<16 µg/kg	TM218	<16 @ M	<16 M	149 M	22.9 M	174 M	<16 M
Fluoranthene	<17 µg/kg	TM218	<17 @ M	74.1 M	819 M	124 M	862 M	<17 M
Pyrene	<15 µg/kg	TM218	<15 @ M	72.6 M	732 M	137 M	842 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218	<14 @ M	65.8 M	464 M	63.9 M	443 M	<14 M
Chrysene	<10 µg/kg	TM218	<10 @ M	49 M	405 M	73.8 M	439 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	19.7 @ M	80.1 M	771 M	185 M	931 M	20.5 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 @ M	27.2 M	171 M	67.2 M	272 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 @ M	41.8 M	321 M	142 M	527 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 @ M	32.6 M	187 M	89.7 M	551 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @ M	<23 M	80 M	<23 M	134 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 @ M	63.5 M	484 M	134 M	1090 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	1030	11800	1150	8380	<118
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218	<10 @				<10	<10

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	WS-RPS-27
Depth (m)	3.20 - 3.50
Sample Type	Soil/Solid (S)
Date Sampled	15/02/2018
Sampled Time	.
Date Received	23/02/2018
SDG Ref	180223-50
Lab Sample No.(s)	17107268
AGS Reference	ES1

Component	LOD/Units	Method	
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218	<10 @

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	TP-RPS-17	TP-RPS-21	TP-RPS-28		
Depth (m)			0.30	0.20	0.50	0.60		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018		
Sampled Time			.	.	.	.		
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018		
SDG Ref			180223-50	180223-50	180223-50	180223-50		
Lab Sample No.(s)			17107292	17107399	17107222	17107312		
AGS Reference			ES1	ES1	ES1	ES1		
Component	**LOD/Units**	**Method**						
Phenol	<100 µg/kg	TM157	<100	<100	<100	<100		
Pentachlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100		
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100	<100	<100		
Nitrobenzene	<100 µg/kg	TM157	<100	<100	<100	<100		
Isophorone	<100 µg/kg	TM157	<100	<100	<100	<100		
Hexachloroethane	<100 µg/kg	TM157	<100	<100	<100	<100		
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100	<100	<100		
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100	<100	<100		
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100		
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100		
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100		
Diethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100		
n-Dibutyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100		
Dibenzofuran	<100 µg/kg	TM157	864	<100	<100	<100		
Carbazole	<100 µg/kg	TM157	161	<100	<100	<100		
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100		
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100	<100	<100		
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100	<100	<100		
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100	<100	<100		
Azobenzene	<100 µg/kg	TM157	<100	<100	<100	<100		
4-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100	<100		
4-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100		
4-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100		
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100		
4-Chloroaniline	<100 µg/kg	TM157	<100	<100	<100	<100		
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100		
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100		
3-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100		
2-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100	<100		
2-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100		
2-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100		
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100		

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	TP-RPS-17	TP-RPS-21	TP-RPS-28		
Depth (m)			0.30	0.20	0.50	0.60		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018		
Sampled Time			-	-	-	-		
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018		
SDG Ref			180223-50	180223-50	180223-50	180223-50		
Lab Sample No.(s)			17107292	17107399	17107222	17107312		
AGS Reference			ES1	ES1	ES1	ES1		
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100		
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<100	<100		
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<100	<100		
2,4-Dimethylphenol	<100 µg/kg	TM157	<100	<100	<100	<100		
2,4-Dichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100		
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100		
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100		
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100		
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100		
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100		
2-Chloronaphthalene	<100 µg/kg	TM157	<100	<100	<100	<100		
2-Methylnaphthalene	<100 µg/kg	TM157	3420	<100	301	326		
Acenaphthylene	<100 µg/kg	TM157	335	<100	<100	<100		
Acenaphthene	<100 µg/kg	TM157	<100	<100	<100	<100		
Anthracene	<100 µg/kg	TM157	627	<100	<100	<100		
Benzo(a)anthracene	<100 µg/kg	TM157	4360	<100	<100	<100		
Benzo(b)fluoranthene	<100 µg/kg	TM157	3630	<100	<100	<100		
Benzo(k)fluoranthene	<100 µg/kg	TM157	3570	<100	<100	<100		
Benzo(a)pyrene	<100 µg/kg	TM157	3950	<100	<100	<100		
Benzo(g,h,i)perylene	<100 µg/kg	TM157	2050	<100	<100	<100		
Chrysene	<100 µg/kg	TM157	4060	<100	<100	<100		
Fluoranthene	<100 µg/kg	TM157	7020	<100	<100	<100		
Fluorene	<100 µg/kg	TM157	<100	<100	<100	<100		
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	2260	<100	<100	<100		
Phenanthrene	<100 µg/kg	TM157	2620	<100	<100	<100		
Pyrene	<100 µg/kg	TM157	6020	<100	<100	<100		
Naphthalene	<100 µg/kg	TM157	3420	<100	323	322		
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	317	<100	<100	<100		
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100	<100	<100	<100		

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	BH-RPS-04	TP-RPS-11	TP-RPS-17	TP-RPS-17	TP-RPS-19
Depth (m)			0.30	0.65 - 0.90	1.00	0.20	1.20	0.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018	15/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107292	17107299	17107285	17107399	17107249	17107419
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	27	94	107	128	98	54
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	89.8 M	126	<44 M	<44 M	<44 M	<44 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5	<5 #	<5 #	<5 #	<5 #
Benzene	<10 µg/kg	TM089	<10 M	<10	<10 M	<10 M	<10 M	<10 M
Toluene	<2 µg/kg	TM089	7.38 M	3.6	<2 M	<2 M	<2 M	2.14 M
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3	<3 M	<3 M	<3 M	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6	<6 M	<6 M	<6 M	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M	<3	<3 M	<3 M	<3 M	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	35.7	30.6	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	13.5	30.6	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	18	<10	<10	<10	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	5020	<100	<100	<100	<100	<100
Aliphatics >C16-C21	<100 µg/kg	TM173	6860	1900	645	<100	<100	1930
Aliphatics >C21-C35	<100 µg/kg	TM173	31100	24200	8420	1440	1410	24800
Aliphatics >C35-C44	<100 µg/kg	TM173	<100	7090	1710	<100	<100	6890
Total Aliphatics >C12-C44	<100 µg/kg	TM173	43000	33200	10800	1440	1410	33600
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	14.8	21.6	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	12.6	<10	<10	<10	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	10500	3680	2900	506	185	2710
Aromatics >EC16-EC21	<100 µg/kg	TM173	28100	23000	6730	787	471	10600
Aromatics >EC21-EC35	<100 µg/kg	TM173	110000	77500	29800	4290	9100	45200
Aromatics >EC35-EC44	<100 µg/kg	TM173	22800	21900	9630	707	2680	22500
Aromatics >EC40-EC44	<100 µg/kg	TM173	6230	7290	2890	<100	588	9040
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	171000	126000	49000	6290	12400	81100
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	214000	159000	59800	7730	13900	115000

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-19	TP-RPS-21	TP-RPS-28	TP-RPS-46	TP-RPS-46	WS-RPS-27
Depth (m)			1.90	0.50	0.60	0.20	0.70	1.40 - 1.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			15/02/2018	15/02/2018	15/02/2018	16/02/2018	16/02/2018	15/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-50	180223-50	180223-50	180223-50	180223-50	180223-50
Lab Sample No.(s)			17107413	17107222	17107312	17107351	17107357	17107259
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	89	119	27	54	50	109
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	<44 M	73.1 M	<44 M	<44 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5 #	6.35 #	<5 #	<5 #	<5 #
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<2 µg/kg	TM089	<2 M	<2 M	<2 M	<2 M	<2 M	<2 M
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	<10	17.4	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	<10	17.4	<10	11.3
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	<10	10.4	<10	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	529	8480	1140	4240	<100
Aliphatics >C16-C21	<100 µg/kg	TM173	<100	1660	9640	18900	29500	<100
Aliphatics >C21-C35	<100 µg/kg	TM173	<100	9030	27800	474000	89500	3710
Aliphatics >C35-C44	<100 µg/kg	TM173	<100	1130	4570	178000	13900	<100
Total Aliphatics >C12-C44	<100 µg/kg	TM173	<100	12400	50400	672000	137000	3710
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	<10	13.9	<10	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	338	1400	13400	2090	6240	<100
Aromatics >EC16-EC21	<100 µg/kg	TM173	1240	2250	21000	21200	19500	<100
Aromatics >EC21-EC35	<100 µg/kg	TM173	2640	8460	54900	332000	92400	7180
Aromatics >EC35-EC44	<100 µg/kg	TM173	254	4180	8440	324000	32400	3140
Aromatics >EC40-EC44	<100 µg/kg	TM173	<100	1760	<100	162000	11100	1090
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	4470	16300	97700	680000	151000	10300
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	4470	28600	148000	1350000	288000	14000

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	TP-RPS-17	TP-RPS-21	TP-RPS-28		
Depth (m)			0.30	0.20	0.50	0.60		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018		
Sampled Time			.	.	.	.		
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018		
SDG Ref			180223-50	180223-50	180223-50	180223-50		
Lab Sample No.(s)			17107292	17107399	17107222	17107312		
AGS Reference			ES1	ES1	ES1	ES1		
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	109	111	116	115		
Toluene-d8**	%	TM116	93.7	97.6	92.1	92.4		
4-Bromofluorobenzene**	%	TM116	81.9	92.4	80	78.3		
Dichlorodifluoromethane	<6 µg/kg	TM116	<120 M	<6 M	<6 M	<120 M		
Chloromethane	<7 µg/kg	TM116	<140 #	<7 #	<7 #	<140 #		
Vinyl Chloride	<6 µg/kg	TM116	<120 M	<6 M	<6 M	<120 M		
Bromomethane	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Chloroethane	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Trichlorofluorormethane	<6 µg/kg	TM116	<120 M	<6 M	<6 M	<120 M		
1,1-Dichloroethene	<10 µg/kg	TM116	<200 #	<10 #	<10 #	<200 #		
Carbon Disulphide	<7 µg/kg	TM116	<140 M	<7 M	<7 M	<140 M		
Dichloromethane	<10 µg/kg	TM116	<200 #	<10 #	<10 #	<200 #		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
1,1-Dichloroethane	<8 µg/kg	TM116	<160 M	<8 M	<8 M	<160 M		
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<120 M	<6 M	<6 M	<120 M		
2,2-Dichloropropane	<10 µg/kg	TM116	<200	<10	<10	<200		
Bromochloromethane	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Chloroform	<8 µg/kg	TM116	<160 M	<8 M	<8 M	<160 M		
1,1,1-Trichloroethane	<7 µg/kg	TM116	<140 M	<7 M	<7 M	<140 M		
1,1-Dichloropropene	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Carbontetrachloride	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
1,2-Dichloroethane	<5 µg/kg	TM116	<100 M	<5 M	<5 M	<100 M		
Benzene	<9 µg/kg	TM116	<180 M	<9 M	118 M	<180 M		
Trichloroethene	<9 µg/kg	TM116	<180 #	<9 #	<9 #	<180 #		
1,2-Dichloropropane	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Dibromomethane	<9 µg/kg	TM116	<180 M	<9 M	<9 M	<180 M		
Bromodichloromethane	<7 µg/kg	TM116	<140 M	<7 M	<7 M	<140 M		
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Toluene	<7 µg/kg	TM116	<140 M	<7 M	14 M	<140 M		
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<200	<10	<10	<200		
1,1,2-Trichloroethane	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	TP-RPS-17	TP-RPS-21	TP-RPS-28		
Depth (m)			0.30	0.20	0.50	0.60		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018		
Sampled Time			-	-	-	-		
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018		
SDG Ref			180223-50	180223-50	180223-50	180223-50		
Lab Sample No.(s)			17107292	17107399	17107222	17107312		
AGS Reference			ES1	ES1	ES1	ES1		
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<140 M	<7 M	<7 M	<140 M		
Tetrachloroethene	<5 µg/kg	TM116	<100 M	<5 M	<5 M	<100 M		
Dibromochloromethane	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
1,2-Dibromoethane	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Chlorobenzene	<5 µg/kg	TM116	<100 M	<5 M	<5 M	<100 M		
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Ethylbenzene	<4 µg/kg	TM116	<80 M	<4 M	<4 M	<80 M		
p/m-Xylene	<10 µg/kg	TM116	<200 #	<10 #	<10 #	<200 #		
o-Xylene	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Styrene	<10 µg/kg	TM116	<200 #	<10 #	<10 #	<200 #		
Bromoform	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Isopropylbenzene	<5 µg/kg	TM116	<100 #	<5 #	<5 #	<100 #		
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<200 #	<10 #	<10 #	<200 #		
1,2,3-Trichloropropane	<16 µg/kg	TM116	<320 M	<16 M	<16 M	<320 M		
Bromobenzene	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
Propylbenzene	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
2-Chlorotoluene	<9 µg/kg	TM116	<180 M	<9 M	<9 M	<180 M		
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<160 M	<8 M	<8 M	<160 M		
4-Chlorotoluene	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
tert-Butylbenzene	<14 µg/kg	TM116	<280 M	<14 M	<14 M	<280 M		
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<180 #	<9 #	<9 #	<180 #		
sec-Butylbenzene	<10 µg/kg	TM116	<200	<10	<10	<200		
4-Isopropyltoluene	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
1,3-Dichlorobenzene	<8 µg/kg	TM116	<160 M	<8 M	<8 M	<160 M		
1,4-Dichlorobenzene	<5 µg/kg	TM116	<100 M	<5 M	<5 M	<100 M		
n-Butylbenzene	<11 µg/kg	TM116	<220	<11	<11	<220		
1,2-Dichlorobenzene	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M		
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<280 M	<14 M	<14 M	<280 M		
Tert-amyl methyl ether	<10 µg/kg	TM116	<200 #	<10 #	<10 #	<200 #		
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<400	<20	<20	<400		
Hexachlorobutadiene	<20 µg/kg	TM116	<400	<20	<20	<400		
Naphthalene	<13 µg/kg	TM116	<260 M	<13 M	<13 M	<260 M		

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	TP-RPS-17	TP-RPS-21	TP-RPS-28		
Depth (m)			0.30	0.20	0.50	0.60		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018		
Sampled Time			-	-	-	-		
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018		
SDG Ref			180223-50	180223-50	180223-50	180223-50		
Lab Sample No.(s)			17107292	17107399	17107222	17107312		
AGS Reference			ES1	ES1	ES1	ES1		
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<400 #	<20 #	<20 #	<400 #		

Asbestos Quantification - Full

		Additional Asbestos Components (Using TM048)	Analysts Comments	Asbestos Quantification - Gravimetric - %	Asbestos Quantification - PCOM Evaluation - %	Asbestos Quantification - Total - %
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-11 ES 1 1.00 SOLID 15/02/2018 00:00:00 07/03/2018 17:37:17 180223-50 17107285 TM304	None (#)	N/C	<0.001 (#)	<0.001 (#)	<0.001 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-17 ES 1 0.20 SOLID 15/02/2018 00:00:00 07/03/2018 17:31:33 180223-50 17107399 TM304	None (#)	N/C	<0.001 (#)	<0.001 (#)	<0.001 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-19 ES 1 1.90 SOLID 15/02/2018 00:00:00 07/03/2018 18:35:46 180223-50 17107413 TM304	None (#)	N/C	<0.001 (#)	<0.001 (#)	<0.001 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-21 ES 1 0.50 SOLID 15/02/2018 00:00:00 07/03/2018 17:29:36 180223-50 17107222 TM304	None (#)	Unidentifiable loose insulation debris	3.0421 (#)	0.0087 (#)	3.0508 (#)

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	26.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	79
Particle Size <4mm	>95%		

Case	
SDG	180223-50
Lab Sample Number(s)	17107259
Sampled Date	15-Feb-2018
Customer Sample Ref.	WS-RPS-27 ES1
Depth (m)	1.40 - 1.60

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	1.39	3	5	6
Loss on Ignition (%)	4.34	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	17.9	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.14	-	>6	-
ANC to pH 6 (mol/kg)	0.0442	-	-	-
ANC to pH 4 (mol/kg)	0.114	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00722	<0.0005	0.0722	<0.005	0.5	2	25
Barium	0.0254	<0.0002	0.254	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.000674	<0.0003	0.00674	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.0128	<0.0005	0.128	<0.005	0.5	10	30
Nickel	0.00123	<0.0004	0.0123	<0.004	0.4	10	40
Lead	0.00048	<0.0002	0.0048	<0.002	0.5	10	50
Antimony	0.00143	<0.0001	0.0143	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	0.00102	<0.001	0.0102	<0.01	4	50	200
Chloride	3.7	<2	37	<20	800	15000	25000
Fluoride	-	-	-	-	10	150	500
Sulphate (soluble)	3.3	<2	33	<20	1000	20000	50000
Total Dissolved Solids	162	<5	1620	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	22.9	<3	229	<30	500	800	1000

Leach Test Information

Date Prepared	27-Feb-2018
pH (pH Units)	8.54
Conductivity (µS/cm)	197.00
Temperature (ºC)	14.80
Volume Leachant (Litres)	0.876

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	26.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	79
Particle Size <4mm	>95%		

Case	
SDG	180223-50
Lab Sample Number(s)	17107259
Sampled Date	15-Feb-2018
Customer Sample Ref.	WS-RPS-27 ES1
Depth (m)	1.40 - 1.60

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	1.39	3	5	6
Loss on Ignition (%)	4.34	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	17.9	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.14	-	>6	-
ANC to pH 6 (mol/kg)	0.0442	-	-	-
ANC to pH 4 (mol/kg)	0.114	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Fluoride (W)	0.716	<0.1	7.16	<1	-	-	-

Leach Test Information

Date Prepared	27-Feb-2018
pH (pH Units)	8.54
Conductivity (µS/cm)	197.00
Temperature (ºC)	14.80
Volume Leachant (Litres)	0.876

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

03/04/2018 14:37:47

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.104	**Natural Moisture Content (%)**	15.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	86.7
Particle Size <4mm	>95%		

Case	
SDG	180223-50
Lab Sample Number(s)	17107268
Sampled Date	15-Feb-2018
Customer Sample Ref.	WS-RPS-27 ES1
Depth (m)	3.20 - 3.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.325	3	5	6
Loss on Ignition (%)	2.51	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	51.5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.4	-	>6	-
ANC to pH 6 (mol/kg)	0.0401	-	-	-
ANC to pH 4 (mol/kg)	0.083	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.000919	<0.0005	0.00919	<0.005	0.5	2	25
Barium	0.00994	<0.0002	0.0994	<0.002	20	100	300
Cadmium	0.00013	<0.00008	0.0013	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	<0.0003	<0.0003	<0.003	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00258	<0.0005	0.0258	<0.005	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	0.000894	<0.0001	0.00894	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	0.0252	<0.001	0.252	<0.01	4	50	200
Chloride	98.9	<2	989	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	2.7	<2	27	<20	1000	20000	50000
Total Dissolved Solids	275	<5	2750	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	28-Feb-2018
pH (pH Units)	9.09
Conductivity (µS/cm)	332.00
Temperature (ºC)	14.40
Volume Leachant (Litres)	0.886

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

03/04/2018 14:37:47

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.143	**Natural Moisture Content (%)**	58.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	63
Particle Size <4mm	>95%		

Case	
SDG	180223-50
Lab Sample Number(s)	17107285
Sampled Date	15-Feb-2018
Customer Sample Ref.	TP-RPS-11 ES1
Depth (m)	1.00

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	5.34	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	31.6	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	11.1	-	>6	-
ANC to pH 6 (mol/kg)	0.276	-	-	-
ANC to pH 4 (mol/kg)	3.4	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00145	<0.0005	0.0145	<0.005	0.5	2	25
Barium	0.0204	<0.0002	0.204	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00424	<0.001	0.0424	<0.01	0.5	10	70
Copper	<0.0003	<0.0003	<0.003	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00371	<0.0005	0.0371	<0.005	0.5	10	30
Nickel	0.00075	<0.0004	0.0075	<0.004	0.4	10	40
Lead	0.000834	<0.0002	0.00834	<0.002	0.5	10	50
Antimony	0.00305	<0.0001	0.0305	<0.001	0.06	0.7	5
Selenium	0.00105	<0.0005	0.0105	<0.005	0.1	0.5	7
Zinc	0.00227	<0.001	0.0227	<0.01	4	50	200
Chloride	8.7	<2	87	<20	800	15000	25000
Fluoride	-	-	-	-	10	150	500
Sulphate (soluble)	72.5	<2	725	<20	1000	20000	50000
Total Dissolved Solids	219	<5	2190	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	27-Feb-2018
pH (pH Units)	10.69
Conductivity (µS/cm)	325.00
Temperature (ºC)	17.80
Volume Leachant (Litres)	0.847

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.143	**Natural Moisture Content (%)**	58.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	63
Particle Size <4mm	>95%		

Case	
SDG	180223-50
Lab Sample Number(s)	17107285
Sampled Date	15-Feb-2018
Customer Sample Ref.	TP-RPS-11 ES1
Depth (m)	1.00

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	5.34	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	31.6	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	11.1	-	>6	-
ANC to pH 6 (mol/kg)	0.276	-	-	-
ANC to pH 4 (mol/kg)	3.4	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Fluoride (W)	0.176	<0.1	1.76	<1	-	-	-

Leach Test Information

Date Prepared	27-Feb-2018
pH (pH Units)	10.69
Conductivity (µS/cm)	325.00
Temperature (ºC)	17.80
Volume Leachant (Litres)	0.847

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.111	**Natural Moisture Content (%)**	23.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	81
Particle Size <4mm	>95%		

Case	
SDG	180223-50
Lab Sample Number(s)	17107292
Sampled Date	15-Feb-2018
Customer Sample Ref.	BH-RPS-04 ES1
Depth (m)	0.30

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	25.7	3	5	6
Loss on Ignition (%)	20.3	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	63.8	500	-	-
PAH Sum of 17 (mg/kg)	41.6	100	-	-
pH (pH Units)	8.46	-	>6	-
ANC to pH 6 (mol/kg)	1.6	-	-	-
ANC to pH 4 (mol/kg)	1.92	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00317	<0.0005	0.0317	<0.005	0.5	2	25
Barium	0.036	<0.0002	0.36	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00201	<0.0003	0.0201	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.000438	<0.00001	0.00438	<0.0001	0.01	0.2	2
Molybdenum	0.00729	<0.0005	0.0729	<0.005	0.5	10	30
Nickel	0.000462	<0.0004	0.00462	<0.004	0.4	10	40
Lead	0.000776	<0.0002	0.00776	<0.002	0.5	10	50
Antimony	0.00111	<0.0001	0.0111	<0.001	0.06	0.7	5
Selenium	0.00123	<0.0005	0.0123	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	7.1	<2	71	<20	1000	20000	50000
Total Dissolved Solids	91.6	<5	916	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	3.47	<3	34.7	<30	500	800	1000

Leach Test Information

Date Prepared	27-Feb-2018
pH (pH Units)	8.47
Conductivity (µS/cm)	116.00
Temperature (ºC)	17.80
Volume Leachant (Litres)	0.879

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.126	**Natural Moisture Content (%)**	40.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	71
Particle Size <4mm	>95%		

Case	
SDG	180223-50
Lab Sample Number(s)	17107357
Sampled Date	16-Feb-2018
Customer Sample Ref.	TP-RPS-46 ES1
Depth (m)	0.70

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	13.9	3	5	6
Loss on Ignition (%)	11.6	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	119	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.76	-	>6	-
ANC to pH 6 (mol/kg)	0.0583	-	-	-
ANC to pH 4 (mol/kg)	0.63	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0322	<0.0005	0.322	<0.005	0.5	2	25
Barium	0.0283	<0.0002	0.283	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00106	<0.001	0.0106	<0.01	0.5	10	70
Copper	0.000836	<0.0003	0.00836	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000241	<0.00001	0.000241	<0.0001	0.01	0.2	2
Molybdenum	0.00445	<0.0005	0.0445	<0.005	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	0.000562	<0.0002	0.00562	<0.002	0.5	10	50
Antimony	0.00184	<0.0001	0.0184	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	3.7	<2	37	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	12	<2	120	<20	1000	20000	50000
Total Dissolved Solids	104	<5	1040	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	27-Feb-2018
pH (pH Units)	6.69
Conductivity (µS/cm)	131.00
Temperature (ºC)	17.70
Volume Leachant (Litres)	0.863

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.092	**Natural Moisture Content (%)**	2.67
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	97.4
Particle Size <4mm	>95%		

Case	
SDG	180223-50
Lab Sample Number(s)	17107399
Sampled Date	15-Feb-2018
Customer Sample Ref.	TP-RPS-17 ES1
Depth (m)	0.20

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.304	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	12.7	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	9.2	-	>6	-
ANC to pH 6 (mol/kg)	0.0727	-	-	-
ANC to pH 4 (mol/kg)	0.224	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.317	<0.0002	3.17	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00272	<0.001	0.0272	<0.01	0.5	10	70
Copper	<0.0003	<0.0003	<0.003	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00259	<0.0005	0.0259	<0.005	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	0.000212	<0.0002	0.00212	<0.002	0.5	10	50
Antimony	0.000164	<0.0001	0.00164	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	3.7	<2	37	<20	1000	20000	50000
Total Dissolved Solids	54.1	<5	541	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	27-Feb-2018
pH (pH Units)	9.34
Conductivity (µS/cm)	43.10
Temperature (ºC)	17.90
Volume Leachant (Litres)	0.898

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.119	**Natural Moisture Content (%)**	31.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	76
Particle Size <4mm	>95%		

Case	
SDG	180223-50
Lab Sample Number(s)	17107413
Sampled Date	15-Feb-2018
Customer Sample Ref.	TP-RPS-19 ES1
Depth (m)	1.90

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.947	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	15.4	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	7.88	-	>6	-
ANC to pH 6 (mol/kg)	0.0639	-	-	-
ANC to pH 4 (mol/kg)	2.12	-	-	-

Eluate Analysis	**C2** Conc^n in 10:1 eluate (mg/l)		**A2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0109	<0.0005	0.109	<0.005	0.5	2	25
Barium	0.0185	<0.0002	0.185	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00131	<0.001	0.0131	<0.01	0.5	10	70
Copper	<0.0003	<0.0003	<0.003	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00204	<0.0005	0.0204	<0.005	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	0.00203	<0.0001	0.0203	<0.001	0.06	0.7	5
Selenium	0.00166	<0.0005	0.0166	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	3.5	<2	35	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	536	<10	5360	<100	1000	20000	50000
Total Dissolved Solids	755	<5	7550	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	27-Feb-2018
pH (pH Units)	8.26
Conductivity (µS/cm)	972.00
Temperature (ºC)	17.80
Volume Leachant (Litres)	0.872

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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03/04/2018 14:37:47

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.097	**Natural Moisture Content (%)**	6.95
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	93.5
Particle Size <4mm	>95%		

Case	
SDG	180223-50
Lab Sample Number(s)	17107419
Sampled Date	15-Feb-2018
Customer Sample Ref.	TP-RPS-19 ES1
Depth (m)	0.20

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	8.21	3	5	6
Loss on Ignition (%)	2.85	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	40.4	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.75	-	>6	-
ANC to pH 6 (mol/kg)	0.136	-	-	-
ANC to pH 4 (mol/kg)	1.75	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00668	<0.0005	0.0668	<0.005	0.5	2	25
Barium	0.0249	<0.0002	0.249	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00139	<0.001	0.0139	<0.01	0.5	10	70
Copper	0.000682	<0.0003	0.00682	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00256	<0.0005	0.0256	<0.005	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	0.000371	<0.0002	0.00371	<0.002	0.5	10	50
Antimony	0.00186	<0.0001	0.0186	<0.001	0.06	0.7	5
Selenium	0.000722	<0.0005	0.00722	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	3.3	<2	33	<20	1000	20000	50000
Total Dissolved Solids	56.2	<5	562	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	27-Feb-2018
pH (pH Units)	9.03
Conductivity (µS/cm)	67.60
Temperature (ºC)	17.70
Volume Leachant (Litres)	0.894

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Notification of NDPs (No determination possible)

Date Received : 23/02/2018 11:46:21

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
17107285	TP-RPS-11 ES1	1.00	Loss on Ignition in soils	Unsuitable sample for analysis
17107399	TP-RPS-17 ES1	0.20	Loss on Ignition in soils	Unsuitable sample for analysis
17107413	TP-RPS-19 ES1	1.90	Loss on Ignition in soils	Unsuitable sample for analysis

Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
SUB (ASB)		
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM282		Extraction of Magnesium by BRE Method
TM304	HSE Contract research Report no 83/1996	Asbestos Quantification in Soil: Fibres identified by morphology only

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Test Completion Dates

Lab Sample No(s)	17107292	17107299	17107203	17107285	17107249	17107399	17107413	17107419	17107222	17107236
Customer Sample Ref.	BH-RPS-04	BH-RPS-04	TP-RPS-11	TP-RPS-11	TP-RPS-17	TP-RPS-17	TP-RPS-19	TP-RPS-19	TP-RPS-21	TP-RPS-21
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1
Depth	0.30	0.65 - 0.90	0.50	1.00	1.20	0.20	1.90	0.20	0.50	2.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract			02-Mar-2018		26-Feb-2018					
ANC at pH4 and ANC at pH 6	01-Mar-2018			01-Mar-2018		01-Mar-2018	01-Mar-2018	01-Mar-2018		
Anions by ion Chromatography				08-Mar-2018						
Anions by Kone (soil)			05-Mar-2018		05-Mar-2018					
Anions by Kone (w)	02-Mar-2018			02-Mar-2018		02-Mar-2018	02-Mar-2018	02-Mar-2018		
Asbestos fibres in Soil*	06-Mar-2018	06-Mar-2018		06-Mar-2018		06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	
Asbestos Quantification - Full				15-Mar-2018		15-Mar-2018	15-Mar-2018		03-Apr-2018	
CEN 10:1 Leachate (1 Stage)	28-Feb-2018			27-Feb-2018		27-Feb-2018	28-Feb-2018	28-Feb-2018		
CEN Readings	01-Mar-2018			01-Mar-2018		01-Mar-2018	01-Mar-2018	01-Mar-2018		
Dissolved Metals by ICP-MS	02-Mar-2018			02-Mar-2018		02-Mar-2018	02-Mar-2018	02-Mar-2018		
Dissolved Organic/Inorganic Carbon	02-Mar-2018			02-Mar-2018		02-Mar-2018	02-Mar-2018	02-Mar-2018		
EPH CWG (Aliphatic) GC (S)	02-Mar-2018	02-Mar-2018		02-Mar-2018	06-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018	06-Mar-2018	
EPH CWG (Aromatic) GC (S)	02-Mar-2018	02-Mar-2018		02-Mar-2018	06-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018	06-Mar-2018	
Fluoride	02-Mar-2018					02-Mar-2018	02-Mar-2018	02-Mar-2018		
GRO by GC-FID (S)	28-Feb-2018	28-Feb-2018		28-Feb-2018	28-Feb-2018	28-Feb-2018	01-Mar-2018	28-Feb-2018	28-Feb-2018	
Loss on Ignition in soils	07-Mar-2018							07-Mar-2018		
Magnesium (BRE)			02-Mar-2018		01-Mar-2018					
Mercury Dissolved	02-Mar-2018			02-Mar-2018		02-Mar-2018	02-Mar-2018	02-Mar-2018		
Metals in solid samples by OES	01-Mar-2018	01-Mar-2018		28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	
Mineral Oil	02-Mar-2018			05-Mar-2018		02-Mar-2018	05-Mar-2018	05-Mar-2018		
NO3, NO2 and TON by KONE (s)			07-Mar-2018		07-Mar-2018					
PAH by GCMS	02-Mar-2018	01-Mar-2018		01-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018	01-Mar-2018	01-Mar-2018	
PCBs by GCMS	01-Mar-2018			01-Mar-2018		01-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018	
pH	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	01-Mar-2018	27-Feb-2018
Phenols by HPLC (S)	01-Mar-2018									
Phenols by HPLC (W)	02-Mar-2018			02-Mar-2018		02-Mar-2018	02-Mar-2018	02-Mar-2018		
Sample description	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	24-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	24-Feb-2018	24-Feb-2018
Semi Volatile Organic Compounds	01-Mar-2018					01-Mar-2018			01-Mar-2018	
Total Dissolved Solids	02-Mar-2018			02-Mar-2018		02-Mar-2018	02-Mar-2018	02-Mar-2018		
Total Organic Carbon	01-Mar-2018			01-Mar-2018		01-Mar-2018	28-Feb-2018	28-Feb-2018		
Total Sulphate			05-Mar-2018		05-Mar-2018					
Total Sulphur			28-Feb-2018		02-Mar-2018					
TPH CWG GC (S)	02-Mar-2018	02-Mar-2018		02-Mar-2018	06-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018	06-Mar-2018	
VOC MS (S)	01-Mar-2018					27-Feb-2018			27-Feb-2018	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Lab Sample No(s)	17107312	17107321	17107351	17107357	17107259	17107268	17107278	17107345
Customer Sample Ref.	TP-RPS-28	TP-RPS-28	TP-RPS-46	TP-RPS-46	WS-RPS-27	WS-RPS-27	WS-RPS-27	WS-RPS-27
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1
Depth	0.60	1.00 - 1.10	0.20	0.70	1.40 - 1.60	3.20 - 3.50	5.50 - 5.80	9.20 - 9.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract							02-Mar-2018	02-Mar-2018
ANC at pH4 and ANC at pH 6				01-Mar-2018	01-Mar-2018	01-Mar-2018		
Anions by ion Chromatography					08-Mar-2018			
Anions by Kone (soil)							05-Mar-2018	05-Mar-2018
Anions by Kone (w)				02-Mar-2018	02-Mar-2018	02-Mar-2018		
Asbestos fibres in Soil*	06-Mar-2018		06-Mar-2018	06-Mar-2018	06-Mar-2018			
CEN 10:1 Leachate (1 Stage)				27-Feb-2018	28-Feb-2018	28-Feb-2018		
CEN Readings				01-Mar-2018	01-Mar-2018	01-Mar-2018		
Dissolved Metals by ICP-MS				02-Mar-2018	02-Mar-2018	02-Mar-2018		
Dissolved Organic/Inorganic Carbon				02-Mar-2018	02-Mar-2018	02-Mar-2018		
EPH CWG (Aliphatic) GC (S)	06-Mar-2018		06-Mar-2018	06-Mar-2018	02-Mar-2018			
EPH CWG (Aromatic) GC (S)	06-Mar-2018		06-Mar-2018	06-Mar-2018	02-Mar-2018			
Fluoride				02-Mar-2018		02-Mar-2018		
GRO by GC-FID (S)	28-Feb-2018		28-Feb-2018	28-Feb-2018	28-Feb-2018	01-Mar-2018		
Loss on Ignition in soils				07-Mar-2018	07-Mar-2018	28-Feb-2018		
Magnesium (BRE)							01-Mar-2018	02-Mar-2018
Mercury Dissolved				02-Mar-2018	02-Mar-2018	02-Mar-2018		
Metals in solid samples by OES	28-Feb-2018		28-Feb-2018	01-Mar-2018	28-Feb-2018			
Mineral Oil				02-Mar-2018	02-Mar-2018	05-Mar-2018		
NO3, NO2 and TON by KONE (s)							07-Mar-2018	07-Mar-2018
PAH by GCMS	01-Mar-2018		01-Mar-2018	02-Mar-2018	01-Mar-2018	02-Mar-2018		
PCBs by GCMS	02-Mar-2018			01-Mar-2018	01-Mar-2018	01-Mar-2018		
pH	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	26-Feb-2018	28-Feb-2018
Phenols by HPLC (S)	27-Feb-2018							
Phenols by HPLC (W)				02-Mar-2018	02-Mar-2018	02-Mar-2018		
Sample description	24-Feb-2018	24-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018
Semi Volatile Organic Compounds	02-Mar-2018							
Total Dissolved Solids				02-Mar-2018	02-Mar-2018	02-Mar-2018		
Total Organic Carbon				28-Feb-2018	28-Feb-2018	28-Feb-2018		
Total Sulphate							05-Mar-2018	05-Mar-2018
Total Sulphur							26-Feb-2018	02-Mar-2018
TPH CWG GC (S)	06-Mar-2018		06-Mar-2018	06-Mar-2018	02-Mar-2018			
VOC MS (S)	01-Mar-2018							

ASSOCIATED AQC DATA

ANC at pH4 and ANC at pH 6

Component	Method Code	QC 1769
ANC pH_4 dry soil	TM182	**108.87** 86.12 : 113.88
ANC pH_6 dry soil	TM182	**121.83** 61.00 : 139.00

Anions by ion Chromatography

Component	Method Code	QC 1741
Bromide (W)	TM226	**100.0** 95.23 : 104.46
Chloride (W)	TM226	**101.29** 95.06 : 102.06
Fluoride (W)	TM226	**102.5** 98.95 : 105.26
Nitrate (W)	TM226	**97.5** 93.20 : 104.72
Nitrite (W)	TM226	**102.5** 95.57 : 109.35
Phosphate (W)	TM226	**99.17** 93.31 : 106.88
Sulphate (W)	TM226	**100.62** 96.59 : 104.82

Anions by Kone (soil)

Component	Method Code	QC 1764
Chloride (soluble)	TM243	**65.71** 89.30 : 110.70
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**52.91** 88.38 : 118.74

Anions by Kone (w)

Component	Method Code	QC 1716	QC 1765	QC 1737
Chloride	TM184	**107.0** 92.93 : 115.43	**107.0** 92.93 : 115.43	**107.0** 92.93 : 115.43
Phosphate (Ortho as PO4)	TM184	96.40 : 108.40	96.40 : 108.40	96.40 : 108.40
Sulphate (soluble)	TM184	**98.8** 90.53 : 113.03	**99.6** 90.53 : 113.03	**102.0** 90.53 : 113.03
TON as NO3	TM184	96.26 : 111.21	96.26 : 111.21	96.26 : 111.21

Dissolved Metals by ICP-MS

CERTIFICATE OF ANALYSIS

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Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Dissolved Metals by ICP-MS

Component	Method Code	QC 1784	QC 1759
Aluminium	TM152	**98.67** 88.00 : 112.00	**100.67** 88.00 : 112.00
Antimony	TM152	**97.83** 88.00 : 112.00	**98.83** 88.00 : 112.00
Arsenic	TM152	**101.33** 88.00 : 112.00	**102.17** 88.00 : 112.00
Barium	TM152	**101.17** 88.00 : 112.00	**102.0** 88.00 : 112.00
Beryllium	TM152	**95.17** 88.00 : 112.00	**101.33** 88.00 : 112.00
Bismuth	TM152	**99.83** 88.90 : 106.90	**100.83** 88.90 : 106.90
Borate	TM152	**95.06** 88.00 : 112.00	**100.0** 88.00 : 112.00
Boron	TM152	**95.0** 88.00 : 112.00	**100.0** 88.00 : 112.00
Cadmium	TM152	**101.0** 88.00 : 112.00	**100.83** 88.00 : 112.00
Chromium	TM152	**98.5** 88.00 : 112.00	**99.67** 88.00 : 112.00
Cobalt	TM152	**97.33** 88.00 : 112.00	**98.5** 88.00 : 112.00
Copper	TM152	**98.83** 85.52 : 115.00	**98.83** 85.52 : 115.00
Lead	TM152	**100.83** 88.00 : 112.00	**98.67** 88.00 : 112.00
Lithium	TM152	**99.67** 88.00 : 112.00	**100.33** 88.00 : 112.00
Manganese	TM152	**102.67** 88.00 : 112.00	**99.5** 88.00 : 112.00
Molybdenum	TM152	**99.83** 88.00 : 112.00	**100.83** 88.00 : 112.00
Nickel	TM152	**97.67** 88.00 : 112.00	**98.83** 88.00 : 112.00
Niobium	TM152	88.00 : 112.00	88.00 : 112.00
Phosphorus	TM152	**104.33** 88.00 : 112.00	**100.33** 88.00 : 112.00
Selenium	TM152	**98.33** 88.00 : 112.00	**103.17** 88.00 : 112.00
Silver	TM152	**95.67** 88.00 : 112.00	**95.83** 88.00 : 112.00
Strontium	TM152	**100.33** 88.00 : 112.00	**103.0** 88.00 : 112.00
Tellurium	TM152	**100.5** 88.00 : 112.00	**103.33** 88.00 : 112.00
Thallium	TM152	**96.17** 88.00 : 112.00	**95.83** 88.00 : 112.00
Titanium	TM152	**97.67** 88.00 : 112.00	**98.83** 88.00 : 112.00
Tungsten	TM152	**100.67** 88.00 : 112.00	**98.17** 88.00 : 112.00

Dissolved Metals by ICP-MS

		QC 1784	QC 1759
Uranium	TM152	**100.67** 88.00 : 112.00	**100.67** 88.00 : 112.00
Vanadium	TM152	**97.67** 88.00 : 112.00	**100.67** 88.00 : 112.00
Zinc	TM152	**99.67** 88.00 : 112.00	**100.0** 88.00 : 112.00
Zirconium	TM152	 88.00 : 112.00	 88.00 : 112.00

Dissolved Organic/Inorganic Carbon

Component	Method Code	QC 1741	QC 1722
Dissolved Inorganic Carbon	TM090	**107.5** 91.15 : 111.35	**109.67** 94.43 : 110.53
Dissolved Organic Carbon	TM090	**101.83** 94.18 : 111.18	**103.5** 99.25 : 108.95

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1768	QC 1721	QC 1787	QC 1756
Total Aliphatics >C12-C35	TM173	**88.33** 70.71 : 106.26	**88.54** 66.17 : 105.28	**87.92** 70.71 : 106.26	**88.33** 66.17 : 105.28

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1768	QC 1721	QC 1787	QC 1756
Total Aromatics >EC12-EC35	TM173	**84.67** 65.82 : 105.00	**83.33** 65.78 : 102.90	**88.0** 65.82 : 105.00	**85.33** 65.78 : 102.90

Fluoride

Component	Method Code	QC 1734	QC 1743
Fluoride	TM104	**94.67** 92.67 : 104.67	**94.67** 92.67 : 104.67

GRO by GC-FID (S)

Component	Method Code	QC 1737	QC 1776	QC 1708	QC 1787
Benzene by GC (Moisture Corrected)	TM089	**94.5** 80.70 : 121.69	**96.5** 80.70 : 121.69	**90.0** 84.09 : 122.62	**96.0** 83.15 : 118.53
Ethylbenzene by GC (Moisture Corrected)	TM089	**98.0** 76.65 : 121.92	**104.0** 76.65 : 121.92	**94.0** 78.42 : 121.07	**104.5** 81.56 : 117.75

GRO by GC-FID (S)

		QC 1737	QC 1776	QC 1708	QC 1787
m & p Xylene by GC (Moisture Corrected)	TM089	**97.25** 76.25 : 122.54	**104.0** 76.25 : 122.54	**93.25** 77.69 : 121.76	**104.5** 80.40 : 118.80
MTBE GC-FID (Moisture Corrected)	TM089	**94.5** 77.67 : 125.50	**93.5** 77.67 : 125.50	**92.5** 77.69 : 125.19	**92.0** 83.25 : 126.67
o Xylene by GC (Moisture Corrected)	TM089	**97.5** 76.37 : 122.94	**101.5** 76.37 : 122.94	**93.5** 77.88 : 121.47	**102.5** 80.82 : 119.41
QC	TM089	**96.25** 68.07 : 103.94	**101.13** 68.07 : 103.94	**96.89** 69.62 : 106.27	**105.88** 58.63 : 121.98
Toluene by GC (Moisture Corrected)	TM089	**98.0** 75.95 : 122.88	**102.5** 75.95 : 122.88	**93.5** 78.31 : 121.42	**102.5** 83.39 : 118.40

Loss on Ignition in soils

Component	Method Code	QC 1717	QC 1755
Loss on Ignition	TM018	**103.32** 89.27 : 104.90	**101.42** 89.27 : 104.90

Magnesium (BRE)

Component	Method Code	QC 1744
Magnesium Raw	TM282	**98.5** 85.00 : 115.00

Mercury Dissolved

Component	Method Code	QC 1792	QC 1754	QC 1764
Mercury Dissolved (CVAF)	TM183	**105.0** 73.51 : 120.83	**98.0** 73.51 : 120.83	**105.0** 73.51 : 120.83

Metals in solid samples by OES

Component	Method Code	QC 1777	QC 1760	QC 1715	QC 1765	QC 1780
Aluminium	TM181	**89.63** 75.13 : 109.48	**88.15** 75.13 : 109.48	**91.11** 75.13 : 109.48	**88.15** 75.13 : 109.48	**88.89** 75.13 : 109.48
Antimony	TM181	**94.59** 84.48 : 110.90	**94.21** 84.48 : 110.90	**94.59** 84.48 : 110.90	**95.37** 84.48 : 110.90	**95.75** 84.48 : 110.90
Arsenic	TM181	**88.95** 83.14 : 108.73	**90.49** 83.14 : 108.73	**88.95** 83.14 : 108.73	**89.2** 83.14 : 108.73	**91.26** 83.14 : 108.73
Barium	TM181	**91.41** 77.47 : 102.53	**91.41** 77.47 : 102.53	**91.41** 77.47 : 102.53	**91.41** 77.47 : 102.53	**94.53** 77.47 : 102.53
Beryllium	TM181	**91.44** 84.19 : 106.77	**92.47** 84.19 : 106.77	**91.78** 84.19 : 106.77	**92.12** 84.19 : 106.77	**92.12** 84.19 : 106.77
Boron	TM181	**87.01** 76.55 : 106.69	**85.88** 76.55 : 106.69	**87.57** 76.55 : 106.69	**85.03** 76.55 : 106.69	**89.83** 76.55 : 106.69

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
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Metals in solid samples by OES

		QC 1777	QC 1760	QC 1715	QC 1765	QC 1780
Cadmium	TM181	**98.94** 86.37 : 111.59	**96.81** 86.37 : 111.59	**96.81** 86.37 : 111.59	**97.87** 86.37 : 111.59	**94.68** 86.37 : 111.59
Chromium	TM181	**94.3** 81.29 : 118.71	**94.3** 81.29 : 118.71	**95.36** 81.29 : 118.71	**94.94** 81.29 : 118.71	**94.51** 81.29 : 118.71
Cobalt	TM181	**91.54** 85.45 : 109.14	**92.79** 85.45 : 109.14	**91.85** 85.45 : 109.14	**92.16** 85.45 : 109.14	**93.73** 85.45 : 109.14
Copper	TM181	**88.21** 81.33 : 103.33	**88.06** 81.33 : 103.33	**88.06** 81.33 : 103.33	**88.5** 81.33 : 103.33	**88.5** 81.33 : 103.33
Iron	TM181	**97.92** 82.44 : 111.71	**97.22** 82.44 : 111.71	**97.92** 82.44 : 111.71	**97.22** 82.44 : 111.71	**97.22** 82.44 : 111.71
Lead	TM181	**94.04** 83.33 : 106.95	**88.72** 83.33 : 106.95	**87.02** 83.33 : 106.95	**94.04** 83.33 : 106.95	**89.57** 83.33 : 106.95
Manganese	TM181	**87.47** 80.56 : 102.33	**89.49** 80.56 : 102.33	**88.28** 80.56 : 102.33	**87.27** 80.56 : 102.33	**89.9** 80.56 : 102.33
Mercury	TM181	**90.59** 84.13 : 111.85	**92.55** 84.13 : 111.85	**90.59** 84.13 : 111.85	**91.76** 84.13 : 111.85	**93.73** 84.13 : 111.85
Molybdenum	TM181	**94.98** 84.19 : 110.39	**94.21** 84.19 : 110.39	**94.59** 84.19 : 110.39	**94.59** 84.19 : 110.39	**93.44** 84.19 : 110.39
Nickel	TM181	**96.5** 84.19 : 109.77	**93.94** 84.19 : 109.77	**94.87** 84.19 : 109.77	**94.17** 84.19 : 109.77	**92.77** 84.19 : 109.77
Phosphorus	TM181	**83.23** 73.47 : 116.86	**87.28** 73.47 : 116.86	**84.73** 73.47 : 116.86	**85.78** 73.47 : 116.86	**90.57** 73.47 : 116.86
Selenium	TM181	**91.1** 81.32 : 108.59	**90.5** 81.32 : 108.59	**90.21** 81.32 : 108.59	**90.8** 81.32 : 108.59	**89.32** 81.32 : 108.59
Strontium	TM181	**90.7** 84.70 : 105.87	**90.7** 84.70 : 105.87	**91.33** 84.70 : 105.87	**90.7** 84.70 : 105.87	**90.27** 84.70 : 105.87
Thallium	TM181	**92.19** 81.19 : 105.37	**92.97** 81.19 : 105.37	**92.19** 81.19 : 105.37	**91.8** 81.19 : 105.37	**92.58** 81.19 : 105.37
Tin	TM181	**97.52** 85.92 : 110.00	**95.74** 85.92 : 110.00	**95.39** 85.92 : 110.00	**96.45** 85.92 : 110.00	**93.26** 85.92 : 110.00
Titanium	TM181	**77.69** 73.44 : 113.17	**88.46** 73.44 : 113.17	**90.77** 73.44 : 113.17	**85.38** 73.44 : 113.17	**90.0** 73.44 : 113.17
Vanadium	TM181	**88.34** 78.62 : 101.47	**89.57** 78.62 : 101.47	**89.26** 78.62 : 101.47	**88.34** 78.62 : 101.47	**88.96** 78.62 : 101.47
Zinc	TM181	**93.37** 85.64 : 110.14	**93.19** 85.64 : 110.14	**92.67** 85.64 : 110.14	**92.67** 85.64 : 110.14	**93.02** 85.64 : 110.14

Mineral Oil

Component	Method Code	QC 1705	QC 1797	QC 1756
Mineral Oil	TM061	**93.5** 76.64 : 99.14	76.64 : 99.14	**92.17** 76.64 : 99.14

NO3, NO2 and TON by KONE (s)

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

NO3, NO2 and TON by KONE (s)

Component	Method Code	QC 1799
Nitrate/TON as N QC	TM243	**110.82** 42.63 : 157.37
Nitrite (soluble) as NO2	TM243	**104.21** 92.68 : 121.96

PAH by GCMS

Component	Method Code	QC 1741	QC 1760	QC 1774	QC 1713	QC 1736
Acenaphthene	TM218	**88.0** 82.60 : 105.38	**105.5** 82.09 : 110.18	**93.0** 78.17 : 114.45	**100.5** 82.09 : 110.18	**99.0** 78.17 : 114.45
Acenaphthylene	TM218	**81.5** 73.64 : 111.66	**91.0** 77.92 : 100.70	**88.5** 73.70 : 105.55	**87.0** 77.92 : 100.70	**94.0** 73.70 : 105.55
Anthracene	TM218	**86.5** 73.49 : 107.13	**94.0** 79.96 : 103.02	**86.5** 50.58 : 133.35	**91.0** 79.96 : 103.02	**94.5** 50.58 : 133.35
Benz(a)anthracene	TM218	**88.5** 87.82 : 118.79	**93.5** 80.00 : 122.30	**96.0** 73.03 : 124.35	**88.5** 80.00 : 122.30	**107.0** 73.03 : 124.35
Benzo(a)pyrene	TM218	**87.0** 83.39 : 123.49	**97.0** 86.92 : 126.33	**92.5** 76.86 : 123.01	**93.5** 86.92 : 126.33	**106.5** 76.86 : 123.01
Benzo(b)fluoranthene	TM218	**89.5** 80.60 : 126.56	**95.0** 84.53 : 122.14	**97.0** 75.92 : 130.86	**97.5** 84.53 : 122.14	**105.5** 75.92 : 130.86
Benzo(ghi)perylene	TM218	**88.0** 80.86 : 109.92	**94.0** 77.49 : 119.12	**82.5** 80.30 : 117.80	**92.5** 77.49 : 119.12	**97.5** 80.30 : 117.80
Benzo(k)fluoranthene	TM218	**94.0** 87.91 : 119.03	**95.0** 88.94 : 117.08	**89.5** 81.49 : 113.89	**94.0** 88.94 : 117.08	**99.5** 81.49 : 113.89
Chrysene	TM218	**94.5** 85.34 : 115.46	**95.5** 87.67 : 116.32	**85.0** 77.31 : 114.50	**93.0** 87.67 : 116.32	**96.5** 77.31 : 114.50
Dibenzo(ah)anthracene	TM218	**89.5** 82.98 : 121.47	**94.0** 85.66 : 119.61	**87.0** 77.77 : 118.30	**91.5** 85.66 : 119.61	**98.5** 77.77 : 118.30
Fluoranthene	TM218	**92.0** 82.03 : 107.26	**103.5** 84.49 : 109.33	**91.0** 80.77 : 108.59	**99.0** 84.49 : 109.33	**95.0** 80.77 : 108.59
Fluorene	TM218	**88.5** 81.48 : 108.26	**102.5** 84.28 : 107.54	**93.5** 79.13 : 110.70	**99.5** 84.28 : 107.54	**99.0** 79.13 : 110.70
Indeno(123cd)pyrene	TM218	**88.5** 84.02 : 120.55	**95.5** 86.46 : 120.70	**87.0** 78.65 : 117.12	**92.5** 86.46 : 120.70	**100.5** 78.65 : 117.12
Naphthalene	TM218	**90.0** 84.06 : 108.38	**106.5** 82.88 : 115.56	**91.0** 77.09 : 108.37	**100.0** 82.88 : 115.56	**94.0** 77.09 : 108.37
Phenanthrene	TM218	**90.5** 78.68 : 107.87	**103.0** 81.59 : 110.61	**90.5** 76.02 : 112.05	**98.5** 81.59 : 110.61	**96.0** 76.02 : 112.05
Pyrene	TM218	**93.0** 81.96 : 108.90	**101.0** 83.25 : 107.60	**87.5** 79.98 : 107.66	**96.5** 83.25 : 107.60	**94.0** 79.98 : 107.66

PCBs by GCMS

Component	Method Code	QC 1749	QC 1782
PCB congener 101	TM168	**89.5** 80.77 : 111.39	**101.0** 76.50 : 116.94
PCB congener 105	TM168	**87.8** 79.28 : 115.39	**99.9** 75.93 : 120.03
PCB congener 114	TM168	**89.5** 81.30 : 114.31	**101.0** 76.64 : 119.06
PCB congener 118	TM168	**88.5** 80.32 : 112.22	**101.0** 75.18 : 118.08

PCBs by GCMS

		QC 1749	QC 1782
PCB congener 123	TM168	**88.4** 80.25 : 114.57	**99.8** 75.72 : 117.84
PCB congener 126	TM168	**91.1** 75.17 : 124.58	**100.0** 76.10 : 125.90
PCB congener 138	TM168	**89.9** 82.92 : 114.57	**100.0** 78.04 : 121.72
PCB congener 153	TM168	**84.9** 83.90 : 111.70	**97.2** 77.67 : 119.31
PCB congener 156	TM168	**92.0** 75.33 : 115.33	**101.0** 73.48 : 118.60
PCB congener 157	TM168	**89.1** 80.94 : 117.86	**101.0** 77.47 : 123.91
PCB congener 167	TM168	**91.2** 78.02 : 117.22	**99.5** 75.77 : 121.97
PCB congener 169	TM168	**97.3** 73.31 : 125.29	**104.0** 74.49 : 130.71
PCB congener 180	TM168	**89.3** 79.60 : 113.91	**100.0** 77.34 : 121.26
PCB congener 189	TM168	**96.0** 71.41 : 124.18	**104.0** 75.60 : 127.20
PCB congener 28	TM168	**92.3** 83.25 : 112.46	**105.0** 79.43 : 121.67
PCB congener 52	TM168	**94.2** 85.30 : 110.14	**110.0** 78.72 : 119.28
PCB congener 77	TM168	**93.5** 73.92 : 120.16	**107.0** 74.04 : 120.60
PCB congener 81	TM168	**90.4** 81.05 : 122.39	**95.6** 78.47 : 124.85

pH

Component	Method Code	QC 1770	QC 1715	QC 1743	QC 1761	QC 1780	QC 1790
pH	TM133	**101.04** 100.64 : 103.51	**100.78** 99.63 : 103.42	**100.78** 99.48 : 102.60	**100.78** 99.48 : 102.60	**101.3** 99.48 : 102.60	**100.65** 99.48 : 102.60

Component	Method Code	QC 1730
pH	TM133	**101.3** 99.48 : 102.60

Phenols by HPLC (S)

Component	Method Code	QC 1743	QC 1771
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**105.19** 85.25 : 114.75	**104.55** 70.10 : 89.90
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**96.49** 75.71 : 124.29	**91.81** 72.23 : 101.87
Catechol by HPLC (S)	TM062 (S)	**117.14** 64.10 : 135.90	**137.14** 47.70 : 158.70

Phenols by HPLC (S)

		QC 1743	QC 1771
Cresols by HPLC (S)	TM062 (S)	**98.33** 78.85 : 107.41	**99.79** 83.70 : 114.90
Napthol by HPLC (S)	TM062 (S)	**122.14** 75.62 : 124.38	**131.43** 71.00 : 98.00
Phenol by HPLC (S)	TM062 (S)	**111.26** 79.53 : 120.47	**107.95** 68.00 : 98.00
Resorcinol HPLC (S)	TM062 (S)	**128.3** 86.85 : 145.65	**134.59** 61.95 : 145.05
Xylenols by HPLC (S)	TM062 (S)	**103.33** 84.65 : 109.70	**104.17** 83.04 : 110.82

Phenols by HPLC (W)

Component	Method Code	QC 1718	QC 1793
2.3.5 Trimethyl-Phenol by HPLC (W)	TM259	**96.0** 89.00 : 113.00	**98.0** 89.00 : 113.00
2-Isopropyl Phenol by HPLC (W)	TM259	**99.0** 95.00 : 113.00	**101.0** 95.00 : 113.00
Cresols by HPLC (W)	TM259	**93.33** 84.57 : 102.57	**94.33** 84.57 : 102.57
Napthol by HPLC (W)	TM259	**109.0** 90.22 : 121.54	**108.0** 90.22 : 121.54
Phenol by HPLC (W)	TM259	**100.0** 89.00 : 107.00	**98.0** 89.00 : 107.00
Xylenols by HPLC (W)	TM259	**104.17** 88.83 : 112.83	**105.33** 88.83 : 112.83

Semi Volatile Organic Compounds

Component	Method Code	QC 1781	QC 1713
4-Bromophenylphenylether (Soil)	TM157	**94.0** 65.45 : 121.76	**92.0** 65.45 : 121.76
Benzo(a)anthracene (Soil)	TM157	**103.5** 71.89 : 120.91	**100.5** 71.89 : 120.91
Hexachlorobutadiene (Soil)	TM157	**102.5** 69.80 : 117.77	**96.5** 69.80 : 117.77
Naphthalene (Soil)	TM157	**101.0** 71.89 : 120.16	**94.5** 71.89 : 120.16
Nitrobenzene (Soil)	TM157	**103.5** 70.00 : 118.00	**96.0** 70.00 : 118.00
Phenol (Soil)	TM157	**108.0** 68.54 : 114.86	**100.5** 68.54 : 114.86

Total Dissolved Solids

Component	Method Code	QC 1723
Total Dissolved Solids	TM123	**100.0** 97.30 : 101.58

Total Organic Carbon

Total Organic Carbon

Component	Method Code	QC 1755	QC 1718	QC 1743
Total Organic Carbon	TM132	**92.58** 83.00 : 101.77	**89.84** 83.00 : 101.77	**91.02** 83.00 : 101.77

Total Sulphate

Component	Method Code	QC 1777
Total Sulphate	TM221	**106.06** 89.11 : 120.09

Total Sulphur

Component	Method Code	QC 1777	QC 1775	QC 1717
Total Sulphur %	TM132	**100.0** 81.05 : 118.95	**102.4** 81.05 : 118.95	**100.0** 81.05 : 118.95

VOC MS (S)

Component	Method Code	QC 1702	QC 1785	QC 1744
1,1,1,2-tetrachloroethane	TM116	**104.4** 77.56 : 115.55	**105.8** 77.56 : 115.55	**104.4** 77.56 : 115.55
1,1,1-Trichloroethane	TM116	**102.4** 73.73 : 118.05	**102.2** 73.73 : 118.05	**98.8** 73.73 : 118.05
1,1,2-Trichloroethane	TM116	**102.0** 77.12 : 116.04	**97.2** 77.12 : 116.04	**97.2** 77.12 : 116.04
1,1-Dichloroethane	TM116	**112.2** 74.46 : 129.15	**106.0** 74.46 : 129.15	**105.0** 74.46 : 129.15
1,2-Dichloroethane	TM116	**112.8** 92.57 : 128.78	**110.8** 92.57 : 128.78	**108.4** 92.57 : 128.78
1,4-Dichlorobenzene	TM116	**94.0** 72.76 : 126.34	**107.6** 72.76 : 126.34	**99.0** 72.76 : 126.34
2-Chlorotoluene	TM116	**94.6** 69.73 : 114.13	**102.0** 69.73 : 114.13	**98.2** 69.73 : 114.13
4-Chlorotoluene	TM116	**92.2** 66.90 : 112.46	**100.4** 66.90 : 112.46	**97.0** 66.90 : 112.46
Benzene	TM116	**105.4** 81.05 : 117.28	**101.8** 81.05 : 117.28	**104.0** 81.05 : 117.28
Carbon Disulphide	TM116	**98.6** 74.91 : 122.14	**100.8** 74.91 : 122.14	**93.4** 74.91 : 122.14
Carbontetrachloride	TM116	**106.6** 78.83 : 123.13	**106.2** 78.83 : 123.13	**105.4** 78.83 : 123.13
Chlorobenzene	TM116	**102.8** 75.00 : 115.53	**106.6** 75.00 : 115.53	**103.6** 75.00 : 115.53
Chloroform	TM116	**110.6** 77.34 : 121.84	**107.8** 77.34 : 121.84	**105.2** 77.34 : 121.84

VOC MS (S)

		QC 1702	QC 1785	QC 1744
Chloromethane	TM116	**92.2** 52.63 : 138.74	**87.6** 52.63 : 138.74	**82.0** 52.63 : 138.74
Cis-1,2-Dichloroethene	TM116	**114.6** 80.67 : 126.72	**105.6** 80.67 : 126.72	**106.4** 80.67 : 126.72
Dibromomethane	TM116	**106.2** 67.80 : 121.75	**104.4** 67.80 : 121.75	**101.8** 67.80 : 121.75
Dichloromethane	TM116	**108.0** 81.11 : 133.25	**109.2** 81.11 : 133.25	**105.8** 81.11 : 133.25
Ethylbenzene	TM116	**96.0** 72.53 : 109.84	**103.4** 72.53 : 109.84	**94.0** 72.53 : 109.84
Hexachlorobutadiene	TM116	**79.2** 12.82 : 152.73	**96.4** 12.82 : 152.73	**56.4** 12.82 : 152.73
Isopropylbenzene	TM116	**86.6** 54.46 : 125.44	**92.8** 54.46 : 125.44	**82.2** 54.46 : 125.44
Naphthalene	TM116	**105.0** 80.86 : 128.81	**127.0** 80.86 : 128.81	**106.6** 80.86 : 128.81
o-Xylene	TM116	**88.4** 67.46 : 102.22	**93.6** 67.46 : 102.22	**88.6** 67.46 : 102.22
p/m-Xylene	TM116	**91.2** 68.32 : 108.91	**99.8** 68.32 : 108.91	**89.3** 68.32 : 108.91
Sec-Butylbenzene	TM116	**84.4** 46.09 : 121.51	**87.6** 46.09 : 121.51	**69.6** 46.09 : 121.51
Tetrachloroethene	TM116	**105.4** 76.95 : 121.02	**113.4** 76.95 : 121.02	**104.4** 76.95 : 121.02
Toluene	TM116	**96.4** 74.24 : 107.42	**95.8** 74.24 : 107.42	**94.4** 74.24 : 107.42
Trichloroethene	TM116	**98.8** 77.61 : 111.54	**100.4** 77.61 : 111.54	**99.4** 77.61 : 111.54
Trichlorofluoromethane	TM116	**101.2** 71.31 : 128.41	**97.2** 71.31 : 128.41	**96.6** 71.31 : 128.41
Vinyl Chloride	TM116	**108.4** 68.26 : 133.45	**104.8** 68.26 : 133.45	**103.6** 68.26 : 133.45

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Validated

CERTIFICATE OF ANALYSIS

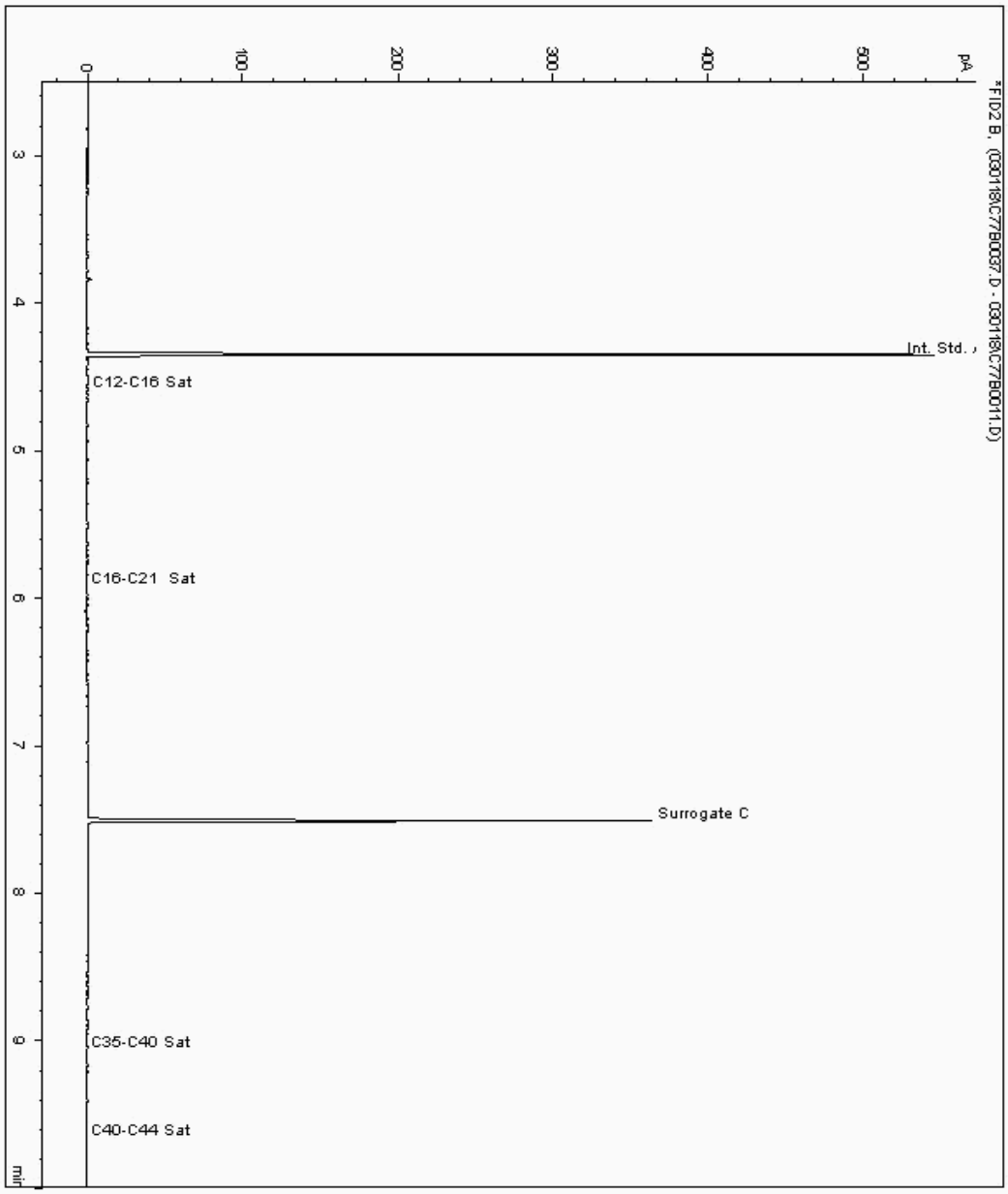
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17112216 **Sample ID :** TP-RPS-17 **Depth :** 0.20

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16064193-
Date Acquired : 3/1/2018 4:21:43 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.040



Validated

CERTIFICATE OF ANALYSIS

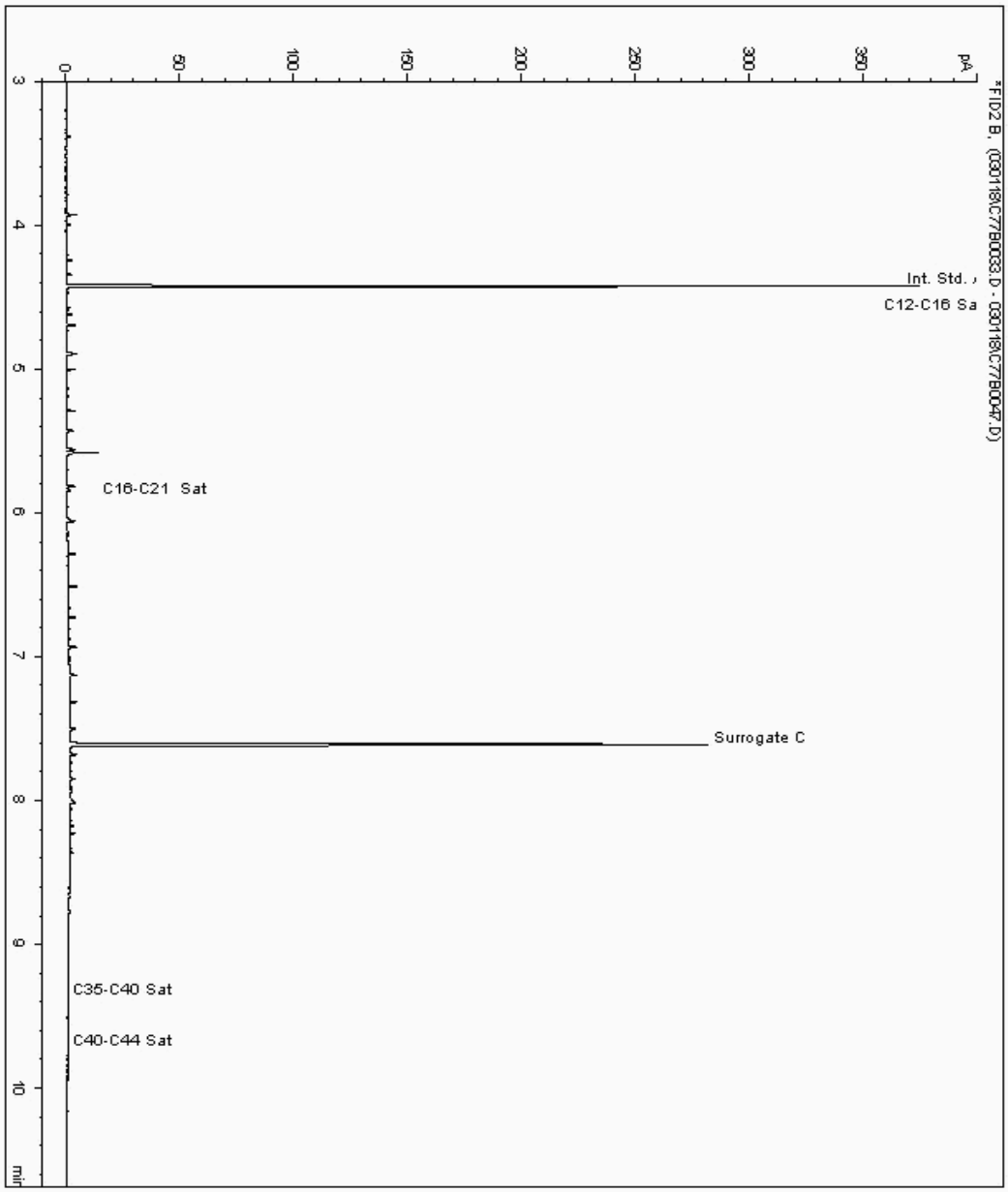
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17112283 **Depth :** 0.30
Sample ID : BH-RPS-04

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16064136-
Date Acquired : 02/03/2018 02:32:28 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

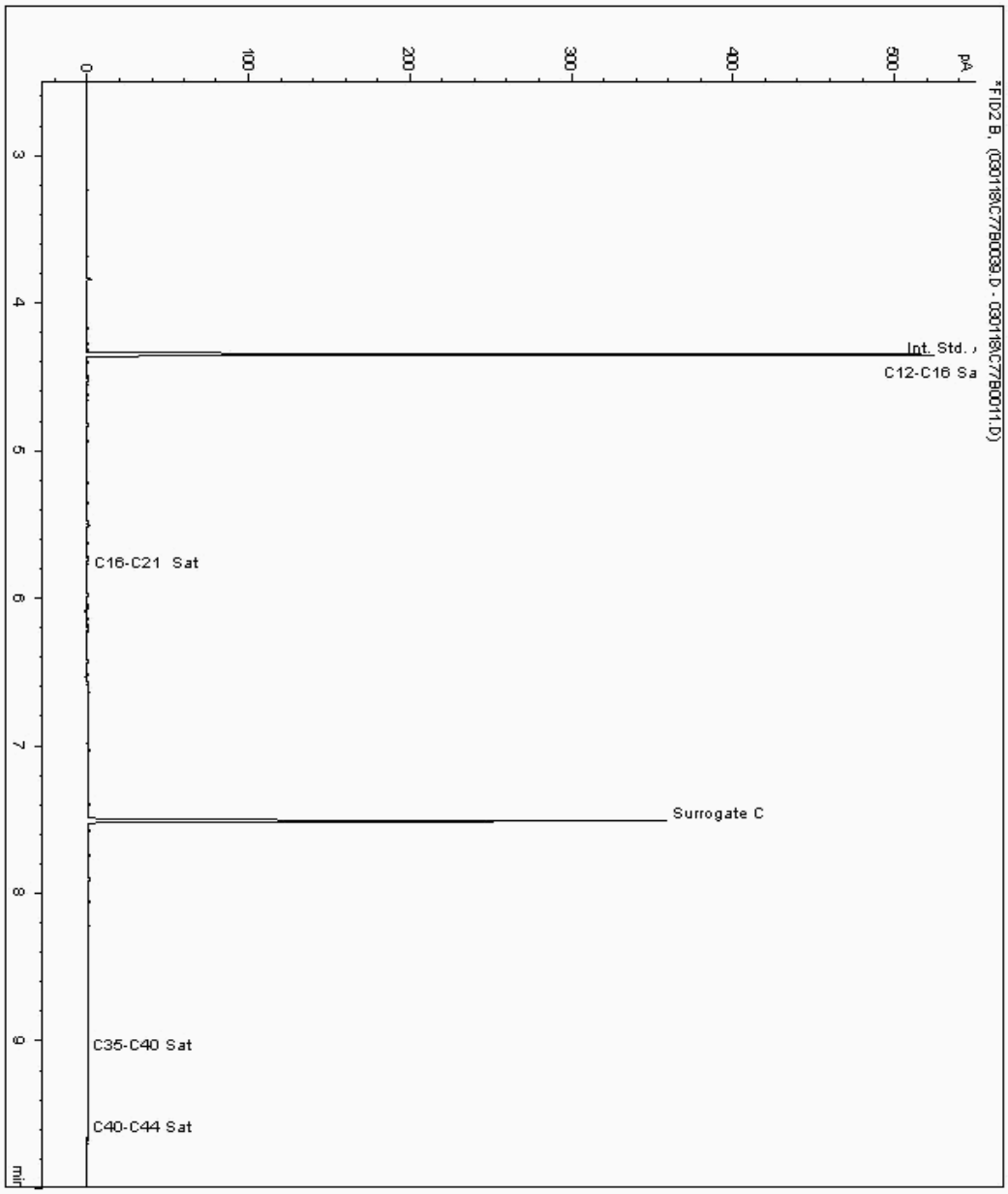
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17112317 **Sample ID :** BH-RPS-04 **Depth :** 0.65 - 0.90

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16063975-
Date Acquired : 3/1/2018 5:01:49 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.970

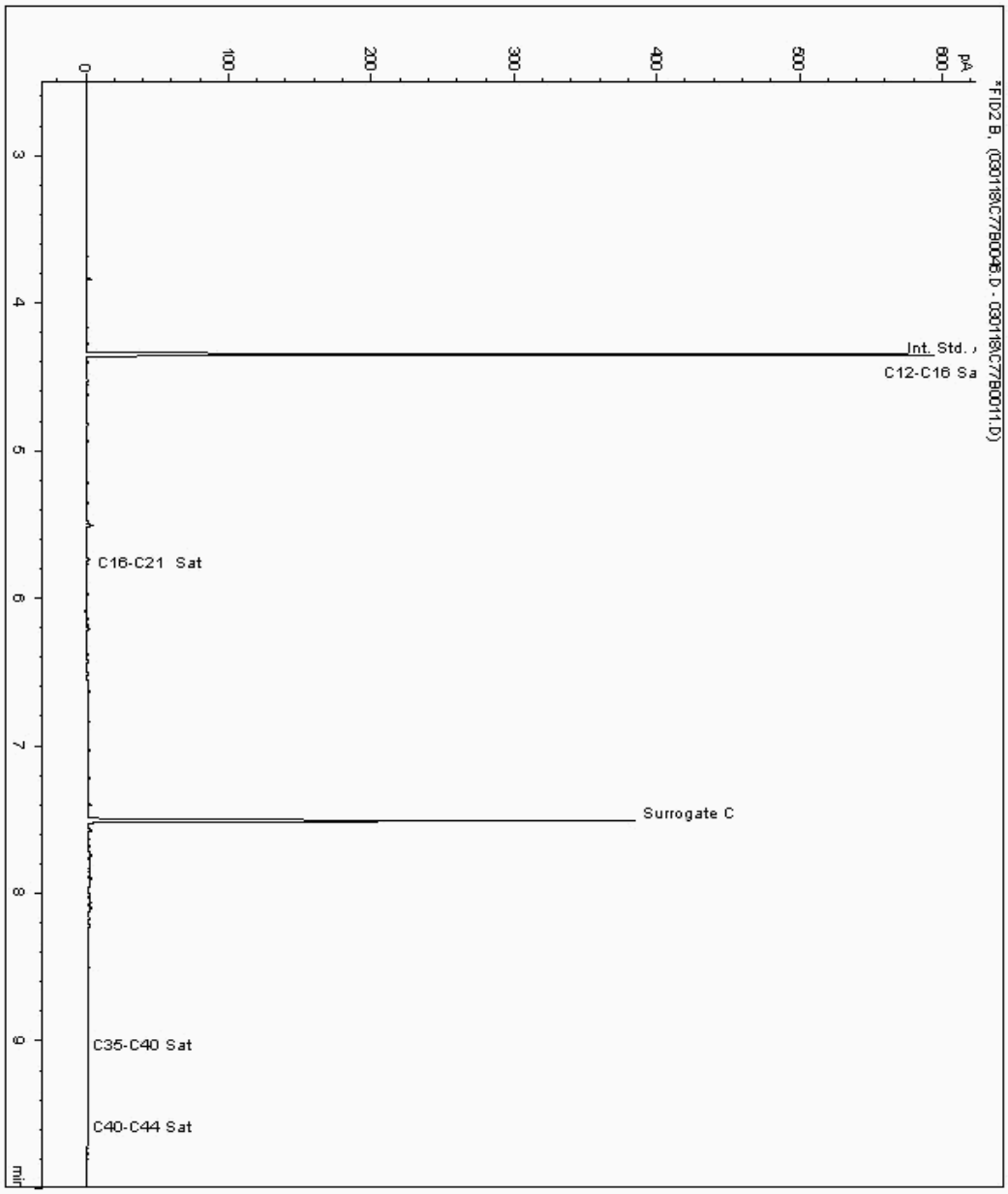


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17112341 **Sample ID :** TP-RPS-19 **Depth :** 0.20

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16064246-
Date Acquired : 3/1/2018 6:57:13 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.970



Validated

CERTIFICATE OF ANALYSIS

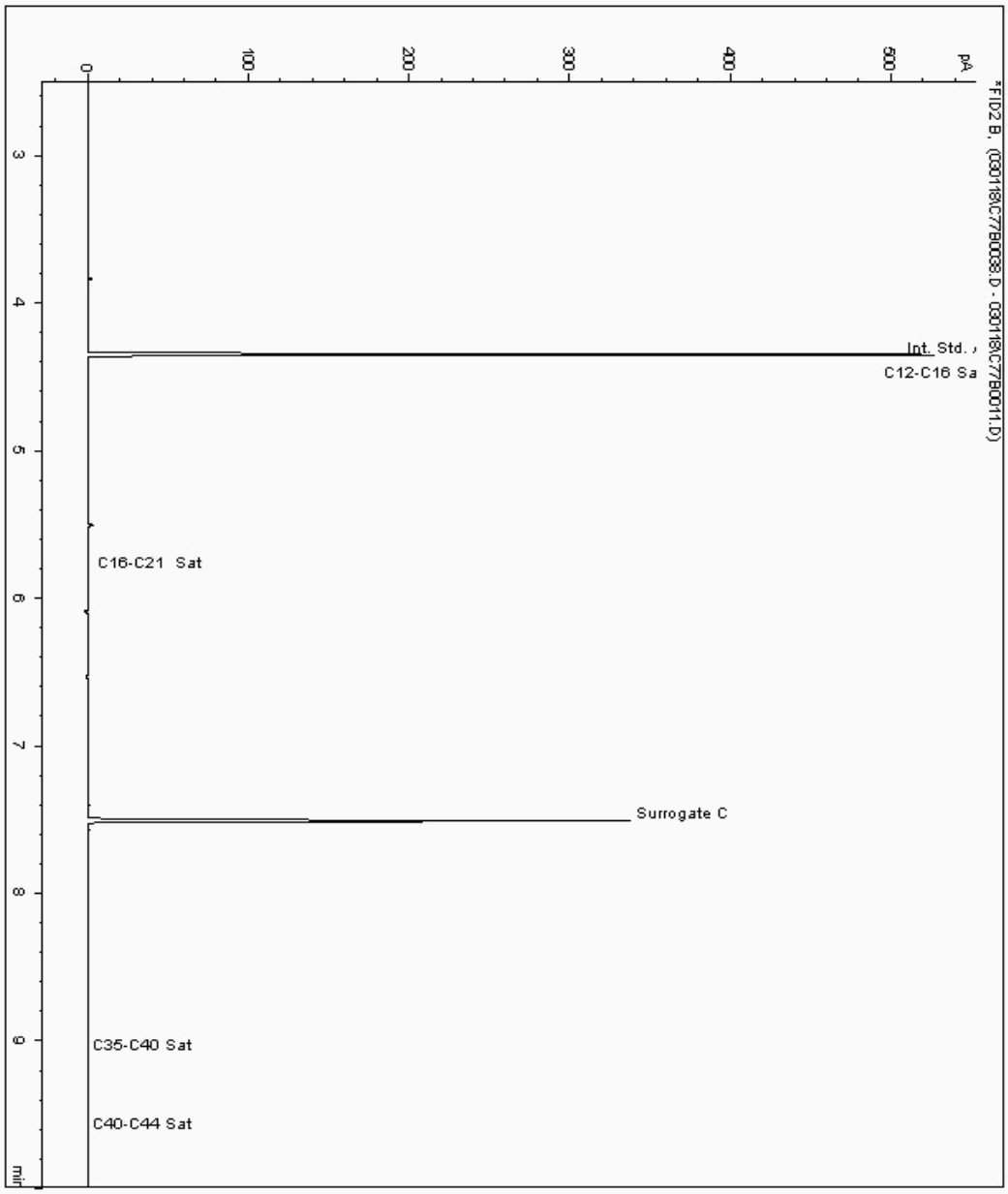
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17112429 **Sample ID :** TP-RPS-11 **Depth :** 1.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16064099-
Date Acquired : 3/1/2018 4:41:50 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.020



Validated

CERTIFICATE OF ANALYSIS

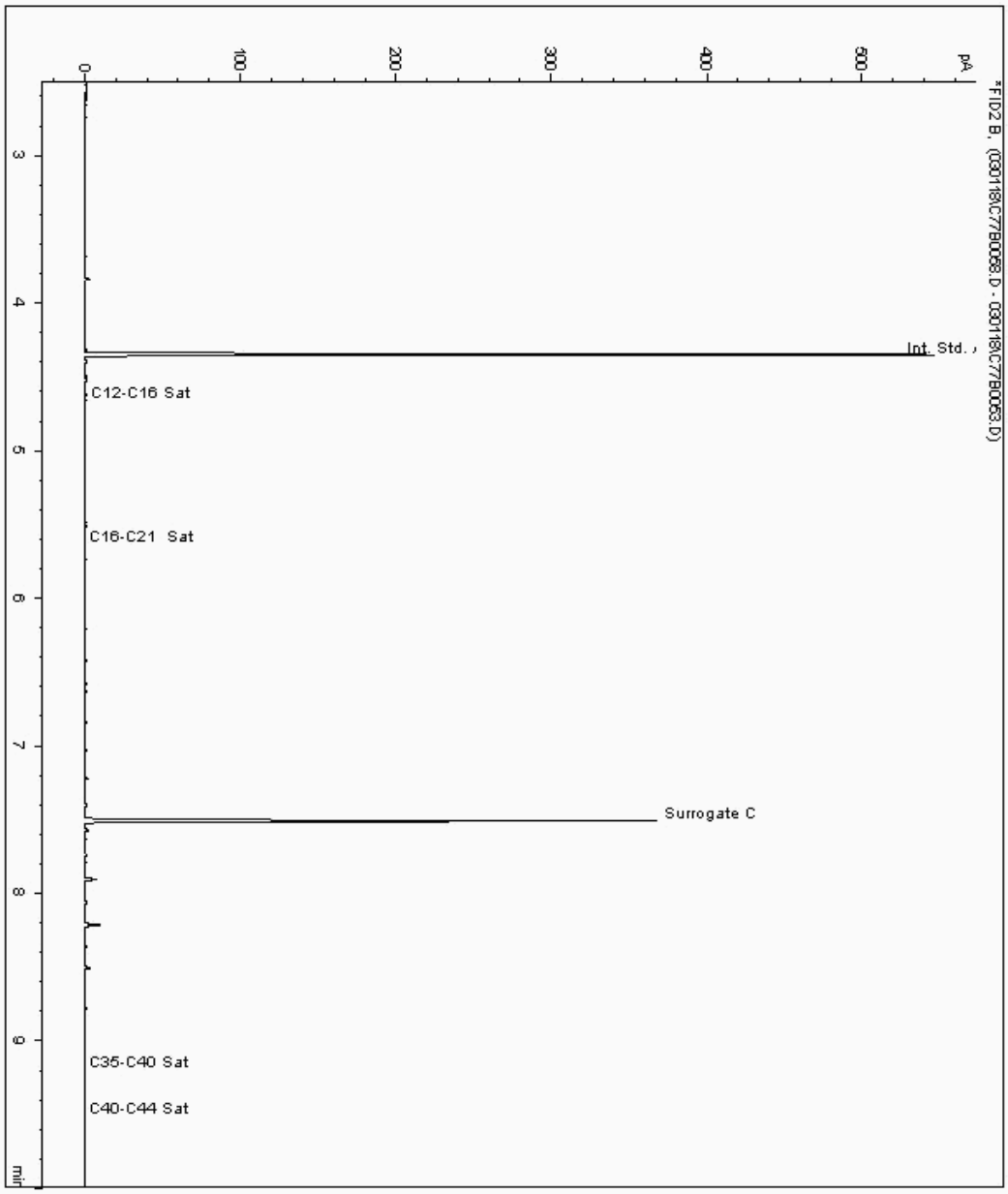
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17112447 **Sample ID :** WS-RPS-27 **Depth :** 1.40 - 1.60

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16064048-
Date Acquired : 3/1/2018 10:25:16 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.000



Validated

CERTIFICATE OF ANALYSIS

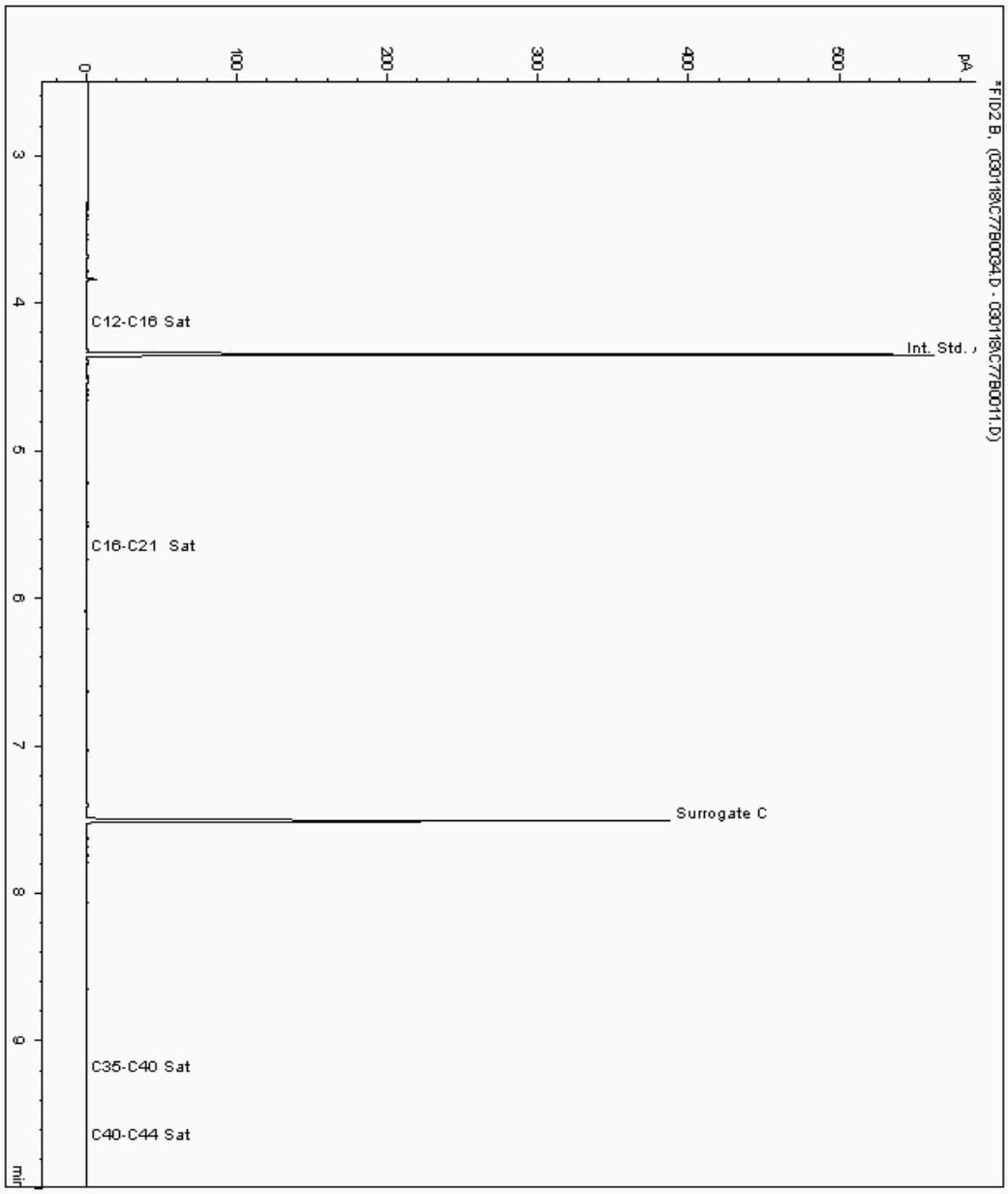
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17112459 **Sample ID :** TP-RPS-19 **Depth :** 1.90

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16064226-
Date Acquired : 3/1/2018 3:29:25 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.950



Validated

CERTIFICATE OF ANALYSIS

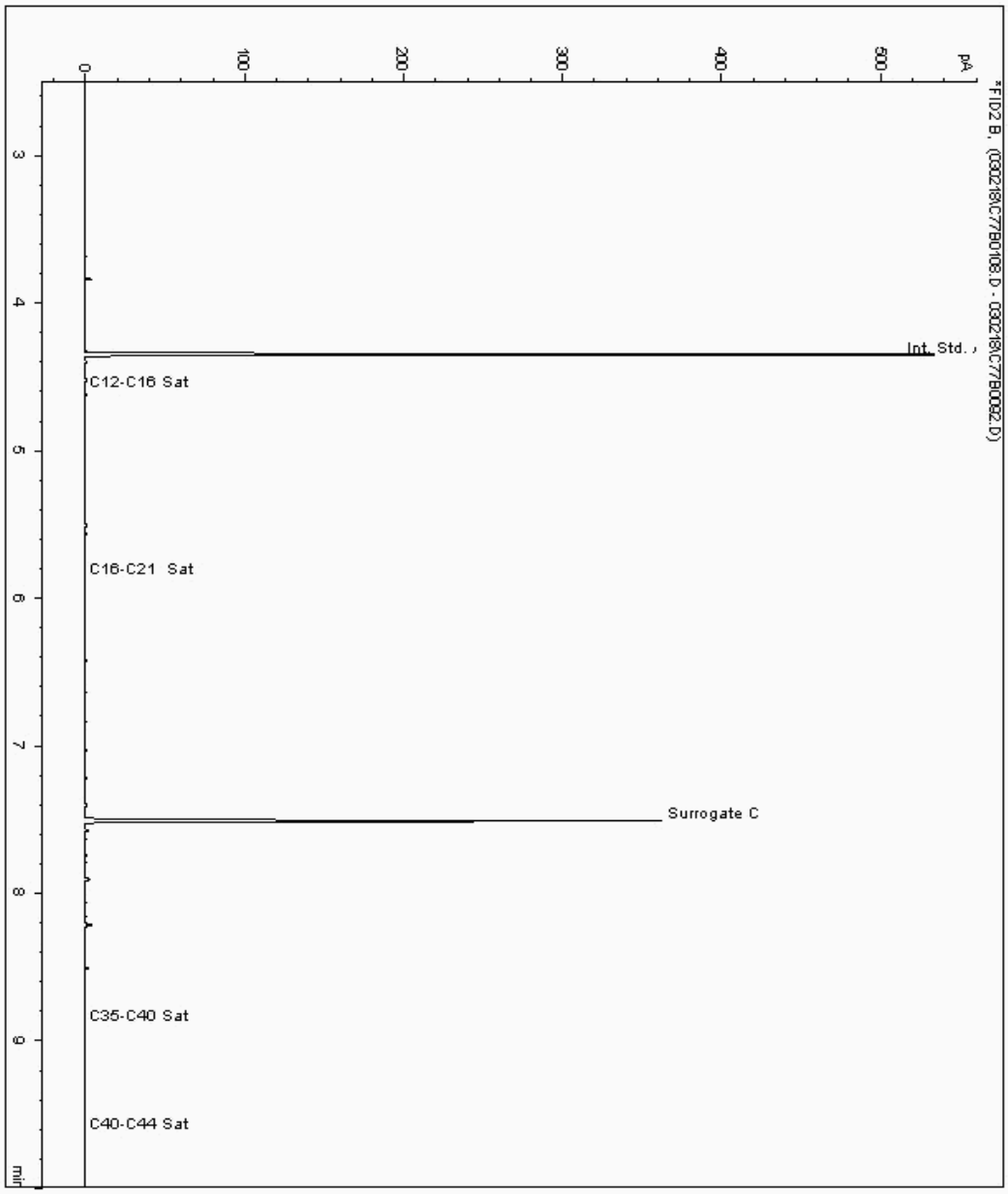
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17150766 **Sample ID :** TP-RPS-17 **Depth :** 1.20

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16099140-
Date Acquired : 3/5/2018 6:16:09 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.018



Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

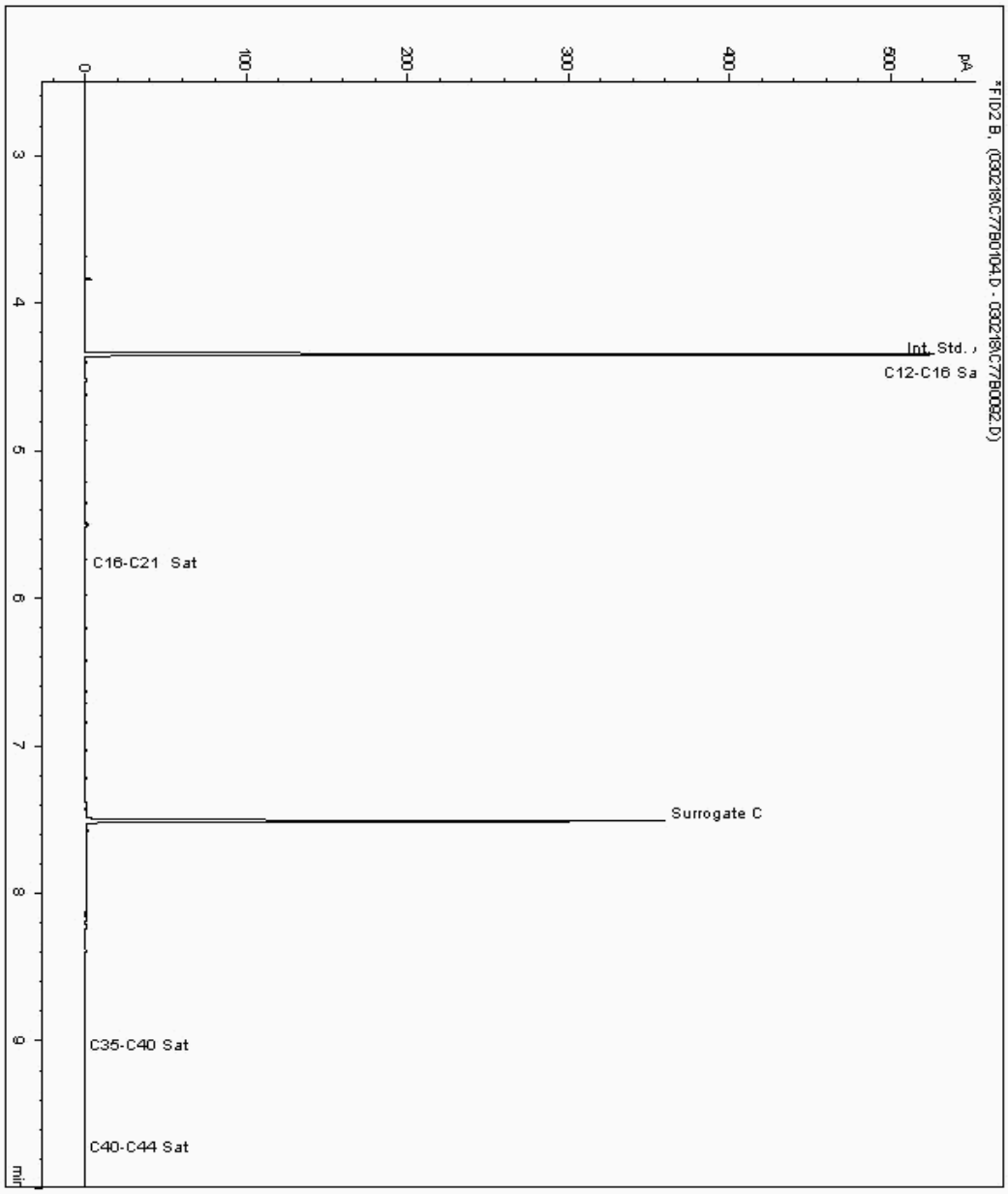
Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 17150772
Sample ID : TP-RPS-21

Depth : 0.50

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16099102-
Date Acquired : 3/5/2018 4:54:58 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.985



Validated

CERTIFICATE OF ANALYSIS

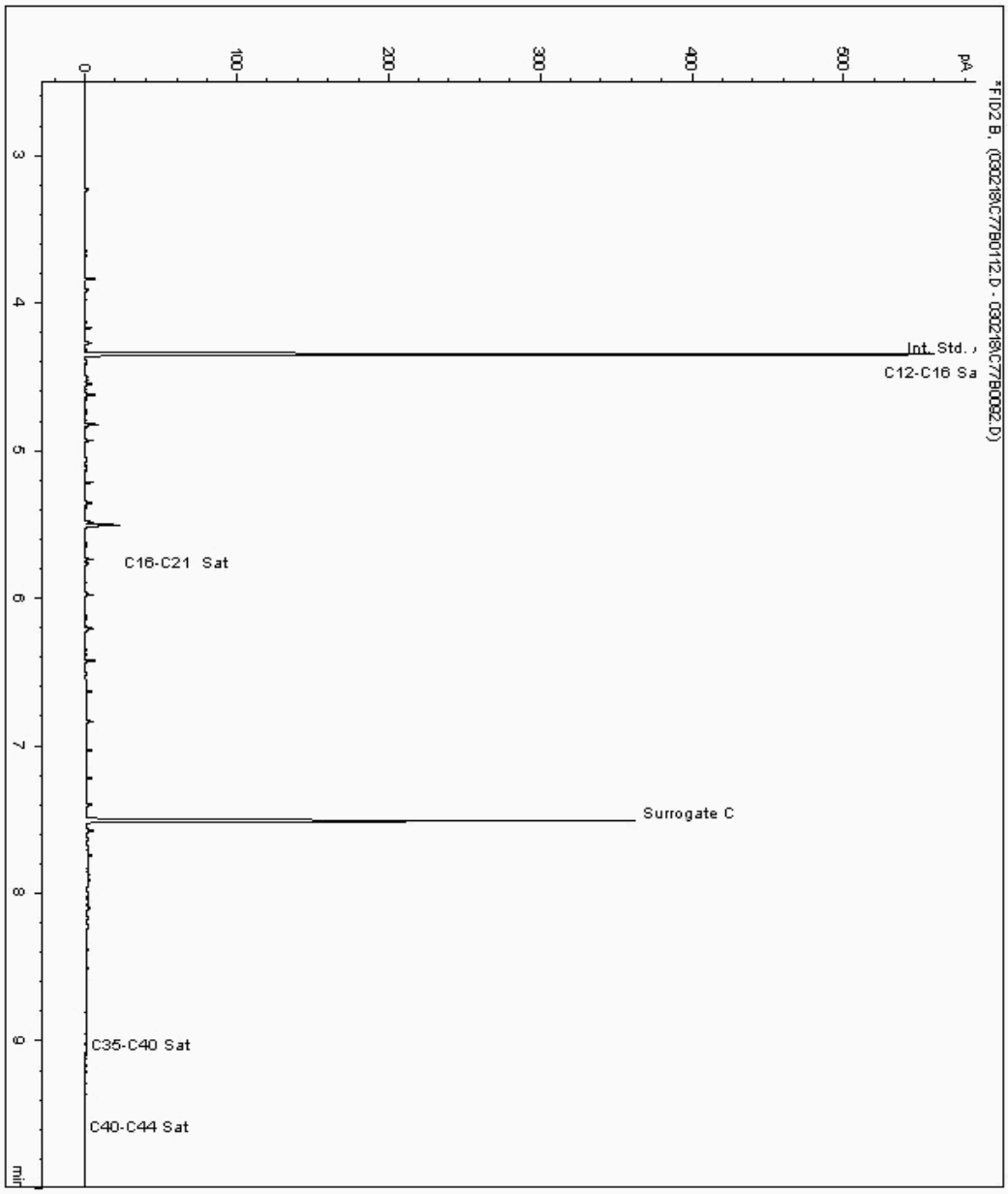
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17150775 **Sample ID :** TP-RPS-28 **Depth :** 0.60

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16099084-
Date Acquired : 3/5/2018 7:28:58 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.033



Validated

CERTIFICATE OF ANALYSIS

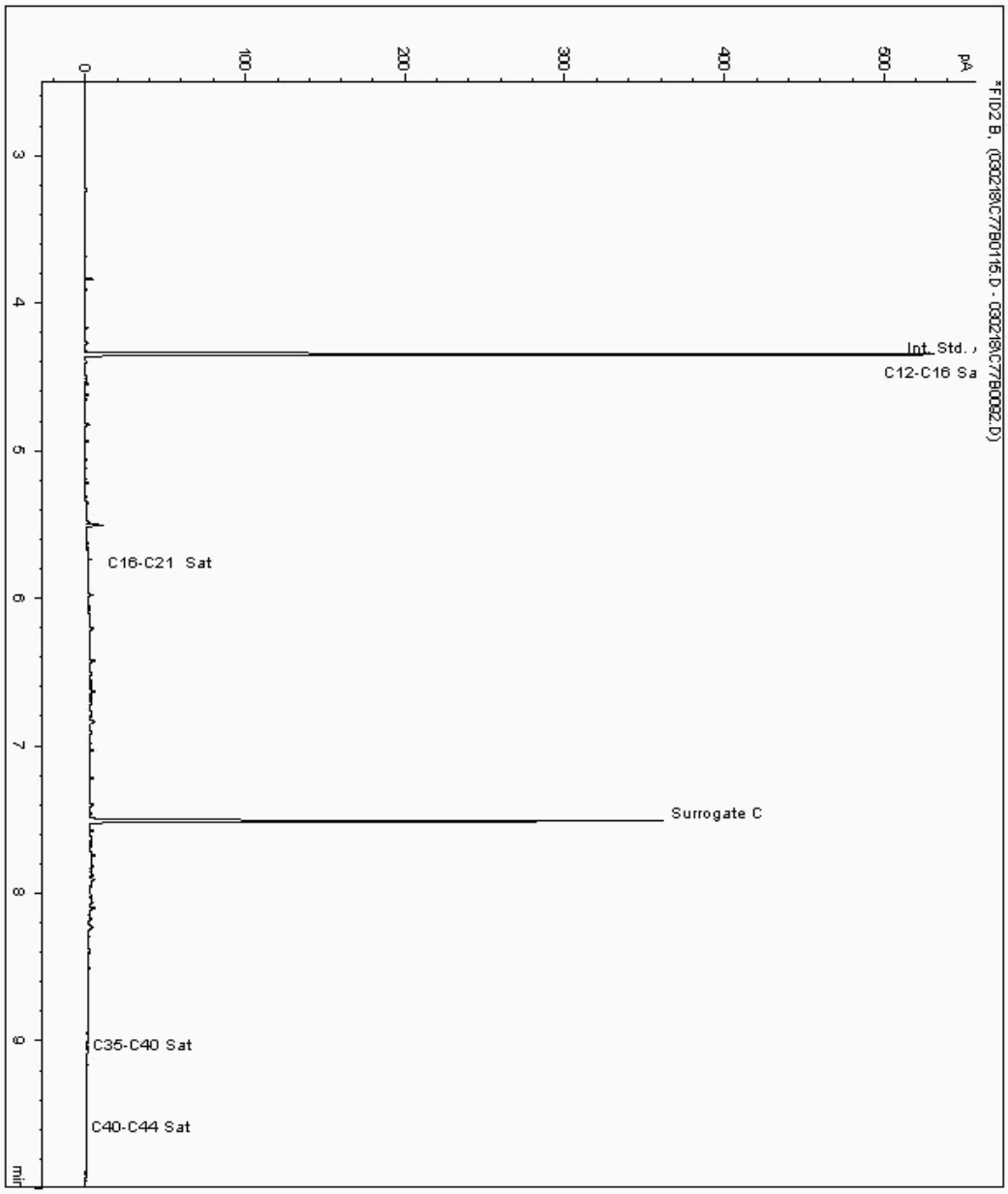
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17150793 **Sample ID :** TP-RPS-46 **Depth :** 0.70

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16099096-
Date Acquired : 3/5/2018 8:29:45 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.040



Validated

CERTIFICATE OF ANALYSIS

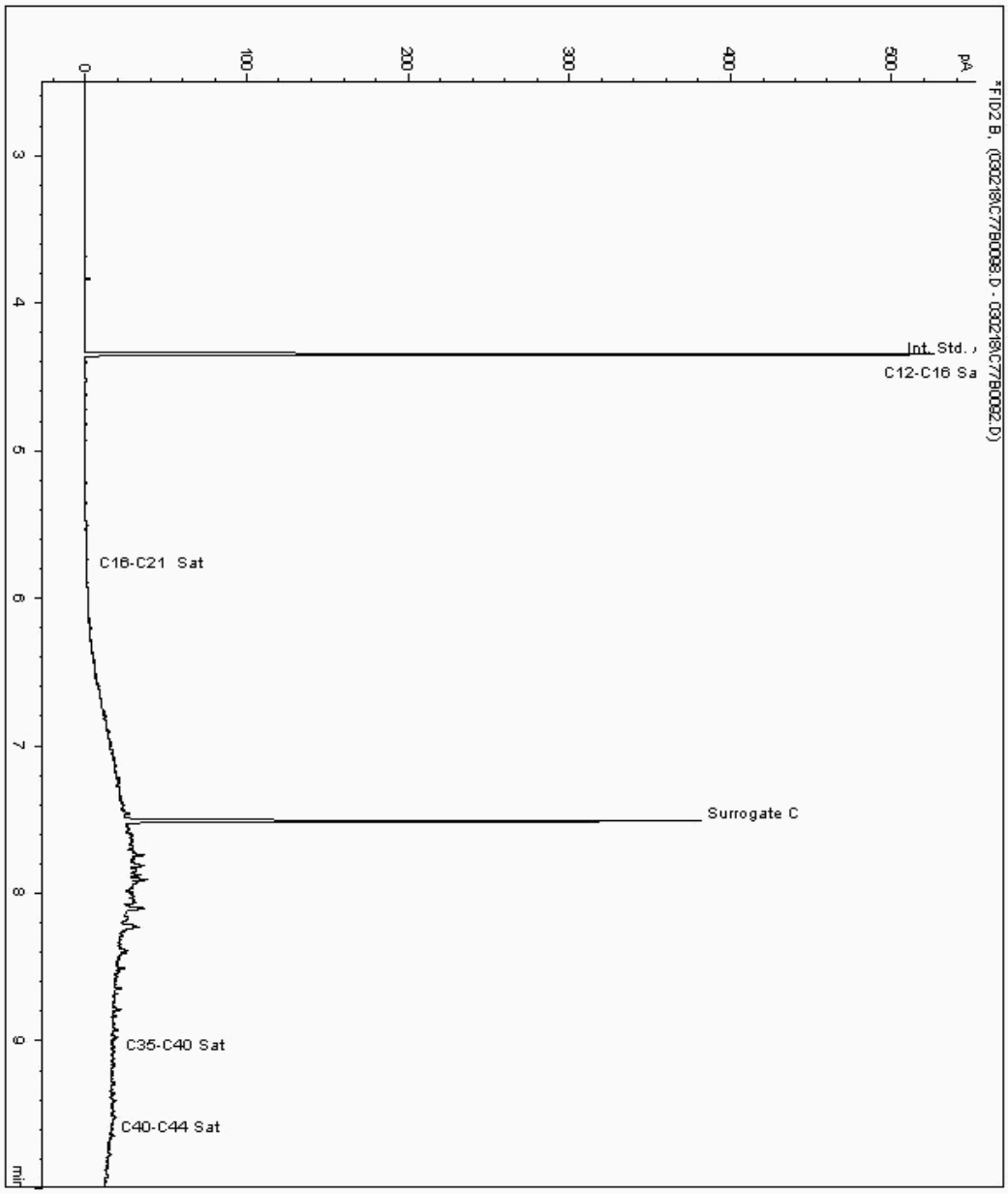
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17150796 **Sample ID :** TP-RPS-46 **Depth :** 0.20

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16099119-
Date Acquired : 3/5/2018 3:18:31 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.009



Validated

CERTIFICATE OF ANALYSIS

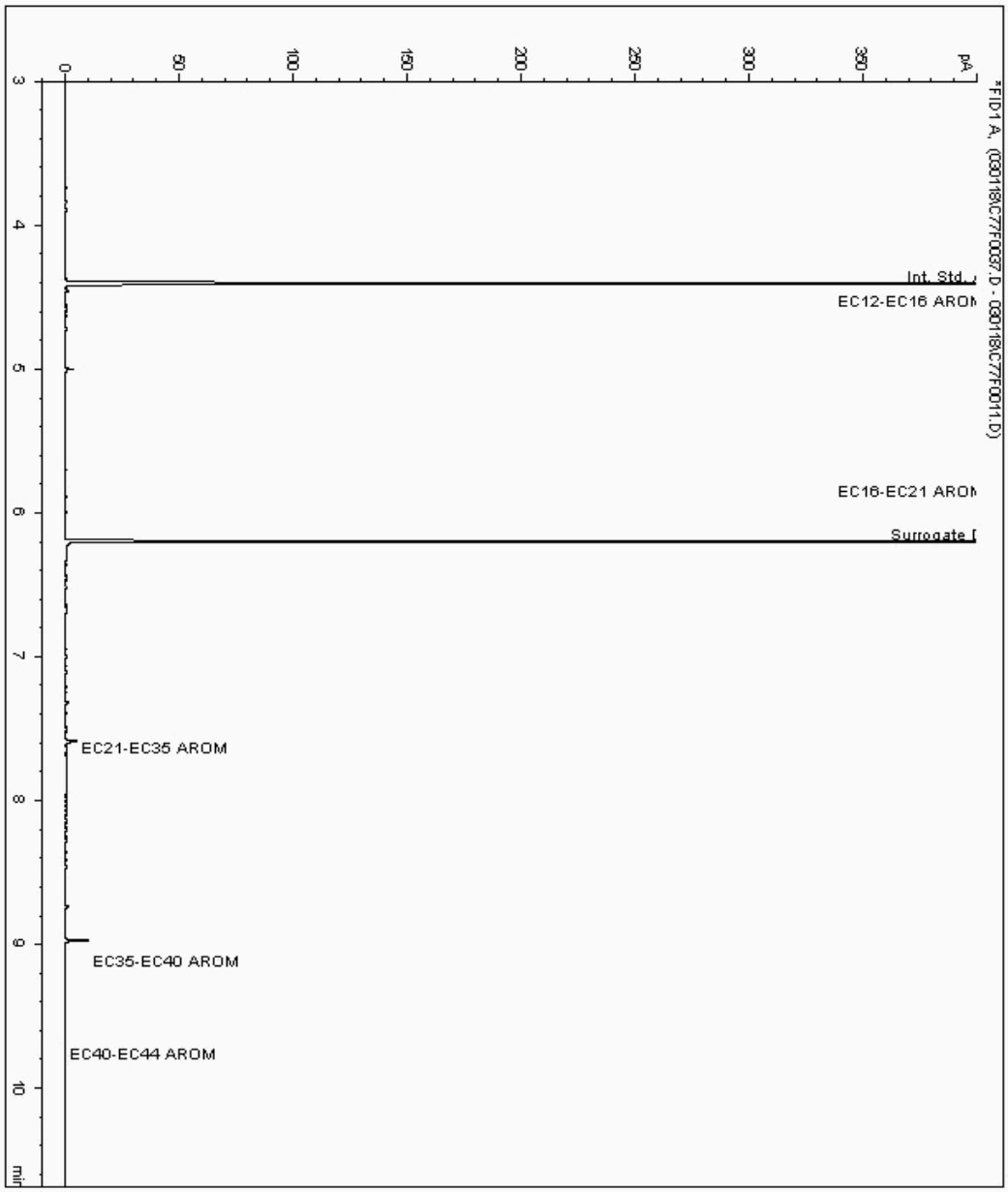
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17112216 **Sample ID :** TP-RPS-17 **Depth :** 0.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16064194-
Date Acquired : 3/1/2018 4:21:43 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

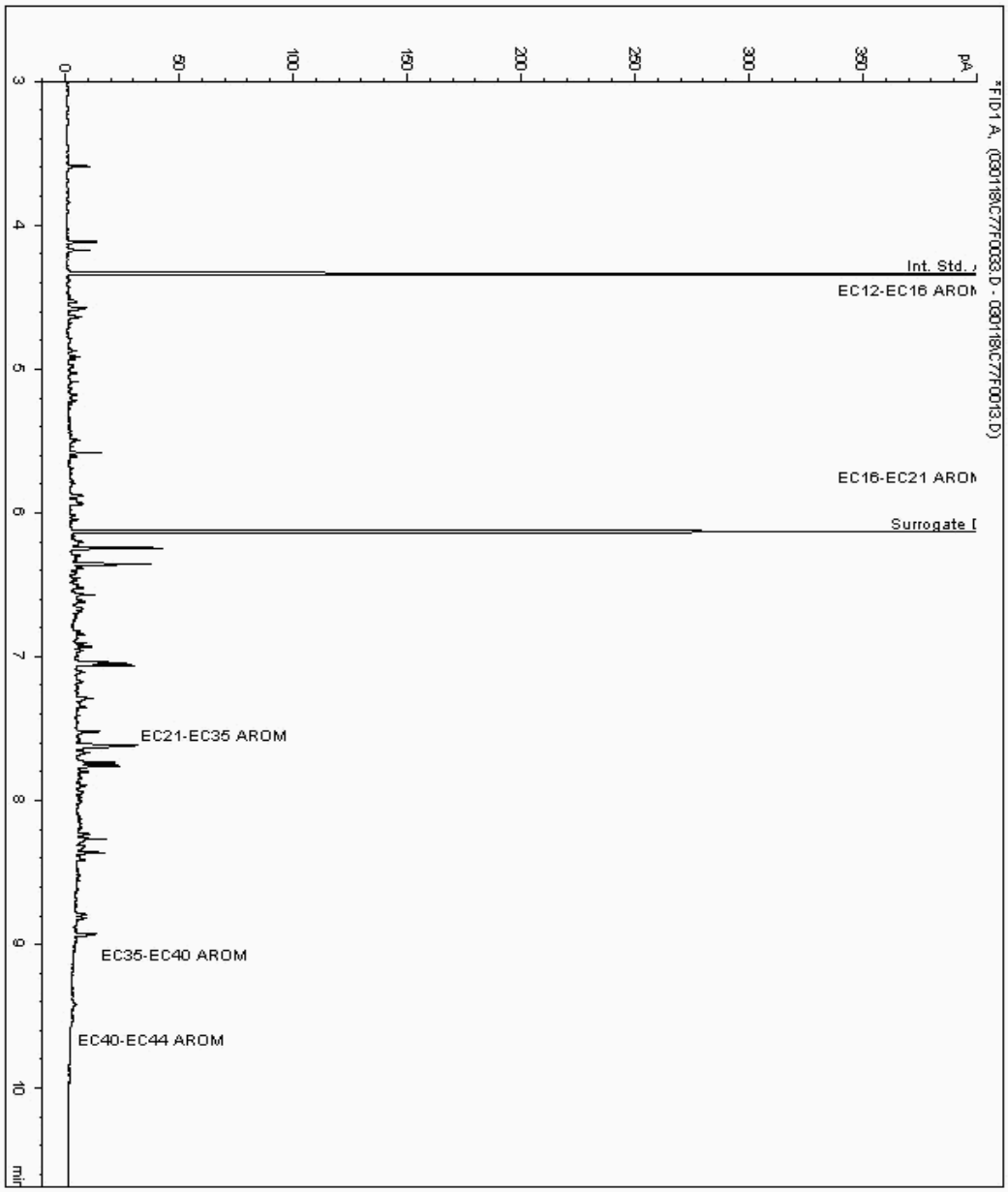
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17112283 **Sample ID :** BH-RPS-04 **Depth :** 0.30

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16064137-
Date Acquired : 02/03/2018 02:32:28 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

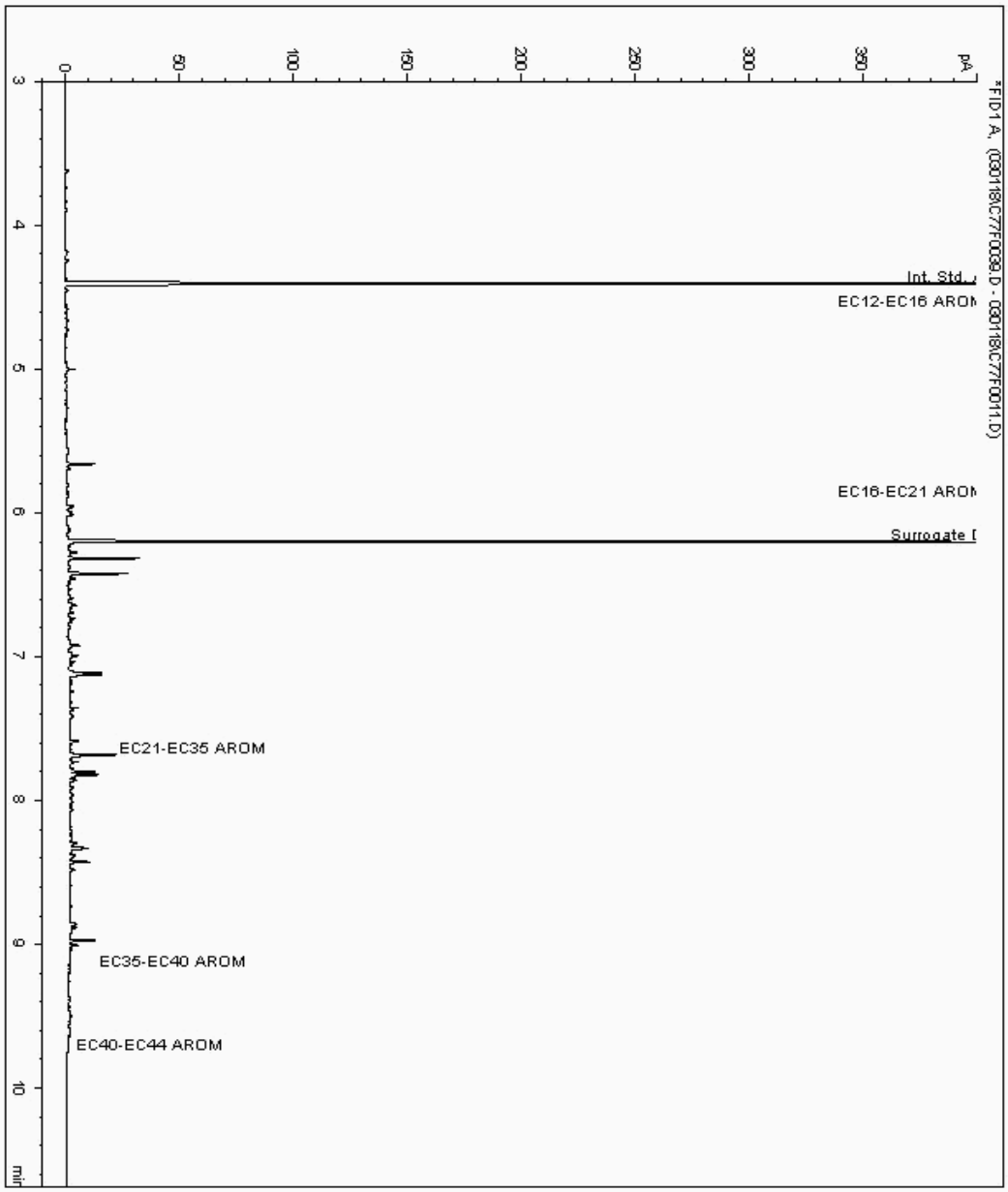
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17112317 **Sample ID :** BH-RPS-04 **Depth :** 0.65 - 0.90

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16063976-
Date Acquired : 3/1/2018 5:01:49 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

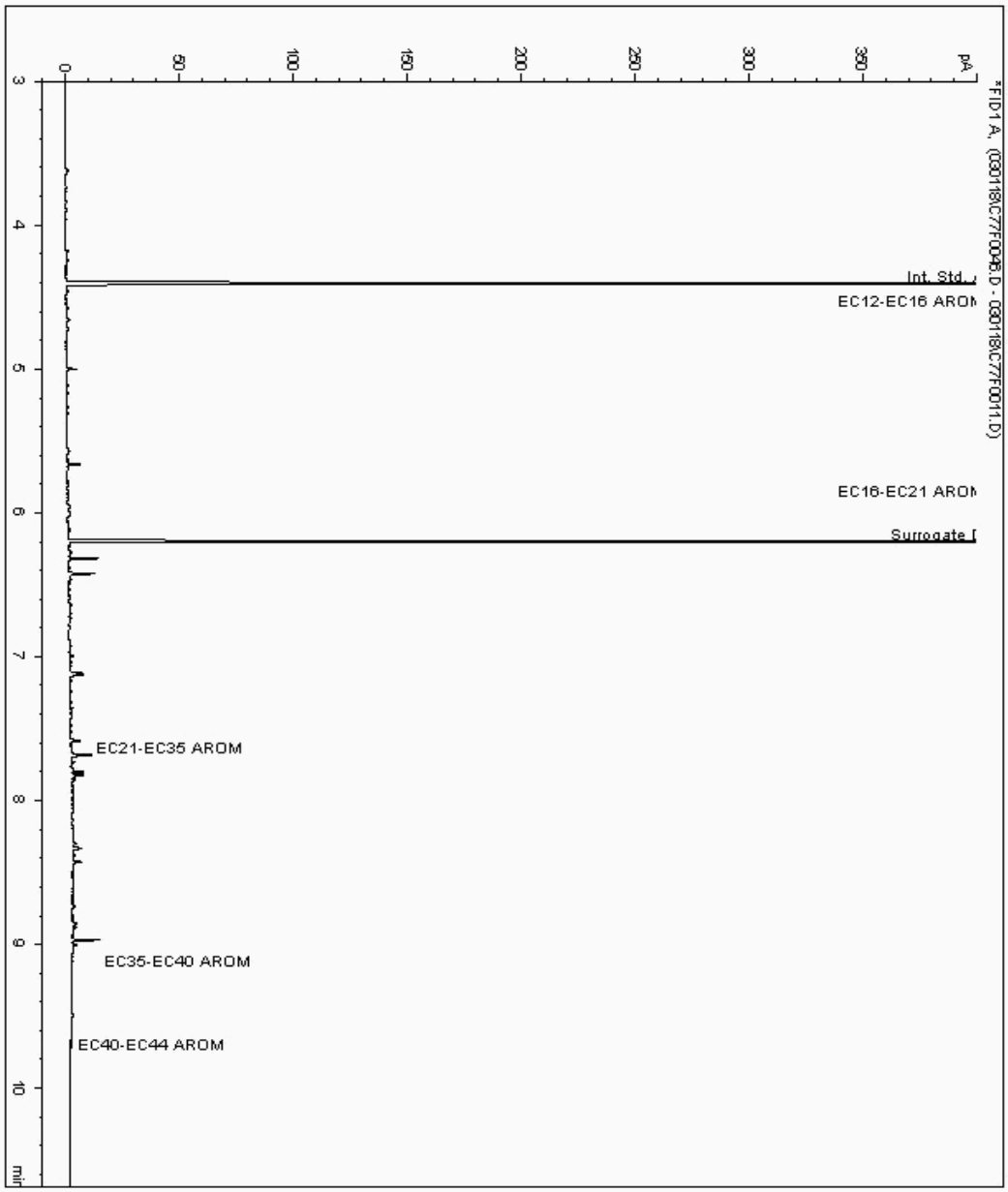
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17112341 **Sample ID :** TP-RPS-19 **Depth :** 0.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16064247-
Date Acquired : 3/1/2018 6:57:13 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

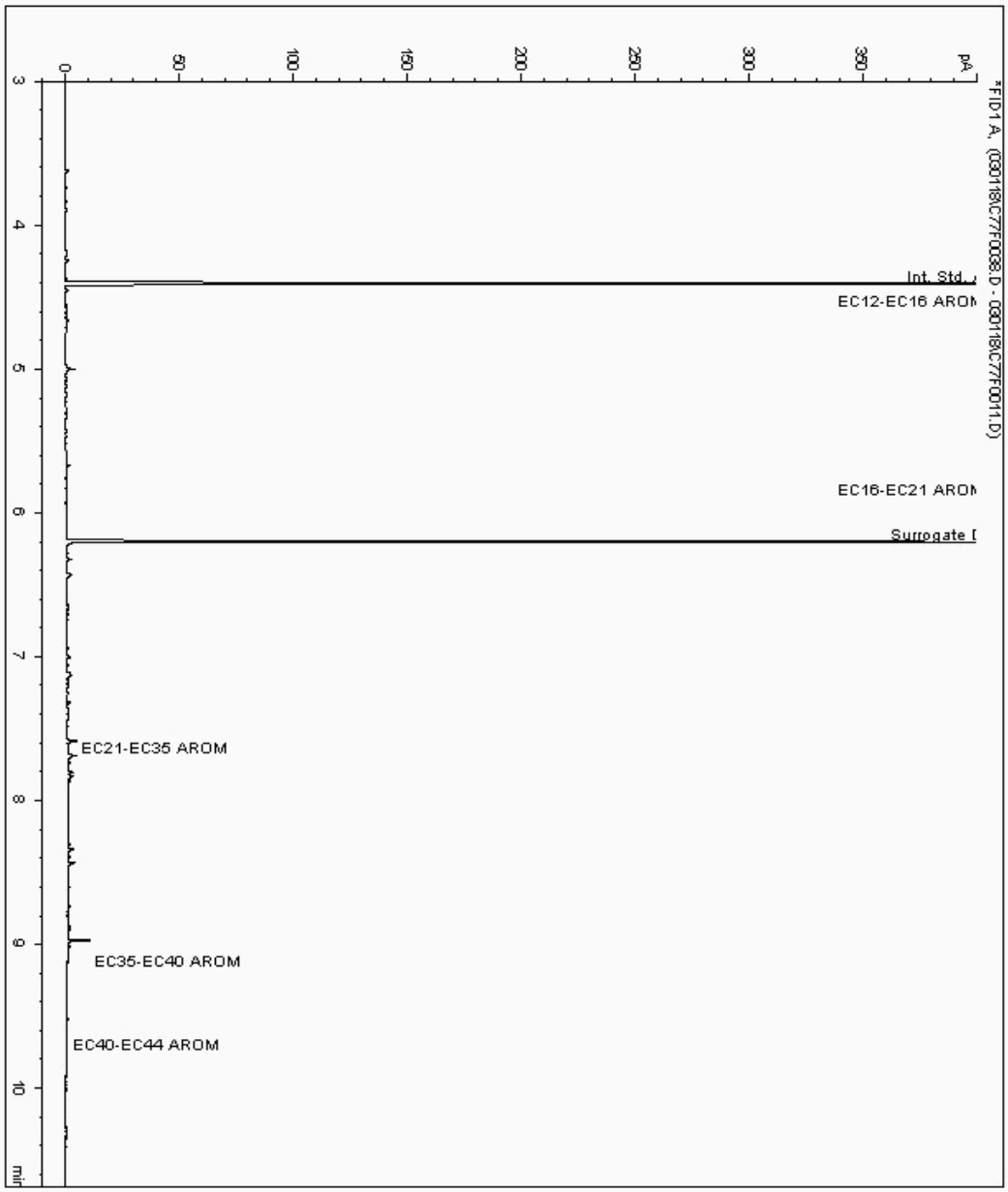
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17112429 **Sample ID :** TP-RPS-11 **Depth :** 1.00

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16064100-
Date Acquired : 3/1/2018 4:41:50 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

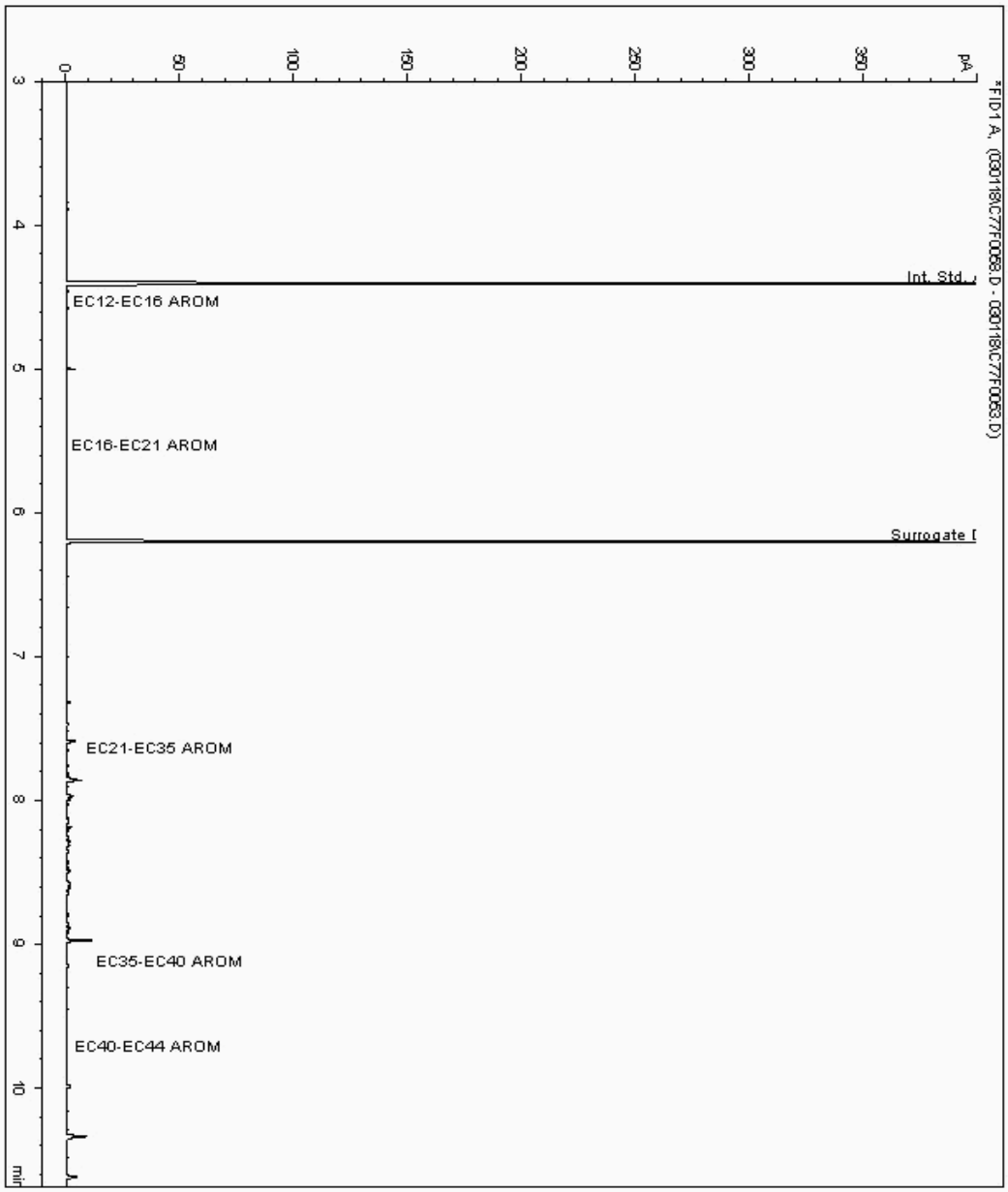
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17112447 **Depth :** 1.40 - 1.60
Sample ID : WS-RPS-27

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16064049-
Date Acquired : 3/1/2018 10:25:16 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

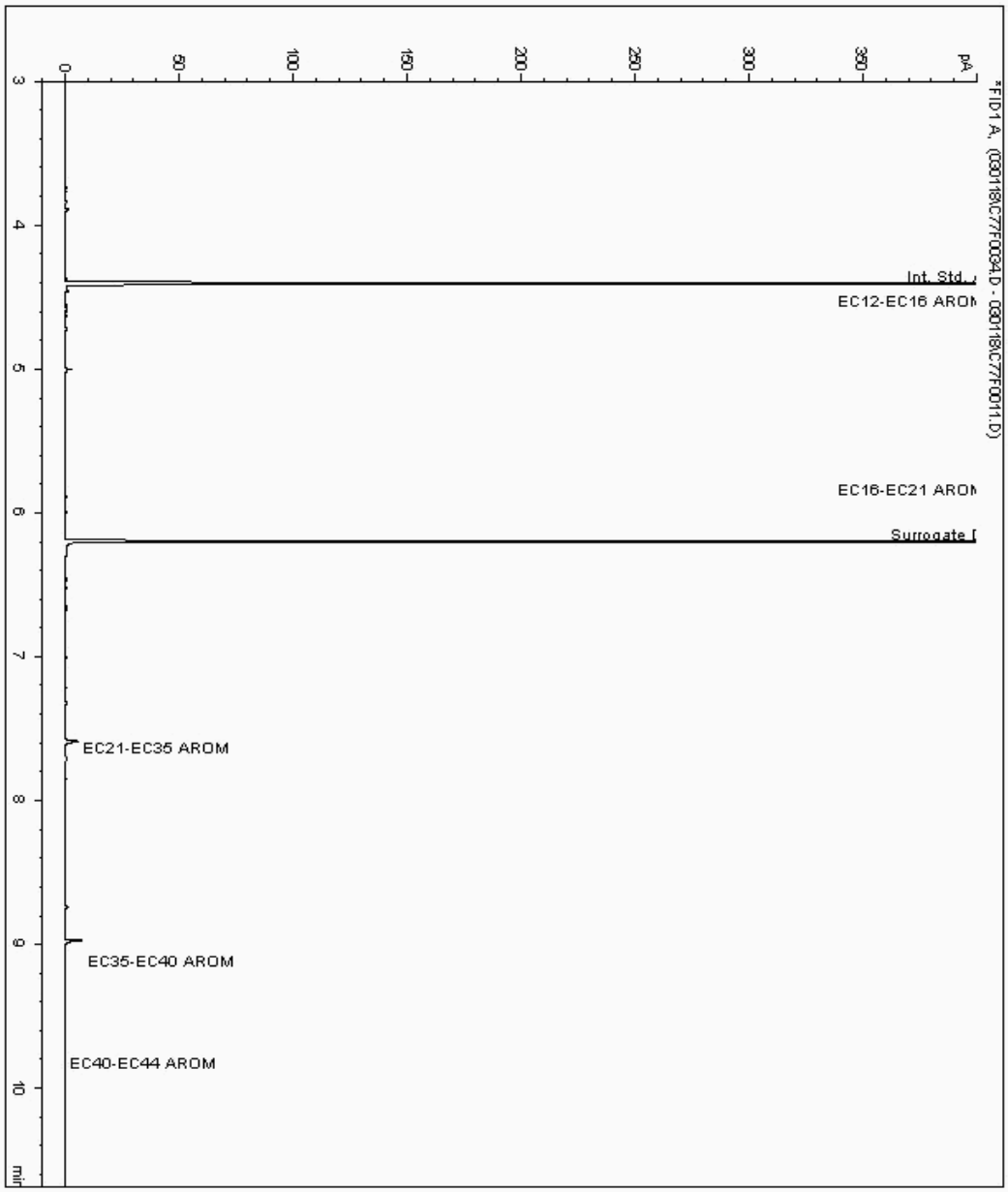
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17112459 **Sample ID :** TP-RPS-19 **Depth :** 1.90

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16064227-
Date Acquired : 3/1/2018 3:29:25 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

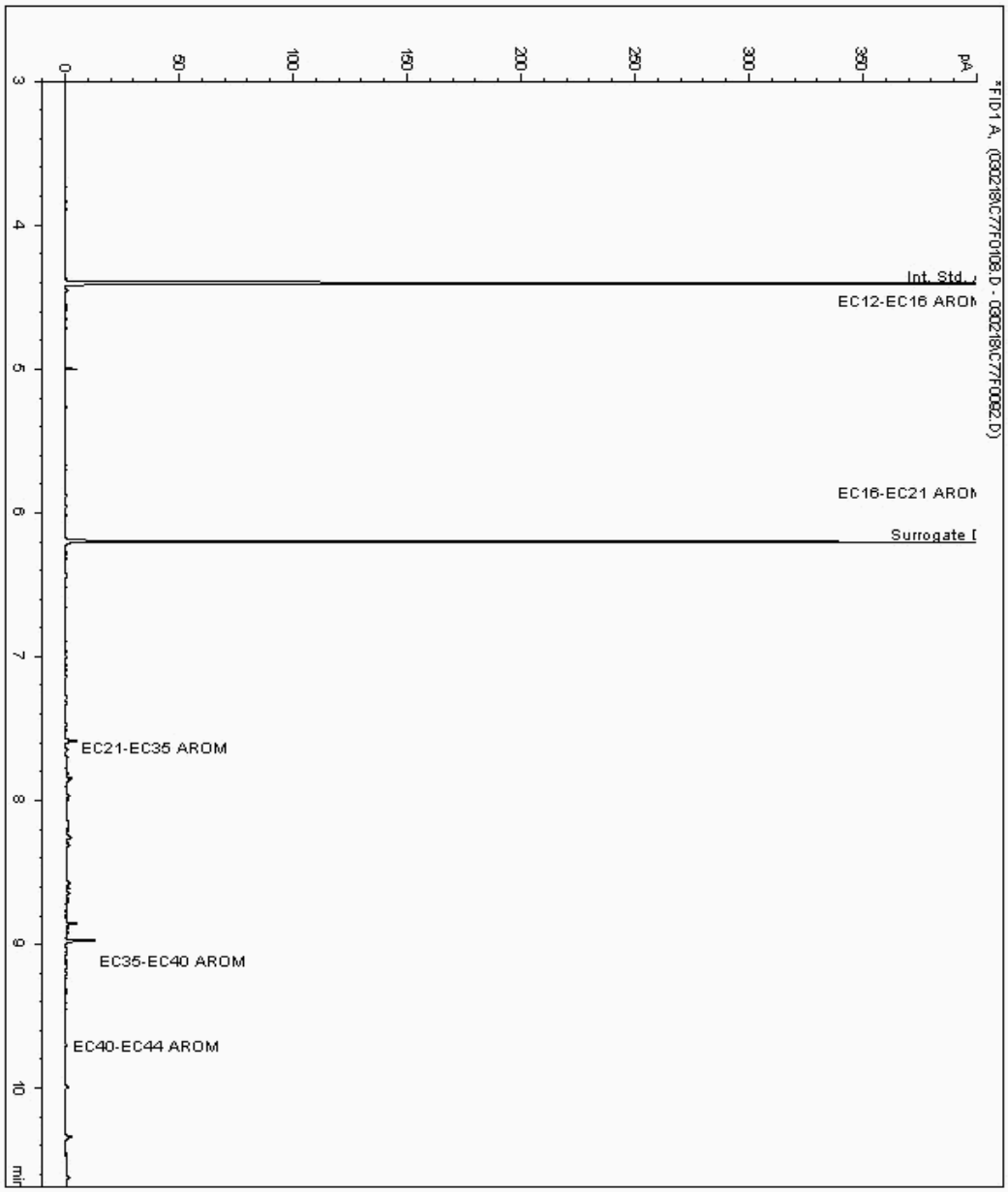
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17150766 **Sample ID :** TP-RPS-17 **Depth :** 1.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16099142-
Date Acquired : 3/5/2018 6:16:09 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

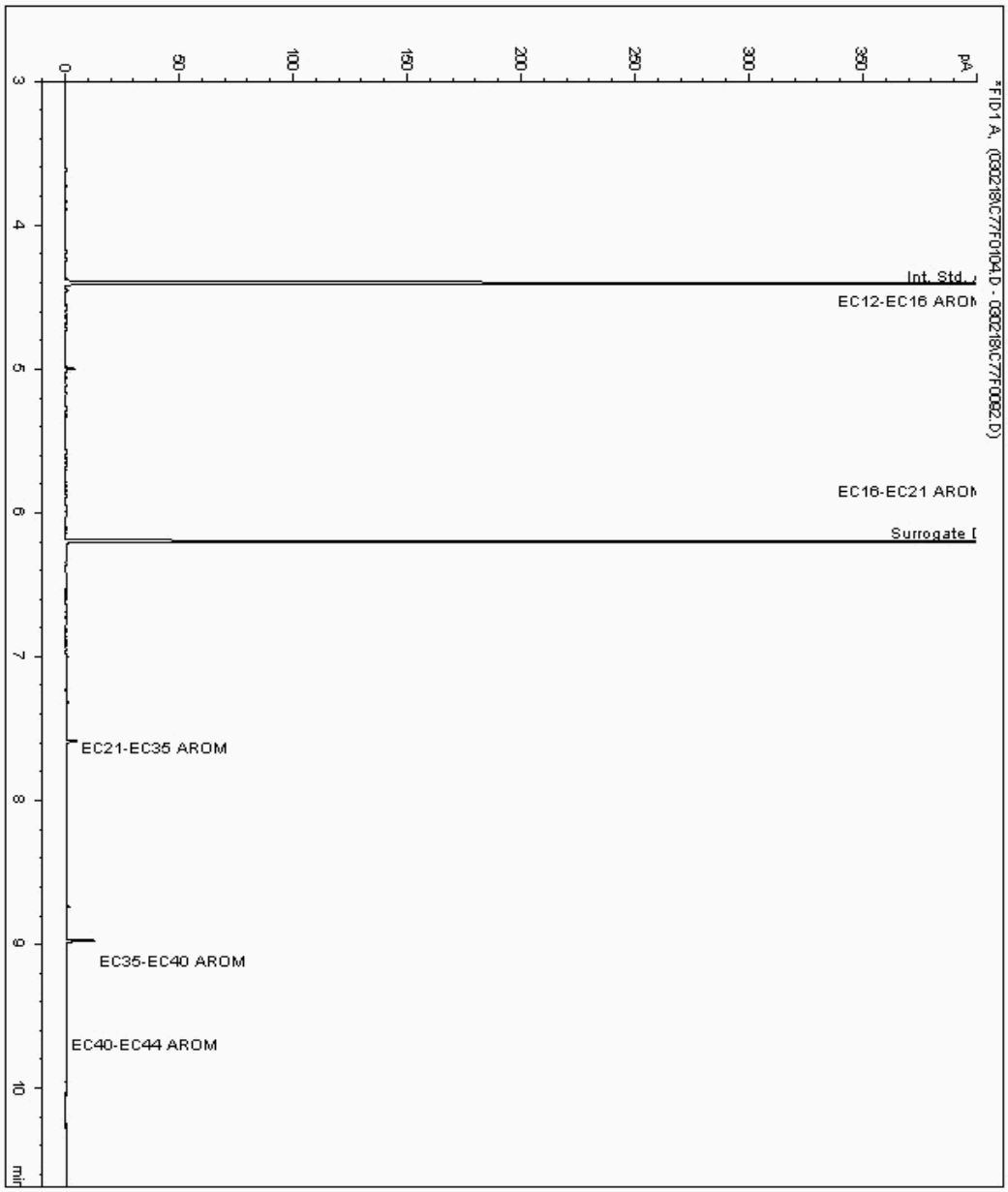
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17150772 **Sample ID :** TP-RPS-21 **Depth :** 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16099104-
Date Acquired : 3/5/2018 4:54:58 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

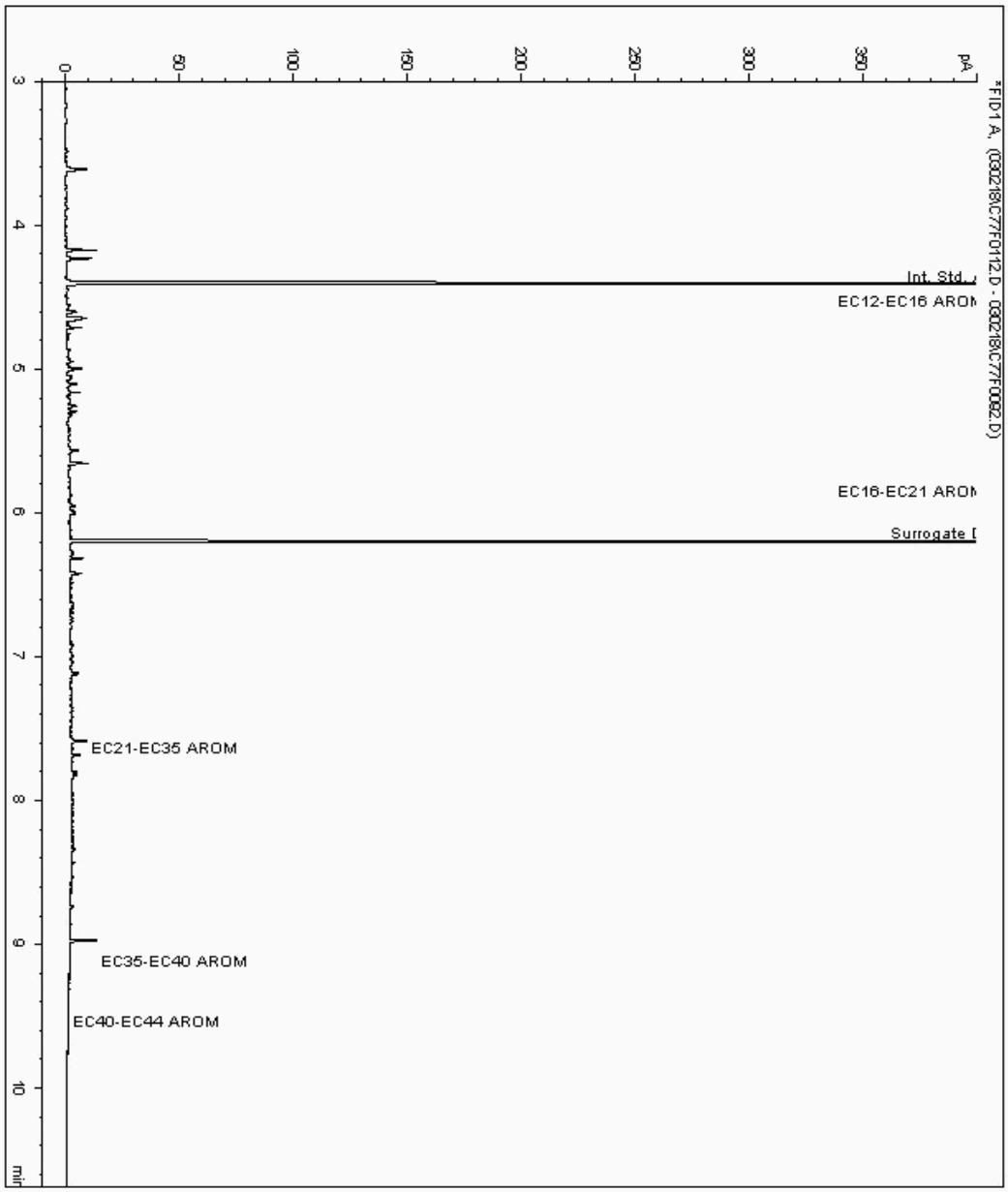
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17150775 **Sample ID :** TP-RPS-28 **Depth :** 0.60

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16099086-
Date Acquired : 3/5/2018 7:28:58 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

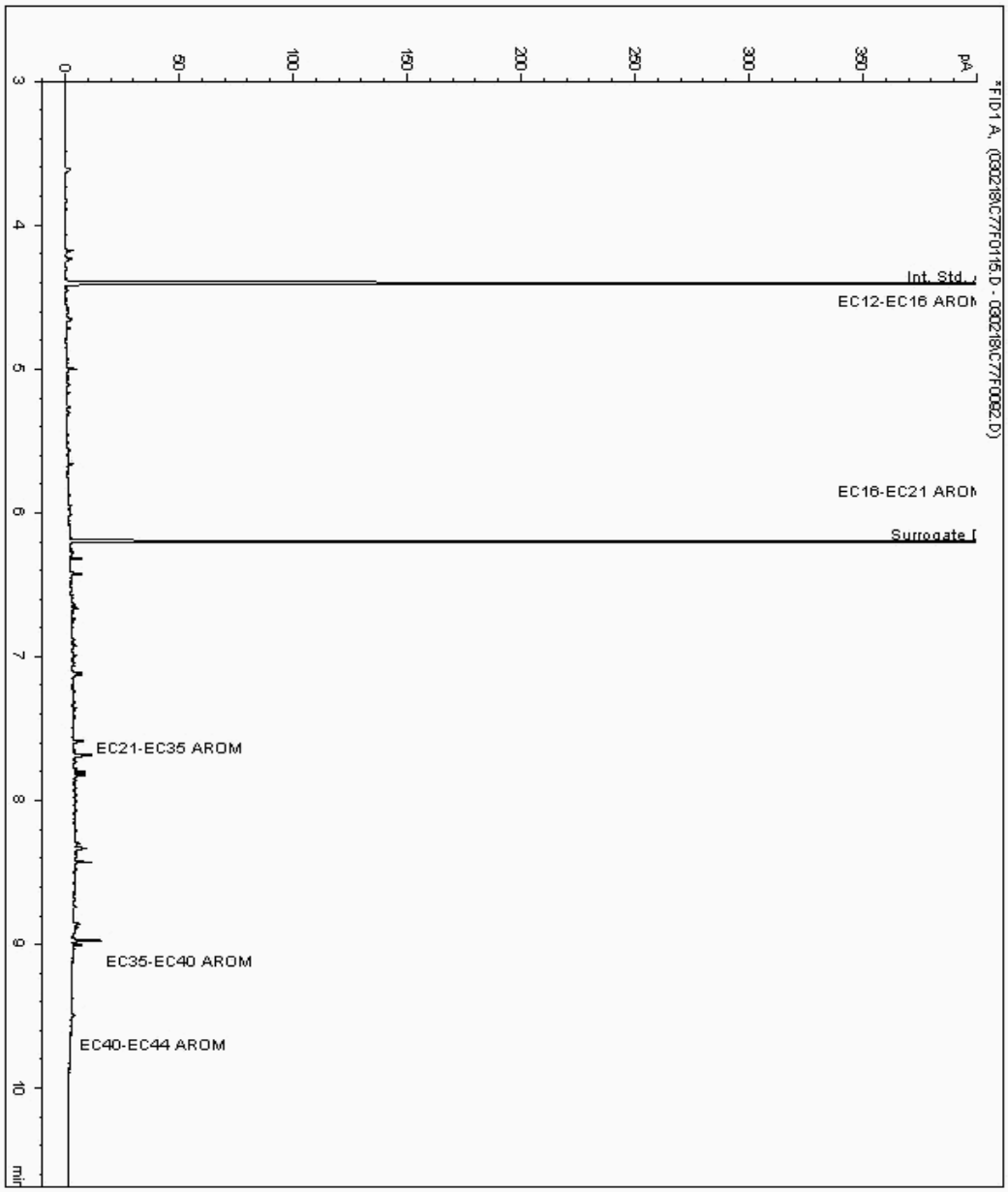
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17150793 **Sample ID :** TP-RPS-46 **Depth :** 0.70

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16099098-
Date Acquired : 3/5/2018 8:29:45 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

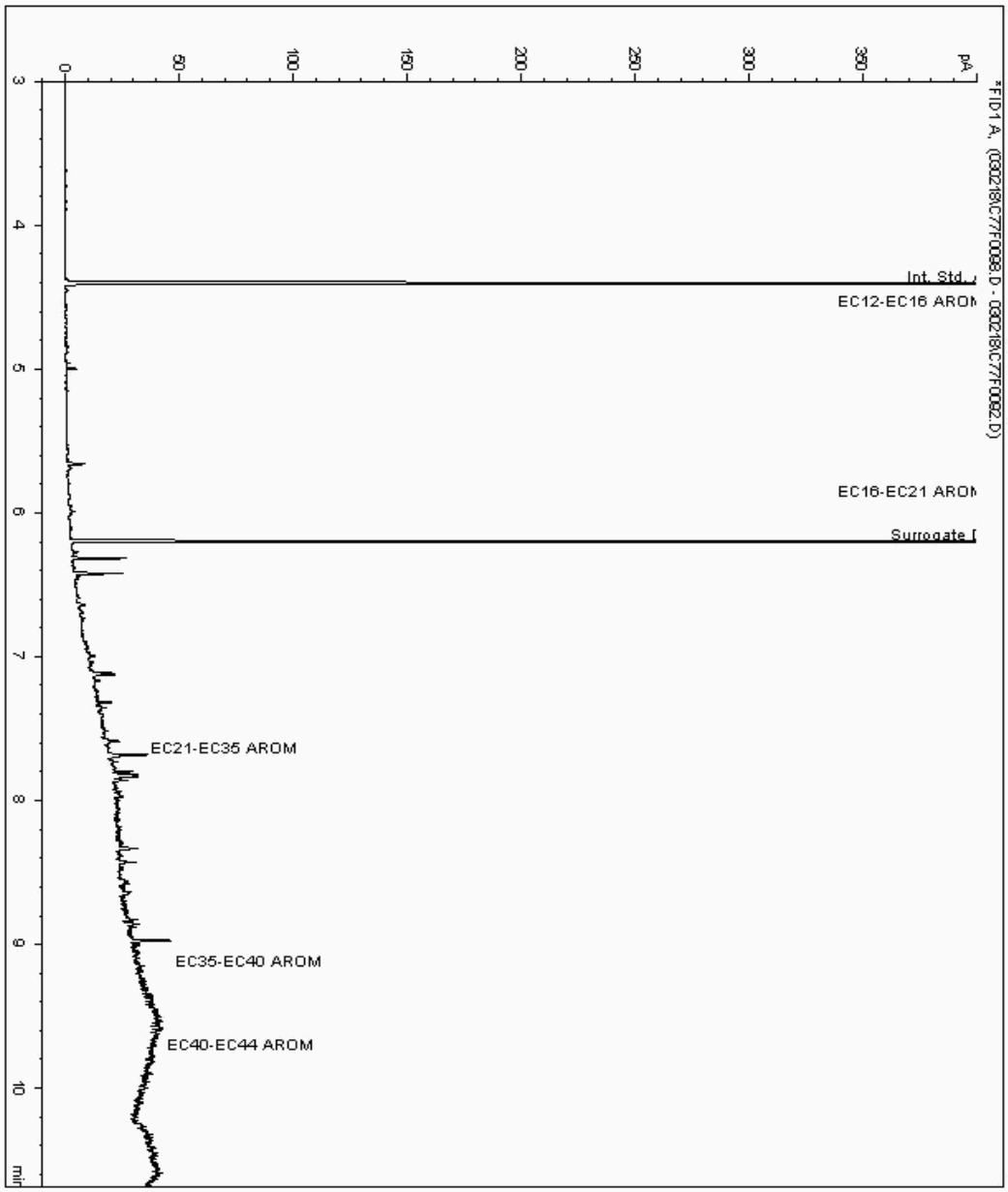
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17150796 **Sample ID :** TP-RPS-46 **Depth :** 0.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16099121-
Date Acquired : 3/5/2018 3:18:31 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

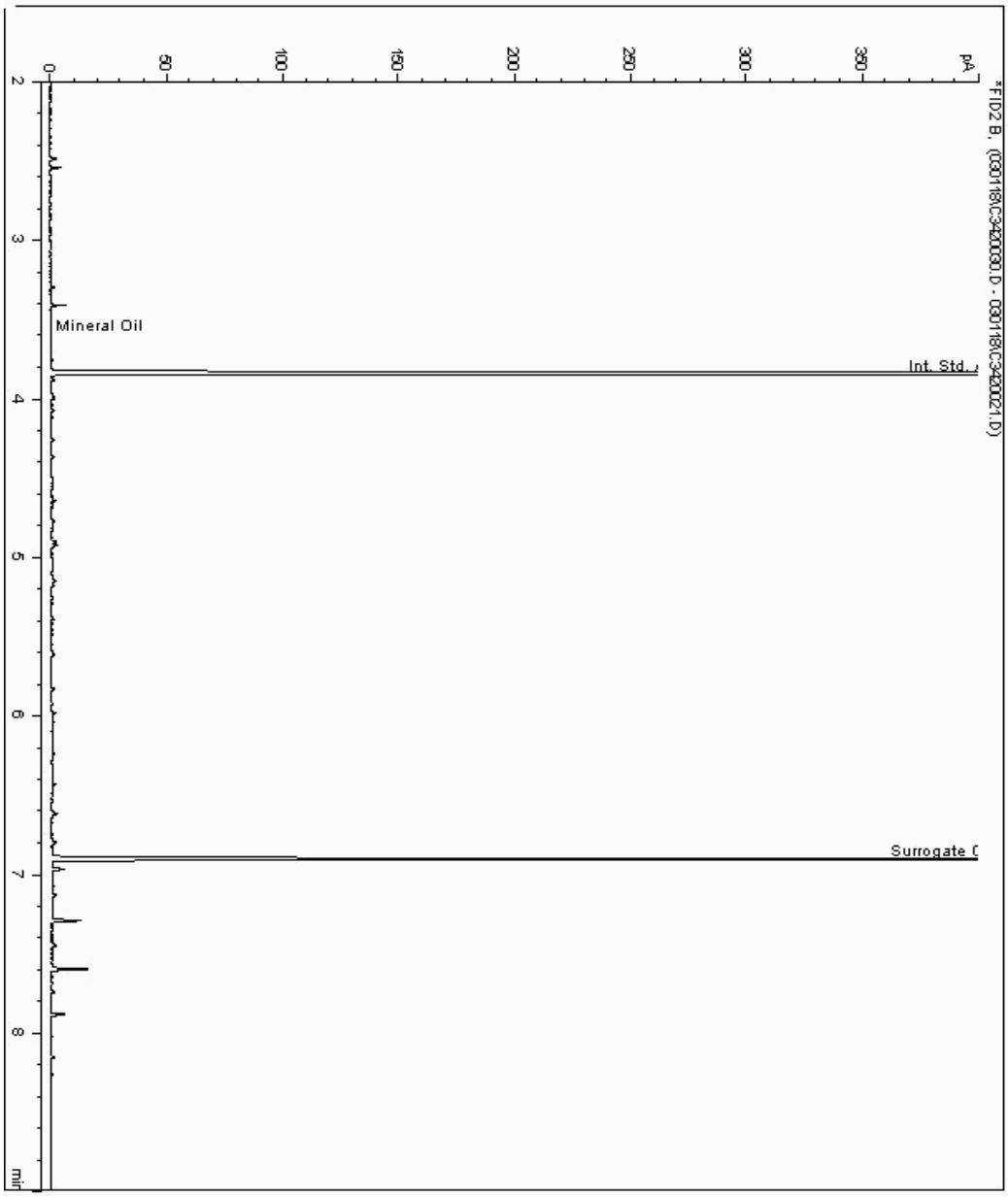
Analysis: Mineral Oil

Sample No : 17116802
Sample ID : WS-RPS-27

Depth : 1.40 - 1.60

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16064037-
Date Acquired : 01/03/2018 21:27:52 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

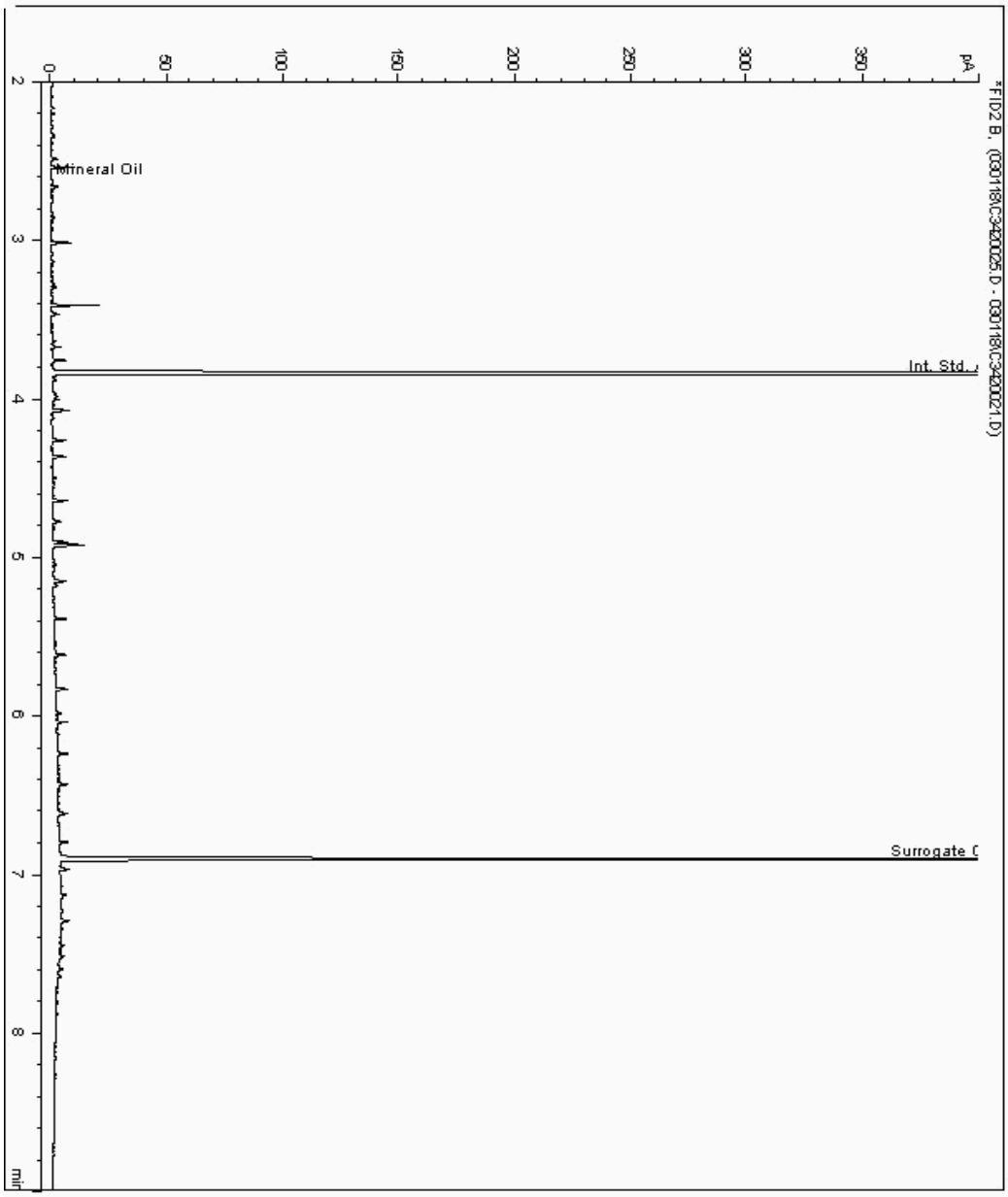
Analysis: Mineral Oil

Sample No : 17117031
Sample ID : BH-RPS-04

Depth : 0.30

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16064120-
Date Acquired : 01/03/2018 19:38:54 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

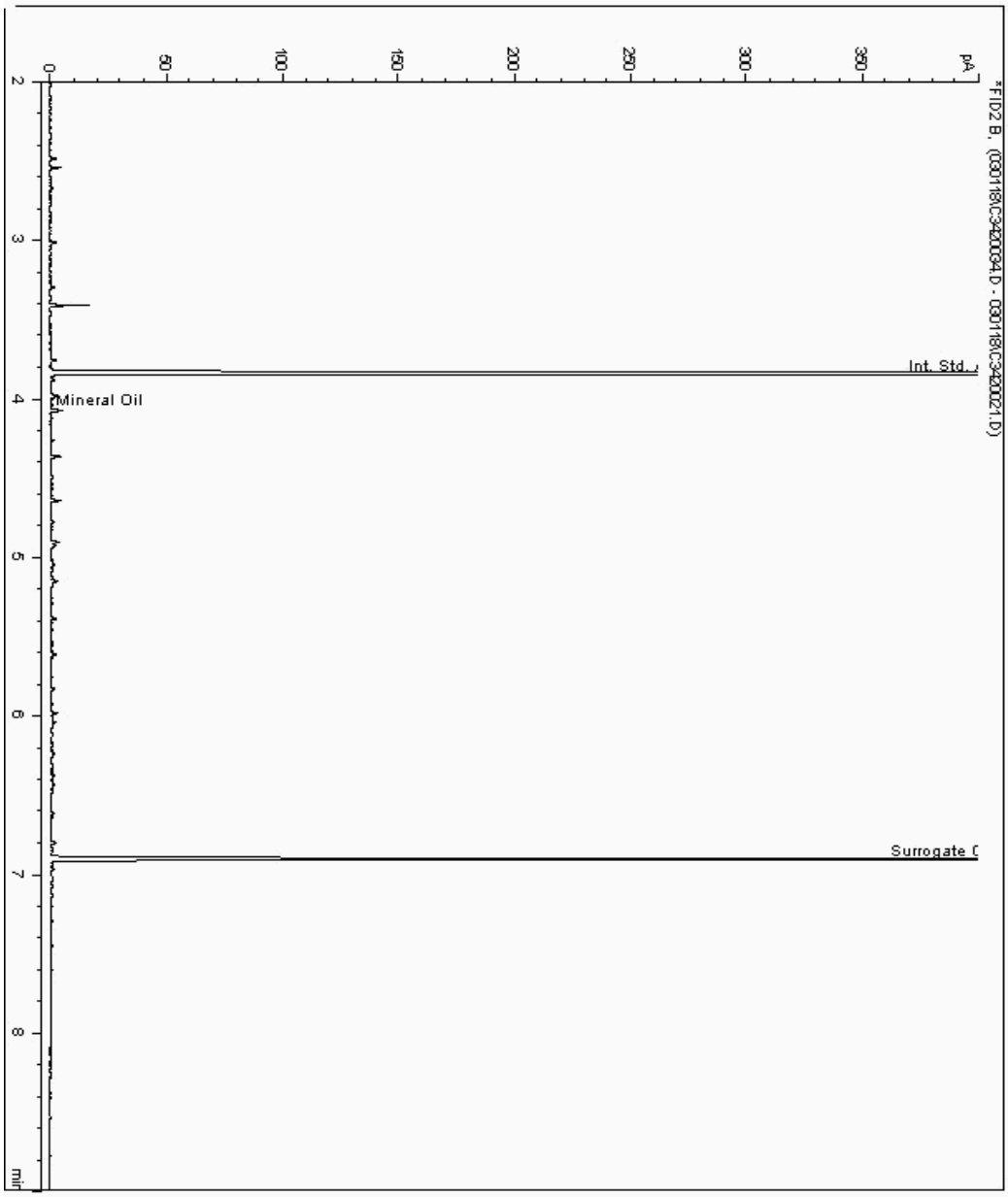
Analysis: Mineral Oil

Sample No : 17117096
Sample ID : TP-RPS-17

Depth : 0.20

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16064178-
Date Acquired : 01/03/2018 22:55:37 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

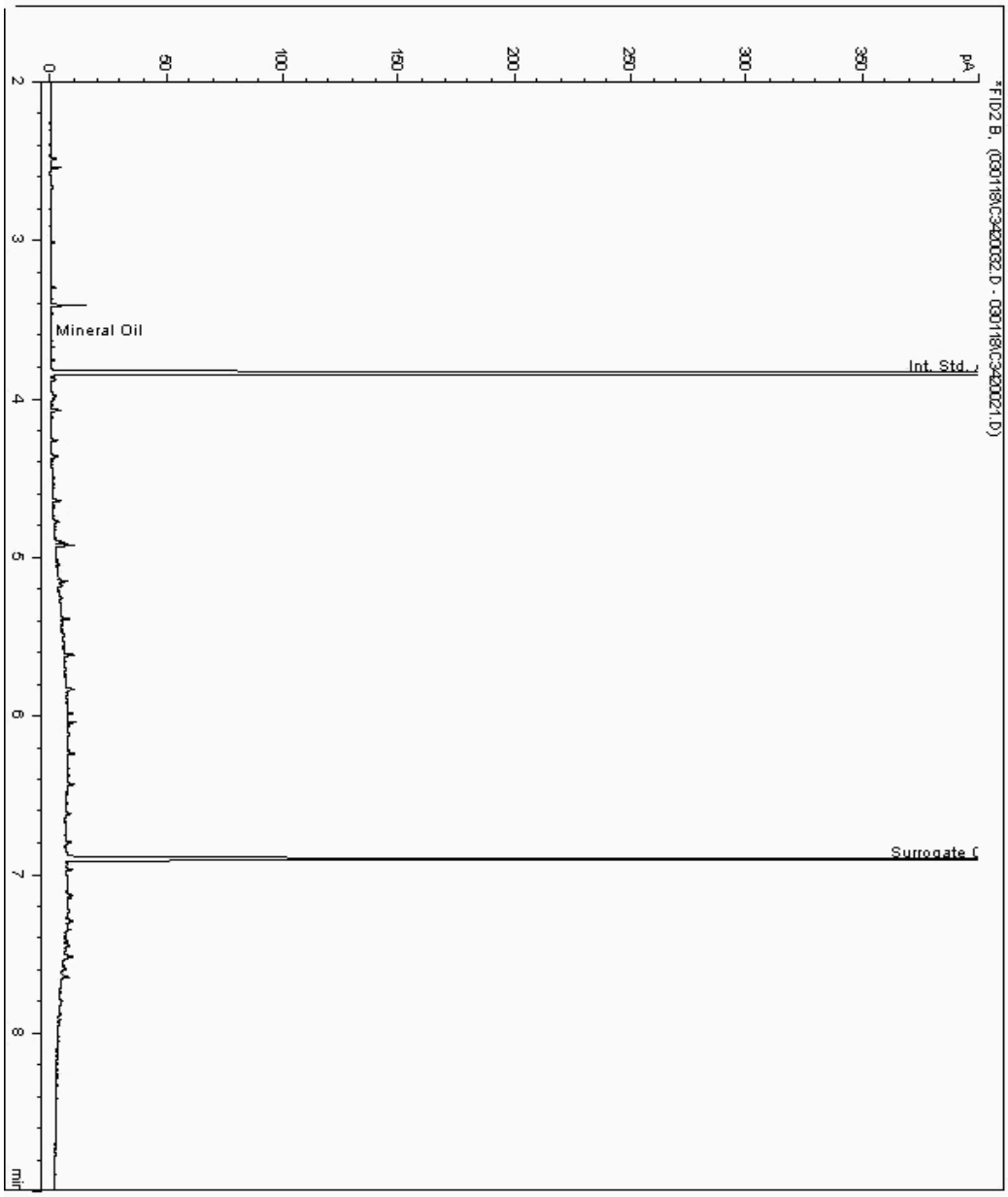
Analysis: Mineral Oil

Sample No : 17117123
Sample ID : TP-RPS-46

Depth : 0.70

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16064157-
Date Acquired : 01/03/2018 22:11:38 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

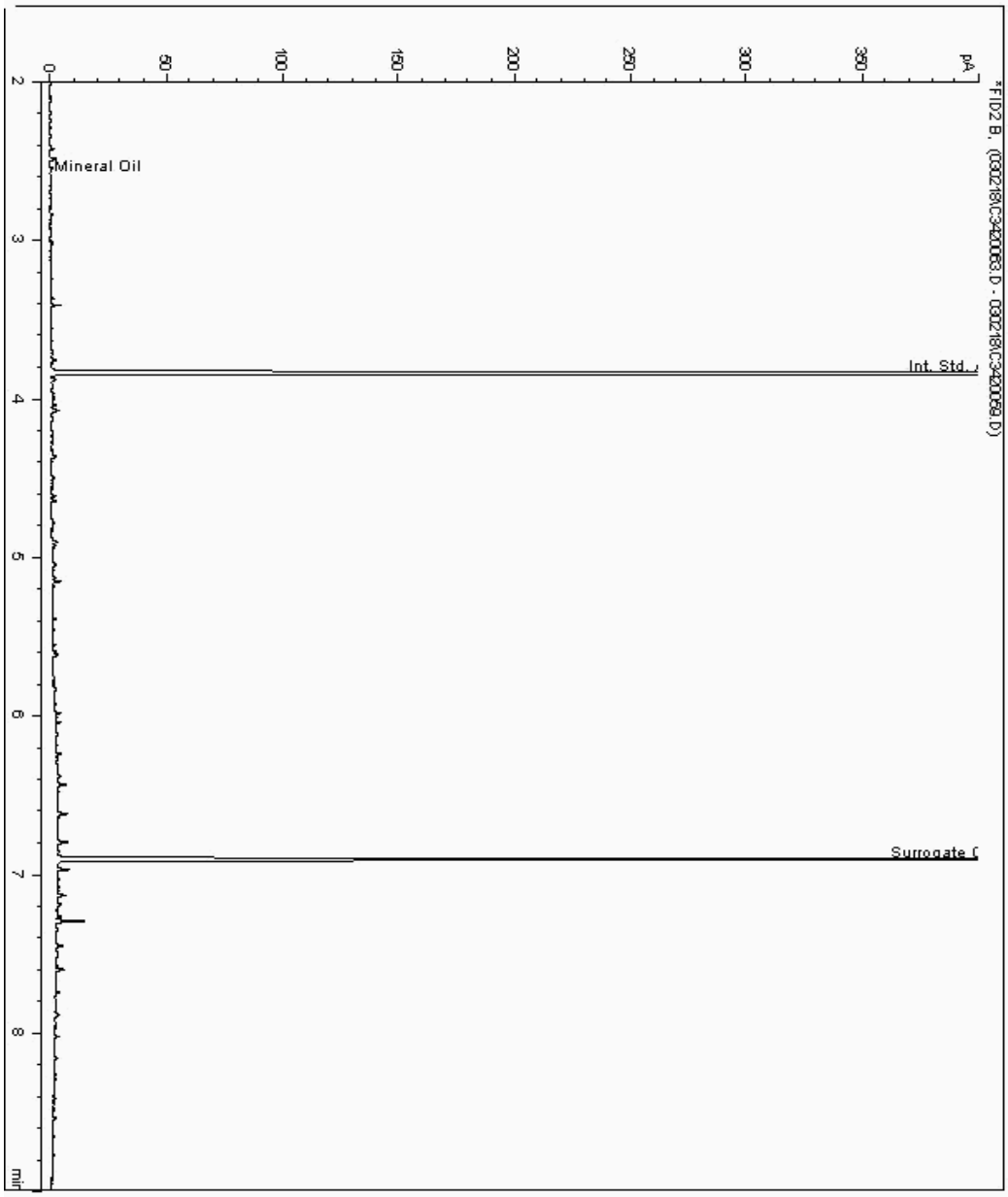
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: Mineral Oil **Sample No :** 17117541 **Sample ID :** WS-RPS-27 **Depth :** 3.20 - 3.50

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16064076-
Date Acquired : 03/03/2018 03:58:59 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

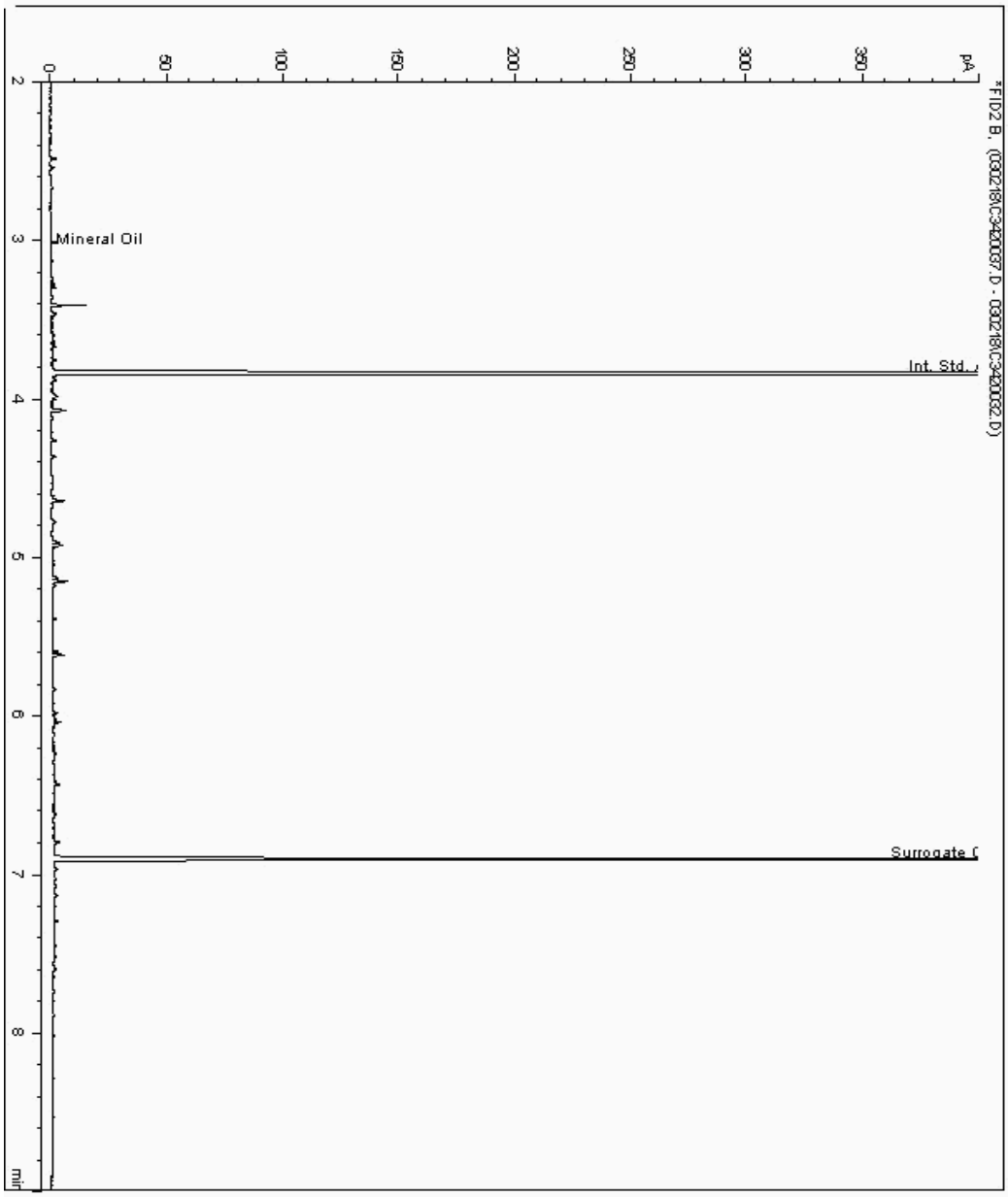
Analysis: Mineral Oil

Sample No : 17123422
Sample ID : TP-RPS-11

Depth : 1.00

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16064088-
Date Acquired : 02/03/2018 19:29:58 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

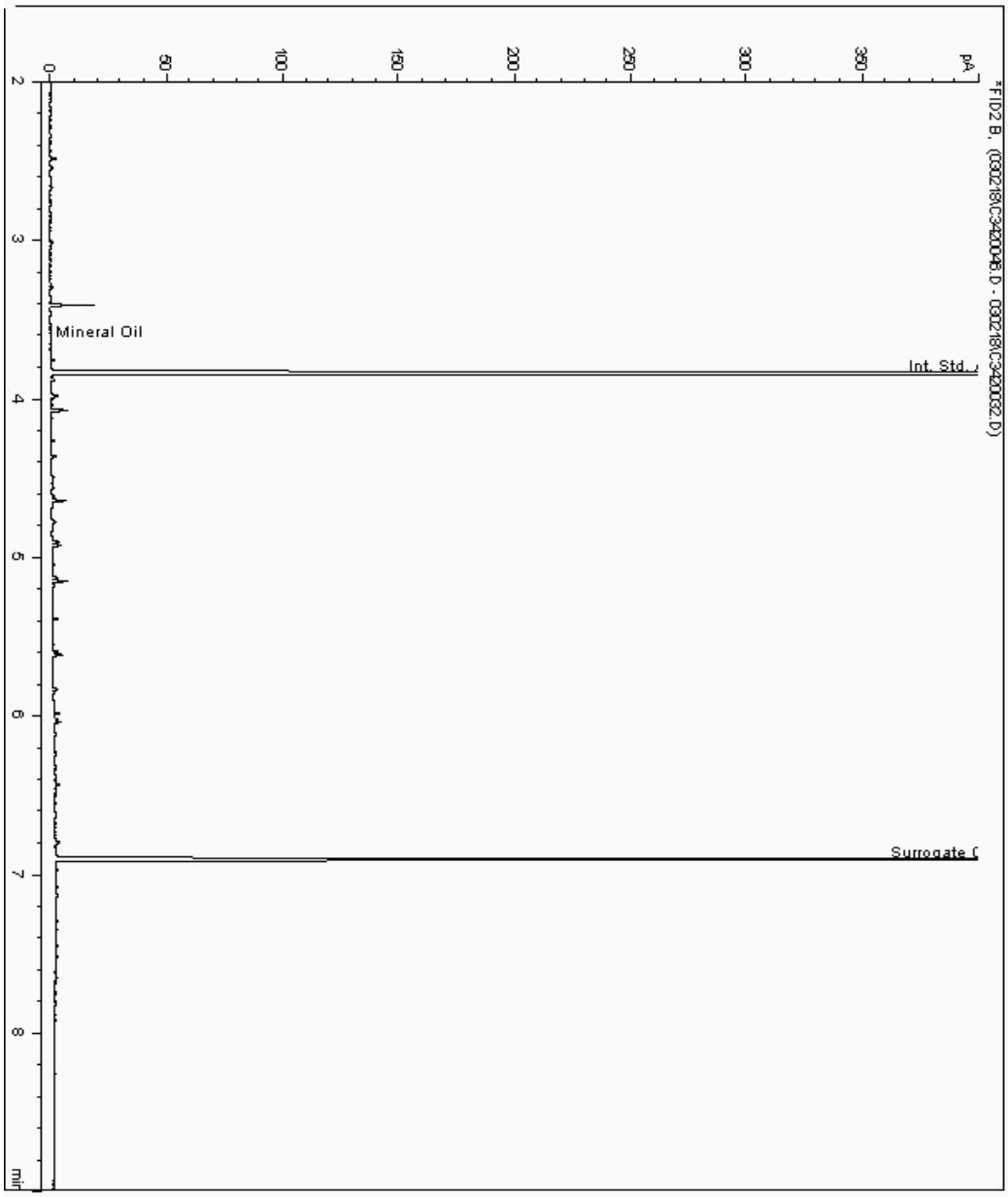
Analysis: Mineral Oil

Sample No : 17124287
Sample ID : TP-RPS-19

Depth : 0.20

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16064235-
Date Acquired : 02/03/2018 22:39:19 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

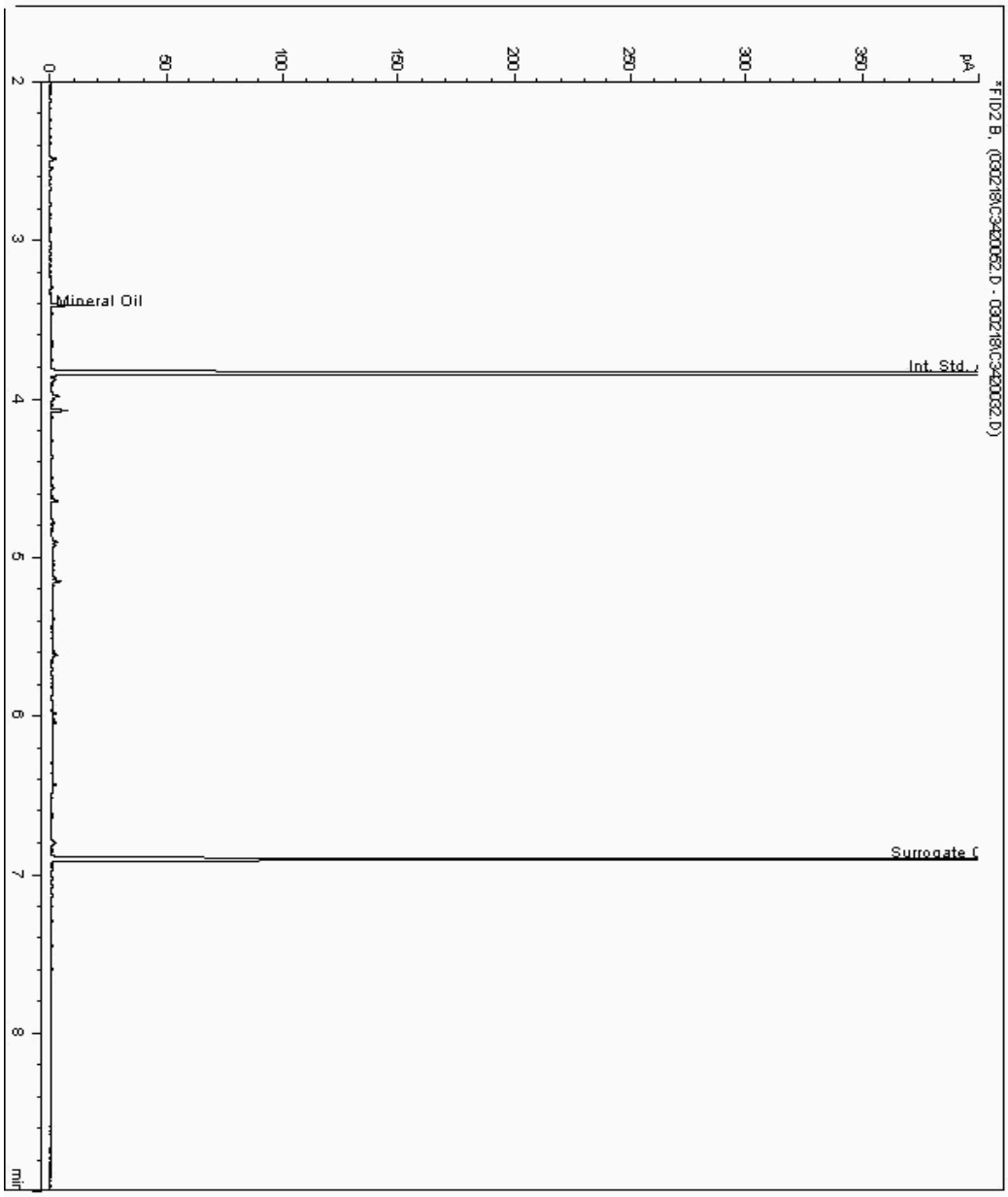
Analysis: Mineral Oil

Sample No : 17125076
Sample ID : TP-RPS-19

Depth : 1.90

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16064215-
Date Acquired : 03/03/2018 00:30:42 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

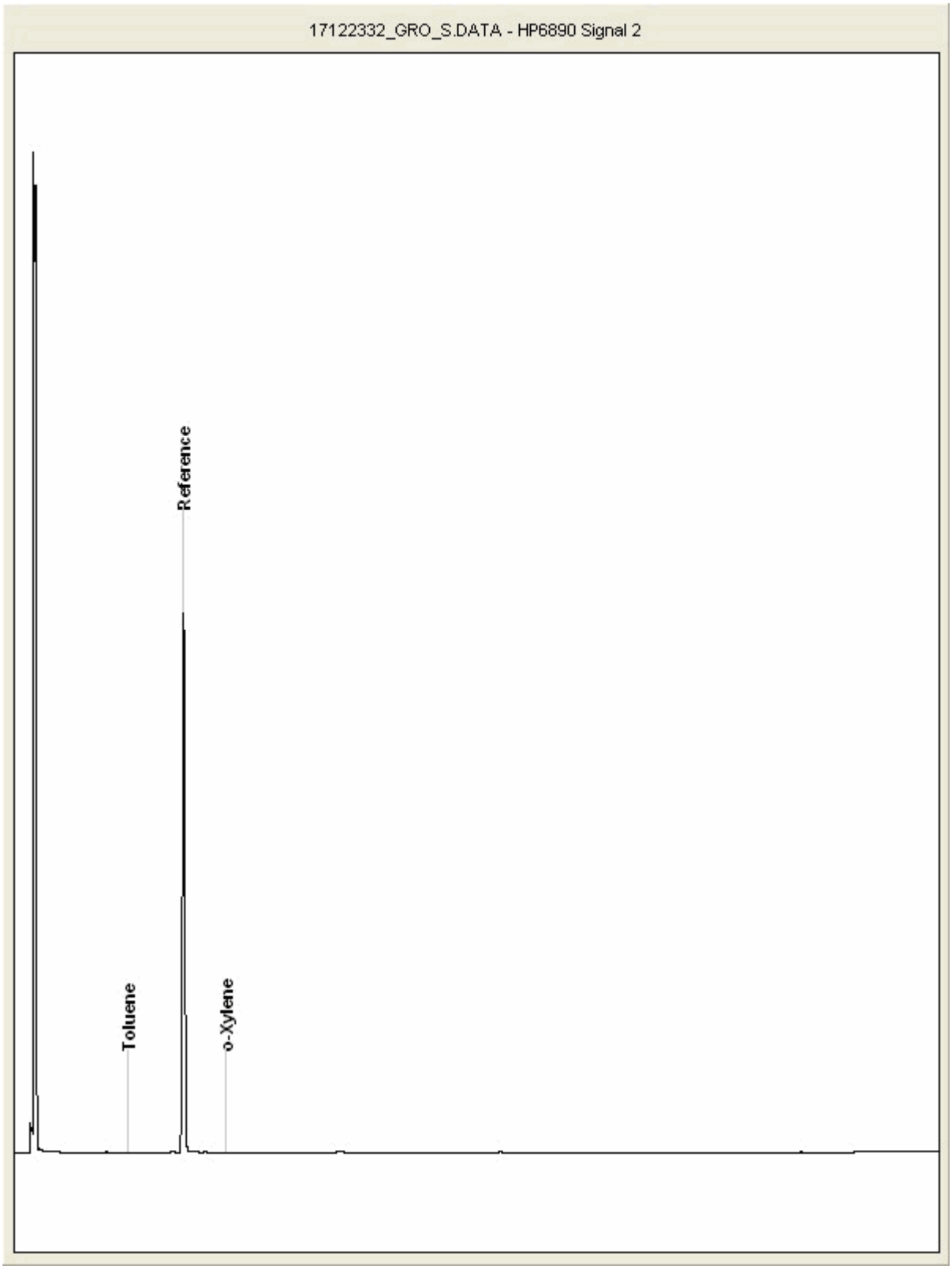
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17122332
Sample ID : TP-RPS-17

Depth : 1.20



Validated

CERTIFICATE OF ANALYSIS

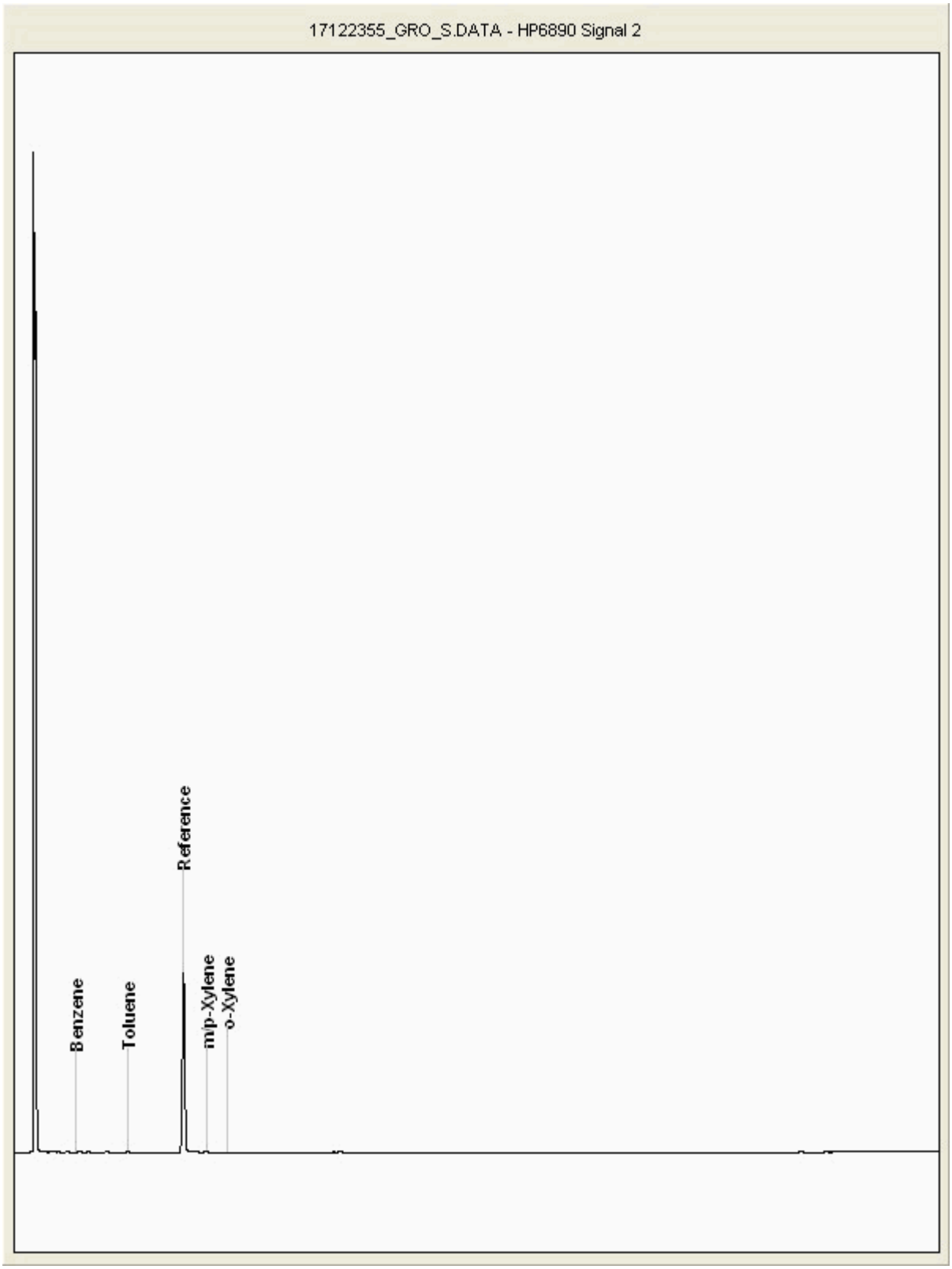
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17122355
Sample ID : TP-RPS-28

Depth : 0.60



Validated

CERTIFICATE OF ANALYSIS

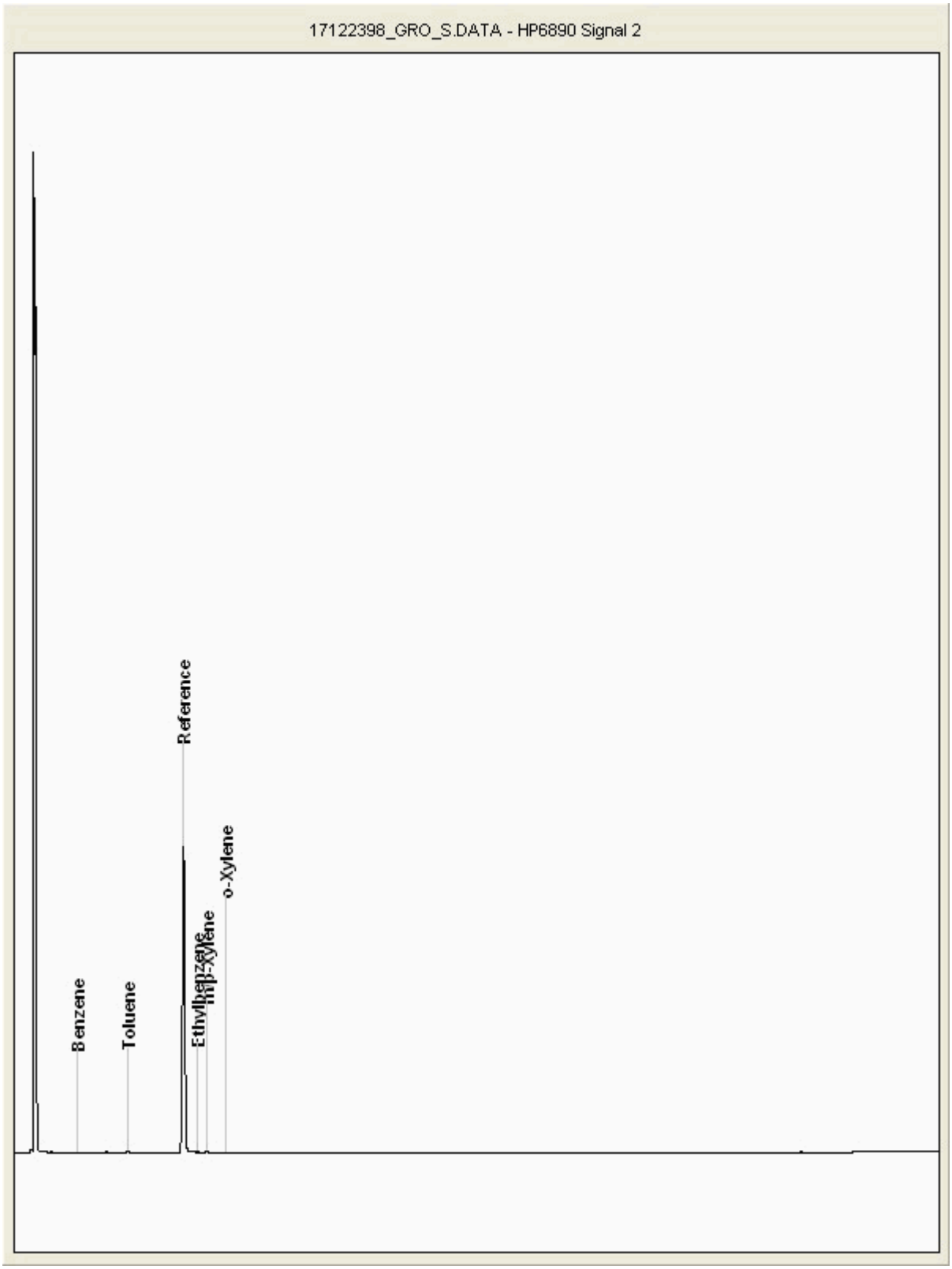
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17122398
Sample ID : TP-RPS-19

Depth : 0.20



Validated

CERTIFICATE OF ANALYSIS

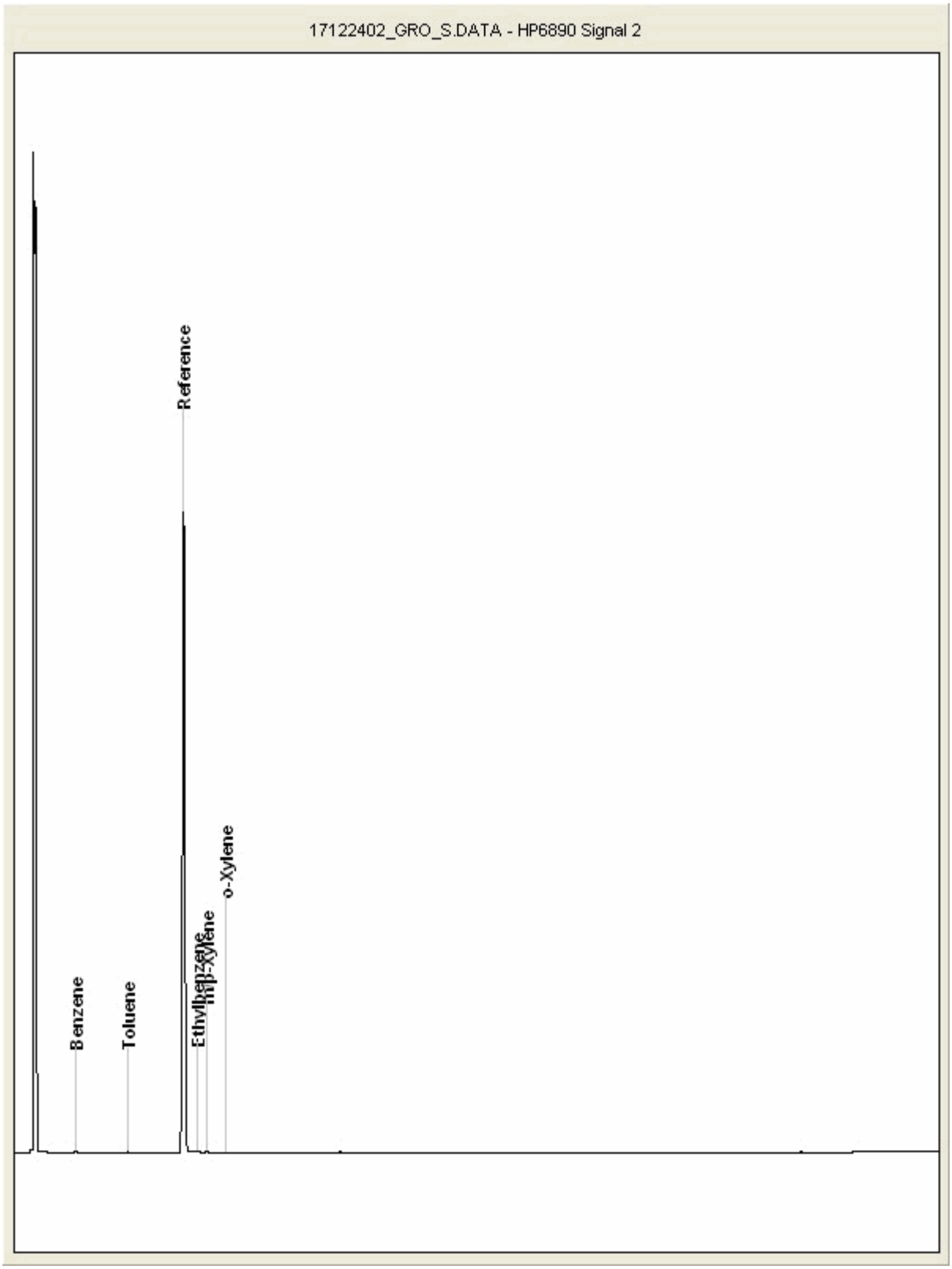
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17122402
Sample ID : TP-RPS-21

Depth : 0.50



Validated

CERTIFICATE OF ANALYSIS

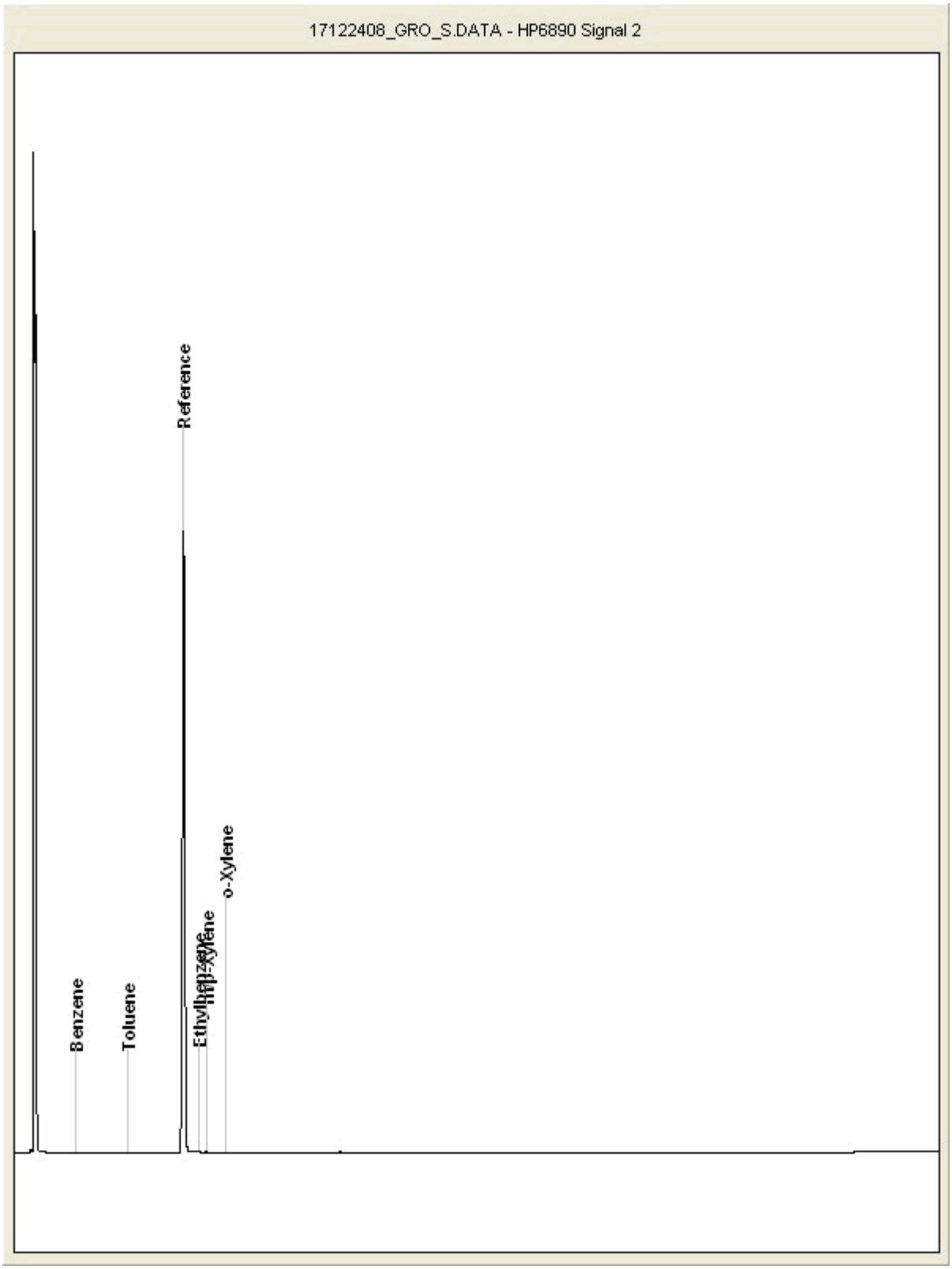
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17122408
Sample ID : TP-RPS-17

Depth : 0.20



Validated

CERTIFICATE OF ANALYSIS

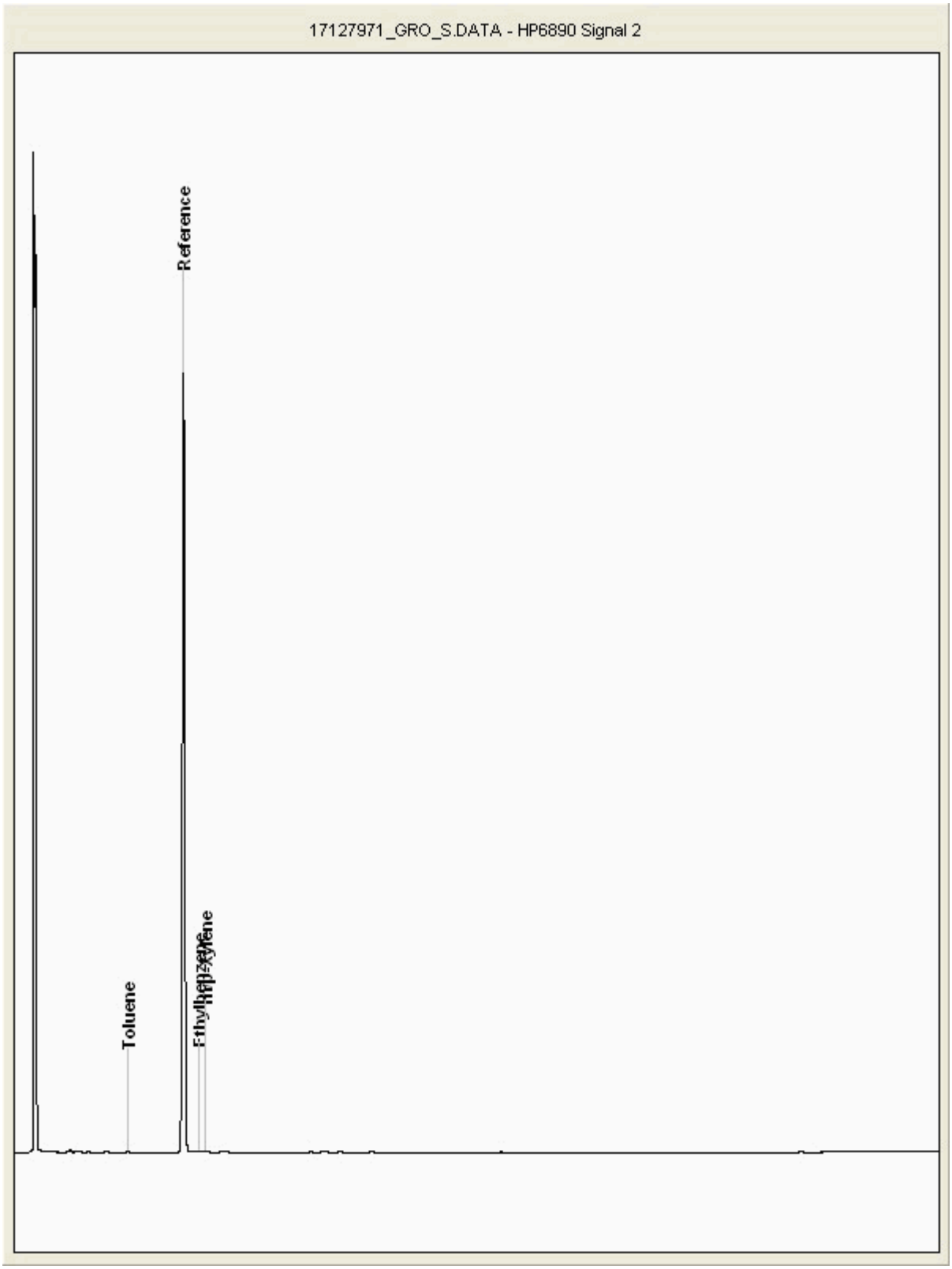
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17127971
Sample ID : BH-RPS-04

Depth : 0.65 - 0.90



Validated

CERTIFICATE OF ANALYSIS

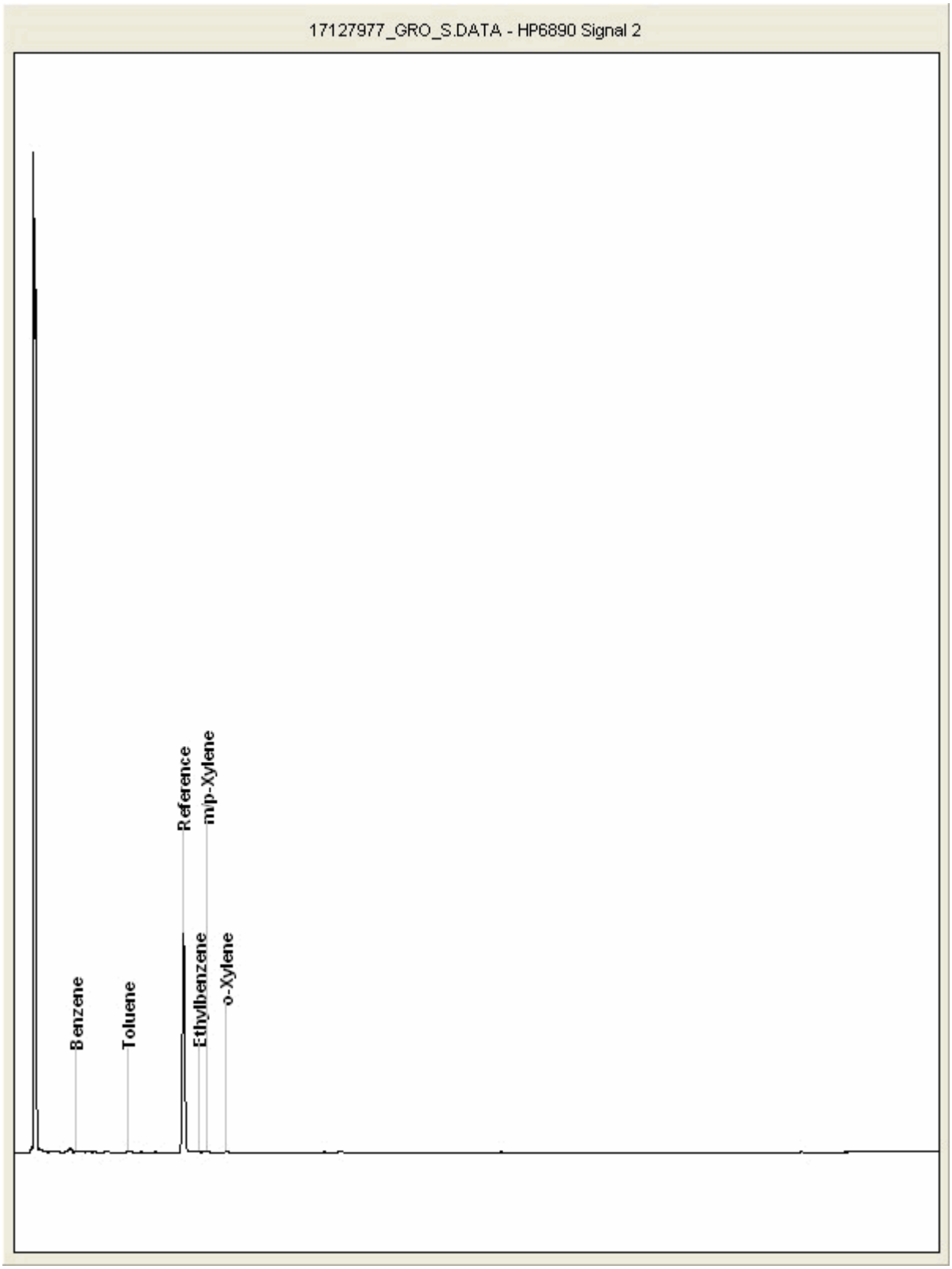
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17127977
Sample ID : BH-RPS-04

Depth : 0.30



Validated

CERTIFICATE OF ANALYSIS

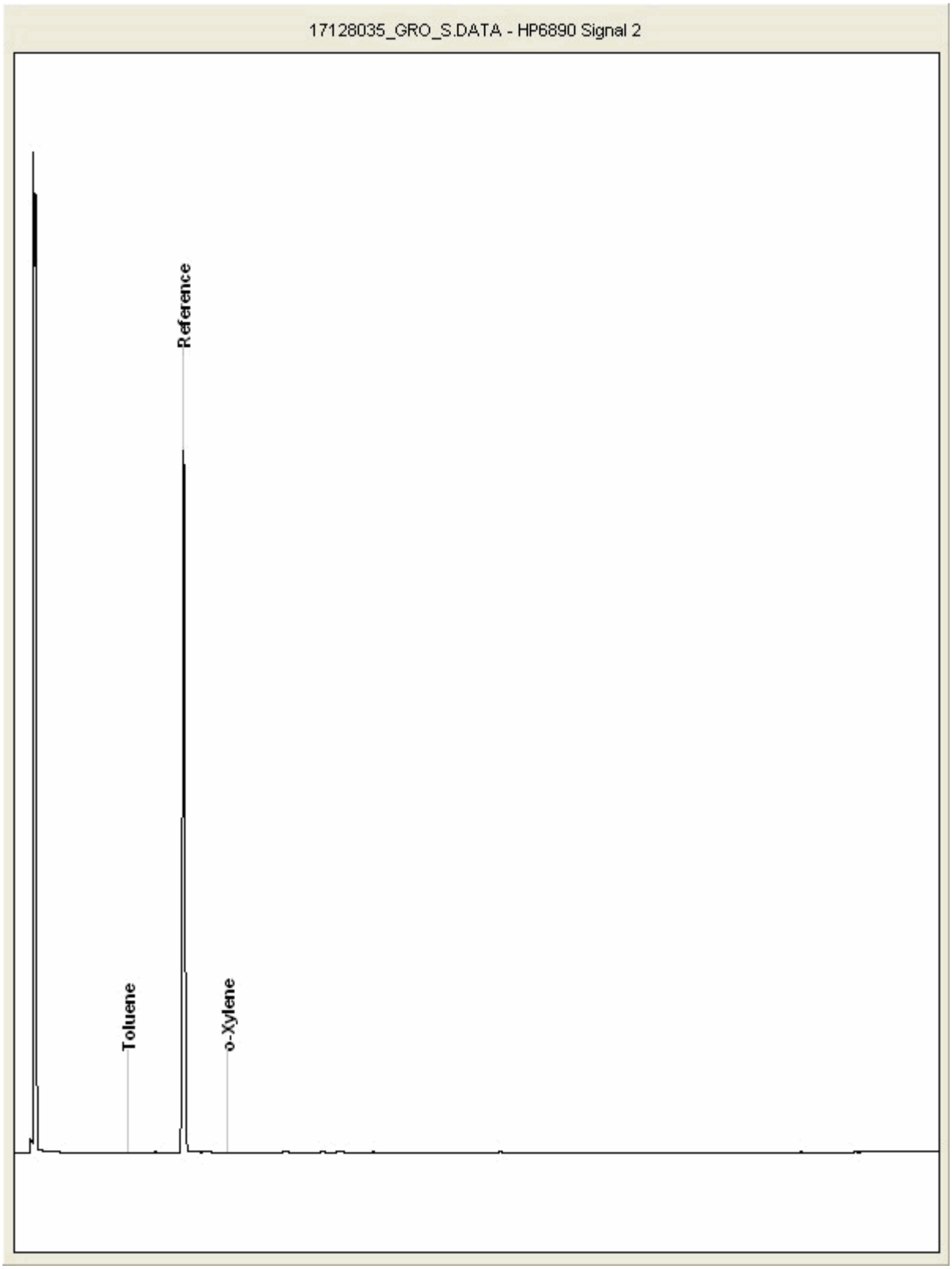
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17128035
Sample ID : WS-RPS-27

Depth : 1.40 - 1.60



Validated

CERTIFICATE OF ANALYSIS

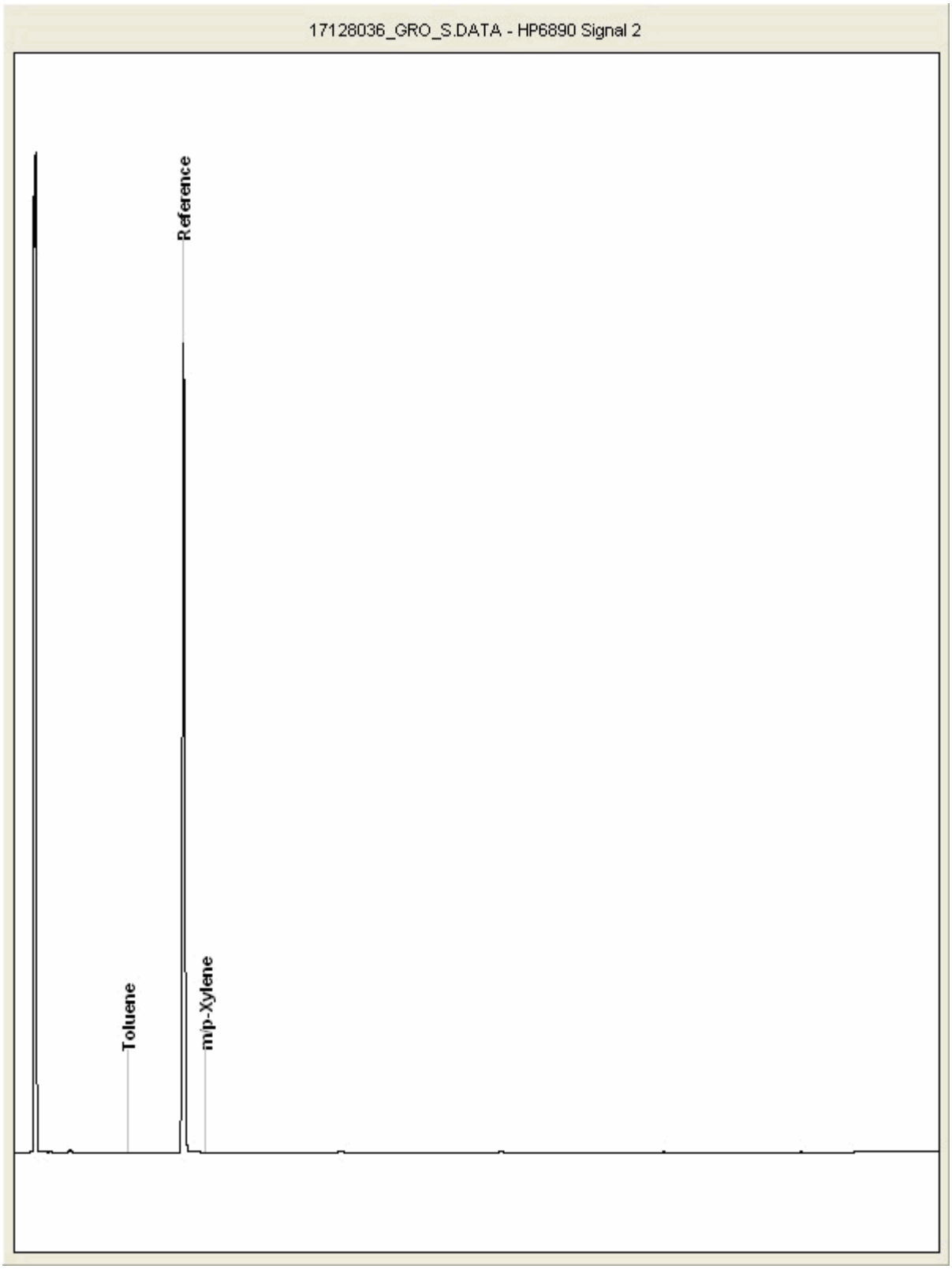
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17128036
Sample ID : TP-RPS-11

Depth : 1.00



Validated

CERTIFICATE OF ANALYSIS

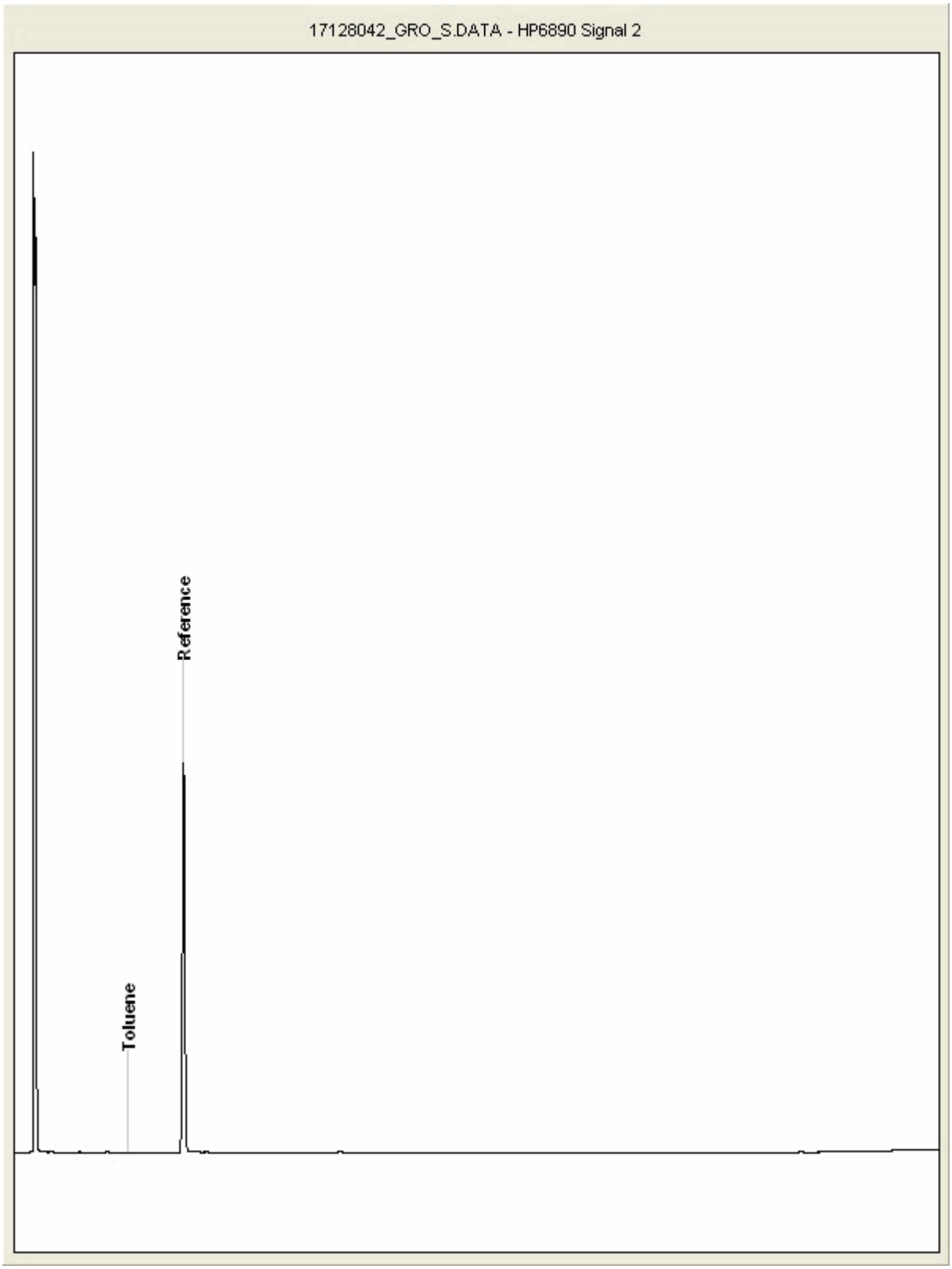
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17128042
Sample ID : TP-RPS-46

Depth : 0.70



Validated

CERTIFICATE OF ANALYSIS

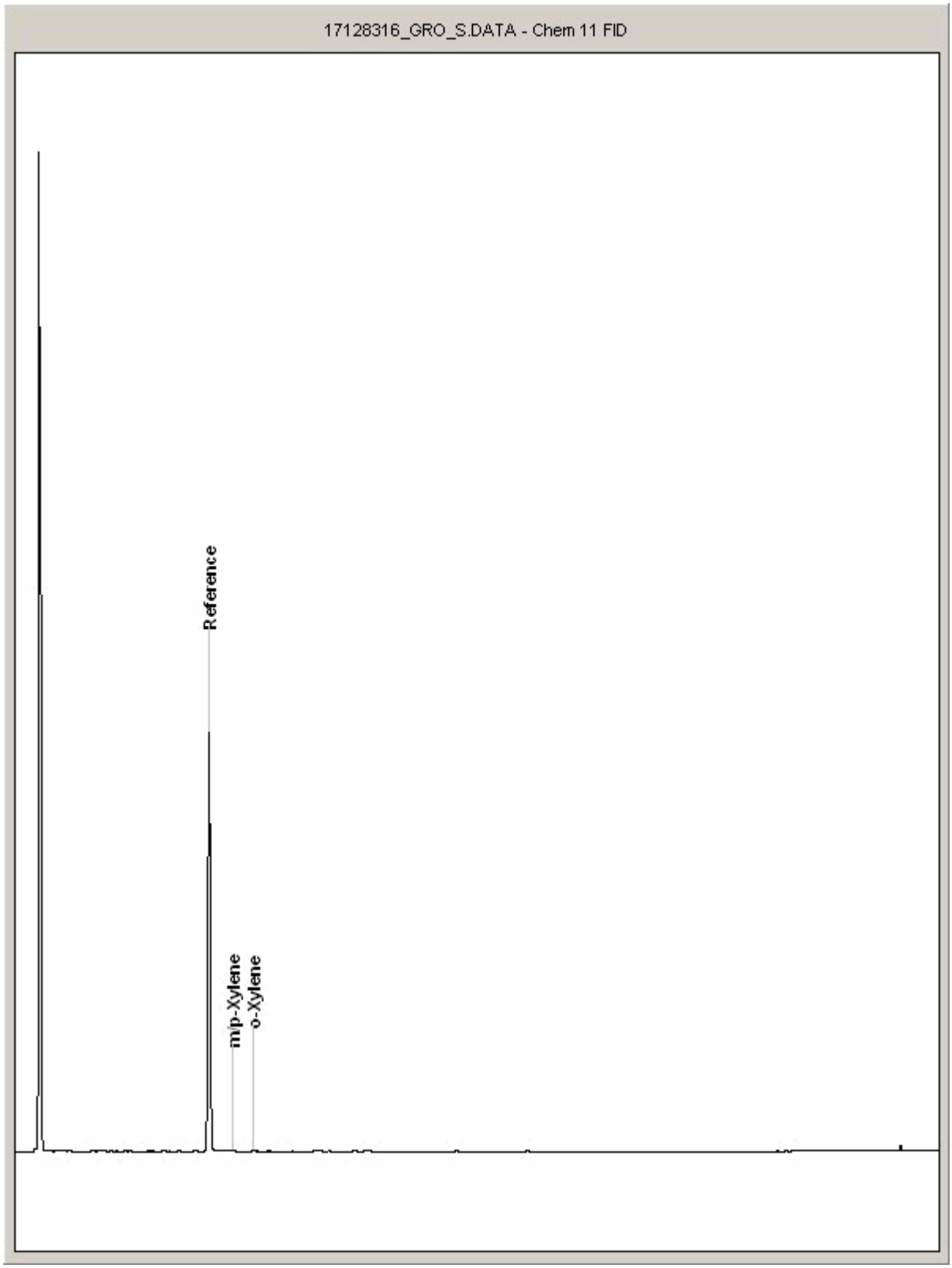
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17128316
Sample ID : TP-RPS-46

Depth : 0.20



Validated

CERTIFICATE OF ANALYSIS

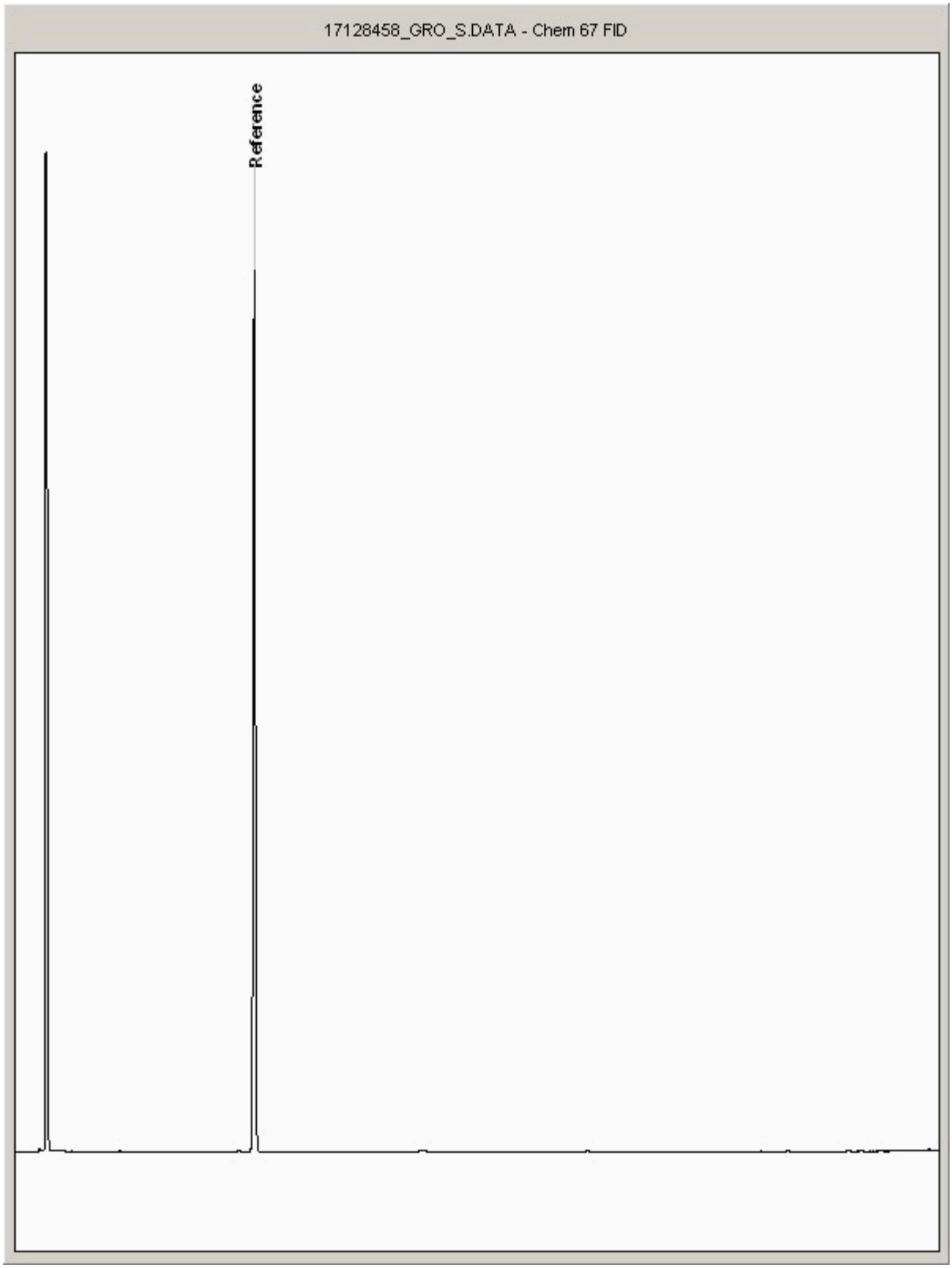
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17128458
Sample ID : TP-RPS-19

Depth : 1.90



Validated

CERTIFICATE OF ANALYSIS

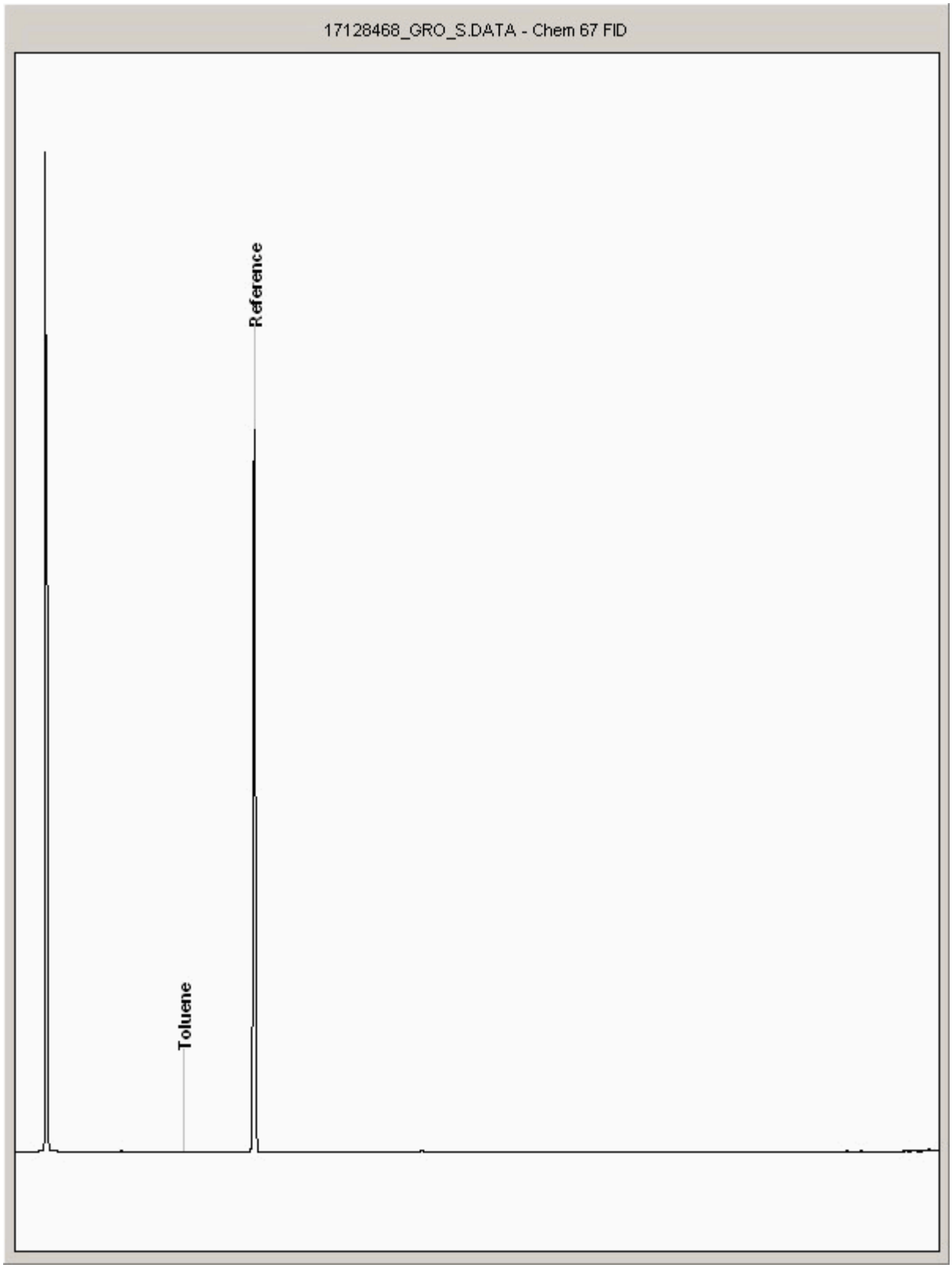
SDG:	180223-50	**Client Reference:**	JER1100	**Report Number:**	450181
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	450180

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17128468
Sample ID : WS-RPS-27

Depth : 3.20 - 3.50



Certificate of Analysis

Certificate Number	18-04763
Client	ALS Life Sciences Limited Units 7 & 8 Hawarden Business Park Manor Road Hawarden Deeside CH5 3US
Our Reference	18-04763
Client Reference	180223-50
Order No	(not supplied)
Contract Title	180223-50
Description	11 Soil samples.
Date Received	27-Feb-18
Date Started	27-Feb-18
Date Completed	05-Mar-18
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

05-Mar-18

Approved By

Adam Fenwick
Contracts Manager

UKAS TESTING
2139

Summary of Asbestos Analysis

Soil Samples

Our Ref 18-04763
Client Ref 180223-50
Contract Title 180223-50

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1304176	17116219 BH-RPS-04 0.30	SOIL	NAD	none	Keith Wilson
1304177	17116253 BH-RPS-04 0.65-0.90	SOIL	NAD	none	Keith Wilson
1304178	17116261 TP-RPS-11 1.00	SOIL	Amosite	Bundle of Amosite fibres	Keith Wilson
1304179	17116215 TP-RPS-17 0.20	SOIL	Chrysotile	Bundles of Chrysotile fibres	Keith Wilson
1304180	17116240 TP-RPS-19 0.20	SOIL	Amosite Crocidolite Chr	Microscopic Loose Fibrous Asbestos Debris & bundles of Amosite & Chrysotile & Crocidolite	Keith Wilson
1304181	17119728 TP-RPS-19 1.90	SOIL	Amosite Chrysotile	Microscopic Loose Fibrous Asbestos Debris & bundles of Amosite & Chrysotile	Keith Wilson
1304182	17116218 TP-RPS-21 0.50	SOIL	Amosite Crocidolite Chr	Microscopic Loose Fibrous Asbestos Debris & bundles of Amosite	Keith Wilson
1304183	17116346 TP-RPS-28 0.60	SOIL	NAD	none	Keith Wilson
1304184	17116209 TP-RPS-46 0.20	SOIL	NAD	none	Keith Wilson
1304185	17116251 TP-RPS-46 0.70	SOIL	NAD	none	Keith Wilson
1304186	17116243 WS-RPS-27 1.40-1.60	SOIL	NAD	none	Keith Wilson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 18-04763
Client Ref 180223-50
Contract 180223-50

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1304176	17116219 0.30 SOIL	15/02/18	PT 500ml		
1304177	17116253 0.65-0.90 SOIL	15/02/18	PT 500ml		
1304178	17116261 1.00 SOIL	15/02/18	PT 500ml		
1304179	17116215 0.20 SOIL	15/02/18	PT 500ml		
1304180	17116240 0.20 SOIL	15/02/18	PT 500ml		
1304181	17119728 1.90 SOIL	15/02/18	PT 500ml		
1304182	17116218 0.50 SOIL	15/02/18	PT 500ml		
1304183	17116346 0.60 SOIL	15/02/18	PT 500ml		
1304184	17116209 0.20 SOIL	16/02/18	PT 500ml		
1304185	17116251 0.70 SOIL	16/02/18	PT 500ml		
1304186	17116243 1.40-1.60 SOIL	15/02/18	PT 500ml		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	14 March 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180223-72
Your Reference:	JER1100
Location:	Lostock
Report No:	448114

This report has been revised and directly supersedes 447228 in its entirety.

We received 21 samples on Friday February 23, 2018 and 12 of these samples were scheduled for analysis which was completed on Wednesday March 14, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17108380	CP-RPS-02	ES1	0.10	20/02/2018
17108366	CP-RPS-04	ES1	0.20	20/02/2018
17108373	CP-RPS-04	ES1	0.60	20/02/2018
17108340	WS-RPS-09	ES1	0.80	19/02/2018
17108349	WS-RPS-09	ES1	1.20	19/02/2018
17108358	WS-RPS-09	ES1	2.00	19/02/2018
17108225	WS-RPS-10	ES1	2.60 - 2.80	19/02/2018
17108311	WS-RPS-10	ES1	3.80 - 4.00	19/02/2018
17108334	WS-RPS-11	ES1	2.50 - 3.00	19/02/2018
17108296	WS-RPS-13	ES1	0.05 - 0.45	20/02/2018
17108304	WS-RPS-13	ES1	0.45 - 0.85	20/02/2018
17108277	WS-RPS-17	ES1	0.40 - 0.60	20/02/2018
17108287	WS-RPS-17	ES1	0.75 - 0.90	20/02/2018
17108236	WS-RPS-18	ES1	0.20 - 0.70	20/02/2018
17108243	WS-RPS-18	ES1	0.70 - 1.00	20/02/2018
17108269	WS-RPS-19	ES1	0.20 - 0.30	20/02/2018
17108249	WS-RPS-19	ES1	0.40 - 0.60	20/02/2018
17108255	WS-RPS-19	ES1	0.90 - 1.50	20/02/2018
17108262	WS-RPS-19	ES1	3.50 - 4.00	20/02/2018
17108318	WS-RPS-20	ES1	2.50 - 3.00	20/02/2018
17108325	WS-RPS-20	ES1	3.40 - 4.00	20/02/2018

Maximum Sample/Coolbox Temperature (°C) : 7.6

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17108380			17108373			17108340			17108349	17108225	17108334	17108296			17108277			17108287	17108236
Customer Sample Reference			CP-RPS-02			CP-RPS-04			WS-RPS-09			WS-RPS-09	WS-RPS-10	WS-RPS-11	WS-RPS-13			WS-RPS-17			WS-RPS-17	WS-RPS-18
AGS Reference			ES1			ES1			ES1			ES1	ES1	ES1	ES1			ES1			ES1	ES1
Depth (m)			0.10			0.60			0.80			1.20	2.60 - 2.80	2.50 - 3.00	0.05 - 0.45			0.40 - 0.60			0.75 - 0.90	0.20 - 0.70
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 2		X			X															
Anions by Kone (w)	All	NDPs: 0 Tests: 2	X			X																
Asbestos fibres in Soil*	All	NDPs: 0 Tests: 7	X			X			X						X			X				X
Asbestos Quantification - Full	All	NDPs: 0 Tests: 2				X									X							
CEN Readings	All	NDPs: 0 Tests: 2	X			X																
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2	X			X																
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 2	X			X																
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 7		X			X			X						X			X			
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 7		X			X			X						X			X			
Fluoride	All	NDPs: 0 Tests: 2	X			X																
GRO by GC-FID (S)	All	NDPs: 0 Tests: 7			X			X			X						X			X		
Loss on Ignition in soils	All	NDPs: 1 Tests: 1		X			N															
Mercury Dissolved	All	NDPs: 0 Tests: 2	X			X																
Metals in solid samples by OES	All	NDPs: 0 Tests: 7		X			X			X						X			X			
Mineral Oil	All	NDPs: 0 Tests: 2		X			X															

17108318	WS-RPS-20	ES1	2.50 - 3.00	250g Amber Jar (ALE210)	S																		
17108255	WS-RPS-19	ES1	0.90 - 1.50	60g VOC (ALE215)	S																		
				250g Amber Jar (ALE210)	S																		
				1kg TUB	S					X													
17108236	WS-RPS-18	ES1	0.20 - 0.70	60g VOC (ALE215)	S																		
				250g Amber Jar (ALE210)	S																		

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17108380			17108373			17108340			17108349	17108225	17108334		17108296			17108277			17108287	17108236
Customer Sample Reference			CP-RPS-02			CP-RPS-04			WS-RPS-09			WS-RPS-09	WS-RPS-10	WS-RPS-11		WS-RPS-13			WS-RPS-17			WS-RPS-17	WS-RPS-18
AGS Reference			ES1			ES1			ES1			ES1	ES1	ES1		ES1			ES1			ES1	ES1
Depth (m)			0.10			0.60			0.80			1.20	2.60 - 2.80	2.50 - 3.00		0.05 - 0.45			0.40 - 0.60			0.75 - 0.90	0.20 - 0.70
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
PAH by GCMS	All	NDPs: 0 Tests: 7		X			X			X						X			X				
PCBs by GCMS	All	NDPs: 0 Tests: 4		X			X												X				
pH	All	NDPs: 0 Tests: 12		X			X			X		X	X	X		X			X		X		
Phenols by HPLC (W)	All	NDPs: 0 Tests: 2	X			X																	
Sample description	All	NDPs: 0 Tests: 9		X			X			X						X			X		X		
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 2																	X				
Total Dissolved Solids	All	NDPs: 0 Tests: 2	X			X																	
Total Organic Carbon	All	NDPs: 0 Tests: 2		X			X																
TPH CWG GC (S)	All	NDPs: 0 Tests: 7		X			X			X						X			X				
VOC MS (S)	All	NDPs: 0 Tests: 2																		X			

17108318	WS-RPS-20	ES1	2.50 - 3.00	250g Amber Jar (ALE210)	S			X			X					
17108255	WS-RPS-19	ES1	0.90 - 1.50	60g VOC (ALE215)	S											X
				250g Amber Jar (ALE210)	S			X			X			X		
				1kg TUB	S											
17108236	WS-RPS-18	ES1	0.20 - 0.70	60g VOC (ALE215)	S											
				250g Amber Jar (ALE210)	S			X			X			X		

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17108380	CP-RPS-02	0.10	Dark Brown	Loamy Sand	Stones	None
17108373	CP-RPS-04	0.60	Cream	Loamy Sand	Stones	None
17108340	WS-RPS-09	0.80	Black	Sand	Stones	None
17108349	WS-RPS-09	1.20	Cream	N/A	None	None
17108225	WS-RPS-10	2.60 - 2.80	White	N/A	Vegetation	None
17108334	WS-RPS-11	2.50 - 3.00	White	N/A	None	None
17108296	WS-RPS-13	0.05 - 0.45	Dark Brown	Loamy Sand	Stones	None
17108277	WS-RPS-17	0.40 - 0.60	Dark Brown	Stone/Soil	Stones	Vegetation
17108287	WS-RPS-17	0.75 - 0.90	Light Brown	Loamy Sand	Stones	None
17108236	WS-RPS-18	0.20 - 0.70	Light Brown	Stone/Soil	Stones	None
17108255	WS-RPS-19	0.90 - 1.50	Dark Brown	Loamy Sand	Stones	None
17108318	WS-RPS-20	2.50 - 3.00	Cream	Silt Loam	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			CP-RPS-02	CP-RPS-04	WS-RPS-09	WS-RPS-09	WS-RPS-10	WS-RPS-11
Depth (m)			0.10	0.60	0.80	1.20	2.60 - 2.80	2.50 - 3.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	20/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-72	180223-72	180223-72	180223-72	180223-72	180223-72
Lab Sample No.(s)			17108380	17108373	17108340	17108349	17108225	17108334
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	8.1	22	8.6	28	34	31
Actinolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Amosite*		SUB (ASB)	Not Detected #	Detected #	Not Detected #			
Anthophyllite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Chrysotile*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Crocidolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Tremolite*		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Non-Asbestos Fibres Detected		SUB (ASB)	Not Detected #	Not Detected #	Not Detected #			
Loss on ignition	<0.7 %	TM018	2.34 M					
Mineral oil >C10-C40	<1 mg/kg	TM061	24.6	40.6				
Mineral Oil Surrogate % recovery**	%	TM061	89.4	91.3				
Organic Carbon, Total	<0.2 %	TM132	1.35 M	1.91 M				
pH	1 pH Units	TM133	8.58 M	12.4 M	8.63 M	12.8	12.8	12.8
PCB congener 28	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 52	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 101	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 118	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 138	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 153	<3 µg/kg	TM168	<3 M	<3 M				
PCB congener 180	<3 µg/kg	TM168	<3 M	<3 M				
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21	<21				
Antimony	<0.6 mg/kg	TM181	<0.6 #	1.63 #	1.65 #			
Arsenic	<0.6 mg/kg	TM181	1.98 M	14.3 M	20.7 M			
Cadmium	<0.02 mg/kg	TM181	0.233 M	0.341 M	0.416 M			
Chromium	<0.9 mg/kg	TM181	10.2 M	13 M	5.15 M			
Cobalt	<0.1 mg/kg	TM181	2.45 M	9.15 M	4.87 M			
Copper	<1.4 mg/kg	TM181	7.13 M	34.3 M	28.9 M			
Lead	<0.7 mg/kg	TM181	15.3 M	18.1 M	33.9 M			
Manganese	<0.13 mg/kg	TM181	109 M	185 M	443 M			
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	0.365 M			
Molybdenum	<0.1 mg/kg	TM181	0.405 #	2.5 #	2.69 #			
Nickel	<0.2 mg/kg	TM181	8.28 M	24.3 M	13.7 M			

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			CP-RPS-02	CP-RPS-04	WS-RPS-09	WS-RPS-09	WS-RPS-10	WS-RPS-11
Depth (m)			0.10	0.60	0.80	1.20	2.60 - 2.80	2.50 - 3.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	20/02/2018	19/02/2018	19/02/2018	19/02/2018	19/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-72	180223-72	180223-72	180223-72	180223-72	180223-72
Lab Sample No.(s)			17108380	17108373	17108340	17108349	17108225	17108334
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #			
Tin	<0.24 mg/kg	TM181	0.469 #	1.01 #	2.86 #			
Thallium	<0.7 mg/kg	TM181	<0.7 #	<0.7 #	1.03 #			
Vanadium	<0.2 mg/kg	TM181	9.67 #	65.1 #	23.8 #			
Zinc	<1.9 mg/kg	TM181	30.2 M	45.7 M	63.3 M			
ANC @ pH 4	<0.03 mol/kg	TM182	0.179	0.41				
ANC @ pH 6	<0.03 mol/kg	TM182	0.0454	0.174				
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304		<0.001 #				
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304		<0.001 #				
Additional Asbestos Components (Using TM048)		TM304		None #				
Analysts Comments		TM304		N/A				
Asbestos Quantification - Total - %	<0.001 %	TM304		<0.001 #				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-13	WS-RPS-17	WS-RPS-17	WS-RPS-18	WS-RPS-19	WS-RPS-20
Depth (m)			0.05 - 0.45	0.40 - 0.60	0.75 - 0.90	0.20 - 0.70	0.90 - 1.50	2.50 - 3.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-72	180223-72	180223-72	180223-72	180223-72	180223-72
Lab Sample No.(s)			17108296	17108277	17108287	17108236	17108255	17108318
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	6.2	4.4	8.5	4.1	10	62
Actinolite*		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
Amosite*		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
Anthophyllite*		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
Chrysotile*		SUB (ASB)	Detected #	Not Detected #		Not Detected #	Not Detected #	
Crocidolite*		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
Tremolite*		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
Non-Asbestos Fibres Detected		SUB (ASB)	Not Detected #	Not Detected #		Not Detected #	Not Detected #	
pH	1 pH Units	TM133	8.85 M	9.58 #	9.9 M	10.2 #	8.75 M	12.8 M
PCB congener 118	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 81	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 77	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 123	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 114	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 105	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 126	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 167	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 156	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 157	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 169	<3 µg/kg	TM168		<3 #			<3 M	
PCB congener 189	<3 µg/kg	TM168		<3 #			<3 M	
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168		<36			<36	
Antimony	<0.6 mg/kg	TM181	0.626 #	<0.6 #		<0.6 #	0.756 #	
Arsenic	<0.6 mg/kg	TM181	14.4 M	1.75 #		1.01 #	5.64 M	
Cadmium	<0.02 mg/kg	TM181	0.397 M	0.425 #		0.692 #	<0.02 M	
Chromium	<0.9 mg/kg	TM181	17 M	5 #		4.67 #	12.6 M	
Cobalt	<0.1 mg/kg	TM181	2.63 M	0.949 #		1.74 #	6.53 M	
Copper	<1.4 mg/kg	TM181	12.7 M	4.38 #		3.4 #	10.1 M	
Lead	<0.7 mg/kg	TM181	35.1 M	10.7 #		14.7 #	7.17 M	
Manganese	<0.13 mg/kg	TM181	355 M	119 #		152 #	238 M	
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 #		<0.14 #	<0.14 M	
Molybdenum	<0.1 mg/kg	TM181	0.907 #	0.576 #		0.202 #	0.275 #	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-13	WS-RPS-17	WS-RPS-17	WS-RPS-18	WS-RPS-19	WS-RPS-20
Depth (m)			0.05 - 0.45	0.40 - 0.60	0.75 - 0.90	0.20 - 0.70	0.90 - 1.50	2.50 - 3.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018	20/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-72	180223-72	180223-72	180223-72	180223-72	180223-72
Lab Sample No.(s)			17108296	17108277	17108287	17108236	17108255	17108318
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Nickel	<0.2 mg/kg	TM181	12.4 M	4.93 #		5.32 #	17.6 M	
Selenium	<1 mg/kg	TM181	<1 #	<1 #		<1 #	<1 #	
Tin	<0.24 mg/kg	TM181	1.09 #	0.563 #		0.416 #	0.669 #	
Thallium	<0.7 mg/kg	TM181	<0.7 #	<0.7 #		<0.7 #	<0.7 #	
Vanadium	<0.2 mg/kg	TM181	28.5 #	7.56 #		5.81 #	19.8 #	
Zinc	<1.9 mg/kg	TM181	104 M	40.2 #		29.6 #	27.7 M	
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304	0.0027 #					
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304	<0.001 #					
Additional Asbestos Components (Using TM048)		TM304	None #					
Analysts Comments		TM304	N/A					
Asbestos Quantification - Total - %	<0.001 %	TM304	0.0027 #					

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			CP-RPS-02	CP-RPS-04	WS-RPS-09	WS-RPS-13	WS-RPS-17	WS-RPS-18
Depth (m)			0.10	0.60	0.80	0.05 - 0.45	0.40 - 0.60	0.20 - 0.70
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	20/02/2018	19/02/2018	20/02/2018	20/02/2018	20/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-72	180223-72	180223-72	180223-72	180223-72	180223-72
Lab Sample No.(s)			17108380	17108373	17108340	17108296	17108277	17108236
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	89.8	95.2	105	90.7	92.3	99.4
Acenaphthene-d10 % recovery**	%	TM218	89.3	94.9	108	89.8	90.9	104
Phenanthrene-d10 % recovery**	%	TM218	85.5	90.7	105	86.5	86.2	99.9
Chrysene-d12 % recovery**	%	TM218	93.9	94.4	105	96.6	88.2	98.8
Perylene-d12 % recovery**	%	TM218	96.9	96	96.3	102	91.1	104
Naphthalene	<9 µg/kg	TM218	35.5 M	27.7 M	930 M	249 M	46.9 #	43.9 #
Acenaphthylene	<12 µg/kg	TM218	34.9 M	22.5 M	51.6 M	61.6 M	<12 #	<12 #
Acenaphthene	<8 µg/kg	TM218	153 M	16.4 M	20 M	21 M	<8 #	<8 #
Fluorene	<10 µg/kg	TM218	109 M	16.5 M	56.2 M	35.7 M	<10 #	<10 #
Phenanthrene	<15 µg/kg	TM218	1180 M	160 M	591 M	705 M	97.9 #	<15 #
Anthracene	<16 µg/kg	TM218	374 M	32.7 M	107 M	160 M	<16 #	<16 #
Fluoranthene	<17 µg/kg	TM218	1900 M	182 M	466 M	1220 M	67.8 #	<17 #
Pyrene	<15 µg/kg	TM218	1510 M	155 M	465 M	1030 M	60.2 #	<15 #
Benz(a)anthracene	<14 µg/kg	TM218	962 M	106 M	232 M	873 M	42.9 #	<14 #
Chrysene	<10 µg/kg	TM218	807 M	98.2 M	211 M	779 M	45.1 #	<10 #
Benzo(b)fluoranthene	<15 µg/kg	TM218	1450 M	200 M	317 M	1420 M	73.6 #	<15 #
Benzo(k)fluoranthene	<14 µg/kg	TM218	576 M	67.4 M	115 M	499 M	22.3 #	<14 #
Benzo(a)pyrene	<15 µg/kg	TM218	1050 M	120 M	222 M	940 M	40.2 #	<15 #
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	572 M	90.2 M	136 M	518 M	25.2 #	<18 #
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	168 M	30.4 M	44.1 M	173 M	<23 #	<23 #
Benzo(g,h,i)perylene	<24 µg/kg	TM218	714 M	125 M	218 M	666 M	40.6 #	<24 #
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	11600	1450	4180	9340	563	<118
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218	11.6	<10				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	WS-RPS-19
Depth (m)	0.90 - 1.50
Sample Type	Soil/Solid (S)
Date Sampled	20/02/2018
Sampled Time	.
Date Received	23/02/2018
SDG Ref	180223-72
Lab Sample No.(s)	17108255
AGS Reference	ES1

Component	LOD/Units	Method	WS-RPS-19
Naphthalene-d8 % recovery**	%	TM218	86.8
Acenaphthene-d10 % recovery**	%	TM218	86.7
Phenanthrene-d10 % recovery**	%	TM218	81.6
Chrysene-d12 % recovery**	%	TM218	78
Perylene-d12 % recovery**	%	TM218	81.7
Naphthalene	<9 µg/kg	TM218	<9 M
Acenaphthylene	<12 µg/kg	TM218	<12 M
Acenaphthene	<8 µg/kg	TM218	<8 M
Fluorene	<10 µg/kg	TM218	<10 M
Phenanthrene	<15 µg/kg	TM218	<15 M
Anthracene	<16 µg/kg	TM218	<16 M
Fluoranthene	<17 µg/kg	TM218	<17 M
Pyrene	<15 µg/kg	TM218	<15 M
Benz(a)anthracene	<14 µg/kg	TM218	<14 M
Chrysene	<10 µg/kg	TM218	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	17.5 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-17	WS-RPS-19				
Depth (m)			0.40 - 0.60	0.90 - 1.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			20/02/2018	20/02/2018				
Sampled Time			.	.				
Date Received			23/02/2018	23/02/2018				
SDG Ref			180223-72	180223-72				
Lab Sample No.(s)			17108277	17108255				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
Phenol	<100 µg/kg	TM157	<100	<100				
Pentachlorophenol	<100 µg/kg	TM157	<100	<100				
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100				
Nitrobenzene	<100 µg/kg	TM157	<100	<100				
Isophorone	<100 µg/kg	TM157	<100	<100				
Hexachloroethane	<100 µg/kg	TM157	<100	<100				
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100				
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100				
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100				
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100				
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100				
Diethyl phthalate	<100 µg/kg	TM157	<100	<100				
n-Dibutyl phthalate	<100 µg/kg	TM157	<100	<100				
Dibenzofuran	<100 µg/kg	TM157	<100	<100				
Carbazole	<100 µg/kg	TM157	<100	<100				
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100				
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100				
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100				
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100				
Azobenzene	<100 µg/kg	TM157	<100	<100				
4-Nitrophenol	<100 µg/kg	TM157	<100	<100				
4-Nitroaniline	<100 µg/kg	TM157	<100	<100				
4-Methylphenol	<100 µg/kg	TM157	<100	<100				
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100				
4-Chloroaniline	<100 µg/kg	TM157	<100	<100				
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100				
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100				
3-Nitroaniline	<100 µg/kg	TM157	<100	<100				
2-Nitrophenol	<100 µg/kg	TM157	<100	<100				
2-Nitroaniline	<100 µg/kg	TM157	<100	<100				
2-Methylphenol	<100 µg/kg	TM157	<100	<100				
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-17	WS-RPS-19				
Depth (m)			0.40 - 0.60	0.90 - 1.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			20/02/2018	20/02/2018				
Sampled Time			-	-				
Date Received			23/02/2018	23/02/2018				
SDG Ref			180223-72	180223-72				
Lab Sample No.(s)			17108277	17108255				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100	<100				
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100	<100				
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100	<100				
2,4-Dimethylphenol	<100 µg/kg	TM157	<100	<100				
2,4-Dichlorophenol	<100 µg/kg	TM157	<100	<100				
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100	<100				
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100	<100				
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100	<100				
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100	<100				
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100	<100				
2-Chloronaphthalene	<100 µg/kg	TM157	<100	<100				
2-Methylnaphthalene	<100 µg/kg	TM157	<100	<100				
Acenaphthylene	<100 µg/kg	TM157	<100	<100				
Acenaphthene	<100 µg/kg	TM157	<100	<100				
Anthracene	<100 µg/kg	TM157	<100	<100				
Benzo(a)anthracene	<100 µg/kg	TM157	<100	<100				
Benzo(b)fluoranthene	<100 µg/kg	TM157	<100	<100				
Benzo(k)fluoranthene	<100 µg/kg	TM157	<100	<100				
Benzo(a)pyrene	<100 µg/kg	TM157	<100	<100				
Benzo(g,h,i)perylene	<100 µg/kg	TM157	<100	<100				
Chrysene	<100 µg/kg	TM157	<100	<100				
Fluoranthene	<100 µg/kg	TM157	<100	<100				
Fluorene	<100 µg/kg	TM157	<100	<100				
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	<100	<100				
Phenanthrene	<100 µg/kg	TM157	<100	<100				
Pyrene	<100 µg/kg	TM157	<100	<100				
Naphthalene	<100 µg/kg	TM157	<100	<100				
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100	<100				
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100	<100				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			CP-RPS-02	CP-RPS-04	WS-RPS-09	WS-RPS-13	WS-RPS-17	WS-RPS-18
Depth (m)			0.10	0.60	0.80	0.05 - 0.45	0.40 - 0.60	0.20 - 0.70
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	20/02/2018	19/02/2018	20/02/2018	20/02/2018	20/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018	23/02/2018
SDG Ref			180223-72	180223-72	180223-72	180223-72	180223-72	180223-72
Lab Sample No.(s)			17108380	17108373	17108340	17108296	17108277	17108236
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	81	114	27	31	93	103
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	1340 M	<44 M	<44 #	<44 #
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M	<10 #	<10 #
Toluene	<2 µg/kg	TM089	<2 M	<2 M	4.38 M	3.2 M	2.09 #	<2 #
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3 #	<3 #
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M	<6 M	<6 #	<6 #
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3 #	<3 #
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	10.9	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	29.5	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	77.7	<10	<10	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	695	<10	<10	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	6930	2970	58000	4240	2610	1950
Aliphatics >C16-C21	<100 µg/kg	TM173	3610	4320	87100	9540	3230	2060
Aliphatics >C21-C35	<100 µg/kg	TM173	111000	21400	71600	90900	13300	7110
Aliphatics >C35-C44	<100 µg/kg	TM173	123000	15400	11200	39100	7980	3890
Total Aliphatics >C12-C44	<100 µg/kg	TM173	245000	44100	228000	144000	27100	15000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	56.9	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	463	<10	<10	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	8190	<100	36200	1930	<100	<100
Aromatics >EC16-EC21	<100 µg/kg	TM173	36300	<100	102000	8630	<100	<100
Aromatics >EC21-EC35	<100 µg/kg	TM173	246000	4890	170000	101000	4260	<100
Aromatics >EC35-EC44	<100 µg/kg	TM173	206000	2420	59400	60200	1170	<100
Aromatics >EC40-EC44	<100 µg/kg	TM173	90900	<100	23800	24100	<100	<100
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	497000	7310	368000	172000	5440	<100
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	741000	51400	597000	316000	32600	15000

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	WS-RPS-19
Depth (m)	0.90 - 1.50
Sample Type	Soil/Solid (S)
Date Sampled	20/02/2018
Sampled Time	.
Date Received	23/02/2018
SDG Ref	180223-72
Lab Sample No.(s)	17108255
AGS Reference	ES1

Component	LOD/Units	Method	WS-RPS-19
GRO Surrogate % recovery**	%	TM089	110
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #
Benzene	<10 µg/kg	TM089	<10 M
Toluene	<2 µg/kg	TM089	<2 M
Ethylbenzene	<3 µg/kg	TM089	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	<100
Aliphatics >C16-C21	<100 µg/kg	TM173	<100
Aliphatics >C21-C35	<100 µg/kg	TM173	4120
Aliphatics >C35-C44	<100 µg/kg	TM173	876
Total Aliphatics >C12-C44	<100 µg/kg	TM173	4990
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100
Aromatics >EC16-EC21	<100 µg/kg	TM173	<100
Aromatics >EC21-EC35	<100 µg/kg	TM173	1480
Aromatics >EC35-EC44	<100 µg/kg	TM173	3120
Aromatics >EC40-EC44	<100 µg/kg	TM173	1640
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	4600
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	9590

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-17	WS-RPS-19				
Depth (m)			0.40 - 0.60	0.90 - 1.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			20/02/2018	20/02/2018				
Sampled Time			.	.				
Date Received			23/02/2018	23/02/2018				
SDG Ref			180223-72	180223-72				
Lab Sample No.(s)			17108277	17108255				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	106	113				
Toluene-d8**	%	TM116	97.4	98.5				
4-Bromofluorobenzene**	%	TM116	91.4	89.7				
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 #	<6 M				
Chloromethane	<7 µg/kg	TM116	<7 #	<7 #				
Vinyl Chloride	<6 µg/kg	TM116	<6 #	<6 M				
Bromomethane	<10 µg/kg	TM116	<10 #	<10 M				
Chloroethane	<10 µg/kg	TM116	<10 #	<10 M				
Trichlorofluorormethane	<6 µg/kg	TM116	<6 #	<6 M				
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<10 #				
Carbon Disulphide	<7 µg/kg	TM116	<7 #	<7 M				
Dichloromethane	<10 µg/kg	TM116	<10 #	<10 #				
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 #	<10 M				
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 #	<10 M				
1,1-Dichloroethane	<8 µg/kg	TM116	<8 #	<8 M				
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 #	<6 M				
2,2-Dichloropropane	<10 µg/kg	TM116	<10	<10				
Bromochloromethane	<10 µg/kg	TM116	<10 #	<10 M				
Chloroform	<8 µg/kg	TM116	<8 #	<8 M				
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 #	<7 M				
1,1-Dichloropropene	<10 µg/kg	TM116	<10 #	<10 M				
Carbontetrachloride	<10 µg/kg	TM116	<10 #	<10 M				
1,2-Dichloroethane	<5 µg/kg	TM116	<5 #	<5 M				
Benzene	<9 µg/kg	TM116	<9 #	<9 M				
Trichloroethene	<9 µg/kg	TM116	<9 #	<9 #				
1,2-Dichloropropane	<10 µg/kg	TM116	<10 #	<10 M				
Dibromomethane	<9 µg/kg	TM116	<9 #	<9 M				
Bromodichloromethane	<7 µg/kg	TM116	<7 #	<7 M				
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 #	<10 M				
Toluene	<7 µg/kg	TM116	<7 #	<7 M				
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<10				
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 #	<10 M				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-17	WS-RPS-19				
Depth (m)			0.40 - 0.60	0.90 - 1.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			20/02/2018	20/02/2018				
Sampled Time			-	-				
Date Received			23/02/2018	23/02/2018				
SDG Ref			180223-72	180223-72				
Lab Sample No.(s)			17108277	17108255				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<7 #	<7 M				
Tetrachloroethene	<5 µg/kg	TM116	<5 #	<5 M				
Dibromochloromethane	<10 µg/kg	TM116	<10 #	<10 M				
1,2-Dibromoethane	<10 µg/kg	TM116	<10 #	<10 M				
Chlorobenzene	<5 µg/kg	TM116	<5 #	<5 M				
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 #	<10 M				
Ethylbenzene	<4 µg/kg	TM116	<4 #	<4 M				
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #				
o-Xylene	<10 µg/kg	TM116	<10 #	<10 M				
Styrene	<10 µg/kg	TM116	<10 #	<10 #				
Bromoform	<10 µg/kg	TM116	<10 #	<10 M				
Isopropylbenzene	<5 µg/kg	TM116	<5 #	<5 #				
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 #	<10 #				
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 #	<16 M				
Bromobenzene	<10 µg/kg	TM116	<10 #	<10 M				
Propylbenzene	<10 µg/kg	TM116	<10 #	<10 M				
2-Chlorotoluene	<9 µg/kg	TM116	<9 #	<9 M				
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 #	<8 M				
4-Chlorotoluene	<10 µg/kg	TM116	<10 #	<10 M				
tert-Butylbenzene	<14 µg/kg	TM116	<14 #	<14 M				
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #	<9 #				
sec-Butylbenzene	<10 µg/kg	TM116	<10	<10				
4-Isopropyltoluene	<10 µg/kg	TM116	<10 #	<10 M				
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 #	<8 M				
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 #	<5 M				
n-Butylbenzene	<11 µg/kg	TM116	<11	<11				
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 #	<10 M				
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 #	<14 M				
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<10 #				
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<20				
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<20				
Naphthalene	<13 µg/kg	TM116	<13 #	<13 M				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-17	WS-RPS-19				
Depth (m)			0.40 - 0.60	0.90 - 1.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			20/02/2018	20/02/2018				
Sampled Time			-	-				
Date Received			23/02/2018	23/02/2018				
SDG Ref			180223-72	180223-72				
Lab Sample No.(s)			17108277	17108255				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #	<20 #				

Asbestos Quantification - Full

		Additional Asbestos Components (Using TM048)	Analysts Comments	Asbestos Quantification - Gravimetric - %	Asbestos Quantification - PCOM Evaluation - %	Asbestos Quantification - Total - %
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	CP-RPS-04 ES 1 0.60 SOLID 20/02/2018 00:00:00 07/03/2018 18:32:24 180223-72 17108373 TM304	None (#)	N/A	<0.001 (#)	<0.001 (#)	<0.001 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-13 ES 1 0.05 - 0.45 SOLID 20/02/2018 00:00:00 07/03/2018 17:25:54 180223-72 17108296 TM304	None (#)	N/A	0.0027 (#)	<0.001 (#)	0.0027 (#)

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.115	**Natural Moisture Content (%)**	28.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	78
Particle Size <4mm	>95%		

Case	
SDG	180223-72
Lab Sample Number(s)	17108373
Sampled Date	20-Feb-2018
Customer Sample Ref.	CP-RPS-04 ES1
Depth (m)	0.60

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	1.91	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	40.6	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	12.4	-	>6	-
ANC to pH 6 (mol/kg)	0.174	-	-	-
ANC to pH 4 (mol/kg)	0.41	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.000936	<0.0005	0.00936	<0.005	0.5	2	25
Barium	0.0735	<0.0002	0.735	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.0239	<0.001	0.239	<0.01	0.5	10	70
Copper	0.00447	<0.0003	0.0447	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00959	<0.0005	0.0959	<0.005	0.5	10	30
Nickel	0.000424	<0.0004	0.00424	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	0.000814	<0.0001	0.00814	<0.001	0.06	0.7	5
Selenium	0.00394	<0.0005	0.0394	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	65.9	<2	659	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	41.3	<2	413	<20	1000	20000	50000
Total Dissolved Solids	914	<5	9140	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	01-Mar-2018
pH (pH Units)	11.78
Conductivity (µS/cm)	1,270.00
Temperature (ºC)	16.90
Volume Leachant (Litres)	0.875

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

14/03/2018 16:12:35

Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.098	**Natural Moisture Content (%)**	8.81
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	91.9
Particle Size <4mm	>95%		

Case	
SDG	180223-72
Lab Sample Number(s)	17108380
Sampled Date	20-Feb-2018
Customer Sample Ref.	CP-RPS-02 ES1
Depth (m)	0.10

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	1.35	3	5	6
Loss on Ignition (%)	2.34	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	24.6	500	-	-
PAH Sum of 17 (mg/kg)	11.6	100	-	-
pH (pH Units)	8.58	-	>6	-
ANC to pH 6 (mol/kg)	0.0454	-	-	-
ANC to pH 4 (mol/kg)	0.179	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00534	<0.0005	0.0534	<0.005	0.5	2	25
Barium	0.015	<0.0002	0.15	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00117	<0.0003	0.0117	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00313	<0.0005	0.0313	<0.005	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	0.00156	<0.0002	0.0156	<0.002	0.5	10	50
Antimony	0.000353	<0.0001	0.00353	<0.001	0.06	0.7	5
Selenium	<0.0005	<0.0005	<0.005	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	63.9	<5	639	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	01-Mar-2018
pH (pH Units)	8.80
Conductivity (µS/cm)	76.90
Temperature (ºC)	16.40
Volume Leachant (Litres)	0.892

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

14/03/2018 16:12:35

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Notification of NDPs (No determination possible)

Date Received : 23/02/2018 13:07:23

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
17108373	CP-RPS-04 ES1	0.60	Loss on Ignition in soils	Unsuitable sample for analysis

Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
SUB (ASB)		
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM304	HSE Contract research Report no 83/1996	Asbestos Quantification in Soil: Fibres identified by morphology only

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Test Completion Dates

Lab Sample No(s)	17108380	17108373	17108340	17108349	17108225	17108334	17108296	17108277	17108287	17108236
Customer Sample Ref.	CP-RPS-02	CP-RPS-04	WS-RPS-09	WS-RPS-09	WS-RPS-10	WS-RPS-11	WS-RPS-13	WS-RPS-17	WS-RPS-17	WS-RPS-18
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1
Depth	0.10	0.60	0.80	1.20	2.60 - 2.80	2.50 - 3.00	0.05 - 0.45	0.40 - 0.60	0.75 - 0.90	0.20 - 0.70
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
ANC at pH4 and ANC at pH 6	01-Mar-2018	01-Mar-2018								
Anions by Kone (w)	06-Mar-2018	06-Mar-2018								
Asbestos fibres in Soil*	06-Mar-2018	06-Mar-2018	06-Mar-2018				06-Mar-2018	06-Mar-2018		06-Mar-2018
Asbestos Quantification - Full		14-Mar-2018					14-Mar-2018			
CEN 10:1 Leachate (1 Stage)	01-Mar-2018	01-Mar-2018								
CEN Readings	03-Mar-2018	03-Mar-2018								
Dissolved Metals by ICP-MS	06-Mar-2018	06-Mar-2018								
Dissolved Organic/Inorganic Carbon	05-Mar-2018	05-Mar-2018								
EPH CWG (Aliphatic) GC (S)	06-Mar-2018	06-Mar-2018	06-Mar-2018				06-Mar-2018	06-Mar-2018		06-Mar-2018
EPH CWG (Aromatic) GC (S)	06-Mar-2018	06-Mar-2018	06-Mar-2018				06-Mar-2018	06-Mar-2018		06-Mar-2018
Fluoride	06-Mar-2018	06-Mar-2018								
GRO by GC-FID (S)	05-Mar-2018	06-Mar-2018	06-Mar-2018				06-Mar-2018	05-Mar-2018		02-Mar-2018
Loss on Ignition in soils	07-Mar-2018									
Mercury Dissolved	05-Mar-2018	05-Mar-2018								
Metals in solid samples by OES	02-Mar-2018	02-Mar-2018	02-Mar-2018				02-Mar-2018	02-Mar-2018		01-Mar-2018
Mineral Oil	07-Mar-2018	07-Mar-2018								
PAH by GCMS	06-Mar-2018	06-Mar-2018	06-Mar-2018				06-Mar-2018	06-Mar-2018		05-Mar-2018
PCBs by GCMS	05-Mar-2018	05-Mar-2018						06-Mar-2018		
pH	05-Mar-2018	05-Mar-2018	05-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018
Phenols by HPLC (W)	06-Mar-2018	06-Mar-2018								
Sample description	23-Feb-2018	23-Feb-2018	27-Feb-2018	27-Feb-2018	27-Feb-2018	27-Feb-2018	23-Feb-2018	26-Feb-2018	27-Feb-2018	26-Feb-2018
Semi Volatile Organic Compounds								05-Mar-2018		
Total Dissolved Solids	05-Mar-2018	05-Mar-2018								
Total Organic Carbon	02-Mar-2018	01-Mar-2018								
TPH CWG GC (S)	06-Mar-2018	06-Mar-2018	06-Mar-2018				06-Mar-2018	06-Mar-2018		06-Mar-2018
VOC MS (S)								05-Mar-2018		

Lab Sample No(s)	17108255	17108318
Customer Sample Ref.	WS-RPS-19	WS-RPS-20
AGS Ref.	ES1	ES1
Depth	0.90 - 1.50	2.50 - 3.00
Type	Soil/Solid (S)	Soil/Solid (S)
Asbestos fibres in Soil*	06-Mar-2018	
EPH CWG (Aliphatic) GC (S)	06-Mar-2018	
EPH CWG (Aromatic) GC (S)	06-Mar-2018	
GRO by GC-FID (S)	05-Mar-2018	
Metals in solid samples by OES	01-Mar-2018	
PAH by GCMS	05-Mar-2018	
PCBs by GCMS	06-Mar-2018	
pH	05-Mar-2018	05-Mar-2018
Sample description	26-Feb-2018	26-Feb-2018
Semi Volatile Organic Compounds	05-Mar-2018	
TPH CWG GC (S)	06-Mar-2018	
VOC MS (S)	02-Mar-2018	

ASSOCIATED AQC DATA

ANC at pH4 and ANC at pH 6

Component	Method Code	QC 1764
ANC pH_4 dry soil	TM182	**104.08** 86.12 : 113.88
ANC pH_6 dry soil	TM182	**109.39** 61.00 : 139.00

Anions by Kone (w)

Component	Method Code	QC 1763
Chloride	TM184	**105.0** 92.93 : 115.43
Phosphate (Ortho as PO4)	TM184	96.40 : 108.40
Sulphate (soluble)	TM184	**103.6** 90.53 : 113.03
TON as NO3	TM184	96.26 : 111.21

Dissolved Metals by ICP-MS

Component	Method Code	QC 1782	QC 1710
Aluminium	TM152	**102.33** 88.00 : 112.00	**95.67** 89.90 : 110.02
Antimony	TM152	**105.67** 88.00 : 112.00	**106.0** 79.80 : 122.00
Arsenic	TM152	**103.33** 88.00 : 112.00	**101.0** 90.42 : 111.32
Barium	TM152	**105.67** 88.00 : 112.00	**100.17** 92.02 : 112.48
Beryllium	TM152	**103.83** 88.00 : 112.00	**99.33** 86.15 : 118.35
Bismuth	TM152	**103.5** 88.90 : 106.90	**102.67** 88.90 : 106.90
Borate	TM152	**103.7** 88.00 : 112.00	**97.53** 88.00 : 112.00
Boron	TM152	**103.67** 88.00 : 112.00	**97.33** 86.68 : 117.67
Cadmium	TM152	**103.0** 88.00 : 112.00	**99.0** 92.07 : 109.87
Chromium	TM152	**101.5** 88.00 : 112.00	**96.5** 90.87 : 108.50
Cobalt	TM152	**99.5** 88.00 : 112.00	**96.5** 84.39 : 114.26
Copper	TM152	**99.83** 85.52 : 115.00	**100.0** 91.20 : 110.79
Lead	TM152	**100.17** 88.00 : 112.00	**103.0** 85.65 : 113.58
Lithium	TM152	**102.83** 88.00 : 112.00	**98.5** 89.26 : 119.04
Manganese	TM152	**104.0** 88.00 : 112.00	**97.17** 90.63 : 109.13

Dissolved Metals by ICP-MS

		QC 1782	QC 1710
Molybdenum	TM152	**100.83** 88.00 : 112.00	**92.83** 87.00 : 108.89
Nickel	TM152	**100.33** 88.00 : 112.00	**97.67** 92.11 : 110.56
Niobium	TM152	 88.00 : 112.00	
Phosphorus	TM152	**110.67** 88.00 : 112.00	**97.17** 90.52 : 115.47
Selenium	TM152	**106.33** 88.00 : 112.00	**99.5** 88.44 : 113.86
Silver	TM152	**95.5** 88.00 : 112.00	**93.83** 76.93 : 112.73
Strontium	TM152	**106.33** 88.00 : 112.00	**97.67** 90.72 : 114.82
Tellurium	TM152	**106.0** 88.00 : 112.00	**97.0** 86.97 : 108.87
Thallium	TM152	**100.33** 88.00 : 112.00	**97.33** 80.92 : 114.72
Titanium	TM152	**99.17** 88.00 : 112.00	**95.83** 90.08 : 111.18
Tungsten	TM152	**99.0** 88.00 : 112.00	**104.5** 91.72 : 109.22
Uranium	TM152	**103.67** 88.00 : 112.00	**97.17** 90.58 : 113.28
Vanadium	TM152	**100.33** 88.00 : 112.00	**97.17** 88.43 : 114.30
Zinc	TM152	**101.67** 88.00 : 112.00	**99.33** 86.52 : 115.27
Zirconium	TM152	 88.00 : 112.00	

Dissolved Organic/Inorganic Carbon

Component	Method Code	QC 1739
Dissolved Inorganic Carbon	TM090	**98.33** 94.43 : 110.53
Dissolved Organic Carbon	TM090	**100.5** 99.25 : 108.95

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1704	QC 1775	QC 1751	QC 1701
Total Aliphatics >C12-C35	TM173	**90.0** 70.61 : 106.16	**86.88** 70.76 : 104.69	**84.17** 70.76 : 104.69	**89.58** 70.71 : 106.26

EPH CWG (Aromatic) GC (S)

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1704	QC 1775	QC 1751	QC 1701
Total Aromatics >EC12-EC35	TM173	**84.67** 67.75 : 104.04	**82.67** 68.16 : 102.29	**82.0** 68.16 : 102.29	**84.67** 65.82 : 105.00

Fluoride

Component	Method Code	QC 1708
Fluoride	TM104	**96.67** 92.67 : 104.67

GRO by GC-FID (S)

Component	Method Code	QC 1721	QC 1764	QC 1745	QC 1788	QC 1762	QC 1765
Benzene by GC (Moisture Corrected)	TM089	**102.0** 84.09 : 122.62	**97.5** 80.70 : 121.69	**99.5** 80.70 : 121.69	**100.0** 80.70 : 121.69	**99.0** 84.09 : 122.62	**93.5** 80.70 : 121.69
Ethylbenzene by GC (Moisture Corrected)	TM089	**106.0** 78.42 : 121.07	**101.5** 76.65 : 121.92	**104.0** 76.65 : 121.92	**102.0** 76.65 : 121.92	**102.5** 78.42 : 121.07	**97.5** 76.65 : 121.92
m & p Xylene by GC (Moisture Corrected)	TM089	**105.75** 77.69 : 121.76	**101.0** 76.25 : 122.54	**103.25** 76.25 : 122.54	**101.0** 76.25 : 122.54	**101.75** 77.69 : 121.76	**97.75** 76.25 : 122.54
MTBE GC-FID (Moisture Corrected)	TM089	**101.0** 77.69 : 125.19	**93.0** 77.67 : 125.50	**95.0** 77.67 : 125.50	**99.5** 77.67 : 125.50	**95.0** 77.69 : 125.19	**94.0** 77.67 : 125.50
o Xylene by GC (Moisture Corrected)	TM089	**104.0** 77.88 : 121.47	**99.0** 76.37 : 122.94	**102.5** 76.37 : 122.94	**100.5** 76.37 : 122.94	**99.0** 77.88 : 121.47	**98.0** 76.37 : 122.94
QC	TM089	**80.32** 69.62 : 106.27	**107.12** 68.07 : 103.94	**99.43** 68.07 : 103.94	**97.24** 68.07 : 103.94	**90.45** 69.62 : 106.27	**91.69** 68.07 : 103.94
Toluene by GC (Moisture Corrected)	TM089	**106.0** 78.31 : 121.42	**101.0** 75.95 : 122.88	**103.0** 75.95 : 122.88	**102.5** 75.95 : 122.88	**102.5** 78.31 : 121.42	**96.5** 75.95 : 122.88

Loss on Ignition in soils

Component	Method Code	QC 1796
Loss on Ignition	TM018	**100.47** 89.27 : 104.90

Mercury Dissolved

Component	Method Code	QC 1725
Mercury Dissolved (CVAF)	TM183	**97.4** 73.51 : 120.83

Metals in solid samples by OES

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Metals in solid samples by OES

Component	Method Code	QC 1714	QC 1762	QC 1722	QC 1753
Aluminium	TM181	**87.41** 75.13 : 109.48	**86.67** 75.13 : 109.48	**87.41** 75.13 : 109.48	**88.15** 75.13 : 109.48
Antimony	TM181	**99.61** 84.48 : 110.90	**98.46** 84.48 : 110.90	**92.66** 84.48 : 110.90	**96.91** 84.48 : 110.90
Arsenic	TM181	**92.29** 83.14 : 108.73	**91.52** 83.14 : 108.73	**91.52** 83.14 : 108.73	**93.83** 83.14 : 108.73
Barium	TM181	**93.75** 77.47 : 102.53	**92.19** 77.47 : 102.53	**85.94** 77.47 : 102.53	**91.41** 77.47 : 102.53
Beryllium	TM181	**97.95** 84.19 : 106.77	**94.52** 84.19 : 106.77	**88.7** 84.19 : 106.77	**92.81** 84.19 : 106.77
Boron	TM181	**89.83** 76.55 : 106.69	**84.46** 76.55 : 106.69	**87.57** 76.55 : 106.69	**89.83** 76.55 : 106.69
Cadmium	TM181	**96.81** 86.37 : 111.59	**98.94** 86.37 : 111.59	**93.09** 86.37 : 111.59	**96.81** 86.37 : 111.59
Chromium	TM181	**97.05** 81.29 : 118.71	**94.51** 81.29 : 118.71	**93.67** 81.29 : 118.71	**97.47** 81.29 : 118.71
Cobalt	TM181	**97.81** 85.45 : 109.14	**94.36** 85.45 : 109.14	**89.03** 85.45 : 109.14	**94.67** 85.45 : 109.14
Copper	TM181	**90.25** 81.33 : 103.33	**90.1** 81.33 : 103.33	**85.44** 81.33 : 103.33	**89.81** 81.33 : 103.33
Iron	TM181	**95.83** 82.44 : 111.71	**95.83** 82.44 : 111.71	**91.67** 82.44 : 111.71	**94.44** 82.44 : 111.71
Lead	TM181	**93.19** 83.33 : 106.95	**90.64** 83.33 : 106.95	**91.91** 83.33 : 106.95	**92.98** 83.33 : 106.95
Manganese	TM181	**93.54** 80.56 : 102.33	**89.09** 80.56 : 102.33	**82.63** 80.56 : 102.33	**86.67** 80.56 : 102.33
Mercury	TM181	**96.47** 84.13 : 111.85	**94.9** 84.13 : 111.85	**93.33** 84.13 : 111.85	**96.08** 84.13 : 111.85
Molybdenum	TM181	**96.14** 84.19 : 110.39	**96.53** 84.19 : 110.39	**92.28** 84.19 : 110.39	**95.75** 84.19 : 110.39
Nickel	TM181	**95.8** 84.19 : 109.77	**95.57** 84.19 : 109.77	**96.5** 84.19 : 109.77	**95.1** 84.19 : 109.77
Phosphorus	TM181	**91.02** 73.47 : 116.86	**87.57** 73.47 : 116.86	**86.08** 73.47 : 116.86	**88.62** 73.47 : 116.86
Selenium	TM181	**92.58** 81.32 : 108.59	**93.18** 81.32 : 108.59	**87.83** 81.32 : 108.59	**91.99** 81.32 : 108.59
Strontium	TM181	**91.33** 84.70 : 105.87	**90.06** 84.70 : 105.87	**90.27** 84.70 : 105.87	**93.66** 84.70 : 105.87
Thallium	TM181	**97.66** 81.19 : 105.37	**94.14** 81.19 : 105.37	**89.84** 81.19 : 105.37	**94.92** 81.19 : 105.37
Tin	TM181	**96.45** 85.92 : 110.00	**97.52** 85.92 : 110.00	**93.26** 85.92 : 110.00	**96.45** 85.92 : 110.00
Titanium	TM181	**88.46** 73.44 : 113.17	**83.85** 73.44 : 113.17	**97.69** 73.44 : 113.17	**90.77** 73.44 : 113.17
Vanadium	TM181	**92.94** 78.62 : 101.47	**88.65** 78.62 : 101.47	**89.26** 78.62 : 101.47	**91.72** 78.62 : 101.47
Zinc	TM181	**95.99** 85.64 : 110.14	**95.29** 85.64 : 110.14	**89.18** 85.64 : 110.14	**100.7** 85.64 : 110.14

Mineral Oil

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Mineral Oil

Component	Method Code	QC 1788
Mineral Oil	TM061	**87.83** 76.64 : 99.14

PAH by GCMS

Component	Method Code	QC 1708	QC 1787	QC 1727	QC 1789	QC 1704
Acenaphthene	TM218	**98.0** 78.17 : 114.45	**102.5** 82.09 : 110.18	**102.5** 78.17 : 114.45	**89.0** 82.60 : 105.38	**88.0** 82.60 : 105.38
Acenaphthylene	TM218	**93.5** 73.70 : 105.55	**93.0** 77.92 : 100.70	**96.5** 73.70 : 105.55	**84.5** 73.64 : 111.66	**84.5** 73.64 : 111.66
Anthracene	TM218	**94.5** 50.58 : 133.35	**96.5** 79.96 : 103.02	**97.5** 50.58 : 133.35	**88.5** 73.49 : 107.13	**87.0** 73.49 : 107.13
Benz(a)anthracene	TM218	**107.0** 73.03 : 124.35	**106.5** 80.00 : 122.30	**110.0** 73.03 : 124.35	**103.5** 87.82 : 118.79	**103.0** 87.82 : 118.79
Benzo(a)pyrene	TM218	**103.0** 76.86 : 123.01	**106.5** 86.92 : 126.33	**106.0** 76.86 : 123.01	**107.0** 83.39 : 123.49	**108.0** 83.39 : 123.49
Benzo(b)fluoranthene	TM218	**102.0** 75.92 : 130.86	**104.5** 84.53 : 122.14	**106.0** 75.92 : 130.86	**108.5** 80.60 : 126.56	**110.5** 80.60 : 126.56
Benzo(ghi)perylene	TM218	**97.0** 80.30 : 117.80	**93.5** 77.49 : 119.12	**99.0** 80.30 : 117.80	**103.0** 80.86 : 109.92	**105.0** 80.86 : 109.92
Benzo(k)fluoranthene	TM218	**99.5** 81.49 : 113.89	**100.5** 88.94 : 117.08	**103.5** 81.49 : 113.89	**107.0** 87.91 : 119.03	**107.5** 87.91 : 119.03
Chrysene	TM218	**96.5** 77.31 : 114.50	**102.5** 87.67 : 116.32	**99.5** 77.31 : 114.50	**103.0** 85.34 : 115.46	**101.5** 85.34 : 115.46
Dibenzo(ah)anthracene	TM218	**99.5** 77.77 : 118.30	**97.0** 85.66 : 119.61	**100.0** 77.77 : 118.30	**104.0** 82.98 : 121.47	**109.5** 82.98 : 121.47
Fluoranthene	TM218	**95.5** 80.77 : 108.59	**105.0** 84.49 : 109.33	**98.0** 80.77 : 108.59	**94.0** 82.03 : 107.26	**91.5** 82.03 : 107.26
Fluorene	TM218	**97.0** 79.13 : 110.70	**102.5** 84.28 : 107.54	**101.5** 79.13 : 110.70	**90.5** 81.48 : 108.26	**89.0** 81.48 : 108.26
Indeno(123cd)pyrene	TM218	**98.5** 78.65 : 117.12	**97.0** 86.46 : 120.70	**100.5** 78.65 : 117.12	**104.5** 84.02 : 120.55	**107.5** 84.02 : 120.55
Naphthalene	TM218	**92.0** 77.09 : 108.37	**104.5** 82.88 : 115.56	**95.0** 77.09 : 108.37	**90.5** 84.06 : 108.38	**90.0** 84.06 : 108.38
Phenanthrene	TM218	**95.5** 76.02 : 112.05	**102.5** 81.59 : 110.61	**97.0** 76.02 : 112.05	**90.5** 78.68 : 107.87	**88.5** 78.68 : 107.87
Pyrene	TM218	**94.5** 79.98 : 107.66	**102.0** 83.25 : 107.60	**98.0** 79.98 : 107.66	**94.0** 81.96 : 108.90	**92.0** 81.96 : 108.90

PCBs by GCMS

Component	Method Code	QC 1718	QC 1710	QC 1750
PCB congener 101	TM168	**97.1** 80.77 : 111.39	**91.8** 76.50 : 116.94	**92.9** 80.77 : 111.39
PCB congener 105	TM168	**92.5** 79.28 : 115.39	**88.6** 75.93 : 120.03	**88.4** 79.28 : 115.39
PCB congener 114	TM168	**93.3** 81.30 : 114.31	**90.8** 76.64 : 119.06	**90.4** 81.30 : 114.31
PCB congener 118	TM168	**93.8** 80.32 : 112.22	**91.7** 75.18 : 118.08	**91.8** 80.32 : 112.22

PCBs by GCMS

		QC 1718	QC 1710	QC 1750
PCB congener 123	TM168	**93.0** 80.25 : 114.57	**88.9** 75.72 : 117.84	**88.9** 80.25 : 114.57
PCB congener 126	TM168	**94.3** 75.17 : 124.58	**88.7** 76.10 : 125.90	**88.6** 75.17 : 124.58
PCB congener 138	TM168	**93.8** 82.92 : 114.57	**88.8** 78.04 : 121.72	**91.2** 82.92 : 114.57
PCB congener 153	TM168	**91.0** 83.90 : 111.70	**86.9** 77.67 : 119.31	**88.7** 83.90 : 111.70
PCB congener 156	TM168	**94.8** 75.33 : 115.33	**88.3** 73.48 : 118.60	**90.6** 75.33 : 115.33
PCB congener 157	TM168	**94.8** 80.94 : 117.86	**87.7** 77.47 : 123.91	**90.3** 80.94 : 117.86
PCB congener 167	TM168	**95.3** 78.02 : 117.22	**88.4** 75.77 : 121.97	**91.2** 78.02 : 117.22
PCB congener 169	TM168	**99.2** 73.31 : 125.29	**89.1** 74.49 : 130.71	**92.7** 73.31 : 125.29
PCB congener 180	TM168	**94.7** 79.60 : 113.91	**88.4** 77.34 : 121.26	**92.3** 79.60 : 113.91
PCB congener 189	TM168	**96.2** 71.41 : 124.18	**89.5** 75.60 : 127.20	**92.1** 71.41 : 124.18
PCB congener 28	TM168	**94.7** 83.25 : 112.46	**98.8** 79.43 : 121.67	**92.1** 83.25 : 112.46
PCB congener 52	TM168	**99.3** 85.30 : 110.14	**103.0** 78.72 : 119.28	**97.3** 85.30 : 110.14
PCB congener 77	TM168	**96.1** 73.92 : 120.16	**102.0** 74.04 : 120.60	**91.5** 73.92 : 120.16
PCB congener 81	TM168	**90.1** 81.05 : 122.39	**96.4** 78.47 : 124.85	**87.2** 81.05 : 122.39

pH

Component	Method Code	QC 1762	QC 1766	QC 1729
pH	TM133	**101.3** 99.25 : 102.83	**101.69** 99.48 : 102.60	**100.13** 99.48 : 102.60

Phenols by HPLC (W)

Component	Method Code	QC 1724
2.3.5 Trimethyl-Phenol by HPLC (W)	TM259	**99.0** 89.00 : 113.00
2-Isopropyl Phenol by HPLC (W)	TM259	**104.0** 95.00 : 113.00
Cresols by HPLC (W)	TM259	**96.33** 84.57 : 102.57
Napthol by HPLC (W)	TM259	**111.0** 90.22 : 121.54
Phenol by HPLC (W)	TM259	**100.0** 89.00 : 107.00
Xylenols by HPLC (W)	TM259	**109.0** 88.83 : 112.83

Semi Volatile Organic Compounds

Component	Method Code	QC 1734
4-Bromophenylphenylether (Soil)	TM157	**80.0** 65.45 : 121.76
Benzo(a)anthracene (Soil)	TM157	**94.5** 71.89 : 120.91
Hexachlorobutadiene (Soil)	TM157	**89.0** 69.80 : 117.77
Naphthalene (Soil)	TM157	**86.0** 71.89 : 120.16
Nitrobenzene (Soil)	TM157	**89.0** 70.00 : 118.00
Phenol (Soil)	TM157	**84.0** 68.54 : 114.86

Total Dissolved Solids

Component	Method Code	QC 1797
Total Dissolved Solids	TM123	**99.9** 97.30 : 101.58

Total Organic Carbon

Component	Method Code	QC 1783	QC 1719
Total Organic Carbon	TM132	**88.28** 83.00 : 101.77	**87.89** 83.00 : 101.77

VOC MS (S)

Component	Method Code	QC 1789	QC 1774
1,1,1,2-tetrachloroethane	TM116	**104.0** 77.56 : 115.55	**97.8** 77.56 : 115.55
1,1,1-Trichloroethane	TM116	**100.0** 73.73 : 118.05	**96.0** 73.73 : 118.05
1,1,2-Trichloroethane	TM116	**103.6** 77.12 : 116.04	**91.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**107.0** 74.46 : 129.15	**103.6** 74.46 : 129.15
1,2-Dichloroethane	TM116	**118.0** 92.57 : 128.78	**108.6** 92.57 : 128.78
1,4-Dichlorobenzene	TM116	**114.2** 72.76 : 126.34	**101.0** 72.76 : 126.34
2-Chlorotoluene	TM116	**103.2** 69.73 : 114.13	**93.0** 69.73 : 114.13
4-Chlorotoluene	TM116	**99.4** 66.90 : 112.46	**94.4** 66.90 : 112.46
Benzene	TM116	**104.0** 81.05 : 117.28	**102.0** 81.05 : 117.28
Carbon Disulphide	TM116	**100.0** 74.91 : 122.14	**96.8** 74.91 : 122.14

VOC MS (S)

		QC 1789	QC 1774
Carbontetrachloride	TM116	**104.0** 78.83 : 123.13	**104.0** 78.83 : 123.13
Chlorobenzene	TM116	**106.2** 75.00 : 115.53	**100.2** 75.00 : 115.53
Chloroform	TM116	**110.2** 77.34 : 121.84	**103.8** 77.34 : 121.84
Chloromethane	TM116	**95.4** 52.63 : 138.74	**92.8** 52.63 : 138.74
Cis-1,2-Dichloroethene	TM116	**109.0** 80.67 : 126.72	**104.2** 80.67 : 126.72
Dibromomethane	TM116	**114.0** 67.80 : 121.75	**99.0** 67.80 : 121.75
Dichloromethane	TM116	**114.6** 81.11 : 133.25	**103.6** 81.11 : 133.25
Ethylbenzene	TM116	**98.6** 72.53 : 109.84	**95.8** 72.53 : 109.84
Hexachlorobutadiene	TM116	**93.6** 12.82 : 152.73	**61.0** 12.82 : 152.73
Isopropylbenzene	TM116	**85.4** 54.46 : 125.44	**82.2** 54.46 : 125.44
Naphthalene	TM116	**115.8** 80.86 : 128.81	**98.0** 80.86 : 128.81
o-Xylene	TM116	**88.6** 67.46 : 102.22	**84.0** 67.46 : 102.22
p/m-Xylene	TM116	**93.4** 68.32 : 108.91	**90.8** 68.32 : 108.91
Sec-Butylbenzene	TM116	**75.6** 46.09 : 121.51	**74.0** 46.09 : 121.51
Tetrachloroethene	TM116	**110.0** 76.95 : 121.02	**106.8** 76.95 : 121.02
Toluene	TM116	**95.6** 74.24 : 107.42	**91.8** 74.24 : 107.42
Trichloroethene	TM116	**99.8** 77.61 : 111.54	**97.6** 77.61 : 111.54
Trichlorofluoromethane	TM116	**98.8** 71.31 : 128.41	**97.4** 71.31 : 128.41
Vinyl Chloride	TM116	**112.0** 68.26 : 133.45	**105.2** 68.26 : 133.45

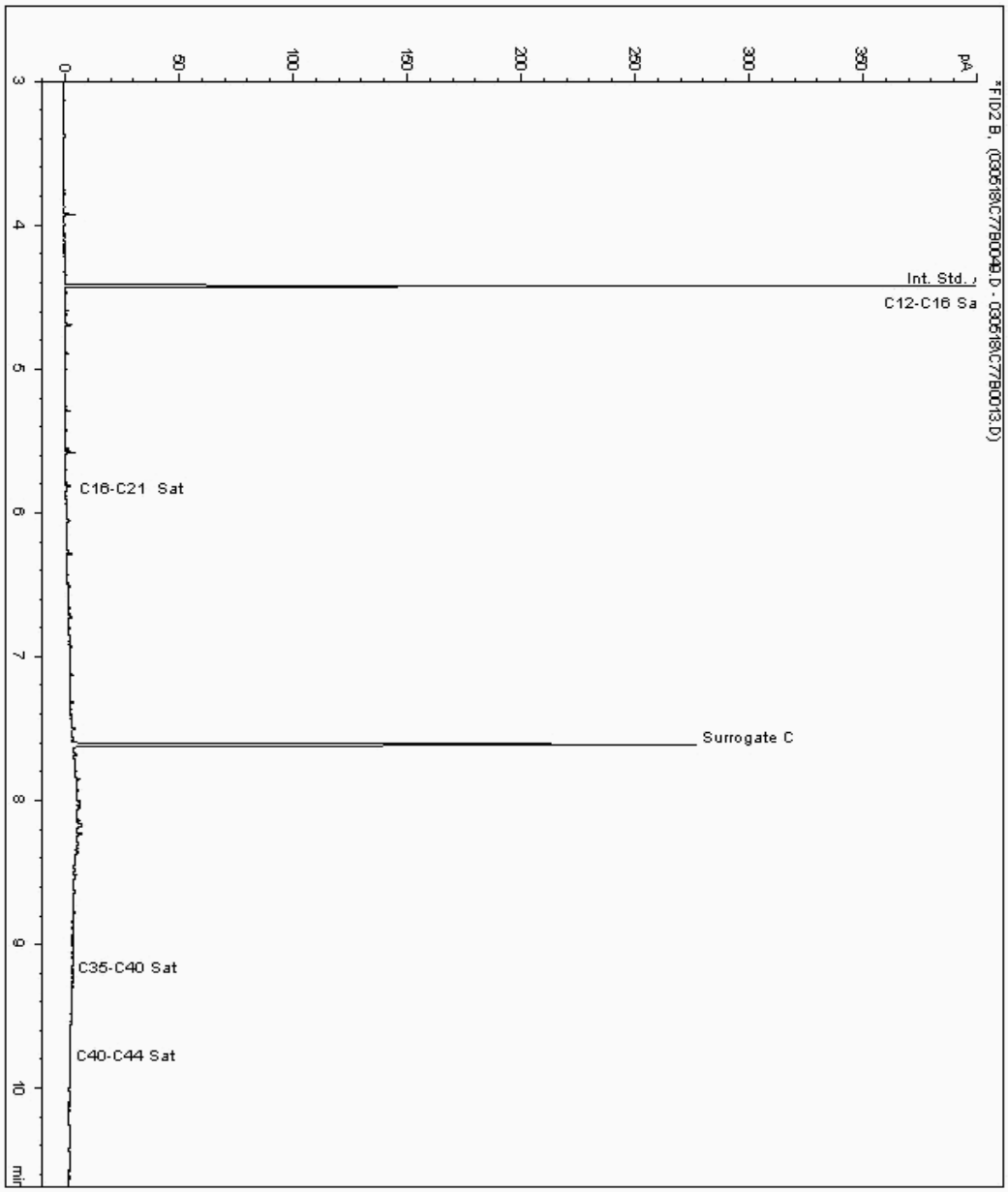
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17112493 **Sample ID :** WS-RPS-13 **Depth :** 0.05 - 0.45

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16065575-
Date Acquired : 06/03/2018 01:17:31 PM
Units : ppb
Dilution:

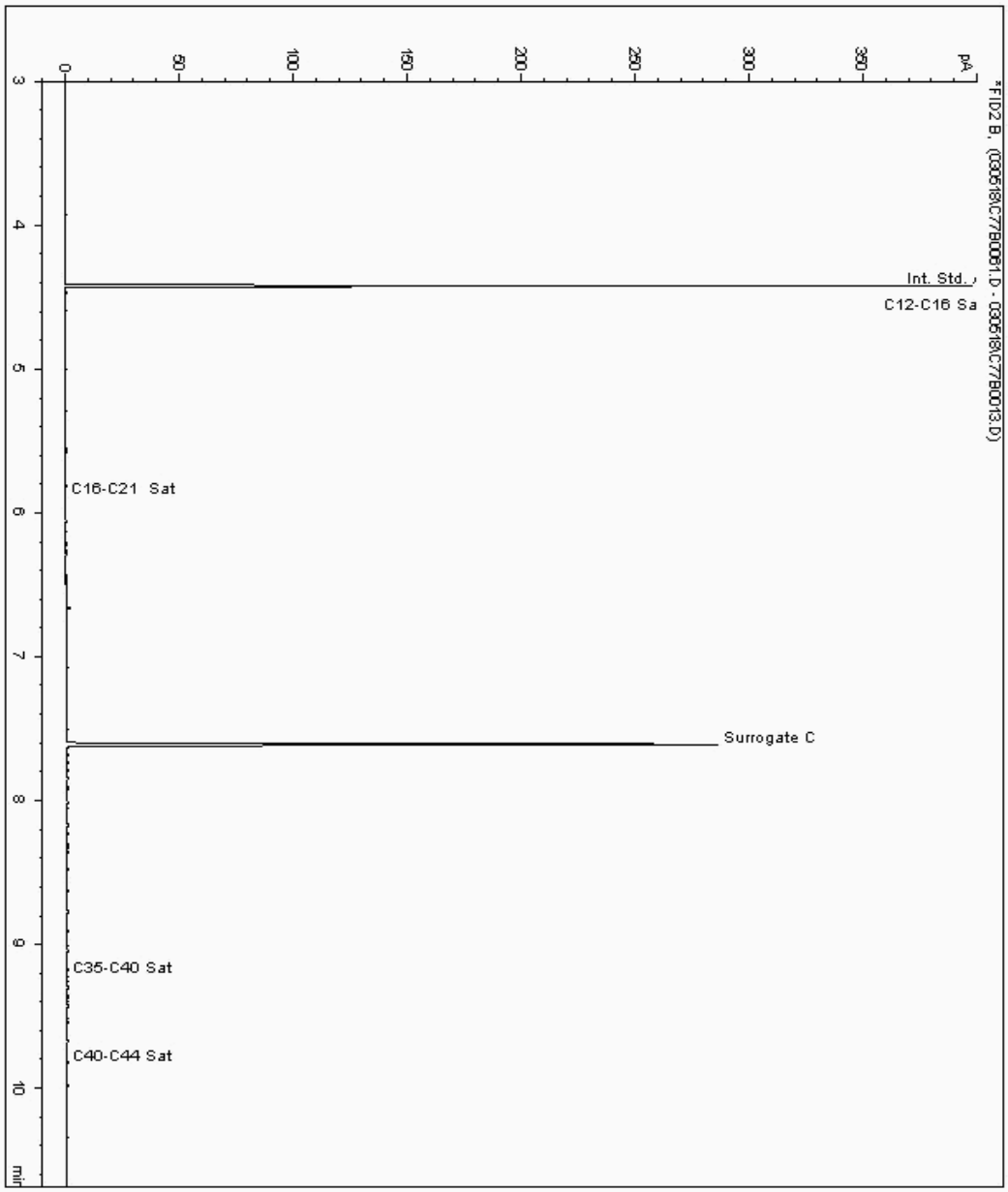


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17112507 **Sample ID :** CP-RPS-04 **Depth :** 0.60

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16065643-
Date Acquired : 06/03/2018 04:47:19 PM
Units : ppb
Dilution:

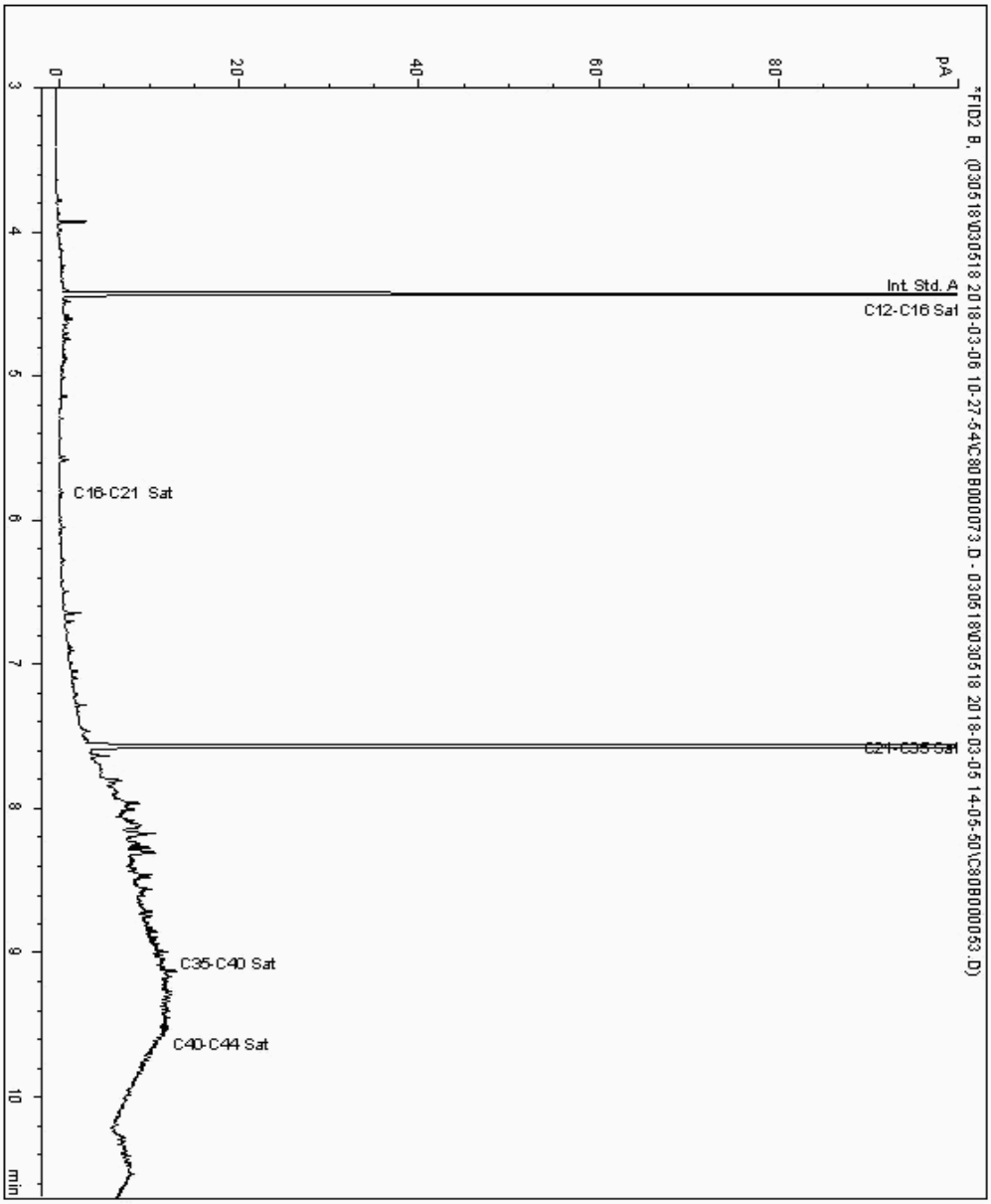


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17112520 **Sample ID :** CP-RPS-02 **Depth :** 0.10

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16065676-
Date Acquired : 06/03/18 10:54:30
Units : ppb
Dilution :
CF : 1
Multiplier : 1.040

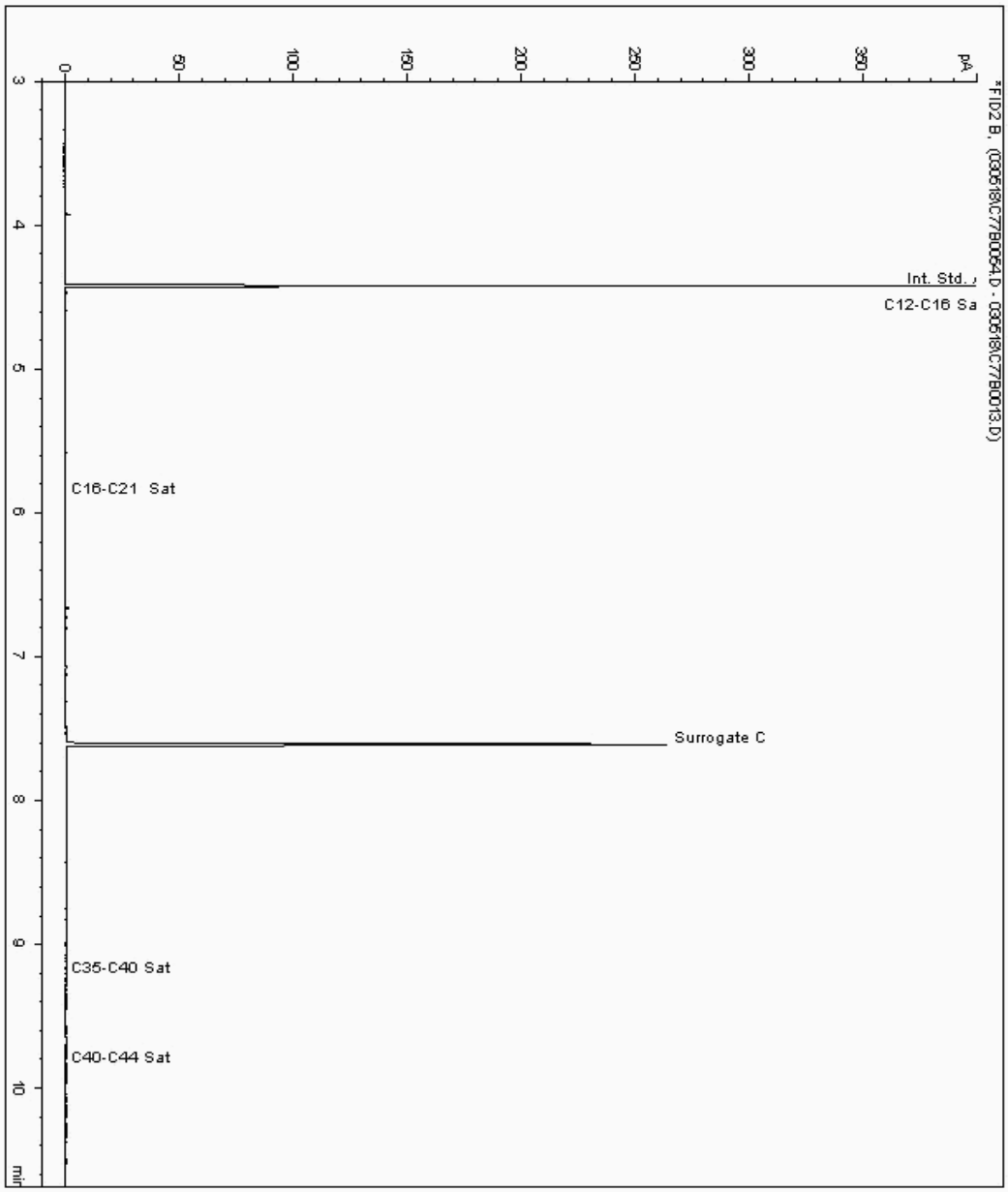


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17123106 **Sample ID :** WS-RPS-18 **Depth :** 0.20 - 0.70

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16065474-
Date Acquired : 06/03/2018 02:33:50 PM
Units : ppb
Dilution:

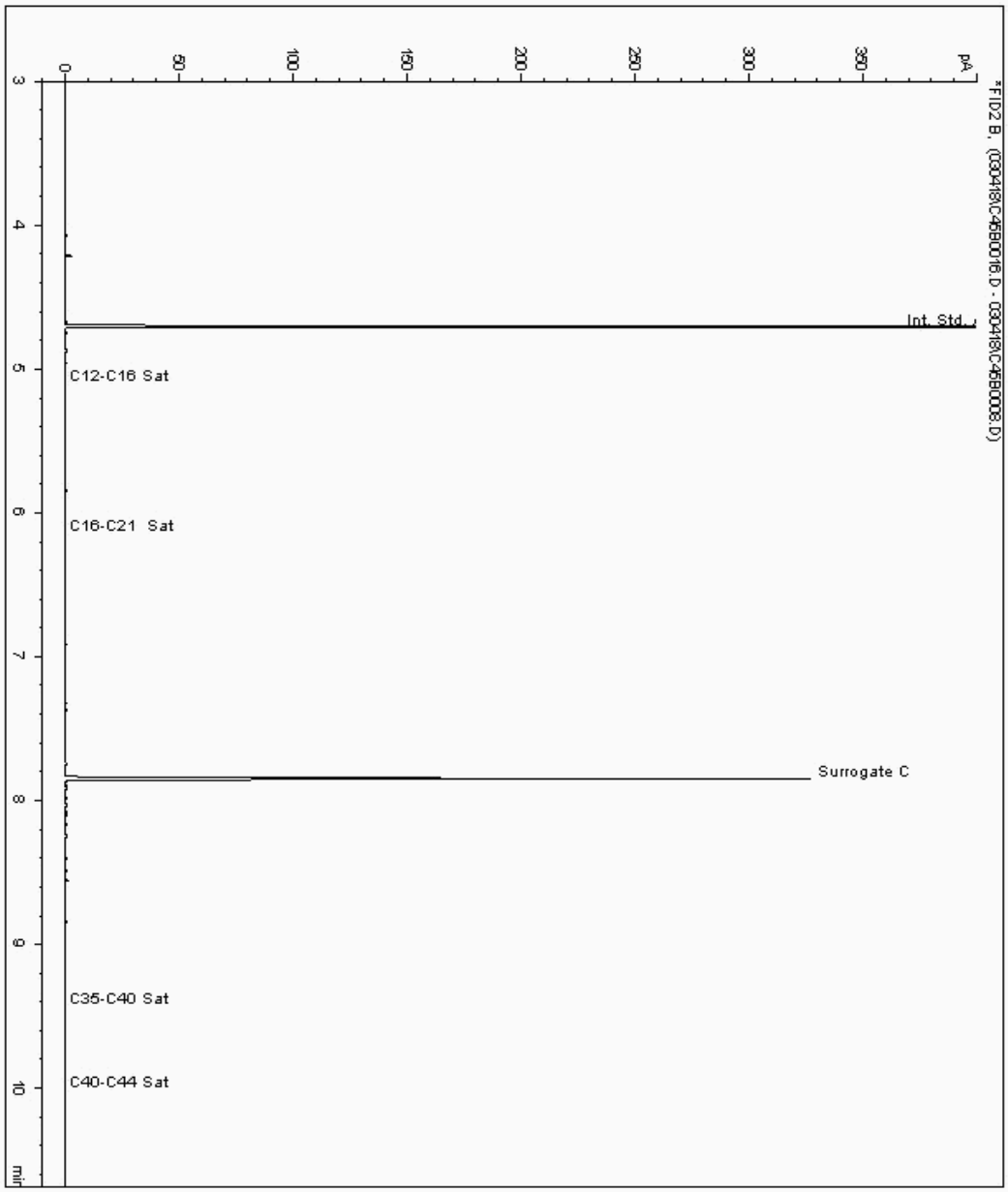


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17123158 **Sample ID :** WS-RPS-19 **Depth :** 0.90 - 1.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16065492-
Date Acquired : 04/03/2018 22:11:32 PM
Units : ppb
Dilution: WS-RPS-19[0.90 - 1.50] ->



CERTIFICATE OF ANALYSIS

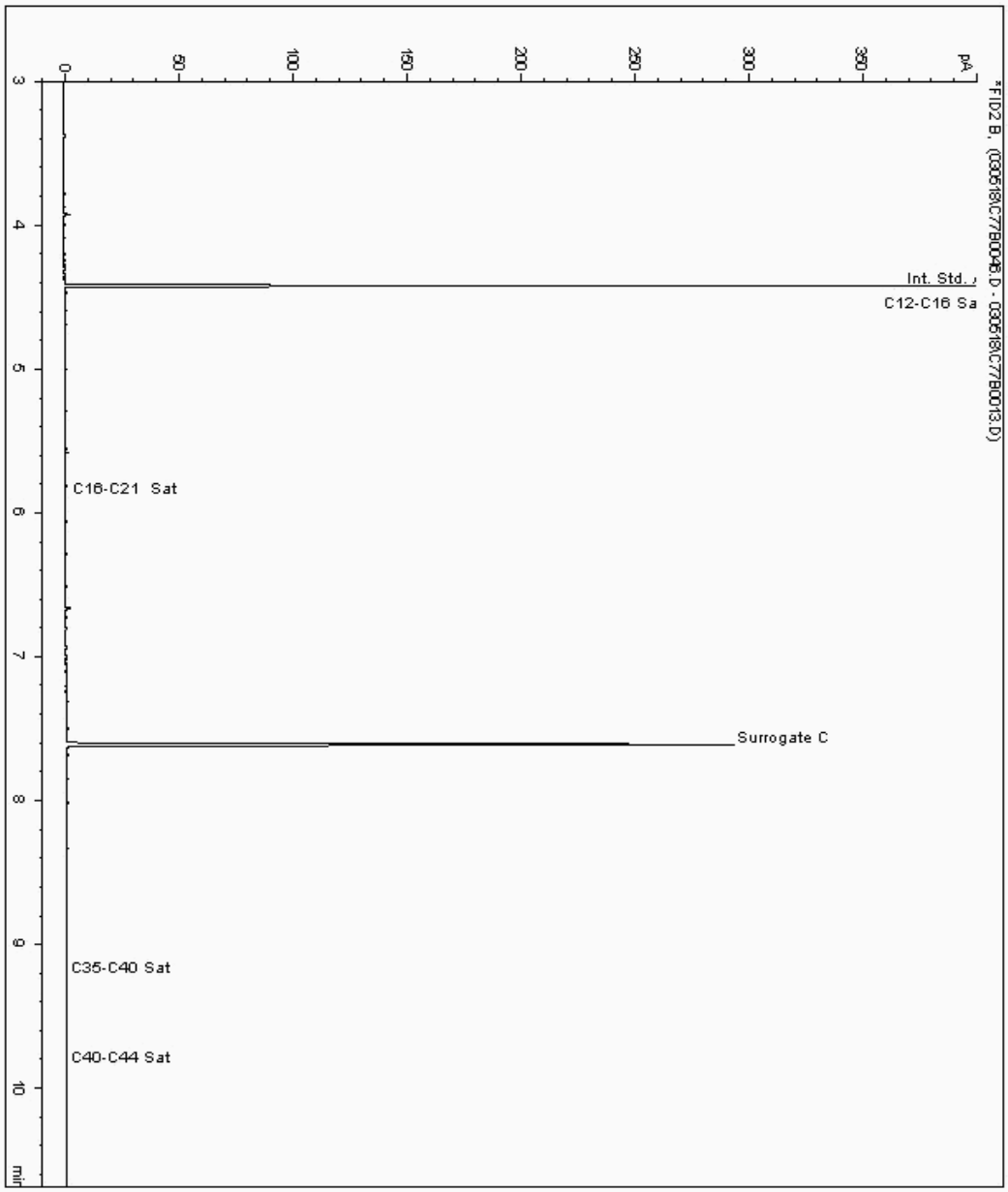
SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17123217 **Sample ID :** WS-RPS-17 **Depth :** 0.40 - 0.60

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16065535-
Date Acquired : 06/03/2018 00:16:45 PM
Units : ppb
Dilution:

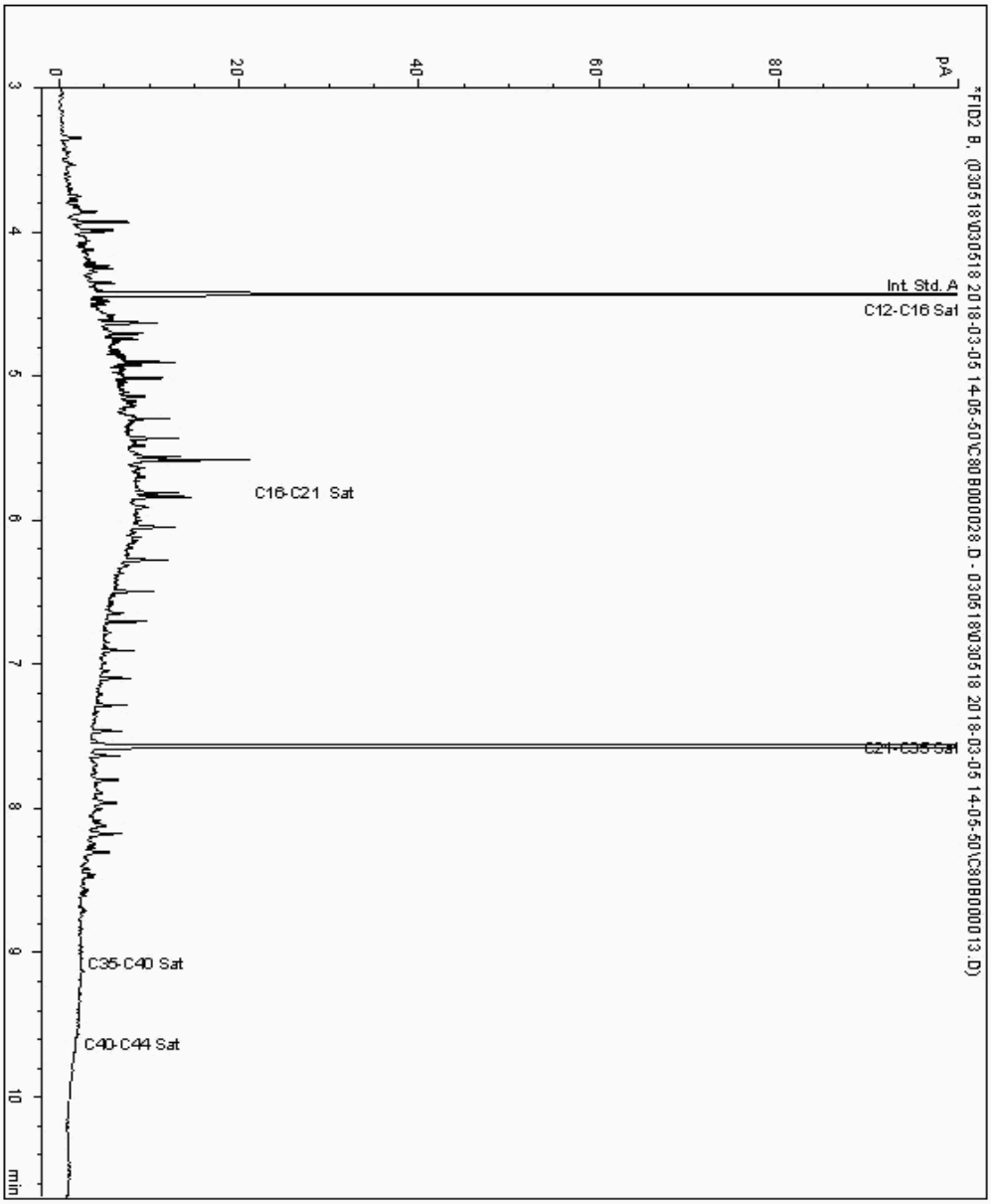


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17125777 **Sample ID :** WS-RPS-09 **Depth :** 0.80

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16065601-
Date Acquired : 05/03/18 21:56:46
Units : ppb
Dilution :
CF : 1
Multiplier : 1.040

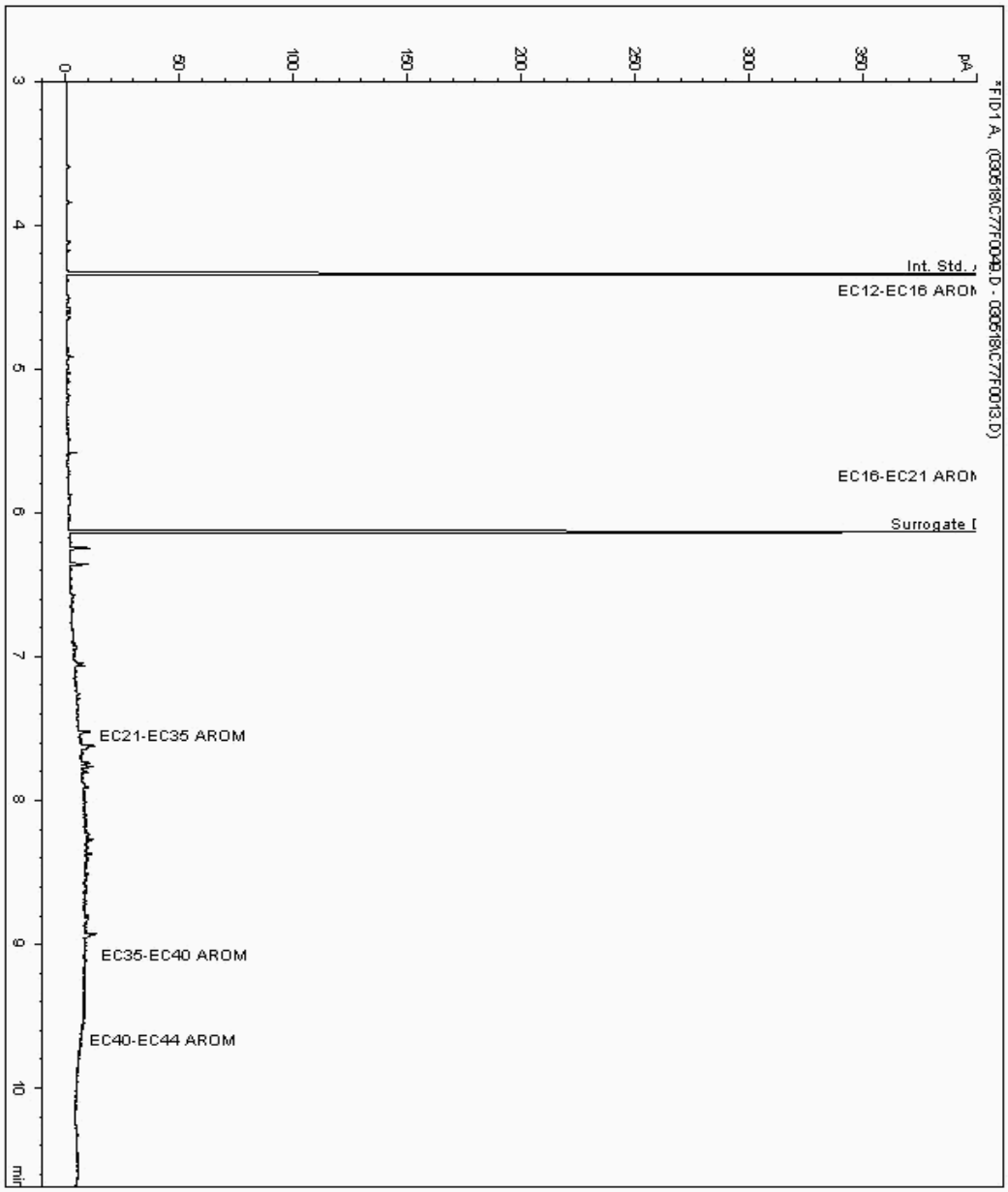


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17112493 **Sample ID :** WS-RPS-13 **Depth :** 0.05 - 0.45

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16065576-
Date Acquired : 06/03/2018 01:17:31 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

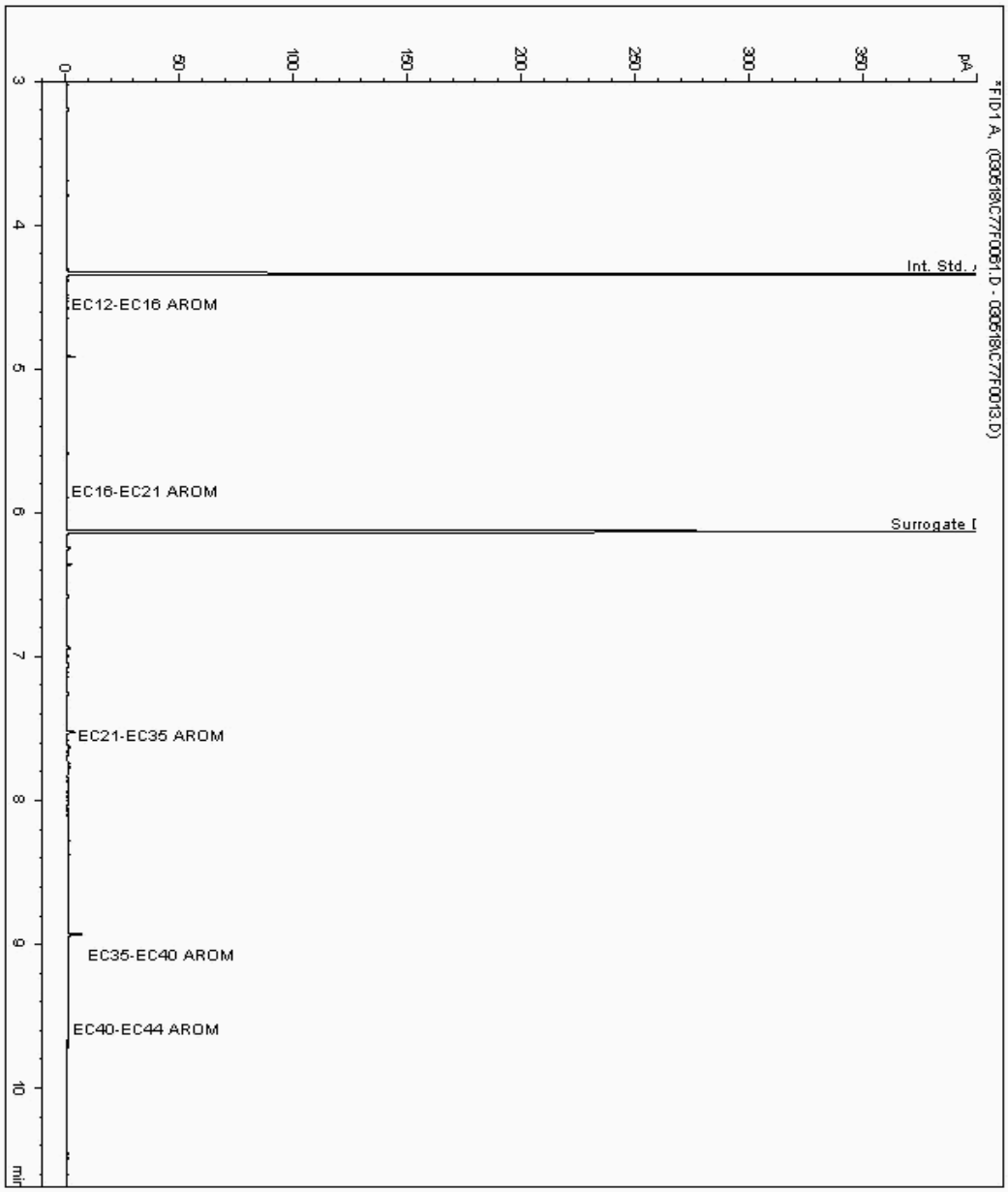
SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17112507 **Sample ID :** CP-RPS-04 **Depth :** 0.60

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16065644-
Date Acquired : 06/03/2018 04:47:19 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

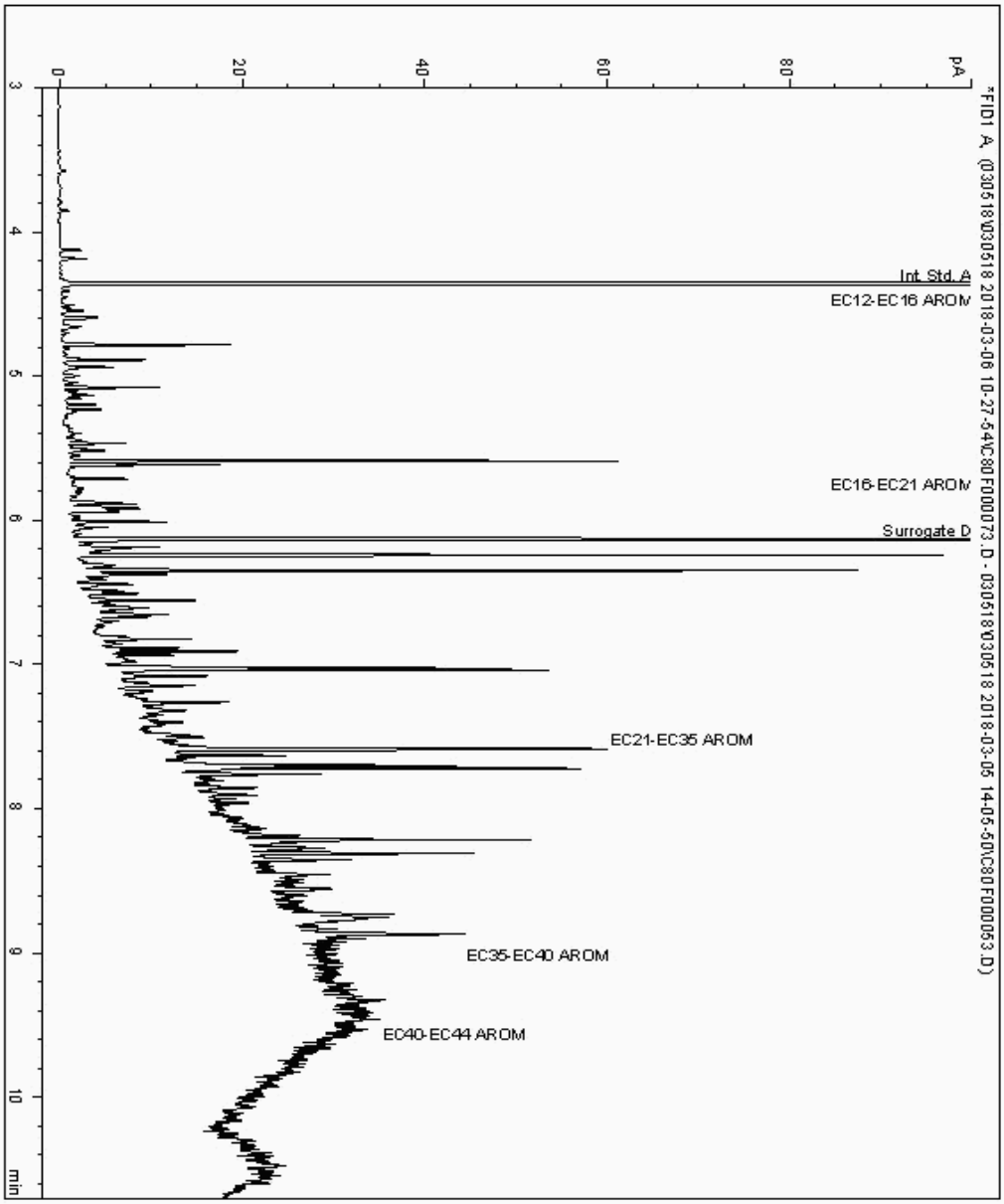
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 17112520
Sample ID : CP-RPS-02

Depth : 0.10

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16065677-
Date Acquired : 06/03/18 10:54:30
Units : ppb
Dilution :
CF : 1
Multiplier : 1.040

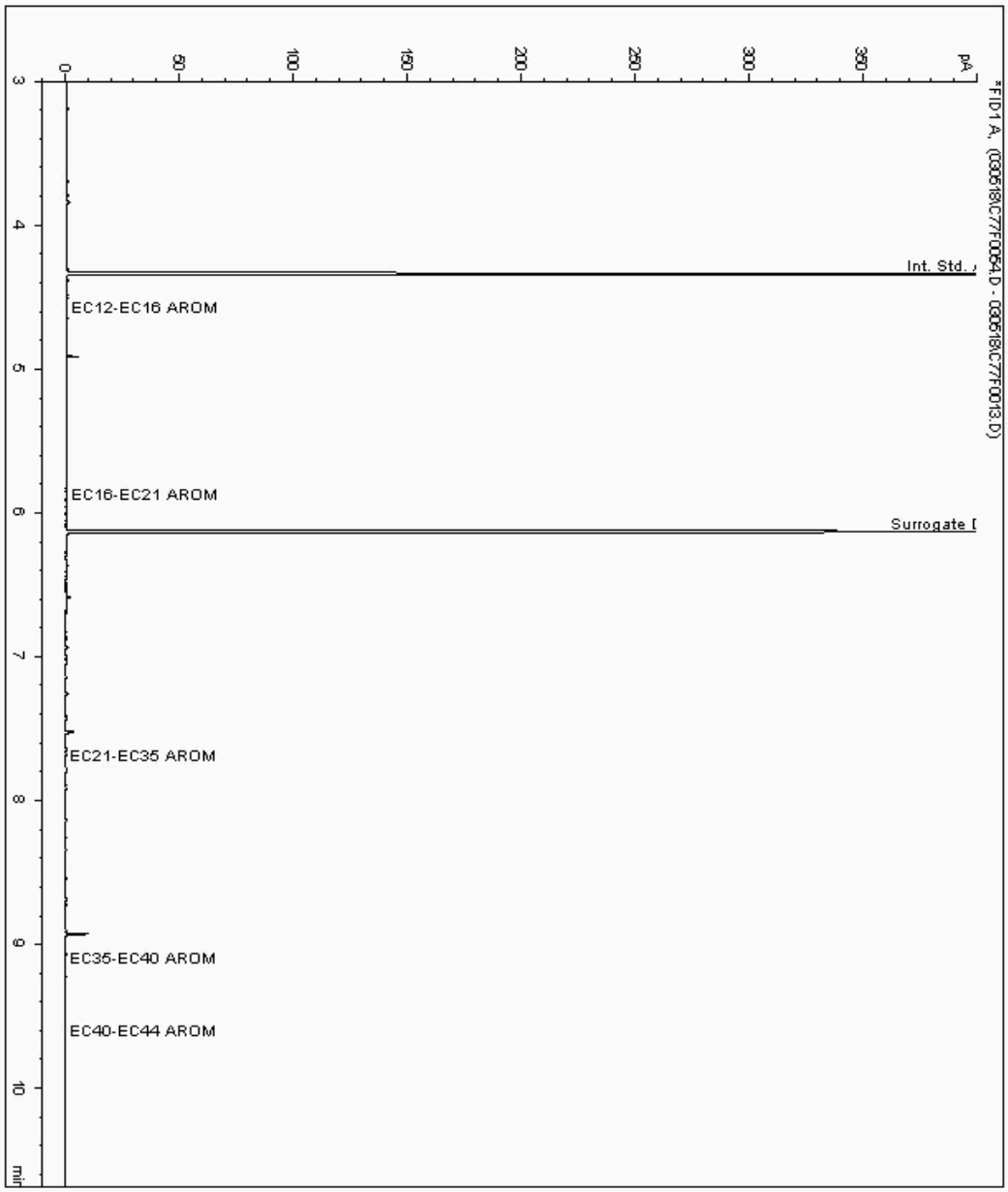


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17123106 **Sample ID :** WS-RPS-18 **Depth :** 0.20 - 0.70

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16065475-
Date Acquired : 06/03/2018 02:33:50 PM
Units : ppb
Dilution:

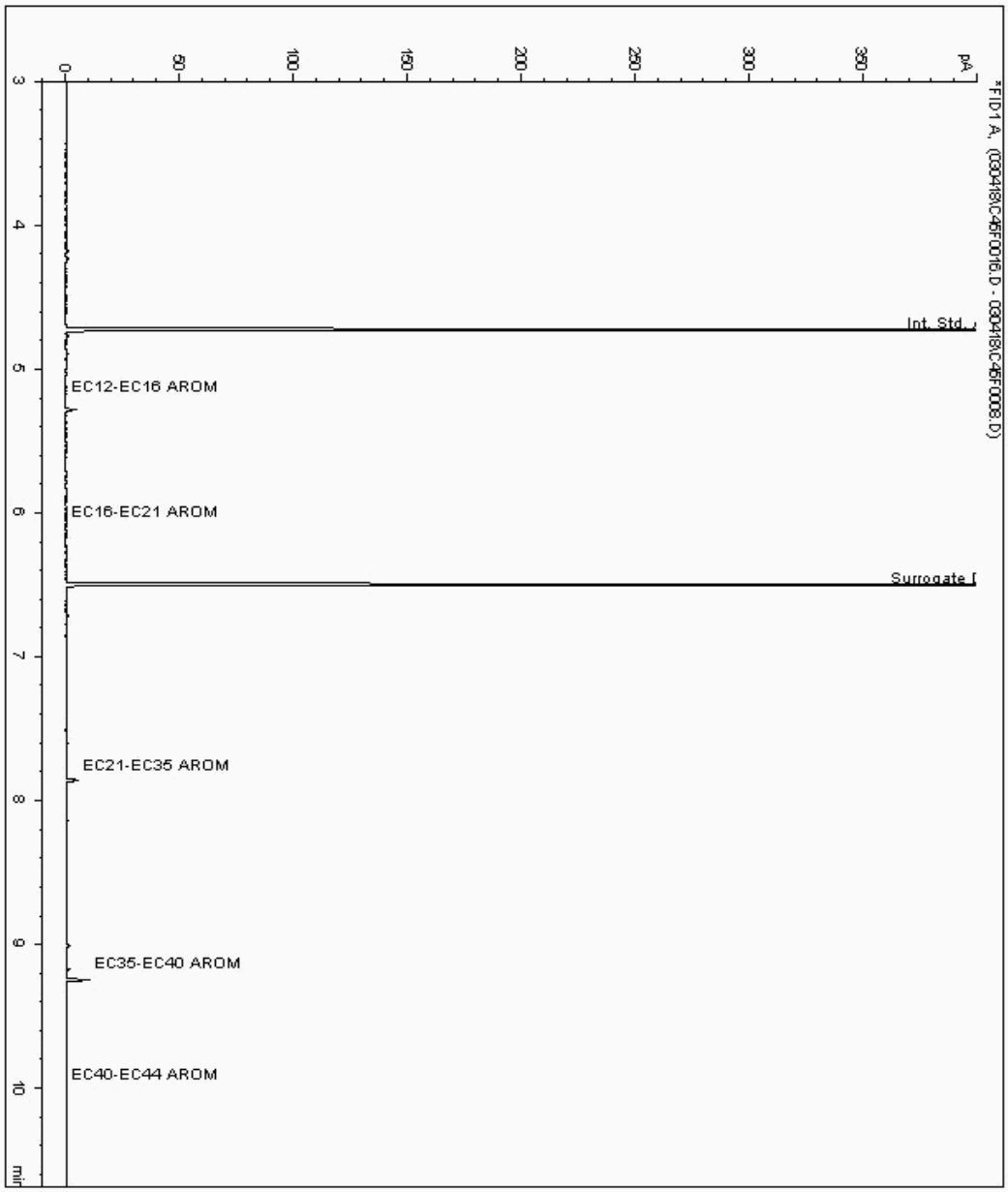


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17123158 **Sample ID :** WS-RPS-19 **Depth :** 0.90 - 1.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16065493-
Date Acquired : 04/03/2018 22:11:32 PM
Units : ppb
Dilution: WS-RPS-19[0.90 - 1.50] ->

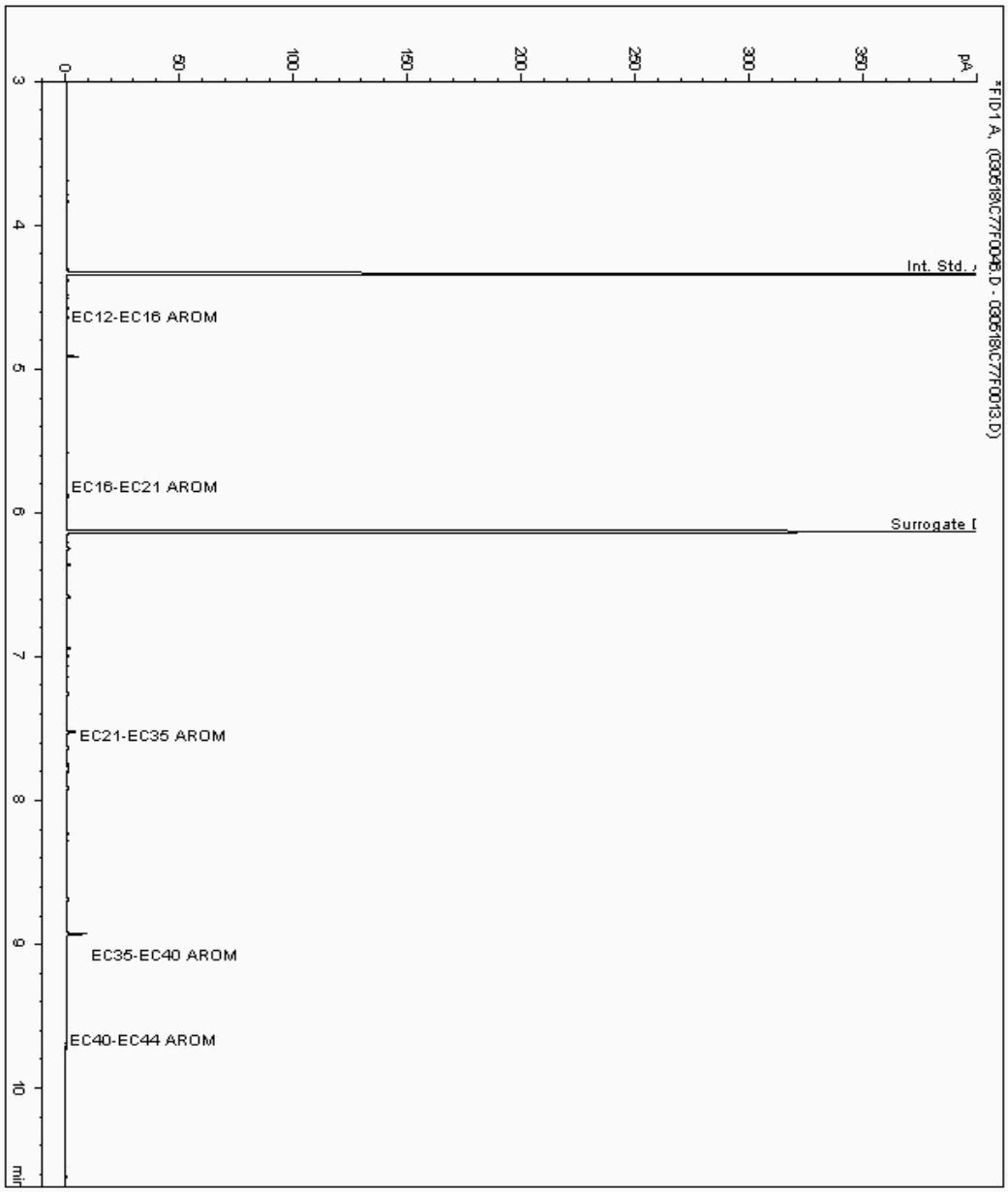


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17123217 **Sample ID :** WS-RPS-17 **Depth :** 0.40 - 0.60

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16065536-
Date Acquired : 06/03/2018 00:16:45 PM
Units : ppb
Dilution:

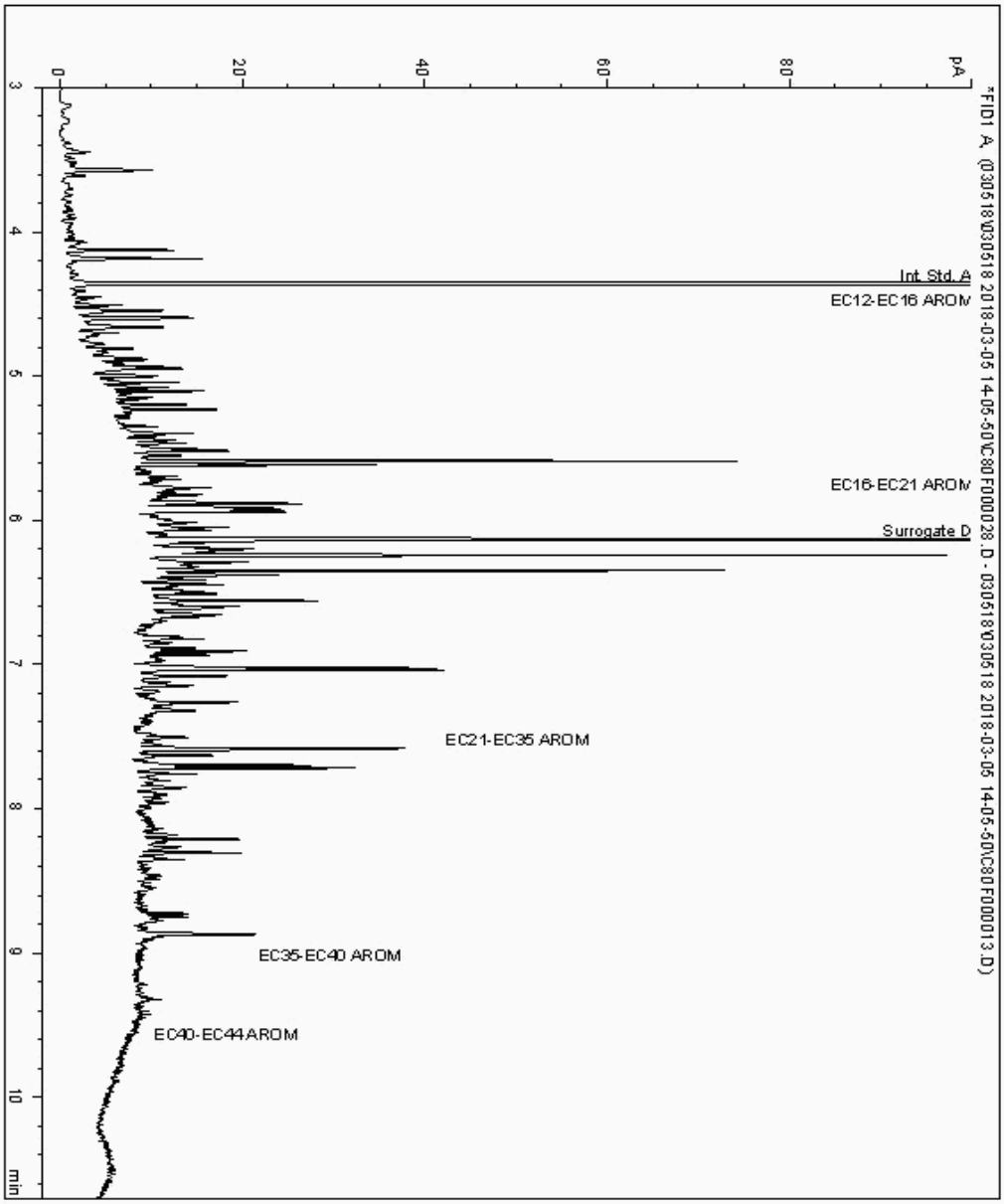


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17125777 **Sample ID :** WS-RPS-09 **Depth :** 0.80

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16065602-
Date Acquired : 05/03/18 21:56:46
Units : ppb
Dilution :
CF : 1
Multiplier : 1.040



CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

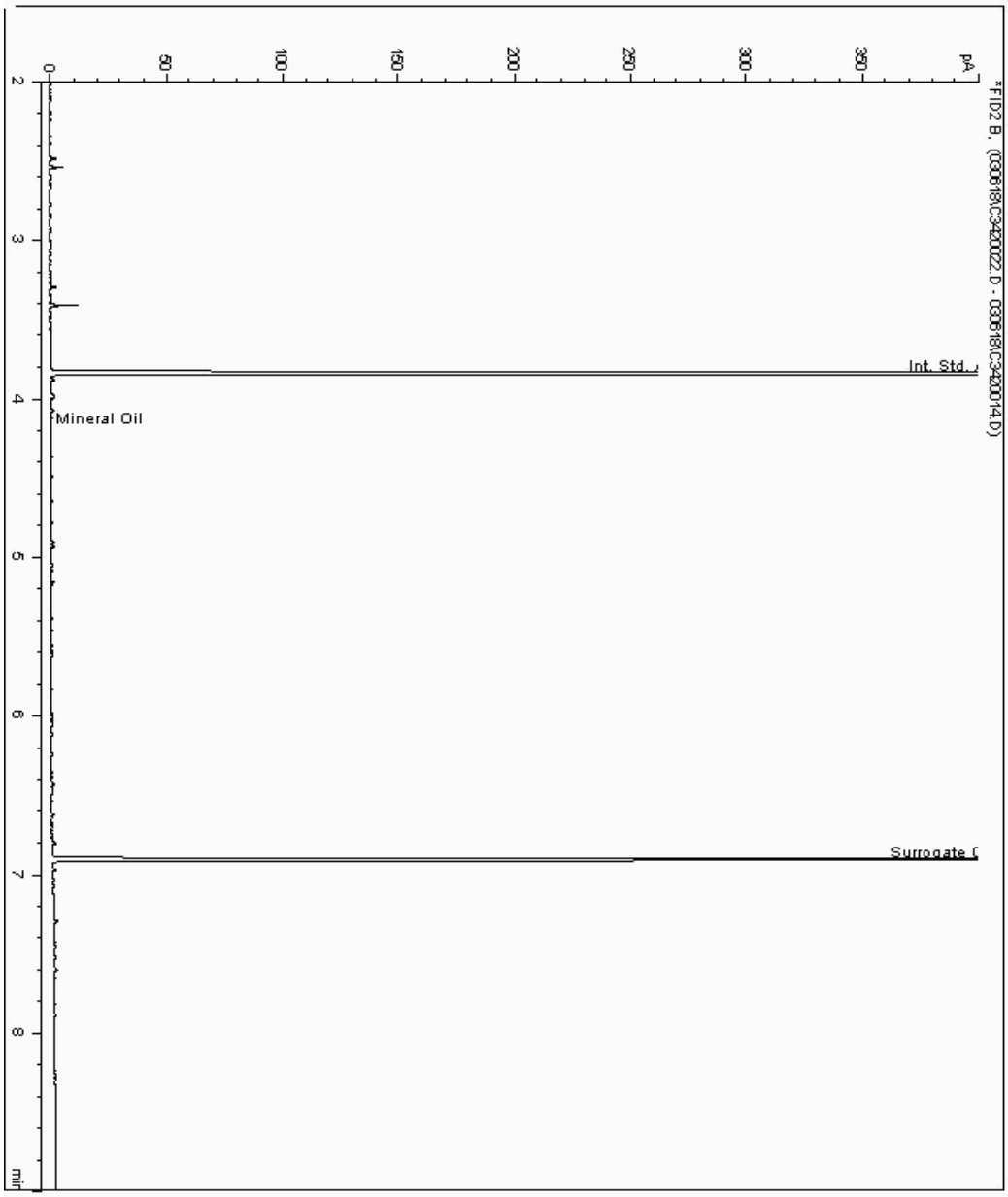
Analysis: Mineral Oil

Sample No : 17125120
Sample ID : CP-RPS-02

Depth : 0.10

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16065665-
Date Acquired : 06/03/2018 14:15:36 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

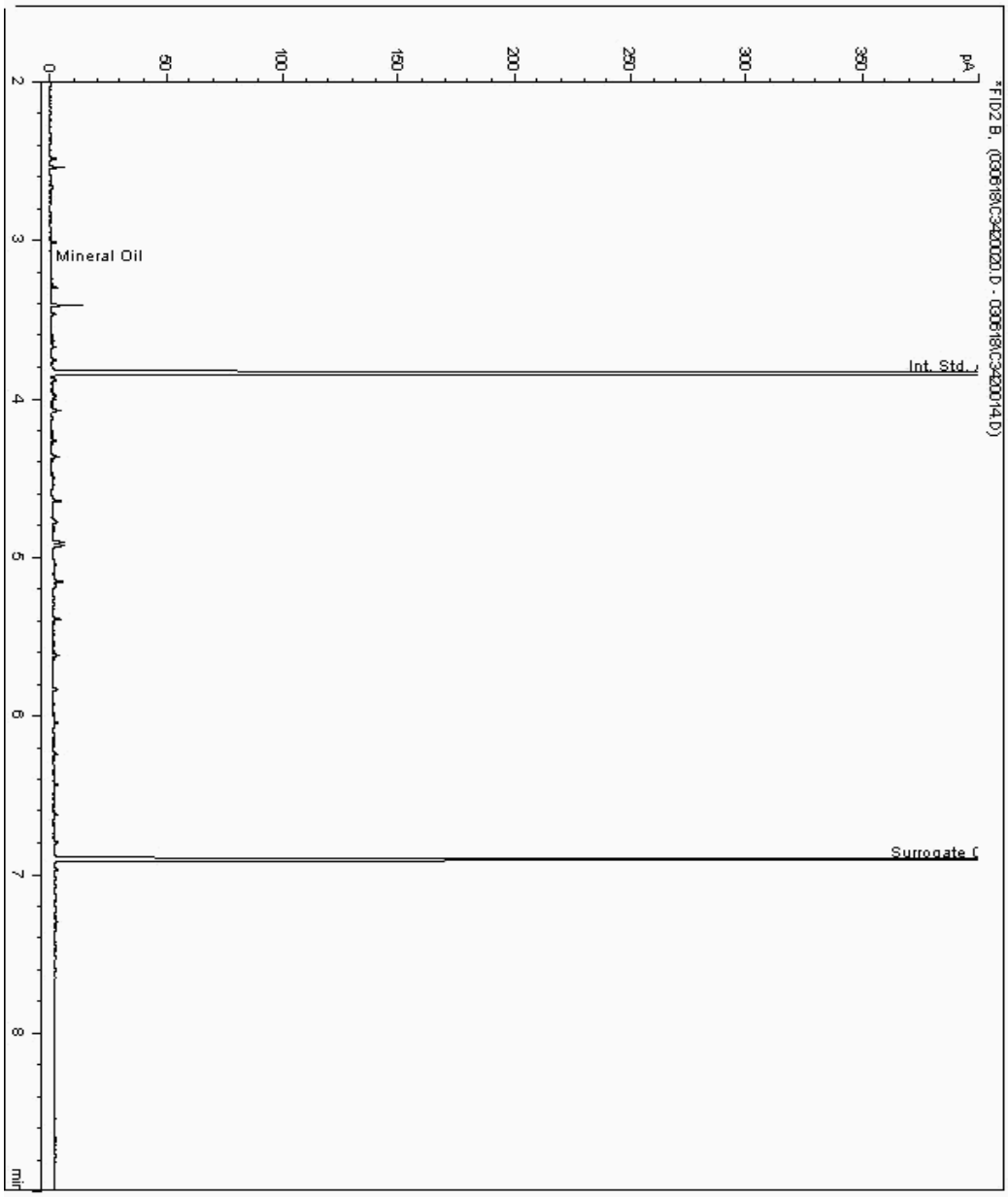
Analysis: Mineral Oil

Sample No : 17125167
Sample ID : CP-RPS-04

Depth : 0.60

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16065632-
Date Acquired : 06/03/2018 13:40:22 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

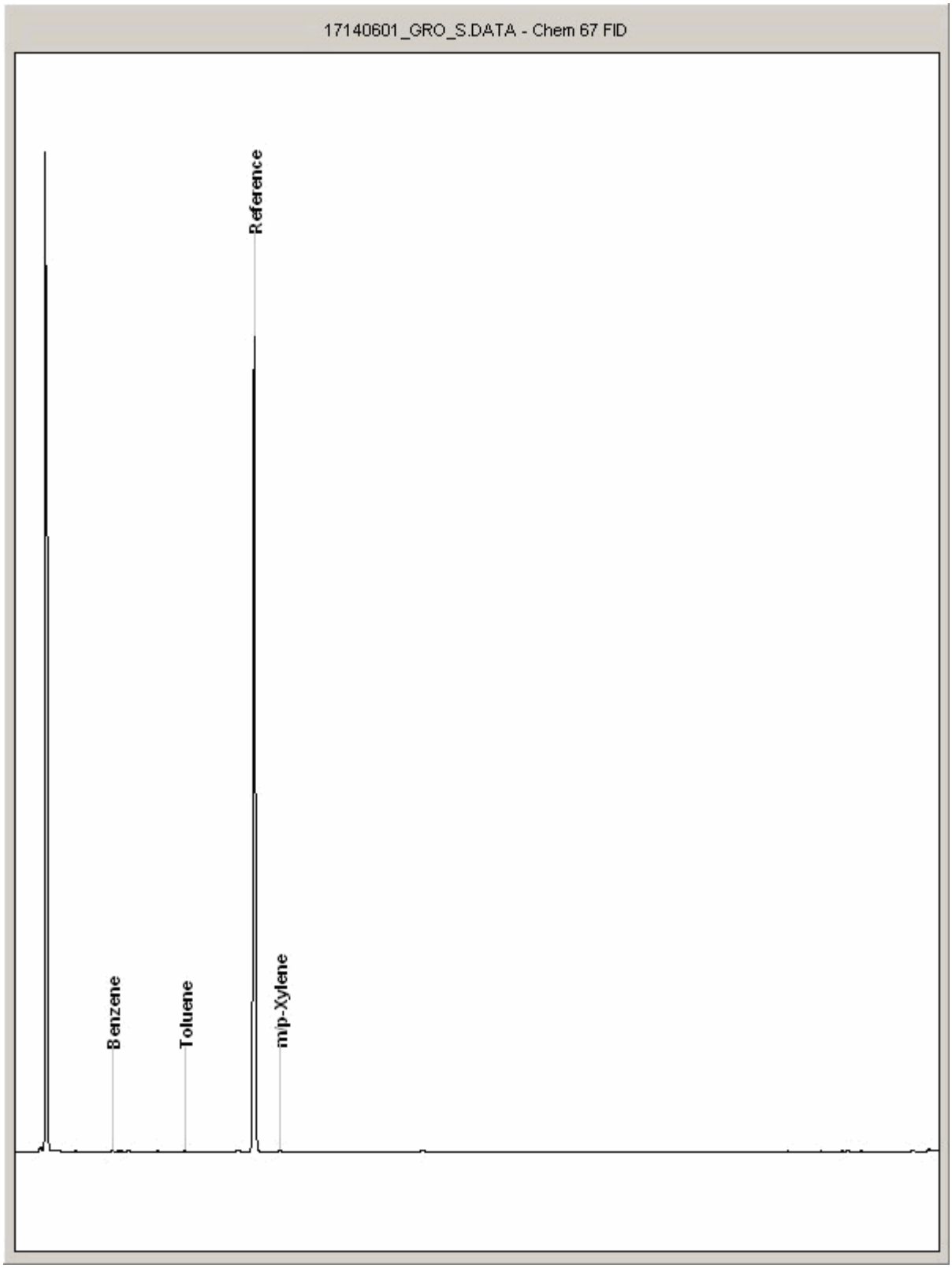
SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17140601
Sample ID : WS-RPS-18

Depth : 0.20 - 0.70



Validated

CERTIFICATE OF ANALYSIS

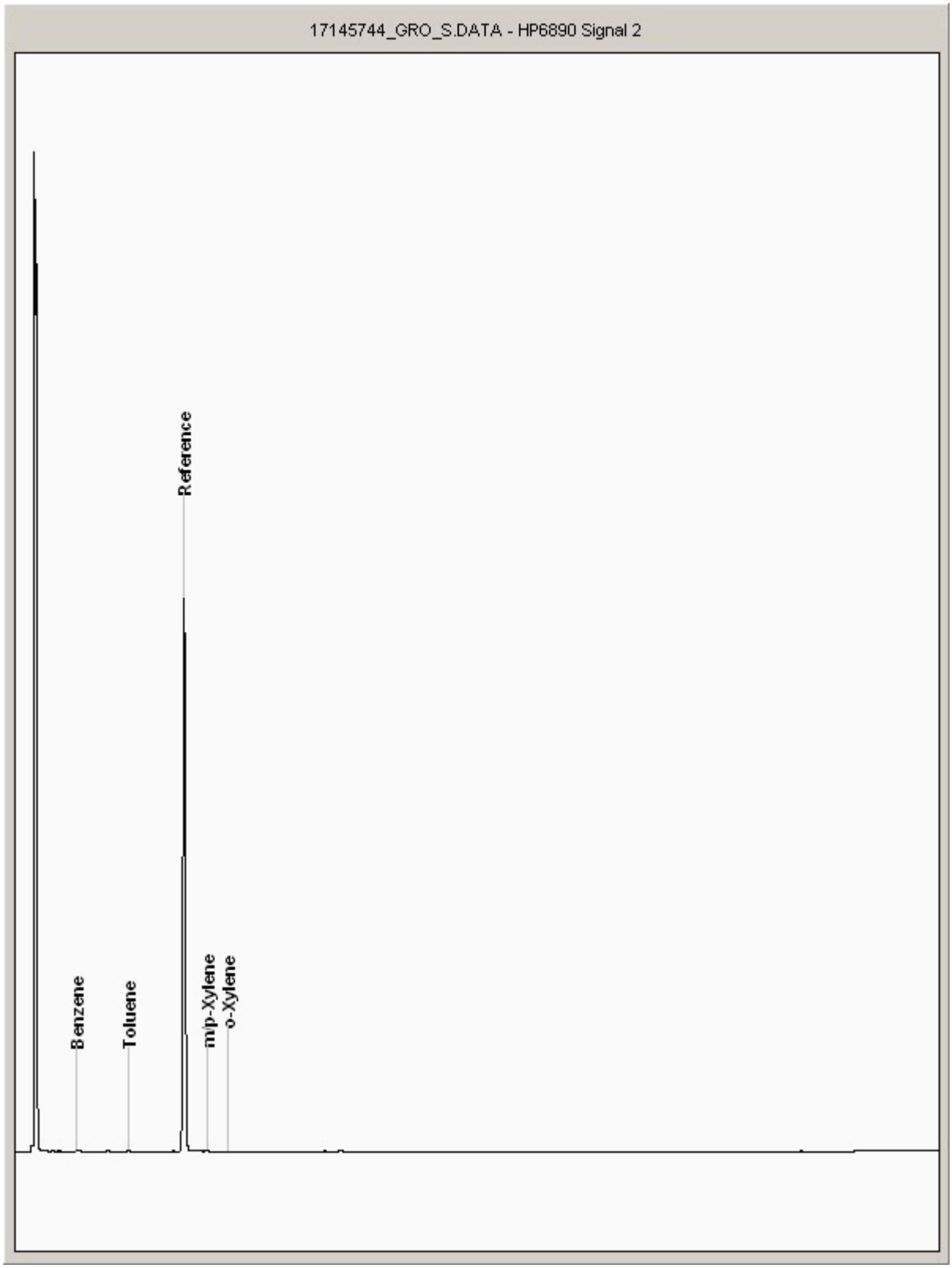
SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17145744
Sample ID : WS-RPS-17

Depth : 0.40 - 0.60



Validated

CERTIFICATE OF ANALYSIS

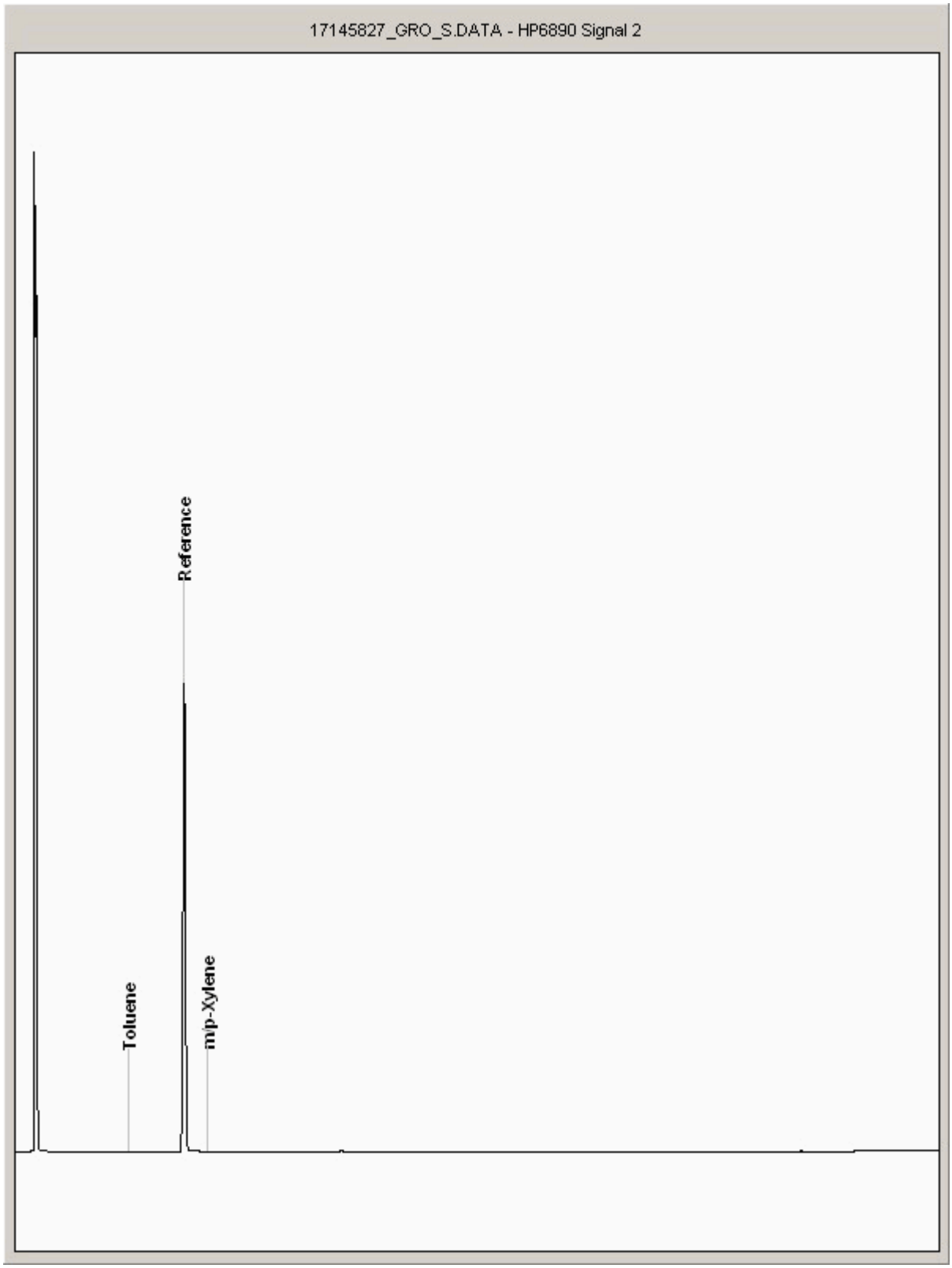
SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17145827
Sample ID : CP-RPS-02

Depth : 0.10



Validated

CERTIFICATE OF ANALYSIS

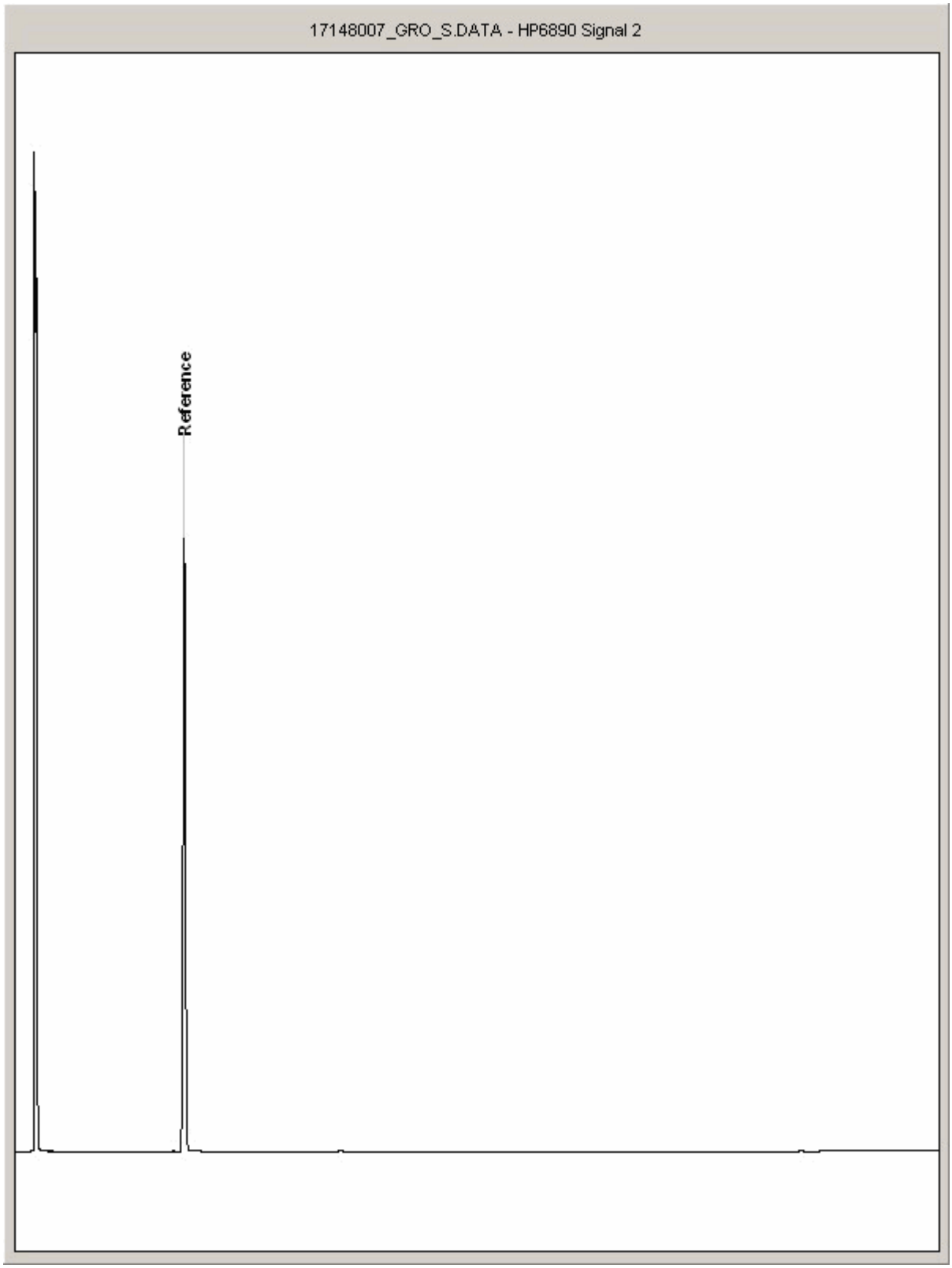
SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148007
Sample ID : WS-RPS-19

Depth : 0.90 - 1.50

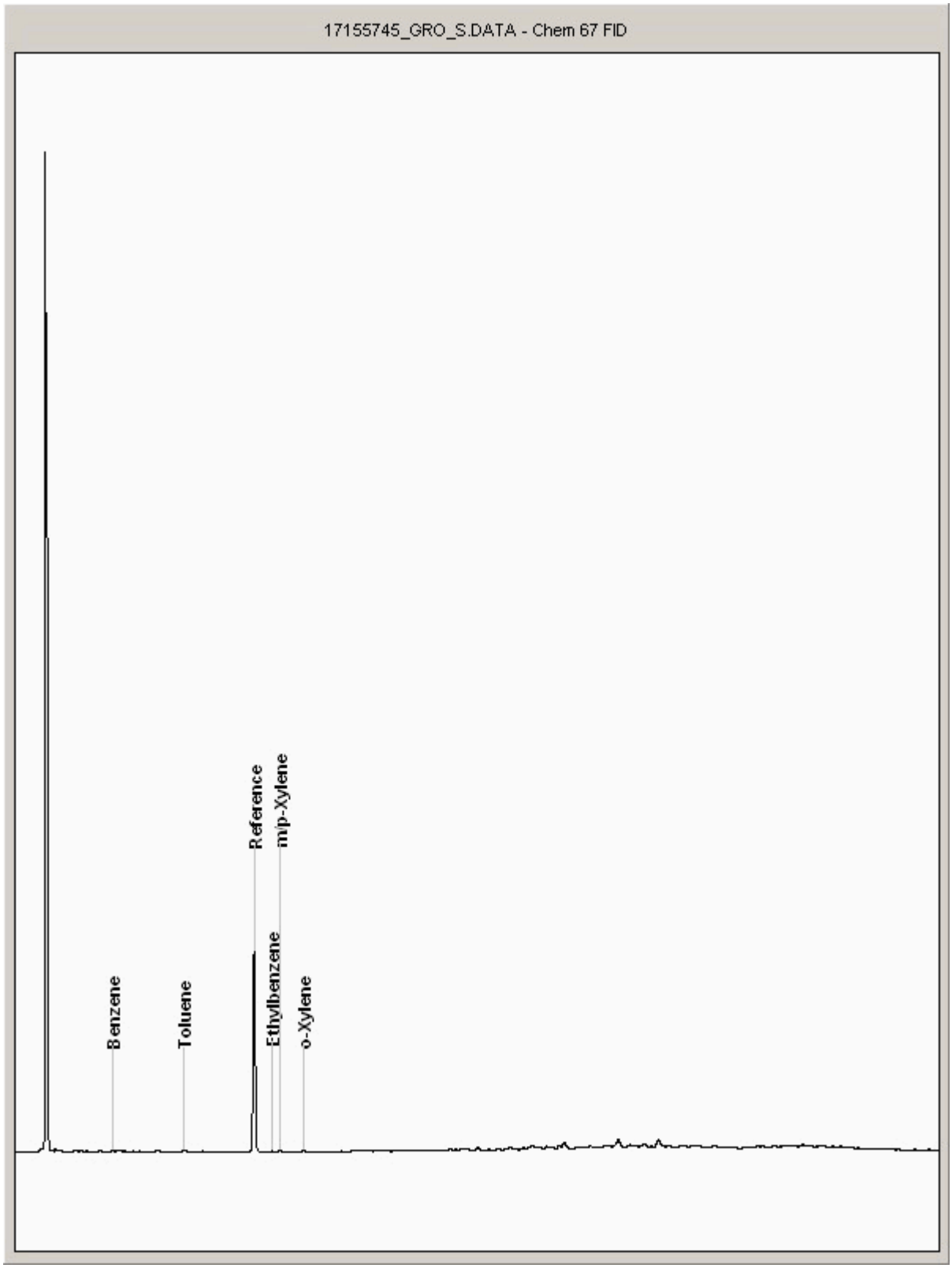


Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17155745
Sample ID : WS-RPS-09

Depth : 0.80



Validated

CERTIFICATE OF ANALYSIS

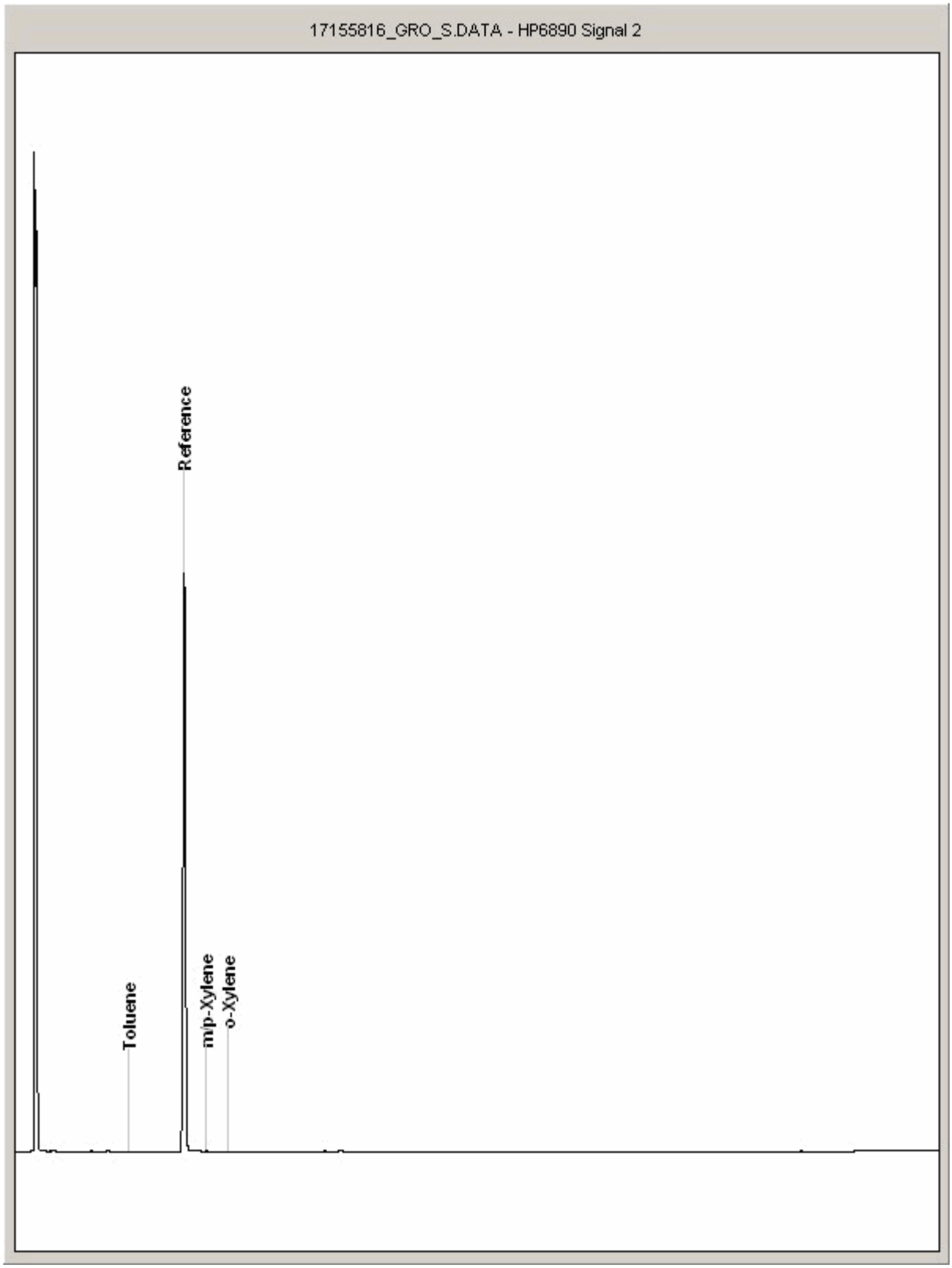
SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17155816
Sample ID : CP-RPS-04

Depth : 0.60



Validated

CERTIFICATE OF ANALYSIS

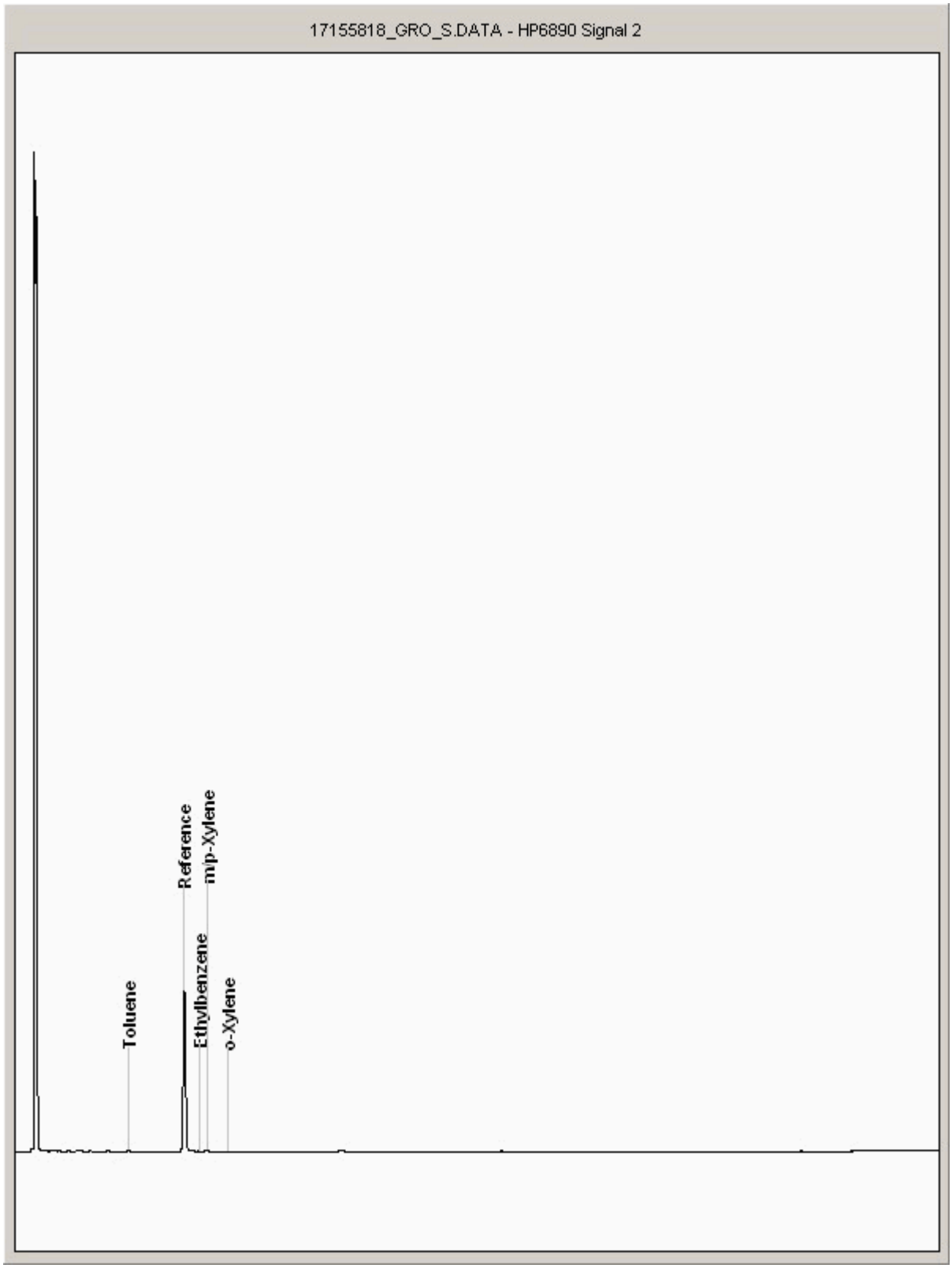
SDG:	180223-72	**Client Reference:**	JER1100	**Report Number:**	448114
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447228

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17155818
Sample ID : WS-RPS-13

Depth : 0.05 - 0.45



Certificate of Analysis

Certificate Number	18-04765
Client	ALS Life Sciences Limited Units 7 & 8 Hawarden Business Park Manor Road Hawarden Deeside CH5 3US
Our Reference	18-04765
Client Reference	180223-72
Order No	(not supplied)
Contract Title	180223-72
Description	7 Soil samples.
Date Received	27-Feb-18
Date Started	27-Feb-18
Date Completed	05-Mar-18
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

05-Mar-18

Approved By

Adam Fenwick
Contracts Manager

UKAS TESTING
2139

Summary of Asbestos Analysis

Soil Samples

Our Ref 18-04765
Client Ref 180223-72
Contract Title 180223-72

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1304193	17119730 CP-RPS-02 0.10	SOIL	NAD	none	Keith Wilson
1304194	17120952 CP-RPS-04 0.60-2.50	SOIL	Amosite	Microscopic Loose Fibrous Asbestos Debris	Keith Wilson
1304195	17119729 WS-RPS-09 0.80-3.60	SOIL	NAD	none	Keith Wilson
1304196	17120997 WS-RPS-13 0.05-0.45	SOIL	Chrysotile	Bundles of Chrysotile fibres	Keith Wilson
1304197	17120989 WS-RPS-17 0.40-0.60	SOIL	NAD	none	Keith Wilson
1304198	17119756 WS-RPS-18 0.20-0.70	SOIL	NAD	none	Keith Wilson
1304199	17120554 WS-RPS-19 0.90-1.50	SOIL	NAD	none	Keith Wilson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 18-04765
Client Ref 180223-72
Contract 180223-72

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1304193	17119730 0.10 SOIL	20/02/18	PT 500ml		
1304194	17120952 0.60-2.50 SOIL	20/02/18	PT 500ml		
1304195	17119729 0.80-3.60 SOIL	19/02/18	PT 500ml		
1304196	17120997 0.05-0.45 SOIL	20/02/18	PT 500ml		
1304197	17120989 0.40-0.60 SOIL	20/02/18	PT 500ml		
1304198	17119756 0.20-0.70 SOIL	20/02/18	PT 500ml		
1304199	17120554 0.90-1.50 SOIL	20/02/18	PT 500ml		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	16 March 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180227-57
Your Reference:	JER1100
Location:	Lostock
Report No:	448446

This report has been revised and directly supersedes 447358 in its entirety.

We received 35 samples on Tuesday February 27, 2018 and 20 of these samples were scheduled for analysis which was completed on Friday March 16, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17128701	BH-RPS-04	ES1	5.60 - 6.00	21/02/2018
17128710	BH-RPS-04	ES1	7.80 - 8.40	21/02/2018
17128556	BH-RPS-09	ES1	0.20 - 0.65	20/02/2018
17128653	BH-RPS-09	ES1	0.65 - 1.00	20/02/2018
17128826	BH-RPS-09	ES1	1.30 - 1.50	21/02/2018
17128834	BH-RPS-09	ES1	1.82 - 2.22	21/02/2018
17128843	BH-RPS-09	ES1	3.50 - 4.00	21/02/2018
17128759	BH-RPS-09	ES1	5.50 - 6.00	21/02/2018
17128638	CP-RPS-02	ES1	2.50	21/02/2018
17128645	CP-RPS-02	ES1	4.00	21/02/2018
17128661	CP-RPS-02	ES1	6.50	21/02/2018
17128810	CP-RPS-05	ES1	0.50	22/02/2018
17128668	CP-RPS-06	ES1	0.30	21/02/2018
17128679	CP-RPS-06	ES1	0.70 - 1.20	21/02/2018
17128691	CP-RPS-06	ES1	2.70	21/02/2018
17128818	CP-RPS-06	ES1	5.00	22/02/2018
17128773	WS-RPS-08	ES1	0.20 - 0.50	22/02/2018
17128782	WS-RPS-08	ES1	0.50 - 0.90	22/02/2018
17128739	WS-RPS-16	ES1	0.50	22/02/2018
17128750	WS-RPS-16	ES2	0.50	22/02/2018
17128866	WS-RPS-23	ES1	0.00 - 0.40	21/02/2018
17128851	WS-RPS-23	ES1	0.70 - 1.00	21/02/2018
17128859	WS-RPS-23	ES1	2.00 - 2.50	21/02/2018
17128597	WS-RPS-24	ES1	0.50	21/02/2018
17128606	WS-RPS-24	ES1	1.00	21/02/2018
17128616	WS-RPS-24	ES1	2.60 - 3.00	21/02/2018
17128730	WS-RPS-25	ES1	0.20 - 0.60	22/02/2018
17128719	WS-RPS-25	ES1	0.35 - 0.50	22/02/2018
17128587	WS-RPS-28	ES1	0.20	21/02/2018
17128790	WS-RPS-29	ES1	0.25 - 0.60	22/02/2018
17128797	WS-RPS-29	ES1	0.60 - 0.90	22/02/2018
17128564	WS-RPS-30	ES1	0.00 - 0.30	21/02/2018
17128572	WS-RPS-30	ES1	0.38 - 0.49	21/02/2018
17128579	WS-RPS-30	ES1	0.50 - 0.80	21/02/2018
17128629	WS-RPS-30	ES1	1.40 - 2.00	21/02/2018

Maximum Sample/Coolbox Temperature (°C) : **6.6**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17128710		17128556			17128826			17128810			17128679			17128773			17128739	17128750	
Customer Sample Reference			BH-RPS-04		BH-RPS-09			BH-RPS-09			CP-RPS-05			CP-RPS-06			WS-RPS-08			WS-RPS-16	WS-RPS-16	
AGS Reference			ES1		ES1			ES1			ES1			ES1			ES1			ES1	ES2	
Depth (m)			7.80 - 8.40		0.20 - 0.65			1.30 - 1.50			0.50			0.70 - 1.20			0.20 - 0.50			0.50	0.50	
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	400g Tub (ALE214)	250g Amber Jar (ALE210)	400g Tub (ALE214)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 7									X			X							X	
Anions by Kone (w)	All	NDPs: 0 Tests: 7										X			X							X
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 17			X				X			X			X			X		X		X
Asbestos Quantification - Full	All	NDPs: 0 Tests: 9																X		X		X
CEN Readings	All	NDPs: 0 Tests: 7										X			X							X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 7										X			X							X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 7										X			X							X
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 17	X			X		X			X			X			X				X	
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 17	X			X		X			X			X			X				X	
Fluoride	All	NDPs: 0 Tests: 7										X			X							X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 17		X			X			X			X			X			X			
Loss on Ignition in soils	All	NDPs: 3 Tests: 4									X			X							N	
Mercury Dissolved	All	NDPs: 0 Tests: 7										X			X							X
Metals in solid samples by OES	All	NDPs: 0 Tests: 17	X			X		X			X			X			X				X	
Mineral Oil	All	NDPs: 0 Tests: 7									X			X							X	

17128587	WS-RPS-28	ES1	0.20	60g VOC (ALE215)	S												X					
				400g Tub (ALE214)	S			X	X													
				250g Amber Jar (ALE210)	S									X	X					X		
17128719	WS-RPS-25	ES1	0.35 - 0.50	60g VOC (ALE215)	S												X					
				400g Tub (ALE214)	S		X	X	X	X	X	X				X			X			
				250g Amber Jar (ALE210)	S	X								X	X			N		X		X
17128616	WS-RPS-24	ES1	2.60 - 3.00	60g VOC (ALE215)	S												X					
				400g Tub (ALE214)	S			X														
				250g Amber Jar (ALE210)	S									X	X					X		
17128597	WS-RPS-24	ES1	0.50	60g VOC (ALE215)	S												X					
				400g Tub (ALE214)	S		X	X	X	X	X	X				X			X			
				250g Amber Jar (ALE210)	S	X								X	X			N		X		X
17128859	WS-RPS-23	ES1	2.00 - 2.50	250g Amber Jar (ALE210)	S																	
17128851	WS-RPS-23	ES1	0.70 - 1.00	60g VOC (ALE215)	S												X					
				250g Amber Jar (ALE210)	S									X	X					X		
				1kg TUB	S			X														
17128866	WS-RPS-23	ES1	0.00 - 0.40	60g VOC (ALE215)	S												X					
				250g Amber Jar (ALE210)	S									X	X					X		
				1kg TUB	S			X	X													
17128750	WS-RPS-16	ES2	0.50	60g VOC (ALE215)	S												X					

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
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TS - Treated Sewage
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RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17128710		17128556			17128826			17128810			17128679			17128773			17128739	17128750	
Customer Sample Reference			BH-RPS-04		BH-RPS-09			BH-RPS-09			CP-RPS-05			CP-RPS-06			WS-RPS-08			WS-RPS-16	WS-RPS-16	
AGS Reference			ES1		ES1			ES1			ES1			ES1			ES1			ES1	ES2	
Depth (m)			7.80 - 8.40		0.20 - 0.65			1.30 - 1.50			0.50			0.70 - 1.20			0.20 - 0.50			0.50	0.50	
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	400g Tub (ALE214)	250g Amber Jar (ALE210)	400g Tub (ALE214)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
PAH by GCMS	All	NDPs: 0 Tests: 16	X			X		X			X			X			X				X	
PCBs by GCMS	All	NDPs: 0 Tests: 11				X					X			X			X				X	
pH	All	NDPs: 0 Tests: 19	X			X		X			X			X			X				X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 2															X					
Phenols by HPLC (W)	All	NDPs: 0 Tests: 7										X			X							X
Sample description	All	NDPs: 0 Tests: 19	X			X		X			X			X			X				X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 8				X								X			X				X	
Total Dissolved Solids	All	NDPs: 0 Tests: 7										X			X							X
Total Organic Carbon	All	NDPs: 0 Tests: 8				X					X			X							X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 17	X			X		X			X			X			X				X	
VOC MS (S)	All	NDPs: 0 Tests: 8					X									X			X			

17128587	WS-RPS-28	ES1	0.20	60g VOC (ALE215)	S											
				400g Tub (ALE214)	S											
				250g Amber Jar (ALE210)	S	X		X			X				X	
17128719	WS-RPS-25	ES1	0.35 - 0.50	60g VOC (ALE215)	S											X
				400g Tub (ALE214)	S					X			X			
				250g Amber Jar (ALE210)	S	X	X	X			X	X		X	X	
17128616	WS-RPS-24	ES1	2.60 - 3.00	60g VOC (ALE215)	S											X
				400g Tub (ALE214)	S											
				250g Amber Jar (ALE210)	S		X	X			X	X			X	
17128597	WS-RPS-24	ES1	0.50	60g VOC (ALE215)	S											
				400g Tub (ALE214)	S					X			X			
				250g Amber Jar (ALE210)	S	X	X	X			X			X	X	
17128859	WS-RPS-23	ES1	2.00 - 2.50	250g Amber Jar (ALE210)	S			X			X					
17128851	WS-RPS-23	ES1	0.70 - 1.00	60g VOC (ALE215)	S											
				250g Amber Jar (ALE210)	S	X		X			X				X	
				1kg TUB	S											
17128866	WS-RPS-23	ES1	0.00 - 0.40	60g VOC (ALE215)	S											
				250g Amber Jar (ALE210)	S	X		X			X				X	
				1kg TUB	S											
17128750	WS-RPS-16	ES2	0.50	60g VOC (ALE215)	S											X

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
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TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
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UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17128790			17128797			17128564			17128579			17128629
Customer Sample Reference			WS-RPS-29			WS-RPS-29			WS-RPS-30			WS-RPS-30			WS-RPS-30
AGS Reference			ES1			ES1			ES1			ES1			ES1
Depth (m)			0.25 - 0.80			0.60 - 0.90			0.00 - 0.30			0.50 - 0.80			1.40 - 2.00
Container			250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 7	X							X					
Anions by Kone (w)	All	NDPs: 0 Tests: 7		X					X						
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 17		X			X		X			X			
Asbestos Quantification - Full	All	NDPs: 0 Tests: 9					X					X			
CEN Readings	All	NDPs: 0 Tests: 7		X					X						
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 7		X					X						
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 7		X					X						
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 17	X			X				X			X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 17	X			X				X			X		
Fluoride	All	NDPs: 0 Tests: 7		X					X						
GRO by GC-FID (S)	All	NDPs: 0 Tests: 17			X			X			X			X	
Loss on Ignition in soils	All	NDPs: 3 Tests: 4	X							X					
Mercury Dissolved	All	NDPs: 0 Tests: 7		X					X						
Metals in solid samples by OES	All	NDPs: 0 Tests: 17	X			X				X			X		
Mineral Oil	All	NDPs: 0 Tests: 7	X							X					

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
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TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17128790			17128797			17128564			17128579			17128629
Customer Sample Reference			WS-RPS-29			WS-RPS-29			WS-RPS-30			WS-RPS-30			WS-RPS-30
AGS Reference			ES1			ES1			ES1			ES1			ES1
Depth (m)			0.25 - 0.80			0.60 - 0.90			0.00 - 0.30			0.50 - 0.80			1.40 - 2.00
Container			250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S
PAH by GCMS	All	NDPs: 0 Tests: 16	X			X				X			X		
PCBs by GCMS	All	NDPs: 0 Tests: 11	X			X				X					
pH	All	NDPs: 0 Tests: 19	X			X				X			X		X
Phenols by HPLC (S)	All	NDPs: 0 Tests: 2								X					
Phenols by HPLC (W)	All	NDPs: 0 Tests: 7		X					X						
Sample description	All	NDPs: 0 Tests: 19	X			X				X			X		X
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 8				X				X					
Total Dissolved Solids	All	NDPs: 0 Tests: 7		X					X						
Total Organic Carbon	All	NDPs: 0 Tests: 8	X							X					
TPH CWG GC (S)	All	NDPs: 0 Tests: 17	X			X				X			X		
VOC MS (S)	All	NDPs: 0 Tests: 8						X			X				

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17128710	BH-RPS-04	7.80 - 8.40	Dark Brown	Sandy Clay	Stones	None
17128556	BH-RPS-09	0.20 - 0.65	Light Brown	Sandy Loam	Stones	None
17128826	BH-RPS-09	1.30 - 1.50	Cream	Silt Loam	None	None
17128810	CP-RPS-05	0.50	Black	Loamy Sand	Stones	Crushed Brick
17128679	CP-RPS-06	0.70 - 1.20	Dark Brown	Sandy Loam	None	None
17128773	WS-RPS-08	0.20 - 0.50	Black	Loamy Sand	Stones	Brick
17128750	WS-RPS-16	0.50	Dark Brown	Loamy Sand	Stones	Brick
17128851	WS-RPS-23	0.70 - 1.00	Light Brown	Sandy Loam	Stones	None
17128859	WS-RPS-23	2.00 - 2.50	Cream	Silt Loam	Coal fragments	Stones
17128866	WS-RPS-23	0.00 - 0.40	Black	Sand	Stones	Brick
17128597	WS-RPS-24	0.50	Black	Loamy Sand	Stones	Crushed Brick
17128616	WS-RPS-24	2.60 - 3.00	Dark Brown	Clay Loam	Oil/Petroleum	None
17128719	WS-RPS-25	0.35 - 0.50	Dark Brown	Sandy Loam	Stones	Vegetation
17128587	WS-RPS-28	0.20	Black	Loamy Sand	Stones	Crushed Brick
17128790	WS-RPS-29	0.25 - 0.60	Dark Brown	Loamy Sand	Stones	None
17128797	WS-RPS-29	0.60 - 0.90	Dark Brown	Loamy Sand	Stones	Crushed Brick
17128564	WS-RPS-30	0.00 - 0.30	Dark Brown	Loamy Sand	Stones	None
17128579	WS-RPS-30	0.50 - 0.80	Dark Brown	Loamy Sand	Stones	Brick
17128629	WS-RPS-30	1.40 - 2.00	Cream	Silt Loam	Stones	N/A

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	BH-RPS-09	BH-RPS-09	CP-RPS-05	CP-RPS-06	WS-RPS-08
Depth (m)			7.80 - 8.40	0.20 - 0.65	1.30 - 1.50	0.50	0.70 - 1.20	0.20 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			21/02/2018	20/02/2018	21/02/2018	22/02/2018	21/02/2018	22/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128710	17128556	17128826	17128810	17128679	17128773
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	8.4	3.4	63	18	21	18
Loss on ignition	<0.7 %	TM018				19.1 M	6.09 M	
Mineral oil >C10-C40	<1 mg/kg	TM061				39.2	40.6	
Mineral Oil Surrogate % recovery**	%	TM061				99.1	99.7	
Phenol	<0.01 mg/kg	TM062 (S)						<0.01 M
Cresols	<0.01 mg/kg	TM062 (S)						0.0122 M
Xylenols	<0.015 mg/kg	TM062 (S)						<0.015 M
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)						<0.01 M
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)						<0.015 M
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)						<0.06 M
Organic Carbon, Total	<0.2 %	TM132				13.3 M	2.94 M	
Soil Organic Matter (SOM)	<0.35 %	TM132		0.54 #		22.9 #	5.07 #	
pH	1 pH Units	TM133	8.15 M	10.6 M	11.8 M	8.62 M	8.36 M	8.82 M
PCB congener 28	<3 µg/kg	TM168				<3 M	<3 M	
PCB congener 52	<3 µg/kg	TM168				<3 M	<3 M	
PCB congener 101	<3 µg/kg	TM168				<3 M	<3 M	
PCB congener 118	<3 µg/kg	TM168		<3 M		<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168				<3 M	<3 M	
PCB congener 153	<3 µg/kg	TM168				<3 M	<3 M	
PCB congener 180	<3 µg/kg	TM168				<3 M	<3 M	
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168				<21	<21	
PCB congener 81	<3 µg/kg	TM168		<3 M			<3 M	<3 M
PCB congener 77	<3 µg/kg	TM168		<3 M			<3 M	<3 M
PCB congener 123	<3 µg/kg	TM168		<3 M			<3 M	<3 M
PCB congener 114	<3 µg/kg	TM168		<3 M			<3 M	<3 M
PCB congener 105	<3 µg/kg	TM168		<3 M			<3 M	<3 M
PCB congener 126	<3 µg/kg	TM168		<3 M			<3 M	<3 M
PCB congener 167	<3 µg/kg	TM168		<3 M			<3 M	<3 M
PCB congener 156	<3 µg/kg	TM168		<3 M			<3 M	<3 M
PCB congener 157	<3 µg/kg	TM168		<3 M			<3 M	<3 M
PCB congener 169	<3 µg/kg	TM168		<3 M			<3 M	<3 M
PCB congener 189	<3 µg/kg	TM168		<3 M			<3 M	<3 M

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	BH-RPS-09	BH-RPS-09	CP-RPS-05	CP-RPS-06	WS-RPS-08
Depth (m)			7.80 - 8.40	0.20 - 0.65	1.30 - 1.50	0.50	0.70 - 1.20	0.20 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			21/02/2018	20/02/2018	21/02/2018	22/02/2018	21/02/2018	22/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128710	17128556	17128826	17128810	17128679	17128773
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168		<36			<36	<36
Antimony	<0.6 mg/kg	TM181	<0.6 #	<0.6 #	0.961 #	7.46 #	0.804 #	1.96 #
Arsenic	<0.6 mg/kg	TM181	5.02 M	1.2 M	11.5 M	1130 M	8.66 M	42.7 M
Cadmium	<0.02 mg/kg	TM181	<0.02 M	1.08 M	1.19 M	0.323 M	0.304 M	0.0676 M
Chromium	<0.9 mg/kg	TM181	14.1 M	3.27 M	40.5 M	2.54 M	9.35 M	6.22 M
Cobalt	<0.1 mg/kg	TM181	6.77 M	1.55 M	6.62 M	12.2 M	4.12 M	17.1 M
Copper	<1.4 mg/kg	TM181	14.2 M	4.14 M	28 M	83.4 M	19.2 M	94.2 M
Lead	<0.7 mg/kg	TM181	6.47 M	22.6 M	49.6 M	233 M	33.4 M	69 M
Manganese	<0.13 mg/kg	TM181	392 M	107 M	587 M	895 M	125 M	506 M
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	<0.14 M	0.21 M	<0.14 M	2.3 M
Molybdenum	<0.1 mg/kg	TM181	0.497 #	0.254 #	0.734 #	4.32 #	1.24 #	6.1 #
Nickel	<0.2 mg/kg	TM181	19.1 M	4.55 M	20.6 M	31 M	12.8 M	52 M
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	7.75 #	<1 #	<1 #
Tin	<0.24 mg/kg	TM181	0.653 #	0.258 #	1.4 #	4.07 #	2.05 #	5.23 #
Thallium	<0.7 mg/kg	TM181	1.02 #	<0.7 #	<0.7 #	1.44 #	<0.7 #	1.03 #
Vanadium	<0.2 mg/kg	TM181	21.1 #	3.72 #	53.3 #	40.5 #	16.5 #	47.6 #
Zinc	<1.9 mg/kg	TM181	34.2 M	28.1 M	63.2 M	62.9 M	44.4 M	114 M
ANC @ pH 4	<0.03 mol/kg	TM182				0.178	0.171	
ANC @ pH 6	<0.03 mol/kg	TM182				0.0549	0.0634	
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304						0.0203 #
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304						0.0014 #
Additional Asbestos Components (Using TM048)		TM304						Crocidolite #
Analysts Comments		TM304						ACM fragments in soil
Asbestos Quantification - Total - %	<0.001 %	TM304						0.0217 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-16	WS-RPS-16	WS-RPS-23	WS-RPS-23	WS-RPS-23	WS-RPS-24
Depth (m)			0.50	0.50	0.00 - 0.40	0.70 - 1.00	2.00 - 2.50	0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			22/02/2018	22/02/2018	21/02/2018	21/02/2018	21/02/2018	21/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128739	17128750	17128866	17128851	17128859	17128597
AGS Reference			ES1	ES2	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024		16	7.4	26	50	9.7
Mineral oil >C10-C40	<1 mg/kg	TM061		109				305
Mineral Oil Surrogate % recovery**	%	TM061		100				83.9
Organic Carbon, Total	<0.2 %	TM132		19.7 M				22.9 M
pH	1 pH Units	TM133		8.51 M	8.95 M	10.3 M	12.8 M	8.74 M
PCB congener 28	<3 µg/kg	TM168		<3 M				<30 M
PCB congener 52	<3 µg/kg	TM168		<3 M				<30 M
PCB congener 101	<3 µg/kg	TM168		<3 M				<30 M
PCB congener 118	<3 µg/kg	TM168		<3 M				<30 M
PCB congener 138	<3 µg/kg	TM168		<3 M				<30 M
PCB congener 153	<3 µg/kg	TM168		<3 M				<30 M
PCB congener 180	<3 µg/kg	TM168		<3 M				<30 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21				<210
PCB congener 81	<3 µg/kg	TM168		<3 M				
PCB congener 77	<3 µg/kg	TM168		<3 M				
PCB congener 123	<3 µg/kg	TM168		<3 M				
PCB congener 114	<3 µg/kg	TM168		<3 M				
PCB congener 105	<3 µg/kg	TM168		<3 M				
PCB congener 126	<3 µg/kg	TM168		<3 M				
PCB congener 167	<3 µg/kg	TM168		<3 M				
PCB congener 156	<3 µg/kg	TM168		<3 M				
PCB congener 157	<3 µg/kg	TM168		<3 M				
PCB congener 169	<3 µg/kg	TM168		<3 M				
PCB congener 189	<3 µg/kg	TM168		<3 M				
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168		<36				
Antimony	<0.6 mg/kg	TM181		1.67 #	0.623 #	4.77 #		1.04 #
Arsenic	<0.6 mg/kg	TM181		16.4 M	19.1 M	94.6 M		24.8 M
Cadmium	<0.02 mg/kg	TM181		6.89 M	0.0992 M	0.233 M		0.493 M
Chromium	<0.9 mg/kg	TM181		8.75 M	18.9 M	10.9 M		10.3 M
Cobalt	<0.1 mg/kg	TM181		11.4 M	19.6 M	16.2 M		15.7 M
Copper	<1.4 mg/kg	TM181		60.8 M	56.5 M	66.5 M		51 M
Lead	<0.7 mg/kg	TM181		272 M	38.6 M	42.3 M		61.3 M

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-16	WS-RPS-16	WS-RPS-23	WS-RPS-23	WS-RPS-23	WS-RPS-24
Depth (m)			0.50	0.50	0.00 - 0.40	0.70 - 1.00	2.00 - 2.50	0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			22/02/2018	22/02/2018	21/02/2018	21/02/2018	21/02/2018	21/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128739	17128750	17128866	17128851	17128859	17128597
AGS Reference			ES1	ES2	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Manganese	<0.13 mg/kg	TM181		314 M	1620 M	675 M		1450 M
Mercury	<0.14 mg/kg	TM181		8.6 M	<0.14 M	<0.14 M		0.209 M
Molybdenum	<0.1 mg/kg	TM181		4.31 #	4.76 #	4.1 #		2.99 #
Nickel	<0.2 mg/kg	TM181		36.4 M	43.5 M	43.6 M		37.4 M
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #		<1 #
Tin	<0.24 mg/kg	TM181		2.54 #	1.23 #	2.32 #		2.16 #
Thallium	<0.7 mg/kg	TM181		<0.7 #	2.38 #	<0.7 #		2.51 #
Vanadium	<0.2 mg/kg	TM181		44.3 #	98.7 #	79.4 #		89.1 #
Zinc	<1.9 mg/kg	TM181		141 M	40.2 M	172 M		81.3 M
ANC @ pH 4	<0.03 mol/kg	TM182		0.106				0.175
ANC @ pH 6	<0.03 mol/kg	TM182		0.0459				0.0469
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304	0.0944 #	<0.001 #	<0.001 #			<0.001 #
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304	0.0115 #	<0.001 #	<0.001 #			<0.001 #
Additional Asbestos Components (Using TM048)		TM304	None #	None #	None #			None #
Analysts Comments		TM304	N/A	N/C	N/C			N/C
Asbestos Quantification - Total - %	<0.001 %	TM304	0.106 #	<0.001 #	<0.001 #			<0.001 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-24	WS-RPS-25	WS-RPS-28	WS-RPS-29	WS-RPS-29	WS-RPS-30
Depth (m)			2.60 - 3.00	0.35 - 0.50	0.20	0.25 - 0.60	0.60 - 0.90	0.00 - 0.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			21/02/2018	22/02/2018	21/02/2018	22/02/2018	22/02/2018	21/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128616	17128719	17128587	17128790	17128797	17128564
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	19	4.3	12	5.1	8	9.8
Loss on ignition	<0.7 %	TM018				7.31 M		4.72 M
Mineral oil >C10-C40	<1 mg/kg	TM061		19.7		67.1		27.8
Mineral Oil Surrogate % recovery**	%	TM061		89.2		99.5		96.8
Phenol	<0.01 mg/kg	TM062 (S)						<0.01 M
Cresols	<0.01 mg/kg	TM062 (S)						<0.01 M
Xylenols	<0.015 mg/kg	TM062 (S)						<0.015 M
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)						<0.01 M
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)						<0.015 M
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)						<0.06 M
Organic Carbon, Total	<0.2 %	TM132		1.18 M		6.56 M		6.7 M
pH	1 pH Units	TM133	8.98 M	9.12 M	9.09 M	8.03 M	8.55 M	9.35 M
PCB congener 28	<3 µg/kg	TM168		<3 M		<3 M		<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M		<3 M		<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M		<3 M		<3 M
PCB congener 118	<3 µg/kg	TM168	<3 M	<3 M		<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M		<3 M		<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M		<3 M		<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M		<3 M		<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21		<21		<21
PCB congener 81	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
PCB congener 77	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
PCB congener 123	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
PCB congener 114	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
PCB congener 105	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
PCB congener 126	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
PCB congener 167	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
PCB congener 156	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
PCB congener 157	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
PCB congener 169	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
PCB congener 189	<3 µg/kg	TM168	<3 M			<3 M	<3 M	<3 M
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168	<36			<36	<36	<36

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-24	WS-RPS-25	WS-RPS-28	WS-RPS-29	WS-RPS-29	WS-RPS-30
Depth (m)			2.60 - 3.00	0.35 - 0.50	0.20	0.25 - 0.60	0.60 - 0.90	0.00 - 0.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			21/02/2018	22/02/2018	21/02/2018	22/02/2018	22/02/2018	21/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128616	17128719	17128587	17128790	17128797	17128564
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Antimony	<0.6 mg/kg	TM181	0.715 #	2.05 #	13.1 #	0.64 #	<0.6 #	<6 #
Arsenic	<0.6 mg/kg	TM181	7.57 M	15.2 M	18.4 M	11.8 M	12.3 M	23.1 M
Cadmium	<0.02 mg/kg	TM181	0.183 M	0.386 M	2.32 M	0.483 M	0.372 M	<0.2 M
Chromium	<0.9 mg/kg	TM181	14.6 M	<0.9 M	16.6 M	11.5 M	4.57 M	25.3 M
Cobalt	<0.1 mg/kg	TM181	7.3 M	5.97 M	12.3 M	5.47 M	4.52 M	24.9 M
Copper	<1.4 mg/kg	TM181	15.4 M	26.8 M	55.1 M	20.4 M	39.8 M	61.9 M
Lead	<0.7 mg/kg	TM181	26.5 M	440 M	106 M	44.7 M	54.2 M	35.1 M
Manganese	<0.13 mg/kg	TM181	202 M	301 M	366 M	215 M	216 M	1070 M
Mercury	<0.14 mg/kg	TM181	<0.14 M	0.737 M	0.202 M	<0.14 M	<0.14 M	<1.4 M
Molybdenum	<0.1 mg/kg	TM181	0.488 #	0.707 #	3.61 #	2.32 #	1.78 #	12.5 #
Nickel	<0.2 mg/kg	TM181	19.7 M	13.9 M	34.2 M	21.1 M	13.9 M	63.7 M
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<1 #	<1 #	<10 #
Tin	<0.24 mg/kg	TM181	1.15 #	3.06 #	4.51 #	1.04 #	1.18 #	2.55 #
Thallium	<0.7 mg/kg	TM181	<0.7 #	<0.7 #	0.874 #	<0.7 #	<0.7 #	1.54 #
Vanadium	<0.2 mg/kg	TM181	21.2 #	12.9 #	31.7 #	19.2 #	16.9 #	106 #
Zinc	<1.9 mg/kg	TM181	45.5 M	71.6 M	96.3 M	48.3 M	56.5 M	34 M
ANC @ pH 4	<0.03 mol/kg	TM182		0.255		0.8		0.256
ANC @ pH 6	<0.03 mol/kg	TM182		0.0767		0.0642		0.0701
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304		<0.001 #	<0.001 #		<0.001 #	
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304		<0.001 #	<0.001 #		<0.001 #	
Additional Asbestos Components (Using TM048)		TM304		None #	None #		None #	
Analysts Comments		TM304		N/A	N/C		N/C	
Asbestos Quantification - Total - %	<0.001 %	TM304		<0.001 #	<0.001 #		<0.001 #	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-30	WS-RPS-30				
Depth (m)			0.50 - 0.80	1.40 - 2.00				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			21/02/2018	21/02/2018				
Sampled Time			.	.				
Date Received			27/02/2018	27/02/2018				
SDG Ref			180227-57	180227-57				
Lab Sample No.(s)			17128579	17128629				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	15	49				
pH	1 pH Units	TM133	8.58 M	12.8 M				
Antimony	<0.6 mg/kg	TM181	<0.6 #					
Arsenic	<0.6 mg/kg	TM181	67.8 M					
Cadmium	<0.02 mg/kg	TM181	0.436 M					
Chromium	<0.9 mg/kg	TM181	12.1 M					
Cobalt	<0.1 mg/kg	TM181	29 M					
Copper	<1.4 mg/kg	TM181	95.6 M					
Lead	<0.7 mg/kg	TM181	236 M					
Manganese	<0.13 mg/kg	TM181	1260 M					
Mercury	<0.14 mg/kg	TM181	16.5 M					
Molybdenum	<0.1 mg/kg	TM181	5.24 #					
Nickel	<0.2 mg/kg	TM181	69.2 M					
Selenium	<1 mg/kg	TM181	<1 #					
Tin	<0.24 mg/kg	TM181	6.23 #					
Thallium	<0.7 mg/kg	TM181	<0.7 #					
Vanadium	<0.2 mg/kg	TM181	176 #					
Zinc	<1.9 mg/kg	TM181	175 M					
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304	<0.001 #					
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304	<0.001 #					
Additional Asbestos Components (Using TM048)		TM304	None #					
Analysts Comments		TM304	N/C					
Asbestos Quantification - Total - %	<0.001 %	TM304	<0.001 #					

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	BH-RPS-09	BH-RPS-09	CP-RPS-05	CP-RPS-06	WS-RPS-08
Depth (m)			7.80 - 8.40	0.20 - 0.65	1.30 - 1.50	0.50	0.70 - 1.20	0.20 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			21/02/2018	20/02/2018	21/02/2018	22/02/2018	21/02/2018	22/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128710	17128556	17128826	17128810	17128679	17128773
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	104	98.9	121	120	88.7	95.7
Acenaphthene-d10 % recovery**	%	TM218	106	101	128	125	93	102
Phenanthrene-d10 % recovery**	%	TM218	103	96.1	121	117	85.5	96.3
Chrysene-d12 % recovery**	%	TM218	94.9	91.9	124	109	86.6	95.6
Perylene-d12 % recovery**	%	TM218	89.7	94.9	126	98.4	94.7	87.6
Naphthalene	<9 µg/kg	TM218	<9 M	<9 M	26.5 M	2440 M	63.3 M	2540 M
Acenaphthylene	<12 µg/kg	TM218	<12 M	<12 M	<12 M	141 M	<12 M	155 M
Acenaphthene	<8 µg/kg	TM218	<8 M	<8 M	<8 M	30.7 M	<8 M	32.7 M
Fluorene	<10 µg/kg	TM218	<10 M	<10 M	<10 M	54.1 M	<10 M	50.3 M
Phenanthrene	<15 µg/kg	TM218	<15 M	<15 M	<15 M	1790 M	111 M	2230 M
Anthracene	<16 µg/kg	TM218	<16 M	<16 M	<16 M	298 M	<16 M	306 M
Fluoranthene	<17 µg/kg	TM218	<17 M	<17 M	<17 M	2510 M	75.5 M	1460 M
Pyrene	<15 µg/kg	TM218	<15 M	<15 M	<15 M	1930 M	58.7 M	1250 M
Benz(a)anthracene	<14 µg/kg	TM218	<14 M	<14 M	<14 M	1170 M	40.1 M	839 M
Chrysene	<10 µg/kg	TM218	<10 M	<10 M	27.3 M	1070 M	33.6 M	753 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 M	<15 M	80.2 M	1490 M	87.3 M	1080 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M	<14 M	<14 M	538 M	25 M	324 M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 M	<15 M	52.5 M	660 M	45.1 M	684 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M	<18 M	<18 M	385 M	37.8 M	375 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M	<23 M	<23 M	142 M	<23 M	126 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 M	<24 M	<24 M	521 M	53.9 M	735 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	<118	186	15200	631	12900
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218				15.2	<10	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-16	WS-RPS-23	WS-RPS-23	WS-RPS-24	WS-RPS-25	WS-RPS-28
Depth (m)			0.50	0.00 - 0.40	0.70 - 1.00	0.50	0.35 - 0.50	0.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			22/02/2018	21/02/2018	21/02/2018	21/02/2018	22/02/2018	21/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128750	17128866	17128851	17128597	17128719	17128587
AGS Reference			ES2	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	116	116	93.3	95.8	98.1	96.2
Acenaphthene-d10 % recovery**	%	TM218	119	122	97.4	96.5	99.3	102
Phenanthrene-d10 % recovery**	%	TM218	111	113	90.2	89.7	93.5	94.7
Chrysene-d12 % recovery**	%	TM218	103	114	86.1	86.7	89.1	101
Perylene-d12 % recovery**	%	TM218	92.7	110	80.3	88.3	90.8	104
Naphthalene	<9 µg/kg	TM218	181 M	1470 M	138 M	791 M	<9 M	956 M
Acenaphthylene	<12 µg/kg	TM218	36.5 M	19.2 M	<12 M	<120 M	<12 M	31 M
Acenaphthene	<8 µg/kg	TM218	<8 M	<8 M	<8 M	<80 M	<8 M	26.1 M
Fluorene	<10 µg/kg	TM218	<10 M	<10 M	<10 M	<100 M	<10 M	43.8 M
Phenanthrene	<15 µg/kg	TM218	463 M	954 M	152 M	796 M	29.9 M	1070 M
Anthracene	<16 µg/kg	TM218	32.5 M	51 M	<16 M	<160 M	<16 M	191 M
Fluoranthene	<17 µg/kg	TM218	420 M	293 M	54.8 M	616 M	68.6 M	1250 M
Pyrene	<15 µg/kg	TM218	331 M	301 M	51.1 M	707 M	65.6 M	951 M
Benz(a)anthracene	<14 µg/kg	TM218	172 M	263 M	20.9 M	407 M	69.6 M	958 M
Chrysene	<10 µg/kg	TM218	231 M	225 M	22.5 M	422 M	90.7 M	765 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	461 M	372 M	80.6 M	801 M	232 M	1270 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	134 M	115 M	25.2 M	394 M	67.2 M	473 M
Benzo(a)pyrene	<15 µg/kg	TM218	197 M	190 M	32.5 M	663 M	98.2 M	881 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	189 M	121 M	45.9 M	549 M	112 M	543 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	63.1 M	51.1 M	<23 M	<230 M	36.9 M	253 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	425 M	274 M	90.1 M	925 M	170 M	905 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	3340	4700	714	7070	1040	10600
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218	<10			<100	<10	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29	WS-RPS-29	WS-RPS-30	WS-RPS-30		
Depth (m)			0.25 - 0.60	0.60 - 0.90	0.00 - 0.30	0.50 - 0.80		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			22/02/2018	22/02/2018	21/02/2018	21/02/2018		
Sampled Time			.	.	.	.		
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018		
SDG Ref			180227-57	180227-57	180227-57	180227-57		
Lab Sample No.(s)			17128790	17128797	17128564	17128579		
AGS Reference			ES1	ES1	ES1	ES1		
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	102	94.4	98.8	102		
Acenaphthene-d10 % recovery**	%	TM218	107	92.1	99.2	106		
Phenanthrene-d10 % recovery**	%	TM218	104	88.1	93.1	101		
Chrysene-d12 % recovery**	%	TM218	93.5	93.7	86.8	99.4		
Perylene-d12 % recovery**	%	TM218	89.1	87.2	84.6	97		
Naphthalene	<9 µg/kg	TM218	618 M	3290 M	558 M	1360 M		
Acenaphthylene	<12 µg/kg	TM218	35.4 M	141 M	27.8 M	115 M		
Acenaphthene	<8 µg/kg	TM218	10.5 M	39.1 M	<8 M	55 M		
Fluorene	<10 µg/kg	TM218	20.1 M	56.3 M	<10 M	53.4 M		
Phenanthrene	<15 µg/kg	TM218	602 M	1440 M	275 M	1820 M		
Anthracene	<16 µg/kg	TM218	70.8 M	346 M	37.2 M	271 M		
Fluoranthene	<17 µg/kg	TM218	397 M	987 M	235 M	2680 M		
Pyrene	<15 µg/kg	TM218	349 M	975 M	218 M	2310 M		
Benz(a)anthracene	<14 µg/kg	TM218	186 M	645 M	165 M	1670 M		
Chrysene	<10 µg/kg	TM218	185 M	544 M	162 M	1470 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218	368 M	1260 M	294 M	2500 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218	119 M	403 M	103 M	948 M		
Benzo(a)pyrene	<15 µg/kg	TM218	179 M	678 M	164 M	1520 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	108 M	340 M	105 M	840 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	36.6 M	126 M	34.3 M	283 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218	166 M	558 M	165 M	1120 M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	3450	11800	2540	19000		
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218	<10		<10			

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	CP-RPS-06	WS-RPS-08	WS-RPS-16	WS-RPS-24	WS-RPS-25
Depth (m)			0.20 - 0.65	0.70 - 1.20	0.20 - 0.50	0.50	2.60 - 3.00	0.35 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	21/02/2018	22/02/2018	22/02/2018	21/02/2018	22/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128556	17128679	17128773	17128750	17128616	17128719
AGS Reference			ES1	ES1	ES1	ES2	ES1	ES1
Component	**LOD/Units**	**Method**						
Phenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Pentachlorophenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Nitrobenzene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Isophorone	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Hexachloroethane	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Diethyl phthalate	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Dibenzofuran	<100 µg/kg	TM157	<100	<100	789	<500	<100	<100
Carbazole	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Azobenzene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
4-Nitrophenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
4-Nitroaniline	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
4-Methylphenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
4-Chloroaniline	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
3-Nitroaniline	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2-Nitrophenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2-Nitroaniline	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2-Methylphenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	CP-RPS-06	WS-RPS-08	WS-RPS-16	WS-RPS-24	WS-RPS-25
Depth (m)			0.20 - 0.65	0.70 - 1.20	0.20 - 0.50	0.50	2.60 - 3.00	0.35 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	21/02/2018	22/02/2018	22/02/2018	21/02/2018	22/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128556	17128679	17128773	17128750	17128616	17128719
AGS Reference			ES1	ES1	ES1	ES2	ES1	ES1
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157	<100	197	3510	<500	<100	<100
Acenaphthylene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Acenaphthene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Anthracene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157	<100	<100	483	<500	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157	<100	<100	333	<500	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157	<100	<100	332	<500	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157	<100	<100	388	<500	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157	<100	<100	273	<500	<100	129
Chrysene	<100 µg/kg	TM157	<100	<100	509	<500	<100	<100
Fluoranthene	<100 µg/kg	TM157	<100	158	835	<500	<100	<100
Fluorene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	<100	<100	254	<500	<100	123
Phenanthrene	<100 µg/kg	TM157	<100	198	1660	<500	<100	<100
Pyrene	<100 µg/kg	TM157	<100	188	925	<500	<100	<100
Naphthalene	<100 µg/kg	TM157	<100	179	3010	<500	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100	<100	<200	<500	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29	WS-RPS-30				
Depth (m)			0.60 - 0.90	0.00 - 0.30				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			22/02/2018	21/02/2018				
Sampled Time			.	.				
Date Received			27/02/2018	27/02/2018				
SDG Ref			180227-57	180227-57				
Lab Sample No.(s)			17128797	17128564				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
Phenol	<100 µg/kg	TM157	<100	<100				
Pentachlorophenol	<100 µg/kg	TM157	<100	<100				
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100				
Nitrobenzene	<100 µg/kg	TM157	<100	<100				
Isophorone	<100 µg/kg	TM157	<100	<100				
Hexachloroethane	<100 µg/kg	TM157	<100	<100				
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100				
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100				
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100				
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100				
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100				
Diethyl phthalate	<100 µg/kg	TM157	<100	<100				
n-Dibutyl phthalate	<100 µg/kg	TM157	<100	<100				
Dibenzofuran	<100 µg/kg	TM157	616	230				
Carbazole	<100 µg/kg	TM157	<100	<100				
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100				
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100				
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100				
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100				
Azobenzene	<100 µg/kg	TM157	<100	<100				
4-Nitrophenol	<100 µg/kg	TM157	<100	<100				
4-Nitroaniline	<100 µg/kg	TM157	<100	<100				
4-Methylphenol	<100 µg/kg	TM157	<100	<100				
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100				
4-Chloroaniline	<100 µg/kg	TM157	<100	<100				
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100				
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100				
3-Nitroaniline	<100 µg/kg	TM157	<100	<100				
2-Nitrophenol	<100 µg/kg	TM157	<100	<100				
2-Nitroaniline	<100 µg/kg	TM157	<100	<100				
2-Methylphenol	<100 µg/kg	TM157	<100	<100				
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29	WS-RPS-30				
Depth (m)			0.60 - 0.90	0.00 - 0.30				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			22/02/2018	21/02/2018				
Sampled Time			-	-				
Date Received			27/02/2018	27/02/2018				
SDG Ref			180227-57	180227-57				
Lab Sample No.(s)			17128797	17128564				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100	<100				
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100	<100				
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100	<100				
2,4-Dimethylphenol	<100 µg/kg	TM157	<100	<100				
2,4-Dichlorophenol	<100 µg/kg	TM157	<100	<100				
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100	<100				
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100	<100				
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100	<100				
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100	<100				
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100	<100				
2-Chloronaphthalene	<100 µg/kg	TM157	<100	<100				
2-Methylnaphthalene	<100 µg/kg	TM157	3020	1120				
Acenaphthylene	<100 µg/kg	TM157	<100	<100				
Acenaphthene	<100 µg/kg	TM157	<100	<100				
Anthracene	<100 µg/kg	TM157	194	<100				
Benzo(a)anthracene	<100 µg/kg	TM157	431	121				
Benzo(b)fluoranthene	<100 µg/kg	TM157	452	114				
Benzo(k)fluoranthene	<100 µg/kg	TM157	463	116				
Benzo(a)pyrene	<100 µg/kg	TM157	431	115				
Benzo(g,h,i)perylene	<100 µg/kg	TM157	261	<100				
Chrysene	<100 µg/kg	TM157	477	157				
Fluoranthene	<100 µg/kg	TM157	617	180				
Fluorene	<100 µg/kg	TM157	<100	<100				
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	294	<100				
Phenanthrene	<100 µg/kg	TM157	864	353				
Pyrene	<100 µg/kg	TM157	822	226				
Naphthalene	<100 µg/kg	TM157	2540	968				
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100	<100				
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100	<100				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-04	BH-RPS-09	BH-RPS-09	CP-RPS-05	CP-RPS-06	WS-RPS-08
Depth (m)			7.80 - 8.40	0.20 - 0.65	1.30 - 1.50	0.50	0.70 - 1.20	0.20 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			21/02/2018	20/02/2018	21/02/2018	22/02/2018	21/02/2018	22/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128710	17128556	17128826	17128810	17128679	17128773
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	91	109	91	44	84	16
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	<44 M	<44 M	105 M	<44 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5 #	<5 #	7.38 #	<5 #	6.1 #
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<2 µg/kg	TM089	<2 M	<2 M	<2 M	9.84 M	13.9 M	2.44 M
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10	17.6	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	<10	<10	35.3	15.9
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	<10	<10	10.1	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	1860	<100	3160	1950	8950
Aliphatics >C16-C21	<100 µg/kg	TM173	1580	4330	<100	3090	4560	19000
Aliphatics >C21-C35	<100 µg/kg	TM173	19300	19800	14700	13000	19800	129000
Aliphatics >C35-C44	<100 µg/kg	TM173	6660	9460	10300	4980	10500	30400
Total Aliphatics >C12-C44	<100 µg/kg	TM173	27600	35500	25000	24200	36800	188000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10	13.9	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	<10	<10	15.1	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	<100	<100	5190	735	23300
Aromatics >EC16-EC21	<100 µg/kg	TM173	520	<100	<100	8150	838	43400
Aromatics >EC21-EC35	<100 µg/kg	TM173	7380	1830	<100	23300	13700	163000
Aromatics >EC35-EC44	<100 µg/kg	TM173	6940	545	<100	19000	3480	52700
Aromatics >EC40-EC44	<100 µg/kg	TM173	3180	<100	<100	10400	907	19100
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	14800	2370	<100	55600	18700	282000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	42400	37900	25000	79800	55700	470000

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-16	WS-RPS-23	WS-RPS-23	WS-RPS-24	WS-RPS-24	WS-RPS-25
Depth (m)			0.50	0.00 - 0.40	0.70 - 1.00	0.50	2.60 - 3.00	0.35 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			22/02/2018	21/02/2018	21/02/2018	21/02/2018	21/02/2018	22/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128750	17128866	17128851	17128597	17128616	17128719
AGS Reference			ES2	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	66	28	72	16	109	70
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	109 M	<44 M	54.4 M	914 M	<44 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	19.4 #	<5 #	<5 #	<5 #	<5 #
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<2 µg/kg	TM089	<2 M	15.1 M	<2 M	2.22 M	<2 M	<2 M
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M	3.24 M	<3 M	<3 M	<3 M	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	24.8	<10	<10	11.2	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	11.9	<10	<10	62	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	<10	13.3	474	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	1590	5660	2540	9310	27200	1030
Aliphatics >C16-C21	<100 µg/kg	TM173	4940	6070	5020	11500	19100	1730
Aliphatics >C21-C35	<100 µg/kg	TM173	44400	11800	15300	169000	7880	12200
Aliphatics >C35-C44	<100 µg/kg	TM173	10100	<100	10300	261000	3520	1380
Total Aliphatics >C12-C44	<100 µg/kg	TM173	61100	23500	33200	450000	57700	16400
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	15.1	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	18.3	<10	<10	42.2	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10	<10	315	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	1570	15200	<100	9160	6250	<100
Aromatics >EC16-EC21	<100 µg/kg	TM173	4520	17800	<100	21000	4130	1710
Aromatics >EC21-EC35	<100 µg/kg	TM173	37800	39300	3040	238000	4290	14600
Aromatics >EC35-EC44	<100 µg/kg	TM173	15600	7330	648	600000	4270	5560
Aromatics >EC40-EC44	<100 µg/kg	TM173	5940	2240	<100	359000	1360	2080
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	59500	79600	3690	868000	18900	21900
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	121000	103000	36900	1320000	77500	38200

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-28	WS-RPS-29	WS-RPS-29	WS-RPS-30	WS-RPS-30
Depth (m)			0.20	0.25 - 0.60	0.60 - 0.90	0.00 - 0.30	0.50 - 0.80
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			21/02/2018	22/02/2018	22/02/2018	21/02/2018	21/02/2018
Sampled Time			.	.	.	.	.
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128587	17128790	17128797	17128564	17128579
AGS Reference			ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**					
GRO Surrogate % recovery**	%	TM089	26	48	49	44	22
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	70.6 M	114 M	83.3 M	104 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	9.12 #	10.5 #	10.9 #	17.8 #	24.6 #
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<2 µg/kg	TM089	4.56 M	8.43 M	7.62 M	15.5 M	15.2 M
Ethylbenzene	<3 µg/kg	TM089	<3 M	3.16 M	<3 M	<3 M	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M	6.32 M	<6 M	9.99 M	7.02 M
o-Xylene	<3 µg/kg	TM089	<3 M	3.16 M	3.26 M	4.44 M	3.51 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	9.48	<9	14.4	10.5
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	29.9	25.7
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	10.3	11.6	26.1	12.2	25.7
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	20.7	<10	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	14.1	<10	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	5960	8380	11700	2760	3460
Aliphatics >C16-C21	<100 µg/kg	TM173	9670	5970	13500	3460	6510
Aliphatics >C21-C35	<100 µg/kg	TM173	58300	19900	36000	11500	30900
Aliphatics >C35-C44	<100 µg/kg	TM173	22400	8780	1880	3340	2560
Total Aliphatics >C12-C44	<100 µg/kg	TM173	96300	43100	63100	21000	43500
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	15.5	15.2
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	17.9	18.5	20	17.6
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10	<10	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	11700	8110	23300	3880	7340
Aromatics >EC16-EC21	<100 µg/kg	TM173	22100	14400	30800	5760	14700
Aromatics >EC21-EC35	<100 µg/kg	TM173	76700	36600	78200	17400	52300
Aromatics >EC35-EC44	<100 µg/kg	TM173	45100	24300	13800	8590	11200
Aromatics >EC40-EC44	<100 µg/kg	TM173	19100	13100	3740	3760	3600
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	156000	83400	146000	35600	85500
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	252000	127000	209000	56700	129000

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	CP-RPS-06	WS-RPS-08	WS-RPS-16	WS-RPS-24	WS-RPS-25
Depth (m)			0.20 - 0.65	0.70 - 1.20	0.20 - 0.50	0.50	2.60 - 3.00	0.35 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	21/02/2018	22/02/2018	22/02/2018	21/02/2018	22/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128556	17128679	17128773	17128750	17128616	17128719
AGS Reference			ES1	ES1	ES1	ES2	ES1	ES1
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	105	109	121	118	140	121
Toluene-d8**	%	TM116	96.4	96.9	93.2	94	97.5	97.3
4-Bromofluorobenzene**	%	TM116	87.7	91.3	83.6	77.6	84.2	92.5
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 M	<60 M	<120 M	<60 M	<6 M	<6 M
Chloromethane	<7 µg/kg	TM116	<7 #	<70 #	<140 #	<70 #	<7 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116	<6 M	<60 M	<120 M	<60 M	<6 M	<6 M
Bromomethane	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Chloroethane	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116	<6 M	<60 M	<120 M	<60 M	<6 M	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<100 #	<200 #	<100 #	<10 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116	<7 M	<70 M	<140 M	<70 M	14.5 M	<7 M
Dichloromethane	<10 µg/kg	TM116	<10 #	<100 #	<200 #	<100 #	<10 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116	<8 M	<80 M	<160 M	<80 M	<8 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 M	<60 M	<120 M	<60 M	<6 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116	<10	<100	<200	<100	<10	<10
Bromochloromethane	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Chloroform	<8 µg/kg	TM116	<8 M	<80 M	<160 M	<80 M	<8 M	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 M	<70 M	<140 M	<70 M	<7 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116	<5 M	<50 M	<100 M	<50 M	<5 M	<5 M
Benzene	<9 µg/kg	TM116	<9 M	<90 M	<180 M	<90 M	<9 M	<9 M
Trichloroethene	<9 µg/kg	TM116	<9 #	<90 #	<180 #	<90 #	<9 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Dibromomethane	<9 µg/kg	TM116	<9 M	<90 M	<180 M	<90 M	<9 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116	<7 M	<70 M	<140 M	<70 M	<7 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Toluene	<7 µg/kg	TM116	<7 M	<70 M	<140 M	<70 M	<7 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<100	<200	<100	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	CP-RPS-06	WS-RPS-08	WS-RPS-16	WS-RPS-24	WS-RPS-25
Depth (m)			0.20 - 0.65	0.70 - 1.20	0.20 - 0.50	0.50	2.60 - 3.00	0.35 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	21/02/2018	22/02/2018	22/02/2018	21/02/2018	22/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128556	17128679	17128773	17128750	17128616	17128719
AGS Reference			ES1	ES1	ES1	ES2	ES1	ES1
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<7 M	<70 M	<140 M	<70 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116	<5 M	<50 M	<100 M	<50 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116	<5 M	<50 M	<100 M	<50 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116	<4 M	<40 M	<80 M	<40 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116	<10 #	<100 #	<200 #	<100 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116	<10 #	<100 #	<200 #	<100 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116	<5 #	<50 #	<100 #	<50 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 #	<100 #	<200 #	<100 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 M	<160 M	<320 M	<160 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116	<9 M	<90 M	<180 M	<90 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 M	<80 M	<160 M	<80 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116	<14 M	<140 M	<280 M	<140 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #	<90 #	<180 #	<90 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116	<10	<100	<200	<100	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 M	<80 M	<160 M	<80 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 M	<50 M	<100 M	<50 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116	<11	<110	<220	<110	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 M	<100 M	<200 M	<100 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 M	<140 M	<280 M	<140 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<100 #	<200 #	<100 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<200	<400	<200	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<200	<400	<200	<20	<20
Naphthalene	<13 µg/kg	TM116	<13 M	<130 M	<260 M	<130 M	<13 M	<13 M

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	CP-RPS-06	WS-RPS-08	WS-RPS-16	WS-RPS-24	WS-RPS-25
Depth (m)			0.20 - 0.65	0.70 - 1.20	0.20 - 0.50	0.50	2.60 - 3.00	0.35 - 0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			20/02/2018	21/02/2018	22/02/2018	22/02/2018	21/02/2018	22/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018
SDG Ref			180227-57	180227-57	180227-57	180227-57	180227-57	180227-57
Lab Sample No.(s)			17128556	17128679	17128773	17128750	17128616	17128719
AGS Reference			ES1	ES1	ES1	ES2	ES1	ES1
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #	<200 #	<400 #	<200 #	<20 #	<20 #

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29	WS-RPS-30				
Depth (m)			0.60 - 0.90	0.00 - 0.30				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			22/02/2018	21/02/2018				
Sampled Time			.	.				
Date Received			27/02/2018	27/02/2018				
SDG Ref			180227-57	180227-57				
Lab Sample No.(s)			17128797	17128564				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	104	112				
Toluene-d8**	%	TM116	79.3	93.6				
4-Bromofluorobenzene**	%	TM116	78.5	81.4				
Dichlorodifluoromethane	<6 µg/kg	TM116	<120 M	<60 M				
Chloromethane	<7 µg/kg	TM116	<140 #	<70 #				
Vinyl Chloride	<6 µg/kg	TM116	<120 M	<60 M				
Bromomethane	<10 µg/kg	TM116	<200 M	<100 M				
Chloroethane	<10 µg/kg	TM116	<200 M	<100 M				
Trichlorofluorormethane	<6 µg/kg	TM116	<120 M	<60 M				
1,1-Dichloroethene	<10 µg/kg	TM116	<200 #	<100 #				
Carbon Disulphide	<7 µg/kg	TM116	<140 M	<70 M				
Dichloromethane	<10 µg/kg	TM116	<200 #	<100 #				
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 M	<100 M				
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<200 M	<100 M				
1,1-Dichloroethane	<8 µg/kg	TM116	<160 M	<80 M				
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<120 M	<60 M				
2,2-Dichloropropane	<10 µg/kg	TM116	<200	<100				
Bromochloromethane	<10 µg/kg	TM116	<200 M	<100 M				
Chloroform	<8 µg/kg	TM116	<160 M	<80 M				
1,1,1-Trichloroethane	<7 µg/kg	TM116	<140 M	<70 M				
1,1-Dichloropropene	<10 µg/kg	TM116	<200 M	<100 M				
Carbontetrachloride	<10 µg/kg	TM116	<200 M	<100 M				
1,2-Dichloroethane	<5 µg/kg	TM116	<100 M	<50 M				
Benzene	<9 µg/kg	TM116	<180 M	<90 M				
Trichloroethene	<9 µg/kg	TM116	<180 #	<90 #				
1,2-Dichloropropane	<10 µg/kg	TM116	<200 M	<100 M				
Dibromomethane	<9 µg/kg	TM116	<180 M	<90 M				
Bromodichloromethane	<7 µg/kg	TM116	<140 M	<70 M				
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<200 M	<100 M				
Toluene	<7 µg/kg	TM116	<140 M	<70 M				
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<200	<100				
1,1,2-Trichloroethane	<10 µg/kg	TM116	<200 M	<100 M				

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29	WS-RPS-30				
Depth (m)			0.60 - 0.90	0.00 - 0.30				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			22/02/2018	21/02/2018				
Sampled Time			-	-				
Date Received			27/02/2018	27/02/2018				
SDG Ref			180227-57	180227-57				
Lab Sample No.(s)			17128797	17128564				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<140 M	<70 M				
Tetrachloroethene	<5 µg/kg	TM116	<100 M	<50 M				
Dibromochloromethane	<10 µg/kg	TM116	<200 M	<100 M				
1,2-Dibromoethane	<10 µg/kg	TM116	<200 M	<100 M				
Chlorobenzene	<5 µg/kg	TM116	<100 M	<50 M				
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<200 M	<100 M				
Ethylbenzene	<4 µg/kg	TM116	<80 M	<40 M				
p/m-Xylene	<10 µg/kg	TM116	<200 #	<100 #				
o-Xylene	<10 µg/kg	TM116	<200 M	<100 M				
Styrene	<10 µg/kg	TM116	<200 #	<100 #				
Bromoform	<10 µg/kg	TM116	<200 M	<100 M				
Isopropylbenzene	<5 µg/kg	TM116	<100 #	<50 #				
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<200 #	<100 #				
1,2,3-Trichloropropane	<16 µg/kg	TM116	<320 M	<160 M				
Bromobenzene	<10 µg/kg	TM116	<200 M	<100 M				
Propylbenzene	<10 µg/kg	TM116	<200 M	<100 M				
2-Chlorotoluene	<9 µg/kg	TM116	<180 M	<90 M				
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<160 M	<80 M				
4-Chlorotoluene	<10 µg/kg	TM116	<200 M	<100 M				
tert-Butylbenzene	<14 µg/kg	TM116	<280 M	<140 M				
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<180 #	<90 #				
sec-Butylbenzene	<10 µg/kg	TM116	<200	<100				
4-Isopropyltoluene	<10 µg/kg	TM116	<200 M	<100 M				
1,3-Dichlorobenzene	<8 µg/kg	TM116	<160 M	<80 M				
1,4-Dichlorobenzene	<5 µg/kg	TM116	<100 M	<50 M				
n-Butylbenzene	<11 µg/kg	TM116	<220	<110				
1,2-Dichlorobenzene	<10 µg/kg	TM116	<200 M	<100 M				
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<280 M	<140 M				
Tert-amyl methyl ether	<10 µg/kg	TM116	<200 #	<100 #				
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<400	<200				
Hexachlorobutadiene	<20 µg/kg	TM116	<400	<200				
Naphthalene	<13 µg/kg	TM116	<260 M	<130 M				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29	WS-RPS-30				
Depth (m)			0.60 - 0.90	0.00 - 0.30				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			22/02/2018	21/02/2018				
Sampled Time			-	-				
Date Received			27/02/2018	27/02/2018				
SDG Ref			180227-57	180227-57				
Lab Sample No.(s)			17128797	17128564				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<400 #	<200 #				

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-09 ES 1 0.20 - 0.65 SOLID 20/02/2018 00:00:00 27/02/2018 15:29:11 180227-57 17128556 TM048	06/03/2018	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-09 ES 1 1.30 - 1.50 SOLID 21/02/2018 00:00:00 28/02/2018 07:46:13 180227-57 17128826 TM048	06/03/2018	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	CP-RPS-05 ES 1 0.50 SOLID 22/02/2018 00:00:00 28/02/2018 07:29:23 180227-57 17128810 TM048	06/03/2018	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	CP-RPS-06 ES 1 0.70 - 1.20 SOLID 21/02/2018 00:00:00 28/02/2018 07:32:48 180227-57 17128679 TM048	06/03/2018	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-08 ES 1 0.20 - 0.50 SOLID 22/02/2018 00:00:00 27/02/2018 18:37:51 180227-57 17128773 TM048	06/03/2018	Andrzej Ferfecki	loose fibres in soil	Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-16 ES 1 0.50 SOLID 22/02/2018 00:00:00 27/02/2018 15:59:57 180227-57 17128739 TM048	06/03/2018	James Richards	Soil contaning fibre bundles and ACM debris	Not Detected (#)	Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-16 ES 2 0.50 SOLID 22/02/2018 00:00:00 27/02/2018 18:52:46 180227-57 17128750 TM048	06/03/2018	James Richards	Soil contaning fibre bundles and material typical of asbestos cement	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-23 ES 1 0.00 - 0.40 SOLID 21/02/2018 00:00:00 28/02/2018 07:33:20 180227-57 17128866 TM048	06/03/2018	Lucy Caroe	Soil containing ACM debris	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-23 ES 1 0.70 - 1.00 SOLID 21/02/2018 00:00:00 28/02/2018 07:40:57 180227-57 17128851 TM048	06/03/2018	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-24 ES 1 0.50 SOLID 21/02/2018 00:00:00 27/02/2018 18:36:16 180227-57 17128597 TM048	05/03/2018	Lucy Caroe	Loose fibres in soil	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-24 ES 1 2.60 - 3.00 SOLID 21/02/2018 00:00:00 28/02/2018 07:25:25 180227-57 17128616 TM048	06/03/2018	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-25 ES 1 0.35 - 0.50 SOLID 22/02/2018 00:00:00 27/02/2018 14:44:43 180227-57 17128719 TM048	06/03/2018	James Richards	Soil containing fibre bundles	Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-28 ES 1 0.20 SOLID 21/02/2018 00:00:00 28/02/2018 07:22:27 180227-57 17128587 TM048	06/03/2018	Barbara Urbanek-Walsh	Loose fibres in soil.	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-29 ES 1 0.25 - 0.60 SOLID 22/02/2018 00:00:00 27/02/2018 18:51:33 180227-57 17128790 TM048	06/03/2018	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-29 ES 1 0.60 - 0.90 SOLID 22/02/2018 00:00:00 27/02/2018 18:50:30 180227-57 17128797 TM048	06/03/2018	Barbara Urbanek-Walsh	Loose fibres in soil.	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-30 ES 1 0.00 - 0.30 SOLID 21/02/2018 00:00:00 27/02/2018 15:12:24 180227-57 17128564 TM048	06/03/2018	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-30 ES 1 0.50 - 0.80 SOLID 21/02/2018 00:00:00 28/02/2018 07:48:01 180227-57 17128579 TM048	06/03/2018	Barbara Urbanek-Walsh	Fibre bundles in soil.	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Asbestos Quantification - Full

		Additional Asbestos Components (Using TM048)	Analysts Comments	Asbestos Quantification - Gravimetric - %	Asbestos Quantification - PCOM Evaluation - %	Asbestos Quantification - Total - %
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-08 ES 1 0.20 - 0.50 SOLID 22/02/2018 00:00:00 07/03/2018 17:34:15 180227-57 17128773 TM304	Crocidolite (#)	ACM fragments in soil	0.0203 (#)	0.0014 (#)	0.0217 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-16 ES 1 0.50 SOLID 22/02/2018 00:00:00 07/03/2018 17:35:00 180227-57 17128739 TM304	None (#)	N/A	0.0944 (#)	0.0115 (#)	0.1059 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-16 ES 2 0.50 SOLID 22/02/2018 00:00:00 07/03/2018 18:28:02 180227-57 17128750 TM304	None (#)	N/C	<0.001 (#)	<0.001 (#)	<0.001 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-23 ES 1 0.00 - 0.40 SOLID 21/02/2018 00:00:00 07/03/2018 18:30:33 180227-57 17128866 TM304	None (#)	N/C	<0.001 (#)	<0.001 (#)	<0.001 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-24 ES 1 0.50 SOLID 21/02/2018 00:00:00 07/03/2018 17:52:47 180227-57 17128597 TM304	None (#)	N/C	<0.001 (#)	<0.001 (#)	<0.001 (#)

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

		Additional Asbestos Components (Using TM048)	Analysts Comments	Asbestos Quantification - Gravimetric - %	Asbestos Quantification - PCOM Evaluation - %	Asbestos Quantification - Total - %
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-25 ES 1 0.35 - 0.50 SOLID 22/02/2018 00:00:00 07/03/2018 17:48:28 180227-57 17128719 TM304	None (#)	N/A	<0.001 (#)	<0.001 (#)	<0.001 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-28 ES 1 0.20 SOLID 21/02/2018 00:00:00 07/03/2018 17:44:46 180227-57 17128587 TM304	None (#)	N/C	<0.001 (#)	<0.001 (#)	<0.001 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-29 ES 1 0.60 - 0.90 SOLID 22/02/2018 00:00:00 07/03/2018 18:25:44 180227-57 17128797 TM304	None (#)	N/C	<0.001 (#)	<0.001 (#)	<0.001 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-30 ES 1 0.50 - 0.80 SOLID 21/02/2018 00:00:00 07/03/2018 17:58:16 180227-57 17128579 TM304	None (#)	N/C	<0.001 (#)	<0.001 (#)	<0.001 (#)

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	10.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.2
Particle Size <4mm	>95%		

Case	
SDG	180227-57
Lab Sample Number(s)	17128564
Sampled Date	21-Feb-2018
Customer Sample Ref.	WS-RPS-30 ES1
Depth (m)	0.00 - 0.30

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits: Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	6.7	3	5	6
Loss on Ignition (%)	4.72	-	-	10
Sum of BTEX (mg/kg)	0.0299	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	27.8	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	9.35	-	>6	-
ANC to pH 6 (mol/kg)	0.0701	-	-	-
ANC to pH 4 (mol/kg)	0.256	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0115	<0.0005	0.115	<0.005	0.5	2	25
Barium	0.0517	<0.0002	0.517	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00831	<0.0003	0.0831	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.013	<0.0005	0.13	<0.005	0.5	10	30
Nickel	0.00283	<0.0004	0.0283	<0.004	0.4	10	40
Lead	0.000574	<0.0002	0.00574	<0.002	0.5	10	50
Antimony	0.00402	<0.0001	0.0402	<0.001	0.06	0.7	5
Selenium	0.00273	<0.0005	0.0273	<0.005	0.1	0.5	7
Zinc	0.00148	<0.001	0.0148	<0.01	4	50	200
Chloride	2.3	<2	23	<20	800	15000	25000
Fluoride	0.804	<0.5	8.04	<5	10	150	500
Sulphate (soluble)	86.8	<2	868	<20	1000	20000	50000
Total Dissolved Solids	253	<5	2530	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	16.8	<3	168	<30	500	800	1000

Leach Test Information

Date Prepared	01-Mar-2018
pH (pH Units)	8.52
Conductivity (µS/cm)	323.00
Temperature (ºC)	17.00
Volume Leachant (Litres)	0.890

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	10.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.3
Particle Size <4mm	>95%		

Case	
SDG	180227-57
Lab Sample Number(s)	17128597
Sampled Date	21-Feb-2018
Customer Sample Ref.	WS-RPS-24 ES1
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	22.9	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.21	1	-	-
Mineral Oil (mg/kg)	305	500	-	-
PAH Sum of 17 (mg/kg)	<100	100	-	-
pH (pH Units)	8.74	-	>6	-
ANC to pH 6 (mol/kg)	0.0469	-	-	-
ANC to pH 4 (mol/kg)	0.175	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00553	<0.0005	0.0553	<0.005	0.5	2	25
Barium	0.0128	<0.0002	0.128	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00224	<0.0003	0.0224	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000867	<0.00001	0.000867	<0.0001	0.01	0.2	2
Molybdenum	0.001	<0.0005	0.01	<0.005	0.5	10	30
Nickel	0.000619	<0.0004	0.00619	<0.004	0.4	10	40
Lead	0.00143	<0.0002	0.0143	<0.002	0.5	10	50
Antimony	0.000614	<0.0001	0.00614	<0.001	0.06	0.7	5
Selenium	0.000632	<0.0005	0.00632	<0.005	0.1	0.5	7
Zinc	0.00155	<0.001	0.0155	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	5.2	<2	52	<20	1000	20000	50000
Total Dissolved Solids	58.8	<5	588	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	01-Mar-2018
pH (pH Units)	8.60
Conductivity (µS/cm)	74.00
Temperature (ºC)	16.90
Volume Leachant (Litres)	0.890

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	26.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	79
Particle Size <4mm	>95%		

Case	
SDG	180227-57
Lab Sample Number(s)	17128679
Sampled Date	21-Feb-2018
Customer Sample Ref.	CP-RPS-06 ES1
Depth (m)	0.70 - 1.20

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits** Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon (%)	2.94	3	5	6
Loss on Ignition (%)	6.09	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	40.6	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.36	-	>6	-
ANC to pH 6 (mol/kg)	0.0634	-	-	-
ANC to pH 4 (mol/kg)	0.171	-	-	-

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.00773	<0.0005	0.0773	<0.005	0.5	2	25
Barium	0.0199	<0.0002	0.199	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.0026	<0.0003	0.026	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.0439	<0.0005	0.439	<0.005	0.5	10	30
Nickel	0.00106	<0.0004	0.0106	<0.004	0.4	10	40
Lead	0.00612	<0.0002	0.0612	<0.002	0.5	10	50
Antimony	0.0189	<0.0001	0.189	<0.001	0.06	0.7	5
Selenium	0.00183	<0.0005	0.0183	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	12.1	<2	121	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	64.4	<2	644	<20	1000	20000	50000
Total Dissolved Solids	215	<5	2150	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	6.13	<3	61.3	<30	500	800	1000

Leach Test Information

Date Prepared	01-Mar-2018
pH (pH Units)	8.17
Conductivity (µS/cm)	267.00
Temperature (ºC)	17.20
Volume Leachant (Litres)	0.876

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

16/03/2018 16:44:40

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CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.094	**Natural Moisture Content (%)**	4.49
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	95.7
Particle Size <4mm	>95%		

Case	
SDG	180227-57
Lab Sample Number(s)	17128719
Sampled Date	22-Feb-2018
Customer Sample Ref.	WS-RPS-25 ES1
Depth (m)	0.35 - 0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	1.18	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	19.7	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	9.12	-	>6	-
ANC to pH 6 (mol/kg)	0.0767	-	-	-
ANC to pH 4 (mol/kg)	0.255	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0135	<0.0005	0.135	<0.005	0.5	2	25
Barium	0.0039	<0.0002	0.039	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00125	<0.0003	0.0125	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.000193	<0.00001	0.00193	<0.0001	0.01	0.2	2
Molybdenum	0.0005	<0.0005	0.005	<0.005	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	0.00139	<0.0002	0.0139	<0.002	0.5	10	50
Antimony	0.00207	<0.0001	0.0207	<0.001	0.06	0.7	5
Selenium	0.000694	<0.0005	0.00694	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	4.8	<2	48	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	48.4	<5	484	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	01-Mar-2018
pH (pH Units)	9.90
Conductivity (µS/cm)	61.60
Temperature (ºC)	17.50
Volume Leachant (Litres)	0.896

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

16/03/2018 16:44:40

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CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	84
Particle Size <4mm	>95%		

Case	
SDG	180227-57
Lab Sample Number(s)	17128750
Sampled Date	22-Feb-2018
Customer Sample Ref.	WS-RPS-16 ES2
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	19.7	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	109	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.51	-	>6	-
ANC to pH 6 (mol/kg)	0.0459	-	-	-
ANC to pH 4 (mol/kg)	0.106	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0076	<0.0005	0.076	<0.005	0.5	2	25
Barium	0.00406	<0.0002	0.0406	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00334	<0.0003	0.0334	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.00106	<0.00001	0.0106	<0.0001	0.01	0.2	2
Molybdenum	0.00121	<0.0005	0.0121	<0.005	0.5	10	30
Nickel	0.000573	<0.0004	0.00573	<0.004	0.4	10	40
Lead	0.00136	<0.0002	0.0136	<0.002	0.5	10	50
Antimony	0.000506	<0.0001	0.00506	<0.001	0.06	0.7	5
Selenium	0.000561	<0.0005	0.00561	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	16.6	<2	166	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	90	<5	900	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	01-Mar-2018
pH (pH Units)	9.32
Conductivity (µS/cm)	117.00
Temperature (ºC)	16.80
Volume Leachant (Litres)	0.883

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

16/03/2018 16:44:40

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.095	**Natural Moisture Content (%)**	5.37
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.9
Particle Size <4mm	>95%		

Case	
SDG	180227-57
Lab Sample Number(s)	17128790
Sampled Date	22-Feb-2018
Customer Sample Ref.	WS-RPS-29 ES1
Depth (m)	0.25 - 0.60

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	6.56	3	5	6
Loss on Ignition (%)	7.31	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	67.1	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.03	-	>6	-
ANC to pH 6 (mol/kg)	0.0642	-	-	-
ANC to pH 4 (mol/kg)	0.8	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.000562	<0.0005	0.00562	<0.005	0.5	2	25
Barium	0.0279	<0.0002	0.279	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.000773	<0.0003	0.00773	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.012	<0.0005	0.12	<0.005	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	0.000669	<0.0001	0.00669	<0.001	0.06	0.7	5
Selenium	0.00125	<0.0005	0.0125	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	6.7	<2	67	<20	800	15000	25000
Fluoride	0.754	<0.5	7.54	<5	10	150	500
Sulphate (soluble)	125	<2	1250	<20	1000	20000	50000
Total Dissolved Solids	239	<5	2390	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	01-Mar-2018
pH (pH Units)	8.25
Conductivity (µS/cm)	305.00
Temperature (ºC)	16.90
Volume Leachant (Litres)	0.895

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

16/03/2018 16:44:40

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CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.110	**Natural Moisture Content (%)**	22
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	82
Particle Size <4mm	>95%		

Case	
SDG	180227-57
Lab Sample Number(s)	17128810
Sampled Date	22-Feb-2018
Customer Sample Ref.	CP-RPS-05 ES1
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	13.3	3	5	6
Loss on Ignition (%)	19.1	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	39.2	500	-	-
PAH Sum of 17 (mg/kg)	15.2	100	-	-
pH (pH Units)	8.62	-	>6	-
ANC to pH 6 (mol/kg)	0.0549	-	-	-
ANC to pH 4 (mol/kg)	0.178	-	-	-

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	2.16	<0.05	21.6	<0.5	0.5	2	25
Barium	0.0464	<0.0002	0.464	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00125	<0.0003	0.0125	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000162	<0.00001	0.000162	<0.0001	0.01	0.2	2
Molybdenum	0.00208	<0.0005	0.0208	<0.005	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	0.000974	<0.0002	0.00974	<0.002	0.5	10	50
Antimony	0.0202	<0.0001	0.202	<0.001	0.06	0.7	5
Selenium	0.00234	<0.0005	0.0234	<0.005	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	5.9	<2	59	<20	1000	20000	50000
Total Dissolved Solids	78	<5	780	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	01-Mar-2018
pH (pH Units)	9.02
Conductivity (µS/cm)	95.70
Temperature (ºC)	17.50
Volume Leachant (Litres)	0.880

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

16/03/2018 16:44:40

Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Notification of NDPs (No determination possible)

Date Received : 27/02/2018 11:58:20

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
17128597	WS-RPS-24 ES1	0.50	Loss on Ignition in soils	Unsuitable sample for analysis
17128719	WS-RPS-25 ES1	0.35 - 0.50	Loss on Ignition in soils	Unsuitable sample for analysis
17128750	WS-RPS-16 ES2	0.50	Loss on Ignition in soils	Unsuitable sample for analysis

Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM304	HSE Contract research Report no 83/1996	Asbestos Quantification in Soil: Fibres identified by morphology only

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Test Completion Dates

Lab Sample No(s)	17128710	17128556	17128826	17128810	17128679	17128773	17128739	17128750	17128851	17128859
Customer Sample Ref.	BH-RPS-04	BH-RPS-09	BH-RPS-09	CP-RPS-05	CP-RPS-06	WS-RPS-08	WS-RPS-16	WS-RPS-16	WS-RPS-23	WS-RPS-23
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES2	ES1	ES1
Depth	7.80 - 8.40	0.20 - 0.65	1.30 - 1.50	0.50	0.70 - 1.20	0.20 - 0.50	0.50	0.50	0.70 - 1.00	2.00 - 2.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
ANC at pH4 and ANC at pH 6				01-Mar-2018	01-Mar-2018			01-Mar-2018		
Anions by Kone (w)				06-Mar-2018	06-Mar-2018			06-Mar-2018		
Asbestos ID in Solid Samples		06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	
Asbestos Quantification - Full						16-Mar-2018	16-Mar-2018	16-Mar-2018		
CEN 10:1 Leachate (1 Stage)				01-Mar-2018	01-Mar-2018			01-Mar-2018		
CEN Readings				02-Mar-2018	03-Mar-2018			03-Mar-2018		
Dissolved Metals by ICP-MS				06-Mar-2018	06-Mar-2018			06-Mar-2018		
Dissolved Organic/Inorganic Carbon				05-Mar-2018	05-Mar-2018			05-Mar-2018		
EPH CWG (Aliphatic) GC (S)	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018		06-Mar-2018	06-Mar-2018	
EPH CWG (Aromatic) GC (S)	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018		06-Mar-2018	06-Mar-2018	
Fluoride				06-Mar-2018	06-Mar-2018			06-Mar-2018		
GRO by GC-FID (S)	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018		05-Mar-2018	05-Mar-2018	
Loss on Ignition in soils				07-Mar-2018	07-Mar-2018					
Mercury Dissolved				06-Mar-2018	05-Mar-2018			05-Mar-2018		
Metals in solid samples by OES	02-Mar-2018	02-Mar-2018	07-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018		01-Mar-2018	07-Mar-2018	
Mineral Oil				05-Mar-2018	05-Mar-2018			05-Mar-2018		
PAH by GCMS	06-Mar-2018	05-Mar-2018	06-Mar-2018	06-Mar-2018	05-Mar-2018	05-Mar-2018		06-Mar-2018	05-Mar-2018	
PCBs by GCMS		06-Mar-2018		06-Mar-2018	06-Mar-2018	06-Mar-2018		06-Mar-2018		
pH	28-Feb-2018	28-Feb-2018	05-Mar-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018		28-Feb-2018	05-Mar-2018	06-Mar-2018
Phenols by HPLC (S)						01-Mar-2018				
Phenols by HPLC (W)				06-Mar-2018	06-Mar-2018			06-Mar-2018		
Sample description	27-Feb-2018	27-Feb-2018	28-Feb-2018	27-Feb-2018	27-Feb-2018	27-Feb-2018		27-Feb-2018	27-Feb-2018	28-Feb-2018
Semi Volatile Organic Compounds		05-Mar-2018			05-Mar-2018	05-Mar-2018		05-Mar-2018		
Total Dissolved Solids				05-Mar-2018	05-Mar-2018			05-Mar-2018		
Total Organic Carbon		02-Mar-2018		02-Mar-2018	02-Mar-2018			02-Mar-2018		
TPH CWG GC (S)	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018		06-Mar-2018	06-Mar-2018	
VOC MS (S)		02-Mar-2018			05-Mar-2018	06-Mar-2018		06-Mar-2018		

Lab Sample No(s)	17128866	17128597	17128616	17128719	17128587	17128790	17128797	17128564	17128579	17128629
Customer Sample Ref.	WS-RPS-23	WS-RPS-24	WS-RPS-24	WS-RPS-25	WS-RPS-28	WS-RPS-29	WS-RPS-29	WS-RPS-30	WS-RPS-30	WS-RPS-30
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1
Depth	0.00 - 0.40	0.50	2.60 - 3.00	0.35 - 0.50	0.20	0.25 - 0.60	0.60 - 0.90	0.00 - 0.30	0.50 - 0.80	1.40 - 2.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
ANC at pH4 and ANC at pH 6		01-Mar-2018		01-Mar-2018		01-Mar-2018		01-Mar-2018		
Anions by Kone (w)		06-Mar-2018		06-Mar-2018		06-Mar-2018		06-Mar-2018		
Asbestos ID in Solid Samples	06-Mar-2018	05-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	
Asbestos Quantification - Full	16-Mar-2018	16-Mar-2018		16-Mar-2018	16-Mar-2018		16-Mar-2018		16-Mar-2018	
CEN 10:1 Leachate (1 Stage)		01-Mar-2018		01-Mar-2018		01-Mar-2018		01-Mar-2018		
CEN Readings		03-Mar-2018		02-Mar-2018		03-Mar-2018		03-Mar-2018		
Dissolved Metals by ICP-MS		06-Mar-2018		06-Mar-2018		06-Mar-2018		06-Mar-2018		
Dissolved Organic/Inorganic Carbon		05-Mar-2018		05-Mar-2018		05-Mar-2018		05-Mar-2018		
EPH CWG (Aliphatic) GC (S)	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	
EPH CWG (Aromatic) GC (S)	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	
Fluoride		06-Mar-2018		06-Mar-2018		06-Mar-2018		06-Mar-2018		
GRO by GC-FID (S)	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	
Loss on Ignition in soils						07-Mar-2018		07-Mar-2018		
Mercury Dissolved		05-Mar-2018		06-Mar-2018		05-Mar-2018		06-Mar-2018		
Metals in solid samples by OES	05-Mar-2018	02-Mar-2018	05-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018	01-Mar-2018	
Mineral Oil		07-Mar-2018		07-Mar-2018		05-Mar-2018		05-Mar-2018		
PAH by GCMS	05-Mar-2018	05-Mar-2018		07-Mar-2018	05-Mar-2018	06-Mar-2018	06-Mar-2018	05-Mar-2018	05-Mar-2018	
PCBs by GCMS		06-Mar-2018	06-Mar-2018	06-Mar-2018		06-Mar-2018	06-Mar-2018	06-Mar-2018		
pH	05-Mar-2018	28-Feb-2018	05-Mar-2018	28-Feb-2018	05-Mar-2018	28-Feb-2018	05-Mar-2018	28-Feb-2018	28-Feb-2018	06-Mar-2018
Phenols by HPLC (S)								01-Mar-2018		
Phenols by HPLC (W)		06-Mar-2018		06-Mar-2018		06-Mar-2018		06-Mar-2018		
Sample description	28-Feb-2018	27-Feb-2018	27-Feb-2018	27-Feb-2018	27-Feb-2018	27-Feb-2018	28-Feb-2018	27-Feb-2018	27-Feb-2018	28-Feb-2018
Semi Volatile Organic Compounds			05-Mar-2018	05-Mar-2018			05-Mar-2018	05-Mar-2018		
Total Dissolved Solids		05-Mar-2018		05-Mar-2018		05-Mar-2018		05-Mar-2018		
Total Organic Carbon		02-Mar-2018		02-Mar-2018		02-Mar-2018		02-Mar-2018		
TPH CWG GC (S)	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	
VOC MS (S)			05-Mar-2018	02-Mar-2018			06-Mar-2018	05-Mar-2018		

ASSOCIATED AQC DATA

ANC at pH4 and ANC at pH 6

Component	Method Code	QC 1764
ANC pH_4 dry soil	TM182	**104.08** 86.12 : 113.88
ANC pH_6 dry soil	TM182	**109.39** 61.00 : 139.00

Anions by Kone (w)

Component	Method Code	QC 1763
Chloride	TM184	**105.0** 92.93 : 115.43
Phosphate (Ortho as PO4)	TM184	96.40 : 108.40
Sulphate (soluble)	TM184	**103.6** 90.53 : 113.03
TON as NO3	TM184	96.26 : 111.21

Dissolved Metals by ICP-MS

Component	Method Code	QC 1710	QC 1714
Aluminium	TM152	**95.67** 89.90 : 110.02	**96.67** 89.90 : 110.02
Antimony	TM152	**106.0** 79.80 : 122.00	**102.67** 79.80 : 122.00
Arsenic	TM152	**101.0** 90.42 : 111.32	**100.17** 90.42 : 111.32
Barium	TM152	**100.17** 92.02 : 112.48	**97.83** 92.02 : 112.48
Beryllium	TM152	**99.33** 86.15 : 118.35	**98.83** 86.15 : 118.35
Bismuth	TM152	**102.67** 88.90 : 106.90	**95.83** 88.90 : 106.90
Borate	TM152	**97.53** 88.00 : 112.00	**100.0** 88.00 : 112.00
Boron	TM152	**97.33** 86.68 : 117.67	**100.0** 86.68 : 117.67
Cadmium	TM152	**99.0** 92.07 : 109.87	**97.17** 92.07 : 109.87
Chromium	TM152	**96.5** 90.87 : 108.50	**95.0** 90.87 : 108.50
Cobalt	TM152	**96.5** 84.39 : 114.26	**94.17** 84.39 : 114.26
Copper	TM152	**100.0** 91.20 : 110.79	**98.33** 91.20 : 110.79
Lead	TM152	**103.0** 85.65 : 113.58	**96.5** 85.65 : 113.58
Lithium	TM152	**98.5** 89.26 : 119.04	**100.5** 89.26 : 119.04
Manganese	TM152	**97.17** 90.63 : 109.13	**95.67** 90.63 : 109.13

Dissolved Metals by ICP-MS

		QC 1710	QC 1714
Molybdenum	TM152	**92.83** 87.00 : 108.89	**91.5** 87.00 : 108.89
Nickel	TM152	**97.67** 92.11 : 110.56	**96.17** 92.11 : 110.56
Phosphorus	TM152	**97.17** 90.52 : 115.47	**95.83** 90.52 : 115.47
Selenium	TM152	**99.5** 88.44 : 113.86	**99.17** 88.44 : 113.86
Silver	TM152	**93.83** 76.93 : 112.73	**91.67** 76.93 : 112.73
Strontium	TM152	**97.67** 90.72 : 114.82	**96.67** 90.72 : 114.82
Tellurium	TM152	**97.0** 86.97 : 108.87	**96.83** 86.97 : 108.87
Thallium	TM152	**97.33** 80.92 : 114.72	**90.67** 80.92 : 114.72
Titanium	TM152	**95.83** 90.08 : 111.18	**98.0** 90.08 : 111.18
Tungsten	TM152	**104.5** 91.72 : 109.22	**98.5** 91.72 : 109.22
Uranium	TM152	**97.17** 90.58 : 113.28	**90.33** 90.58 : 113.28
Vanadium	TM152	**97.17** 88.43 : 114.30	**98.83** 88.43 : 114.30
Zinc	TM152	**99.33** 86.52 : 115.27	**98.33** 86.52 : 115.27

Dissolved Organic/Inorganic Carbon

Component	Method Code	QC 1739
Dissolved Inorganic Carbon	TM090	**98.33** 94.43 : 110.53
Dissolved Organic Carbon	TM090	**100.5** 99.25 : 108.95

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1704	QC 1775	QC 1737
Total Aliphatics >C12-C35	TM173	**90.0** 70.61 : 106.16	**86.88** 70.76 : 104.69	**91.46** 70.71 : 106.26

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1704	QC 1775	QC 1737
Total Aromatics >EC12-EC35	TM173	**84.67** 67.75 : 104.04	**82.67** 68.16 : 102.29	**81.33** 65.82 : 105.00

Fluoride

Component	Method Code	QC 1708
Fluoride	TM104	**96.67** 92.67 : 104.67

GRO by GC-FID (S)

Component	Method Code	QC 1745	QC 1788	QC 1787
Benzene by GC (Moisture Corrected)	TM089	**99.5** 80.70 : 121.69	**100.0** 80.70 : 121.69	**102.0** 84.09 : 122.62
Ethylbenzene by GC (Moisture Corrected)	TM089	**104.0** 76.65 : 121.92	**102.0** 76.65 : 121.92	**105.0** 78.42 : 121.07
m & p Xylene by GC (Moisture Corrected)	TM089	**103.25** 76.25 : 122.54	**101.0** 76.25 : 122.54	**104.25** 77.69 : 121.76
MTBE GC-FID (Moisture Corrected)	TM089	**95.0** 77.67 : 125.50	**99.5** 77.67 : 125.50	**101.5** 77.69 : 125.19
o Xylene by GC (Moisture Corrected)	TM089	**102.5** 76.37 : 122.94	**100.5** 76.37 : 122.94	**102.5** 77.88 : 121.47
QC	TM089	**99.43** 68.07 : 103.94	**97.24** 68.07 : 103.94	**98.13** 69.62 : 106.27
Toluene by GC (Moisture Corrected)	TM089	**103.0** 75.95 : 122.88	**102.5** 75.95 : 122.88	**105.0** 78.31 : 121.42

Loss on Ignition in soils

Component	Method Code	QC 1796
Loss on Ignition	TM018	**100.47** 89.27 : 104.90

Mercury Dissolved

Component	Method Code	QC 1725	QC 1737
Mercury Dissolved (CVAF)	TM183	**97.4** 73.51 : 120.83	**104.0** 73.51 : 120.83

Metals in solid samples by OES

Component	Method Code	QC 1762	QC 1767	QC 1700	QC 1722	QC 1753	QC 1770
Aluminium	TM181	**86.67** 75.13 : 109.48	**87.41** 75.13 : 109.48	**82.96** 75.13 : 109.48	**87.41** 75.13 : 109.48	**88.15** 75.13 : 109.48	**87.41** 75.13 : 109.48
Antimony	TM181	**98.46** 84.48 : 110.90	**95.37** 84.48 : 110.90	**94.21** 84.48 : 110.90	**92.66** 84.48 : 110.90	**96.91** 84.48 : 110.90	**93.82** 84.48 : 110.90
Arsenic	TM181	**91.52** 83.14 : 108.73	**89.72** 83.14 : 108.73	**87.66** 83.14 : 108.73	**91.52** 83.14 : 108.73	**93.83** 83.14 : 108.73	**94.6** 83.14 : 108.73
Barium	TM181	**92.19** 77.47 : 102.53	**90.63** 77.47 : 102.53	**89.06** 77.47 : 102.53	**85.94** 77.47 : 102.53	**91.41** 77.47 : 102.53	**90.63** 77.47 : 102.53

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Metals in solid samples by OES

		QC 1762	QC 1767	QC 1700	QC 1722	QC 1753	QC 1770
Beryllium	TM181	**94.52** 84.19 : 106.77	**91.44** 84.19 : 106.77	**93.49** 84.19 : 106.77	**88.7** 84.19 : 106.77	**92.81** 84.19 : 106.77	**91.1** 84.19 : 106.77
Boron	TM181	**84.46** 76.55 : 106.69	**86.72** 76.55 : 106.69	**83.62** 76.55 : 106.69	**87.57** 76.55 : 106.69	**89.83** 76.55 : 106.69	**86.72** 76.55 : 106.69
Cadmium	TM181	**98.94** 86.37 : 111.59	**96.28** 86.37 : 111.59	**92.55** 86.37 : 111.59	**93.09** 86.37 : 111.59	**96.81** 86.37 : 111.59	**95.74** 86.37 : 111.59
Chromium	TM181	**94.51** 81.29 : 118.71	**92.83** 81.29 : 118.71	**90.93** 81.29 : 118.71	**93.67** 81.29 : 118.71	**97.47** 81.29 : 118.71	**93.67** 81.29 : 118.71
Cobalt	TM181	**94.36** 85.45 : 109.14	**92.48** 85.45 : 109.14	**91.22** 85.45 : 109.14	**89.03** 85.45 : 109.14	**94.67** 85.45 : 109.14	**90.91** 85.45 : 109.14
Copper	TM181	**90.1** 81.33 : 103.33	**87.48** 81.33 : 103.33	**85.44** 81.33 : 103.33	**85.44** 81.33 : 103.33	**89.81** 81.33 : 103.33	**87.63** 81.33 : 103.33
Iron	TM181	**95.83** 82.44 : 111.71	**93.75** 82.44 : 111.71	**92.36** 82.44 : 111.71	**91.67** 82.44 : 111.71	**94.44** 82.44 : 111.71	**95.14** 82.44 : 111.71
Lead	TM181	**90.64** 83.33 : 106.95	**88.72** 83.33 : 106.95	**90.21** 83.33 : 106.95	**91.91** 83.33 : 106.95	**92.98** 83.33 : 106.95	**97.23** 83.33 : 106.95
Manganese	TM181	**89.09** 80.56 : 102.33	**86.06** 80.56 : 102.33	**90.3** 80.56 : 102.33	**82.63** 80.56 : 102.33	**86.67** 80.56 : 102.33	**85.45** 80.56 : 102.33
Mercury	TM181	**94.9** 84.13 : 111.85	**92.55** 84.13 : 111.85	**92.16** 84.13 : 111.85	**93.33** 84.13 : 111.85	**96.08** 84.13 : 111.85	**96.86** 84.13 : 111.85
Molybdenum	TM181	**96.53** 84.19 : 110.39	**93.44** 84.19 : 110.39	**91.89** 84.19 : 110.39	**92.28** 84.19 : 110.39	**95.75** 84.19 : 110.39	**94.21** 84.19 : 110.39
Nickel	TM181	**95.57** 84.19 : 109.77	**93.47** 84.19 : 109.77	**90.91** 84.19 : 109.77	**96.5** 84.19 : 109.77	**95.1** 84.19 : 109.77	**93.94** 84.19 : 109.77
Phosphorus	TM181	**87.57** 73.47 : 116.86	**85.63** 73.47 : 116.86	**88.17** 73.47 : 116.86	**86.08** 73.47 : 116.86	**88.62** 73.47 : 116.86	**88.47** 73.47 : 116.86
Selenium	TM181	**93.18** 81.32 : 108.59	**90.5** 81.32 : 108.59	**87.83** 81.32 : 108.59	**87.83** 81.32 : 108.59	**91.99** 81.32 : 108.59	**90.21** 81.32 : 108.59
Strontium	TM181	**90.06** 84.70 : 105.87	**89.01** 84.70 : 105.87	**86.47** 84.70 : 105.87	**90.27** 84.70 : 105.87	**93.66** 84.70 : 105.87	**90.27** 84.70 : 105.87
Thallium	TM181	**94.14** 81.19 : 105.37	**91.8** 81.19 : 105.37	**97.27** 81.19 : 105.37	**89.84** 81.19 : 105.37	**94.92** 81.19 : 105.37	**91.41** 81.19 : 105.37
Tin	TM181	**97.52** 85.92 : 110.00	**95.39** 85.92 : 110.00	**92.55** 85.92 : 110.00	**93.26** 85.92 : 110.00	**96.45** 85.92 : 110.00	**95.74** 85.92 : 110.00
Titanium	TM181	**83.85** 73.44 : 113.17	**86.15** 73.44 : 113.17	**86.92** 73.44 : 113.17	**97.69** 73.44 : 113.17	**90.77** 73.44 : 113.17	**87.69** 73.44 : 113.17
Vanadium	TM181	**88.65** 78.62 : 101.47	**87.12** 78.62 : 101.47	**87.42** 78.62 : 101.47	**89.26** 78.62 : 101.47	**91.72** 78.62 : 101.47	**88.34** 78.62 : 101.47
Zinc	TM181	**95.29** 85.64 : 110.14	**93.19** 85.64 : 110.14	**90.58** 85.64 : 110.14	**89.18** 85.64 : 110.14	**100.7** 85.64 : 110.14	**91.62** 85.64 : 110.14

Component	**Method Code**	QC 1766	QC 1722	QC 1798	QC 1734	QC 1749
Aluminium	TM181	**87.41** 75.13 : 109.48	**90.37** 75.13 : 109.48	**82.96** 75.13 : 109.48	**94.81** 75.13 : 109.48	**77.04** 75.13 : 109.48
Antimony	TM181	**100.39** 84.48 : 110.90	**94.21** 84.48 : 110.90	**92.28** 84.48 : 110.90	**97.3** 84.48 : 110.90	**96.14** 84.48 : 110.90
Arsenic	TM181	**92.03** 83.14 : 108.73	**91.52** 83.14 : 108.73	**89.97** 83.14 : 108.73	**94.09** 83.14 : 108.73	**91.26** 83.14 : 108.73
Barium	TM181	**97.66** 77.47 : 102.53	**91.41** 77.47 : 102.53	**85.94** 77.47 : 102.53	**95.31** 77.47 : 102.53	**83.59** 77.47 : 102.53
Beryllium	TM181	**97.26** 84.19 : 106.77	**91.44** 84.19 : 106.77	**88.7** 84.19 : 106.77	**95.21** 84.19 : 106.77	**91.44** 84.19 : 106.77
Boron	TM181	**88.14** 76.55 : 106.69	**89.27** 76.55 : 106.69	**83.05** 76.55 : 106.69	**91.53** 76.55 : 106.69	**83.33** 76.55 : 106.69

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Metals in solid samples by OES

		QC 1766	QC 1722	QC 1798	QC 1734	QC 1749
Cadmium	TM181	**96.81** 86.37 : 111.59	**96.81** 86.37 : 111.59	**94.68** 86.37 : 111.59	**97.87** 86.37 : 111.59	**95.74** 86.37 : 111.59
Chromium	TM181	**97.26** 81.29 : 118.71	**94.73** 81.29 : 118.71	**91.14** 81.29 : 118.71	**99.37** 81.29 : 118.71	**95.78** 81.29 : 118.71
Cobalt	TM181	**94.67** 85.45 : 109.14	**94.98** 85.45 : 109.14	**93.42** 85.45 : 109.14	**96.87** 85.45 : 109.14	**94.04** 85.45 : 109.14
Copper	TM181	**91.12** 81.33 : 103.33	**88.21** 81.33 : 103.33	**85.15** 81.33 : 103.33	**91.56** 81.33 : 103.33	**88.94** 81.33 : 103.33
Iron	TM181	**97.92** 82.44 : 111.71	**95.14** 82.44 : 111.71	**90.28** 82.44 : 111.71	**99.31** 82.44 : 111.71	**84.72** 82.44 : 111.71
Lead	TM181	**94.47** 83.33 : 106.95	**91.06** 83.33 : 106.95	**90.21** 83.33 : 106.95	**92.77** 83.33 : 106.95	**93.4** 83.33 : 106.95
Manganese	TM181	**94.95** 80.56 : 102.33	**87.47** 80.56 : 102.33	**84.24** 80.56 : 102.33	**90.71** 80.56 : 102.33	**86.26** 80.56 : 102.33
Mercury	TM181	**95.29** 84.13 : 111.85	**95.29** 84.13 : 111.85	**93.73** 84.13 : 111.85	**97.25** 84.13 : 111.85	**94.51** 84.13 : 111.85
Molybdenum	TM181	**97.3** 84.19 : 110.39	**92.66** 84.19 : 110.39	**90.73** 84.19 : 110.39	**94.98** 84.19 : 110.39	**93.82** 84.19 : 110.39
Nickel	TM181	**103.5** 84.19 : 109.77	**93.71** 84.19 : 109.77	**90.91** 84.19 : 109.77	**95.8** 84.19 : 109.77	**93.24** 84.19 : 109.77
Phosphorus	TM181	**92.22** 73.47 : 116.86	**90.27** 73.47 : 116.86	**88.02** 73.47 : 116.86	**92.66** 73.47 : 116.86	**90.42** 73.47 : 116.86
Selenium	TM181	**93.47** 81.32 : 108.59	**90.8** 81.32 : 108.59	**87.54** 81.32 : 108.59	**91.99** 81.32 : 108.59	**90.21** 81.32 : 108.59
Strontium	TM181	**92.18** 84.70 : 105.87	**91.75** 84.70 : 105.87	**86.89** 84.70 : 105.87	**95.77** 84.70 : 105.87	**90.7** 84.70 : 105.87
Thallium	TM181	**91.8** 81.19 : 105.37	**94.53** 81.19 : 105.37	**90.63** 81.19 : 105.37	**96.48** 81.19 : 105.37	**92.19** 81.19 : 105.37
Tin	TM181	**96.81** 85.92 : 110.00	**94.33** 85.92 : 110.00	**93.26** 85.92 : 110.00	**96.45** 85.92 : 110.00	**93.62** 85.92 : 110.00
Titanium	TM181	**91.54** 73.44 : 113.17	**88.46** 73.44 : 113.17	**83.08** 73.44 : 113.17	**90.77** 73.44 : 113.17	**82.31** 73.44 : 113.17
Vanadium	TM181	**92.33** 78.62 : 101.47	**89.57** 78.62 : 101.47	**84.66** 78.62 : 101.47	**92.94** 78.62 : 101.47	**88.34** 78.62 : 101.47
Zinc	TM181	**237.35** 85.64 : 110.14	**93.19** 85.64 : 110.14	**90.23** 85.64 : 110.14	**95.64** 85.64 : 110.14	**92.67** 85.64 : 110.14

Mineral Oil

Component	Method Code	QC 1799	QC 1788
Mineral Oil	TM061	**95.33** 76.64 : 99.14	**87.83** 76.64 : 99.14

PAH by GCMS

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

PAH by GCMS

Component	Method Code	QC 1708	QC 1787	QC 1727	QC 1784	QC 1766	QC 1788
Acenaphthene	TM218	**98.0** 78.17 : 114.45	**102.5** 82.09 : 110.18	**102.5** 78.17 : 114.45	**93.0** 78.95 : 114.22	**93.0** 78.95 : 114.22	**92.0** 82.60 : 105.38
Acenaphthylene	TM218	**93.5** 73.70 : 105.55	**93.0** 77.92 : 100.70	**96.5** 73.70 : 105.55	**79.5** 64.89 : 106.33	**81.5** 64.89 : 106.33	**88.5** 73.64 : 111.66
Anthracene	TM218	**94.5** 50.58 : 133.35	**96.5** 79.96 : 103.02	**97.5** 50.58 : 133.35	**90.0** 77.17 : 105.56	**86.5** 77.17 : 105.56	**91.5** 73.49 : 107.13
Benz(a)anthracene	TM218	**107.0** 73.03 : 124.35	**106.5** 80.00 : 122.30	**110.0** 73.03 : 124.35	**105.0** 80.47 : 122.11	**102.5** 80.47 : 122.11	**107.0** 87.82 : 118.79
Benzo(a)pyrene	TM218	**103.0** 76.86 : 123.01	**106.5** 86.92 : 126.33	**106.0** 76.86 : 123.01	**109.0** 79.44 : 122.09	**102.5** 79.44 : 122.09	**108.5** 83.39 : 123.49
Benzo(b)fluoranthene	TM218	**102.0** 75.92 : 130.86	**104.5** 84.53 : 122.14	**106.0** 75.92 : 130.86	**102.5** 81.46 : 113.62	**106.5** 81.46 : 113.62	**109.0** 80.60 : 126.56
Benzo(ghi)perylene	TM218	**97.0** 80.30 : 117.80	**93.5** 77.49 : 119.12	**99.0** 80.30 : 117.80	**101.5** 79.07 : 113.26	**96.0** 79.07 : 113.26	**104.0** 80.86 : 109.92
Benzo(k)fluoranthene	TM218	**99.5** 81.49 : 113.89	**100.5** 88.94 : 117.08	**103.5** 81.49 : 113.89	**105.5** 86.00 : 117.59	**101.5** 86.00 : 117.59	**108.0** 87.91 : 119.03
Chrysene	TM218	**96.5** 77.31 : 114.50	**102.5** 87.67 : 116.32	**99.5** 77.31 : 114.50	**104.5** 79.02 : 117.48	**96.0** 79.02 : 117.48	**105.5** 85.34 : 115.46
Dibenzo(ah)anthracene	TM218	**99.5** 77.77 : 118.30	**97.0** 85.66 : 119.61	**100.0** 77.77 : 118.30	**103.0** 85.70 : 123.10	**98.0** 85.70 : 123.10	**106.5** 82.98 : 121.47
Fluoranthene	TM218	**95.5** 80.77 : 108.59	**105.0** 84.49 : 109.33	**98.0** 80.77 : 108.59	**93.0** 80.37 : 111.80	**91.5** 80.37 : 111.80	**96.5** 82.03 : 107.26
Fluorene	TM218	**97.0** 79.13 : 110.70	**102.5** 84.28 : 107.54	**101.5** 79.13 : 110.70	**91.5** 79.98 : 109.78	**91.5** 79.98 : 109.78	**93.5** 81.48 : 108.26
Indeno(123cd)pyrene	TM218	**98.5** 78.65 : 117.12	**97.0** 86.46 : 120.70	**100.5** 78.65 : 117.12	**103.5** 85.41 : 122.03	**99.0** 85.41 : 122.03	**106.5** 84.02 : 120.55
Naphthalene	TM218	**92.0** 77.09 : 108.37	**104.5** 82.88 : 115.56	**95.0** 77.09 : 108.37	**90.5** 82.33 : 112.21	**91.5** 82.33 : 112.21	**93.5** 84.06 : 108.38
Phenanthrene	TM218	**95.5** 76.02 : 112.05	**102.5** 81.59 : 110.61	**97.0** 76.02 : 112.05	**93.0** 80.52 : 110.11	**91.0** 80.52 : 110.11	**92.0** 78.68 : 107.87
Pyrene	TM218	**94.5** 79.98 : 107.66	**102.0** 83.25 : 107.60	**98.0** 79.98 : 107.66	**92.0** 79.57 : 110.12	**90.5** 79.57 : 110.12	**96.5** 81.96 : 108.90

PCBs by GCMS

Component	Method Code	QC 1710	QC 1750
PCB congener 101	TM168	**91.8** 76.50 : 116.94	**92.9** 80.77 : 111.39
PCB congener 105	TM168	**88.6** 75.93 : 120.03	**88.4** 79.28 : 115.39
PCB congener 114	TM168	**90.8** 76.64 : 119.06	**90.4** 81.30 : 114.31
PCB congener 118	TM168	**91.7** 75.18 : 118.08	**91.8** 80.32 : 112.22
PCB congener 123	TM168	**88.9** 75.72 : 117.84	**88.9** 80.25 : 114.57
PCB congener 126	TM168	**88.7** 76.10 : 125.90	**88.6** 75.17 : 124.58
PCB congener 138	TM168	**88.8** 78.04 : 121.72	**91.2** 82.92 : 114.57
PCB congener 153	TM168	**86.9** 77.67 : 119.31	**88.7** 83.90 : 111.70
PCB congener 156	TM168	**88.3** 73.48 : 118.60	**90.6** 75.33 : 115.33

PCBs by GCMS

		QC 1710	QC 1750
PCB congener 157	TM168	**87.7** 77.47 : 123.91	**90.3** 80.94 : 117.86
PCB congener 167	TM168	**88.4** 75.77 : 121.97	**91.2** 78.02 : 117.22
PCB congener 169	TM168	**89.1** 74.49 : 130.71	**92.7** 73.31 : 125.29
PCB congener 180	TM168	**88.4** 77.34 : 121.26	**92.3** 79.60 : 113.91
PCB congener 189	TM168	**89.5** 75.60 : 127.20	**92.1** 71.41 : 124.18
PCB congener 28	TM168	**98.8** 79.43 : 121.67	**92.1** 83.25 : 112.46
PCB congener 52	TM168	**103.0** 78.72 : 119.28	**97.3** 85.30 : 110.14
PCB congener 77	TM168	**102.0** 74.04 : 120.60	**91.5** 73.92 : 120.16
PCB congener 81	TM168	**96.4** 78.47 : 124.85	**87.2** 81.05 : 122.39

pH

Component	Method Code	QC 1727	QC 1750	QC 1718	QC 1766	QC 1729
pH	TM133	**100.39** 99.48 : 102.60	**101.17** 99.48 : 102.60	**100.91** 99.48 : 102.60	**101.69** 99.48 : 102.60	**100.13** 99.48 : 102.60

Phenols by HPLC (S)

Component	Method Code	QC 1715
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**103.9** 85.25 : 114.75
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**97.08** 75.71 : 124.29
Catechol by HPLC (S)	TM062 (S)	**119.05** 64.10 : 135.90
Cresols by HPLC (S)	TM062 (S)	**97.29** 78.85 : 107.41
Napthol by HPLC (S)	TM062 (S)	**121.43** 75.62 : 124.38
Phenol by HPLC (S)	TM062 (S)	**111.92** 79.53 : 120.47
Resorcinol HPLC (S)	TM062 (S)	**128.93** 86.85 : 145.65
Xylenols by HPLC (S)	TM062 (S)	**102.6** 84.65 : 109.70

Phenols by HPLC (W)

Phenols by HPLC (W)

Component	Method Code	QC 1724
2.3.5 Trimethyl-Phenol by HPLC (W)	TM259	**99.0** 89.00 : 113.00
2-Isopropyl Phenol by HPLC (W)	TM259	**104.0** 95.00 : 113.00
Cresols by HPLC (W)	TM259	**96.33** 84.57 : 102.57
Napthol by HPLC (W)	TM259	**111.0** 90.22 : 121.54
Phenol by HPLC (W)	TM259	**100.0** 89.00 : 107.00
Xylenols by HPLC (W)	TM259	**109.0** 88.83 : 112.83

Semi Volatile Organic Compounds

Component	Method Code	QC 1727	QC 1734
4-Bromophenylphenylether (Soil)	TM157	**84.5** 65.45 : 121.76	**80.0** 65.45 : 121.76
Benzo(a)anthracene (Soil)	TM157	**91.5** 71.89 : 120.91	**94.5** 71.89 : 120.91
Hexachlorobutadiene (Soil)	TM157	**89.0** 69.80 : 117.77	**89.0** 69.80 : 117.77
Naphthalene (Soil)	TM157	**87.0** 71.89 : 120.16	**86.0** 71.89 : 120.16
Nitrobenzene (Soil)	TM157	**93.0** 70.00 : 118.00	**89.0** 70.00 : 118.00
Phenol (Soil)	TM157	**91.0** 68.54 : 114.86	**84.0** 68.54 : 114.86

Total Dissolved Solids

Component	Method Code	QC 1782	QC 1797
Total Dissolved Solids	TM123	**98.6** 97.30 : 101.58	**99.9** 97.30 : 101.58

Total Organic Carbon

Component	Method Code	QC 1704	QC 1719
Total Organic Carbon	TM132	**89.06** 83.00 : 101.77	**87.89** 83.00 : 101.77

VOC MS (S)

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

VOC MS (S)

Component	Method Code	QC 1789	QC 1772	QC 1720	QC 1785
1,1,1,2-tetrachloroethane	TM116	**104.0** 77.56 : 115.55	**102.8** 77.56 : 115.55	**104.2** 77.56 : 115.55	**99.4** 77.56 : 115.55
1,1,1-Trichloroethane	TM116	**100.0** 73.73 : 118.05	**100.4** 73.73 : 118.05	**100.2** 73.73 : 118.05	**94.2** 73.73 : 118.05
1,1,2-Trichloroethane	TM116	**103.6** 77.12 : 116.04	**96.0** 77.12 : 116.04	**92.8** 77.12 : 116.04	**91.6** 77.12 : 116.04
1,1-Dichloroethane	TM116	**107.0** 74.46 : 129.15	**106.4** 74.46 : 129.15	**107.4** 74.46 : 129.15	**96.8** 74.46 : 129.15
1,2-Dichloroethane	TM116	**118.0** 92.57 : 128.78	**109.4** 92.57 : 128.78	**111.8** 92.57 : 128.78	**104.2** 92.57 : 128.78
1,4-Dichlorobenzene	TM116	**114.2** 72.76 : 126.34	**99.8** 72.76 : 126.34	**93.6** 72.76 : 126.34	**91.8** 72.76 : 126.34
2-Chlorotoluene	TM116	**103.2** 69.73 : 114.13	**89.2** 69.73 : 114.13	**93.8** 69.73 : 114.13	**87.4** 69.73 : 114.13
4-Chlorotoluene	TM116	**99.4** 66.90 : 112.46	**84.6** 66.90 : 112.46	**92.4** 66.90 : 112.46	**88.0** 66.90 : 112.46
Benzene	TM116	**104.0** 81.05 : 117.28	**101.0** 81.05 : 117.28	**101.4** 81.05 : 117.28	**100.0** 81.05 : 117.28
Carbon Disulphide	TM116	**100.0** 74.91 : 122.14	**96.2** 74.91 : 122.14	**96.6** 74.91 : 122.14	**91.8** 74.91 : 122.14
Carbontetrachloride	TM116	**104.0** 78.83 : 123.13	**100.8** 78.83 : 123.13	**102.6** 78.83 : 123.13	**102.6** 78.83 : 123.13
Chlorobenzene	TM116	**106.2** 75.00 : 115.53	**99.6** 75.00 : 115.53	**105.8** 75.00 : 115.53	**103.8** 75.00 : 115.53
Chloroform	TM116	**110.2** 77.34 : 121.84	**108.4** 77.34 : 121.84	**110.8** 77.34 : 121.84	**102.6** 77.34 : 121.84
Chloromethane	TM116	**95.4** 52.63 : 138.74	**95.8** 52.63 : 138.74	**97.2** 52.63 : 138.74	**73.6** 52.63 : 138.74
Cis-1,2-Dichloroethene	TM116	**109.0** 80.67 : 126.72	**107.6** 80.67 : 126.72	**110.2** 80.67 : 126.72	**98.2** 80.67 : 126.72
Dibromomethane	TM116	**114.0** 67.80 : 121.75	**97.6** 67.80 : 121.75	**99.2** 67.80 : 121.75	**93.2** 67.80 : 121.75
Dichloromethane	TM116	**114.6** 81.11 : 133.25	**110.2** 81.11 : 133.25	**103.8** 81.11 : 133.25	**100.4** 81.11 : 133.25
Ethylbenzene	TM116	**98.6** 72.53 : 109.84	**91.2** 72.53 : 109.84	**95.8** 72.53 : 109.84	**90.8** 72.53 : 109.84
Hexachlorobutadiene	TM116	**93.6** 12.82 : 152.73	**47.6** 12.82 : 152.73	**67.8** 12.82 : 152.73	**51.6** 12.82 : 152.73
Isopropylbenzene	TM116	**85.4** 54.46 : 125.44	**68.8** 54.46 : 125.44	**77.2** 54.46 : 125.44	**76.8** 54.46 : 125.44
Naphthalene	TM116	**115.8** 80.86 : 128.81	**107.4** 80.86 : 128.81	**97.6** 80.86 : 128.81	**103.6** 80.86 : 128.81
o-Xylene	TM116	**88.6** 67.46 : 102.22	**83.0** 67.46 : 102.22	**87.6** 67.46 : 102.22	**84.2** 67.46 : 102.22
p/m-Xylene	TM116	**93.4** 68.32 : 108.91	**86.2** 68.32 : 108.91	**88.2** 68.32 : 108.91	**86.7** 68.32 : 108.91
Sec-Butylbenzene	TM116	**75.6** 46.09 : 121.51	**57.8** 46.09 : 121.51	**69.8** 46.09 : 121.51	**65.4** 46.09 : 121.51
Tetrachloroethene	TM116	**110.0** 76.95 : 121.02	**97.0** 76.95 : 121.02	**103.8** 76.95 : 121.02	**103.0** 76.95 : 121.02
Toluene	TM116	**95.6** 74.24 : 107.42	**89.8** 74.24 : 107.42	**92.0** 74.24 : 107.42	**88.2** 74.24 : 107.42

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

VOC MS (S)

		QC 1789	QC 1772	QC 1720	QC 1785
Trichloroethene	TM116	**99.8** 77.61 : 111.54	**94.0** 77.61 : 111.54	**94.2** 77.61 : 111.54	**94.4** 77.61 : 111.54
Trichlorofluoromethane	TM116	**98.8** 71.31 : 128.41	**101.4** 71.31 : 128.41	**100.4** 71.31 : 128.41	**88.0** 71.31 : 128.41
Vinyl Chloride	TM116	**112.0** 68.26 : 133.45	**108.6** 68.26 : 133.45	**111.2** 68.26 : 133.45	**93.4** 68.26 : 133.45

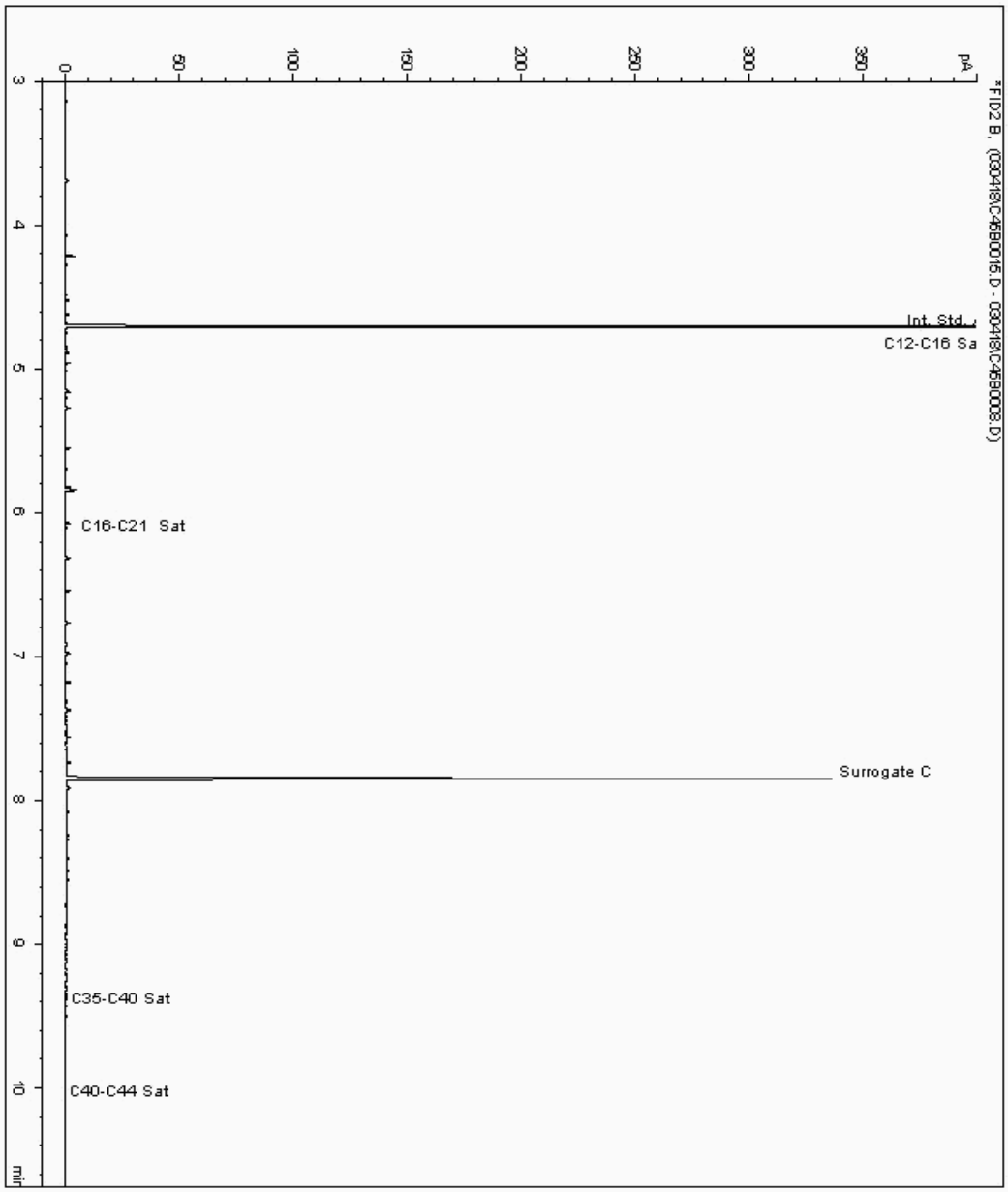
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130063 **Sample ID :** CP-RPS-05 **Depth :** 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080986-
Date Acquired : 04/03/2018 21:51:41 PM
Units : ppb
Dilution: CP-RPS-05[0.50] ->

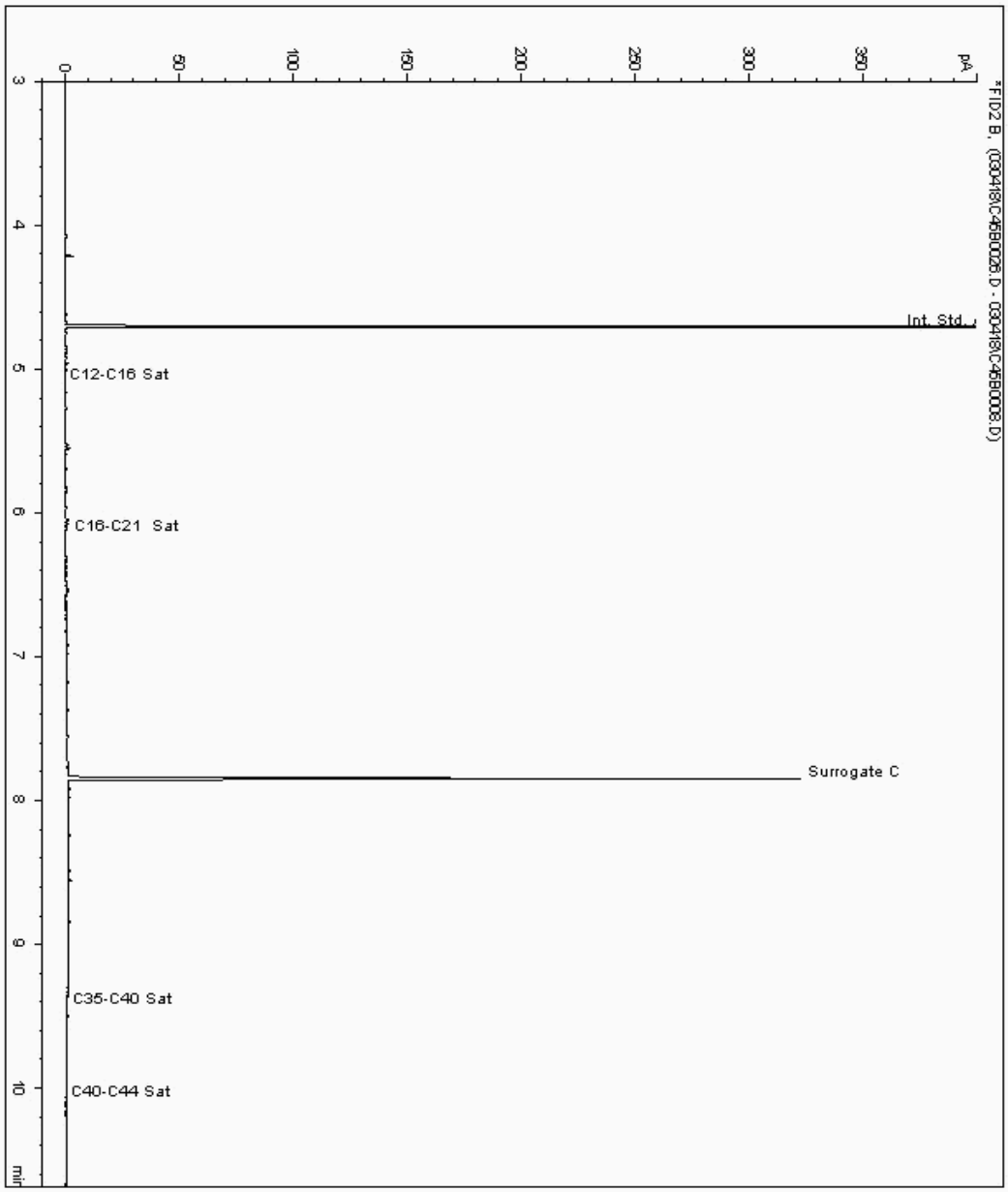


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130149 **Sample ID :** BH-RPS-04 **Depth :** 7.80 - 8.40

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080692-
Date Acquired : 05/03/2018 01:12:51 PM
Units : ppb
Dilution: BH-RPS-04[7.80 - 8.40] ->



CERTIFICATE OF ANALYSIS

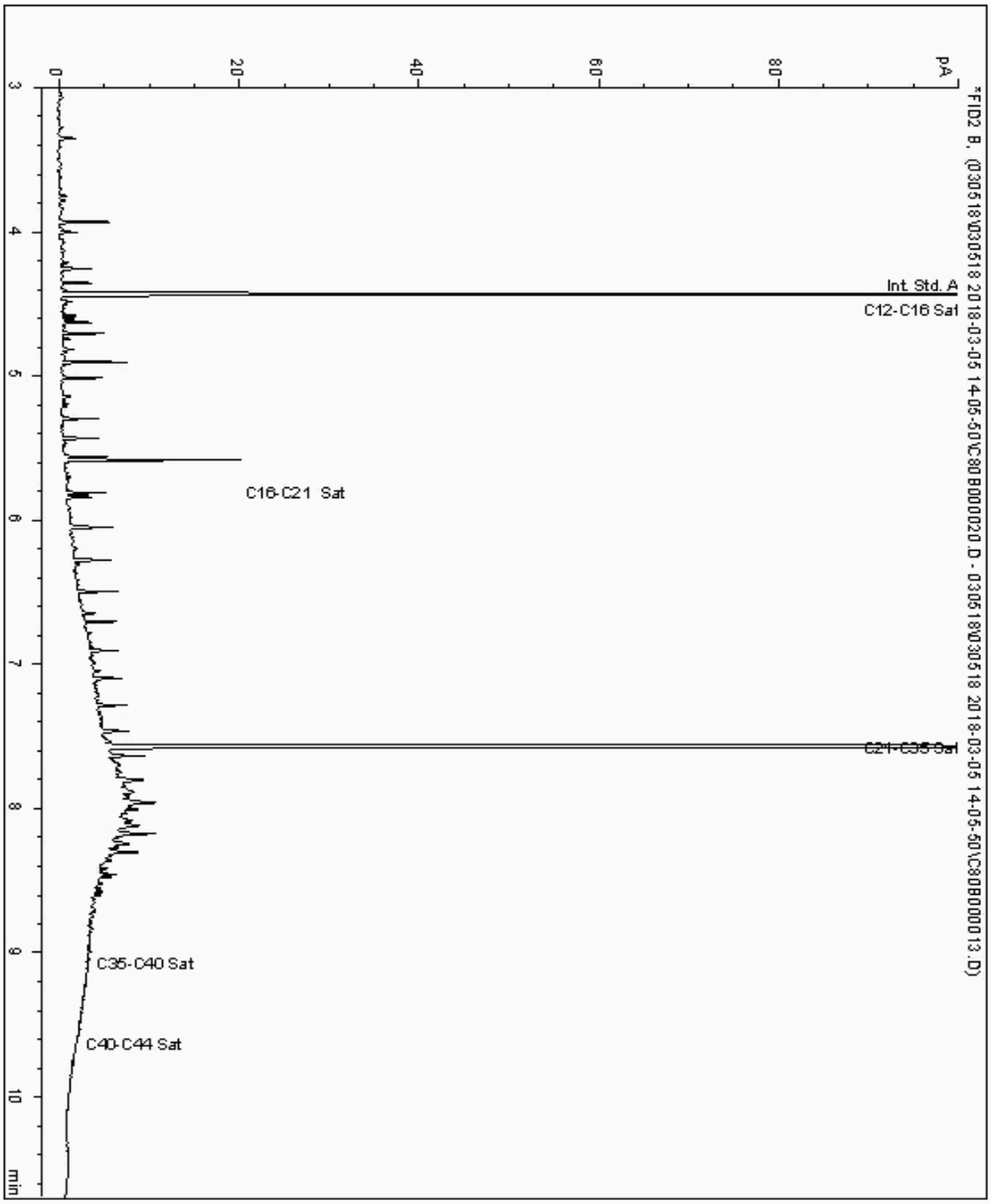
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130220 **Sample ID :** WS-RPS-08 **Depth :** 0.20 - 0.50

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080713-
Date Acquired : 05/03/18 19:47:02
Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



Validated

CERTIFICATE OF ANALYSIS

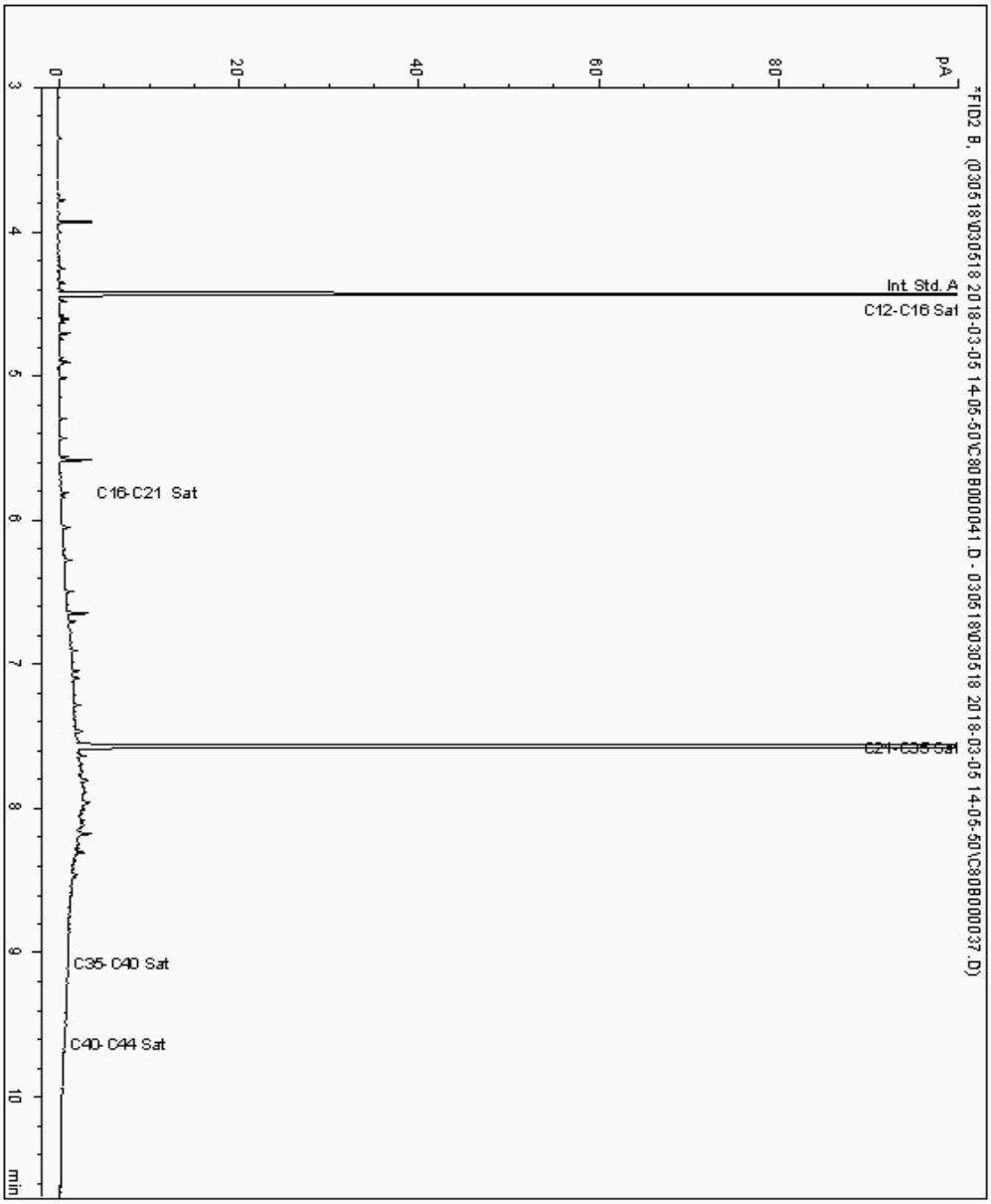
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130289 **Sample ID :** WS-RPS-16 **Depth :** 0.50

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080943-
Date Acquired : 06/03/18 01:31:21
Units : ppb
Dilution :
CF : 1
Multiplier : 0.980



CERTIFICATE OF ANALYSIS

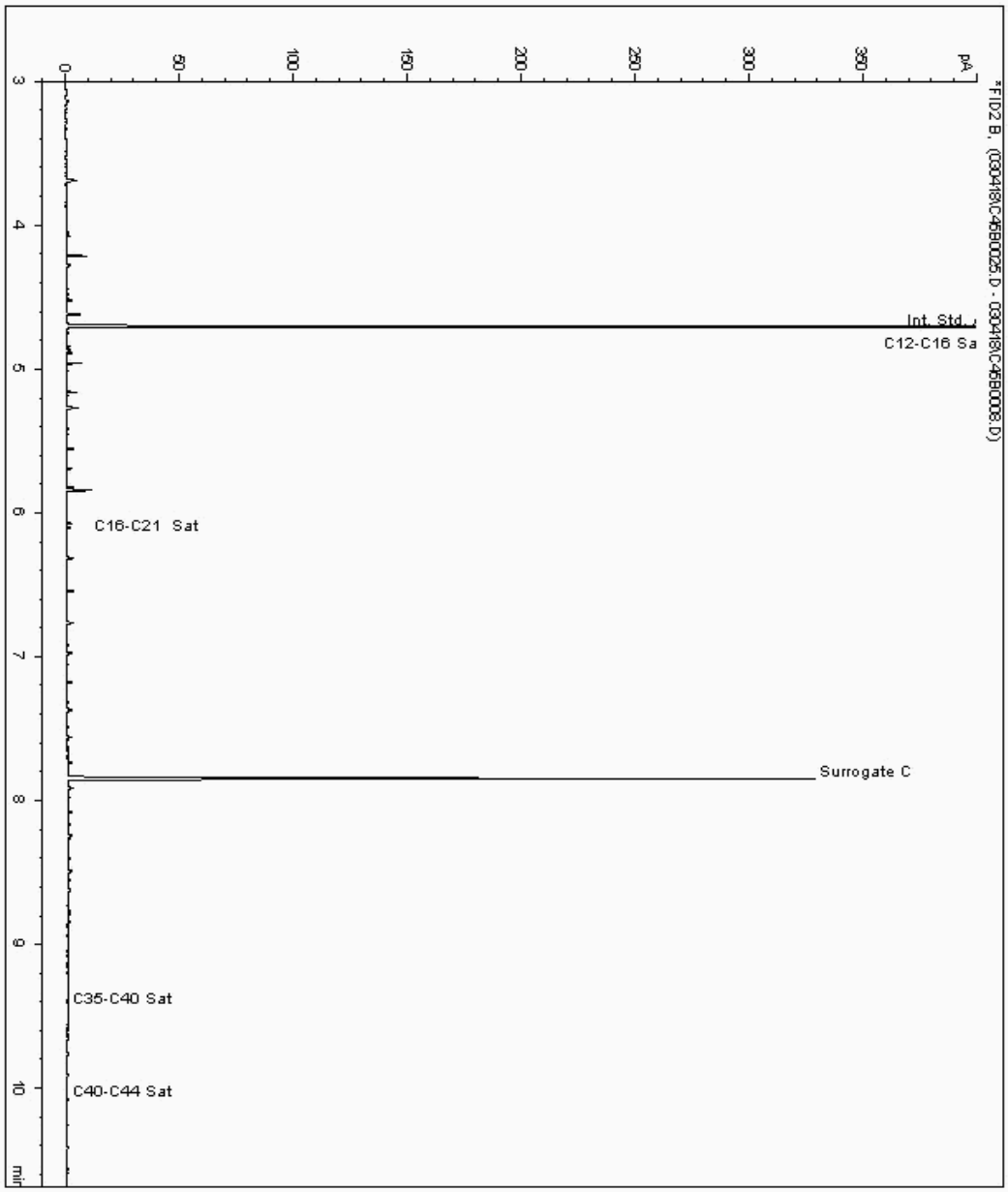
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130378 **Sample ID :** WS-RPS-29 **Depth :** 0.25 - 0.60

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080965-
Date Acquired : 05/03/2018 00:53:07 PM
Units : ppb
Dilution: WS-RPS-29[0.25 - 0.60] ->



Validated

CERTIFICATE OF ANALYSIS

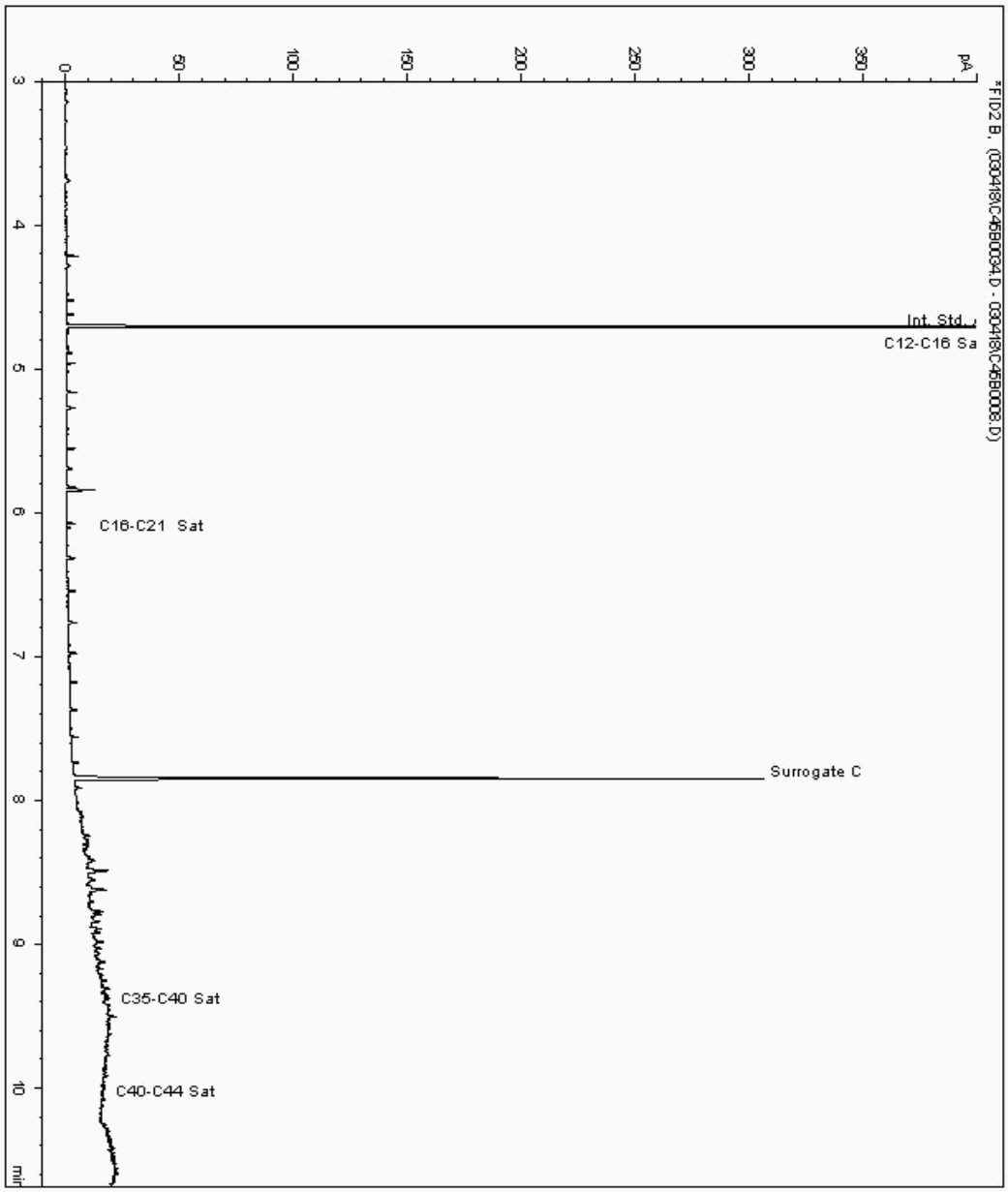
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130532 **Sample ID :** WS-RPS-24 **Depth :** 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080862-
Date Acquired : 05/03/2018 03:19:37 PM
Units : ppb
Dilution: WS-RPS-24[0.50] ->

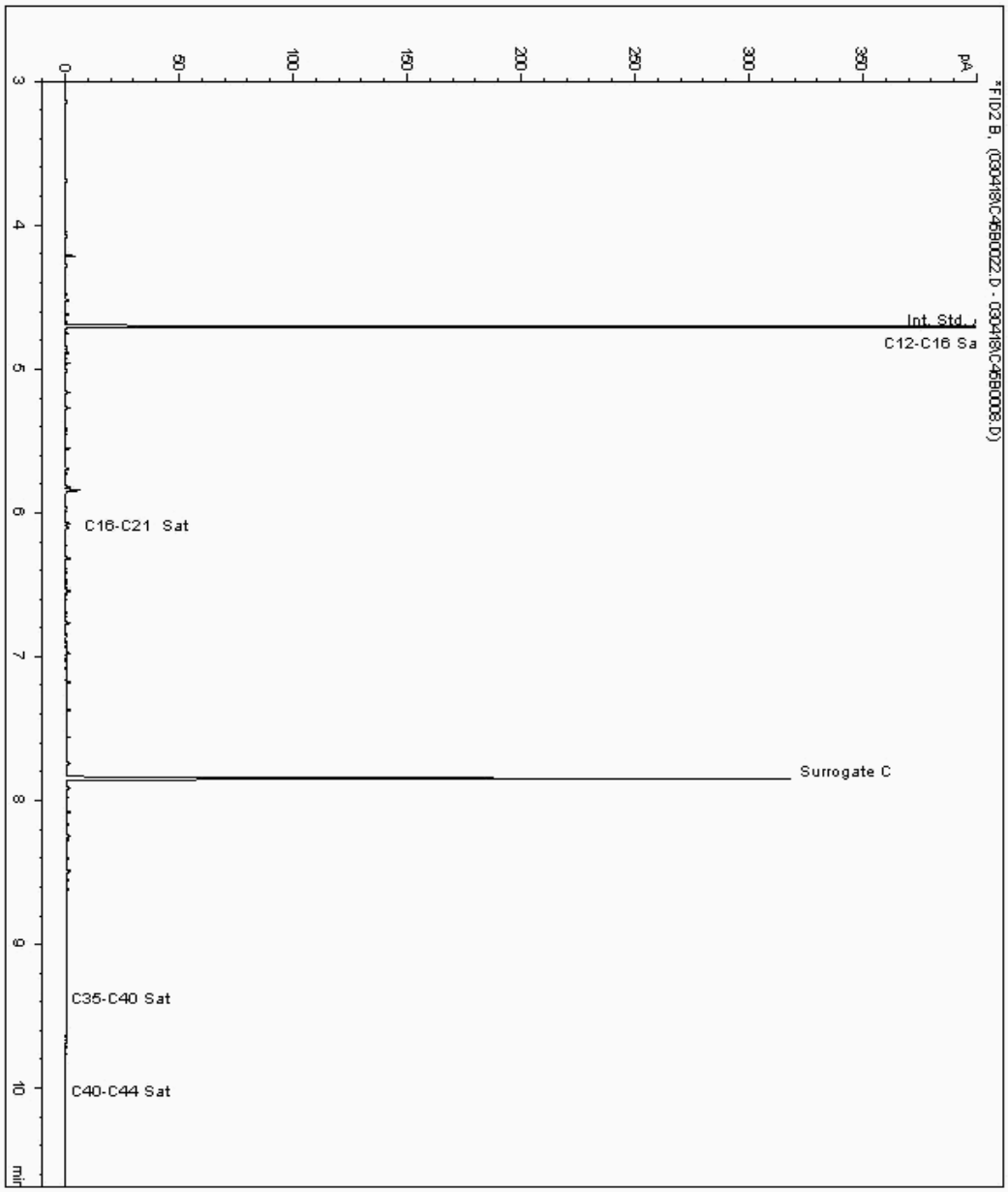


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130544 **Sample ID :** WS-RPS-30 **Depth :** 0.00 - 0.30

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080841-
Date Acquired : 04/03/2018 23:53:57 PM
Units : ppb
Dilution: WS-RPS-30[0.00 - 0.30] ->

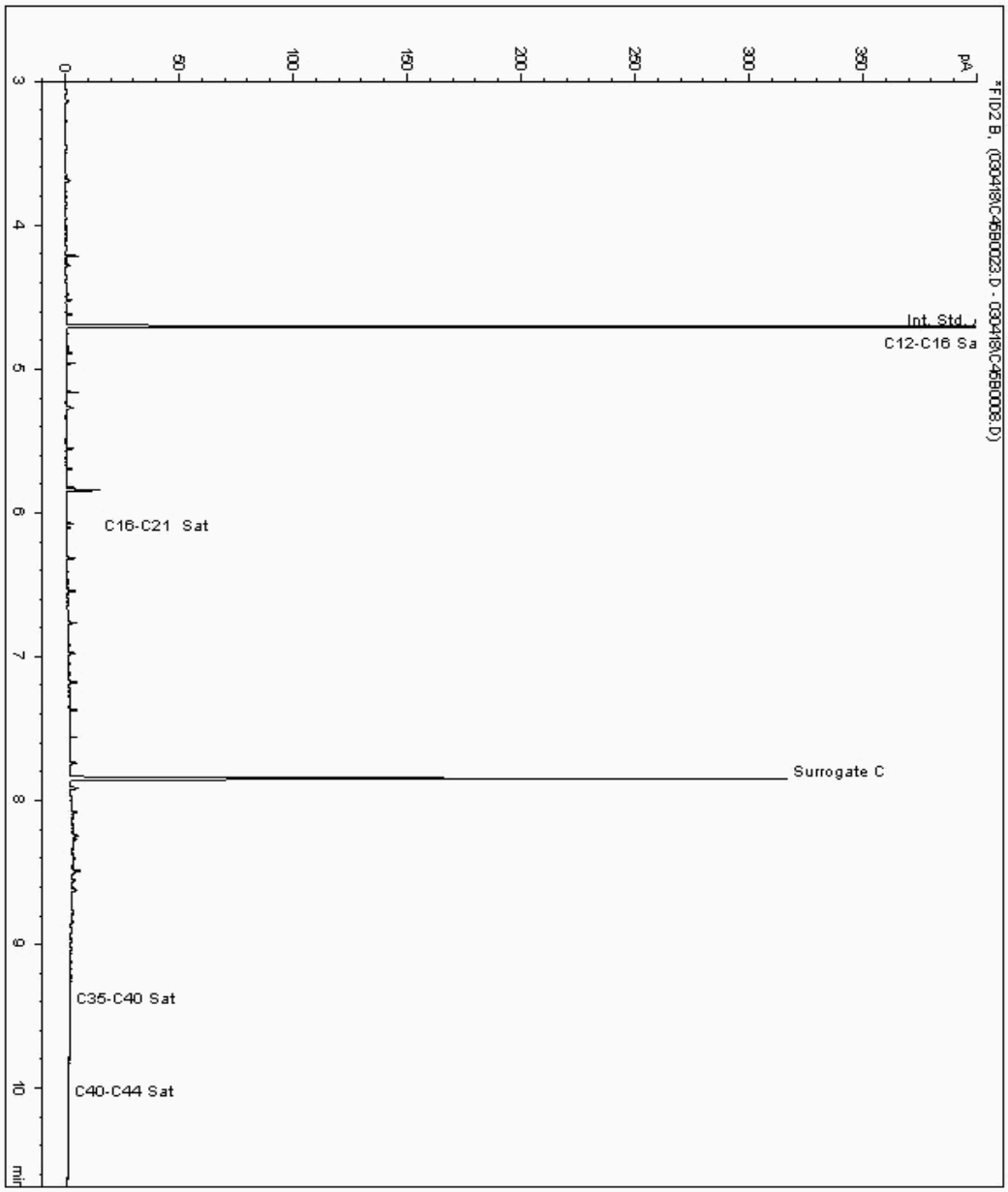


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130553 **Sample ID :** WS-RPS-28 **Depth :** 0.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080627-
Date Acquired : 05/03/2018 00:13:40 PM
Units : ppb
Dilution: WS-RPS-28[0.20] ->



CERTIFICATE OF ANALYSIS

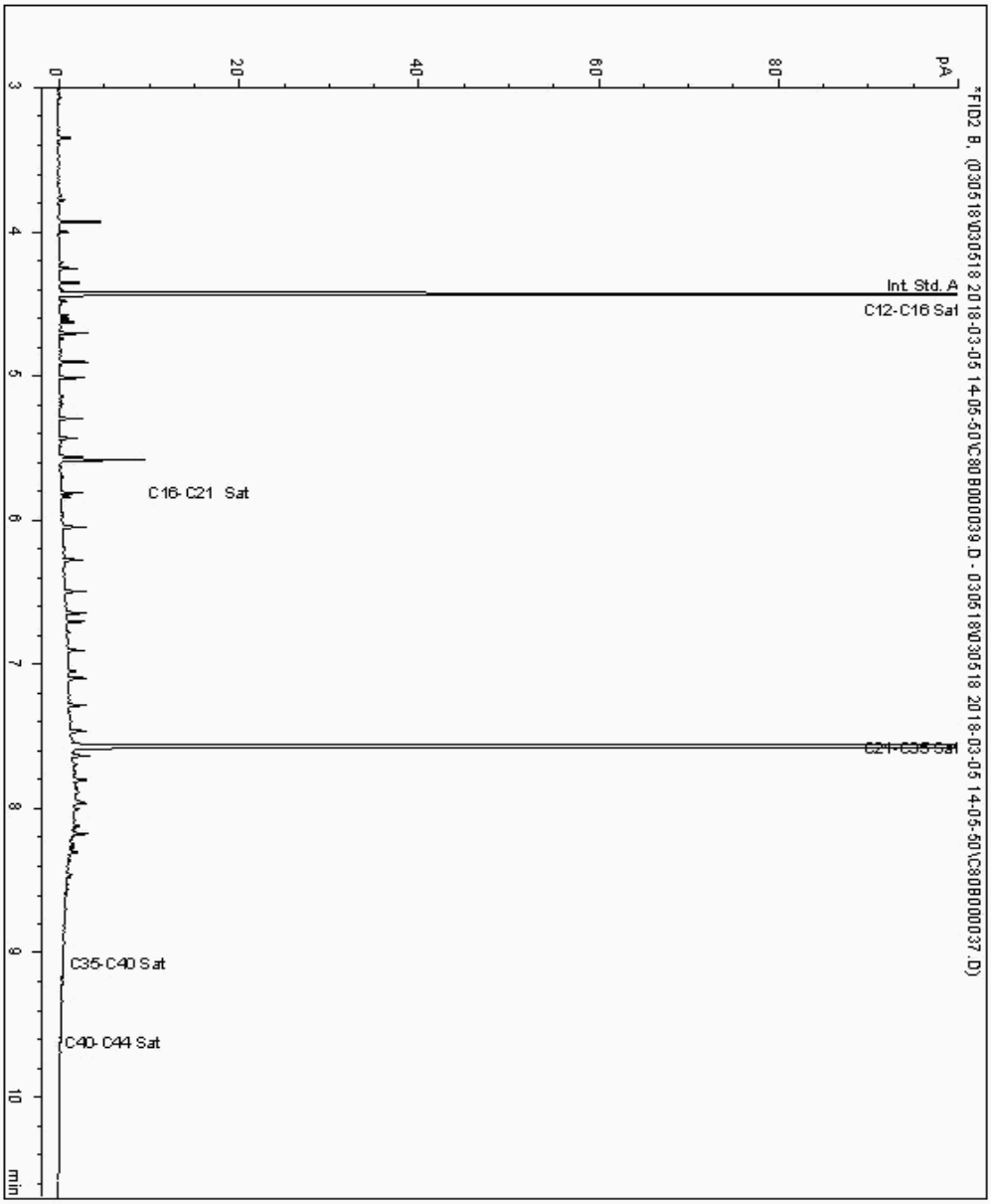
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130566 **Sample ID :** WS-RPS-30 **Depth :** 0.50 - 0.80

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080614-
Date Acquired : 06/03/18 00:58:58
Units : ppb
Dilution :
CF : 1
Multiplier : 0.970

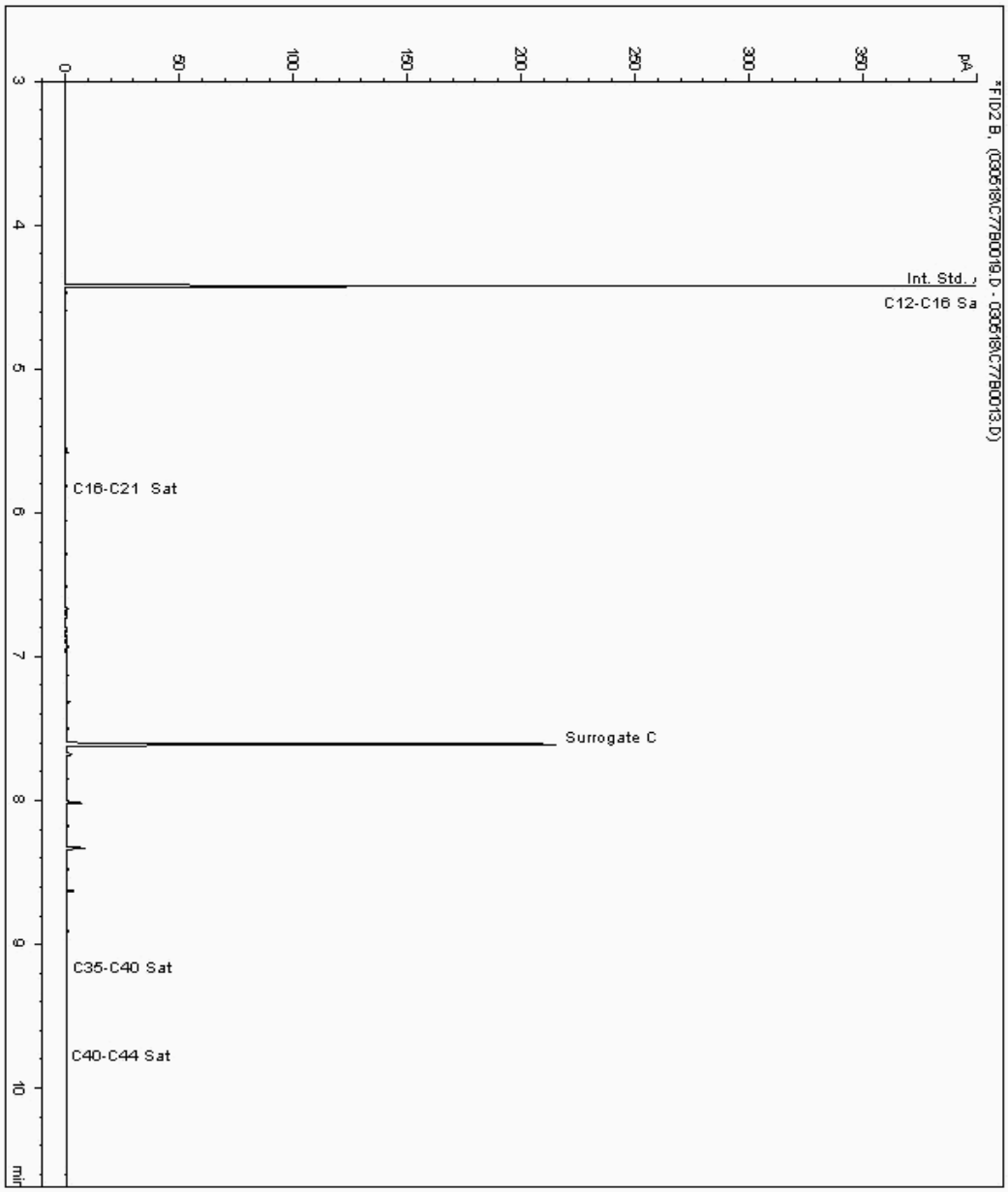


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130597 **Sample ID :** CP-RPS-06 **Depth :** 0.70 - 1.20

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080886-
Date Acquired : 05/03/2018 15:40:52 PM
Units : ppb
Dilution:

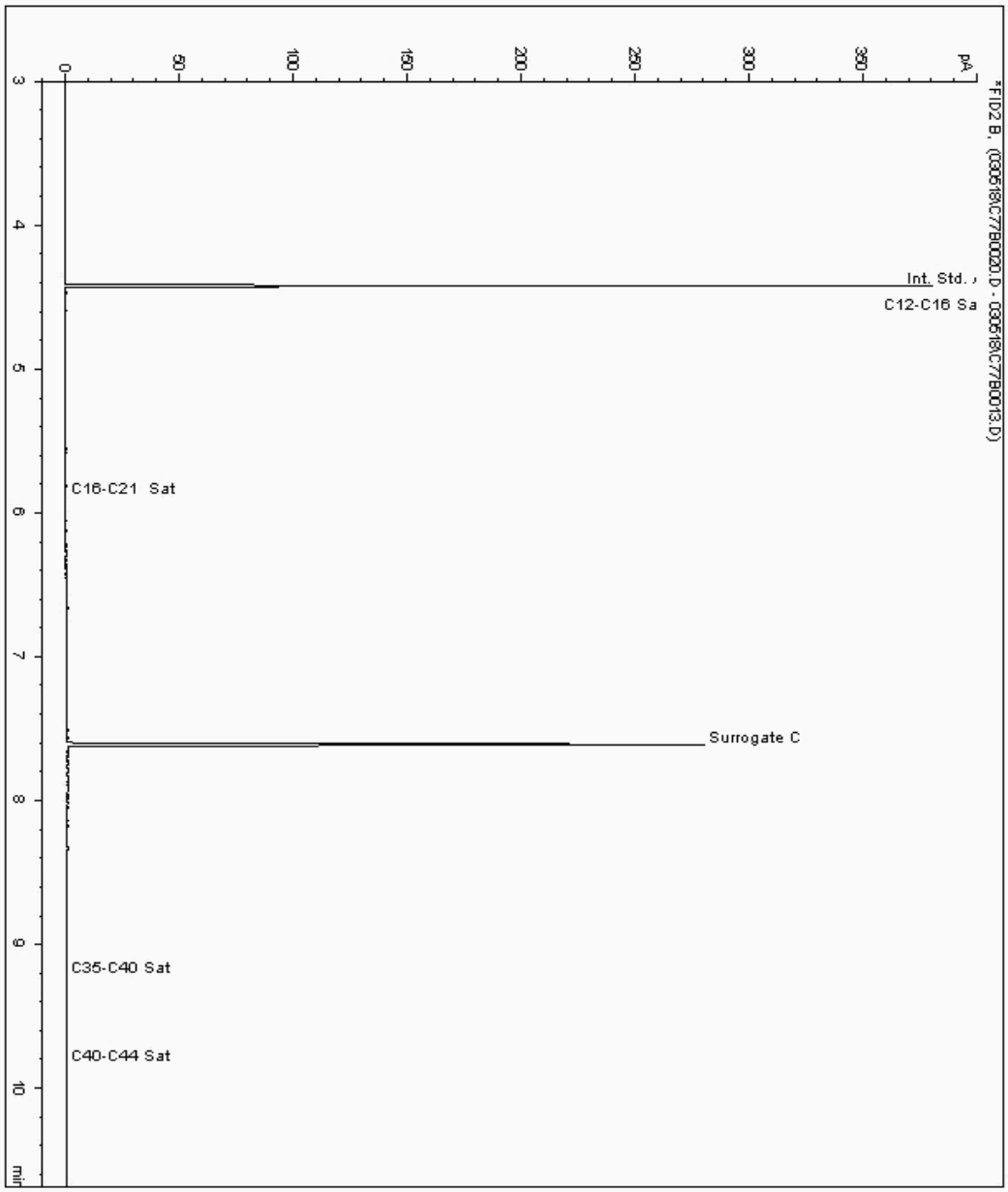


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130649 **Sample ID :** BH-RPS-09 **Depth :** 0.20 - 0.65

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080600-
Date Acquired : 05/03/2018 16:01:21 PM
Units : ppb
Dilution:

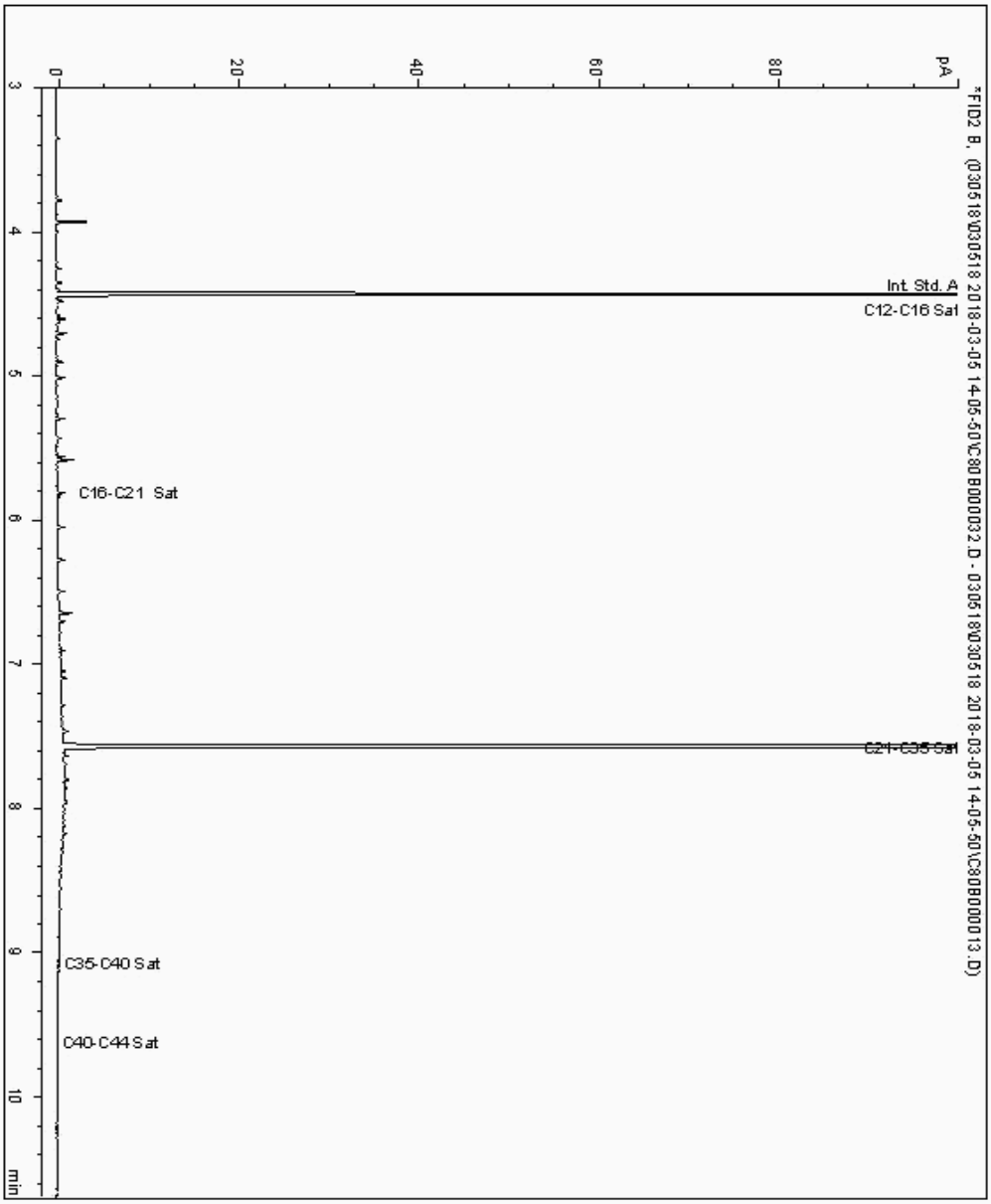


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17130899 **Sample ID :** WS-RPS-25 **Depth :** 0.35 - 0.50

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080911-
Date Acquired : 05/03/18 23:01:22
Units : ppb
Dilution :
CF : 1
Multiplier : 0.980

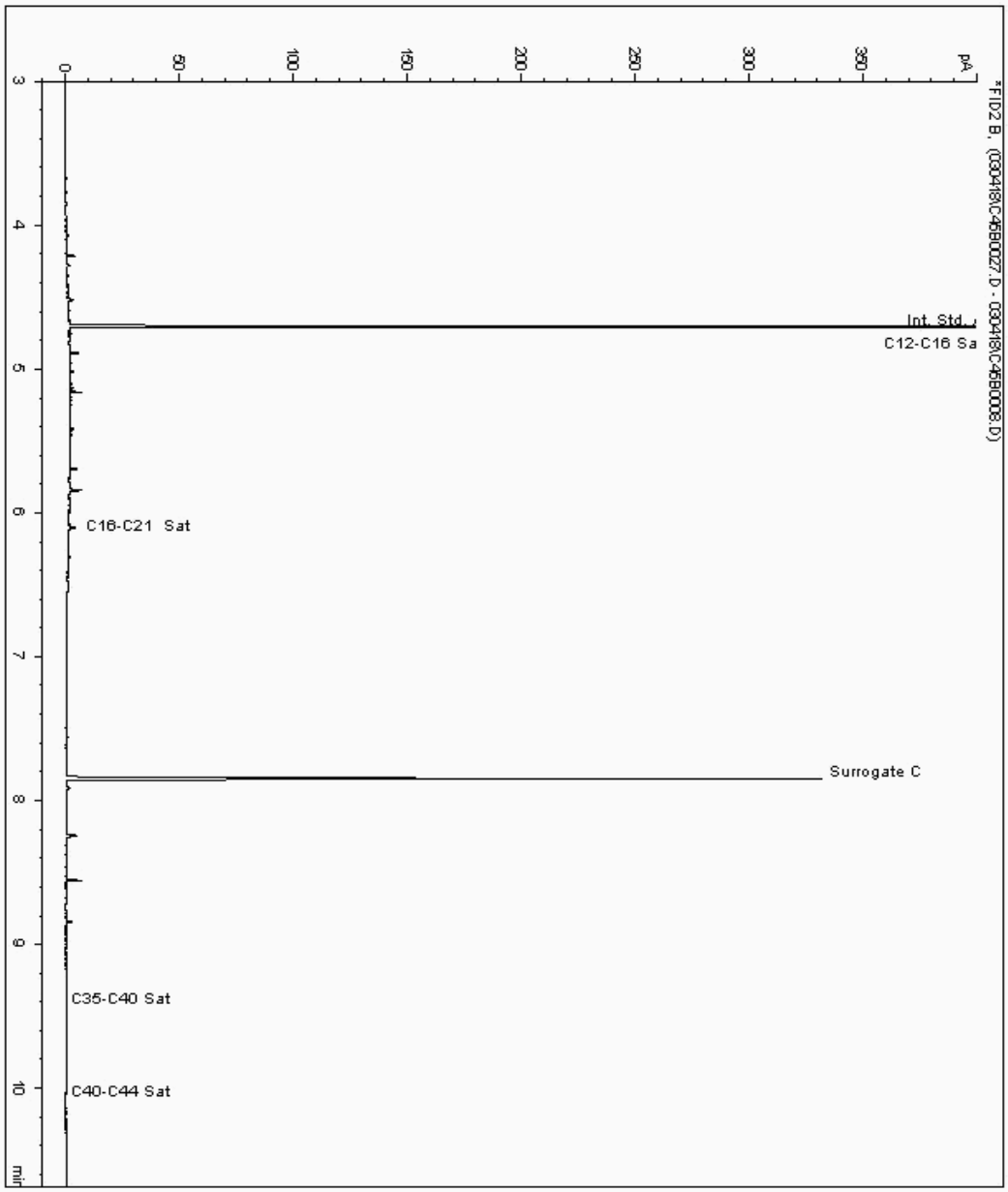


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17131402 **Sample ID :** WS-RPS-24 **Depth :** 2.60 - 3.00

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080642-
Date Acquired : 05/03/2018 01:32:50 PM
Units : ppb
Dilution: WS-RPS-24[2.60 - 3.00] ->



Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

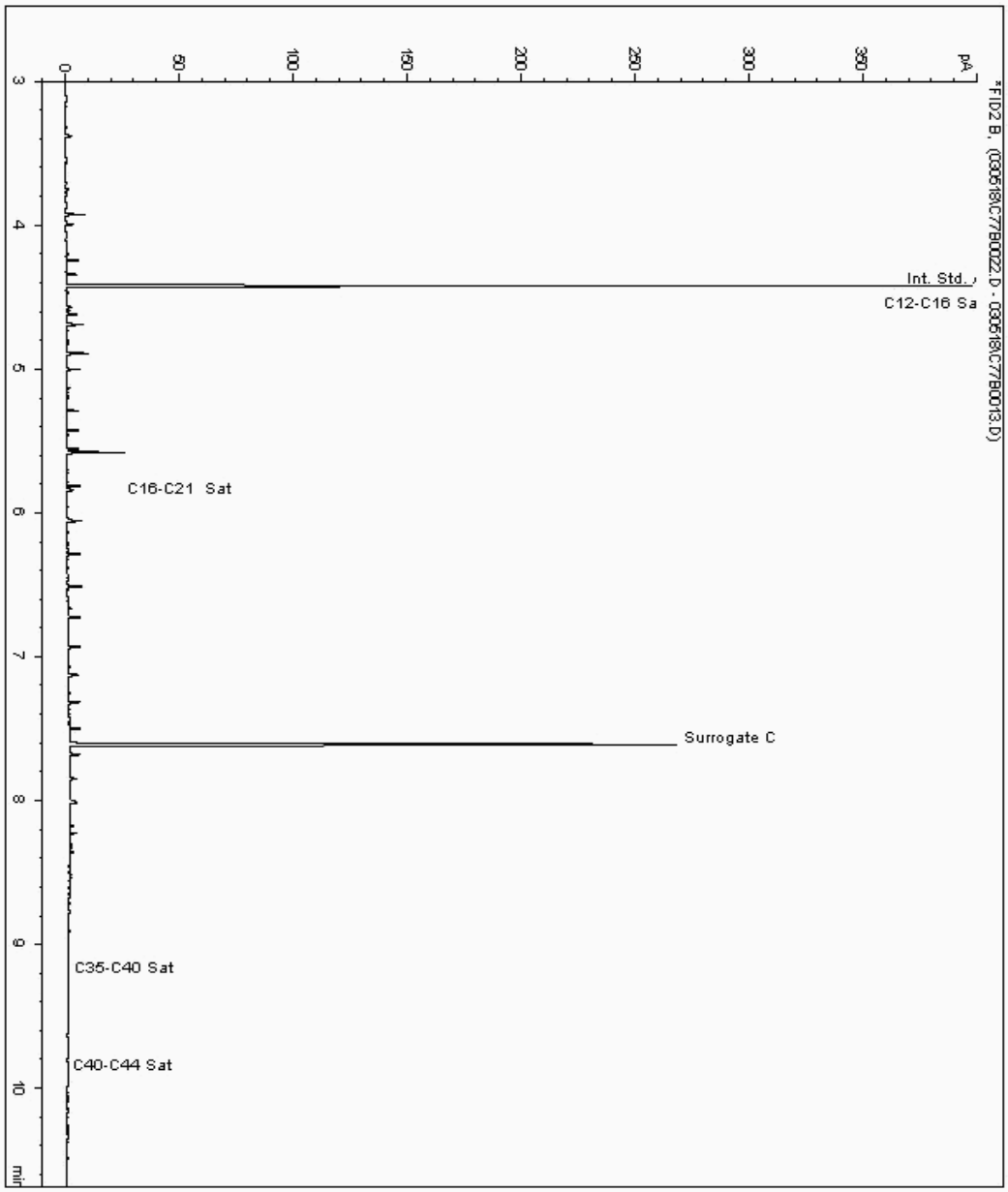
Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 17131443
Sample ID : WS-RPS-29

Depth : 0.60 - 0.90

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080741-
Date Acquired : 05/03/2018 16:41:54 PM
Units : ppb
Dilution:

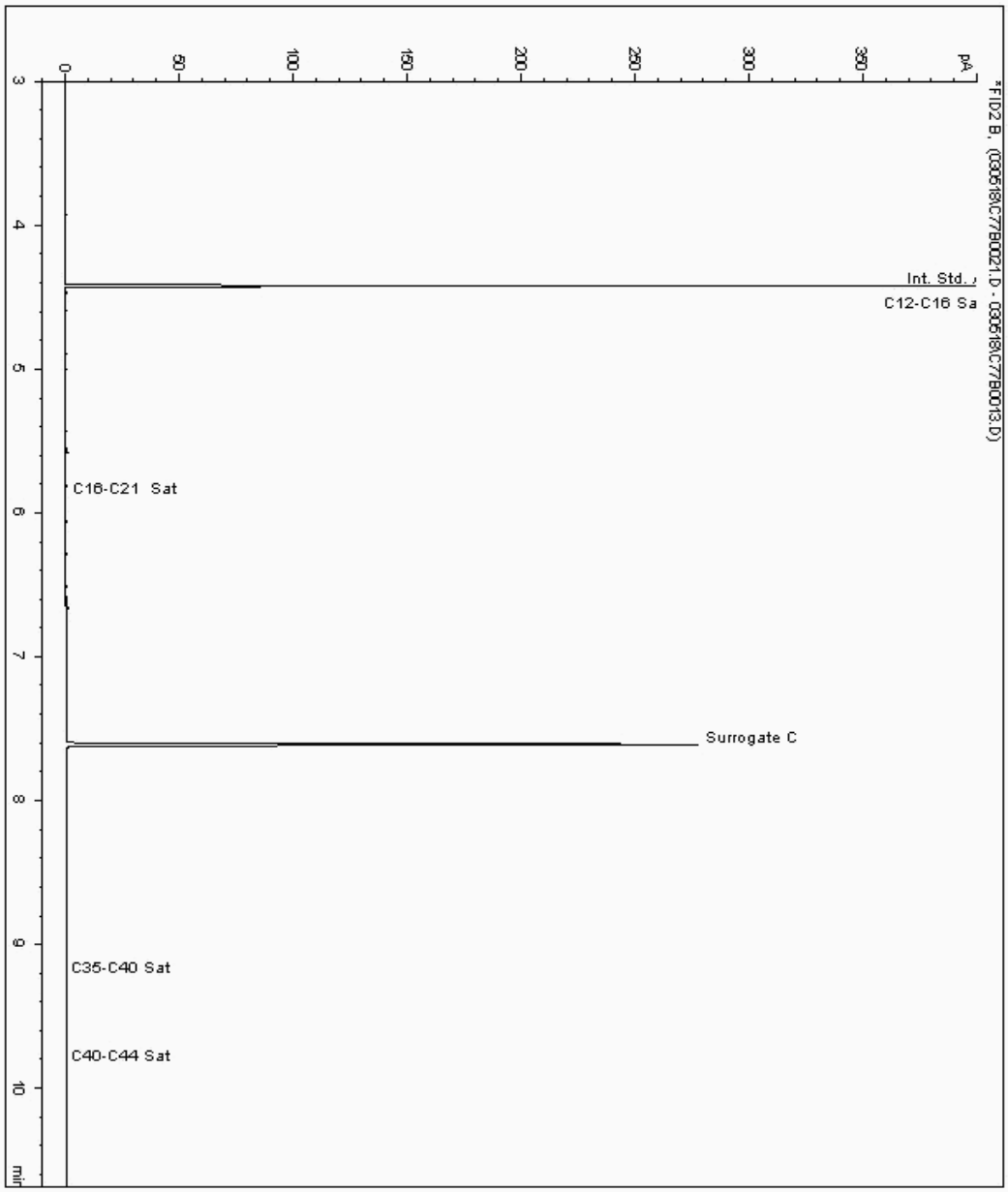


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17131680 **Sample ID :** WS-RPS-23 **Depth :** 0.70 - 1.00

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080792-
Date Acquired : 05/03/2018 16:21:36 PM
Units : ppb
Dilution:

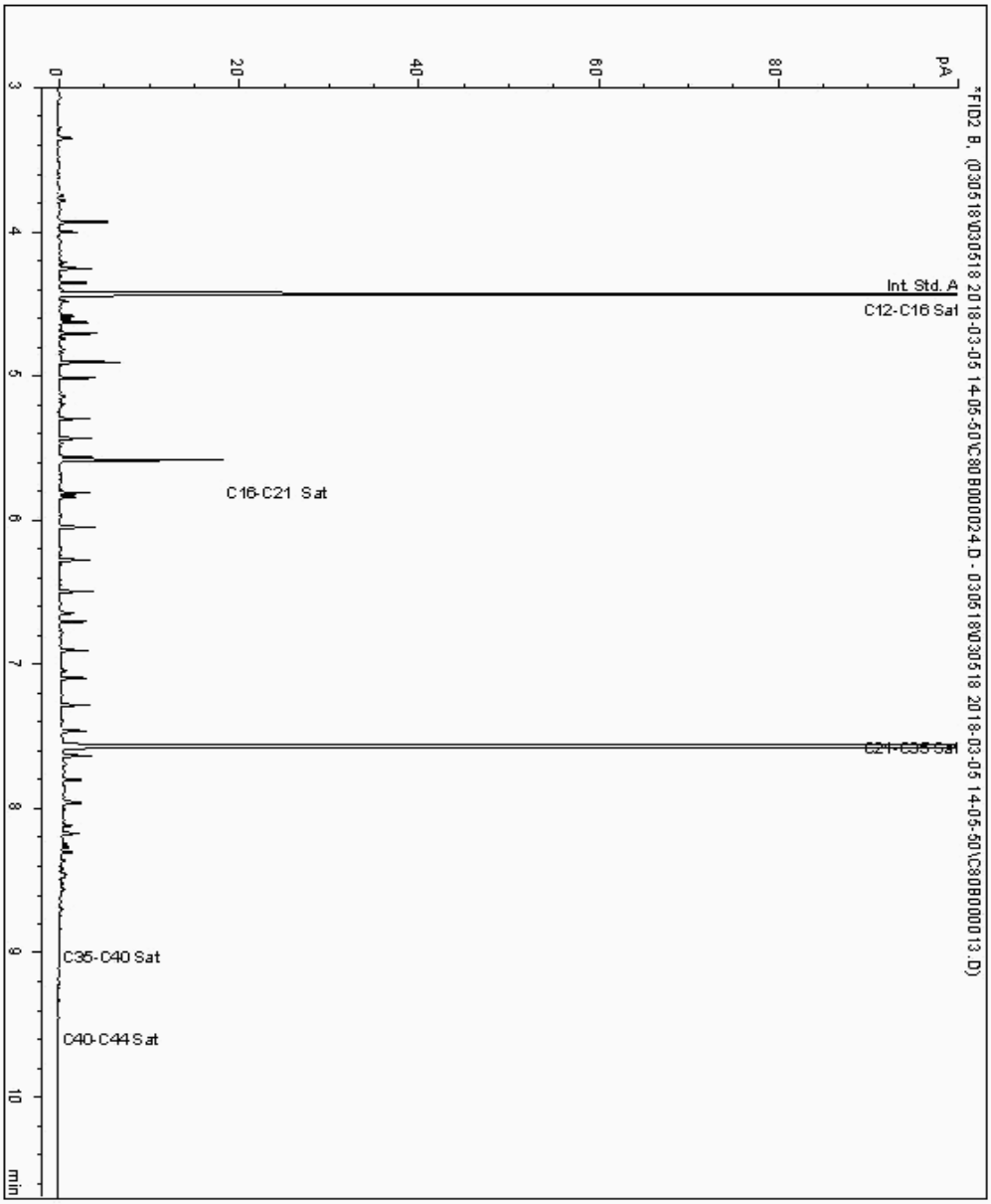


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17131688 **Sample ID :** WS-RPS-23 **Depth :** 0.00 - 0.40

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080808-
Date Acquired : 05/03/18 20:52:16
Units : ppb
Dilution :
CF : 1
Multiplier : 1.020

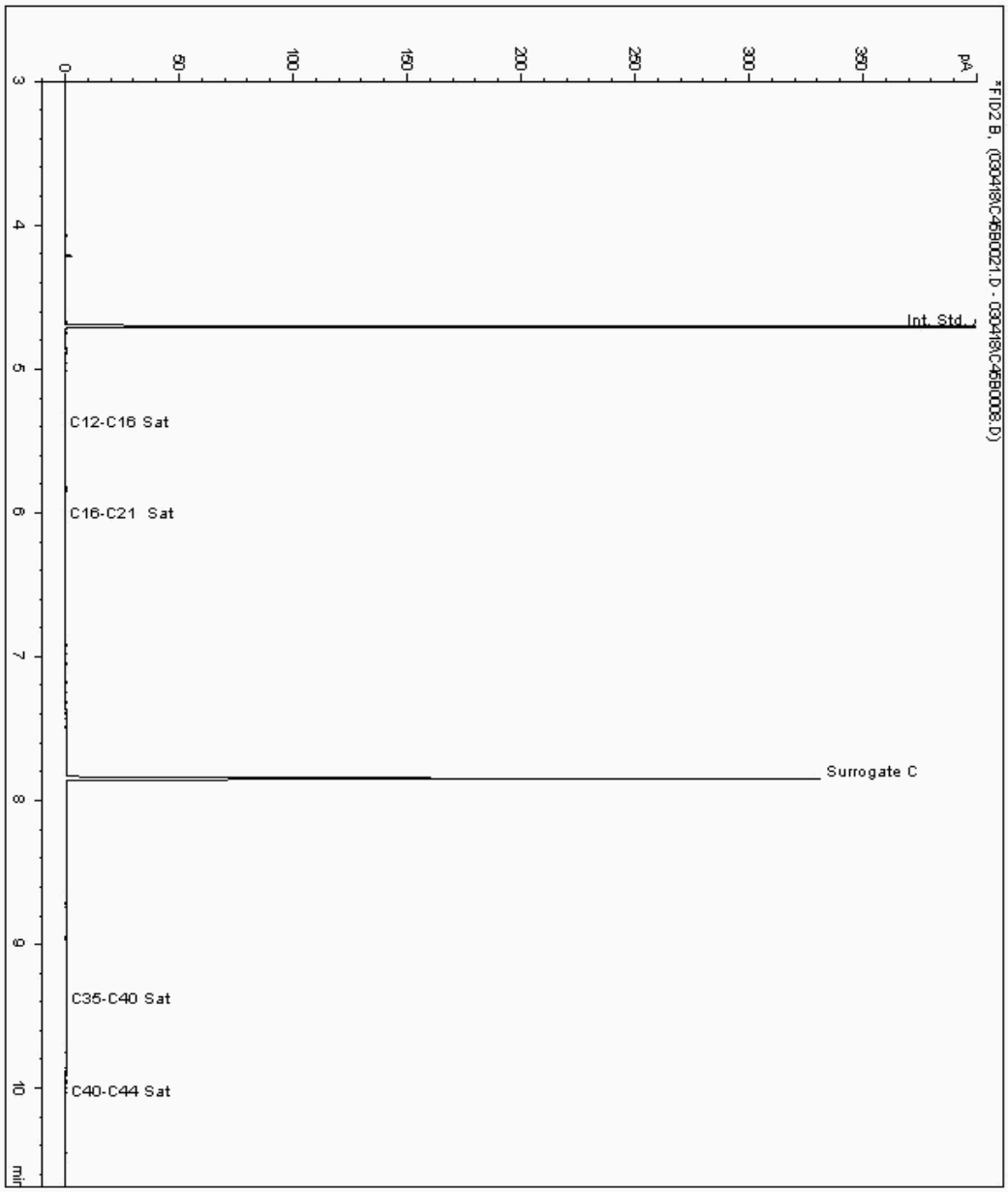


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17131807 **Sample ID :** BH-RPS-09 **Depth :** 1.30 - 1.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080769-
Date Acquired : 04/03/2018 23:34:16 PM
Units : ppb
Dilution: BH-RPS-09[1.30 - 1.50] ->

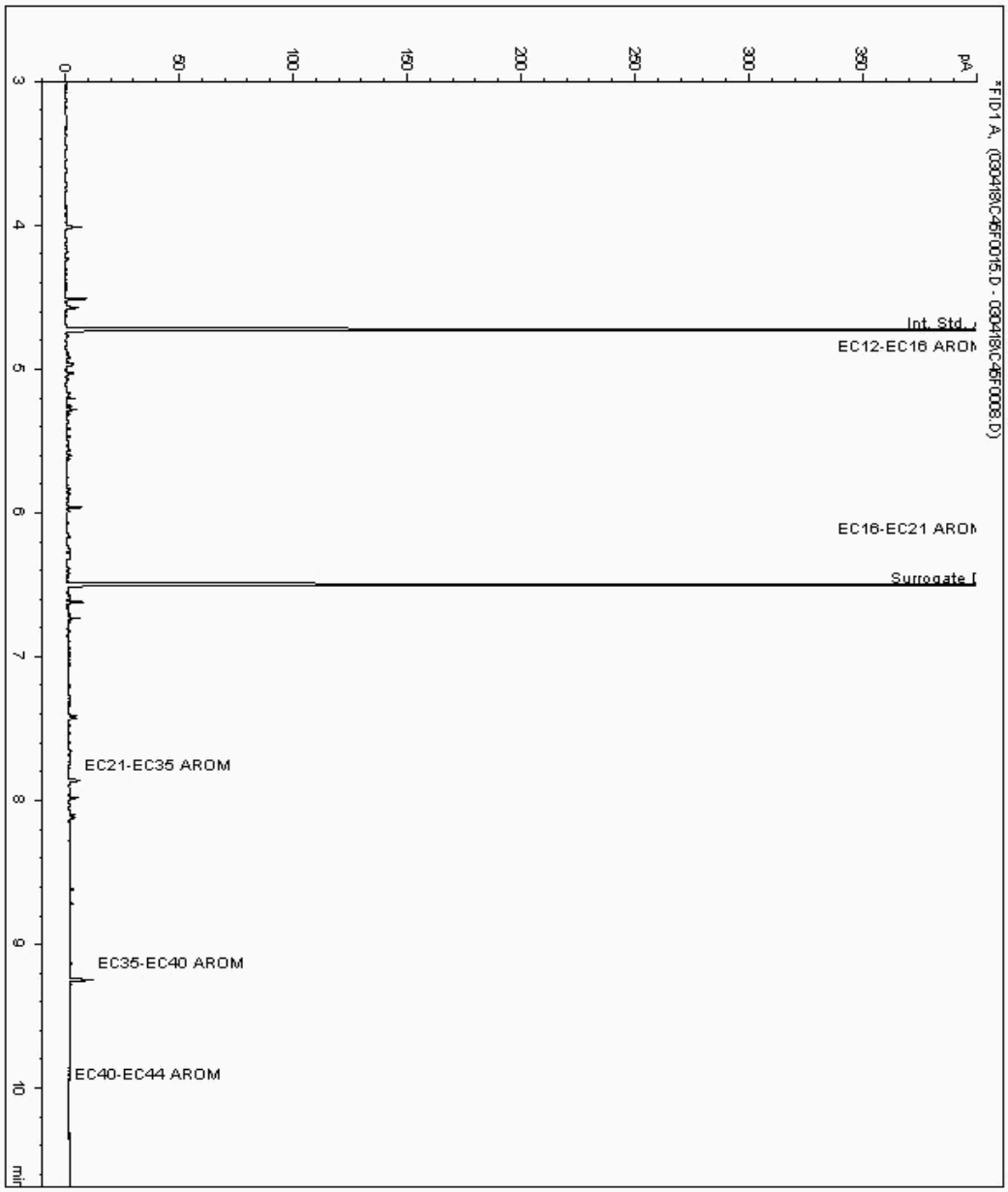


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130063 **Sample ID :** CP-RPS-05 **Depth :** 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080987-
Date Acquired : 04/03/2018 21:51:41 PM
Units : ppb
Dilution: CP-RPS-05[0.50] ->



Validated

CERTIFICATE OF ANALYSIS

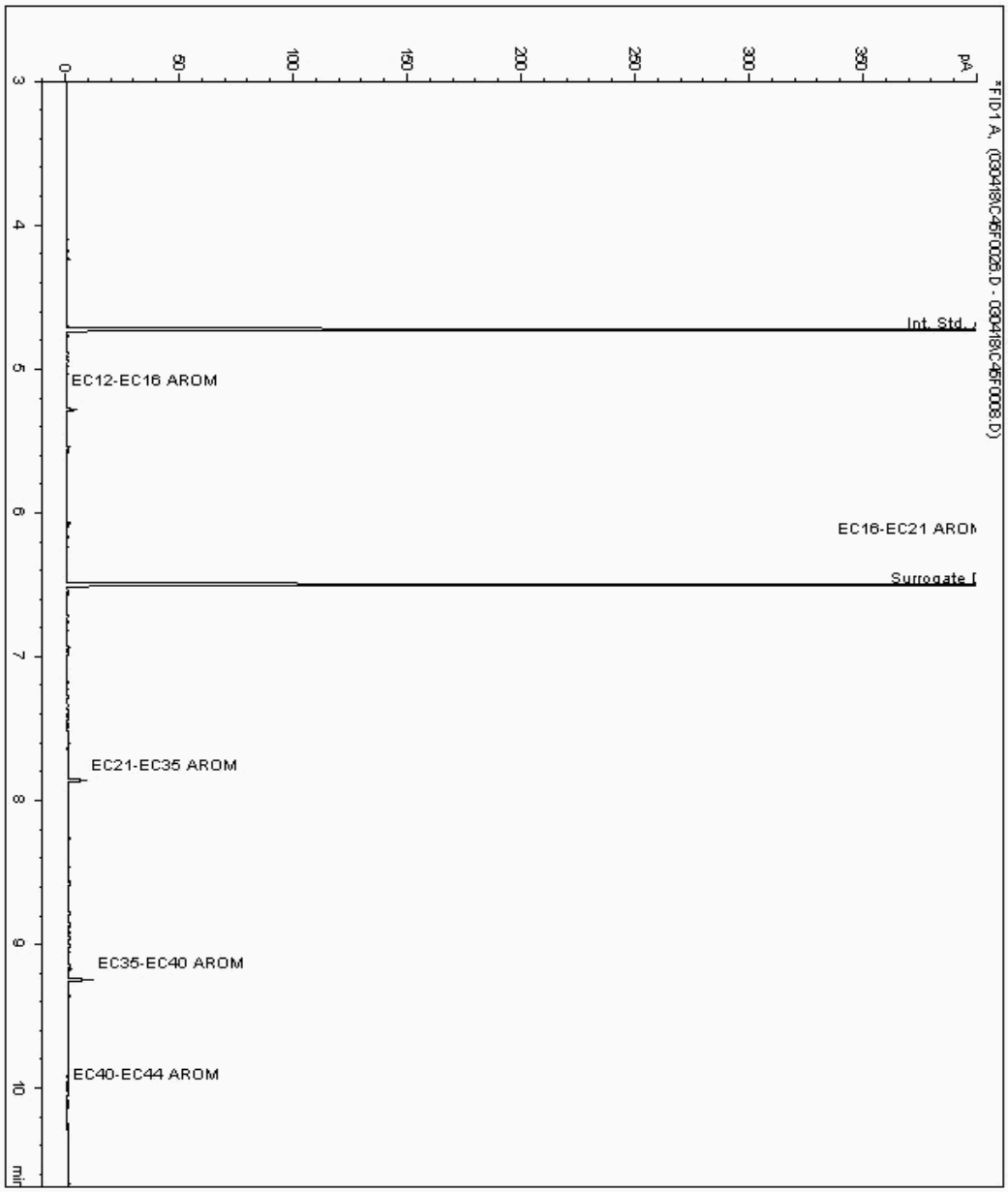
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130149 **Sample ID :** BH-RPS-04 **Depth :** 7.80 - 8.40

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080693-
Date Acquired : 05/03/2018 01:12:51 PM
Units : ppb
Dilution: BH-RPS-04[7.80 - 8.40] ->



CERTIFICATE OF ANALYSIS

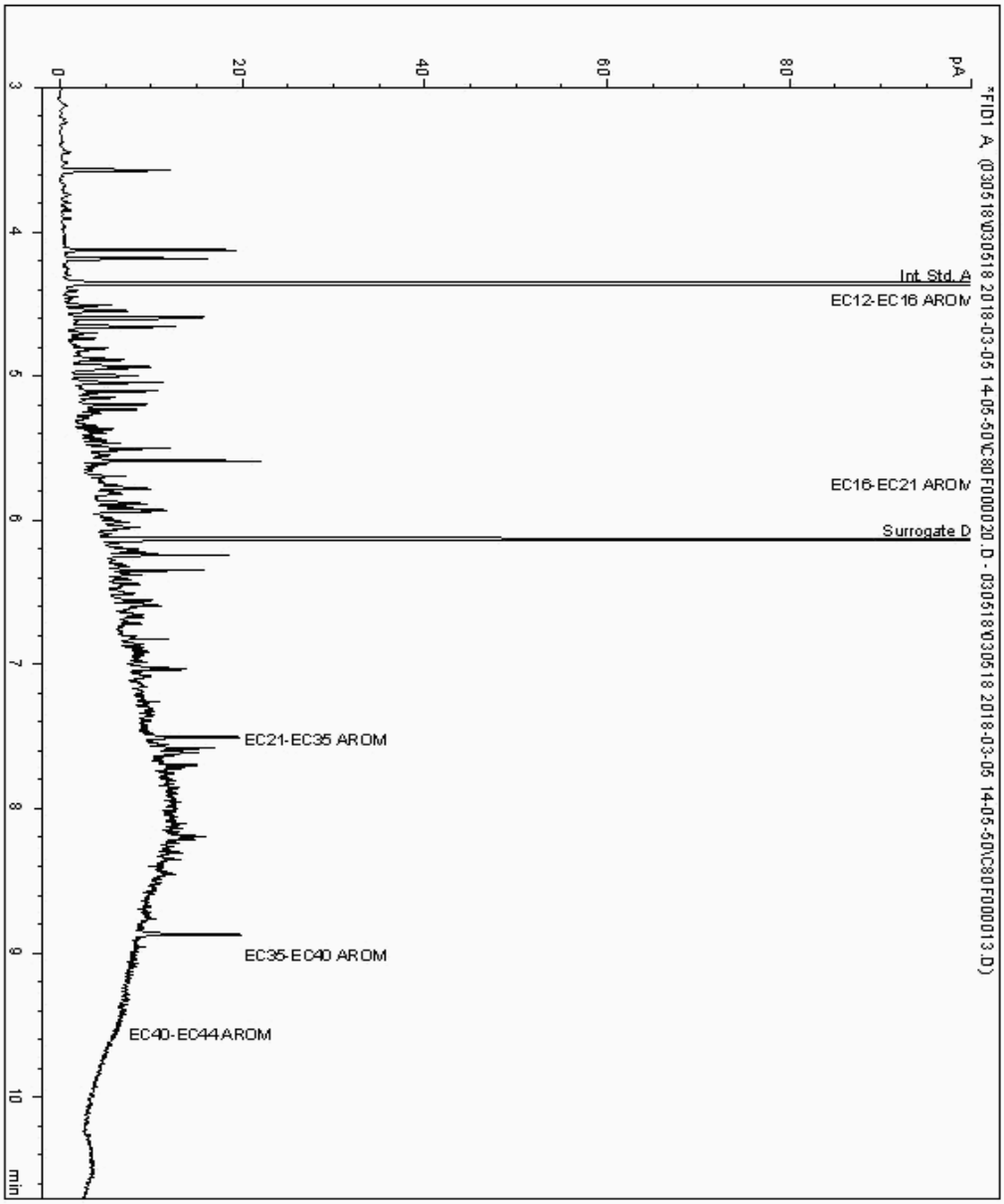
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130220 **Sample ID :** WS-RPS-08 **Depth :** 0.20 - 0.50

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16080714-
Date Acquired : 05/03/18 19:47:02
Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



Validated

CERTIFICATE OF ANALYSIS

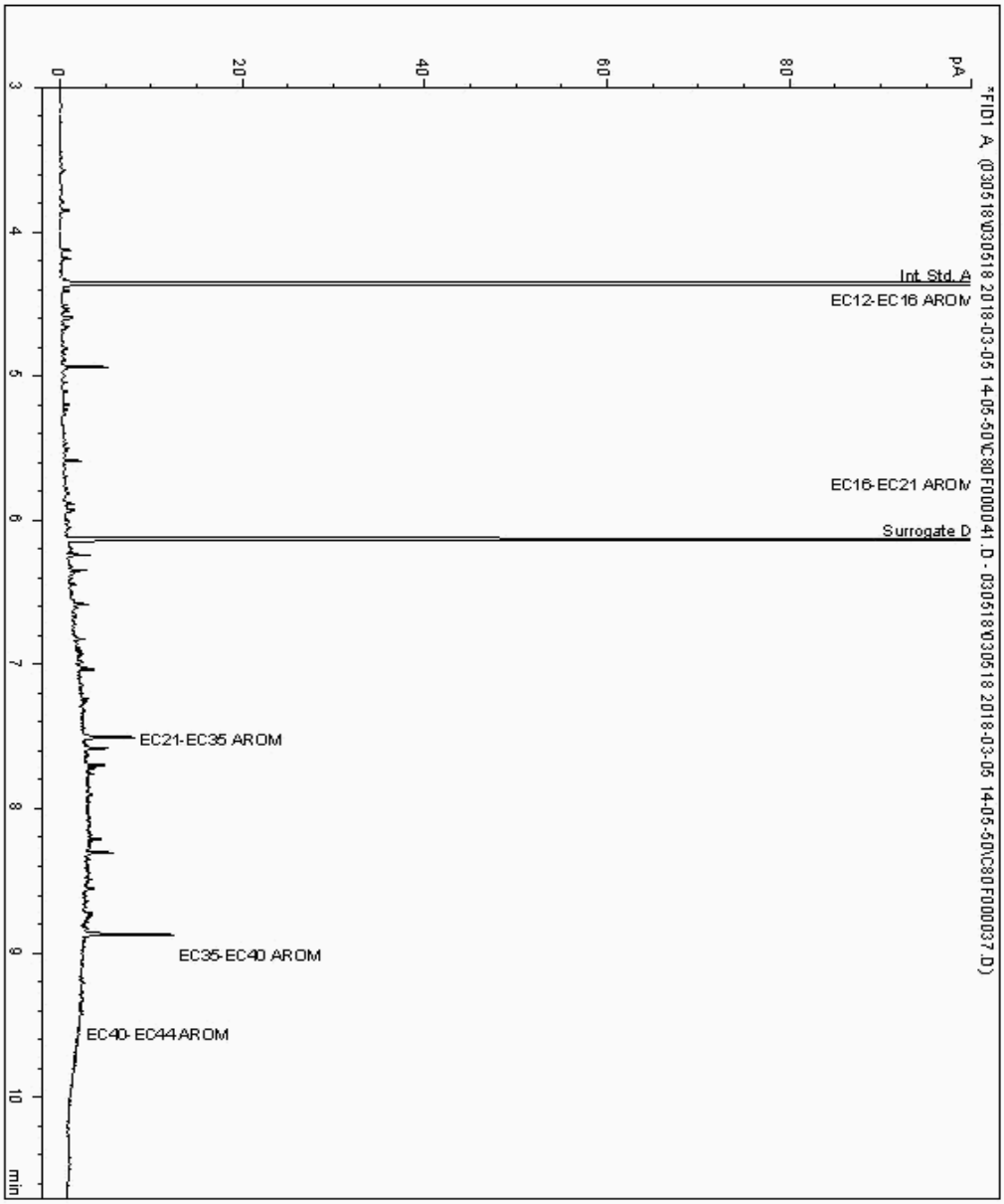
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130289 **Sample ID :** WS-RPS-16 **Depth :** 0.50

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16080944-
Date Acquired : 06/03/18 01:31:21
Units : ppb
Dilution :
CF : 1
Multiplier : 0.980

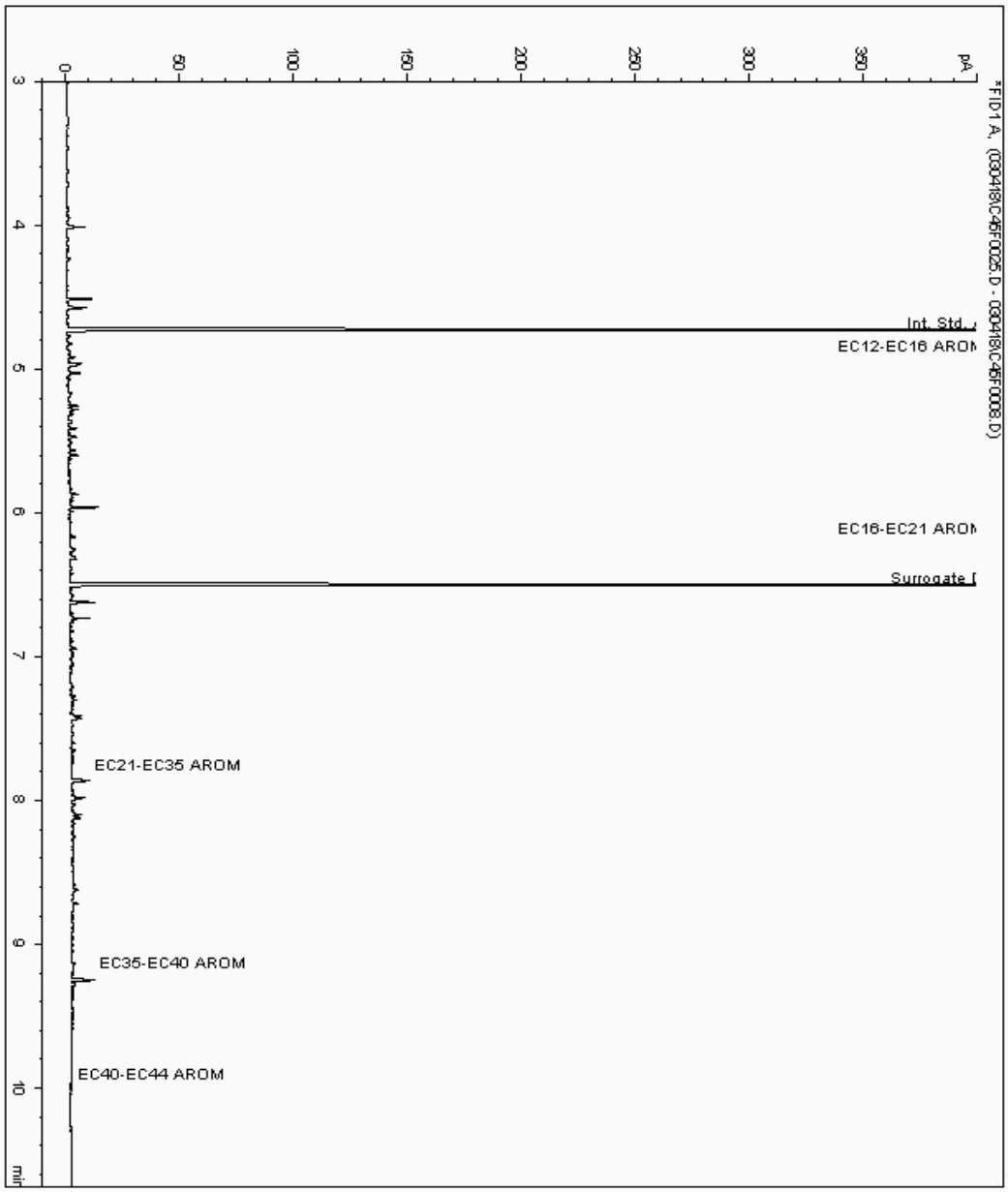


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130378 **Sample ID :** WS-RPS-29 **Depth :** 0.25 - 0.60

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080966-
Date Acquired : 05/03/2018 00:53:07 PM
Units : ppb
Dilution: WS-RPS-29[0.25 - 0.60] ->



CERTIFICATE OF ANALYSIS

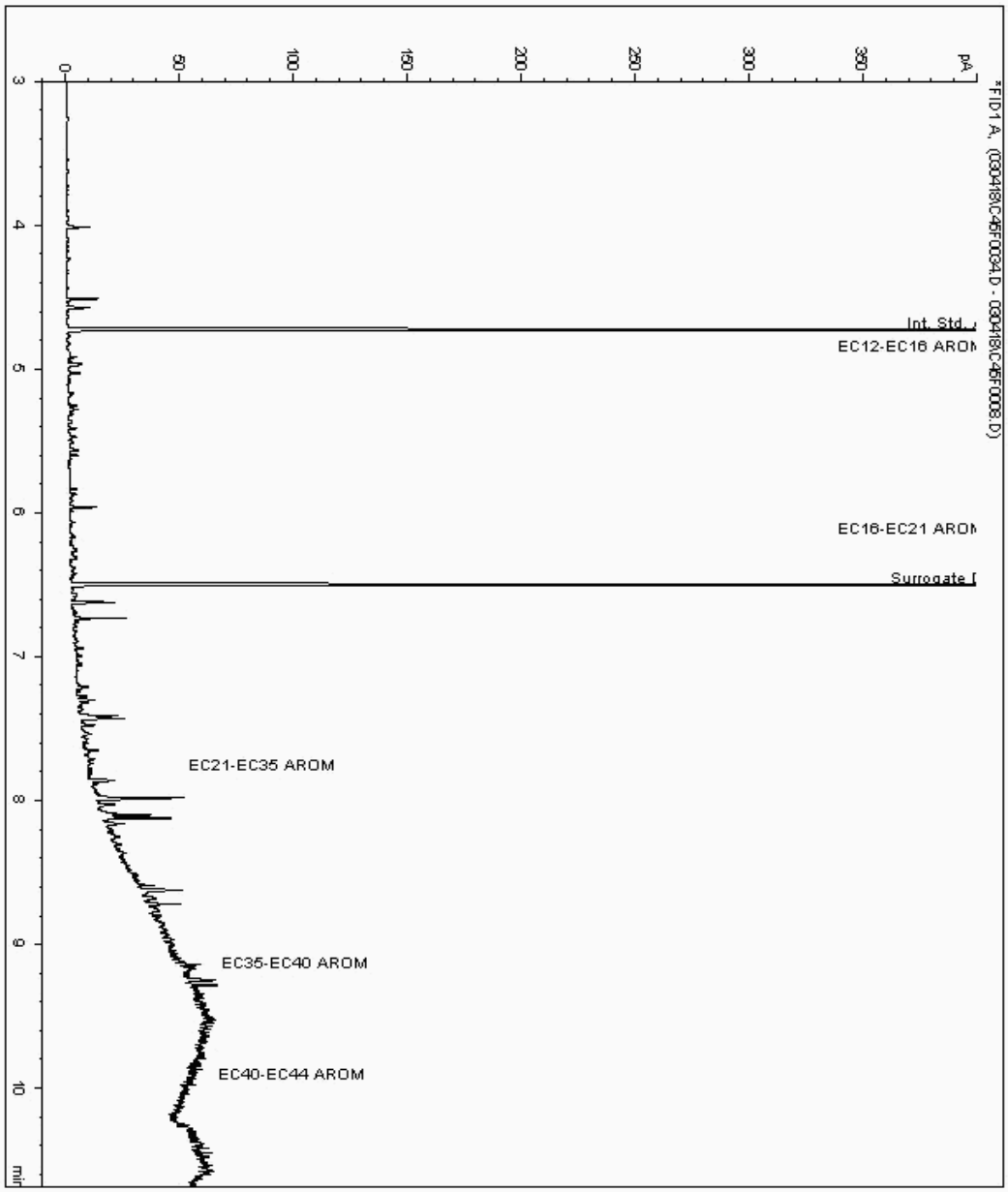
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130532 **Sample ID :** WS-RPS-24 **Depth :** 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080863-
Date Acquired : 05/03/2018 03:19:38 PM
Units : ppb
Dilution: WS-RPS-24[0.50] ->



Validated

CERTIFICATE OF ANALYSIS

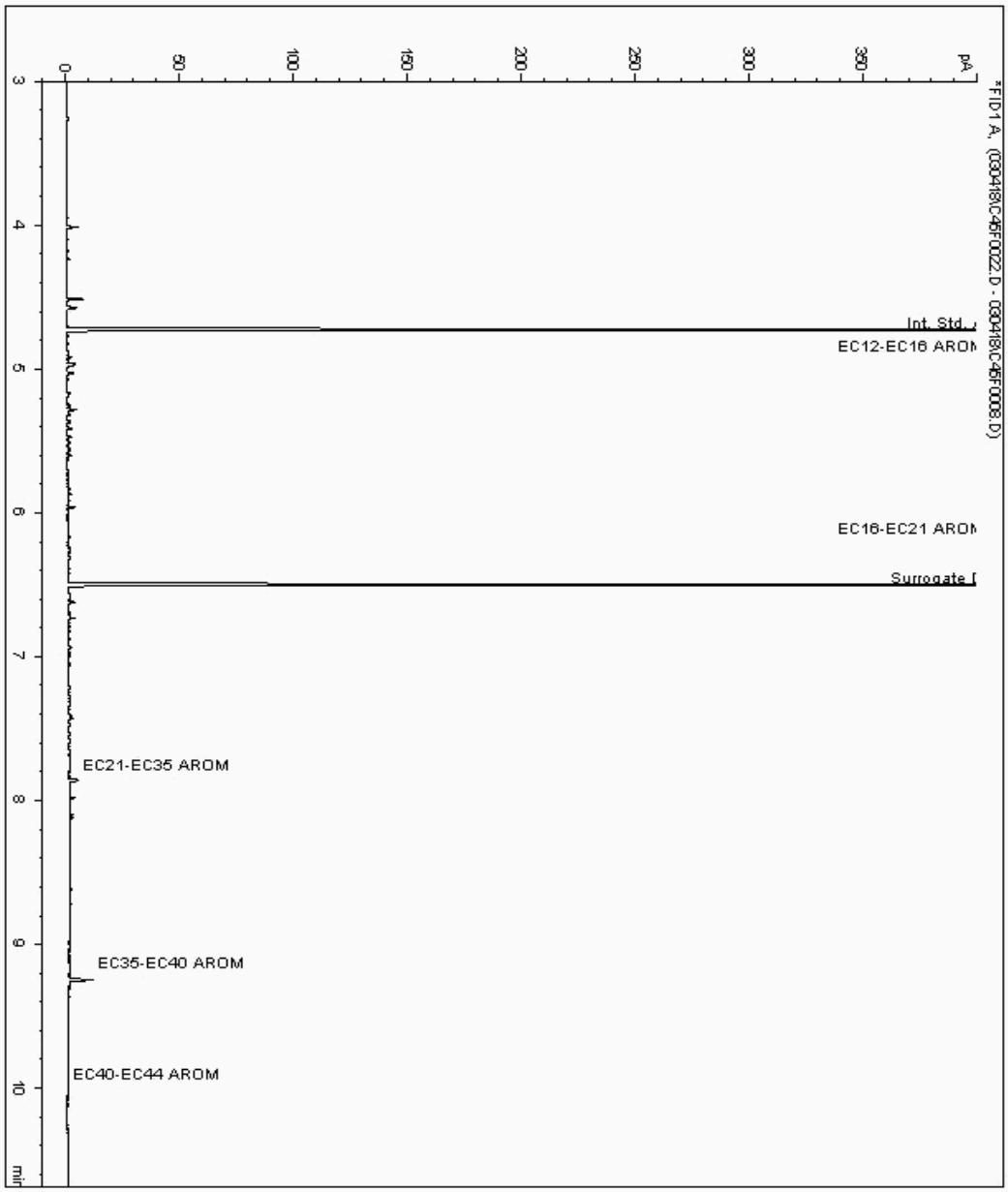
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130544 **Sample ID :** WS-RPS-30 **Depth :** 0.00 - 0.30

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080842-
Date Acquired : 04/03/2018 23:53:57 PM
Units : ppb
Dilution: WS-RPS-30[0.00 - 0.30] ->



CERTIFICATE OF ANALYSIS

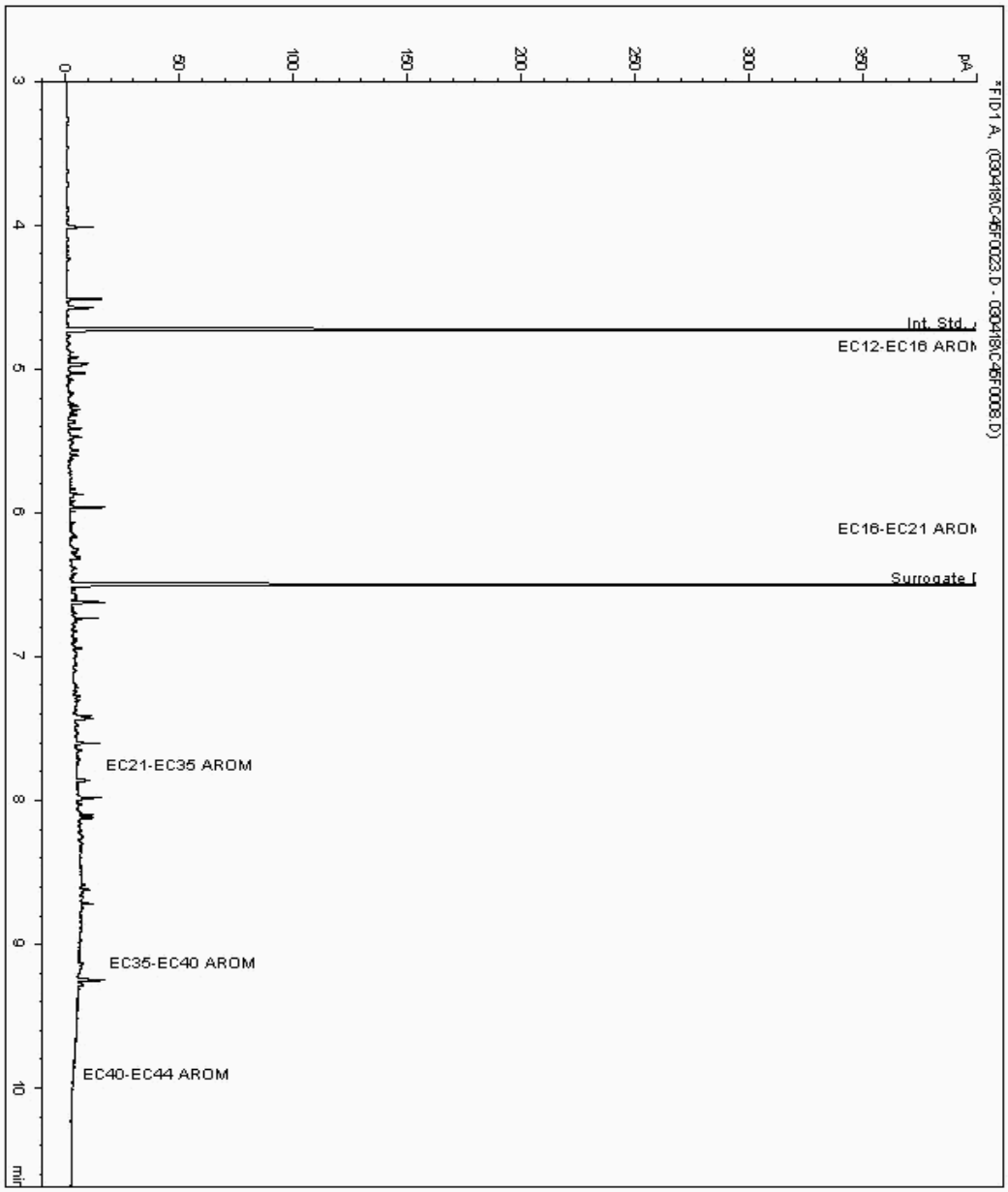
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130553 **Sample ID :** WS-RPS-28 **Depth :** 0.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080628-
Date Acquired : 05/03/2018 00:13:41 PM
Units : ppb
Dilution: WS-RPS-28[0.20] ->



Validated

CERTIFICATE OF ANALYSIS

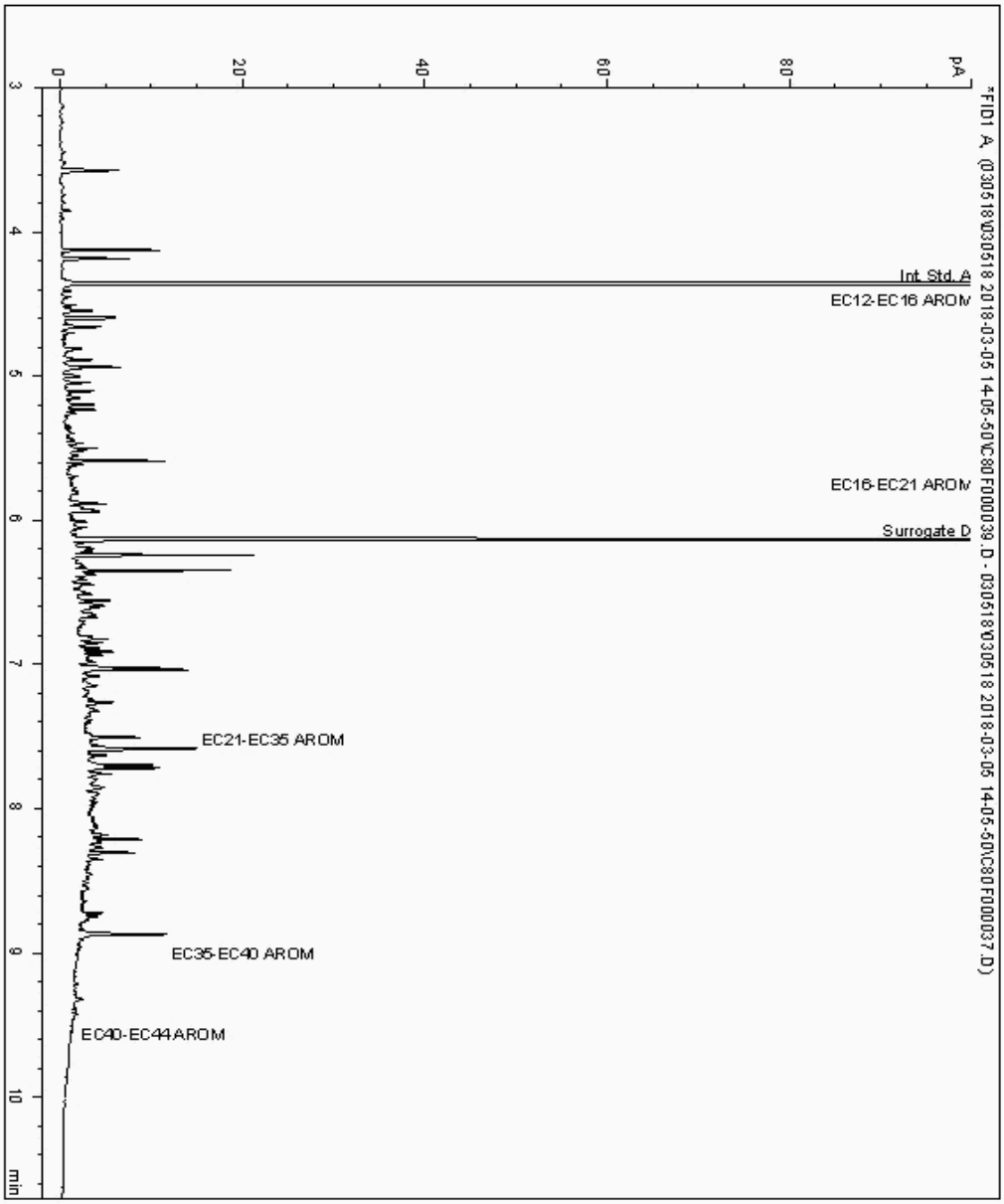
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130566 **Sample ID :** WS-RPS-30 **Depth :** 0.50 - 0.80

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16080615-
Date Acquired : 06/03/18 00:58:58
Units : ppb
Dilution :
CF : 1
Multiplier : 0.970



Validated

CERTIFICATE OF ANALYSIS

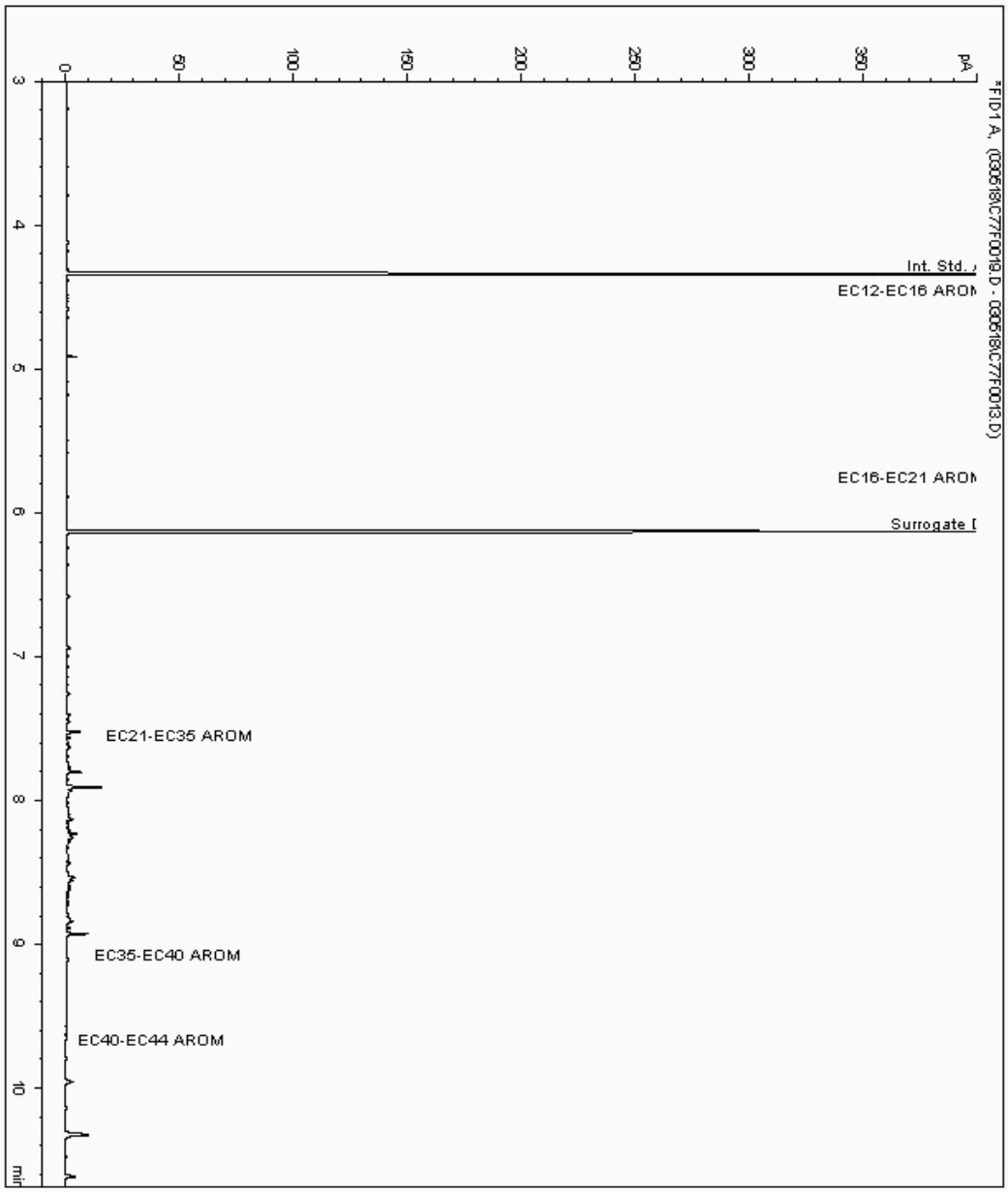
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130597 **Sample ID :** CP-RPS-06 **Depth :** 0.70 - 1.20

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080887-
Date Acquired : 05/03/2018 15:40:52 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

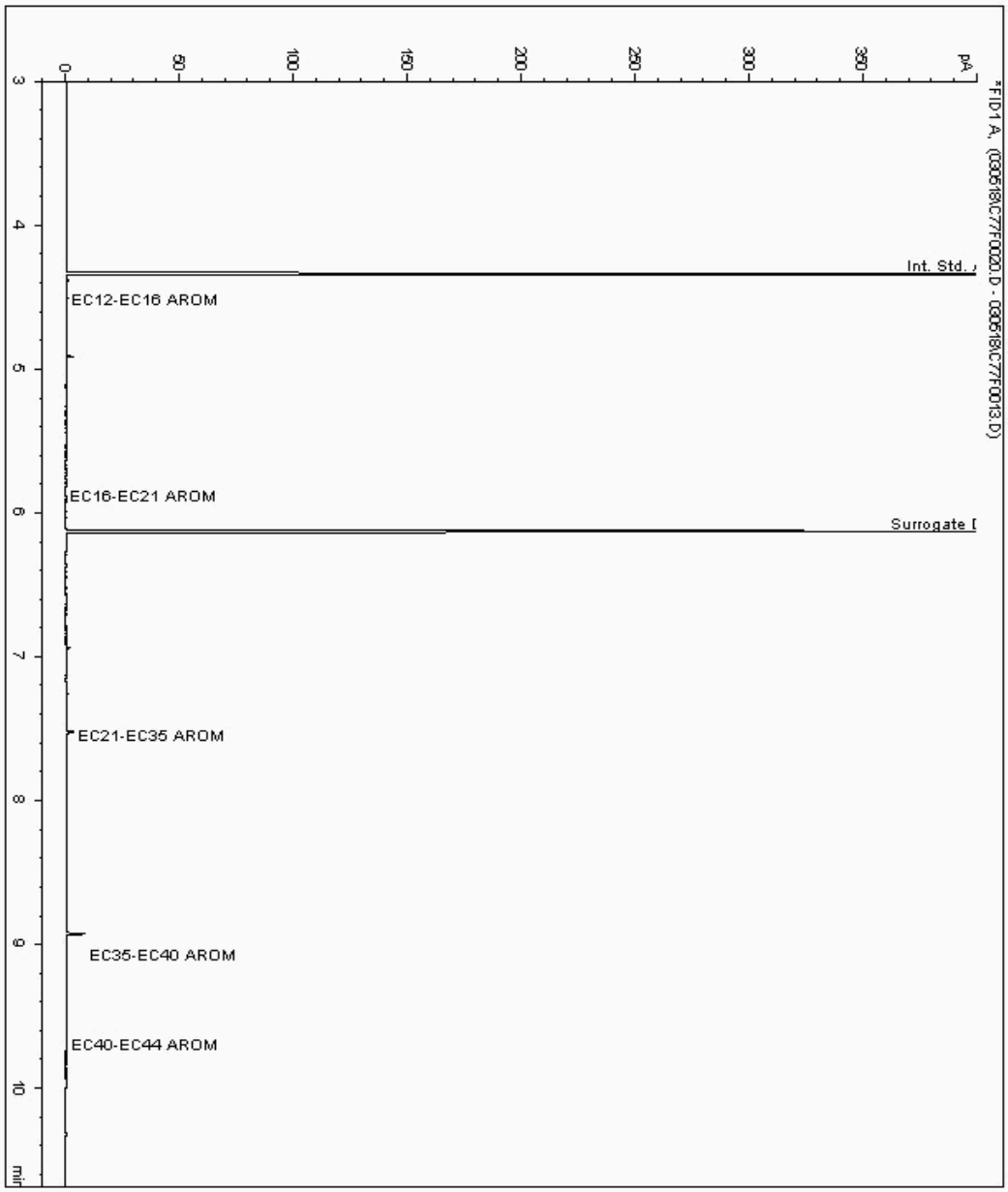
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130649 **Sample ID :** BH-RPS-09 **Depth :** 0.20 - 0.65

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080601-
Date Acquired : 05/03/2018 16:01:20 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

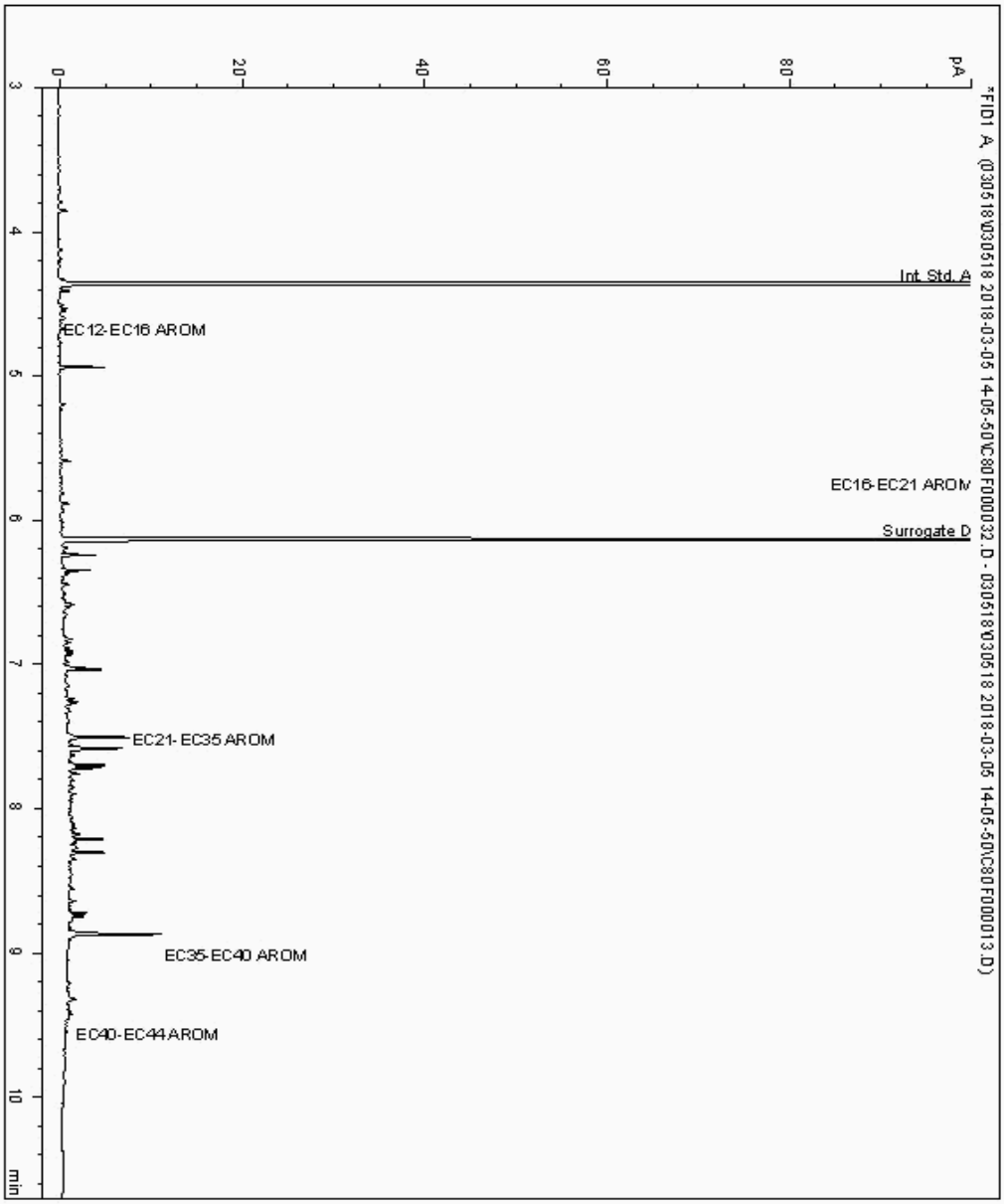
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17130899 **Sample ID :** WS-RPS-25 **Depth :** 0.35 - 0.50

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16080912-
Date Acquired : 05/03/18 23:01:22
Units : ppb
Dilution :
CF : 1
Multiplier : 0.980



Validated

CERTIFICATE OF ANALYSIS

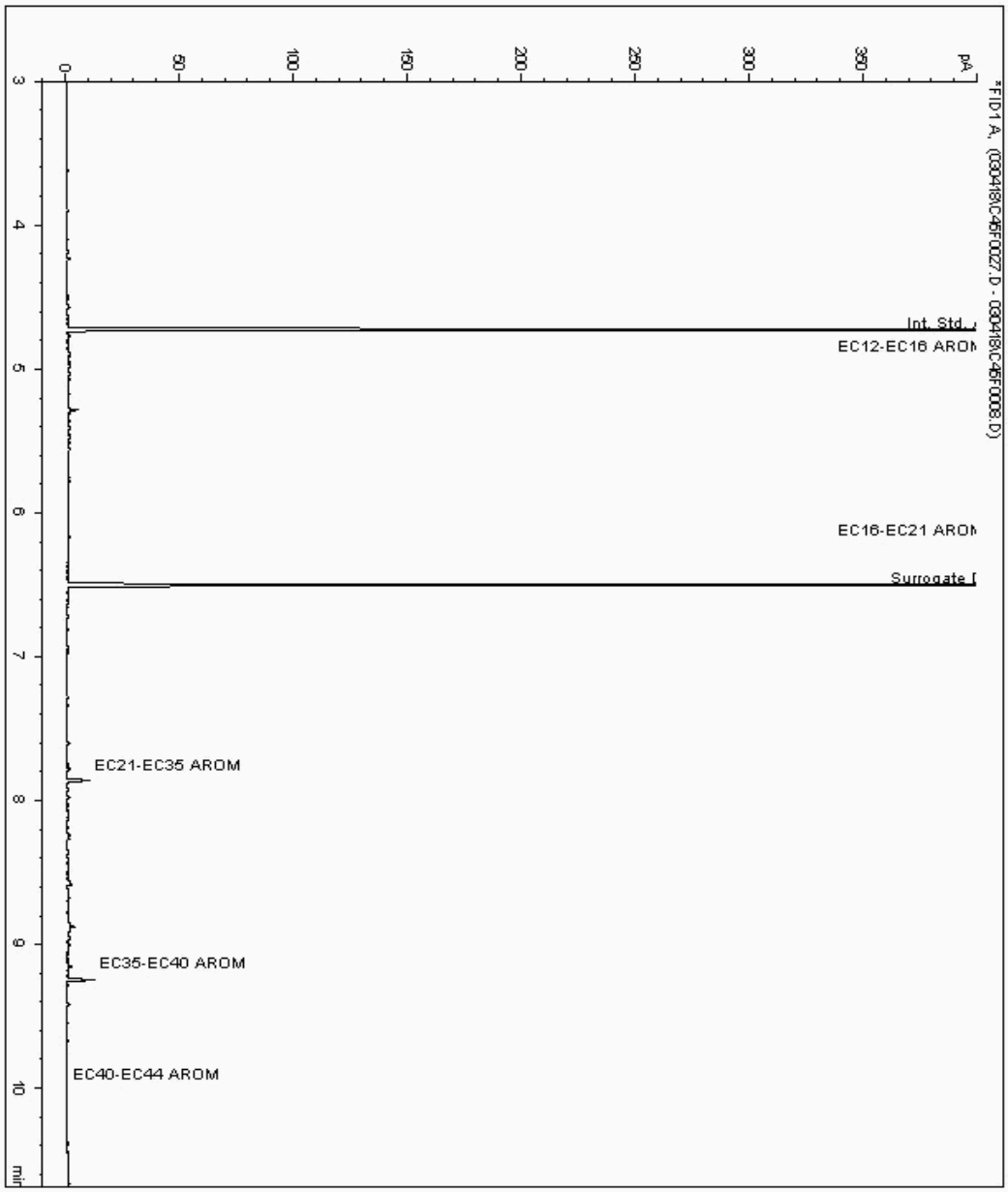
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17131402 **Sample ID :** WS-RPS-24 **Depth :** 2.60 - 3.00

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080643-
Date Acquired : 05/03/2018 01:32:51 PM
Units : ppb
Dilution: WS-RPS-24[2.60 - 3.00] ->



Validated

CERTIFICATE OF ANALYSIS

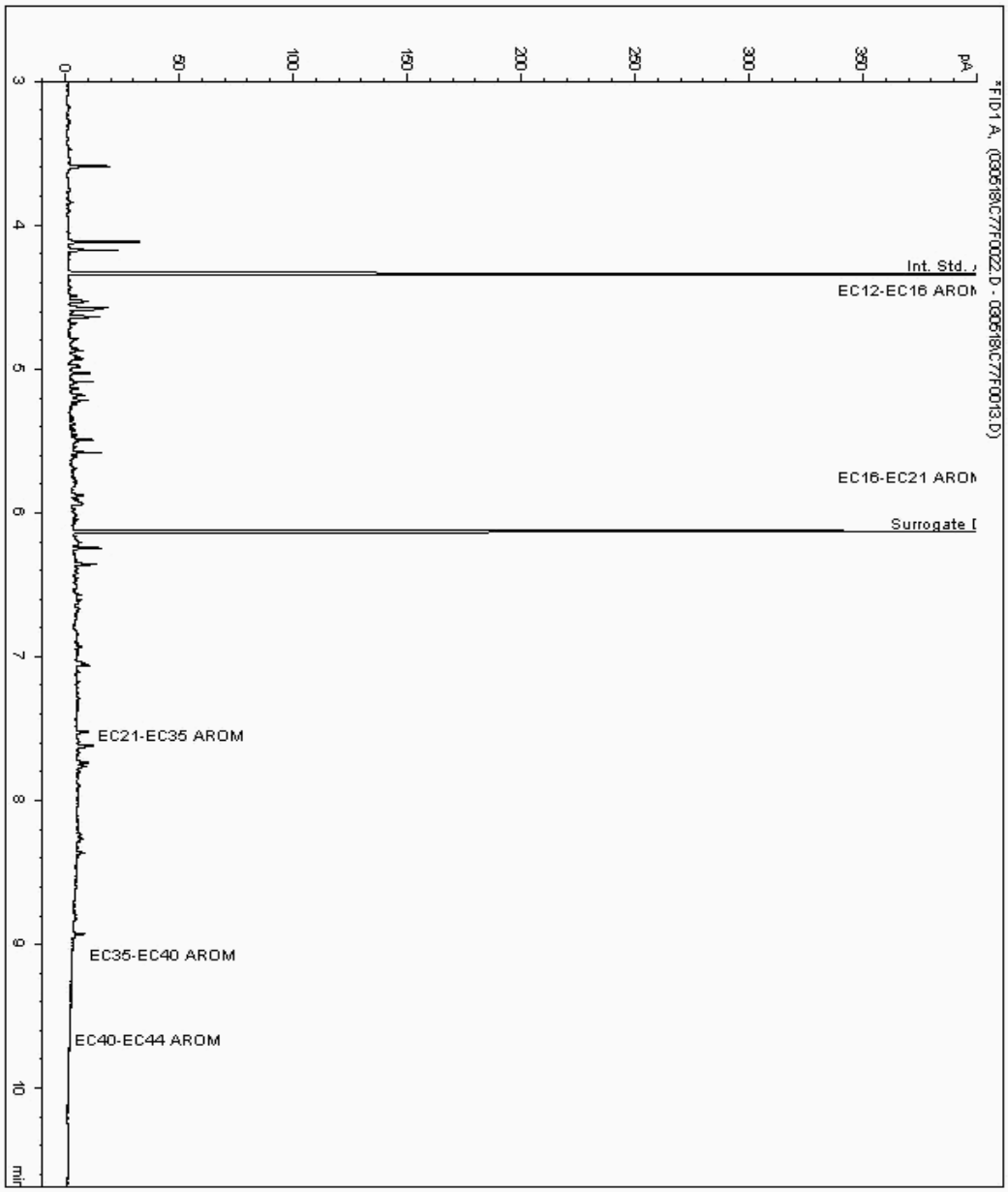
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17131443 **Sample ID :** WS-RPS-29 **Depth :** 0.60 - 0.90

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080742-
Date Acquired : 05/03/2018 16:41:53 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

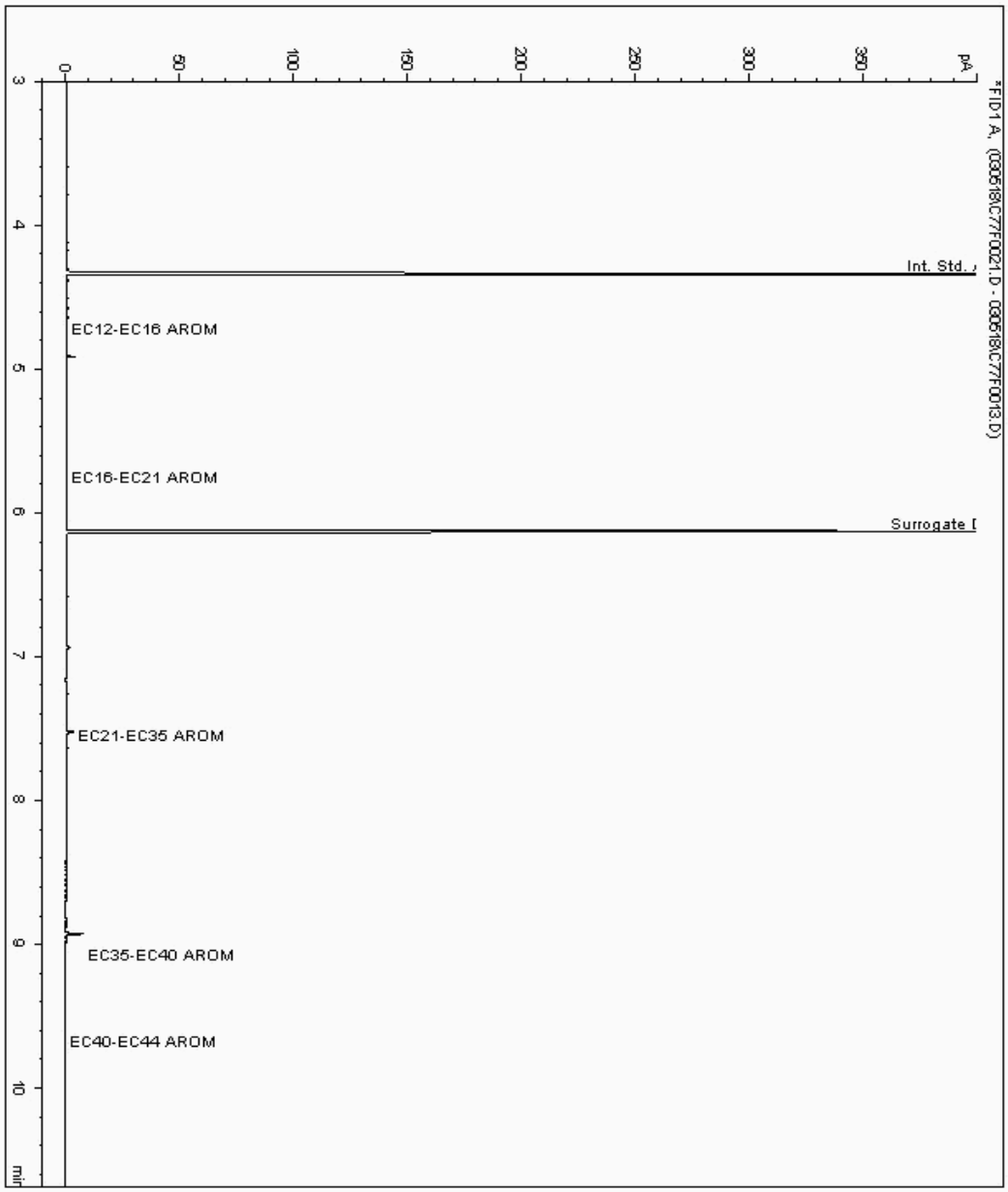
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17131680 **Sample ID :** WS-RPS-23 **Depth :** 0.70 - 1.00

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16080793-
Date Acquired : 05/03/2018 16:21:35 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

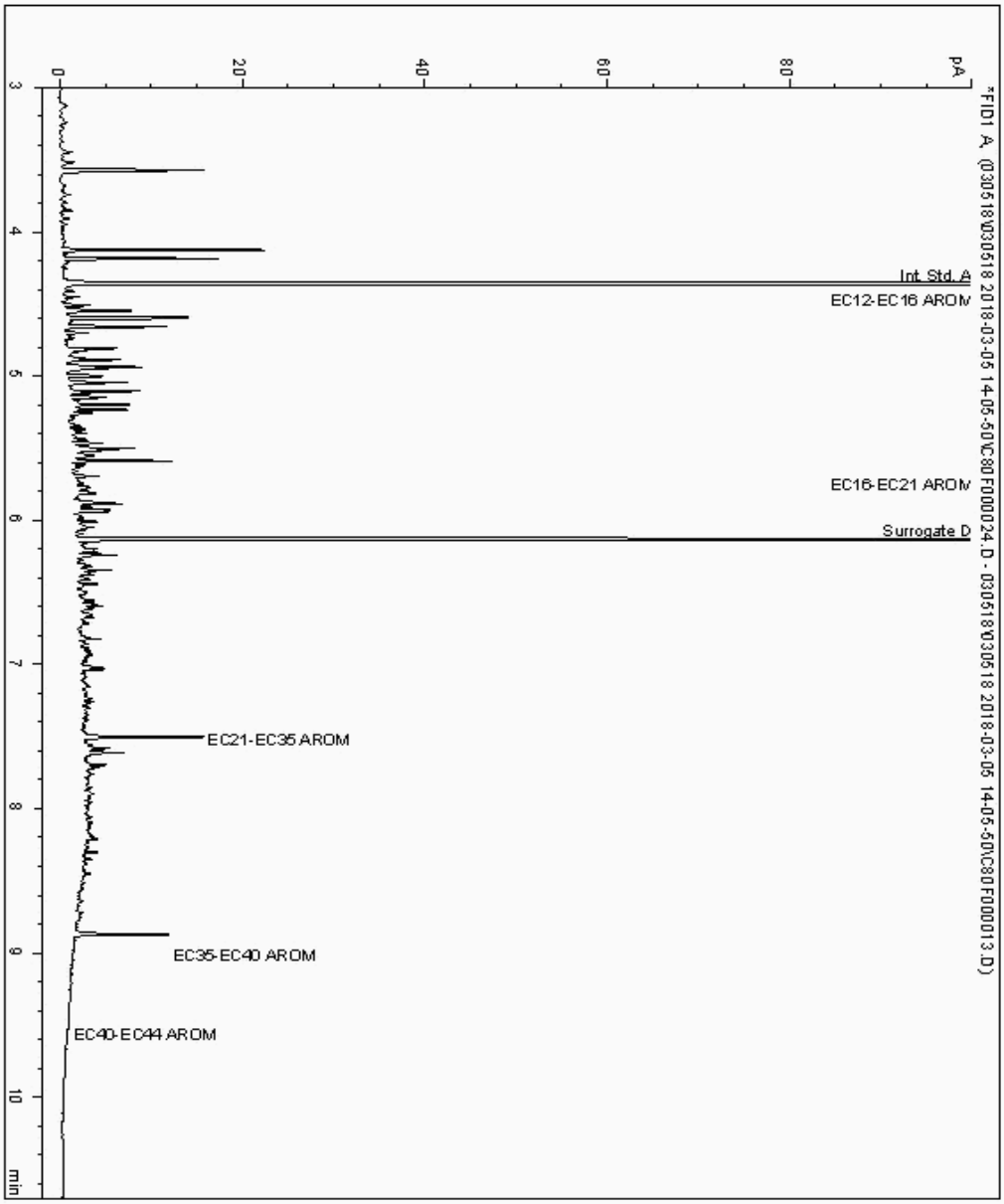
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17131688 **Sample ID :** WS-RPS-23 **Depth :** 0.00 - 0.40

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16080809-
Date Acquired : 05/03/18 20:52:16
Units : ppb
Dilution :
CF : 1
Multiplier : 1.020



CERTIFICATE OF ANALYSIS

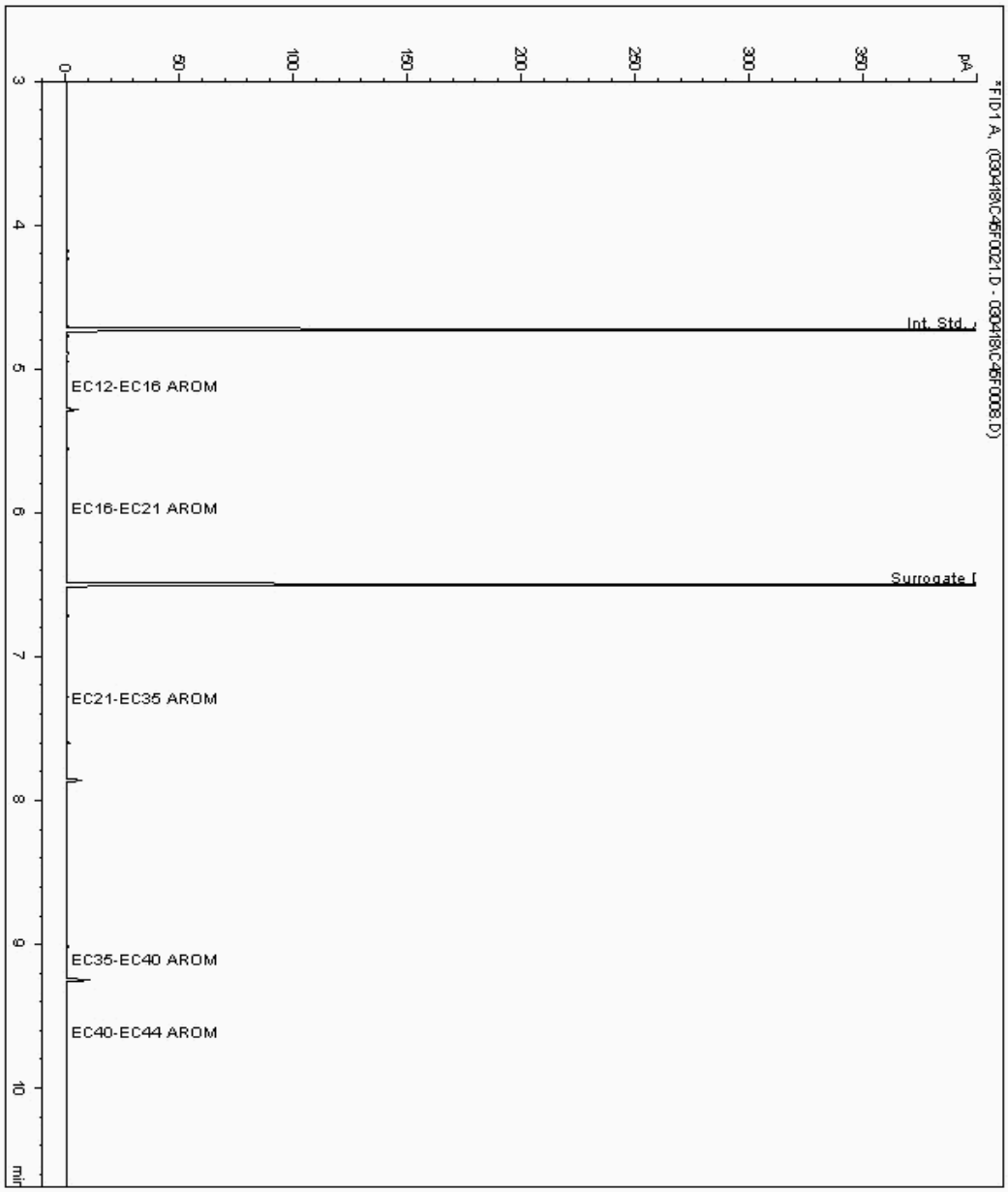
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17131807 **Sample ID :** BH-RPS-09 **Depth :** 1.30 - 1.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16080770-
Date Acquired : 04/03/2018 23:34:16 PM
Units : ppb
Dilution: BH-RPS-09[1.30 - 1.50] ->



Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

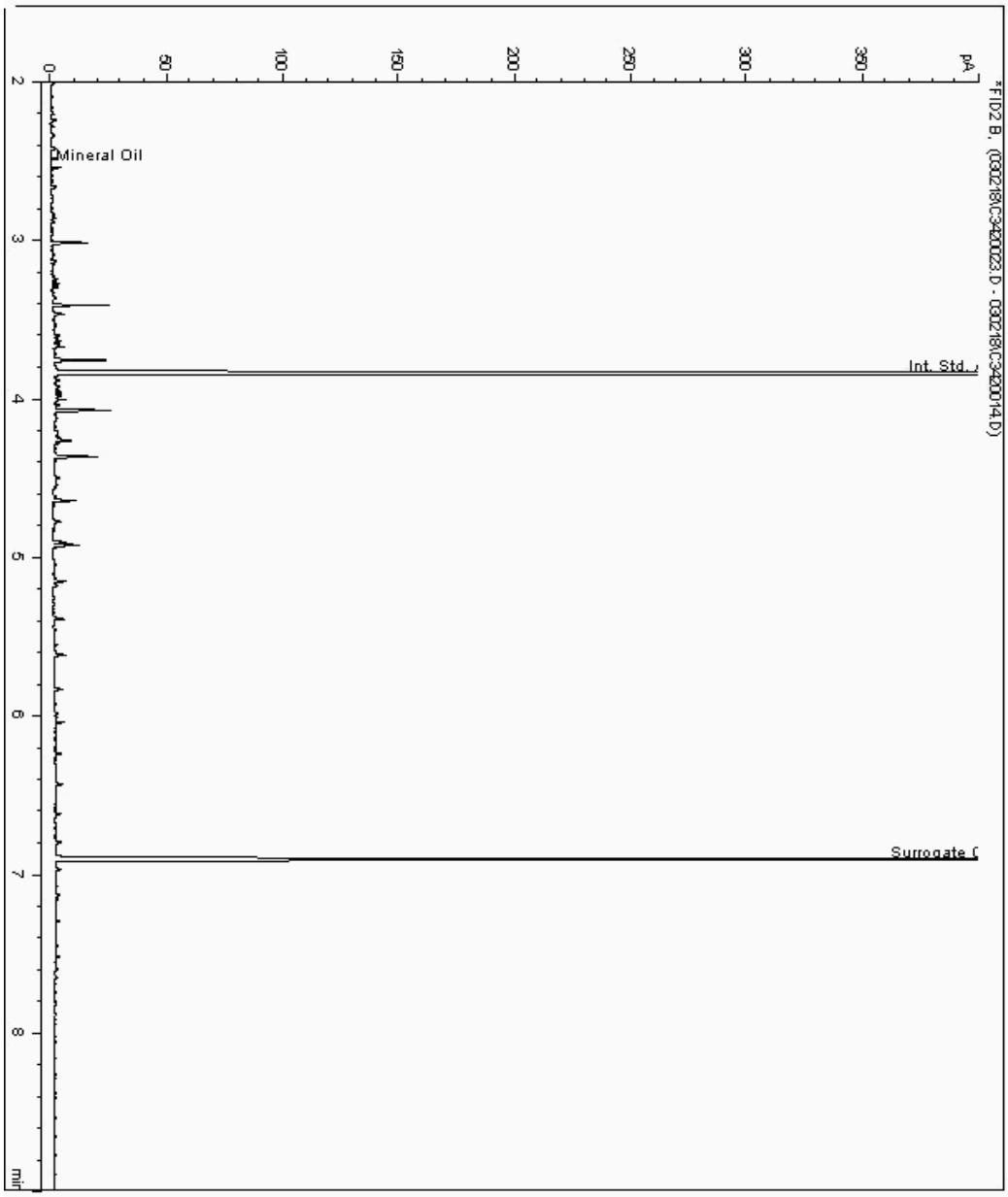
Analysis: Mineral Oil

Sample No : 17133968
Sample ID : WS-RPS-29

Depth : 0.25 - 0.60

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16080953-
Date Acquired : 02/03/2018 14:36:07 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

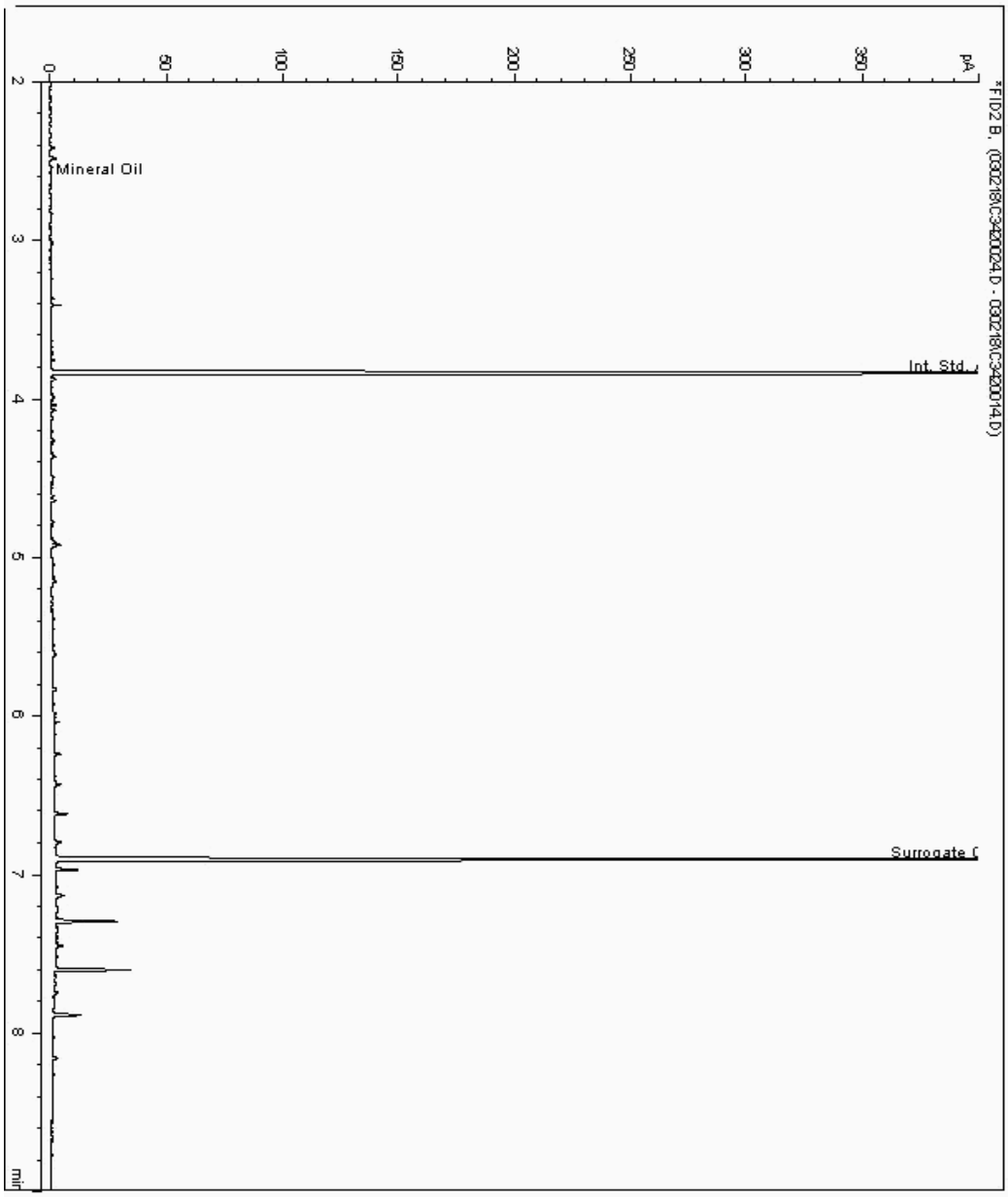
Analysis: Mineral Oil

Sample No : 17133988
Sample ID : CP-RPS-06

Depth : 0.70 - 1.20

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16080872-
Date Acquired : 02/03/2018 15:10:47 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

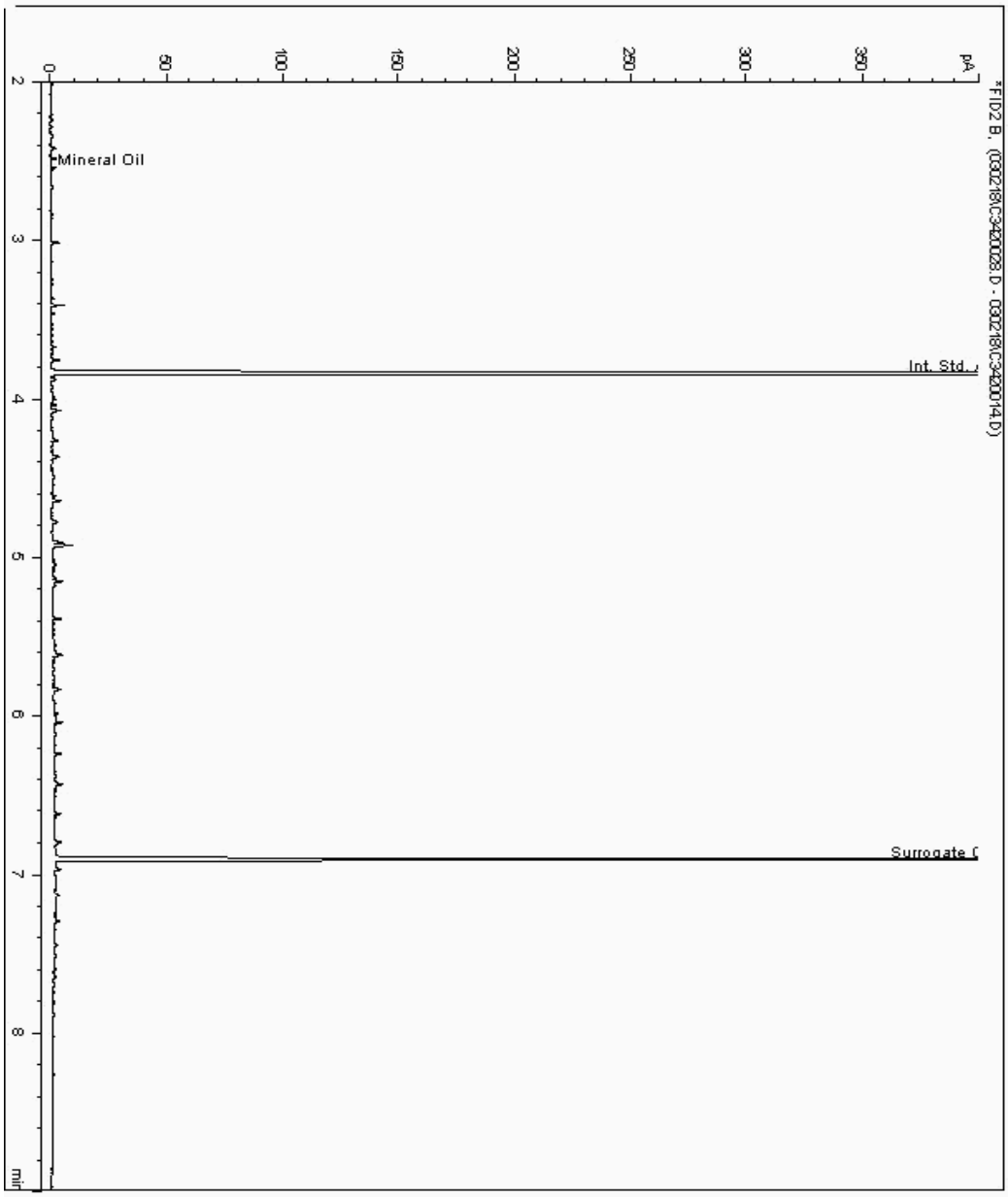
Analysis: Mineral Oil

Sample No : 17134066
Sample ID : CP-RPS-05

Depth : 0.50

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16080975-
Date Acquired : 02/03/2018 16:30:24 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

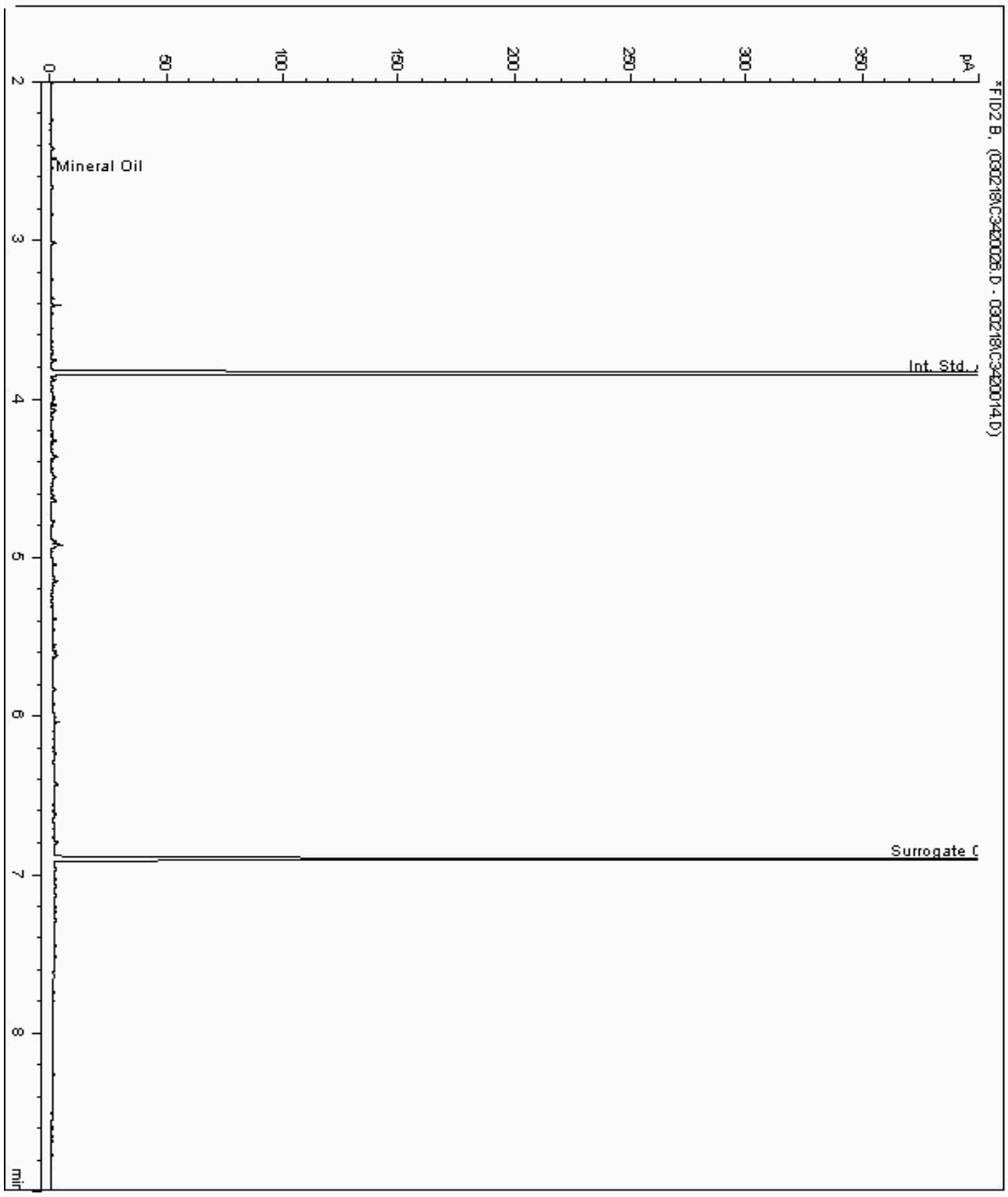
Analysis: Mineral Oil

Sample No : 17134121
Sample ID : WS-RPS-30

Depth : 0.00 - 0.30

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16080819-
Date Acquired : 02/03/2018 15:45:30 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

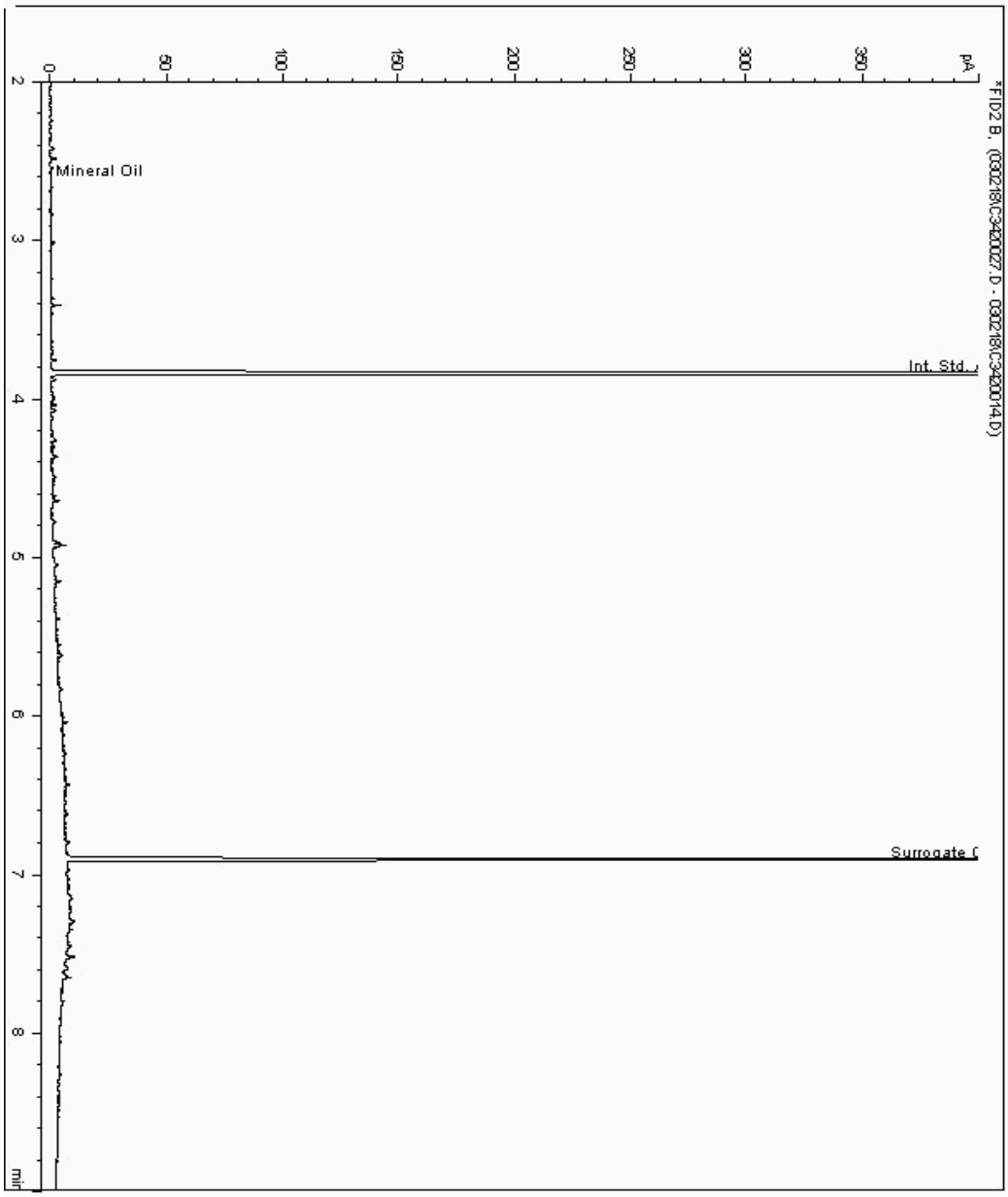
Analysis: Mineral Oil

Sample No : 17134150
Sample ID : WS-RPS-16

Depth : 0.50

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16080929-
Date Acquired : 02/03/2018 16:07:54 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

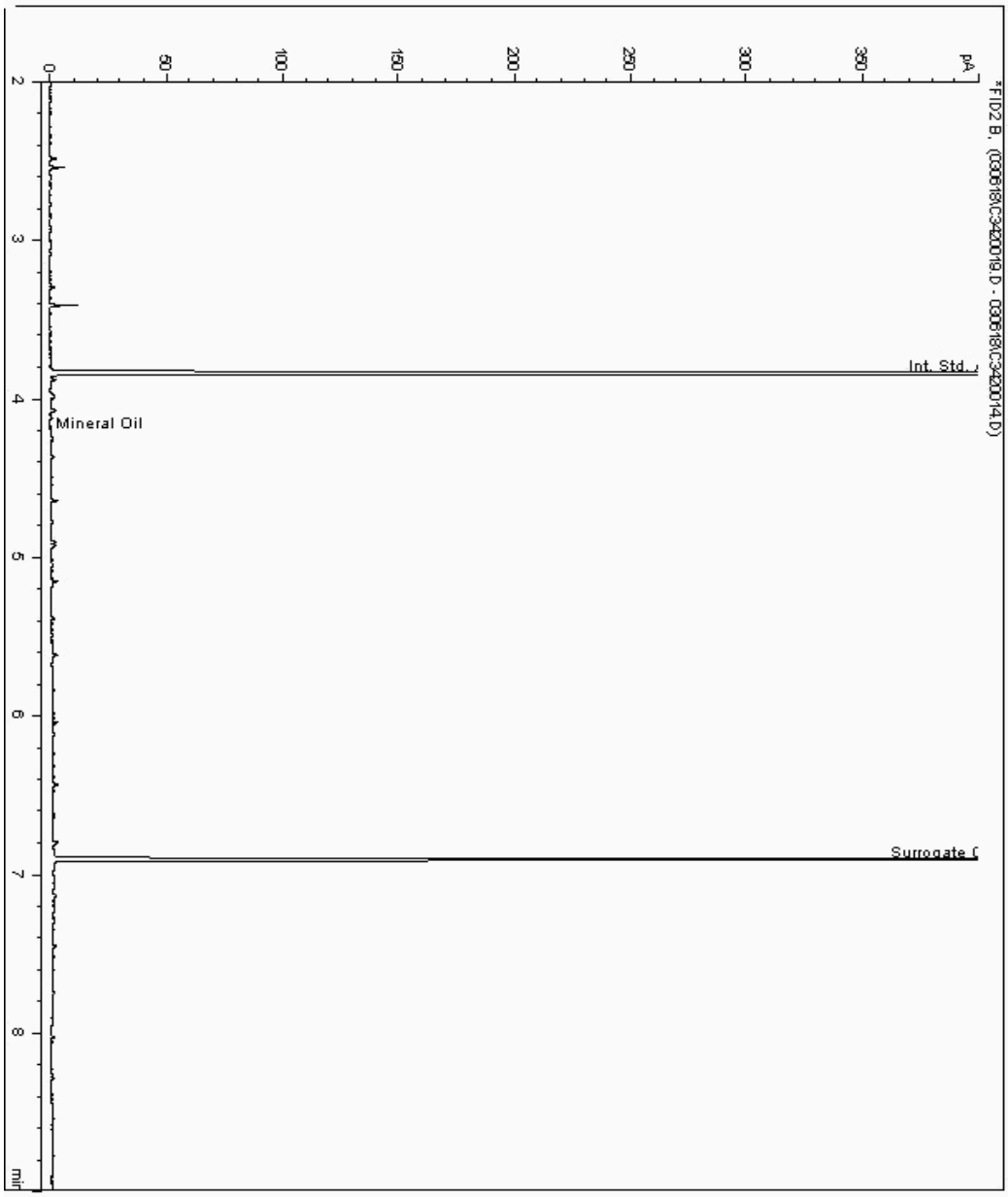
Analysis: Mineral Oil

Sample No : 17135116
Sample ID : WS-RPS-25

Depth : 0.35 - 0.50

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16080897-
Date Acquired : 06/03/2018 13:17:39 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

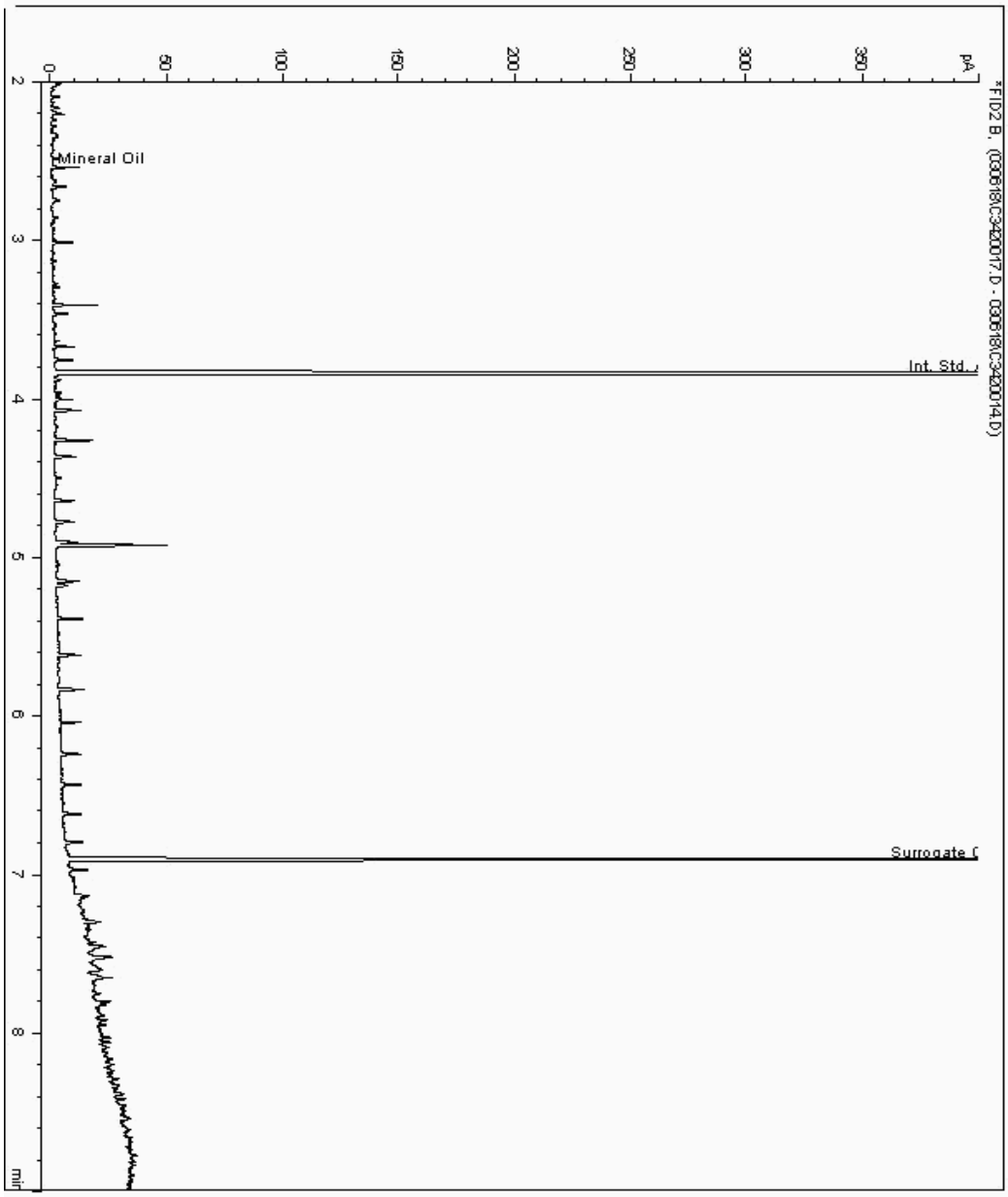
Analysis: Mineral Oil

Sample No : 17136143
Sample ID : WS-RPS-24

Depth : 0.50

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16080851-
Date Acquired : 06/03/2018 12:42:27 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



Validated

CERTIFICATE OF ANALYSIS

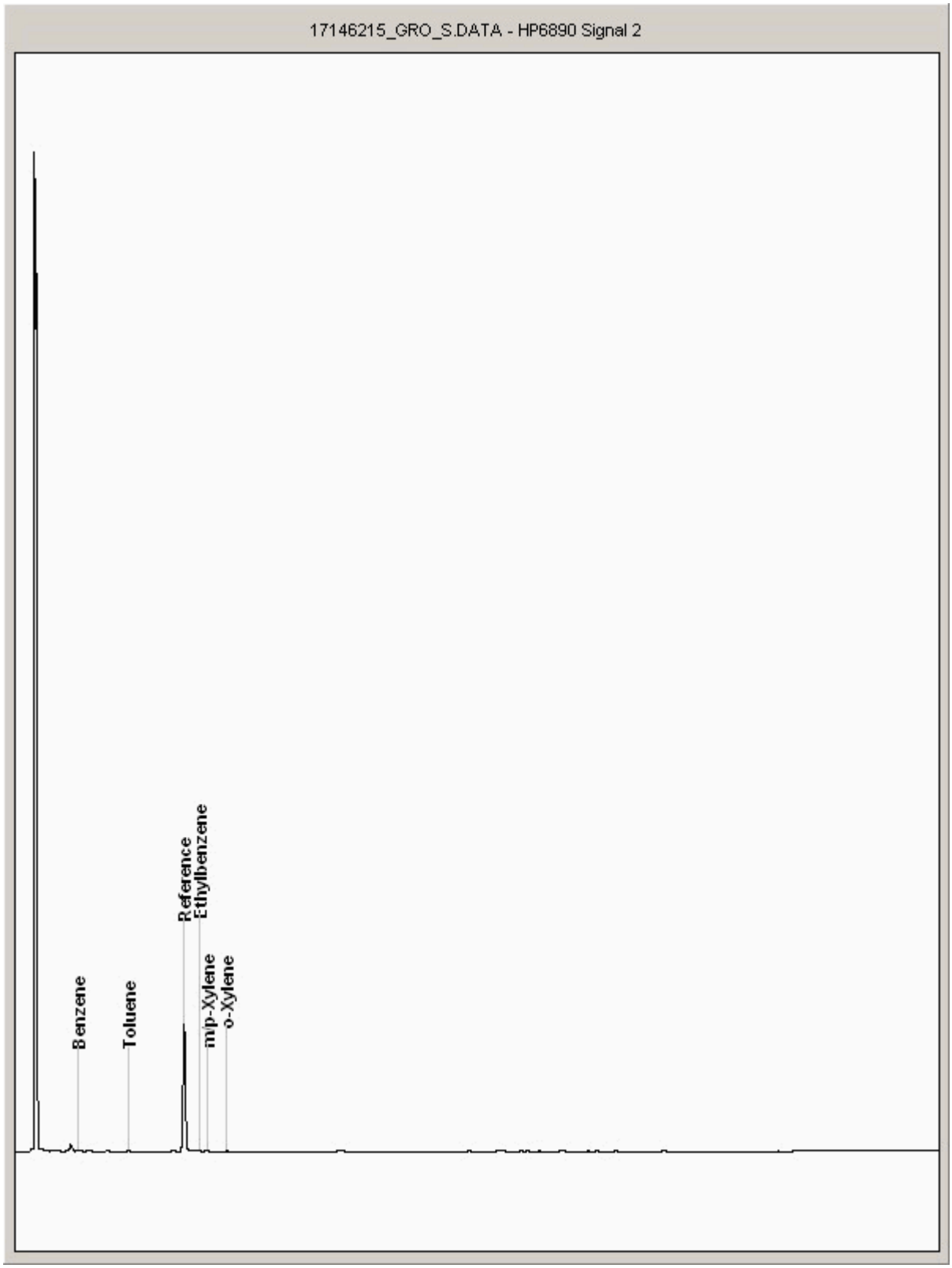
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17146215
Sample ID : WS-RPS-08

Depth : 0.20 - 0.50



Validated

CERTIFICATE OF ANALYSIS

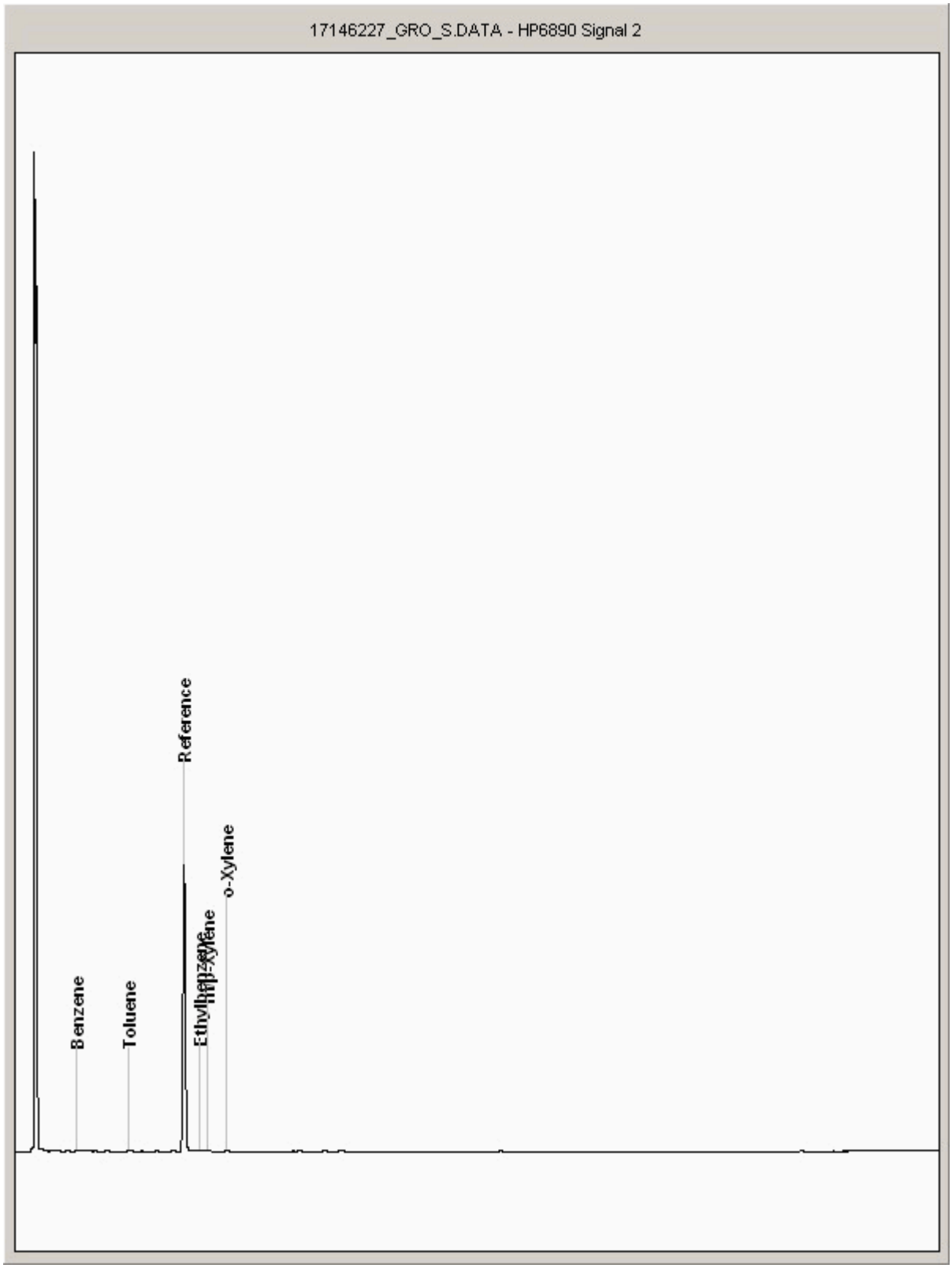
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17146227
Sample ID : WS-RPS-29

Depth : 0.25 - 0.60



Validated

CERTIFICATE OF ANALYSIS

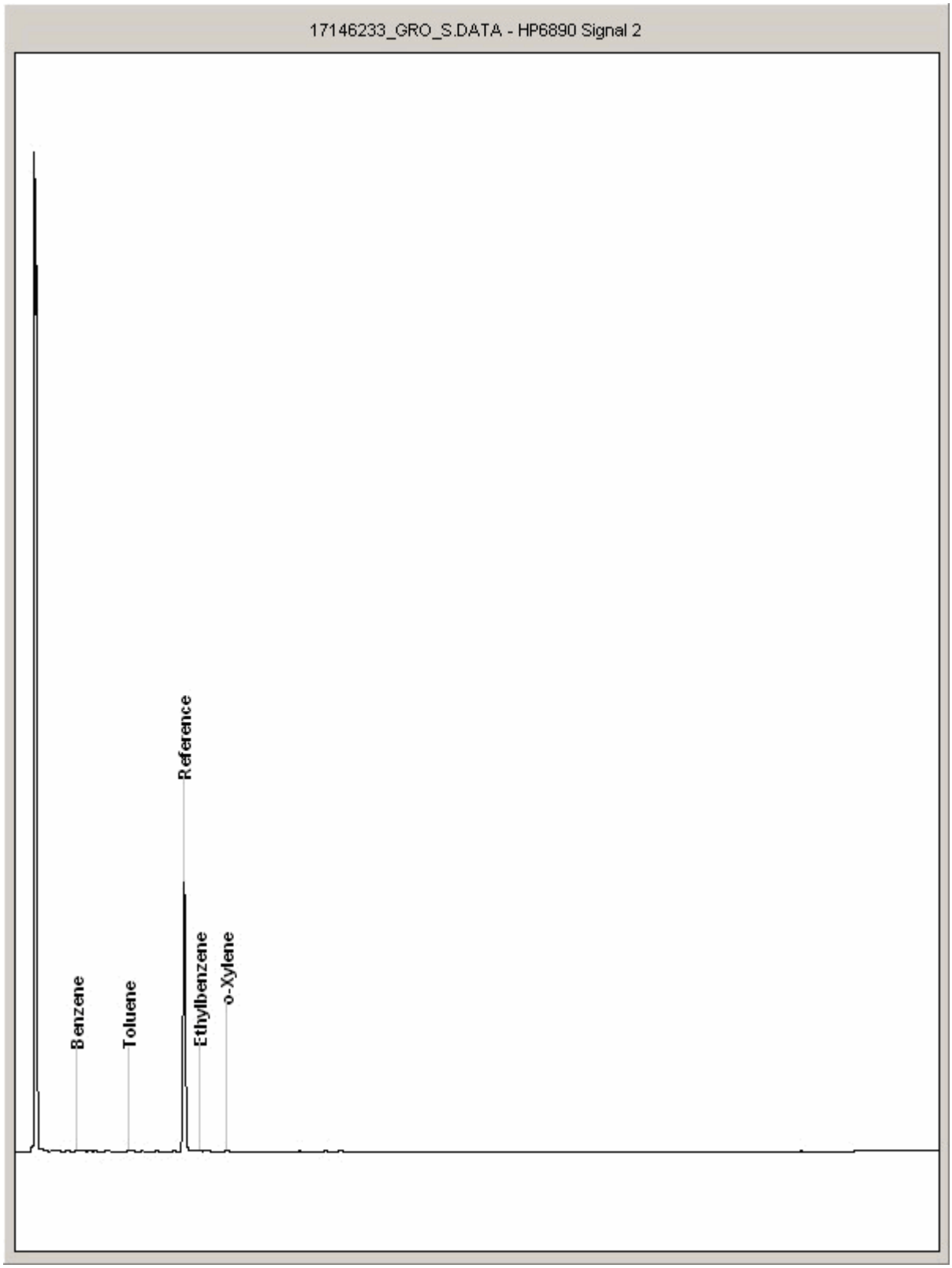
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17146233
Sample ID : WS-RPS-29

Depth : 0.60 - 0.90



Validated

CERTIFICATE OF ANALYSIS

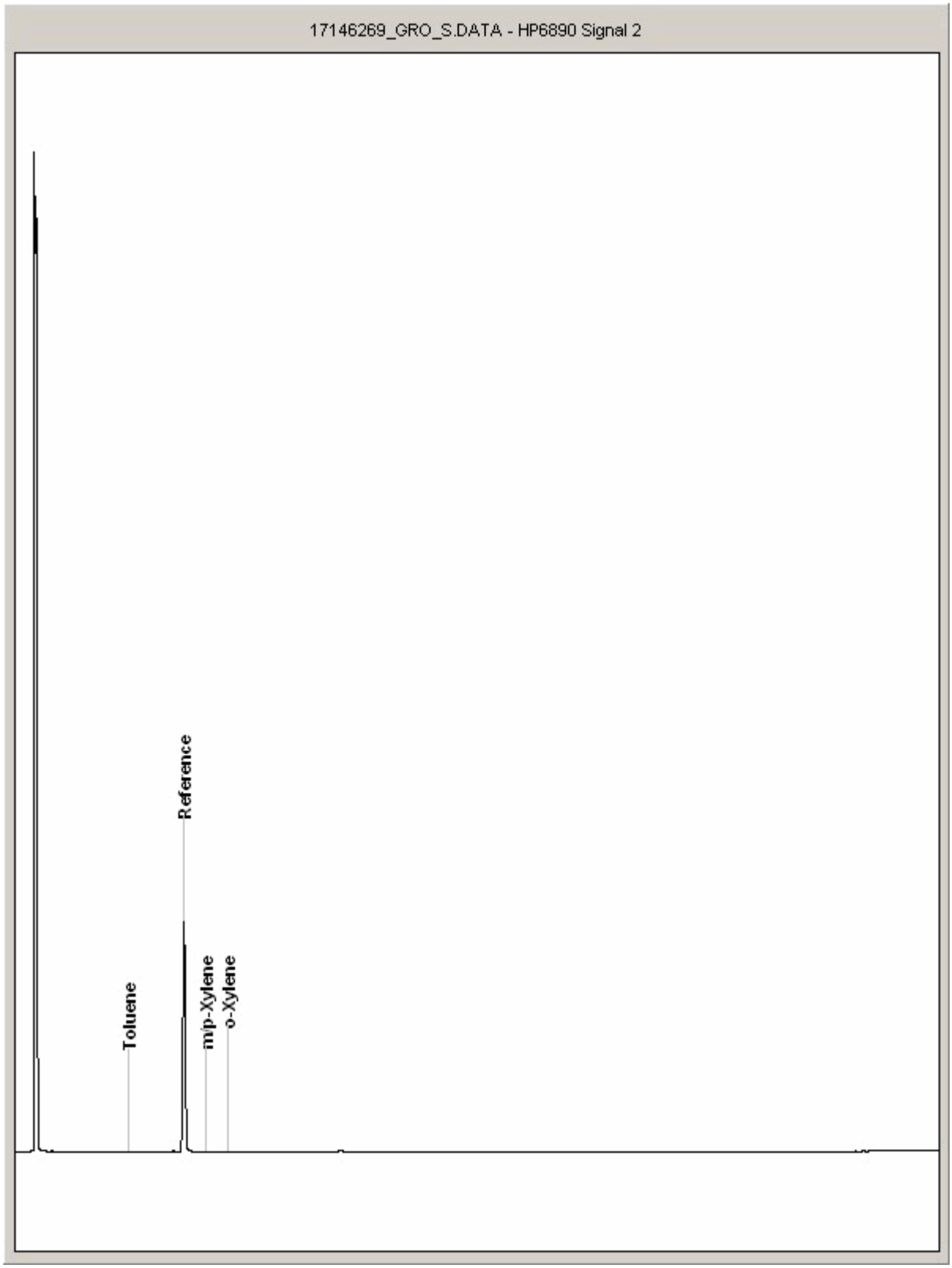
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17146269
Sample ID : WS-RPS-16

Depth : 0.50



Validated

CERTIFICATE OF ANALYSIS

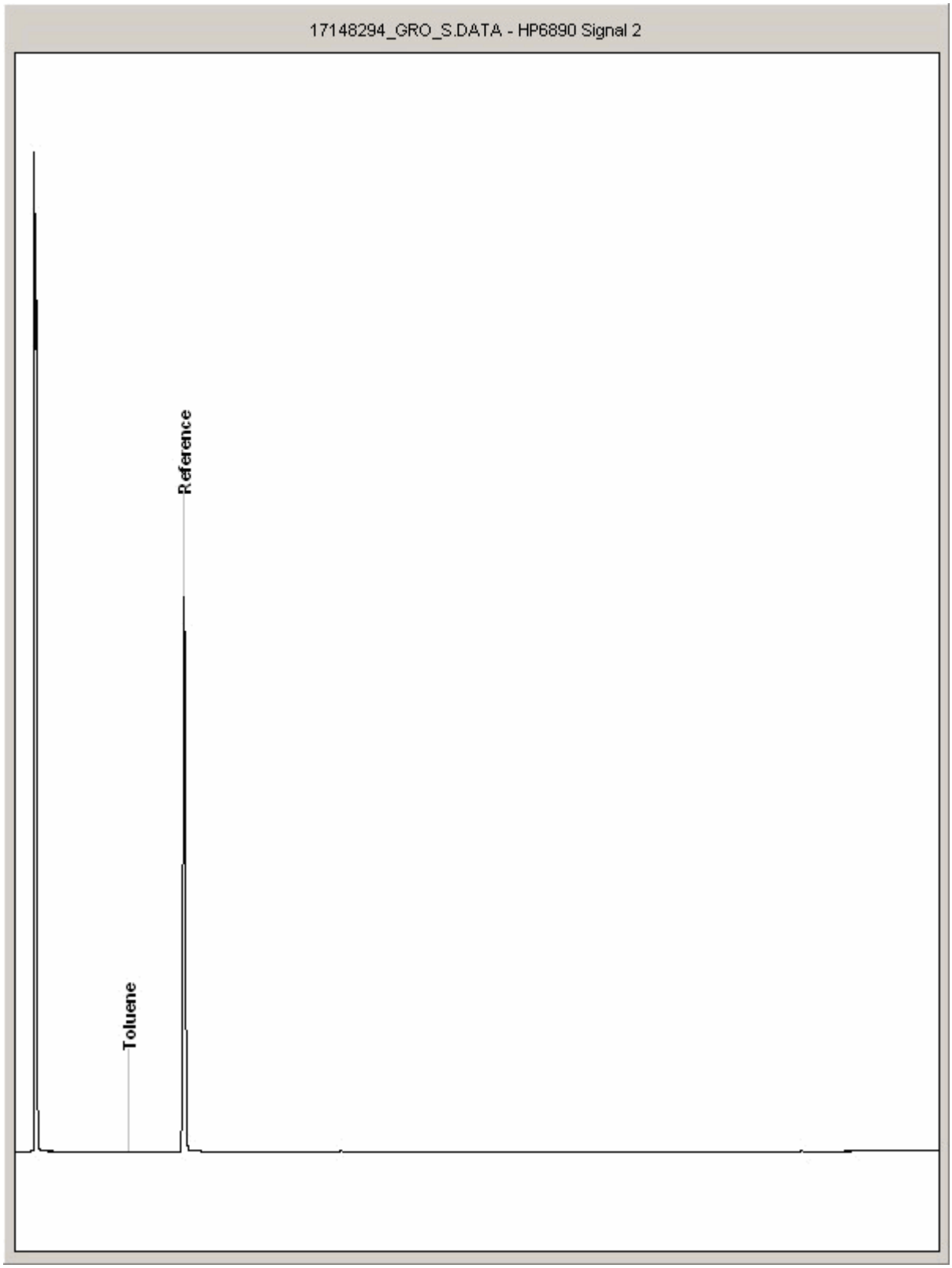
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148294
Sample ID : BH-RPS-04

Depth : 7.80 - 8.40



Validated

CERTIFICATE OF ANALYSIS

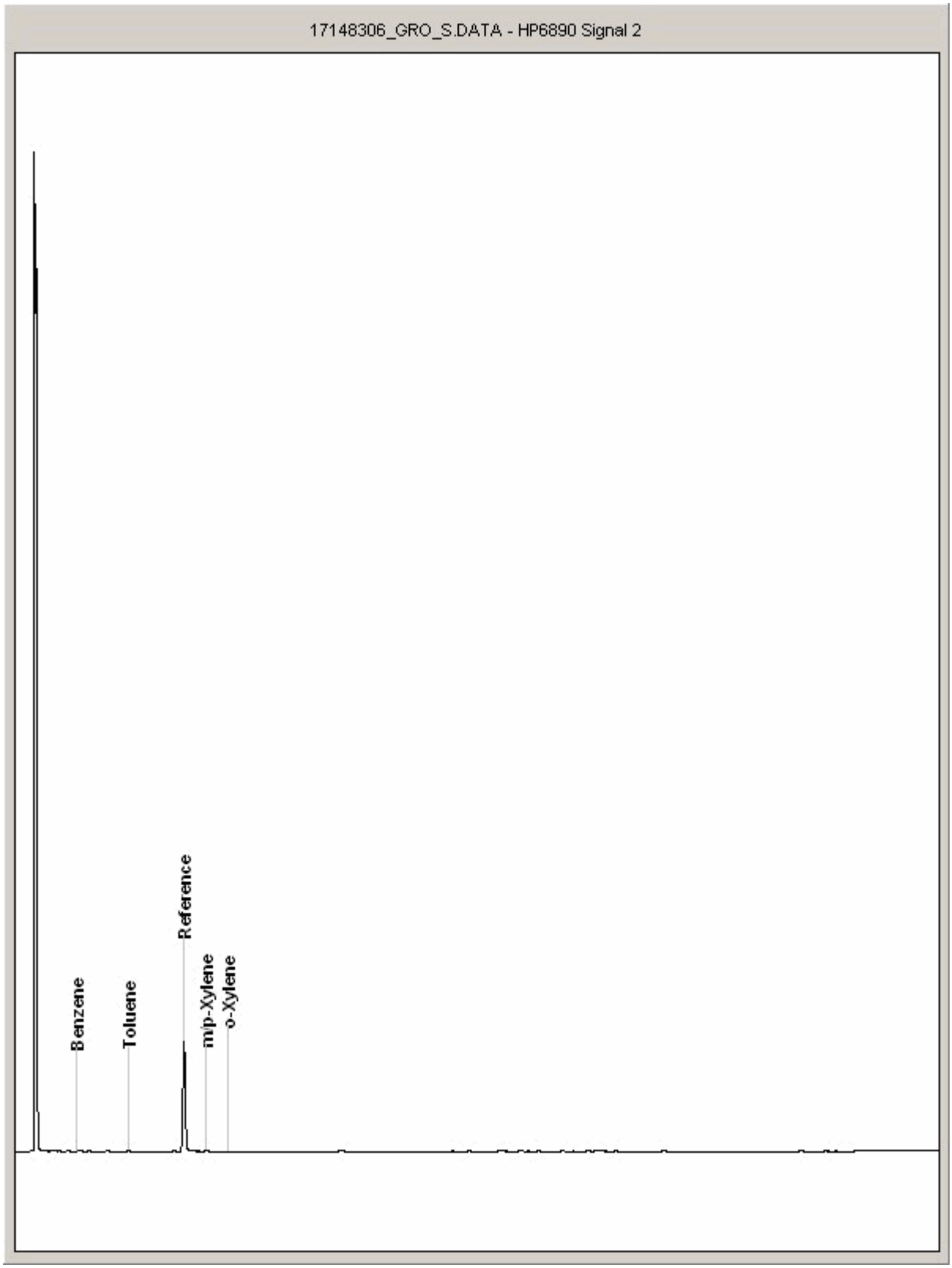
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148306
Sample ID : WS-RPS-24

Depth : 0.50



Validated

CERTIFICATE OF ANALYSIS

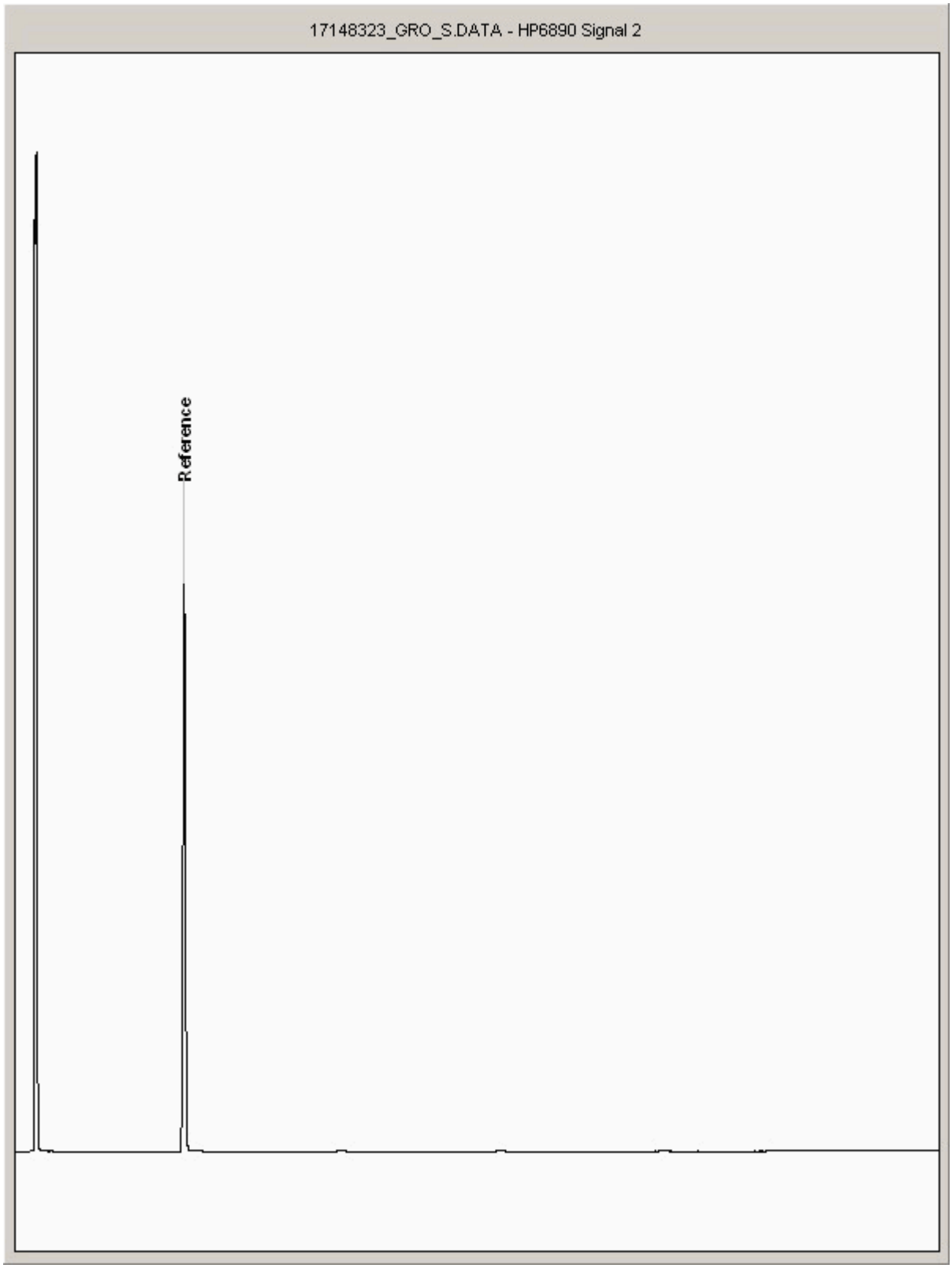
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148323
Sample ID : BH-RPS-09

Depth : 1.30 - 1.50



Validated

CERTIFICATE OF ANALYSIS

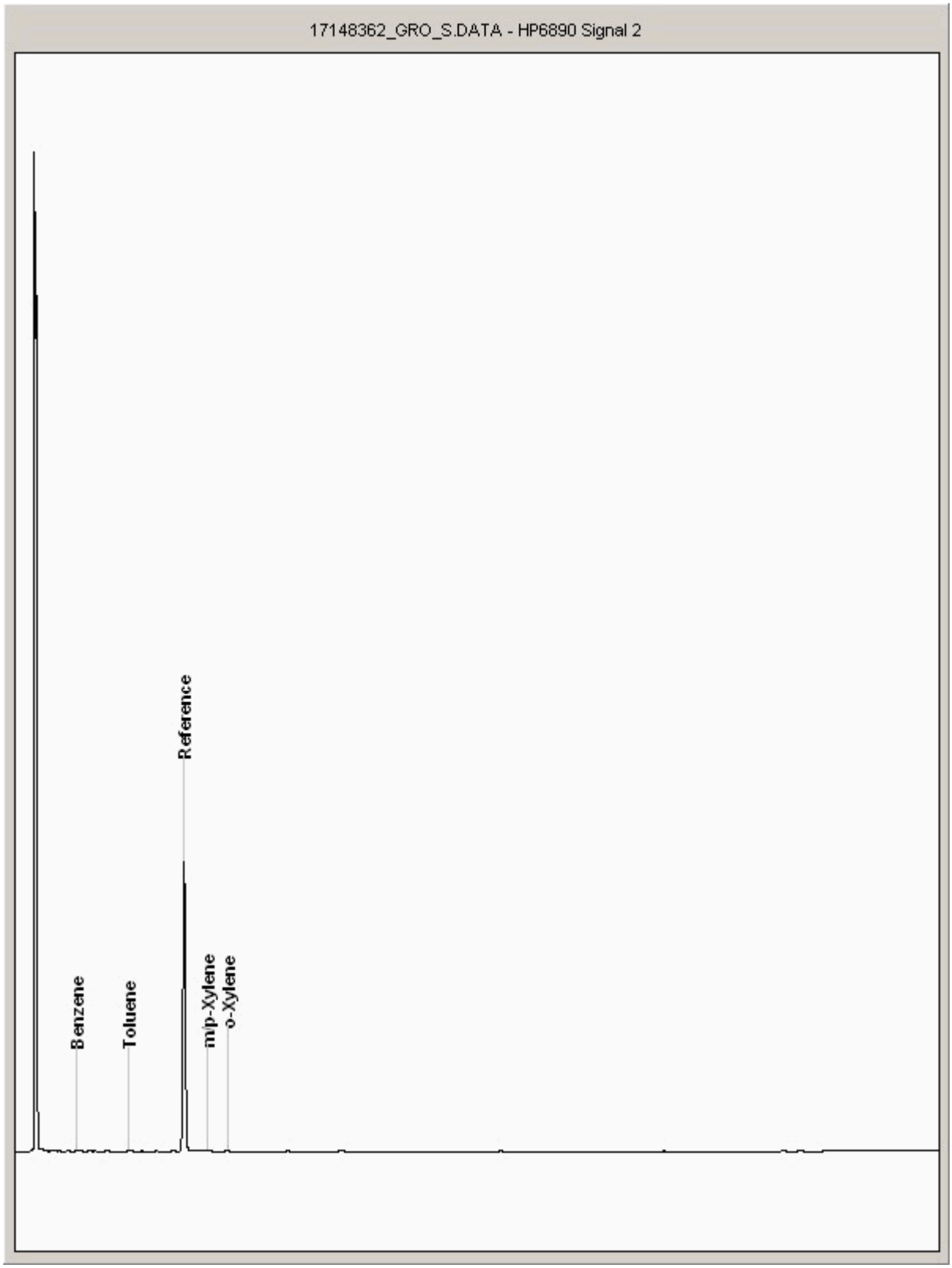
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148362
Sample ID : CP-RPS-05

Depth : 0.50



Validated

CERTIFICATE OF ANALYSIS

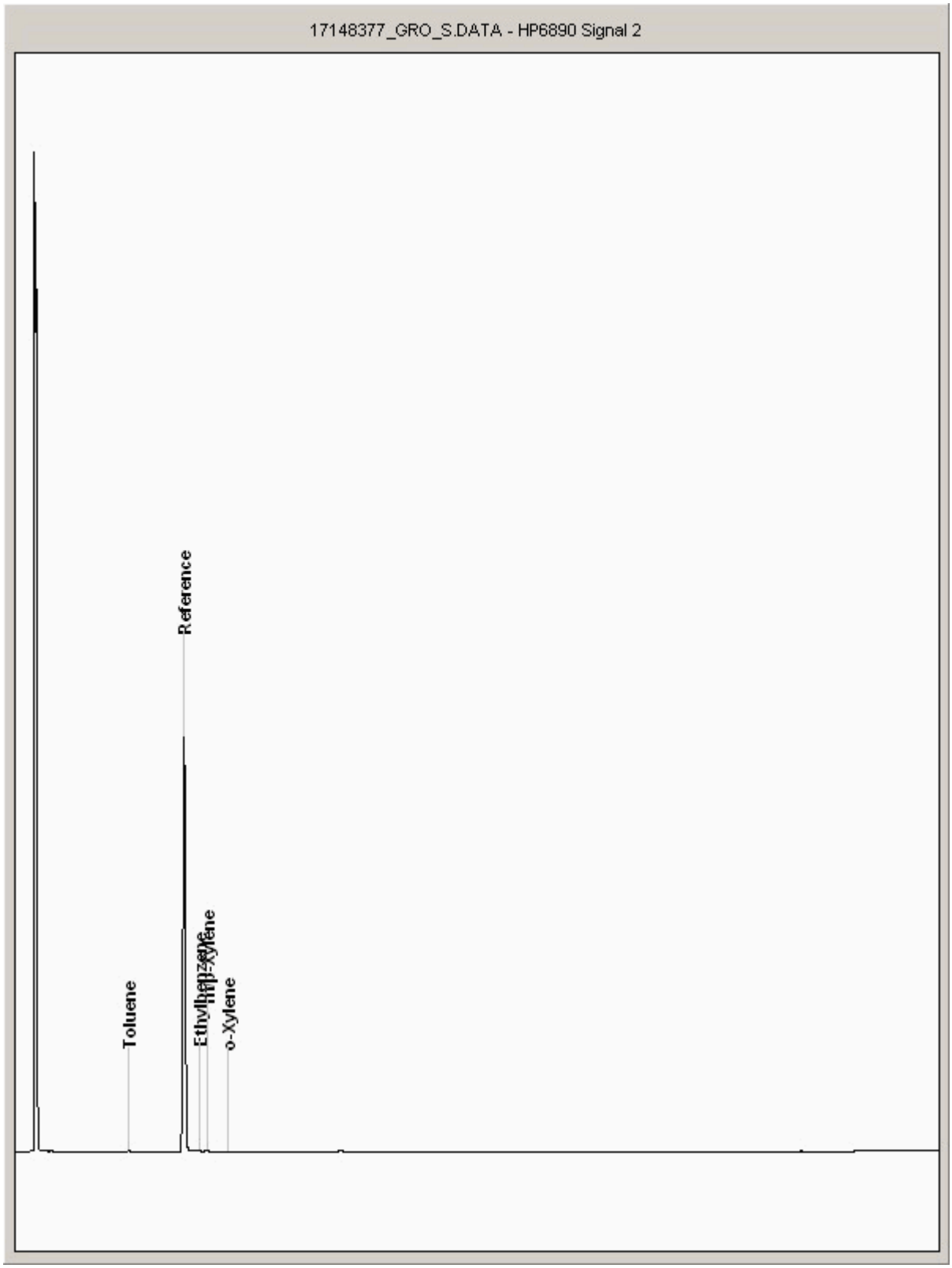
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148377
Sample ID : WS-RPS-25

Depth : 0.35 - 0.50



Validated

CERTIFICATE OF ANALYSIS

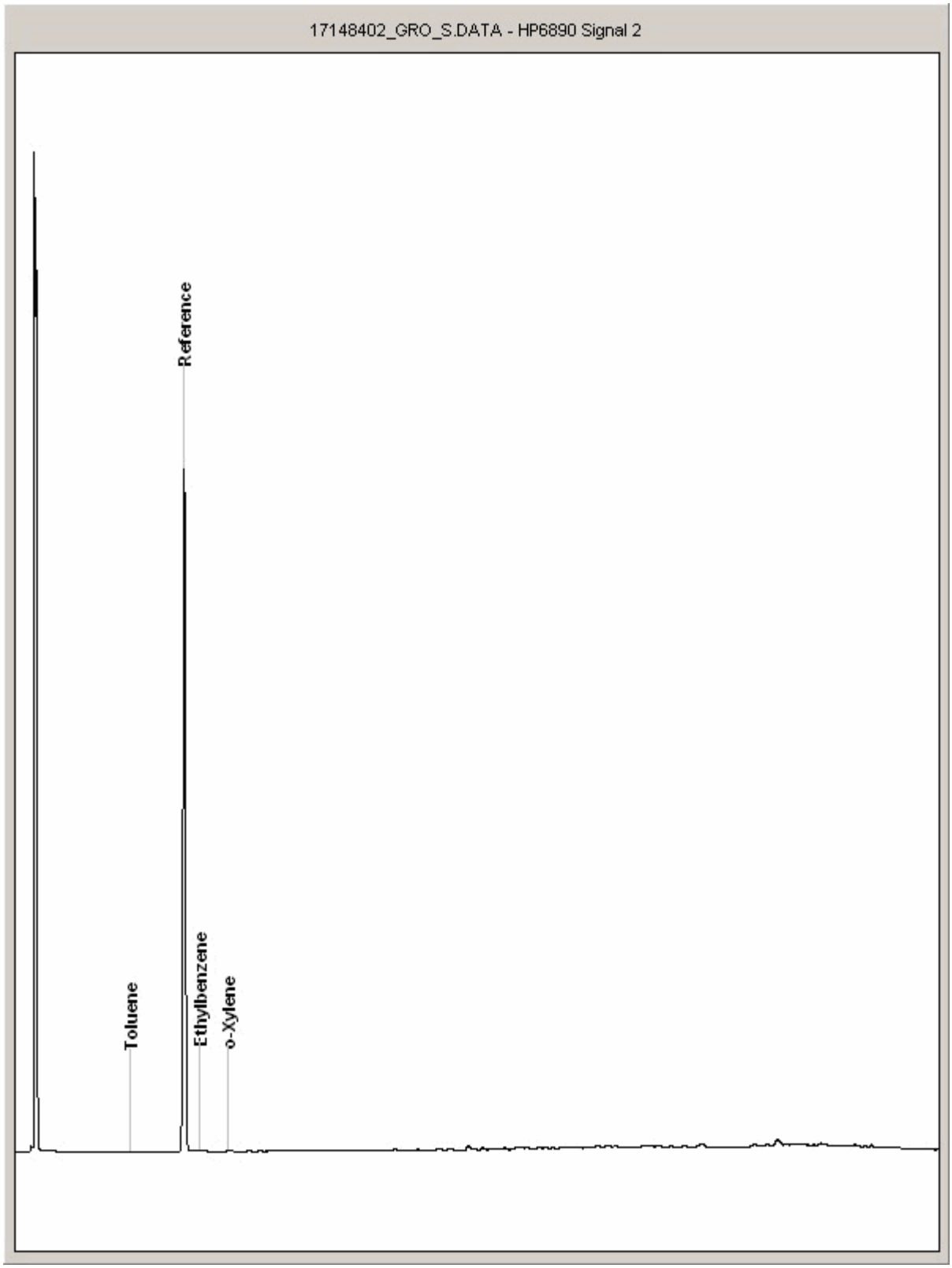
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148402
Sample ID : WS-RPS-24

Depth : 2.60 - 3.00



Validated

CERTIFICATE OF ANALYSIS

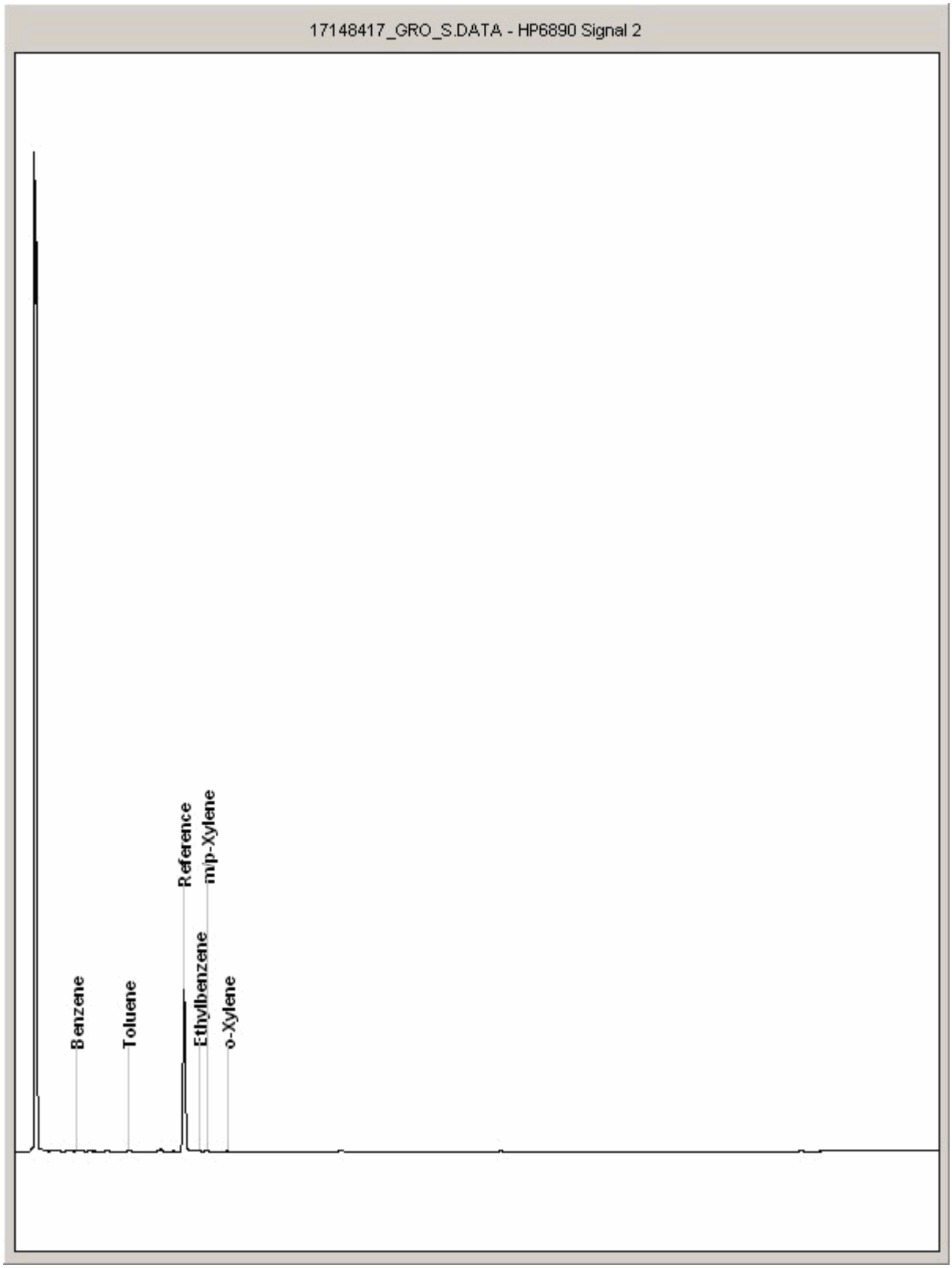
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148417
Sample ID : WS-RPS-28

Depth : 0.20



Validated

CERTIFICATE OF ANALYSIS

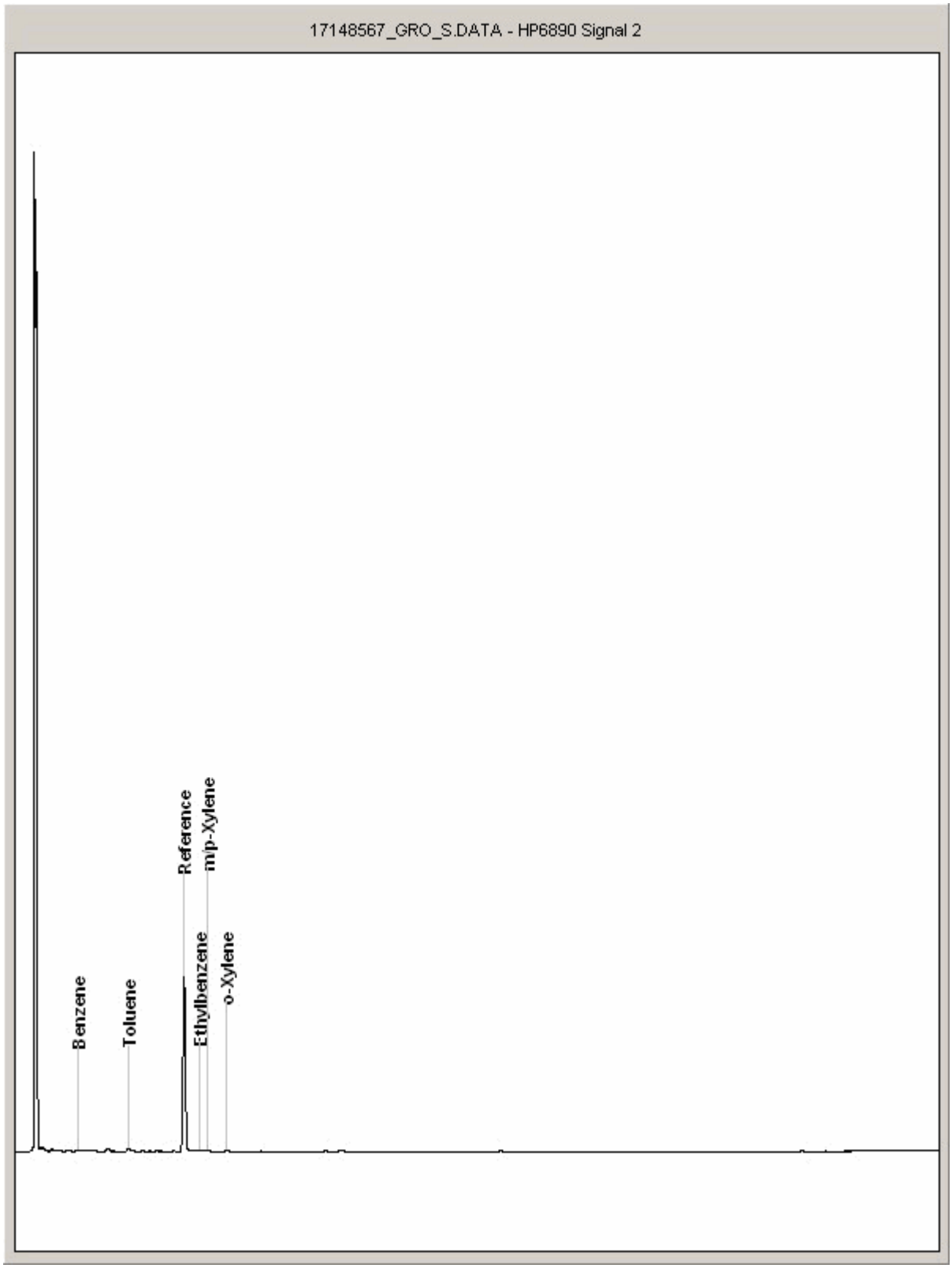
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148567
Sample ID : WS-RPS-23

Depth : 0.00 - 0.40



Validated

CERTIFICATE OF ANALYSIS

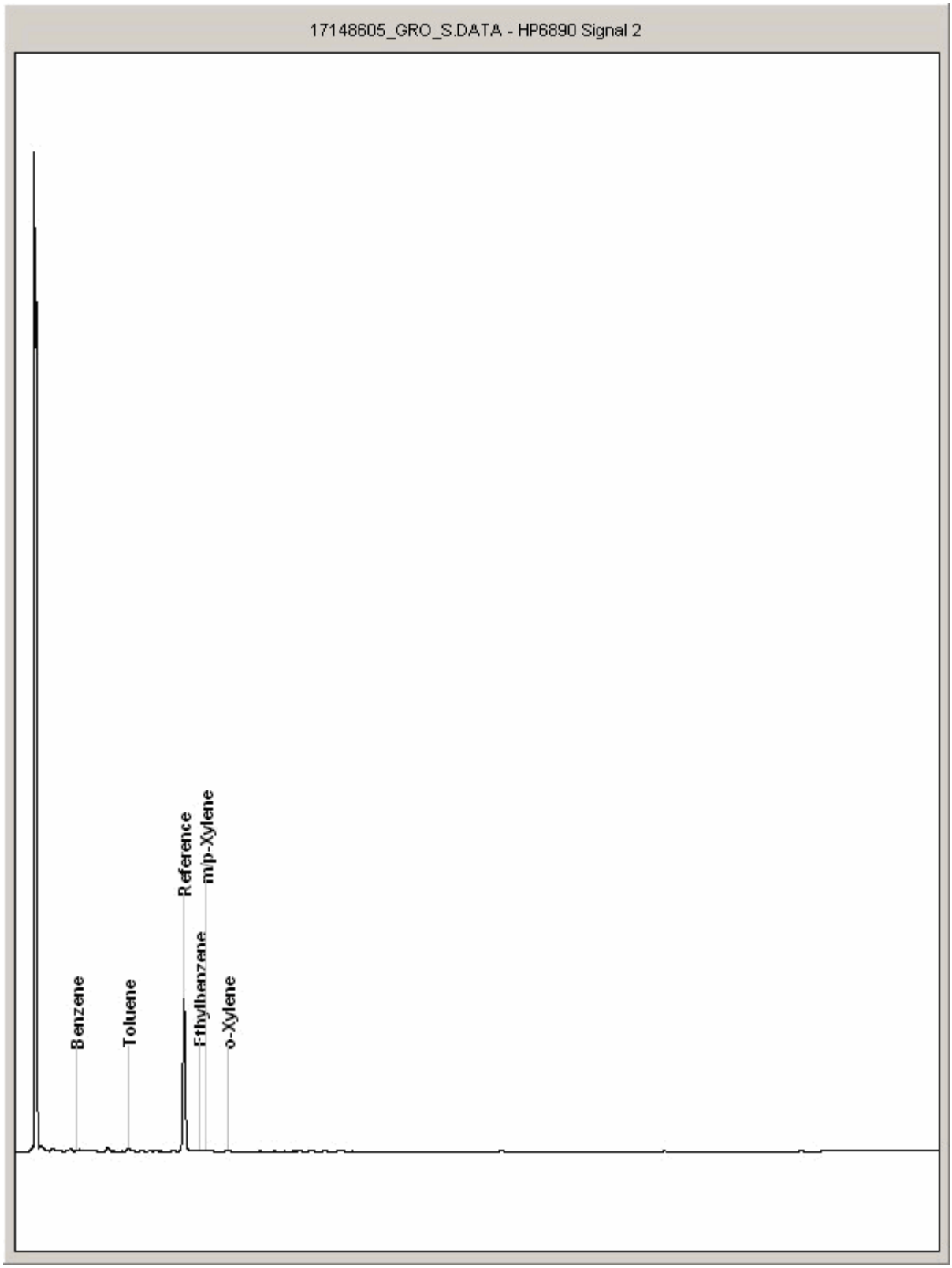
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148605
Sample ID : WS-RPS-30

Depth : 0.50 - 0.80



Validated

CERTIFICATE OF ANALYSIS

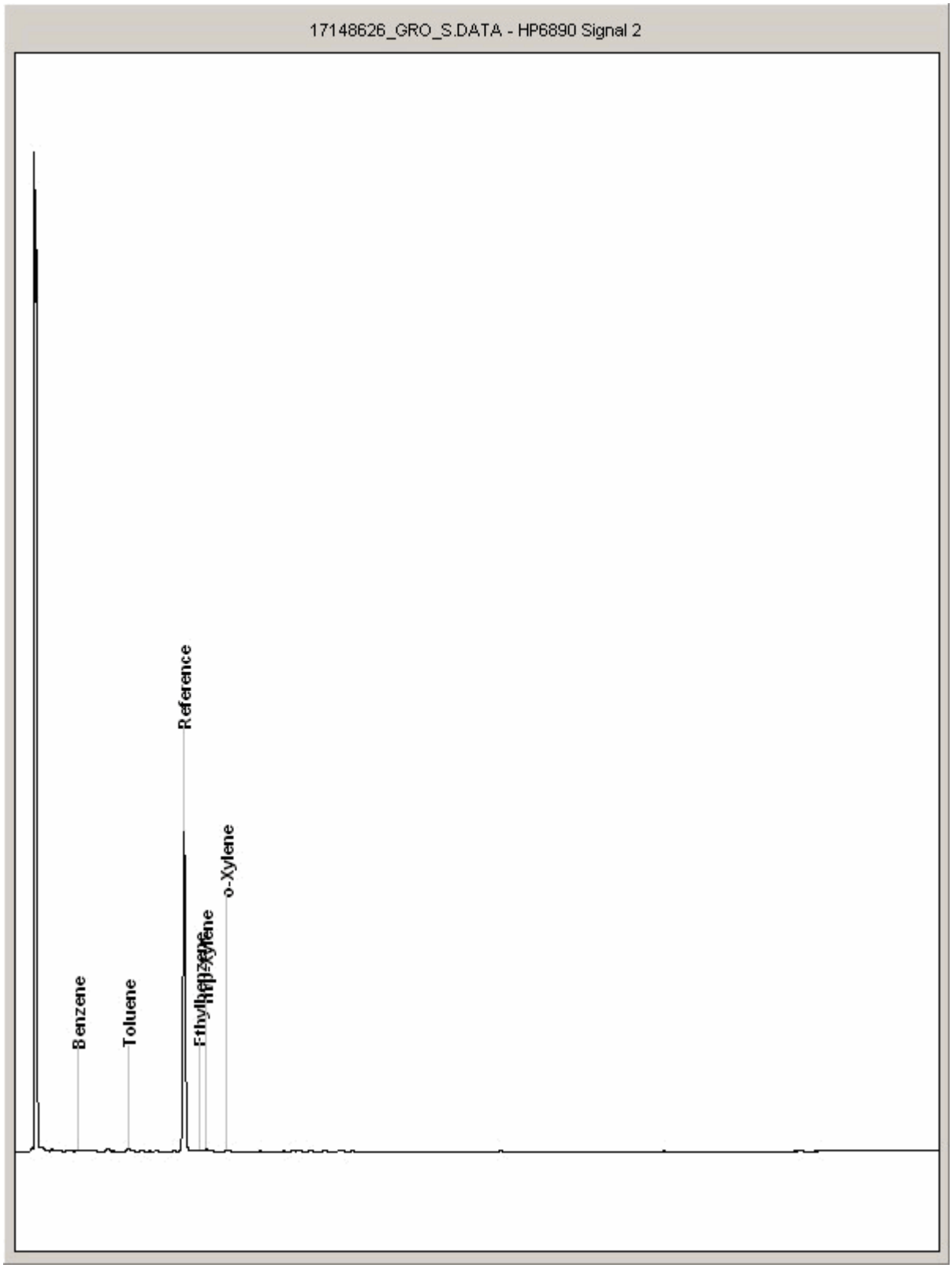
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148626
Sample ID : WS-RPS-30

Depth : 0.00 - 0.30



Validated

CERTIFICATE OF ANALYSIS

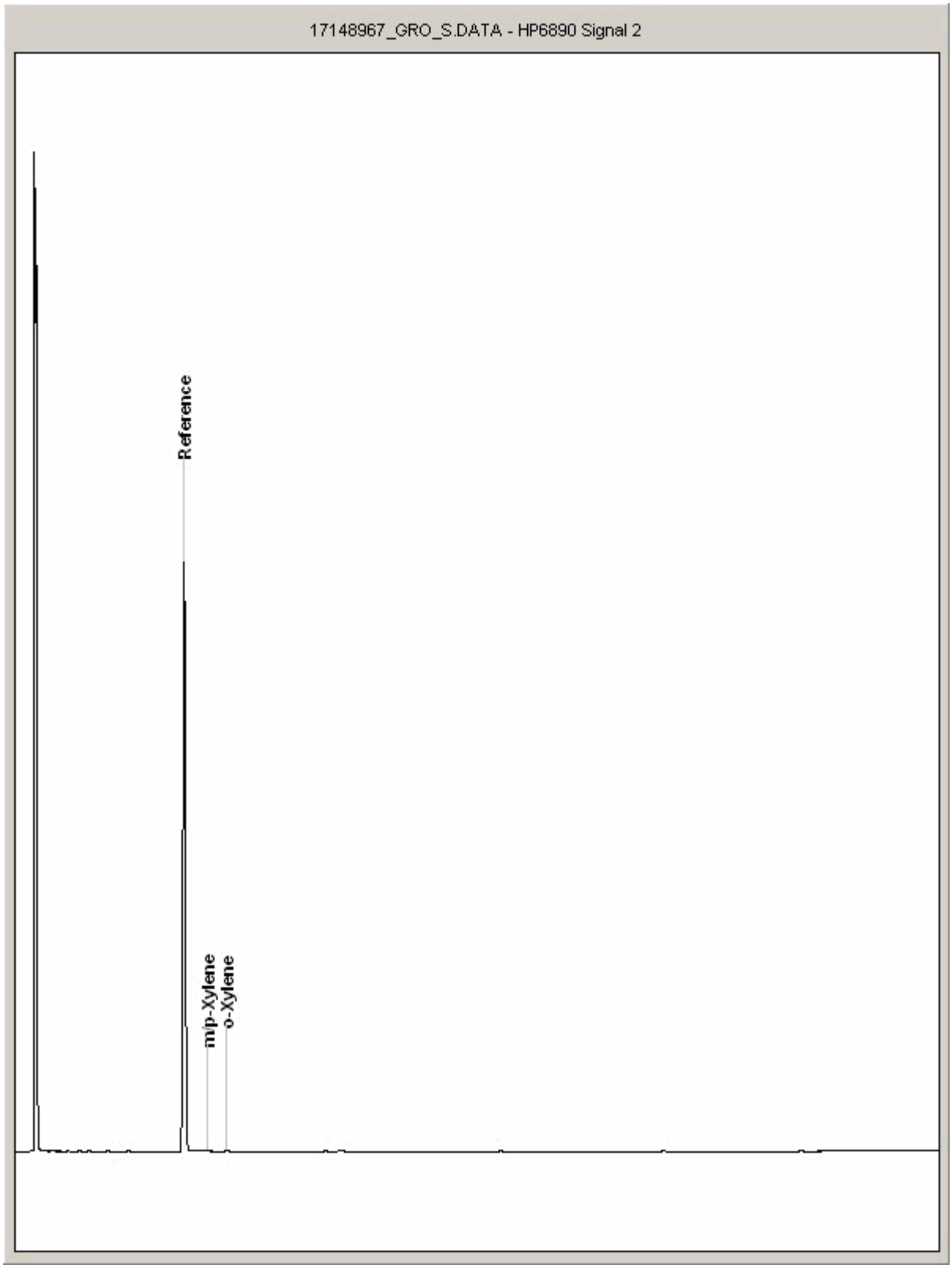
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17148967
Sample ID : WS-RPS-23

Depth : 0.70 - 1.00



Validated

CERTIFICATE OF ANALYSIS

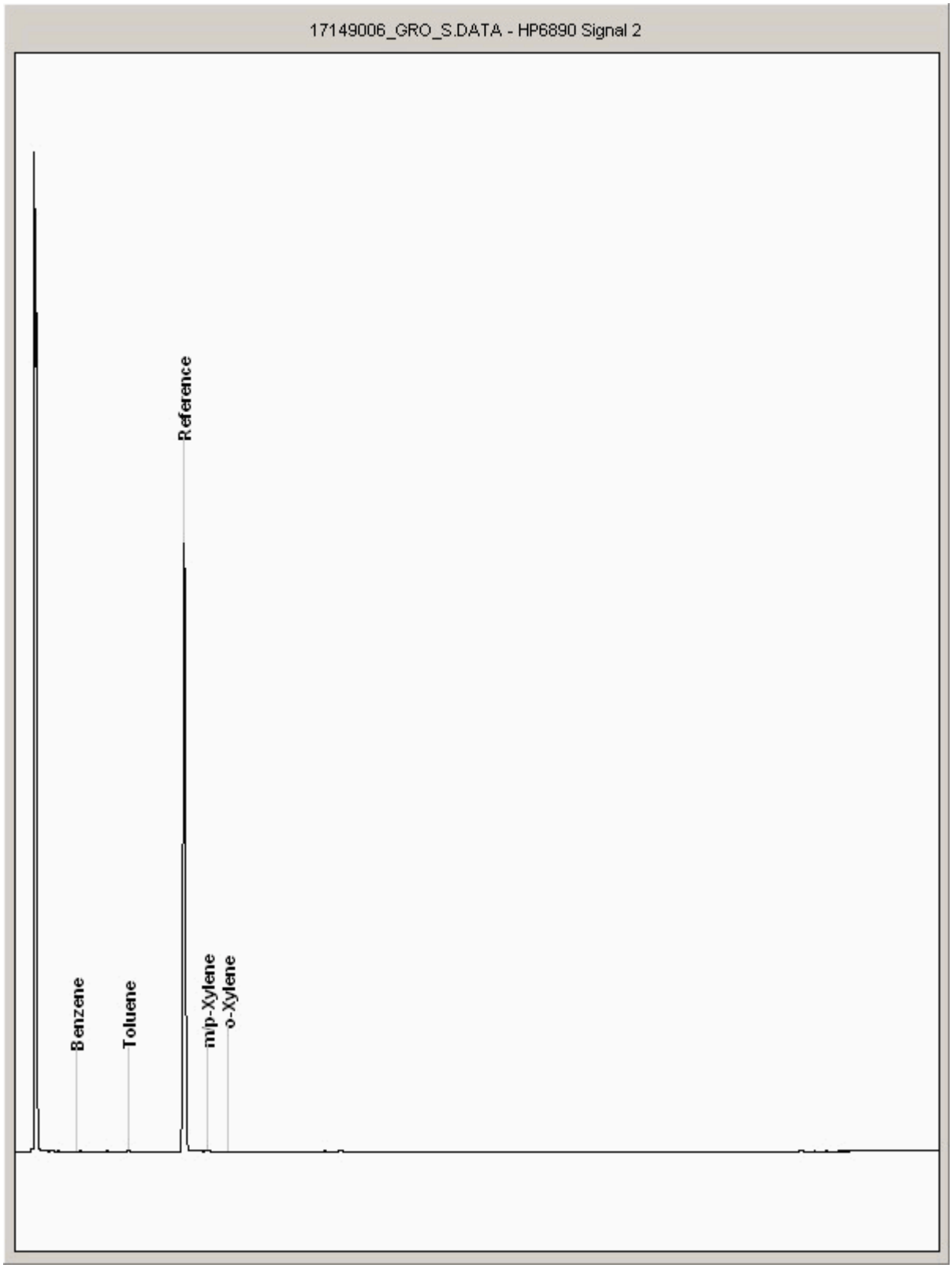
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17149006
Sample ID : BH-RPS-09

Depth : 0.20 - 0.65



Validated

CERTIFICATE OF ANALYSIS

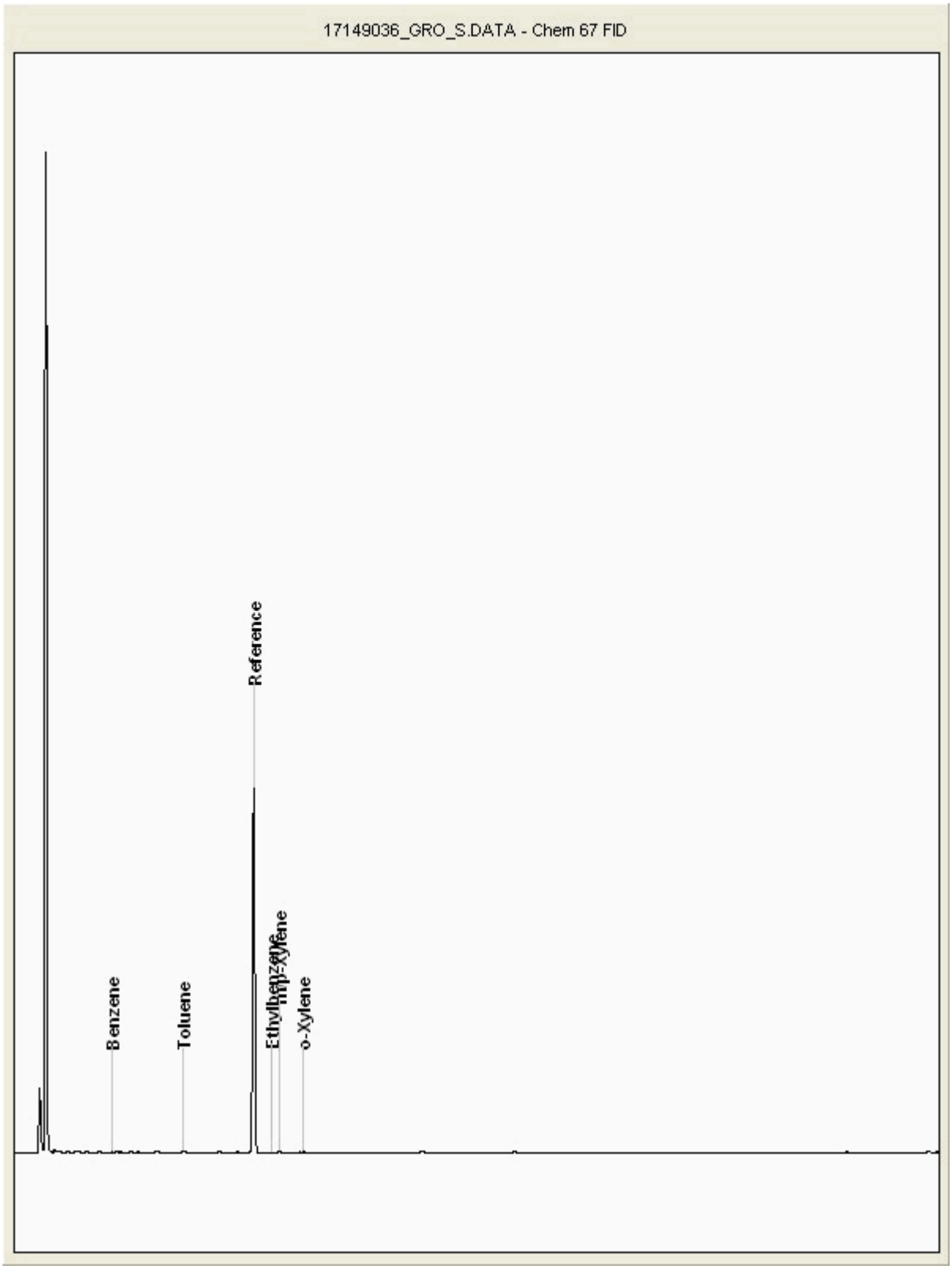
SDG:	180227-57	**Client Reference:**	JER1100	**Report Number:**	448446
Location:	Lostock	**Order Number:**	PO18-123	**Superseded Report:**	447358

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17149036
Sample ID : CP-RPS-06

Depth : 0.70 - 1.20



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	09 April 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180228-22
Your Reference:	JER1100
Location:	Lostock
Report No:	450852

This report has been revised and directly supersedes 448813 in its entirety.

We received 24 samples on Wednesday February 28, 2018 and 9 of these samples were scheduled for analysis which was completed on Monday April 09, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan
Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17132719	BH-RPS-01	ES1	0.30 - 0.40	09/02/2018
17132725	BH-RPS-01	ES1	1.20 - 1.50	09/02/2018
17132743	BH-RPS-01	ES1	2.70 - 3.00	09/02/2018
17132752	BH-RPS-01	ES1	5.00 - 5.50	09/02/2018
17132759	BH-RPS-10	ES1	0.10 - 0.30	09/02/2018
17132768	BH-RPS-10	ES1	0.70 - 0.90	09/02/2018
17132776	BH-RPS-10	ES1	3.50 - 3.80	09/02/2018
17132732	BH-RPS-10	ES1	4.70 - 4.85	09/02/2018
17132783	BH-RPS-10	ES1	6.00 - 6.20	09/02/2018
17132656	BH-RPS-12	ES1	3.10 - 3.30	08/02/2018
17132677	BH-RPS-12	ES1	6.50 - 6.80	08/02/2018
17132807	TP-RPS-24	ES1	0.30 - 0.40	12/02/2018
17132792	TP-RPS-24	ES1	1.00 - 1.20	12/02/2018
17132799	TP-RPS-24	ES1	1.80 - 2.00	12/02/2018
17132814	TP-RPS-25	ES1	0.20	12/02/2018
17132821	TP-RPS-25	ES1	0.90 - 1.00	12/02/2018
17132827	TP-RPS-25	ES1	1.90 - 2.00	12/02/2018
17132697	TP-RPS-39	ES1	0.20	12/02/2018
17132703	TP-RPS-39	ES1	0.90 - 1.20	12/02/2018
17132711	TP-RPS-39	ES1	2.00	12/02/2018
17132669	TP-RPS-41	ES1	0.20	12/02/2018
17132683	TP-RPS-41	ES1	1.00 - 1.30	12/02/2018
17132691	TP-RPS-41	ES1	1.60 - 1.80	12/02/2018
17132662	TP-RPS-41	ES1	2.60 - 2.80	12/02/2018

Maximum Sample/Coolbox Temperature (˚C) : 5.0

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)˚C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)˚C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

Validated

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17132719			17132725			17132752			17132768			17132776			17132732			17132783		17132656
Customer Sample Reference			BH-RPS-01			BH-RPS-01			BH-RPS-01			BH-RPS-10			BH-RPS-10			BH-RPS-10			BH-RPS-10		BH-RPS-12
AGS Reference			ES1			ES1			ES1			ES1			ES1			ES1			ES1		ES1
Depth (m)			0.30 - 0.40			1.20 - 1.50			5.00 - 5.50			0.70 - 0.90			3.50 - 3.80			4.70 - 4.85			6.00 - 6.20		3.10 - 3.30
Container			1 kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1 kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1 kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1 kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1 kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1 kg TUB
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 4		X						X								X		X			
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 5					X			X			X			X							
Anions by Kone (soil)	All	NDPs: 0 Tests: 4		X						X								X		X			
Anions by Kone (w)	All	NDPs: 0 Tests: 5				X			X			X			X								
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 6	X			X			X			X			X								X
Asbestos Quantification - Full	All	NDPs: 0 Tests: 2	X									X											
CEN Readings	All	NDPs: 0 Tests: 5				X			X			X			X								
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 5				X			X			X			X								
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 5				X			X			X			X								
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 9		X			X			X			X			X		X		X			
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 9		X			X			X			X			X		X		X			
Fluoride	All	NDPs: 0 Tests: 5				X			X			X			X								
GRO by GC-FID (S)	All	NDPs: 0 Tests: 9			X			X			X			X			X		X		X		
Loss on Ignition in soils	All	NDPs: 1 Tests: 4					X			X			N			X							
Magnesium (BRE)	All	NDPs: 0 Tests: 4		X						X								X		X			

17132677	BH-RPS-12	ES1	6.50 - 6.80	60g VOC (ALE215)	S																									X					
				250g Amber Jar (ALE210)	S				X																X		X						X		
				1kg TUB	S								X						X		X		X						X						
17132656	BH-RPS-12	ES1	3.10 - 3.30	60g VOC (ALE215)	S																									X					
				250g Amber Jar (ALE210)	S																				X		X								

CERTIFICATE OF ANALYSIS

Validated

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17132719			17132725			17132752			17132768			17132776			17132732			17132783		17132656
Customer Sample Reference			BH-RPS-01			BH-RPS-01			BH-RPS-01			BH-RPS-10			BH-RPS-10			BH-RPS-10			BH-RPS-10		BH-RPS-12
AGS Reference			ES1			ES1			ES1			ES1			ES1			ES1			ES1		ES1
Depth (m)			0.30 - 0.40			1.20 - 1.50			5.00 - 5.50			0.70 - 0.90			3.50 - 3.80			4.70 - 4.85			6.00 - 6.20		3.10 - 3.30
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 5				X			X			X			X								
Metals in solid samples by OES	All	NDPs: 0 Tests: 9		X			X			X			X			X		X		X			
Mineral Oil	All	NDPs: 0 Tests: 5					X			X			X			X							
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 4		X						X								X		X			
PAH by GCMS	All	NDPs: 0 Tests: 9		X			X			X			X			X		X		X			
PCBs by GCMS	All	NDPs: 0 Tests: 8		X			X			X			X			X		X					
pH	All	NDPs: 0 Tests: 9		X			X			X			X			X		X		X			
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1		X																			
Phenols by HPLC (W)	All	NDPs: 0 Tests: 5				X			X			X			X								
Sample description	All	NDPs: 0 Tests: 9		X			X			X			X			X		X		X			
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 6		X			X			X			X			X							
Total Dissolved Solids	All	NDPs: 0 Tests: 5				X			X			X			X								
Total Organic Carbon	All	NDPs: 0 Tests: 9		X			X			X			X			X		X		X			
Total Sulphate	All	NDPs: 0 Tests: 4		X						X								X		X			
Total Sulphur	All	NDPs: 0 Tests: 4		X						X								X		X			

17132677	BH-RPS-12	ES1	6.50 - 6.80	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB	60g VOC (ALE215)	250g Amber Jar (ALE210)															
				S	S	S	S	S															
						X																	
					X			X															
					X																		
					X			X															
					X			X															
					X			X															
						X																	
					X			X															
					X																		
						X																	
					X																		
17132656	BH-RPS-12	ES1	3.10 - 3.30	60g VOC (ALE215)	250g Amber Jar (ALE210)																		
				S	S																		

CERTIFICATE OF ANALYSIS

Validated

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17132719			17132725			17132752			17132768			17132776			17132732			17132783		17132656
Customer Sample Reference			BH-RPS-01			BH-RPS-01			BH-RPS-01			BH-RPS-10			BH-RPS-10			BH-RPS-10			BH-RPS-10		BH-RPS-12
AGS Reference			ES1			ES1			ES1			ES1			ES1			ES1			ES1		ES1
Depth (m)			0.30 - 0.40			1.20 - 1.50			5.00 - 5.50			0.70 - 0.90			3.50 - 3.80			4.70 - 4.85			6.00 - 6.20		3.10 - 3.30
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
TPH CWG GC (S)	All	NDPs: 0 Tests: 9		X			X			X			X			X		X		X			
VOC MS (S)	All	NDPs: 0 Tests: 6			X			X			X			X			X						

17132677	BH-RPS-12	ES1	6.50 - 6.80	60g VOC (ALE215)	S				
				250g Amber Jar (ALE210)	S		X		
				1kg TUB	S				
17132656	BH-RPS-12	ES1	3.10 - 3.30	60g VOC (ALE215)	S				X
				250g Amber Jar (ALE210)	S		X		

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17132719	BH-RPS-01	0.30 - 0.40	Black	Loamy Sand	Stones	Brick
17132725	BH-RPS-01	1.20 - 1.50	Grey	Loamy Sand	Stones	None
17132752	BH-RPS-01	5.00 - 5.50	White	Sandy Loam	Stones	None
17132732	BH-RPS-10	4.70 - 4.85	Dark Brown	Sandy Clay	None	None
17132768	BH-RPS-10	0.70 - 0.90	Black	Loamy Sand	Stones	Brick
17132776	BH-RPS-10	3.50 - 3.80	White	Silt Loam	None	None
17132783	BH-RPS-10	6.00 - 6.20	Dark Brown	Sandy Clay	None	None
17132656	BH-RPS-12	3.10 - 3.30	Dark Brown	Loamy Sand	Stones	None
17132677	BH-RPS-12	6.50 - 6.80	Dark Brown	Sandy Clay	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-01	BH-RPS-01	BH-RPS-10	BH-RPS-10	BH-RPS-10
Depth (m)			0.30 - 0.40	1.20 - 1.50	5.00 - 5.50	0.70 - 0.90	3.50 - 3.80	4.70 - 4.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018
SDG Ref			180228-22	180228-22	180228-22	180228-22	180228-22	180228-22
Lab Sample No.(s)			17132719	17132725	17132752	17132768	17132776	17132732
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	17	29	26	19	49	14
Loss on ignition	<0.7 %	TM018		13.2 M	18.9 M		18.5 M	
Mineral oil >C10-C40	<1 mg/kg	TM061		149 @	7.64 @	283 @	147 @	
Mineral Oil Surrogate % recovery**	%	TM061		86.3 @	87.8 @	83.9 @	86 @	
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 @ M					
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 @ M					
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 @ M					
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)	<0.01 @ M					
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)	<0.015 @ M					
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)	<0.06 @ M					
Organic Carbon, Total	<0.2 %	TM132		0.906 M	0.442 M	9.45 M	0.317 M	
Sulphur, Total	<0.02 %	TM132	0.2		0.202			0.0576
Soil Organic Matter (SOM)	<0.35 %	TM132	32.1 #	1.56 #	0.762 #	16.3 #	0.547 #	<0.35 #
pH	1 pH Units	TM133	8.86 M	12.6 M	12.8 M	8.78 M	12.8 M	10.3 M
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	
PCB congener 118	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	
PCB congener 81	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 77	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 123	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 114	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 105	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 126	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 167	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 156	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 157	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 169	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M

CERTIFICATE OF ANALYSIS

Validated

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-01	BH-RPS-01	BH-RPS-10	BH-RPS-10	BH-RPS-10
Depth (m)			0.30 - 0.40	1.20 - 1.50	5.00 - 5.50	0.70 - 0.90	3.50 - 3.80	4.70 - 4.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018
SDG Ref			180228-22	180228-22	180228-22	180228-22	180228-22	180228-22
Lab Sample No.(s)			17132719	17132725	17132752	17132768	17132776	17132732
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
PCB congener 189	<3 µg/kg	TM168	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168	<36	<36	<36	<36	<36	<36
Antimony	<0.6 mg/kg	TM181	1.26 #	1.12 #	<0.6 #	10.7 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181	26.7 M	18 M	8.2 M	37.5 M	14.6 M	3.68 M
Cadmium	<0.02 mg/kg	TM181	0.1 M	0.336 M	0.188 M	0.97 M	0.635 M	<0.02 M
Chromium	<0.9 mg/kg	TM181	5.39 M	1.67 M	2.89 M	11 M	12.3 M	11.6 M
Cobalt	<0.1 mg/kg	TM181	22.2 M	7.6 M	0.633 M	18.8 M	3.54 M	5.74 M
Copper	<1.4 mg/kg	TM181	78.3 M	44.5 M	6.7 M	221 M	14 M	11.9 M
Lead	<0.7 mg/kg	TM181	60.3 M	264 M	7.12 M	210 M	12.4 M	5.15 M
Manganese	<0.13 mg/kg	TM181	964 M	200 M	71.6 M	861 M	218 M	214 M
Mercury	<0.14 mg/kg	TM181	<0.14 M	1.58 M	<0.14 M	5.33 M	<0.14 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181	6.73 #	1.96 #	0.881 #	6.43 #	1.01 #	0.282 #
Nickel	<0.2 mg/kg	TM181	48.9 M	19.3 M	1.74 M	57.9 M	11.3 M	16.3 M
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Tin	<0.24 mg/kg	TM181	1.44 #	2.15 #	<0.24 #	43.6 #	1.44 #	0.506 #
Thallium	<0.7 mg/kg	TM181	1.38 #	<0.7 #	<0.7 #	1.31 #	<0.7 #	<0.7 #
Vanadium	<0.2 mg/kg	TM181	78.3 #	38.5 #	6.73 #	72.4 #	23.9 #	17.7 #
Zinc	<1.9 mg/kg	TM181	98.3 M	133 M	14.8 M	153 M	40.4 M	28.1 M
ANC @ pH 4	<0.03 mol/kg	TM182		0.693	10.5	0.676	12.8	
ANC @ pH 6	<0.03 mol/kg	TM182		0.237	8.62	0.278	11.5	
Sulphate, acid soluble (total)	<0.02 %	TM221	0.0786		0.685			0.0302
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243	0.0238 M		<0.004 M			0.0574 M
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243	0.0039 M		1.25 M			0.453 M
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243	0.00323		0.00438			0.000435
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248	0.00321		0.00545			0.00833
Magnesium (BRE)	<0.008 g/l	TM282	<0.008		<0.008			<0.008
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304	0.0017 #			0.0111 #		
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304	<0.001 #			0.0031 #		
Additional Asbestos Components (Using TM048)		TM304	None #			None #		
Analysts Comments		TM304	N/C			N/C		
Asbestos Quantification - Total - %	<0.001 %	TM304	0.0023 #			0.0142 #		

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-10	BH-RPS-12	BH-RPS-12			
Depth (m)			6.00 - 6.20	3.10 - 3.30	6.50 - 6.80			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			09/02/2018	08/02/2018	08/02/2018			
Sampled Time			.	.	.			
Date Received			28/02/2018	28/02/2018	28/02/2018			
SDG Ref			180228-22	180228-22	180228-22			
Lab Sample No.(s)			17132783	17132656	17132677			
AGS Reference			ES1	ES1	ES1			
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	14	8	17			
Loss on ignition	<0.7 %	TM018			3.59 M			
Mineral oil >C10-C40	<1 mg/kg	TM061			14 @			
Mineral Oil Surrogate % recovery**	%	TM061			91.6 @			
Organic Carbon, Total	<0.2 %	TM132			<0.2 M			
Sulphur, Total	<0.02 %	TM132	0.0343					
Soil Organic Matter (SOM)	<0.35 %	TM132	<0.35 #	0.526 #	<0.35 #			
pH	1 pH Units	TM133	8.92 M	9.19 M	7.88 M			
PCB congener 28	<3 µg/kg	TM168			<3 M			
PCB congener 52	<3 µg/kg	TM168			<3 M			
PCB congener 101	<3 µg/kg	TM168			<3 M			
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M			
PCB congener 138	<3 µg/kg	TM168			<3 M			
PCB congener 153	<3 µg/kg	TM168			<3 M			
PCB congener 180	<3 µg/kg	TM168			<3 M			
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168			<21			
PCB congener 81	<3 µg/kg	TM168		<3 M				
PCB congener 77	<3 µg/kg	TM168		<3 M				
PCB congener 123	<3 µg/kg	TM168		<3 M				
PCB congener 114	<3 µg/kg	TM168		<3 M				
PCB congener 105	<3 µg/kg	TM168		<3 M				
PCB congener 126	<3 µg/kg	TM168		<3 M				
PCB congener 167	<3 µg/kg	TM168		<3 M				
PCB congener 156	<3 µg/kg	TM168		<3 M				
PCB congener 157	<3 µg/kg	TM168		<3 M				
PCB congener 169	<3 µg/kg	TM168		<3 M				
PCB congener 189	<3 µg/kg	TM168		<3 M				
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168		<36				
Antimony	<0.6 mg/kg	TM181	0.805 #	<0.6 #	0.726 #			
Arsenic	<0.6 mg/kg	TM181	4.57 M	4.55 M	2.84 M			
Cadmium	<0.02 mg/kg	TM181	<0.02 M	0.0269 M	<0.02 M			
Chromium	<0.9 mg/kg	TM181	25.2 M	4.88 M	46.1 M			

Validated

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-10	BH-RPS-12	BH-RPS-12			
Depth (m)			6.00 - 6.20	3.10 - 3.30	6.50 - 6.80			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			09/02/2018	08/02/2018	08/02/2018			
Sampled Time			-	-	-			
Date Received			28/02/2018	28/02/2018	28/02/2018			
SDG Ref			180228-22	180228-22	180228-22			
Lab Sample No.(s)			17132783	17132656	17132677			
AGS Reference			ES1	ES1	ES1			
Component	**LOD/Units**	**Method**						
Cobalt	<0.1 mg/kg	TM181	11.3 M	2.88 M	12.5 M			
Copper	<1.4 mg/kg	TM181	12.2 M	5.11 M	5.17 M			
Lead	<0.7 mg/kg	TM181	5.56 M	9.54 M	5.96 M			
Manganese	<0.13 mg/kg	TM181	655 M	173 M	761 M			
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	<0.14 M			
Molybdenum	<0.1 mg/kg	TM181	0.305 #	0.202 #	0.249 #			
Nickel	<0.2 mg/kg	TM181	35.4 M	6.43 M	57.2 M			
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #			
Tin	<0.24 mg/kg	TM181	0.695 #	0.386 #	0.664 #			
Thallium	<0.7 mg/kg	TM181	1.44 #	<0.7 #	1.91 #			
Vanadium	<0.2 mg/kg	TM181	30.7 #	7.86 #	36.6 #			
Zinc	<1.9 mg/kg	TM181	56.2 M	14.4 M	60.5 M			
ANC @ pH 4	<0.03 mol/kg	TM182			0.92			
ANC @ pH 6	<0.03 mol/kg	TM182			0.0667			
Sulphate, acid soluble (total)	<0.02 %	TM221	0.0417					
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243	0.0565 M					
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243	0.874 M					
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243	0.000536					
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248	0.00456					
Magnesium (BRE)	<0.008 g/l	TM282	<0.008					

Validated

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-01	BH-RPS-01	BH-RPS-10	BH-RPS-10	BH-RPS-10
Depth (m)			0.30 - 0.40	1.20 - 1.50	5.00 - 5.50	0.70 - 0.90	3.50 - 3.80	4.70 - 4.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018
SDG Ref			180228-22	180228-22	180228-22	180228-22	180228-22	180228-22
Lab Sample No.(s)			17132719	17132725	17132752	17132768	17132776	17132732
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	116	107	101	128	92.7	120
Acenaphthene-d10 % recovery**	%	TM218	114	110	105	127	99	120
Phenanthrene-d10 % recovery**	%	TM218	105	105	99.8	112	94.5	113
Chrysene-d12 % recovery**	%	TM218	104	102	90.9	106	92.1	109
Perylene-d12 % recovery**	%	TM218	99	101	89.1	104	88.7	115
Naphthalene	<9 µg/kg	TM218	2190 @ M	93.8 @ M	59.8 @ M	1040 @ M	19 @ M	<9 @ M
Acenaphthylene	<12 µg/kg	TM218	14.6 @ M	172 @ M	<12 @ M	170 @ M	<12 @ M	<12 @ M
Acenaphthene	<8 µg/kg	TM218	<8 @ M	14.4 @ M	16.4 @ M	51.6 @ M	<8 @ M	<8 @ M
Fluorene	<10 µg/kg	TM218	<10 @ M	<10 @ M	<10 @ M	42.6 @ M	<10 @ M	<10 @ M
Phenanthrene	<15 µg/kg	TM218	756 @ M	1800 @ M	125 @ M	691 @ M	149 @ M	<15 @ M
Anthracene	<16 µg/kg	TM218	34.7 @ M	266 @ M	<16 @ M	332 @ M	34.1 @ M	<16 @ M
Fluoranthene	<17 µg/kg	TM218	325 @ M	2380 @ M	62.3 @ M	922 @ M	182 @ M	<17 @ M
Pyrene	<15 µg/kg	TM218	363 @ M	2370 @ M	39 @ M	1020 @ M	172 @ M	<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218	237 @ M	2130 @ M	<14 @ M	504 @ M	201 @ M	<14 @ M
Chrysene	<10 µg/kg	TM218	293 @ M	2390 @ M	13.8 @ M	556 @ M	169 @ M	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218	413 @ M	3220 @ M	<15 @ M	1720 @ M	400 @ M	<15 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218	168 @ M	1290 @ M	<14 @ M	717 @ M	184 @ M	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218	220 @ M	2390 @ M	<15 @ M	911 @ M	325 @ M	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	167 @ M	1590 @ M	<18 @ M	750 @ M	216 @ M	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	60.2 @ M	507 @ M	<23 @ M	247 @ M	70.6 @ M	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	300 @ M	1980 @ M	<24 @ M	1050 @ M	273 @ M	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	5540	22600	317	10700	2390	<118
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218		23 @	<10 @	10.7 @	<10 @	

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-10	BH-RPS-12	BH-RPS-12			
Depth (m)			6.00 - 6.20	3.10 - 3.30	6.50 - 6.80			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			09/02/2018	08/02/2018	08/02/2018			
Sampled Time			.	.	.			
Date Received			28/02/2018	28/02/2018	28/02/2018			
SDG Ref			180228-22	180228-22	180228-22			
Lab Sample No.(s)			17132783	17132656	17132677			
AGS Reference			ES1	ES1	ES1			
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	88.7	105	99.9			
Acenaphthene-d10 % recovery**	%	TM218	90.6	105	102			
Phenanthrene-d10 % recovery**	%	TM218	85.1	100	95.7			
Chrysene-d12 % recovery**	%	TM218	86.4	97	99.1			
Perylene-d12 % recovery**	%	TM218	85.6	96	101			
Naphthalene	<9 µg/kg	TM218	<9 @ M	<9 @ M	<9 @ M			
Acenaphthylene	<12 µg/kg	TM218	<12 @ M	<12 @ M	<12 @ M			
Acenaphthene	<8 µg/kg	TM218	<8 @ M	<8 @ M	<8 @ M			
Fluorene	<10 µg/kg	TM218	<10 @ M	<10 @ M	<10 @ M			
Phenanthrene	<15 µg/kg	TM218	<15 @ M	<15 @ M	<15 @ M			
Anthracene	<16 µg/kg	TM218	<16 @ M	<16 @ M	<16 @ M			
Fluoranthene	<17 µg/kg	TM218	<17 @ M	<17 @ M	<17 @ M			
Pyrene	<15 µg/kg	TM218	<15 @ M	<15 @ M	<15 @ M			
Benz(a)anthracene	<14 µg/kg	TM218	<14 @ M	<14 @ M	<14 @ M			
Chrysene	<10 µg/kg	TM218	<10 @ M	<10 @ M	<10 @ M			
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 @ M	<15 @ M	<15 @ M			
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 @ M	<14 @ M	<14 @ M			
Benzo(a)pyrene	<15 µg/kg	TM218	<15 @ M	<15 @ M	<15 @ M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 @ M	<18 @ M	<18 @ M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @ M	<23 @ M	<23 @ M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 @ M	<24 @ M	<24 @ M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	<118	<118			
PAH total 17 (inclusive of Coronene)	<10 mg/kg	TM218			<10 @			

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-01	BH-RPS-01	BH-RPS-10	BH-RPS-10	BH-RPS-12
Depth (m)			0.30 - 0.40	1.20 - 1.50	5.00 - 5.50	0.70 - 0.90	3.50 - 3.80	3.10 - 3.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018	08/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018
SDG Ref			180228-22	180228-22	180228-22	180228-22	180228-22	180228-22
Lab Sample No.(s)			17132719	17132725	17132752	17132768	17132776	17132656
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Phenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-01	BH-RPS-01	BH-RPS-10	BH-RPS-10	BH-RPS-12
Depth (m)			0.30 - 0.40	1.20 - 1.50	5.00 - 5.50	0.70 - 0.90	3.50 - 3.80	3.10 - 3.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018	08/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018
SDG Ref			180228-22	180228-22	180228-22	180228-22	180228-22	180228-22
Lab Sample No.(s)			17132719	17132725	17132752	17132768	17132776	17132656
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157	125	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157	264	551	<100	137	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157	281	556	<100	214	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157	303	593	<100	207	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157	317	546	<100	221	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157	215	383	<100	171	<100	<100
Chrysene	<100 µg/kg	TM157	331	658	<100	202	<100	<100
Fluoranthene	<100 µg/kg	TM157	280	904	<100	218	<100	<100
Fluorene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	247	418	<100	201	<100	<100
Phenanthrene	<100 µg/kg	TM157	<100	499	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157	281	774	<100	244	<100	<100
Naphthalene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-01	BH-RPS-01	BH-RPS-10	BH-RPS-10	BH-RPS-10
Depth (m)			0.30 - 0.40	1.20 - 1.50	5.00 - 5.50	0.70 - 0.90	3.50 - 3.80	4.70 - 4.85
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018
SDG Ref			180228-22	180228-22	180228-22	180228-22	180228-22	180228-22
Lab Sample No.(s)			17132719	17132725	17132752	17132768	17132776	17132732
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	30 @	117 @	123 @	30 @	111 @	114 @
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	98.4 @ M	<44 @ M	<44 @ M	175 @ M	524 @ M	<44 @ M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 @ #	<5 @ #	<5 @ #	<5 @ #	<5 @ #	<5 @ #
Benzene	<10 µg/kg	TM089	<10 @ M	<10 @ M	<10 @ M	<10 @ M	<10 @ M	<10 @ M
Toluene	<2 µg/kg	TM089	2.4 @ M	<2 @ M	<2 @ M	4.96 @ M	<2 @ M	<2 @ M
Ethylbenzene	<3 µg/kg	TM089	<3 @ M	<3 @ M	<3 @ M	<3 @ M	<3 @ M	<3 @ M
m,p-Xylene	<6 µg/kg	TM089	<6 @ M	<6 @ M	<6 @ M	<6 @ M	<6 @ M	<6 @ M
o-Xylene	<3 µg/kg	TM089	<3 @ M	<3 @ M	<3 @ M	3.72 @ M	<3 @ M	<3 @ M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9 @	<9 @	<9 @	<9 @	<9 @	<9 @
sum of detected BTEX by GC	<24 µg/kg	TM089	<24 @	<24 @	<24 @	<24 @	<24 @	<24 @
Aliphatics >C5-C6	<10 µg/kg	TM089	18 @	<10 @	<10 @	17.4 @	<10 @	<10 @
Aliphatics >C6-C8	<10 µg/kg	TM089	25.2 @	24 @	13.6 @	49.6 @	67 @	<10 @
Aliphatics >C8-C10	<10 µg/kg	TM089	28.8 @	<10 @	<10 @	26 @	252 @	<10 @
Aliphatics >C10-C12	<10 µg/kg	TM089	<10 @	<10 @	<10 @	28.5 @	13.8 @	<10 @
Aliphatics >C12-C16	<100 µg/kg	TM173	4330	757	207	8190	1550	<100
Aliphatics >C16-C21	<100 µg/kg	TM173	4890	11800	1110	24800	10800	<100
Aliphatics >C21-C35	<100 µg/kg	TM173	11500	74600	2000	64700	99700	<100
Aliphatics >C35-C44	<100 µg/kg	TM173	<100	24900	500	10900	29400	<100
Total Aliphatics >C12-C44	<100 µg/kg	TM173	20700	112000	3820	109000	142000	<100
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics >EC8-EC10	<10 µg/kg	TM089	21.6 @	<10 @	<10 @	23.6 @	173 @	<10 @
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10 @	<10 @	<10 @	19.8 @	<10 @	<10 @
Aromatics >EC12-EC16	<100 µg/kg	TM173	7390	654	<100	4300	<100	<100
Aromatics >EC16-EC21	<100 µg/kg	TM173	12000	21500	<100	19500	3930	<100
Aromatics >EC21-EC35	<100 µg/kg	TM173	32900	96700	997	87800	37400	<100
Aromatics >EC35-EC44	<100 µg/kg	TM173	7630	23800	<100	23700	21500	<100
Aromatics >EC40-EC44	<100 µg/kg	TM173	2450	8450	<100	8160	8440	<100
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	59900	143000	997	135000	62900	<100
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	80800	255000	4830	244000	205000	<100

Validated

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-10	BH-RPS-12	BH-RPS-12			
Depth (m)			6.00 - 6.20	3.10 - 3.30	6.50 - 6.80			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			09/02/2018	08/02/2018	08/02/2018			
Sampled Time			.	.	.			
Date Received			28/02/2018	28/02/2018	28/02/2018			
SDG Ref			180228-22	180228-22	180228-22			
Lab Sample No.(s)			17132783	17132656	17132677			
AGS Reference			ES1	ES1	ES1			
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	101 @	119 @	98 @			
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 @ M	<44 @ M	<44 @ M			
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 @ #	<5 @ #	<5 @ #			
Benzene	<10 µg/kg	TM089	<10 @ M	<10 @ M	<10 @ M			
Toluene	<2 µg/kg	TM089	<2 @ M	<2 @ M	<2 @ M			
Ethylbenzene	<3 µg/kg	TM089	<3 @ M	<3 @ M	<3 @ M			
m,p-Xylene	<6 µg/kg	TM089	<6 @ M	<6 @ M	<6 @ M			
o-Xylene	<3 µg/kg	TM089	<3 @ M	<3 @ M	<3 @ M			
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9 @	<9 @	<9 @			
sum of detected BTEX by GC	<24 µg/kg	TM089	<24 @	<24 @	<24 @			
Aliphatics >C5-C6	<10 µg/kg	TM089	<10 @	<10 @	<10 @			
Aliphatics >C6-C8	<10 µg/kg	TM089	<10 @	<10 @	<10 @			
Aliphatics >C8-C10	<10 µg/kg	TM089	<10 @	<10 @	<10 @			
Aliphatics >C10-C12	<10 µg/kg	TM089	<10 @	<10 @	<10 @			
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	<100	<100			
Aliphatics >C16-C21	<100 µg/kg	TM173	<100	<100	<100			
Aliphatics >C21-C35	<100 µg/kg	TM173	<100	1130	912			
Aliphatics >C35-C44	<100 µg/kg	TM173	<100	334	<100			
Total Aliphatics >C12-C44	<100 µg/kg	TM173	<100	1470	912			
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10 @	<10 @	<10 @			
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10 @	<10 @	<10 @			
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10 @	<10 @	<10 @			
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10 @	<10 @	<10 @			
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	428	138			
Aromatics >EC16-EC21	<100 µg/kg	TM173	<100	1290	4100			
Aromatics >EC21-EC35	<100 µg/kg	TM173	<100	6300	24800			
Aromatics >EC35-EC44	<100 µg/kg	TM173	<100	5290	39400			
Aromatics >EC40-EC44	<100 µg/kg	TM173	<100	5300	27700			
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	<100	13300	68400			
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	<100	14800	69300			

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-01	BH-RPS-01	BH-RPS-10	BH-RPS-10	BH-RPS-12
Depth (m)			0.30 - 0.40	1.20 - 1.50	5.00 - 5.50	0.70 - 0.90	3.50 - 3.80	3.10 - 3.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018	08/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018
SDG Ref			180228-22	180228-22	180228-22	180228-22	180228-22	180228-22
Lab Sample No.(s)			17132719	17132725	17132752	17132768	17132776	17132656
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	112 @	8.45 @	0.67 @	126 @	0.73 @	106 @
Toluene-d8**	%	TM116	88.3 @	83.6 @	93.7 @	97.9 @	89.5 @	97.2 @
4-Bromofluorobenzene**	%	TM116	82 @	88 @	113 @	78.5 @	86.7 @	93.2 @
Dichlorodifluoromethane	<6 µg/kg	TM116	<120 @ M	<6 @ M	<6 @ M	<60 @ M	<6 @ M	<6 @ M
Chloromethane	<7 µg/kg	TM116	<140 @ #	<7 @ #	<7 @ #	<70 @ #	<7 @ #	<7 @ #
Vinyl Chloride	<6 µg/kg	TM116	<120 @ M	<6 @ M	<6 @ M	<60 @ M	<6 @ M	<6 @ M
Bromomethane	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Chloroethane	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Trichlorofluorormethane	<6 µg/kg	TM116	<120 @ M	<6 @ M	<6 @ M	<60 @ M	<6 @ M	<6 @ M
1,1-Dichloroethene	<10 µg/kg	TM116	<200 @ #	<10 @ #	<10 @ #	<100 @ #	<10 @ #	<10 @ #
Carbon Disulphide	<7 µg/kg	TM116	<140 @ M	<7 @ M	<7 @ M	<70 @ M	<7 @ M	<7 @ M
Dichloromethane	<10 µg/kg	TM116	<200 @ #	<10 @ #	24.5 @ #	353 @ #	<10 @ #	<10 @ #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
1,1-Dichloroethane	<8 µg/kg	TM116	<160 @ M	<8 @ M	<8 @ M	<80 @ M	<8 @ M	<8 @ M
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<120 @ M	<6 @ M	<6 @ M	<60 @ M	<6 @ M	<6 @ M
2,2-Dichloropropane	<10 µg/kg	TM116	<200 @	<10 @	<10 @	<100 @	<10 @	<10 @
Bromochloromethane	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Chloroform	<8 µg/kg	TM116	<160 @ M	<8 @ M	<8 @ M	<80 @ M	<8 @ M	<8 @ M
1,1,1-Trichloroethane	<7 µg/kg	TM116	<140 @ M	<7 @ M	<7 @ M	362 @ M	<7 @ M	<7 @ M
1,1-Dichloropropene	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Carbontetrachloride	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
1,2-Dichloroethane	<5 µg/kg	TM116	<100 @ M	<5 @ M	<5 @ M	<50 @ M	<5 @ M	<5 @ M
Benzene	<9 µg/kg	TM116	<180 @ M	<9 @ M	<9 @ M	<90 @ M	<9 @ M	<9 @ M
Trichloroethene	<9 µg/kg	TM116	<180 @ #	<9 @ #	<9 @ #	<90 @ #	<9 @ #	<9 @ #
1,2-Dichloropropane	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Dibromomethane	<9 µg/kg	TM116	<180 @ M	<9 @ M	<9 @ M	<90 @ M	<9 @ M	<9 @ M
Bromodichloromethane	<7 µg/kg	TM116	<140 @ M	<7 @ M	<7 @ M	<70 @ M	<7 @ M	<7 @ M
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Toluene	<7 µg/kg	TM116	<140 @ M	<7 @ M	<7 @ M	<70 @ M	<7 @ M	<7 @ M
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<200 @	<10 @	<10 @	<100 @	<10 @	<10 @
1,1,2-Trichloroethane	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-01	BH-RPS-01	BH-RPS-10	BH-RPS-10	BH-RPS-12
Depth (m)			0.30 - 0.40	1.20 - 1.50	5.00 - 5.50	0.70 - 0.90	3.50 - 3.80	3.10 - 3.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018	08/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018
SDG Ref			180228-22	180228-22	180228-22	180228-22	180228-22	180228-22
Lab Sample No.(s)			17132719	17132725	17132752	17132768	17132776	17132656
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<140 @ M	<7 @ M	<7 @ M	<70 @ M	<7 @ M	<7 @ M
Tetrachloroethene	<5 µg/kg	TM116	<100 @ M	<5 @ M	<5 @ M	<50 @ M	<5 @ M	<5 @ M
Dibromochloromethane	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
1,2-Dibromoethane	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Chlorobenzene	<5 µg/kg	TM116	<100 @ M	<5 @ M	<5 @ M	<50 @ M	<5 @ M	<5 @ M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Ethylbenzene	<4 µg/kg	TM116	<80 @ M	<4 @ M	<4 @ M	<40 @ M	<4 @ M	<4 @ M
p/m-Xylene	<10 µg/kg	TM116	<200 @ #	<10 @ #	<10 @ #	<100 @ #	<10 @ #	<10 @ #
o-Xylene	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Styrene	<10 µg/kg	TM116	<200 @ #	<10 @ #	<10 @ #	<100 @ #	<10 @ #	<10 @ #
Bromoform	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Isopropylbenzene	<5 µg/kg	TM116	<100 @ #	<5 @ #	<5 @ #	<50 @ #	<5 @ #	<5 @ #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<200 @ #	<10 @ #	<10 @ #	<100 @ #	<10 @ #	<10 @ #
1,2,3-Trichloropropane	<16 µg/kg	TM116	<320 @ M	<16 @ M	<16 @ M	<160 @ M	<16 @ M	<16 @ M
Bromobenzene	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
Propylbenzene	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
2-Chlorotoluene	<9 µg/kg	TM116	<180 @ M	<9 @ M	<9 @ M	<90 @ M	<9 @ M	<9 @ M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<160 @ M	<8 @ M	<8 @ M	<80 @ M	<8 @ M	<8 @ M
4-Chlorotoluene	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
tert-Butylbenzene	<14 µg/kg	TM116	<280 @ M	<14 @ M	<14 @ M	<140 @ M	<14 @ M	<14 @ M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<180 @ #	<9 @ #	<9 @ #	<90 @ #	<9 @ #	<9 @ #
sec-Butylbenzene	<10 µg/kg	TM116	<200 @	<10 @	<10 @	<100 @	<10 @	<10 @
4-Isopropyltoluene	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
1,3-Dichlorobenzene	<8 µg/kg	TM116	<160 @ M	<8 @ M	<8 @ M	<80 @ M	<8 @ M	<8 @ M
1,4-Dichlorobenzene	<5 µg/kg	TM116	<100 @ M	<5 @ M	<5 @ M	<50 @ M	<5 @ M	<5 @ M
n-Butylbenzene	<11 µg/kg	TM116	<220 @	<11 @	<11 @	<110 @	<11 @	<11 @
1,2-Dichlorobenzene	<10 µg/kg	TM116	<200 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M	<10 @ M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<280 @ M	<14 @ M	<14 @ M	<140 @ M	<14 @ M	<14 @ M
Tert-amyl methyl ether	<10 µg/kg	TM116	<200 @ #	<10 @ #	<10 @ #	<100 @ #	<10 @ #	<10 @ #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<400 @	<20 @	<20 @	<200 @	<20 @	<20 @
Hexachlorobutadiene	<20 µg/kg	TM116	<400 @	<20 @	<20 @	<200 @	<20 @	<20 @
Naphthalene	<13 µg/kg	TM116	<260 @ M	<13 @ M	21.1 @ M	<130 @ M	<13 @ M	<13 @ M

CERTIFICATE OF ANALYSIS

Validated

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-01	BH-RPS-01	BH-RPS-10	BH-RPS-10	BH-RPS-12
Depth (m)			0.30 - 0.40	1.20 - 1.50	5.00 - 5.50	0.70 - 0.90	3.50 - 3.80	3.10 - 3.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018	08/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018
SDG Ref			180228-22	180228-22	180228-22	180228-22	180228-22	180228-22
Lab Sample No.(s)			17132719	17132725	17132752	17132768	17132776	17132656
AGS Reference			ES1	ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<400 @ #	<20 @ #	<20 @ #	<200 @ #	<20 @ #	<20 @ #

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-01 ES 1 0.30 - 0.40 SOLID 09/02/2018 00:00:00 28/02/2018 19:09:18 180228-22 17132719 TM048	07/03/2018	Barbara Urbanek-Walsh	Loose fibres in soil.	Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-01 ES 1 1.20 - 1.50 SOLID 09/02/2018 00:00:00 28/02/2018 17:27:29 180228-22 17132725 TM048	07/03/2018	Renata Bozhkov	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-01 ES 1 5.00 - 5.50 SOLID 09/02/2018 00:00:00 28/02/2018 18:48:56 180228-22 17132752 TM048	07/03/2018	Renata Bozhkov	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-10 ES 1 0.70 - 0.90 SOLID 09/02/2018 00:00:00 28/02/2018 18:52:21 180228-22 17132768 TM048	07/03/2018	Barbara Urbanek-Walsh	Loose fibres in soil.	Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-10 ES 1 3.50 - 3.80 SOLID 09/02/2018 00:00:00 28/02/2018 18:34:19 180228-22 17132776 TM048	07/03/2018	Renata Bozhkov	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-12 ES 1 3.10 - 3.30 SOLID 08/02/2018 00:00:00 28/02/2018 19:11:14 180228-22 17132656 TM048	07/03/2018	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Asbestos Quantification - Full

		Additional Asbestos Components (Using TM048)	Analysts Comments	Asbestos Quantification - Gravimetric - %	Asbestos Quantification - PCOM Evaluation - %	Asbestos Quantification - Total - %
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-01 ES 1 0.30 - 0.40 SOLID 09/02/2018 00:00:00 13/03/2018 12:19:27 180228-22 17132719 TM304	None (#)	N/C	0.0017 (#)	<0.001 (#)	0.0023 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-10 ES 1 0.70 - 0.90 SOLID 09/02/2018 00:00:00 13/03/2018 12:21:51 180228-22 17132768 TM304	None (#)	N/C	0.0111 (#)	0.0031 (#)	0.0142 (#)

Validated

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.108	**Natural Moisture Content (%)**	20.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83
Particle Size <4mm	>95%		

Case	
SDG	180228-22
Lab Sample Number(s)	17132677
Sampled Date	08-Feb-2018
Customer Sample Ref.	BH-RPS-12 ES1
Depth (m)	6.50 - 6.80

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	<0.2	3	5	6
Loss on Ignition (%)	3.59	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	14	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	7.88	-	>6	-
ANC to pH 6 (mol/kg)	0.0667	-	-	-
ANC to pH 4 (mol/kg)	0.92	-	-	-

Eluate Analysis	**C2 Concⁿ in 10:1 eluate (mg/l)**		**A2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.205	<0.0002	2.05	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.000889	<0.0003	0.00889	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00067	<0.0004	0.0067	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00405	<0.001	0.0405	<0.01	4	50	200
Chloride	391	<4	3910	<40	800	15000	25000
Fluoride	0.609	<0.5	6.09	<5	10	150	500
Sulphate (soluble)	2.5	<2	25	<20	1000	20000	50000
Total Dissolved Solids	1040	<5	10400	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	29-Mar-2018
pH (pH Units)	8.25
Conductivity (µS/cm)	1,380.00
Temperature (ºC)	18.50
Volume Leachant (Litres)	0.882

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

09/04/2018 12:10:12

Validated

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.126	**Natural Moisture Content (%)**	40.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	71
Particle Size <4mm	>95%		

Case	
SDG	180228-22
Lab Sample Number(s)	17132725
Sampled Date	09-Feb-2018
Customer Sample Ref.	BH-RPS-01 ES1
Depth (m)	1.20 - 1.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits: Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.906	3	5	6
Loss on Ignition (%)	13.2	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	149	500	-	-
PAH Sum of 17 (mg/kg)	23	100	-	-
pH (pH Units)	12.6	-	>6	-
ANC to pH 6 (mol/kg)	0.237	-	-	-
ANC to pH 4 (mol/kg)	0.693	-	-	-

Eluate Analysis	**C2 Concⁿ in 10:1 eluate (mg/l)**		**A2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.41	<0.0002	4.1	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.0047	<0.001	0.047	<0.01	0.5	10	70
Copper	0.00172	<0.0003	0.0172	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000467	<0.00001	0.000467	<0.0001	0.01	0.2	2
Molybdenum	0.00344	<0.003	0.0344	<0.03	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	0.172	<0.0002	1.72	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.0191	<0.001	0.191	<0.01	4	50	200
Chloride	8.2	<2	82	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	32.9	<2	329	<20	1000	20000	50000
Total Dissolved Solids	6570	<20	65700	<200	4000	60000	100000
Total Monohydric Phenols (W)	0.02	<0.016	0.2	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	29-Mar-2018
pH (pH Units)	12.51
Conductivity (µS/cm)	7,660.00
Temperature (ºC)	18.00
Volume Leachant (Litres)	0.863

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

09/04/2018 12:10:12

Validated

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.122	**Natural Moisture Content (%)**	35.1
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	74
Particle Size <4mm	>95%		

Case	
SDG	180228-22
Lab Sample Number(s)	17132752
Sampled Date	09-Feb-2018
Customer Sample Ref.	BH-RPS-01 ES1
Depth (m)	5.00 - 5.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.442	3	5	6
Loss on Ignition (%)	18.9	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	7.64	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	12.8	-	>6	-
ANC to pH 6 (mol/kg)	8.62	-	-	-
ANC to pH 4 (mol/kg)	10.5	-	-	-

Eluate Analysis	**C2 Concⁿ in 10:1 eluate (mg/l)**		**A2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.000844	<0.0005	0.00844	<0.005	0.5	2	25
Barium	1.09	<0.00427	10.9	<0.0427	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00482	<0.0003	0.0482	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000183	<0.00001	0.000183	<0.0001	0.01	0.2	2
Molybdenum	0.00502	<0.003	0.0502	<0.03	0.5	10	30
Nickel	0.00126	<0.0004	0.0126	<0.004	0.4	10	40
Lead	0.0228	<0.0002	0.228	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.0136	<0.001	0.136	<0.01	4	50	200
Chloride	257	<4	2570	<40	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	7580	<20	75800	<200	4000	60000	100000
Total Monohydric Phenols (W)	0.05	<0.016	0.5	<0.16	1	-	-
Dissolved Organic Carbon	5.9	<3	59	<30	500	800	1000

Leach Test Information

Date Prepared	29-Mar-2018
pH (pH Units)	12.43
Conductivity (µS/cm)	8,940.00
Temperature (ºC)	20.00
Volume Leachant (Litres)	0.868

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

09/04/2018 12:10:12

Validated

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Lostock
Mass Sample taken (kg)	0.111	**Natural Moisture Content (%)**	23.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	81
Particle Size <4mm	>95%		

Case	
SDG	180228-22
Lab Sample Number(s)	17132768
Sampled Date	09-Feb-2018
Customer Sample Ref.	BH-RPS-10 ES1
Depth (m)	0.70 - 0.90

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits: Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	9.45	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	283	500	-	-
PAH Sum of 17 (mg/kg)	10.7	100	-	-
pH (pH Units)	8.78	-	>6	-
ANC to pH 6 (mol/kg)	0.278	-	-	-
ANC to pH 4 (mol/kg)	0.676	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00829	<0.0005	0.0829	<0.005	0.5	2	25
Barium	0.0131	<0.0002	0.131	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00102	<0.001	0.0102	<0.01	0.5	10	70
Copper	0.0103	<0.0003	0.103	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.000771	<0.00001	0.00771	<0.0001	0.01	0.2	2
Molybdenum	0.00426	<0.003	0.0426	<0.03	0.5	10	30
Nickel	0.00138	<0.0004	0.0138	<0.004	0.4	10	40
Lead	0.00502	<0.0002	0.0502	<0.002	0.5	10	50
Antimony	0.00714	<0.001	0.0714	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00623	<0.001	0.0623	<0.01	4	50	200
Chloride	2.3	<2	23	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	14.1	<2	141	<20	1000	20000	50000
Total Dissolved Solids	112	<5	1120	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	29-Mar-2018
pH (pH Units)	8.08
Conductivity (µS/cm)	140.00
Temperature (ºC)	19.70
Volume Leachant (Litres)	0.879

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

09/04/2018 12:10:12

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Notification of NDPs (No determination possible)

Date Received : 28/02/2018 08:46:44

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
17132768	BH-RPS-10 ES1	0.70 - 0.90	Loss on Ignition in soils	Unsuitable sample for analysis

Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM282		Extraction of Magnesium by BRE Method
TM304	HSE Contract research Report no 83/1996	Asbestos Quantification in Soil: Fibres identified by morphology only

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Test Completion Dates

Lab Sample No(s)	17132719	17132725	17132752	17132732	17132768	17132776	17132783	17132656	17132677
Customer Sample Ref.	BH-RPS-01	BH-RPS-01	BH-RPS-01	BH-RPS-10	BH-RPS-10	BH-RPS-10	BH-RPS-10	BH-RPS-12	BH-RPS-12
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1
Depth	0.30 - 0.40	1.20 - 1.50	5.00 - 5.50	4.70 - 4.85	0.70 - 0.90	3.50 - 3.80	6.00 - 6.20	3.10 - 3.30	6.50 - 6.80
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	05-Mar-2018		05-Mar-2018	05-Mar-2018			05-Mar-2018		
ANC at pH4 and ANC at pH 6		06-Mar-2018	07-Mar-2018		06-Mar-2018	06-Mar-2018			06-Mar-2018
Anions by Kone (soil)	07-Mar-2018		07-Mar-2018	07-Mar-2018			07-Mar-2018		
Anions by Kone (w)		06-Apr-2018	06-Apr-2018		06-Apr-2018	06-Apr-2018			06-Apr-2018
Asbestos ID in Solid Samples	07-Mar-2018	07-Mar-2018	07-Mar-2018		07-Mar-2018	07-Mar-2018		07-Mar-2018	
Asbestos Quantification - Full	20-Mar-2018				20-Mar-2018				
CEN 10:1 Leachate (1 Stage)		29-Mar-2018	29-Mar-2018		29-Mar-2018	29-Mar-2018			29-Mar-2018
CEN Readings		04-Apr-2018	04-Apr-2018		04-Apr-2018	04-Apr-2018			04-Apr-2018
Dissolved Metals by ICP-MS		06-Apr-2018	09-Apr-2018		06-Apr-2018				06-Apr-2018
Dissolved Organic/Inorganic Carbon		05-Apr-2018	05-Apr-2018		05-Apr-2018	05-Apr-2018			05-Apr-2018
EPH CWG (Aliphatic) GC (S)	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018
EPH CWG (Aromatic) GC (S)	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018
Fluoride		04-Apr-2018	04-Apr-2018		04-Apr-2018	05-Apr-2018			04-Apr-2018
GRO by GC-FID (S)	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018
Loss on Ignition in soils		08-Mar-2018	08-Mar-2018			08-Mar-2018			06-Mar-2018
Magnesium (BRE)	06-Mar-2018		06-Mar-2018	06-Mar-2018			06-Mar-2018		
Mercury Dissolved		05-Apr-2018	05-Apr-2018		05-Apr-2018	05-Apr-2018			05-Apr-2018
Metals in solid samples by OES	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	07-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018
Mineral Oil		07-Mar-2018	07-Mar-2018		07-Mar-2018	07-Mar-2018			07-Mar-2018
NO3, NO2 and TON by KONE (s)	07-Mar-2018		07-Mar-2018	07-Mar-2018			07-Mar-2018		
PAH by GCMS	08-Mar-2018	08-Mar-2018	08-Mar-2018	08-Mar-2018	08-Mar-2018	08-Mar-2018	07-Mar-2018	08-Mar-2018	07-Mar-2018
PCBs by GCMS	06-Mar-2018	07-Mar-2018	06-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018		06-Mar-2018	07-Mar-2018
pH	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018
Phenols by HPLC (S)	05-Mar-2018								
Phenols by HPLC (W)		05-Apr-2018	05-Apr-2018		05-Apr-2018	05-Apr-2018			05-Apr-2018
Sample description	01-Mar-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	01-Mar-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018
Semi Volatile Organic Compounds	07-Mar-2018	07-Mar-2018	05-Mar-2018		07-Mar-2018	07-Mar-2018		07-Mar-2018	
Total Dissolved Solids		04-Apr-2018	04-Apr-2018		04-Apr-2018	04-Apr-2018			04-Apr-2018
Total Organic Carbon	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	06-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018
Total Sulphate	06-Mar-2018		06-Mar-2018	06-Mar-2018			06-Mar-2018		
Total Sulphur	02-Mar-2018		05-Mar-2018	02-Mar-2018			02-Mar-2018		
TPH CWG GC (S)	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018	07-Mar-2018
VOC MS (S)	06-Mar-2018	06-Mar-2018	06-Mar-2018		06-Mar-2018	06-Mar-2018		02-Mar-2018	

ASSOCIATED AQC DATA

ANC at pH4 and ANC at pH 6

Component	Method Code	QC 1751	QC 1720
ANC pH_4 dry soil	TM182	**98.08** 86.12 : 113.88	**100.72** 86.12 : 113.88
ANC pH_6 dry soil	TM182	**91.71** 61.00 : 139.00	**118.66** 61.00 : 139.00

Anions by Kone (soil)

Component	Method Code	QC 1749
Chloride (soluble)	TM243	**66.19** 89.30 : 110.70
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**52.91** 88.38 : 118.74

Anions by Kone (w)

Component	Method Code	QC 1715
Chloride	TM184	**101.0** 92.93 : 115.43
Phosphate (Ortho as PO4)	TM184	96.40 : 108.40
Sulphate (soluble)	TM184	**100.8** 90.53 : 113.03
TON as NO3	TM184	96.26 : 111.21

Dissolved Metals by ICP-MS

Component	Method Code	QC 1778	QC 1787
Aluminium	TM152	**100.67** 88.00 : 112.00	**98.33** 88.00 : 112.00
Antimony	TM152	**103.67** 88.00 : 112.00	**105.0** 88.00 : 112.00
Arsenic	TM152	**102.67** 88.00 : 112.00	**103.83** 88.00 : 112.00
Barium	TM152	**104.33** 88.00 : 112.00	**106.0** 88.00 : 112.00
Beryllium	TM152	**99.83** 88.00 : 112.00	**98.33** 88.00 : 112.00
Bismuth	TM152	**101.5** 88.90 : 106.90	**100.67** 88.90 : 106.90
Borate	TM152	**98.77** 88.00 : 112.00	**96.3** 88.00 : 112.00
Boron	TM152	**99.0** 88.00 : 112.00	**96.0** 88.00 : 112.00
Cadmium	TM152	**101.0** 88.00 : 112.00	**101.17** 88.00 : 112.00
Chromium	TM152	**101.17** 88.00 : 112.00	**102.17** 88.00 : 112.00
Cobalt	TM152	**96.0** 88.00 : 112.00	**97.0** 88.00 : 112.00

Dissolved Metals by ICP-MS

		QC 1778	QC 1787
Copper	TM152	**103.83** 85.52 : 115.00	**105.0** 85.52 : 115.00
Lead	TM152	**100.5** 88.00 : 112.00	**99.67** 88.00 : 112.00
Lithium	TM152	**98.67** 88.00 : 112.00	**95.5** 88.00 : 112.00
Manganese	TM152	**102.33** 88.00 : 112.00	**103.5** 88.00 : 112.00
Molybdenum	TM152	**98.83** 88.00 : 112.00	**99.17** 88.00 : 112.00
Nickel	TM152	**102.17** 88.00 : 112.00	**103.5** 88.00 : 112.00
Niobium	TM152	88.00 : 112.00	88.00 : 112.00
Phosphorus	TM152	**101.5** 88.00 : 112.00	**101.5** 88.00 : 112.00
Selenium	TM152	**106.0** 88.00 : 112.00	**105.67** 88.00 : 112.00
Silver	TM152	**96.0** 94.00 : 112.00	**96.33** 94.00 : 112.00
Strontium	TM152	**105.0** 88.00 : 112.00	**105.67** 88.00 : 112.00
Tellurium	TM152	**108.33** 88.00 : 112.00	**109.5** 88.00 : 112.00
Thallium	TM152	**98.0** 88.00 : 112.00	**98.33** 88.00 : 112.00
Titanium	TM152	**102.83** 88.00 : 112.00	**102.17** 88.00 : 112.00
Tungsten	TM152	**100.33** 88.00 : 112.00	**100.33** 88.00 : 112.00
Uranium	TM152	**97.5** 88.00 : 112.00	**96.33** 88.00 : 112.00
Vanadium	TM152	**100.83** 88.00 : 112.00	**103.33** 88.00 : 112.00
Zinc	TM152	**103.0** 88.00 : 112.00	**104.33** 88.00 : 112.00
Zirconium	TM152	88.00 : 112.00	88.00 : 112.00

Dissolved Organic/Inorganic Carbon

Component	Method Code	QC 1712
Dissolved Inorganic Carbon	TM090	**106.0** 94.43 : 110.53
Dissolved Organic Carbon	TM090	**107.33** 99.25 : 108.95

EPH CWG (Aliphatic) GC (S)

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1788	QC 1799	QC 1707	QC 1784
Total Aliphatics >C12-C35	TM173	**83.75** 66.17 : 105.28	**86.67** 66.17 : 105.28	**95.21** 70.71 : 106.26	**90.63** 70.61 : 106.16

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1788	QC 1799	QC 1707	QC 1784
Total Aromatics >EC12-EC35	TM173	**84.0** 65.78 : 102.90	**87.33** 65.78 : 102.90	**91.33** 65.82 : 105.00	**92.67** 67.75 : 104.04

Fluoride

Component	Method Code	QC 1790	QC 1776
Fluoride	TM104	**95.33** 92.67 : 104.67	**96.67** 92.67 : 104.67

GRO by GC-FID (S)

Component	Method Code	QC 1790	QC 1741
Benzene by GC (Moisture Corrected)	TM089	**101.0** 84.09 : 122.62	**100.5** 84.09 : 122.62
Ethylbenzene by GC (Moisture Corrected)	TM089	**104.0** 78.42 : 121.07	**102.5** 78.42 : 121.07
m & p Xylene by GC (Moisture Corrected)	TM089	**103.5** 77.69 : 121.76	**101.75** 77.69 : 121.76
MTBE GC-FID (Moisture Corrected)	TM089	**98.0** 77.69 : 125.19	**103.0** 77.69 : 125.19
o Xylene by GC (Moisture Corrected)	TM089	**101.5** 77.88 : 121.47	**101.5** 77.88 : 121.47
QC	TM089	**99.79** 69.62 : 106.27	**96.51** 69.62 : 106.27
Toluene by GC (Moisture Corrected)	TM089	**104.0** 78.31 : 121.42	**103.5** 78.31 : 121.42

Loss on Ignition in soils

Component	Method Code	QC 1755	QC 1760	QC 1743
Loss on Ignition	TM018	**100.24** 89.27 : 104.90	**104.03** 89.27 : 104.90	**101.42** 89.27 : 104.90

Mercury Dissolved

Mercury Dissolved

Component	Method Code	QC 1737	QC 1750
Mercury Dissolved (CVAF)	TM183	**98.7** 73.51 : 120.83	**96.3** 73.51 : 120.83

Metals in solid samples by OES

Component	Method Code	QC 1798	QC 1726	QC 1718	QC 1756
Aluminium	TM181	**82.96** 75.13 : 109.48	**91.11** 75.13 : 109.48	**84.44** 75.13 : 109.48	**93.33** 75.13 : 109.48
Antimony	TM181	**92.28** 84.48 : 110.90	**96.14** 84.48 : 110.90	**96.53** 84.48 : 110.90	**102.32** 84.48 : 110.90
Arsenic	TM181	**89.97** 83.14 : 108.73	**92.8** 83.14 : 108.73	**93.83** 83.14 : 108.73	**99.74** 83.14 : 108.73
Barium	TM181	**85.94** 77.47 : 102.53	**91.41** 77.47 : 102.53	**89.84** 77.47 : 102.53	**97.66** 77.47 : 102.53
Beryllium	TM181	**88.7** 84.19 : 106.77	**92.47** 84.19 : 106.77	**92.47** 84.19 : 106.77	**98.63** 84.19 : 106.77
Boron	TM181	**83.05** 76.55 : 106.69	**88.98** 76.55 : 106.69	**85.31** 76.55 : 106.69	**94.63** 76.55 : 106.69
Cadmium	TM181	**94.68** 86.37 : 111.59	**97.34** 86.37 : 111.59	**98.4** 86.37 : 111.59	**103.72** 86.37 : 111.59
Chromium	TM181	**91.14** 81.29 : 118.71	**95.99** 81.29 : 118.71	**94.09** 81.29 : 118.71	**101.27** 81.29 : 118.71
Cobalt	TM181	**93.42** 85.45 : 109.14	**95.92** 85.45 : 109.14	**97.18** 85.45 : 109.14	**102.82** 85.45 : 109.14
Copper	TM181	**85.15** 81.33 : 103.33	**88.79** 81.33 : 103.33	**88.5** 81.33 : 103.33	**94.03** 81.33 : 103.33
Iron	TM181	**90.28** 82.44 : 111.71	**96.53** 82.44 : 111.71	**93.75** 82.44 : 111.71	**99.31** 82.44 : 111.71
Lead	TM181	**90.21** 83.33 : 106.95	**92.98** 83.33 : 106.95	**93.83** 83.33 : 106.95	**98.72** 83.33 : 106.95
Manganese	TM181	**84.24** 80.56 : 102.33	**89.09** 80.56 : 102.33	**88.89** 80.56 : 102.33	**91.52** 80.56 : 102.33
Mercury	TM181	**93.73** 84.13 : 111.85	**96.08** 84.13 : 111.85	**97.25** 84.13 : 111.85	**102.35** 84.13 : 111.85
Molybdenum	TM181	**90.73** 84.19 : 110.39	**93.82** 84.19 : 110.39	**95.37** 84.19 : 110.39	**100.39** 84.19 : 110.39
Nickel	TM181	**90.91** 84.19 : 109.77	**94.87** 84.19 : 109.77	**94.64** 84.19 : 109.77	**101.17** 84.19 : 109.77
Phosphorus	TM181	**88.02** 73.47 : 116.86	**90.87** 73.47 : 116.86	**92.37** 73.47 : 116.86	**93.26** 73.47 : 116.86
Selenium	TM181	**87.54** 81.32 : 108.59	**91.39** 81.32 : 108.59	**91.69** 81.32 : 108.59	**98.81** 81.32 : 108.59
Strontium	TM181	**86.89** 84.70 : 105.87	**91.97** 84.70 : 105.87	**89.22** 84.70 : 105.87	**97.25** 84.70 : 105.87
Thallium	TM181	**90.63** 81.19 : 105.37	**95.31** 81.19 : 105.37	**94.14** 81.19 : 105.37	**101.17** 81.19 : 105.37
Tin	TM181	**93.26** 85.92 : 110.00	**95.39** 85.92 : 110.00	**96.45** 85.92 : 110.00	**100.71** 85.92 : 110.00
Titanium	TM181	**83.08** 73.44 : 113.17	**87.69** 73.44 : 113.17	**86.92** 73.44 : 113.17	**93.08** 73.44 : 113.17

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Metals in solid samples by OES

		QC 1798	QC 1726	QC 1718	QC 1756
Vanadium	TM181	**84.66** 78.62 : 101.47	**89.88** 78.62 : 101.47	**87.73** 78.62 : 101.47	**94.17** 78.62 : 101.47
Zinc	TM181	**90.23** 85.64 : 110.14	**94.07** 85.64 : 110.14	**93.19** 85.64 : 110.14	**101.4** 85.64 : 110.14

Mineral Oil

Component	Method Code	QC 1788	QC 1770
Mineral Oil	TM061	**87.83** 76.64 : 99.14	76.64 : 99.14

NO3, NO2 and TON by KONE (s)

Component	Method Code	QC 1749
Nitrate/TON as N QC	TM243	**90.16** 42.63 : 157.37
Nitrite (soluble) as NO2	TM243	**105.26** 92.68 : 121.96

PAH by GCMS

Component	Method Code	QC 1791	QC 1760	QC 1768
Acenaphthene	TM218	**104.0** 82.09 : 110.18	**99.0** 78.95 : 114.22	**111.5** 78.17 : 114.45
Acenaphthylene	TM218	**97.5** 77.92 : 100.70	**88.0** 64.89 : 106.33	**99.0** 73.70 : 105.55
Anthracene	TM218	**95.0** 79.96 : 103.02	**95.0** 77.17 : 105.56	**99.5** 50.58 : 133.35
Benz(a)anthracene	TM218	**104.0** 80.00 : 122.30	**113.5** 80.47 : 122.11	**99.5** 73.03 : 124.35
Benzo(a)pyrene	TM218	**93.0** 86.92 : 126.33	**113.5** 79.44 : 122.09	**99.5** 76.86 : 123.01
Benzo(b)fluoranthene	TM218	**91.0** 84.53 : 122.14	**110.0** 81.46 : 113.62	**100.0** 75.92 : 130.86
Benzo(ghi)perylene	TM218	**97.5** 77.49 : 119.12	**113.0** 79.07 : 113.26	**99.5** 80.30 : 117.80
Benzo(k)fluoranthene	TM218	**95.5** 88.94 : 117.08	**109.0** 86.00 : 117.59	**100.0** 81.49 : 113.89
Chrysene	TM218	**102.5** 87.67 : 116.32	**105.5** 79.02 : 117.48	**101.5** 77.31 : 114.50
Dibenzo(ah)anthracene	TM218	**98.5** 85.66 : 119.61	**116.0** 85.70 : 123.10	**99.5** 77.77 : 118.30
Fluoranthene	TM218	**100.5** 84.49 : 109.33	**100.5** 80.37 : 111.80	**100.0** 80.77 : 108.59
Fluorene	TM218	**102.0** 84.28 : 107.54	**97.5** 79.98 : 109.78	**110.0** 79.13 : 110.70
Indeno(123cd)pyrene	TM218	**97.5** 86.46 : 120.70	**115.0** 85.41 : 122.03	**99.5** 78.65 : 117.12
Naphthalene	TM218	**103.5** 82.88 : 115.56	**98.5** 82.33 : 112.21	**97.0** 77.09 : 108.37

PAH by GCMS

		QC 1791	QC 1760	QC 1768
Phenanthrene	TM218	**97.5** 81.59 : 110.61	**99.0** 80.52 : 110.11	**101.5** 76.02 : 112.05
Pyrene	TM218	**106.0** 83.25 : 107.60	**99.5** 79.57 : 110.12	**99.5** 79.98 : 107.66

PCBs by GCMS

Component	Method Code	QC 1750	QC 1702	QC 1795
PCB congener 101	TM168	**92.9** 80.77 : 111.39	**98.3** 76.50 : 116.94	**95.1** 80.77 : 111.39
PCB congener 105	TM168	**88.4** 79.28 : 115.39	**96.7** 75.93 : 120.03	**92.7** 79.28 : 115.39
PCB congener 114	TM168	**90.4** 81.30 : 114.31	**98.5** 76.64 : 119.06	**93.3** 81.30 : 114.31
PCB congener 118	TM168	**91.8** 80.32 : 112.22	**98.2** 75.18 : 118.08	**94.8** 80.32 : 112.22
PCB congener 123	TM168	**88.9** 80.25 : 114.57	**95.5** 75.72 : 117.84	**92.2** 80.25 : 114.57
PCB congener 126	TM168	**88.6** 75.17 : 124.58	**98.8** 76.10 : 125.90	**93.0** 75.17 : 124.58
PCB congener 138	TM168	**91.2** 82.92 : 114.57	**98.6** 78.04 : 121.72	**93.3** 82.92 : 114.57
PCB congener 153	TM168	**88.7** 83.90 : 111.70	**94.8** 77.67 : 119.31	**91.2** 83.90 : 111.70
PCB congener 156	TM168	**90.6** 75.33 : 115.33	**100.0** 73.48 : 118.60	**93.6** 75.33 : 115.33
PCB congener 157	TM168	**90.3** 80.94 : 117.86	**99.0** 77.47 : 123.91	**93.3** 80.94 : 117.86
PCB congener 167	TM168	**91.2** 78.02 : 117.22	**99.0** 75.77 : 121.97	**94.3** 78.02 : 117.22
PCB congener 169	TM168	**92.7** 73.31 : 125.29	**103.0** 74.49 : 130.71	**97.3** 73.31 : 125.29
PCB congener 180	TM168	**92.3** 79.60 : 113.91	**99.8** 77.34 : 121.26	**93.9** 79.60 : 113.91
PCB congener 189	TM168	**92.1** 71.41 : 124.18	**102.0** 75.60 : 127.20	**96.0** 71.41 : 124.18
PCB congener 28	TM168	**92.1** 83.25 : 112.46	**98.1** 79.43 : 121.67	**93.4** 83.25 : 112.46
PCB congener 52	TM168	**97.3** 85.30 : 110.14	**102.0** 78.72 : 119.28	**98.8** 85.30 : 110.14
PCB congener 77	TM168	**91.5** 73.92 : 120.16	**105.0** 74.04 : 120.60	**95.3** 73.92 : 120.16
PCB congener 81	TM168	**87.2** 81.05 : 122.39	**92.5** 71.38 : 116.14	**88.7** 81.05 : 122.39

pH

Component	Method Code	QC 1760	QC 1782	QC 1790	QC 1700
pH	TM133	**101.17** 99.48 : 102.60	**100.78** 99.48 : 102.60	**100.78** 99.48 : 102.60	**100.65** 99.48 : 102.60

Phenols by HPLC (S)

Component	Method Code	QC 1775
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**99.35** 85.25 : 114.75
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**94.15** 75.71 : 124.29
Catechol by HPLC (S)	TM062 (S)	**109.52** 64.10 : 135.90
Cresols by HPLC (S)	TM062 (S)	**93.95** 78.85 : 107.41
Napthol by HPLC (S)	TM062 (S)	**122.14** 75.62 : 124.38
Phenol by HPLC (S)	TM062 (S)	**110.6** 79.53 : 120.47
Resorcinol HPLC (S)	TM062 (S)	**129.56** 86.85 : 145.65
Xylenols by HPLC (S)	TM062 (S)	**100.21** 84.65 : 109.70

Phenols by HPLC (W)

Component	Method Code	QC 1713
2.3.5 Trimethyl-Phenol by HPLC (W)	TM259	**97.0** 89.00 : 113.00
2-Isopropyl Phenol by HPLC (W)	TM259	**105.0** 95.00 : 113.00
Cresols by HPLC (W)	TM259	**98.33** 84.57 : 102.57
Napthol by HPLC (W)	TM259	**114.0** 90.22 : 121.54
Phenol by HPLC (W)	TM259	**102.0** 89.00 : 107.00
Xylenols by HPLC (W)	TM259	**107.83** 88.83 : 112.83

Semi Volatile Organic Compounds

Component	Method Code	QC 1734	QC 1771
4-Bromophenylphenylether (Soil)	TM157	**80.0** 65.45 : 121.76	**76.5** 65.45 : 121.76
Benzo(a)anthracene (Soil)	TM157	**94.5** 71.89 : 120.91	**82.5** 71.89 : 120.91
Hexachlorobutadiene (Soil)	TM157	**89.0** 69.80 : 117.77	**80.5** 69.80 : 117.77
Naphthalene (Soil)	TM157	**86.0** 71.89 : 120.16	**80.0** 71.89 : 120.16
Nitrobenzene (Soil)	TM157	**89.0** 70.00 : 118.00	**81.5** 70.00 : 118.00
Phenol (Soil)	TM157	**84.0** 68.54 : 114.86	**85.5** 68.54 : 114.86

Total Dissolved Solids

Total Dissolved Solids

Component	Method Code	QC 1745
Total Dissolved Solids	TM123	**98.7** 97.30 : 101.58

Total Organic Carbon

Component	Method Code	QC 1754	QC 1735
Total Organic Carbon	TM132	**89.45** 83.00 : 101.77	**89.84** 83.00 : 101.77

Total Sulphur

Component	Method Code	QC 1737	QC 1732
Total Sulphur %	TM132	**99.43** 81.05 : 118.95	**99.86** 81.05 : 118.95

VOC MS (S)

Component	Method Code	QC 1796	QC 1785
1,1,1,2-tetrachloroethane	TM116	**98.8** 77.56 : 115.55	**99.4** 77.56 : 115.55
1,1,1-Trichloroethane	TM116	**94.4** 73.73 : 118.05	**94.2** 73.73 : 118.05
1,1,2-Trichloroethane	TM116	**88.0** 77.12 : 116.04	**91.6** 77.12 : 116.04
1,1-Dichloroethane	TM116	**102.4** 74.46 : 129.15	**96.8** 74.46 : 129.15
1,2-Dichloroethane	TM116	**102.2** 92.57 : 128.78	**104.2** 92.57 : 128.78
1,4-Dichlorobenzene	TM116	**94.6** 72.76 : 126.34	**91.8** 72.76 : 126.34
2-Chlorotoluene	TM116	**92.0** 69.73 : 114.13	**87.4** 69.73 : 114.13
4-Chlorotoluene	TM116	**87.8** 66.90 : 112.46	**88.0** 66.90 : 112.46
Benzene	TM116	**95.8** 81.05 : 117.28	**100.0** 81.05 : 117.28
Carbon Disulphide	TM116	**98.2** 74.91 : 122.14	**91.8** 74.91 : 122.14
Carbontetrachloride	TM116	**99.0** 78.83 : 123.13	**102.6** 78.83 : 123.13
Chlorobenzene	TM116	**98.8** 75.00 : 115.53	**103.8** 75.00 : 115.53
Chloroform	TM116	**105.6** 77.34 : 121.84	**102.6** 77.34 : 121.84

VOC MS (S)

		QC 1796	QC 1785
Chloromethane	TM116	**89.0** 52.63 : 138.74	**73.6** 52.63 : 138.74
Cis-1,2-Dichloroethene	TM116	**101.8** 80.67 : 126.72	**98.2** 80.67 : 126.72
Dibromomethane	TM116	**93.4** 67.80 : 121.75	**93.2** 67.80 : 121.75
Dichloromethane	TM116	**98.6** 81.11 : 133.25	**100.4** 81.11 : 133.25
Ethylbenzene	TM116	**91.6** 72.53 : 109.84	**90.8** 72.53 : 109.84
Hexachlorobutadiene	TM116	**52.0** 12.82 : 152.73	**51.6** 12.82 : 152.73
Isopropylbenzene	TM116	**77.2** 54.46 : 125.44	**76.8** 54.46 : 125.44
Naphthalene	TM116	**104.4** 80.86 : 128.81	**103.6** 80.86 : 128.81
o-Xylene	TM116	**82.4** 67.46 : 102.22	**84.2** 67.46 : 102.22
p/m-Xylene	TM116	**87.7** 68.32 : 108.91	**86.7** 68.32 : 108.91
Sec-Butylbenzene	TM116	**63.6** 46.09 : 121.51	**65.4** 46.09 : 121.51
Tetrachloroethene	TM116	**99.6** 76.95 : 121.02	**103.0** 76.95 : 121.02
Toluene	TM116	**88.2** 74.24 : 107.42	**88.2** 74.24 : 107.42
Trichloroethene	TM116	**90.0** 77.61 : 111.54	**94.4** 77.61 : 111.54
Trichlorofluoromethane	TM116	**96.6** 71.31 : 128.41	**88.0** 71.31 : 128.41
Vinyl Chloride	TM116	**104.6** 68.26 : 133.45	**93.4** 68.26 : 133.45

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Chromatogram

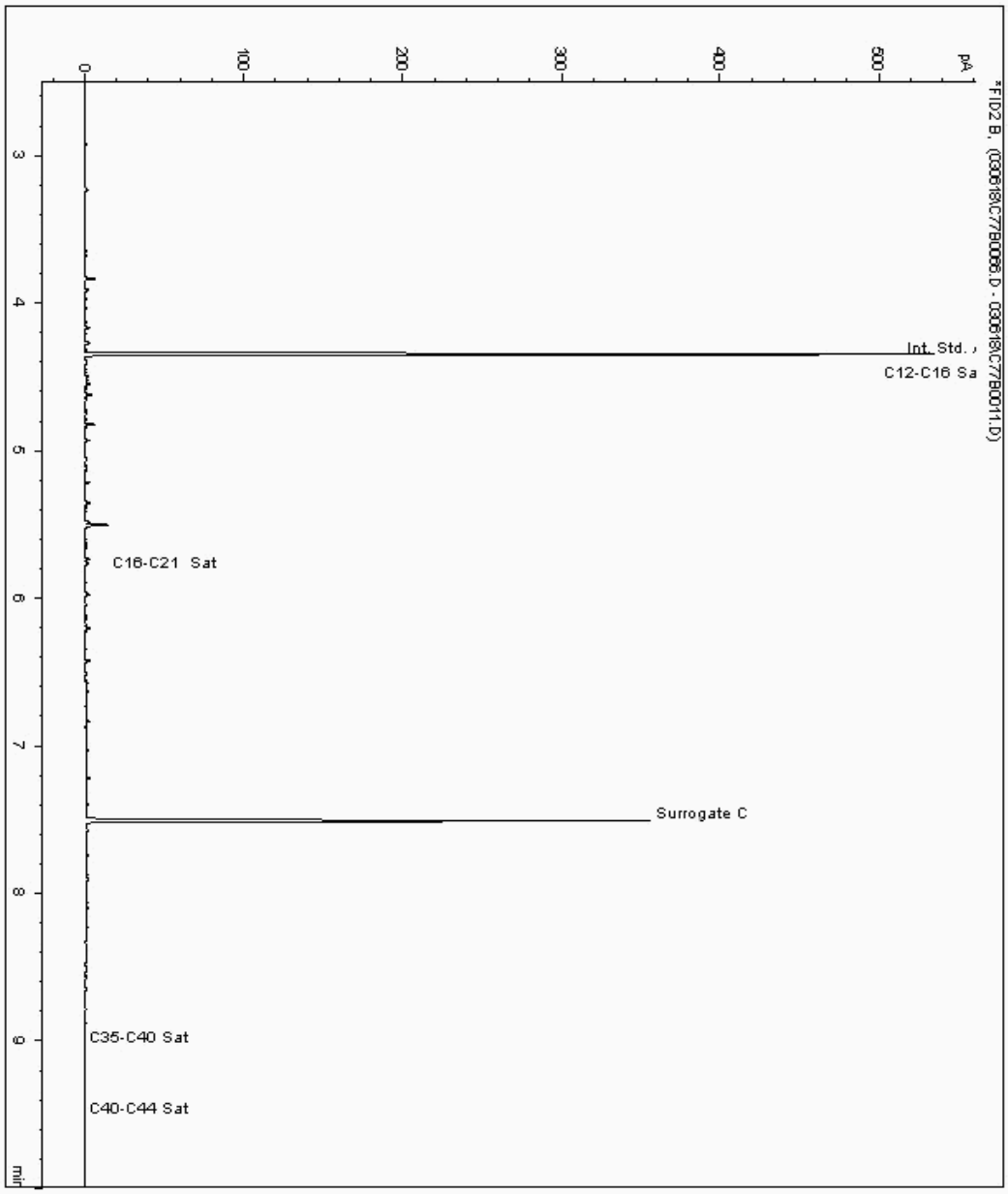
Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 17138098
Sample ID : BH-RPS-01

Depth : 0.30 - 0.40

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16084197-
Date Acquired : 3/7/2018 2:14:23 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.970

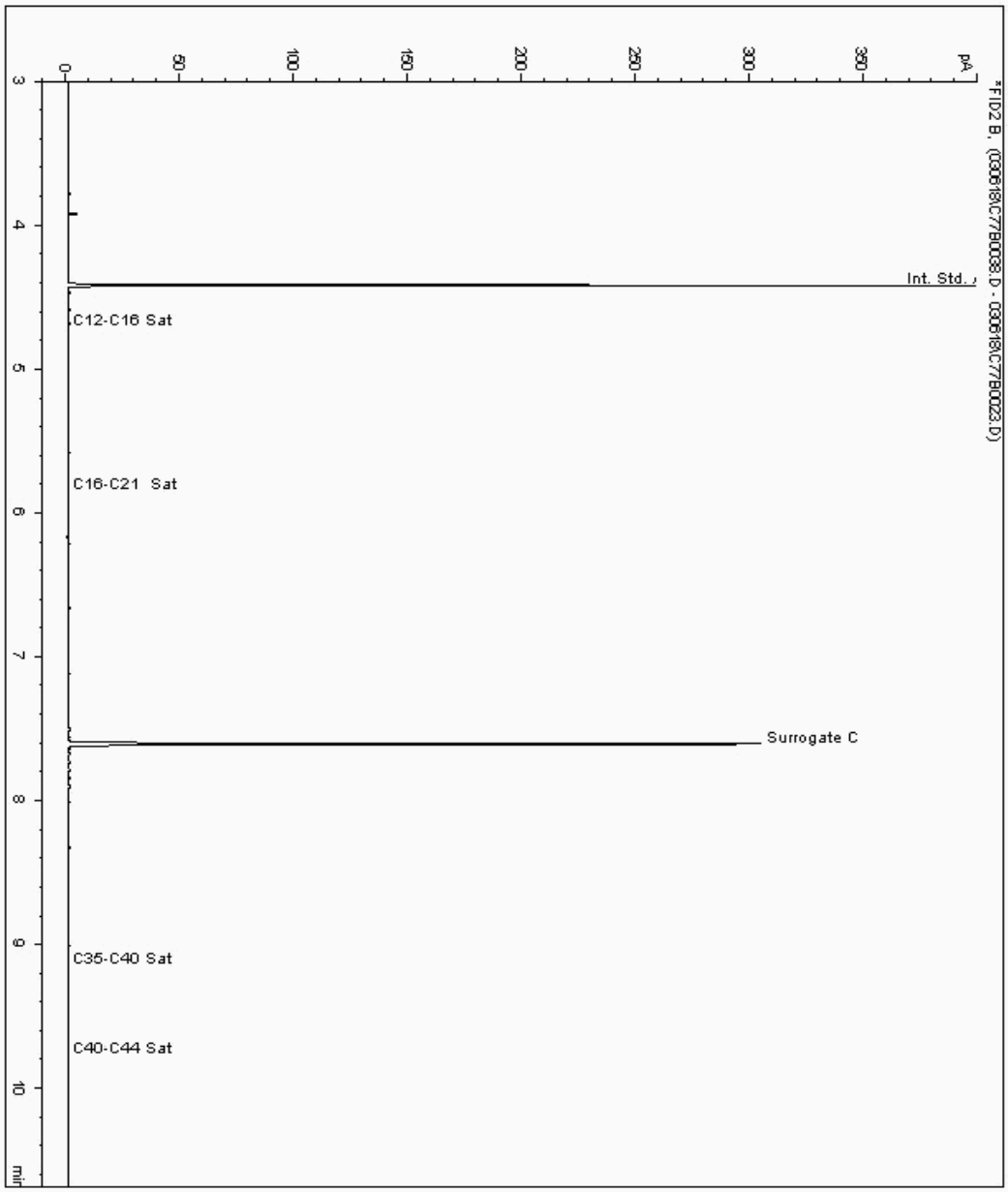


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17138113 **Sample ID :** BH-RPS-10 **Depth :** 4.70 - 4.85

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16084258-
Date Acquired : 06/03/2018 23:23:26 PM
Units : ppb
Dilution:

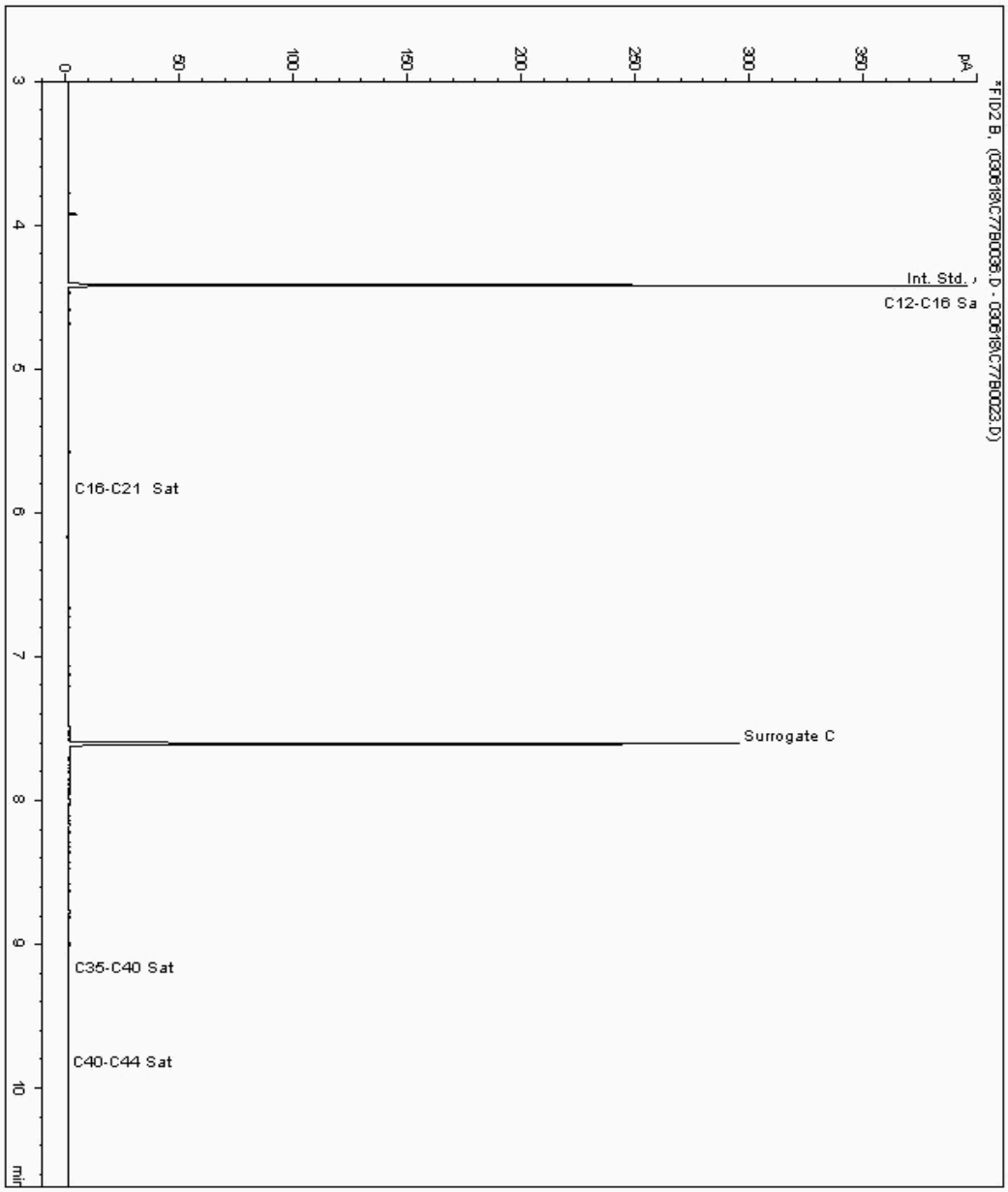


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17138128 **Sample ID :** BH-RPS-12 **Depth :** 3.10 - 3.30

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16084144-
Date Acquired : 06/03/2018 22:42:46 PM
Units : ppb
Dilution:

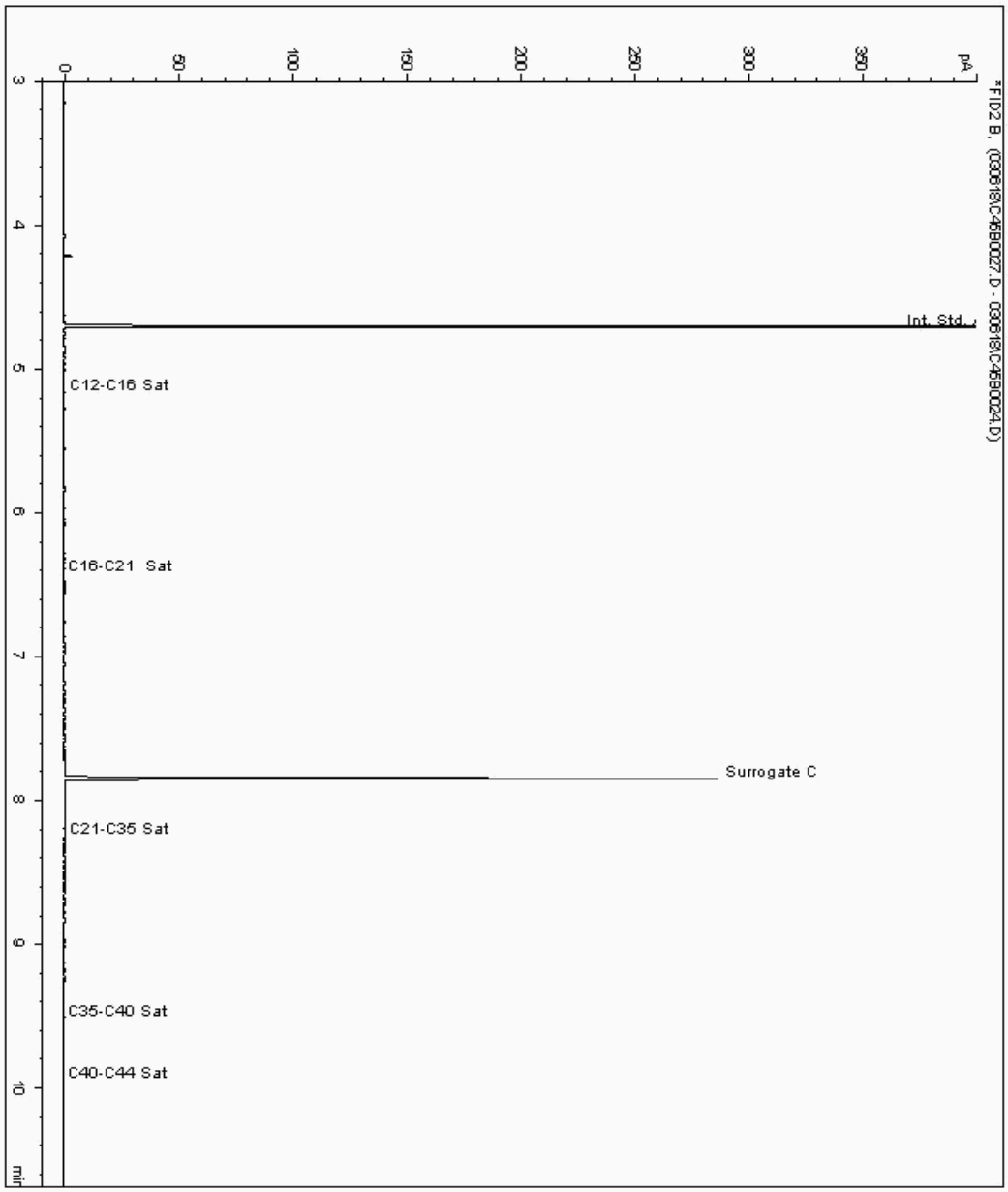


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17138142 **Sample ID :** BH-RPS-10 **Depth :** 6.00 - 6.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16084389-
Date Acquired : 06/03/2018 23:45:29 PM
Units : ppb
Dilution: BH-RPS-10[6.00 - 6.20] ->

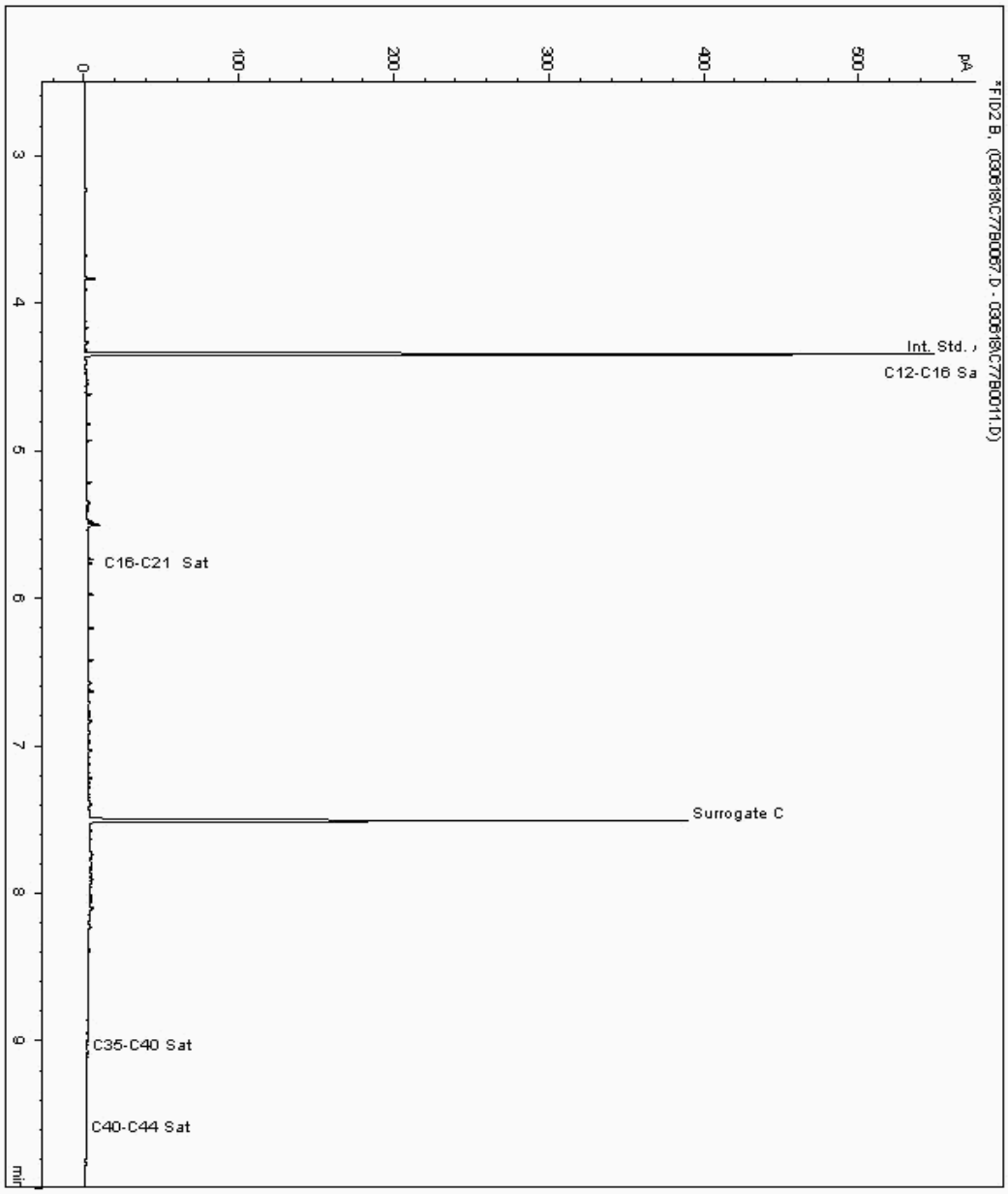


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17138149 **Sample ID :** BH-RPS-10 **Depth :** 0.70 - 0.90

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16084331-
Date Acquired : 3/7/2018 2:34:43 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.040

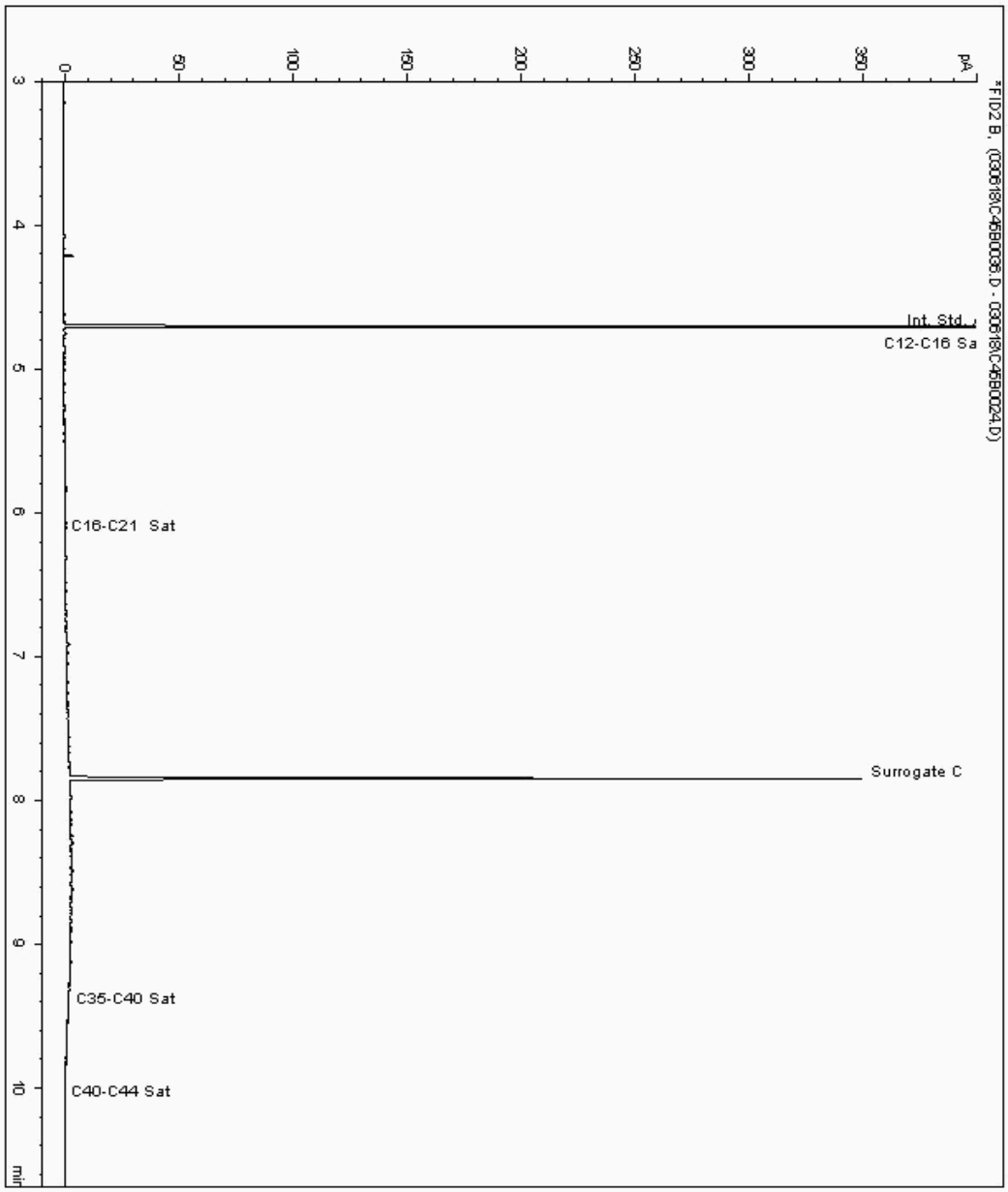


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17138154 **Sample ID :** BH-RPS-10 **Depth :** 3.50 - 3.80

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16084362-
Date Acquired : 07/03/2018 02:38:56 PM
Units : ppb
Dilution: BH-RPS-10[3.50 - 3.80] ->

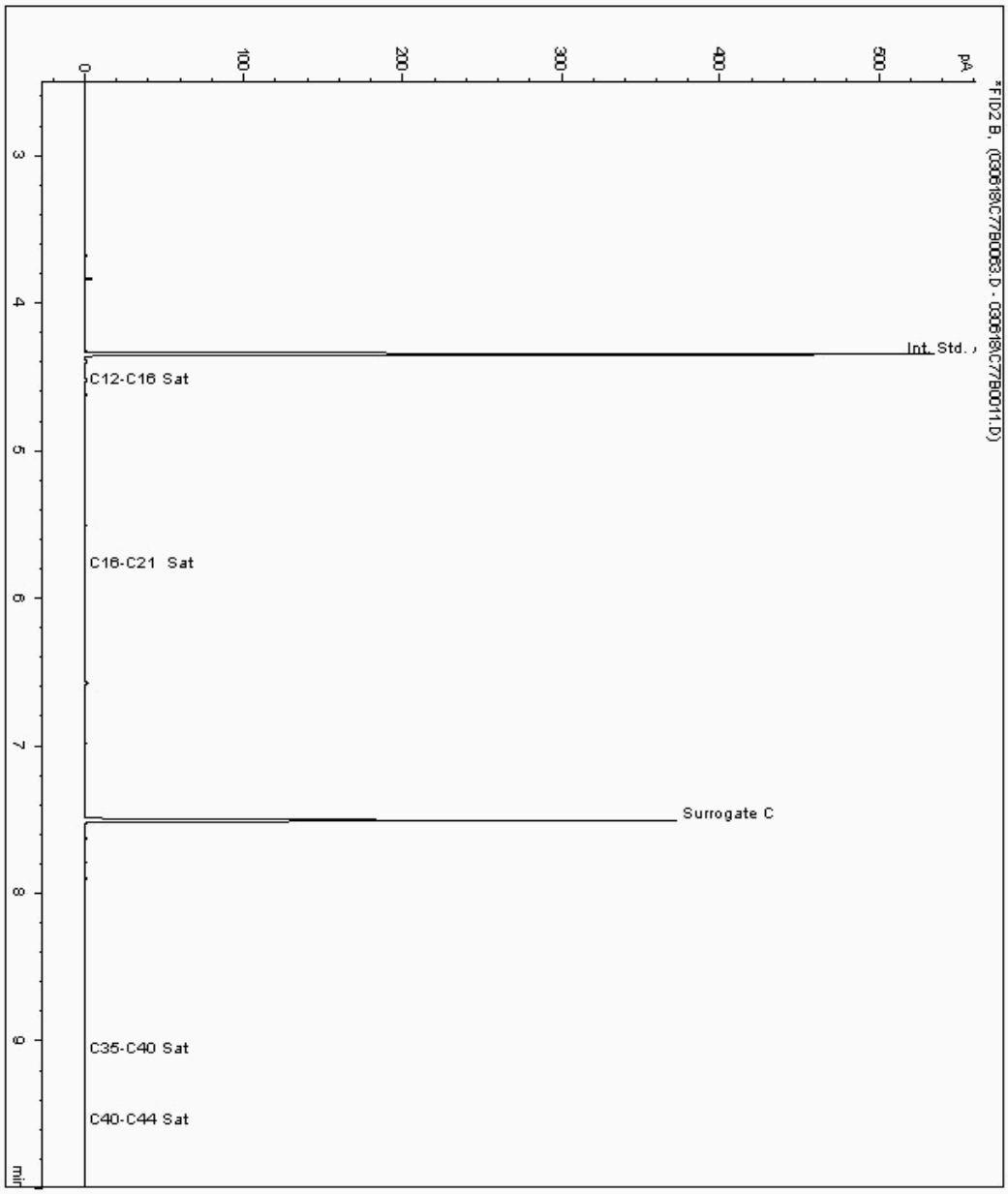


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17138159 **Sample ID :** BH-RPS-12 **Depth :** 6.50 - 6.80

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16084173-
Date Acquired : 3/7/2018 1:13:10 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.960

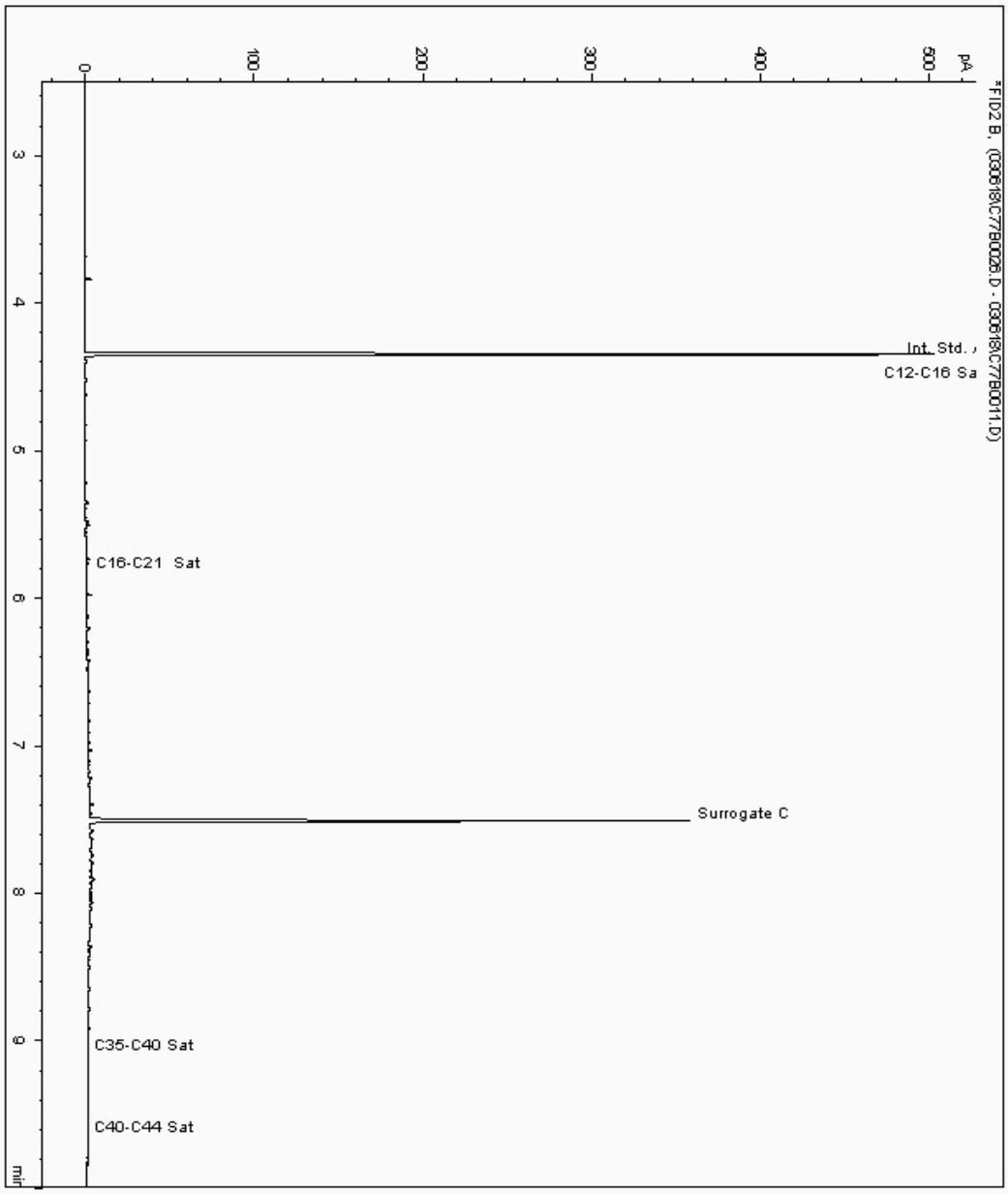


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17138170 **Sample ID :** BH-RPS-01 **Depth :** 1.20 - 1.50

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16084230-
Date Acquired : 3/6/2018 2:36:26 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.000

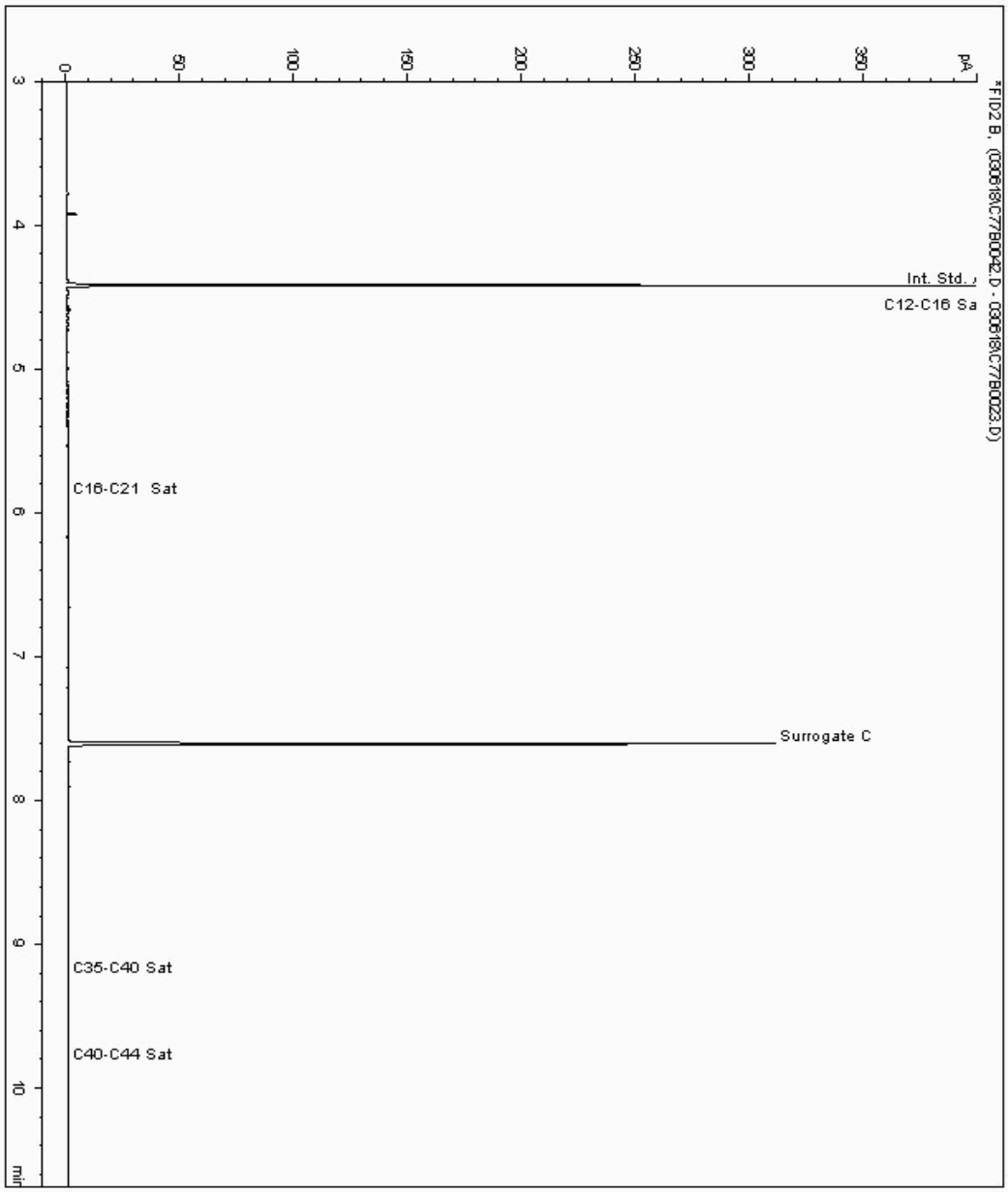


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17138200 **Sample ID :** BH-RPS-01 **Depth :** 5.00 - 5.50

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16084299-
Date Acquired : 07/03/2018 00:36:40 PM
Units : ppb
Dilution:

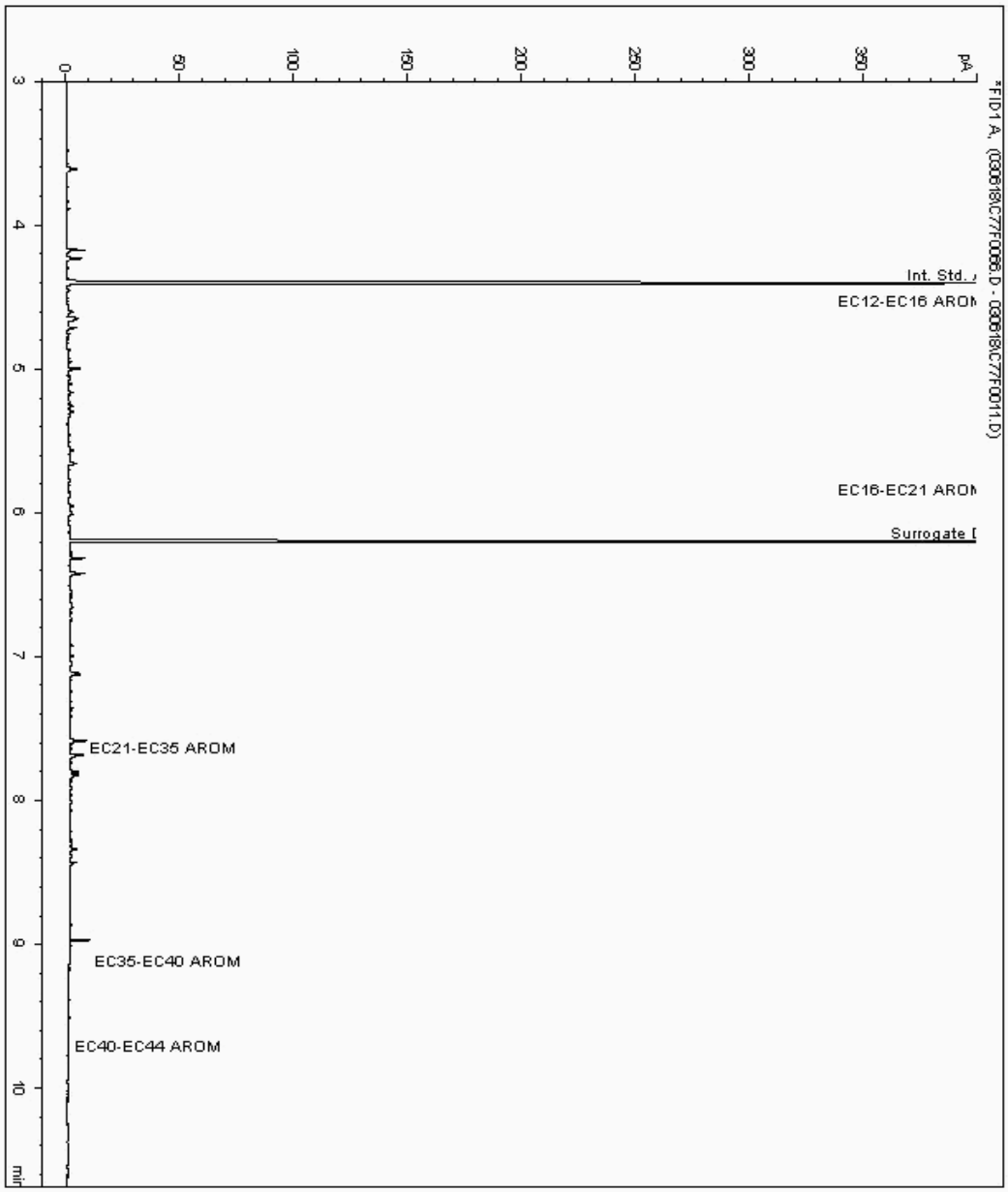


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17138098 **Sample ID :** BH-RPS-01 **Depth :** 0.30 - 0.40

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16084198-
Date Acquired : 3/7/2018 2:14:23 AM
Units : ppb
Dilution:

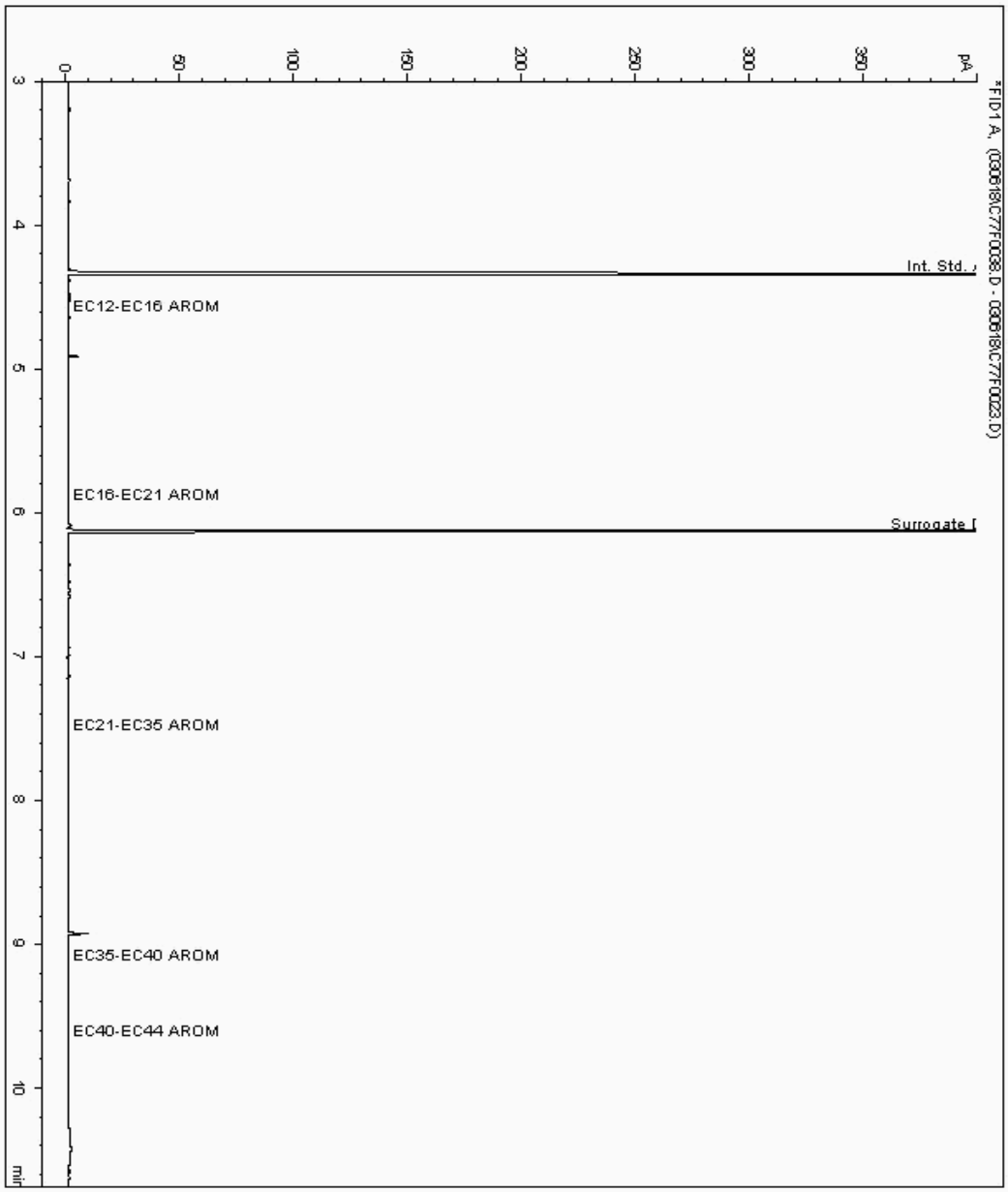


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17138113 **Sample ID :** BH-RPS-10 **Depth :** 4.70 - 4.85

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16084259-
Date Acquired : 06/03/2018 23:23:26 PM
Units : ppb
Dilution:

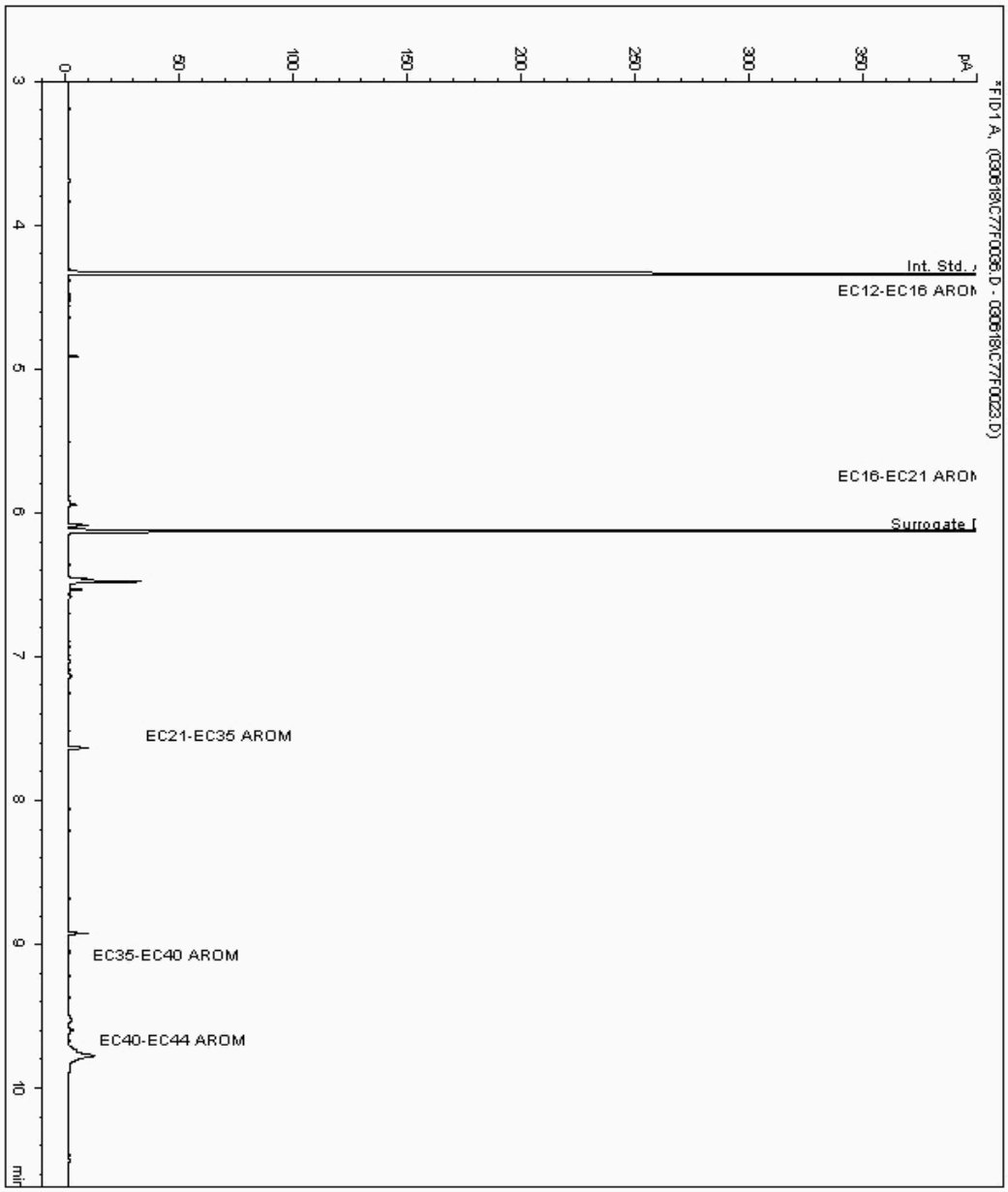


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17138128 **Sample ID :** BH-RPS-12 **Depth :** 3.10 - 3.30

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16084145-
Date Acquired : 06/03/2018 22:42:46 PM
Units : ppb
Dilution:

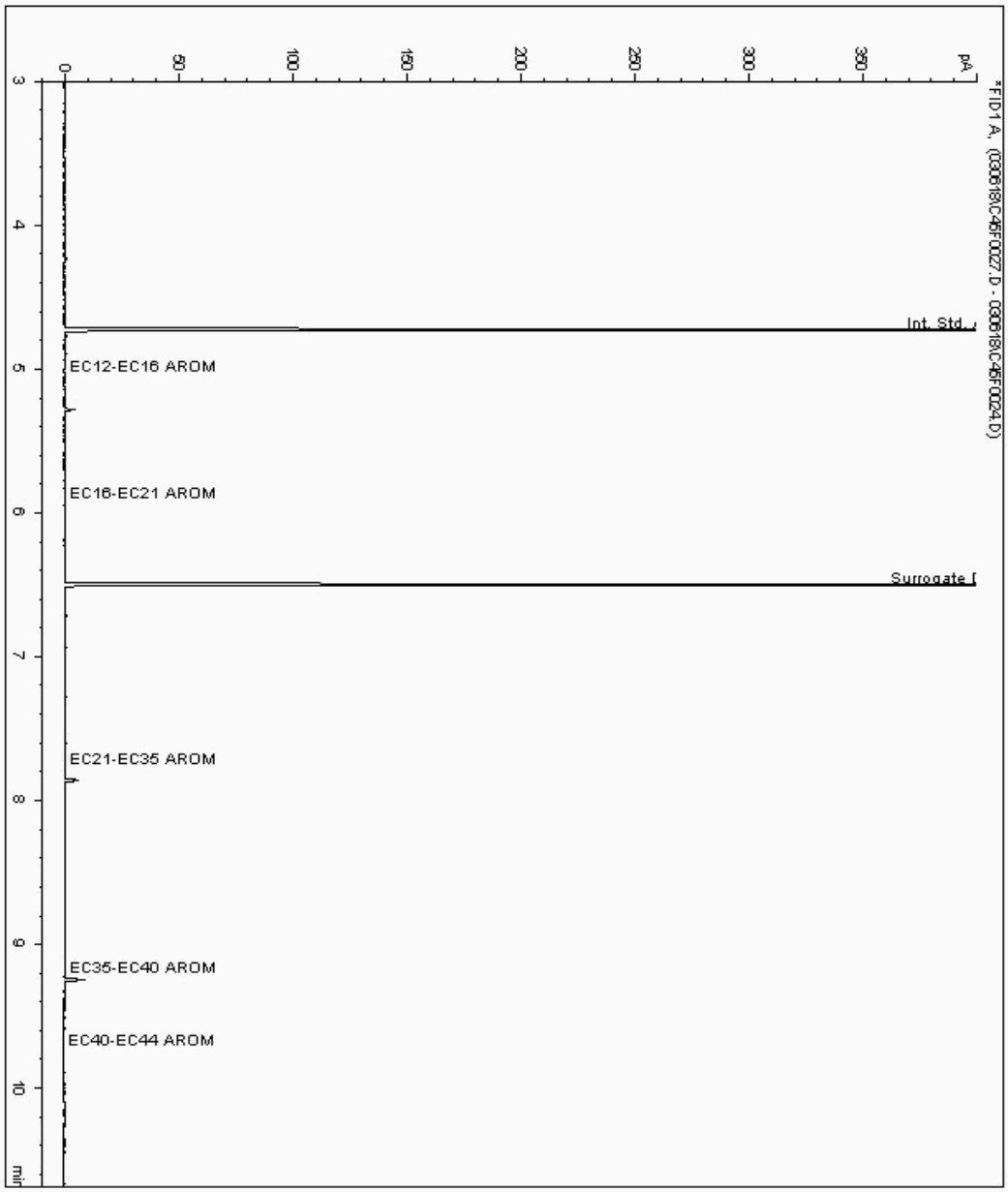


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17138142 **Sample ID :** BH-RPS-10 **Depth :** 6.00 - 6.20

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16084390-
Date Acquired : 06/03/2018 23:45:29 PM
Units : ppb
Dilution: BH-RPS-10[6.00 - 6.20] ->

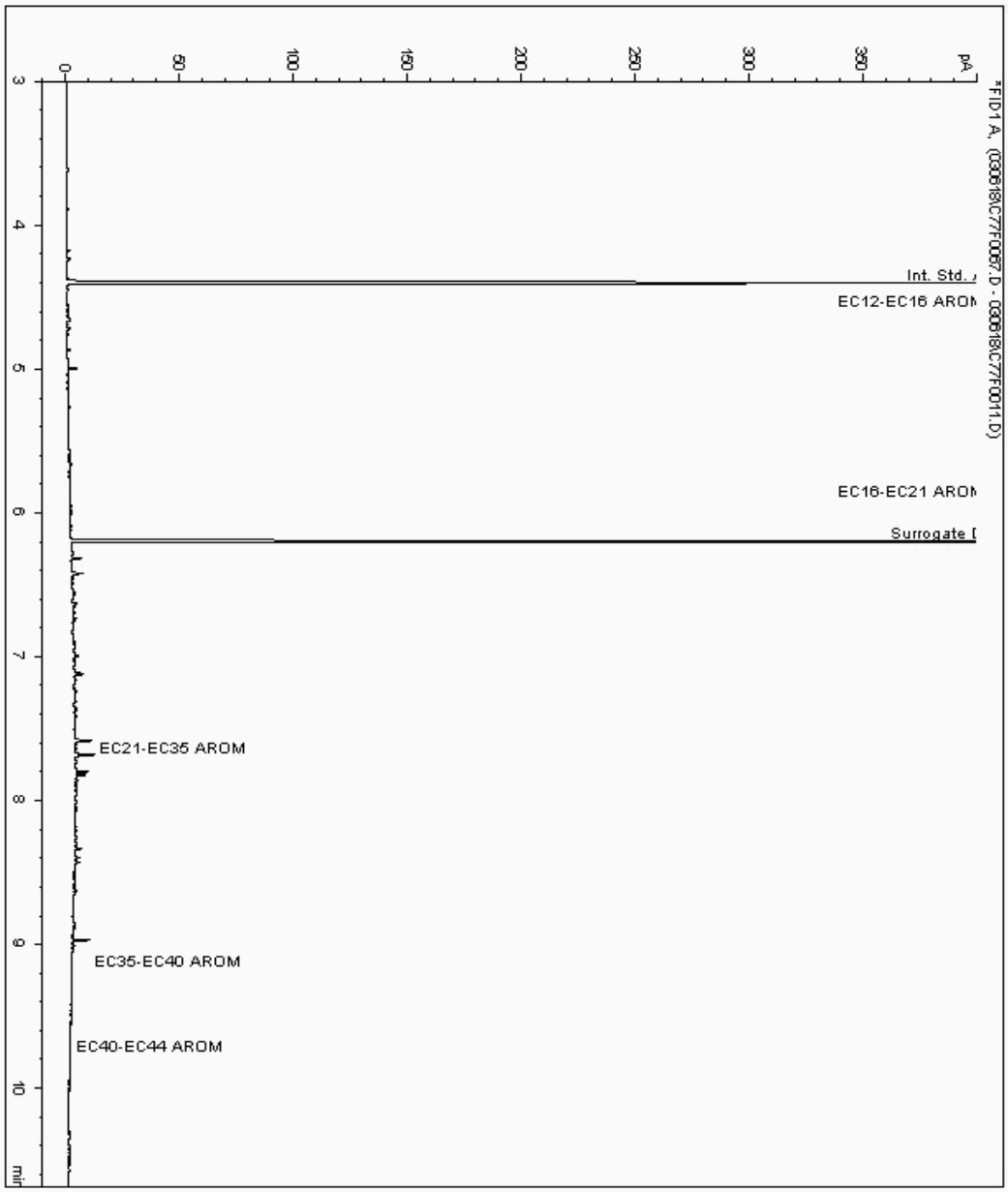


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17138149 **Sample ID :** BH-RPS-10 **Depth :** 0.70 - 0.90

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16084332-
Date Acquired : 3/7/2018 2:34:43 AM
Units : ppb
Dilution:

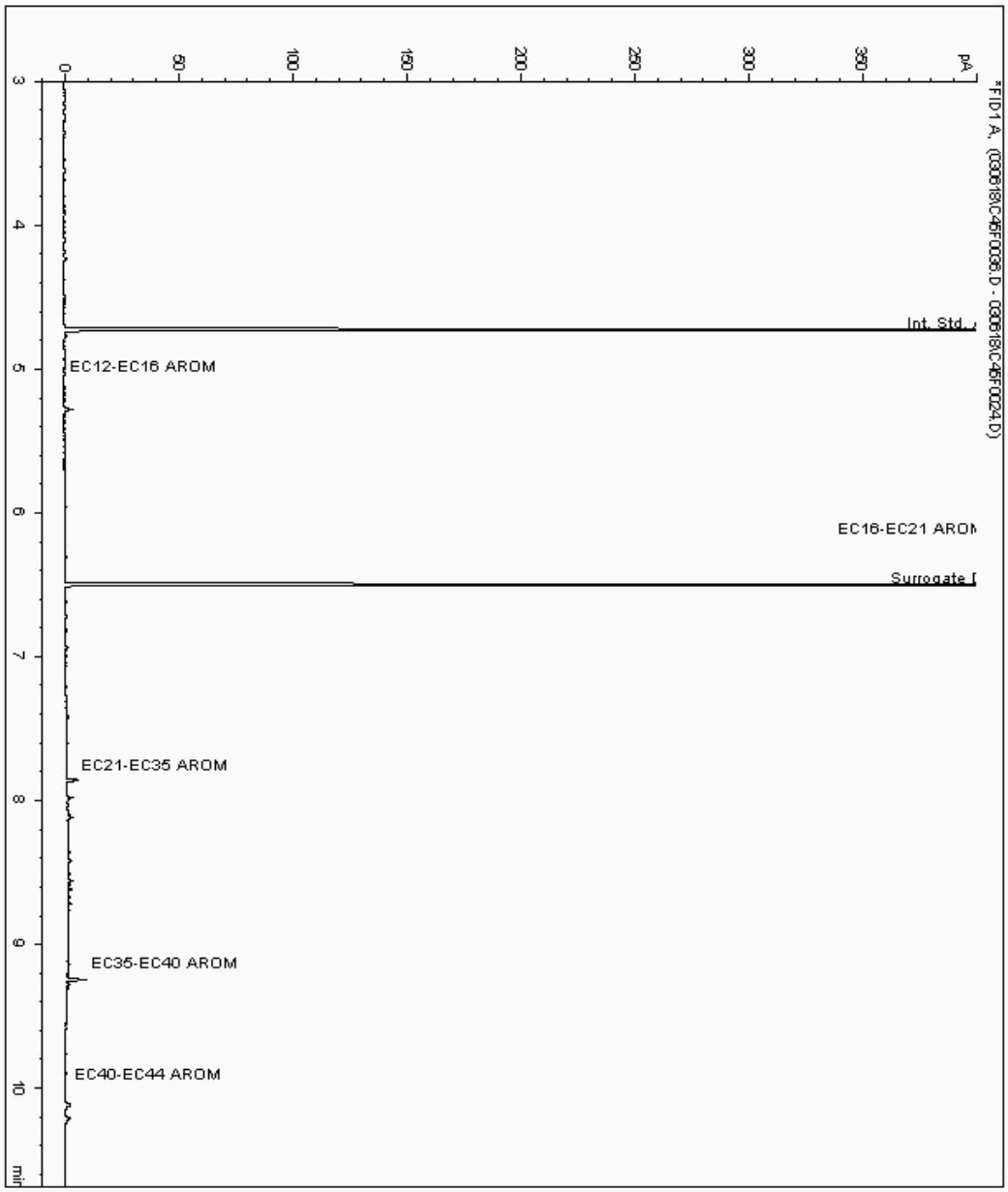


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17138154 **Sample ID :** BH-RPS-10 **Depth :** 3.50 - 3.80

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16084363-
Date Acquired : 07/03/2018 02:38:56 PM
Units : ppb
Dilution: BH-RPS-10[3.50 - 3.80] ->

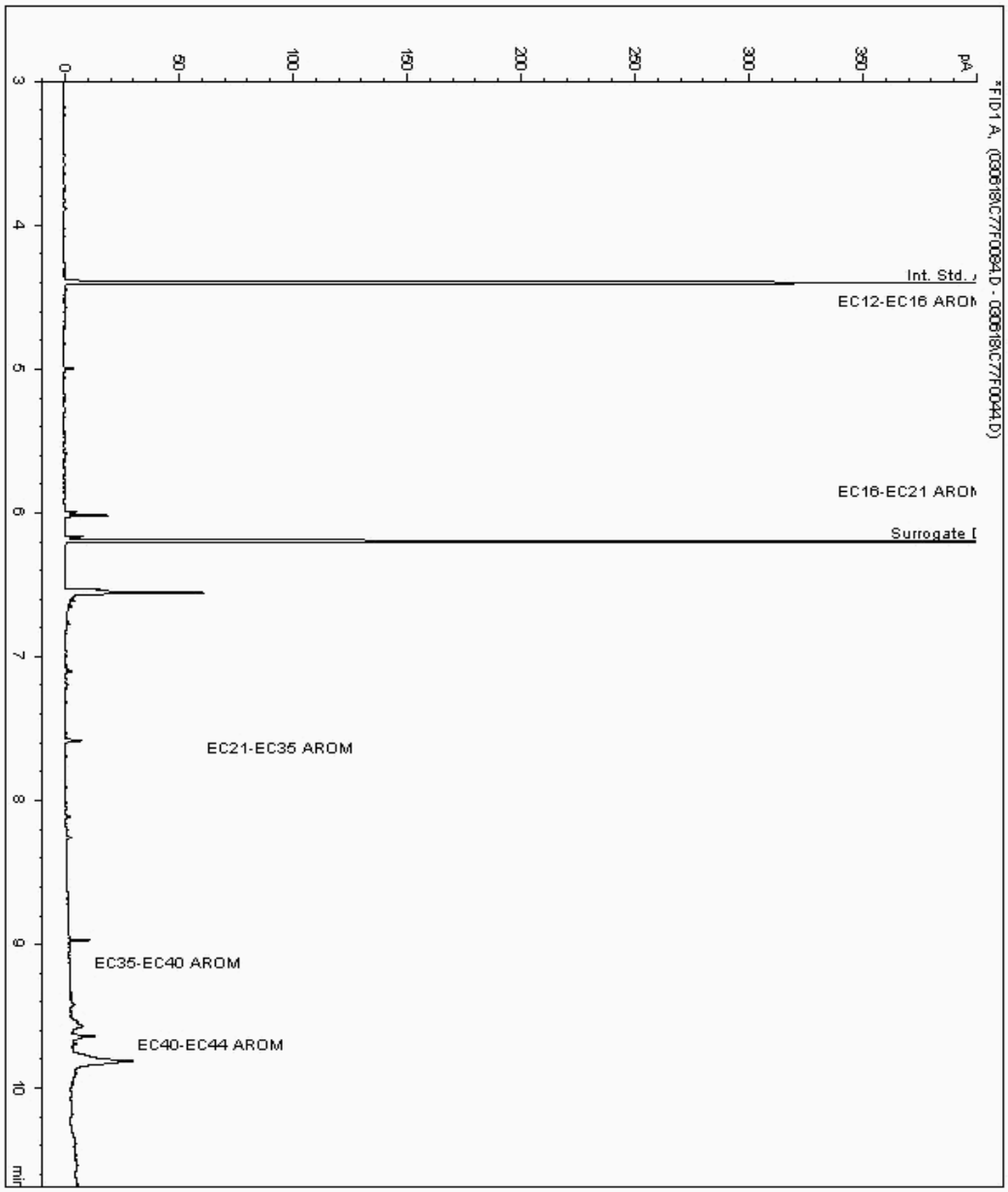


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17138159 **Sample ID :** BH-RPS-12 **Depth :** 6.50 - 6.80

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16084174-
Date Acquired : 3/7/2018 12:13:49 PM
Units : ppb
Dilution:

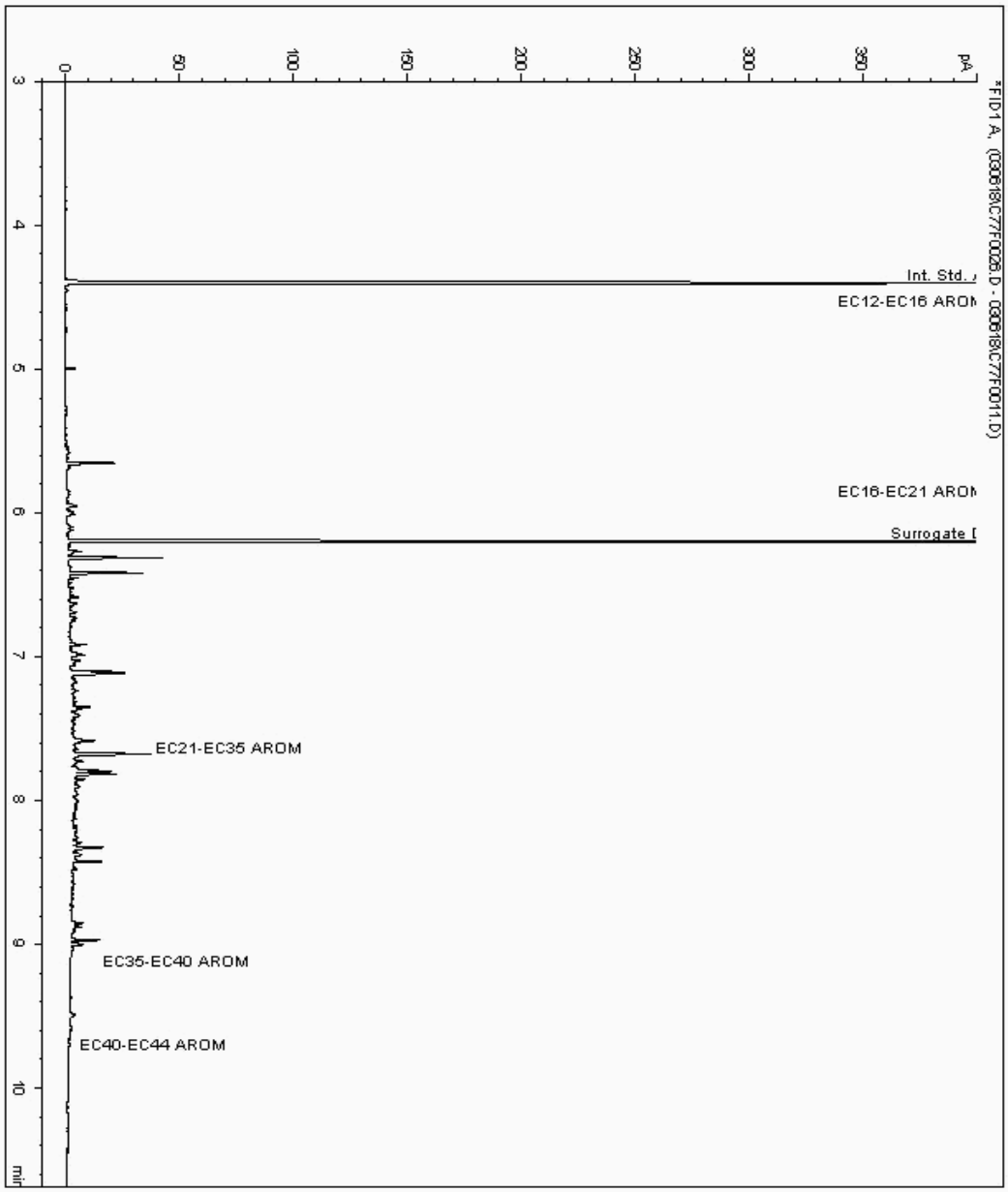


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17138170 **Sample ID :** BH-RPS-01 **Depth :** 1.20 - 1.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16084231-
Date Acquired : 3/6/2018 2:36:26 PM
Units : ppb
Dilution:

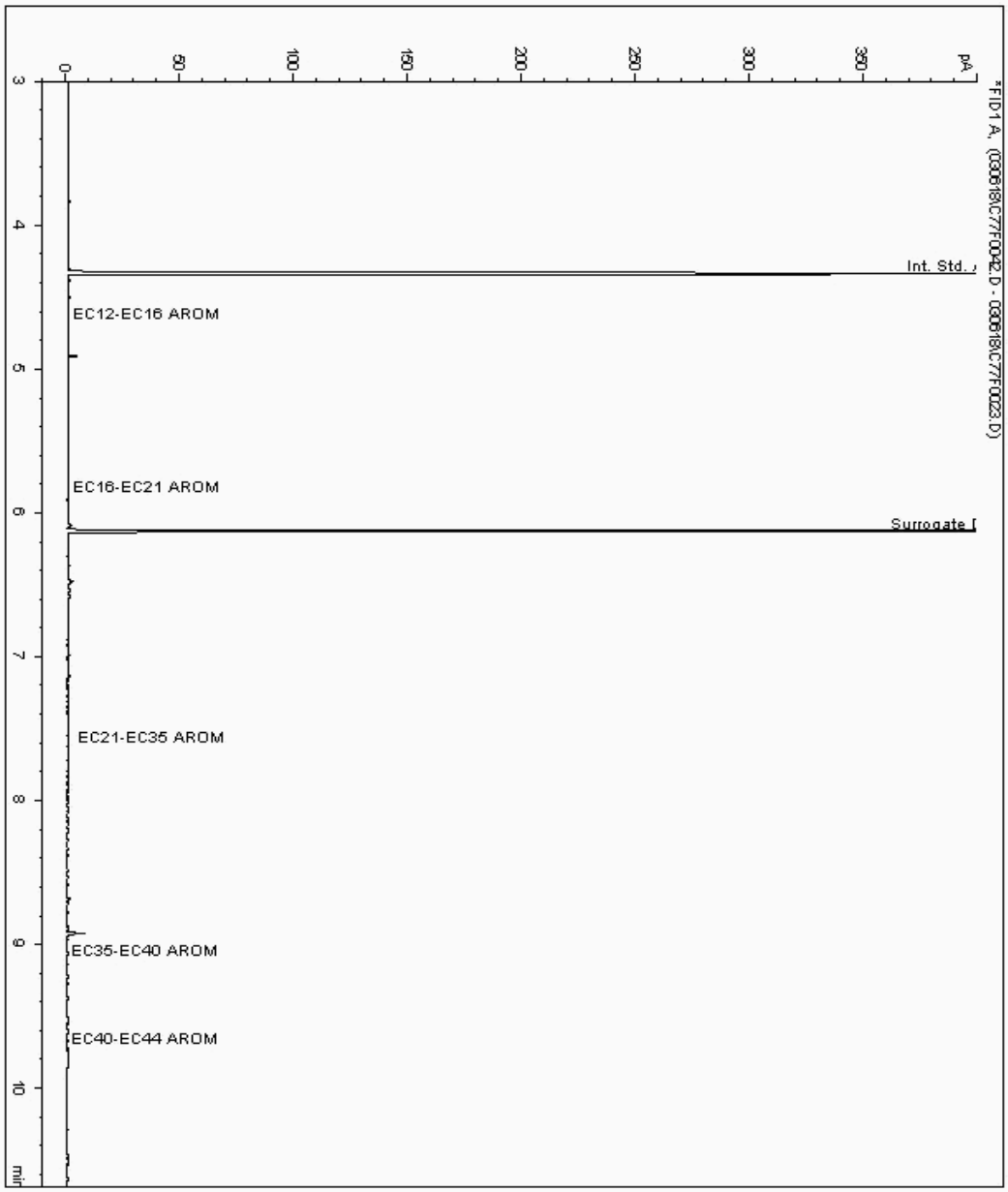


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17138200 **Sample ID :** BH-RPS-01 **Depth :** 5.00 - 5.50

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16084300-
Date Acquired : 07/03/2018 00:36:40 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Chromatogram

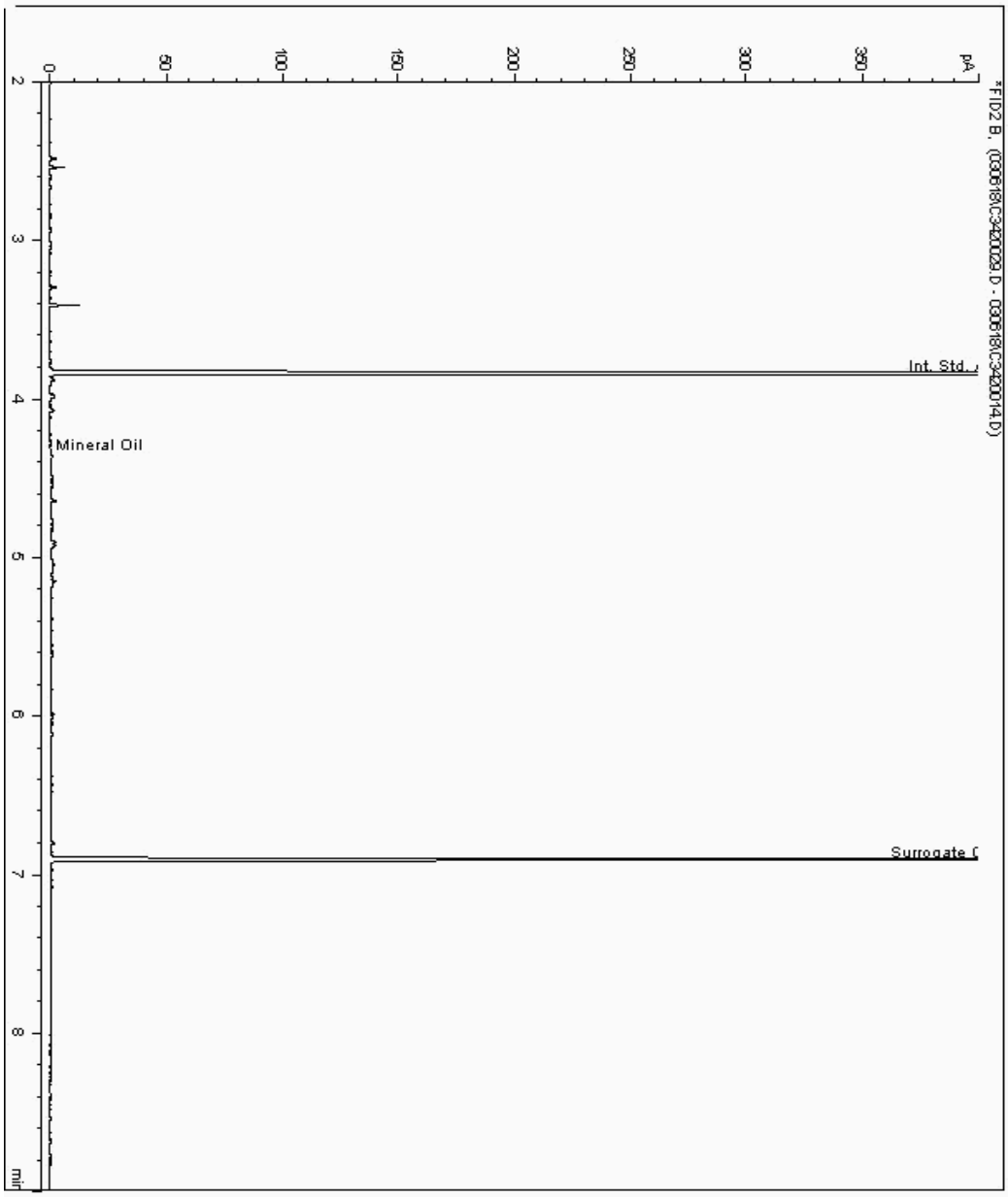
Analysis: Mineral Oil

Sample No : 17143829
Sample ID : BH-RPS-01

Depth : 5.00 - 5.50

Mineral Oil Range Organics (C10 - C40)

Sample Identity	:	16084278-
Date Acquired	:	06/03/2018 16:33:25 PM
Units	:	mg/kg
Sample Multiplier	:	0.000
Dilution	:	



CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Chromatogram

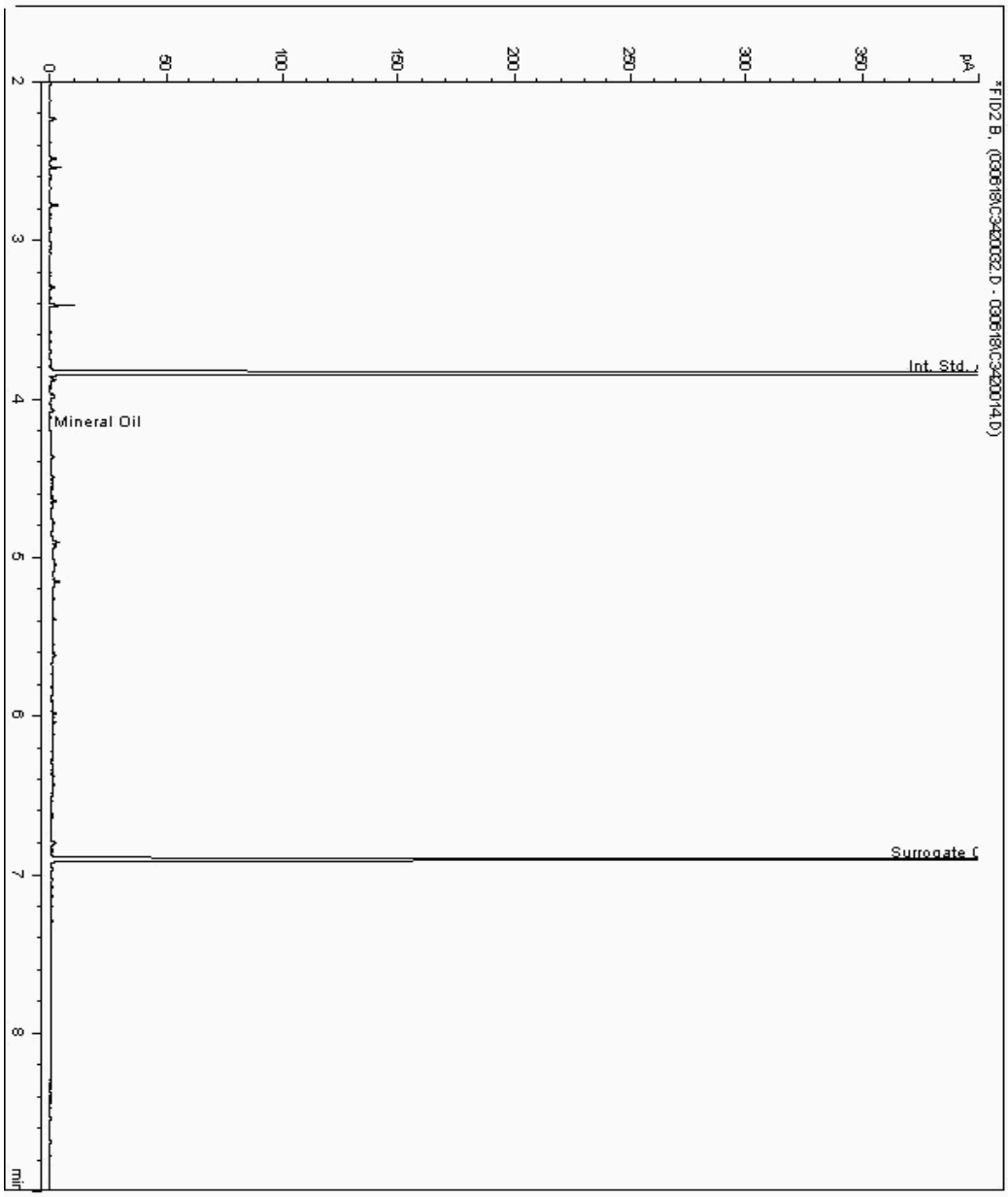
Analysis: Mineral Oil

Sample No : 17144731
Sample ID : BH-RPS-12

Depth : 6.50 - 6.80

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16084162-
Date Acquired : 06/03/2018 17:30:52 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Chromatogram

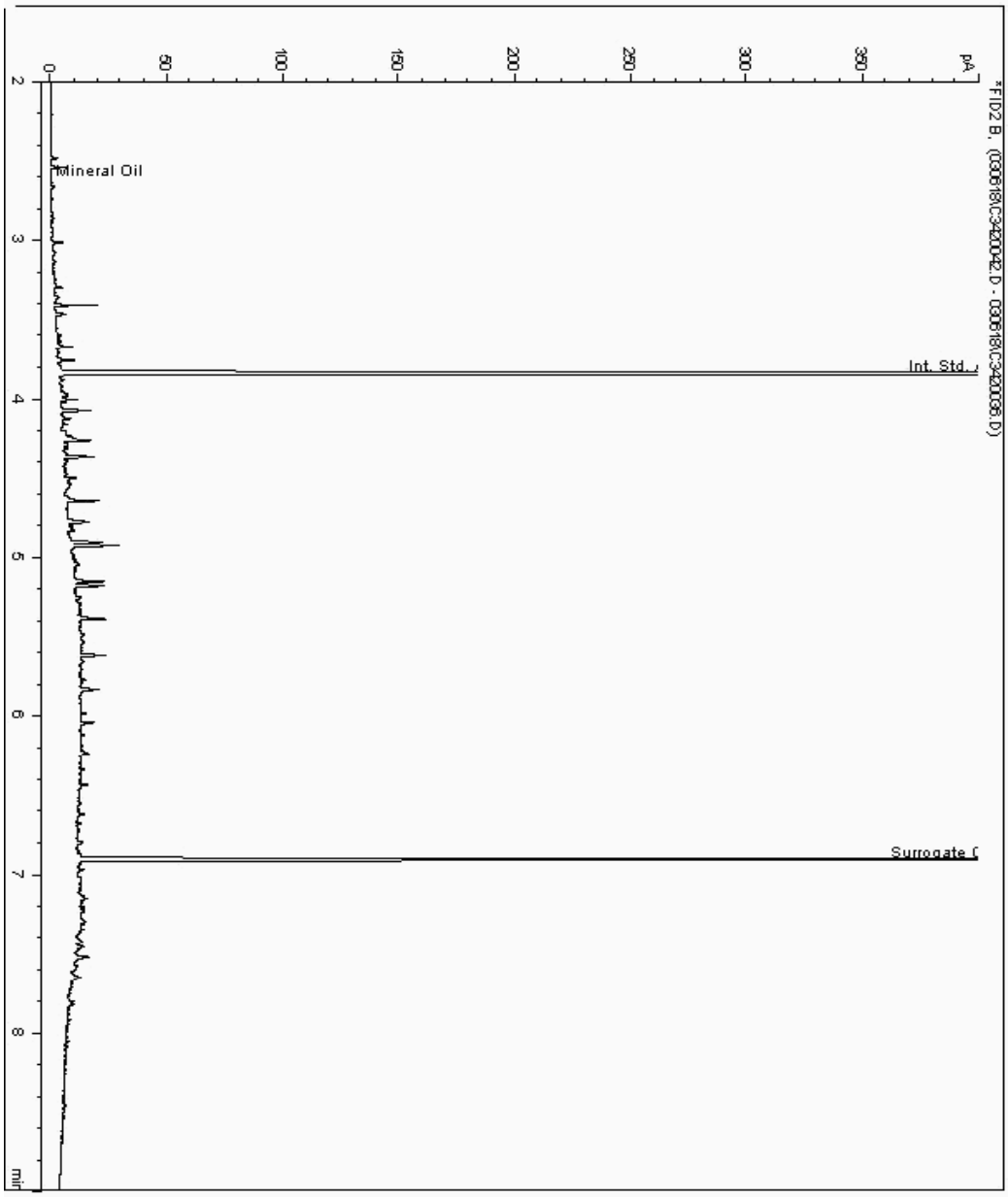
Analysis: Mineral Oil

Sample No : 17144949
Sample ID : BH-RPS-10

Depth : 0.70 - 0.90

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16084317-
Date Acquired : 06/03/2018 20:51:46 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Chromatogram

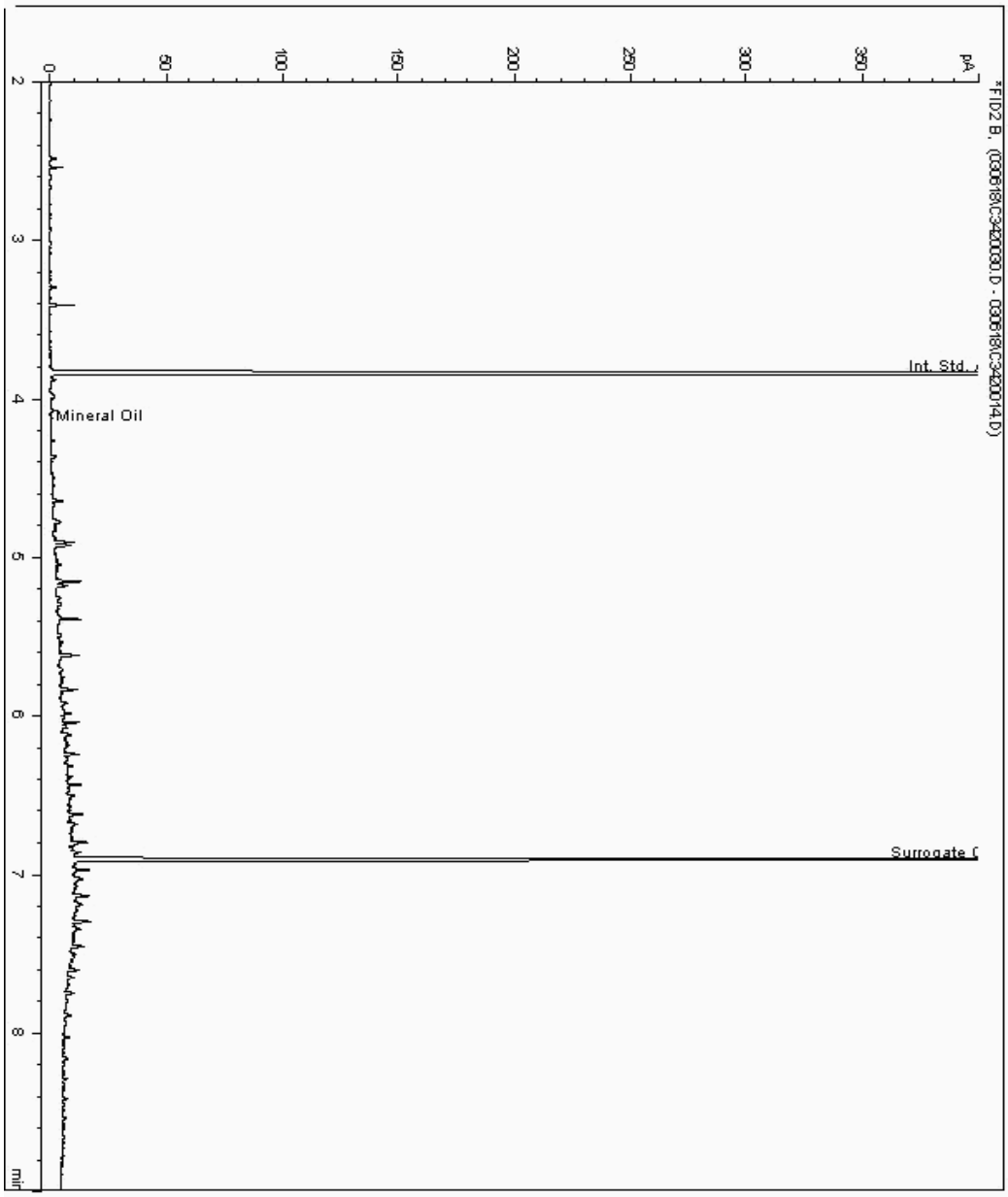
Analysis: Mineral Oil

Sample No : 17144971
Sample ID : BH-RPS-01

Depth : 1.20 - 1.50

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16084216-
Date Acquired : 06/03/2018 16:55:54 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



CERTIFICATE OF ANALYSIS

SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Chromatogram

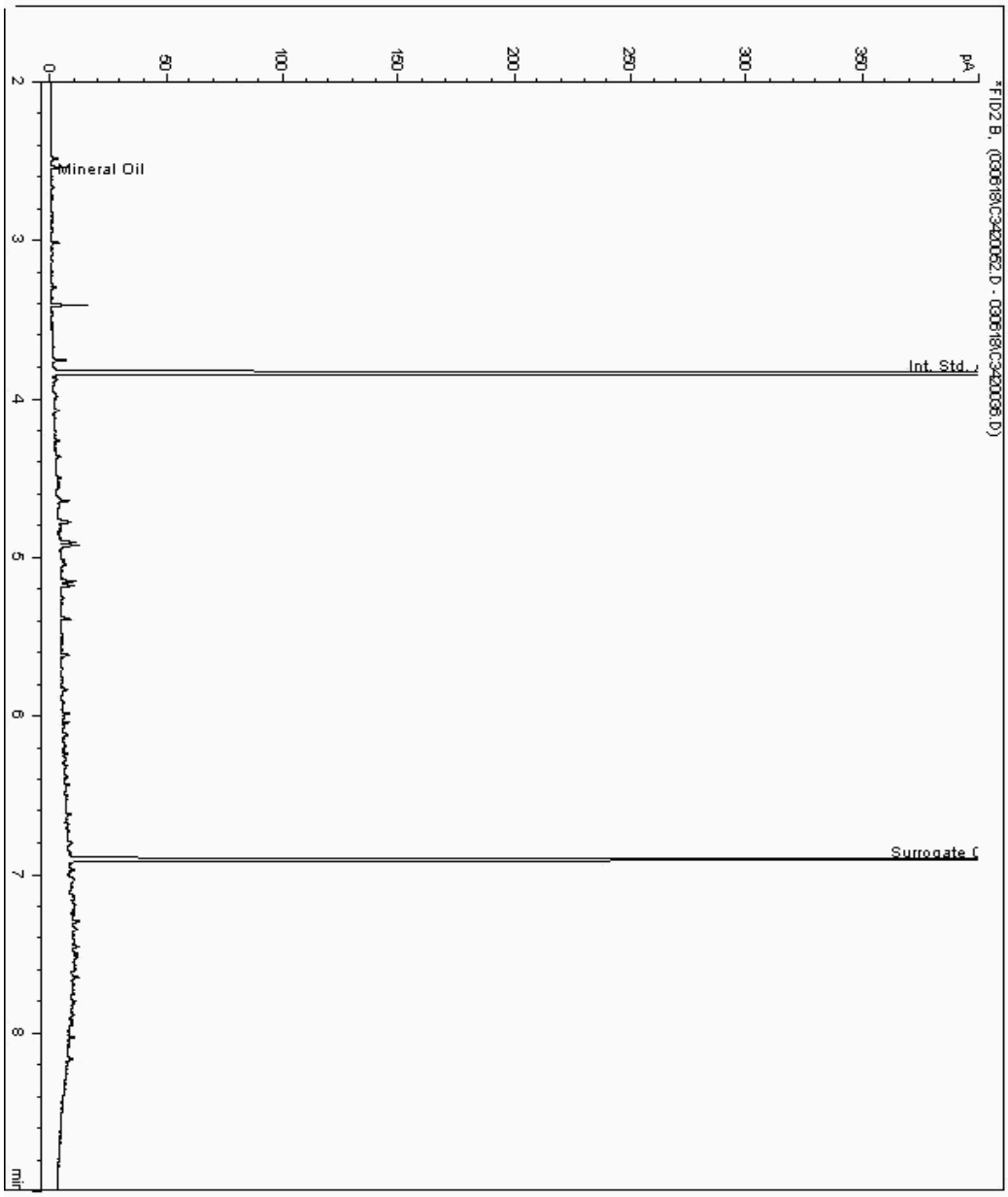
Analysis: Mineral Oil

Sample No : 17157840
Sample ID : BH-RPS-10

Depth : 3.50 - 3.80

Mineral Oil Range Organics (C10 - C40)

Sample Identity : 16084348-
Date Acquired : 07/03/2018 00:26:37 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution :



CERTIFICATE OF ANALYSIS

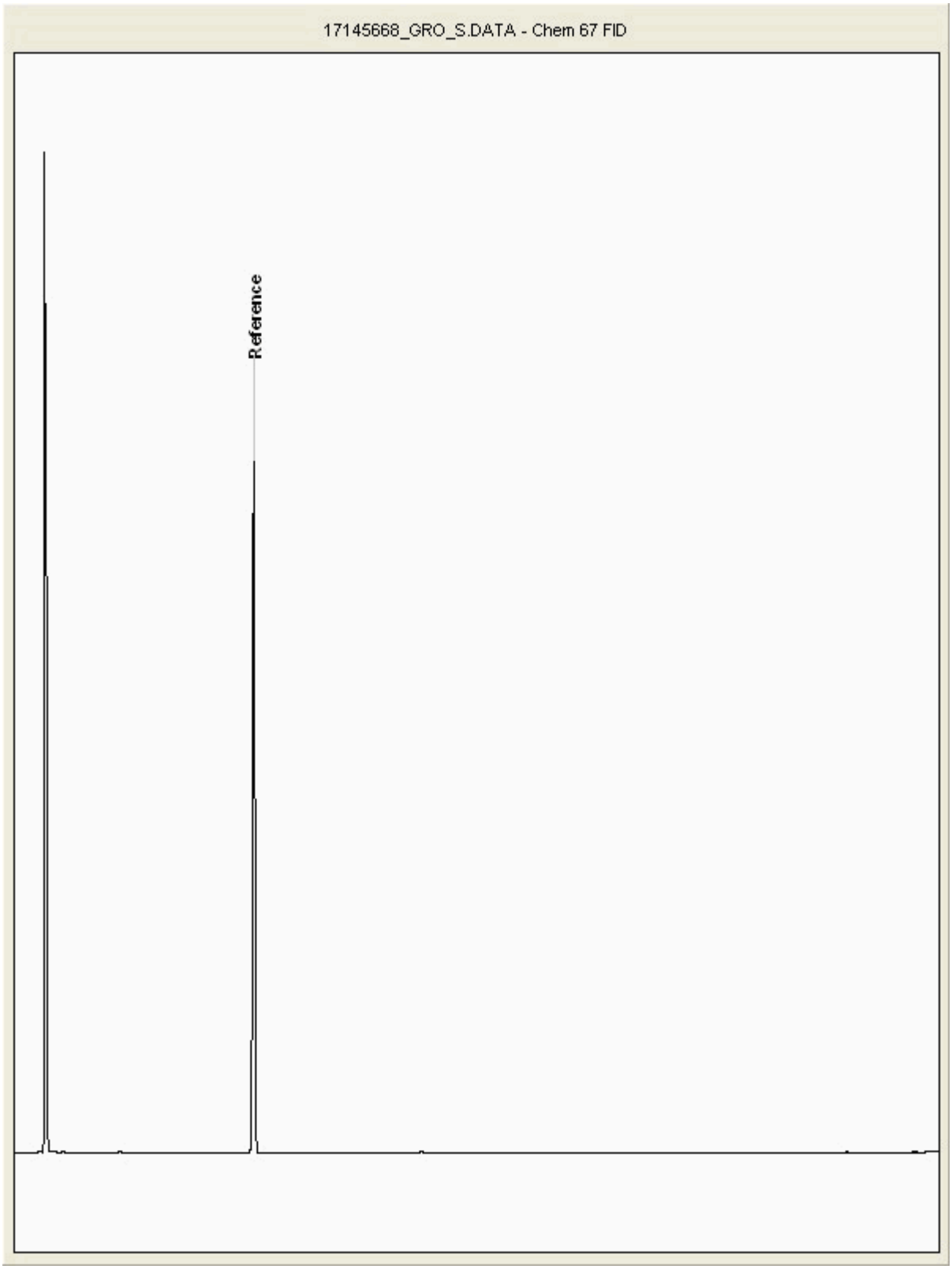
SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17145668
Sample ID : BH-RPS-12

Depth : 3.10 - 3.30

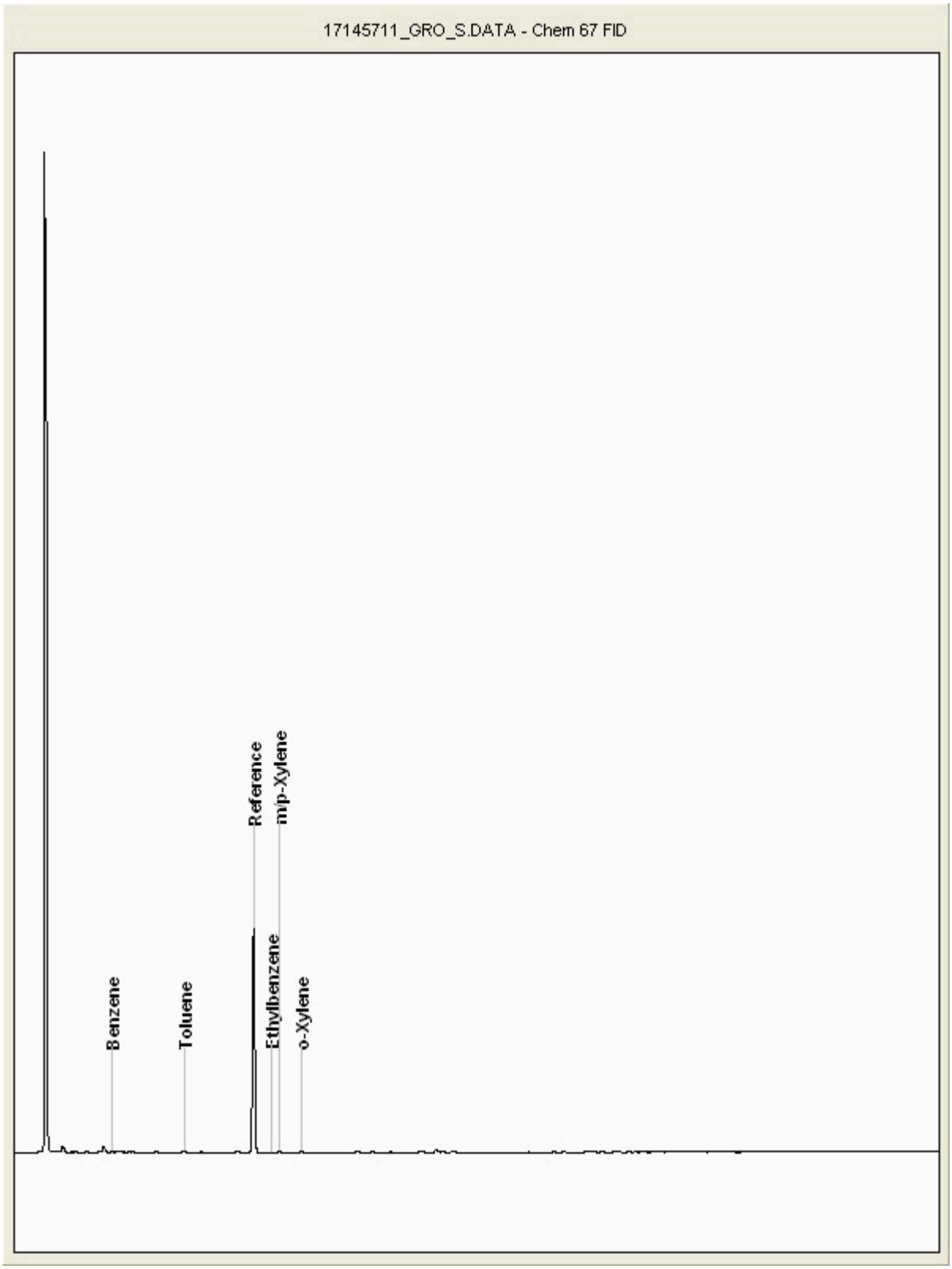


Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17145711
Sample ID : BH-RPS-10

Depth : 0.70 - 0.90

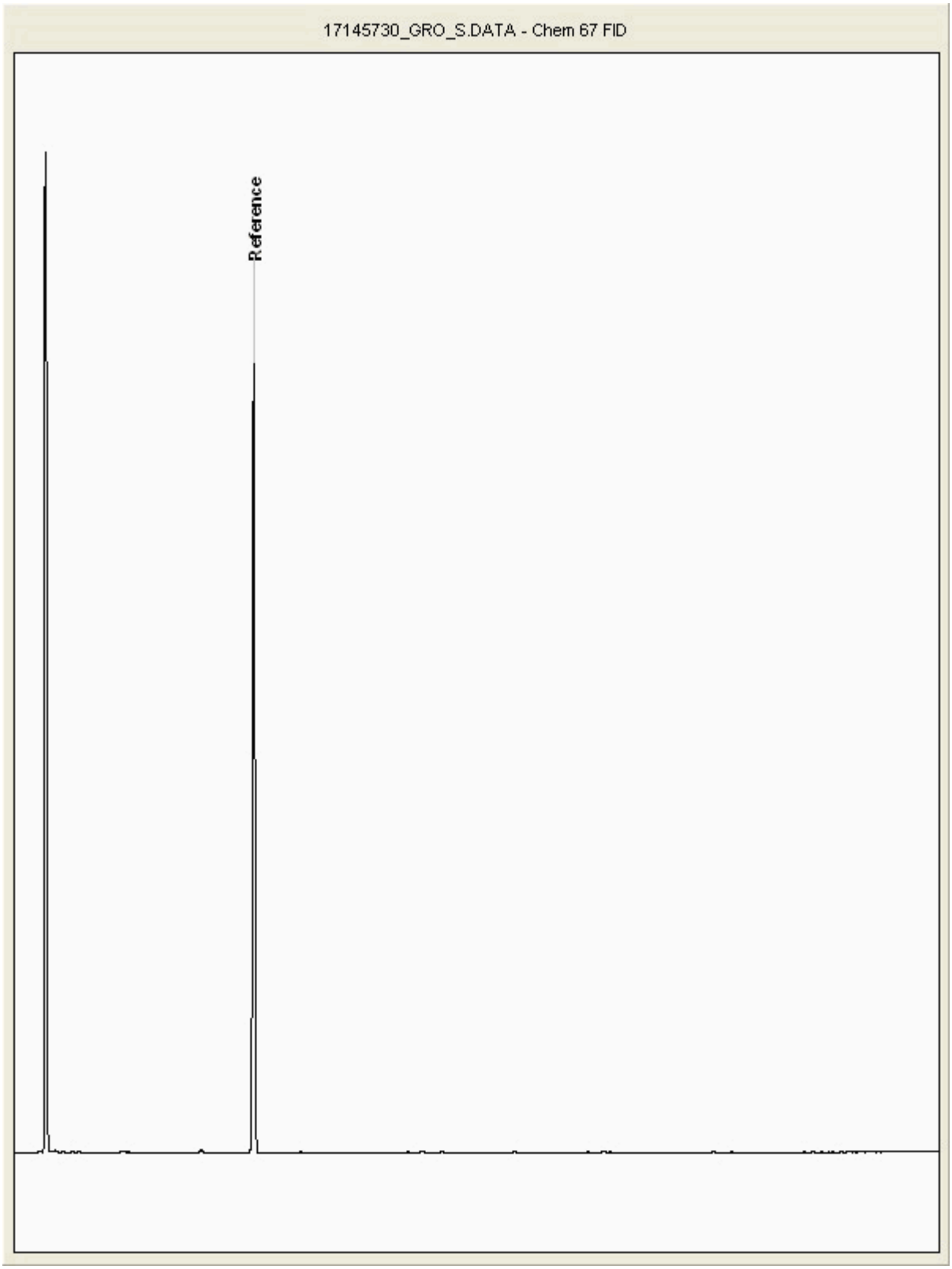


Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17145730
Sample ID : BH-RPS-01

Depth : 5.00 - 5.50



CERTIFICATE OF ANALYSIS

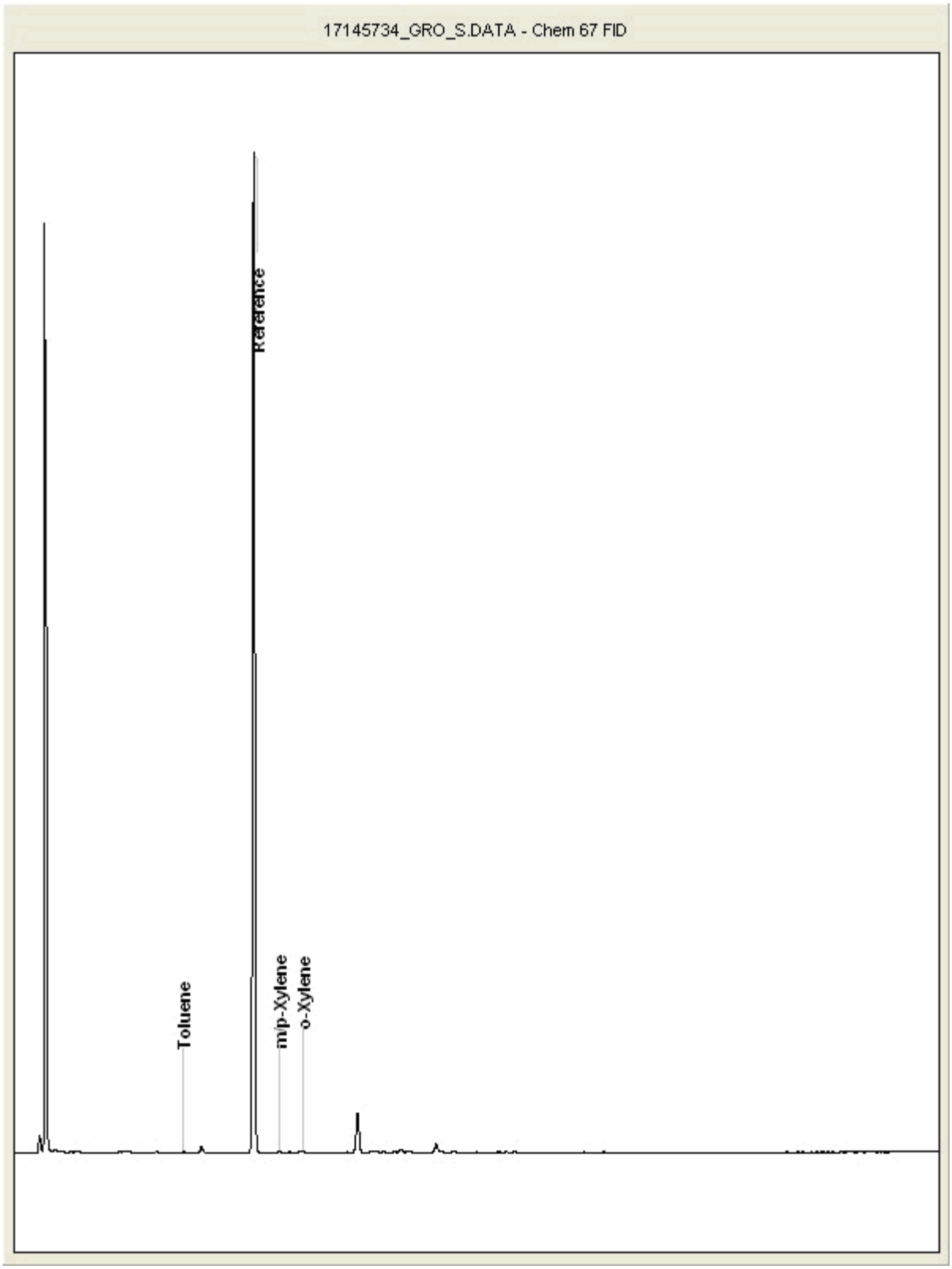
SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17145734
Sample ID : BH-RPS-10

Depth : 3.50 - 3.80



Validated

CERTIFICATE OF ANALYSIS

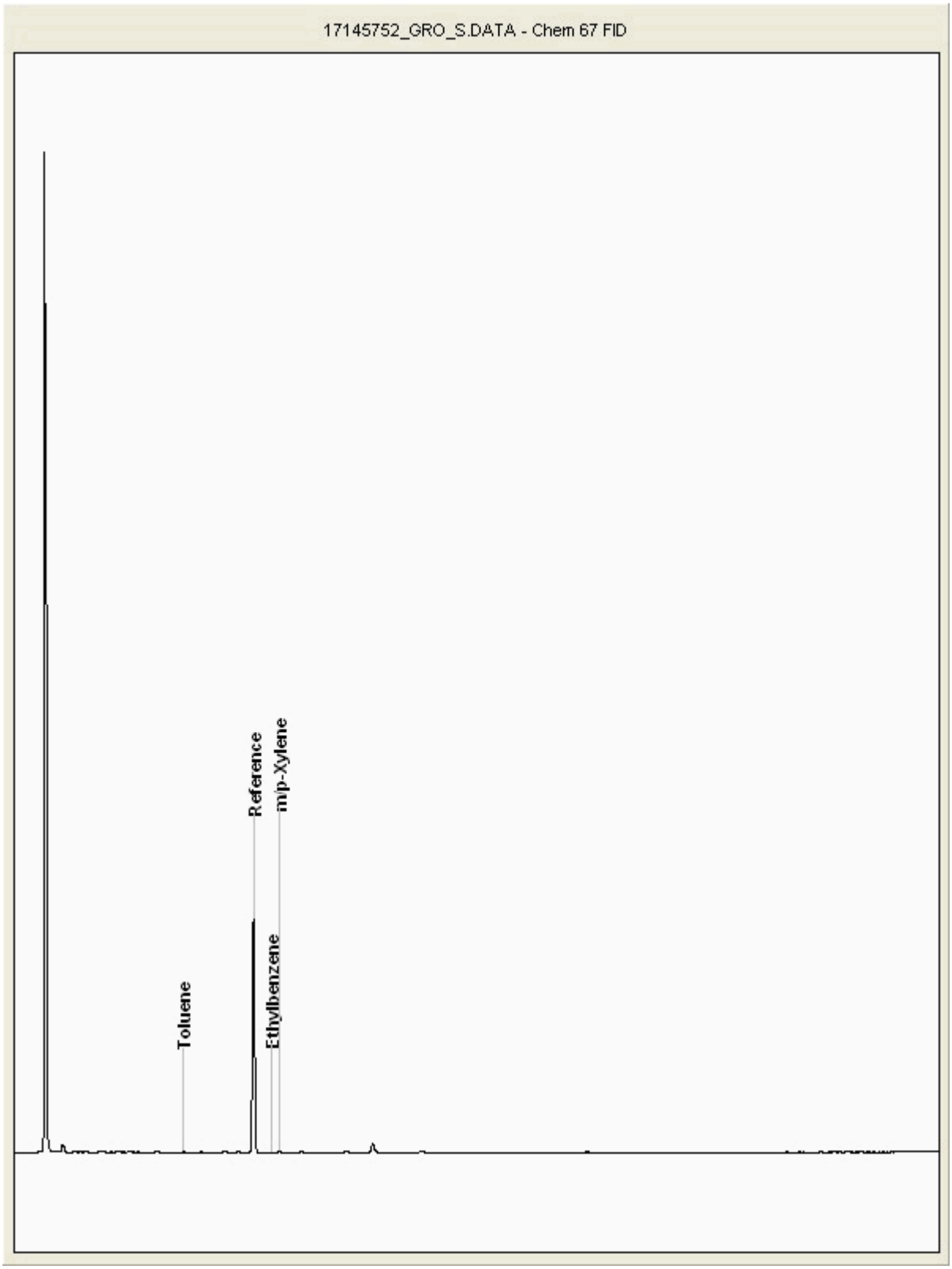
SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17145752
Sample ID : BH-RPS-01

Depth : 0.30 - 0.40

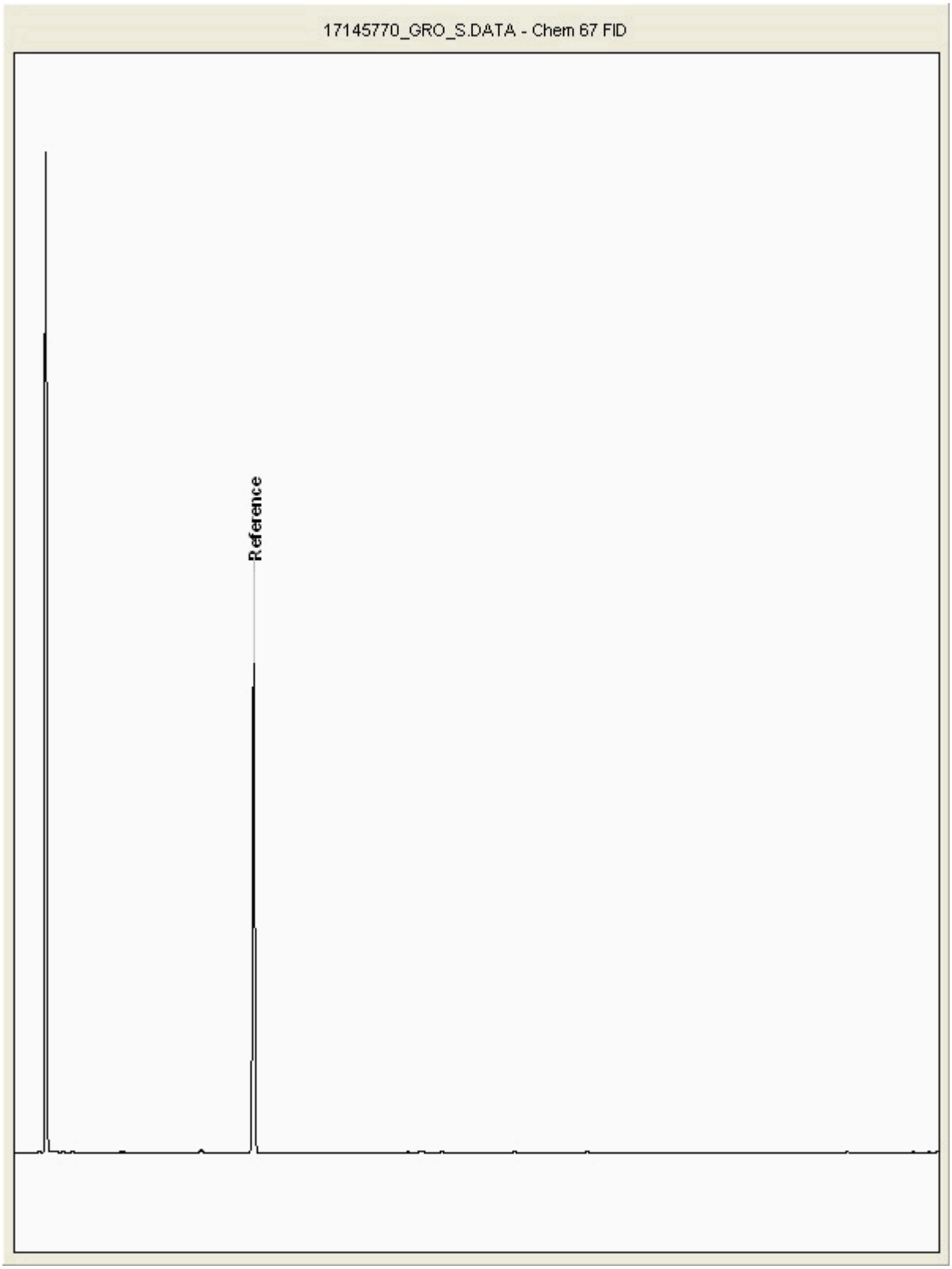


Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17145770
Sample ID : BH-RPS-01

Depth : 1.20 - 1.50



CERTIFICATE OF ANALYSIS

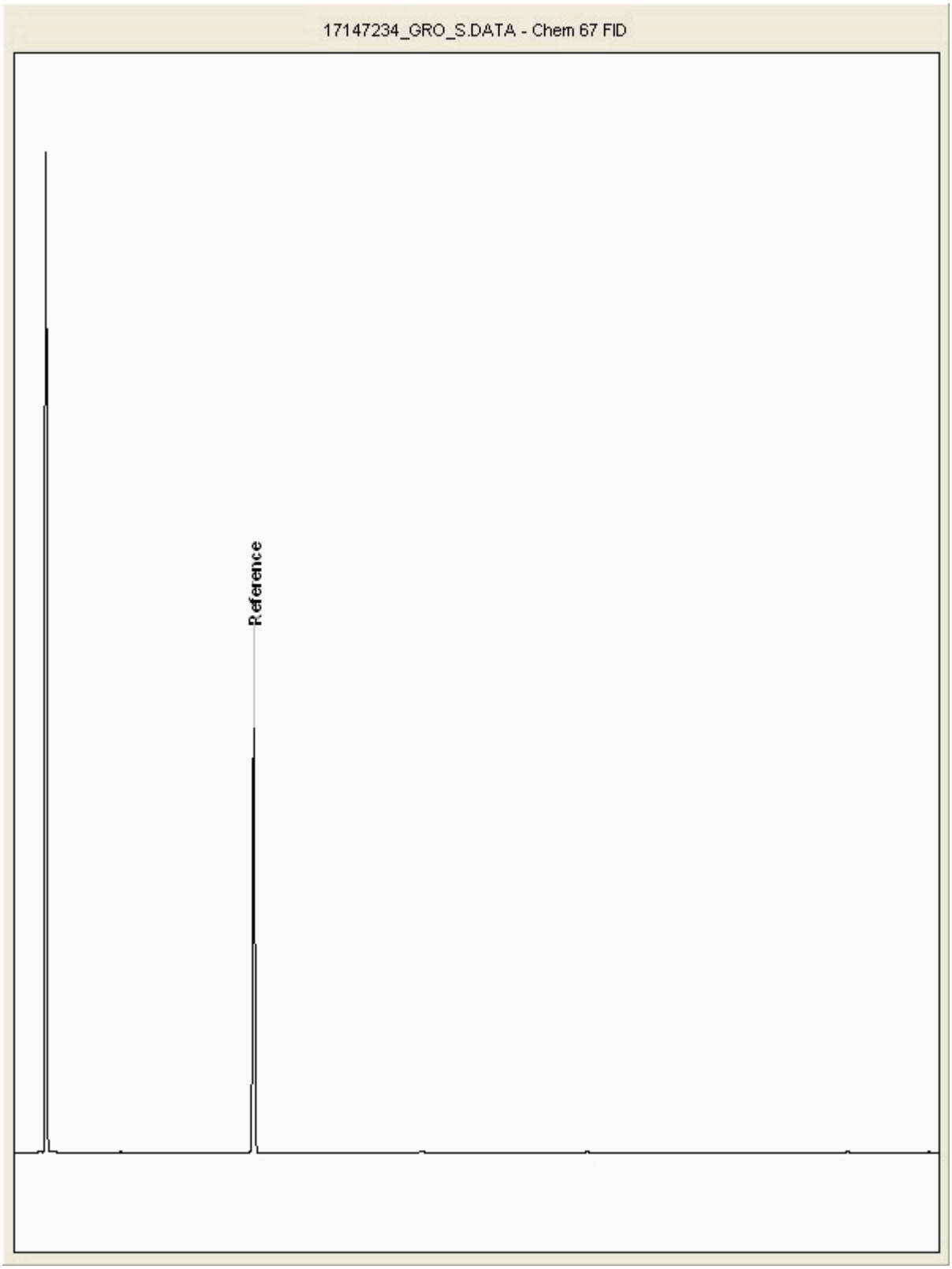
SDG:	180228-22	**Client Reference:**	JER1100	**Report Number:**	450852
Location:	Lostock	**Order Number:**	PO18-177	**Superseded Report:**	448813

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17147234
Sample ID : BH-RPS-10

Depth : 4.70 - 4.85

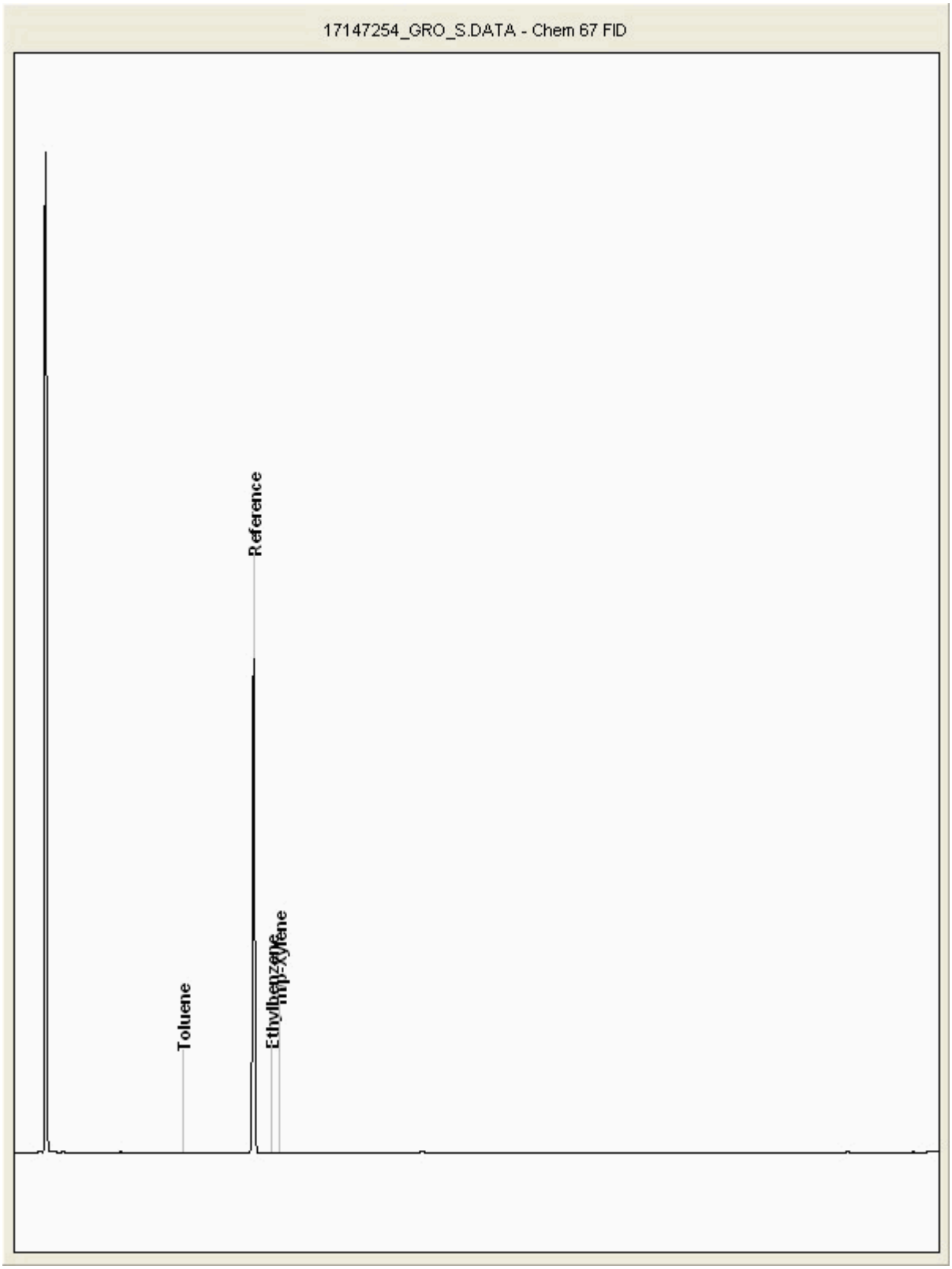


Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17147254
Sample ID : BH-RPS-10

Depth : 6.00 - 6.20

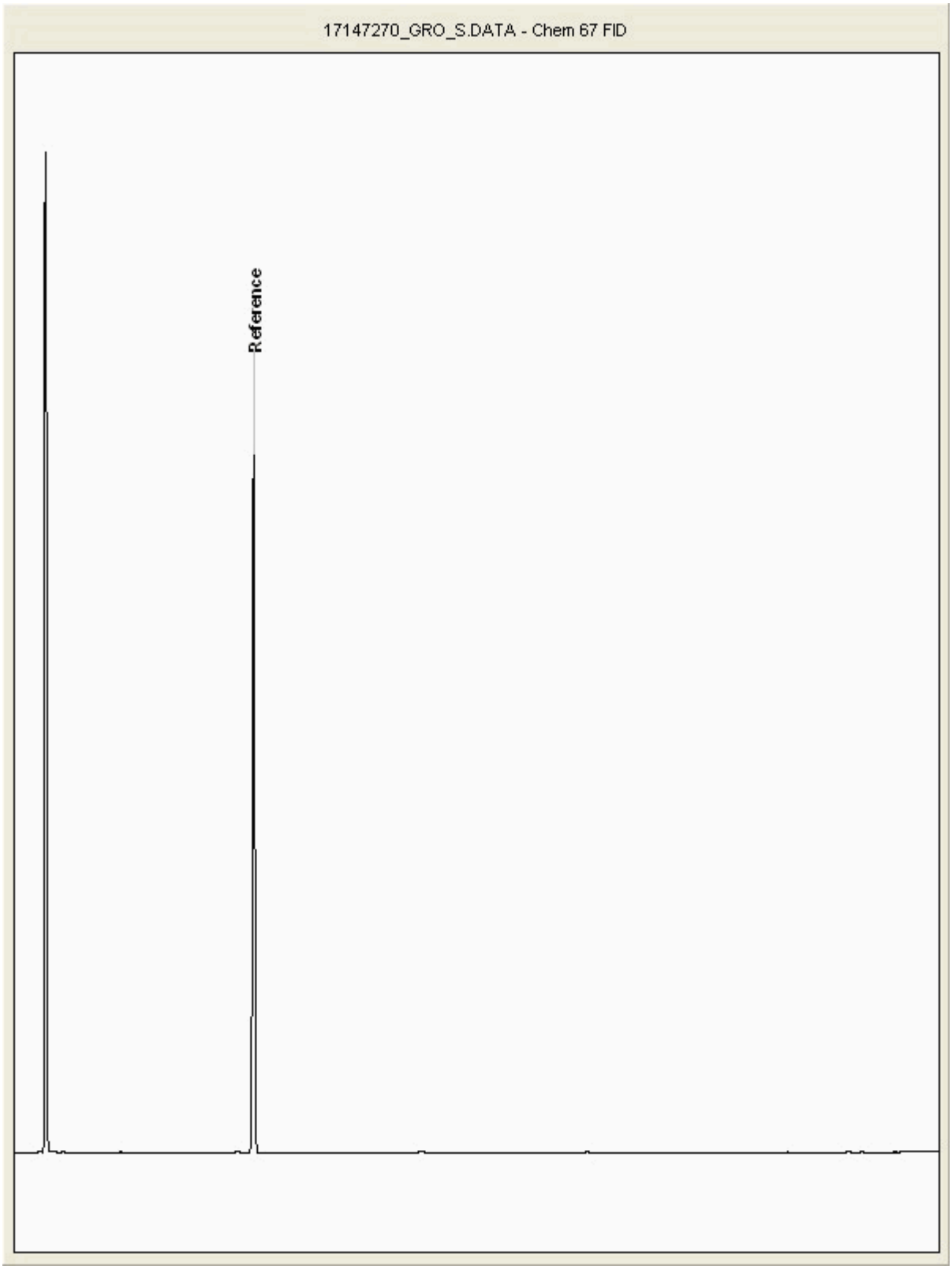


Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17147270
Sample ID : BH-RPS-12

Depth : 6.50 - 6.80



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	05 April 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180308-106
Your Reference:	JER1100
Location:	Lostock
Report No:	450506

This report has been revised and directly supersedes 449008 in its entirety.

We received 23 samples on Thursday March 08, 2018 and 7 of these samples were scheduled for analysis which was completed on Thursday April 05, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17173997	BH02A		0.20 - 0.50	
17174022	BH02A		0.45 - 0.50	
17174018	CP04A		3.00 - 3.50	
17173981	CP04A		5.00 - 5.50	
17174005	CP04A		6.50 - 7.00	
17174014	CP04A		8.80 - 9.30	
17173993	CPO4A		5.50 - 5.50	
17174060	CP-RPS-03	ES1	11.15 - 11.50	27/02/2018
17174070	CP-RPS-03	ES1	12.50 - 13.00	27/02/2018
17174172	CP-RPS-03	ES1	2.50 - 3.00	27/02/2018
17174024	CP-RPS-03	ES1	4.10 - 4.50	27/02/2018
17174036	CP-RPS-03	ES1	5.75 - 6.20	27/02/2018
17174052	CP-RPS-03	ES1	7.10 - 7.50	27/02/2018
17174044	CP-RPS-03	ES1	9.00 - 9.50	27/02/2018
17174157	CP-RPS-04a	ES1	0.30 - 0.50	28/02/2018
17174105	TP-RPS-04	ES1	0.75	28/02/2018
17174113	TP-RPS-04	ES1	1.20	28/02/2018
17174121	TP-RPS-04	ES1	1.60	28/02/2018
17174130	TP-RPS-04	ES1	2.50	28/02/2018
17174078	TP-RPS-45	ES1	0.00 - 0.50	28/02/2018
17174087	TP-RPS-45	ES1	1.30	28/02/2018
17174097	TP-RPS-45	ES1	2.00	28/02/2018
17174138	TP-RPS-50	ES1	0.50	28/02/2018

Maximum Sample/Coolbox Temperature (°C) : 6.5

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17173997			17174022	17174105			17174113	17174078			17174097			17174138		
Customer Sample Reference			BH02A			BH02A	TP-RPS-04			TP-RPS-04	TP-RPS-45			TP-RPS-45			TP-RPS-50		
AGS Reference							ES1			ES1	ES1			ES1			ES1		
Depth (m)			0.20 - 0.50			0.45 - 0.50	0.75			1.20	0.00 - 0.50			2.00			0.50		
Container			250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	400g Tub (ALE214)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (ALE210)	400g Tub (ALE214)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 5		X				X				X			X			X	
Asbestos Identification	All	NDPs: 0 Tests: 1				X													
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 5	X				X				X			X			X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 5	X				X				X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 5			X				X				X			X			X
Metals in solid samples by OES	All	NDPs: 0 Tests: 5	X				X				X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 5	X				X				X			X			X		
PCBs by GCMS	All	NDPs: 0 Tests: 2									X						X		
pH	All	NDPs: 0 Tests: 6	X				X			X	X			X			X		
Sample description	All	NDPs: 0 Tests: 6	X				X			X	X			X			X		
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 2									X						X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 5	X				X				X			X			X		
VOC MS (S)	All	NDPs: 0 Tests: 2											X						X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17173997	BH02A	0.20 - 0.50	Dark Brown	Loamy Sand	Stones	None
17174105	TP-RPS-04	0.75	Grey	Stone/Soil	Stones	None
17174113	TP-RPS-04	1.20	Dark Brown	Silt Loam	Vegetation	Stones
17174078	TP-RPS-45	0.00 - 0.50	Dark Brown	Loamy Sand	Stones	None
17174097	TP-RPS-45	2.00	Grey	Silt Loam	Stones	Coal fragments
17174138	TP-RPS-50	0.50	Black	Stone/Soil	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH02A	TP-RPS-04	TP-RPS-04	TP-RPS-45	TP-RPS-45	TP-RPS-50
Depth (m)			0.20 - 0.50	0.75	1.20	0.00 - 0.50	2.00	0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			-	28/02/2018	28/02/2018	28/02/2018	28/02/2018	28/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			08/03/2018	08/03/2018	08/03/2018	08/03/2018	08/03/2018	08/03/2018
SDG Ref			180308-106	180308-106	180308-106	180308-106	180308-106	180308-106
Lab Sample No.(s)			17173997	17174105	17174113	17174078	17174097	17174138
AGS Reference				ES1	ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	12 §	5.4	36	16	26	13
pH	1 pH Units	TM133	9.41 § M	9.14 #	8.32 M	8.8 M	8.69 M	9.88 #
PCB congener 118	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 81	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 77	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 123	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 114	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 105	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 126	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 167	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 156	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 157	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 169	<3 µg/kg	TM168				<3 M		<3 #
PCB congener 189	<3 µg/kg	TM168				<3 M		<3 #
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168				<36		<36
Antimony	<0.6 mg/kg	TM181	3.45 § #	<0.6 #		3.49 #	<0.6 #	12.1 #
Arsenic	<0.6 mg/kg	TM181	11.3 § M	2.64 #		53.5 M	14.4 M	484 #
Cadmium	<0.02 mg/kg	TM181	0.864 § M	0.521 #		0.612 M	0.0789 M	0.804 #
Chromium	<0.9 mg/kg	TM181	10.4 § M	4.75 #		17.1 M	3.6 M	2.86 #
Cobalt	<0.1 mg/kg	TM181	6.95 § M	1.36 #		16.1 M	1.25 M	13.7 #
Copper	<1.4 mg/kg	TM181	48 § M	7.98 #		82.5 M	9.14 M	196 #
Lead	<0.7 mg/kg	TM181	115 § M	32.8 #		72.7 M	10.5 M	286 #
Manganese	<0.13 mg/kg	TM181	243 § M	135 #		27700 M	97.4 M	4790 #
Mercury	<0.14 mg/kg	TM181	0.292 § M	<0.14 #		1.3 M	0.178 M	<0.14 #
Molybdenum	<0.1 mg/kg	TM181	3.26 § #	0.422 #		9.8 #	0.484 #	3.83 #
Nickel	<0.2 mg/kg	TM181	28.3 § M	4.56 #		47.1 M	3.04 M	30.9 #
Selenium	<1 mg/kg	TM181	<1 § #	<1 #		11.3 #	<1 #	4.81 #
Tin	<0.24 mg/kg	TM181	5.16 § #	0.346 #		4.4 #	0.397 #	29.4 #
Thallium	<0.7 mg/kg	TM181	<0.7 § #	<0.7 #		30.2 #	<0.7 #	7.27 #
Vanadium	<0.2 mg/kg	TM181	33.5 § #	5.39 #		28.2 #	4.85 #	24.2 #
Zinc	<1.9 mg/kg	TM181	146 § M	38.8 #		295 M	16.6 M	175 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH02A	TP-RPS-04	TP-RPS-45	TP-RPS-45	TP-RPS-50
Depth (m)			0.20 - 0.50	0.75	0.00 - 0.50	2.00	0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			-	28/02/2018	28/02/2018	28/02/2018	28/02/2018
Sampled Time			.	.	.	.	.
Date Received			08/03/2018	08/03/2018	08/03/2018	08/03/2018	08/03/2018
SDG Ref			180308-106	180308-106	180308-106	180308-106	180308-106
Lab Sample No.(s)			17173997	17174105	17174078	17174097	17174138
AGS Reference				ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**					
Naphthalene-d8 % recovery**	%	TM218	91.6 §	118	102	103	114
Acenaphthene-d10 % recovery**	%	TM218	94.5 §	122	102	103	121
Phenanthrene-d10 % recovery**	%	TM218	88 §	114	94.5	98	114
Chrysene-d12 % recovery**	%	TM218	75.2 §	103	90.5	96.4	110
Perylene-d12 % recovery**	%	TM218	66.8 §	107	87.9	91.9	113
Naphthalene	<9 µg/kg	TM218	114 § M	56.2 @ #	1150 M	<9 @ M	9820 @ #
Acenaphthylene	<12 µg/kg	TM218	29.3 § M	<12 @ #	45.6 M	<12 @ M	23300 @ #
Acenaphthene	<8 µg/kg	TM218	25.7 § M	<8 @ #	54.8 M	<8 @ M	3090 @ #
Fluorene	<10 µg/kg	TM218	21.2 § M	<10 @ #	55.2 M	<10 @ M	16400 @ #
Phenanthrene	<15 µg/kg	TM218	712 § M	94.6 @ #	1360 M	<15 @ M	149000 @ #
Anthracene	<16 µg/kg	TM218	130 § M	20 @ #	184 M	<16 @ M	45300 @ #
Fluoranthene	<17 µg/kg	TM218	1320 § M	73.8 @ #	2060 M	30.4 @ M	164000 @ #
Pyrene	<15 µg/kg	TM218	1070 § M	64.7 @ #	1730 M	28 @ M	122000 @ #
Benz(a)anthracene	<14 µg/kg	TM218	614 § M	48.3 @ #	1080 M	<14 @ M	85300 @ #
Chrysene	<10 µg/kg	TM218	599 § M	52.9 @ #	1080 M	14.6 @ M	66100 @ #
Benzo(b)fluoranthene	<15 µg/kg	TM218	894 § M	77.1 @ #	1460 M	20.5 @ M	82500 @ #
Benzo(k)fluoranthene	<14 µg/kg	TM218	383 § M	22.3 @ #	673 M	<14 @ M	28800 @ #
Benzo(a)pyrene	<15 µg/kg	TM218	536 § M	39.5 @ #	1140 M	<15 @ M	64300 @ #
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	362 § M	25.8 @ #	642 M	<18 @ M	23400 @ #
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	128 § M	<23 @ #	196 M	<23 @ M	9840 @ #
Benzo(g,h,i)perylene	<24 µg/kg	TM218	451 § M	43.7 @ #	865 M	<24 @ M	25200 @ #
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	7400 §	619	13800	<118	919000

Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-45	TP-RPS-50				
Depth (m)			0.00 - 0.50	0.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			28/02/2018	28/02/2018				
Sampled Time			.	.				
Date Received			08/03/2018	08/03/2018				
SDG Ref			180308-106	180308-106				
Lab Sample No.(s)			17174078	17174138				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
Phenol	<100 µg/kg	TM157	<100	3100				
Pentachlorophenol	<100 µg/kg	TM157	<100	<2000				
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<2000				
Nitrobenzene	<100 µg/kg	TM157	<100	<2000				
Isophorone	<100 µg/kg	TM157	<100	<2000				
Hexachloroethane	<100 µg/kg	TM157	<100	<2000				
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<2000				
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<2000				
Hexachlorobenzene	<100 µg/kg	TM157	<100	<2000				
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<2000				
Dimethyl phthalate	<100 µg/kg	TM157	<100	<2000				
Diethyl phthalate	<100 µg/kg	TM157	<100	<2000				
n-Dibutyl phthalate	<100 µg/kg	TM157	<100	<2000				
Dibenzofuran	<100 µg/kg	TM157	<100	24200				
Carbazole	<100 µg/kg	TM157	<100	18000				
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<2000				
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	241	<2000				
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<2000				
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<2000				
Azobenzene	<100 µg/kg	TM157	<100	<2000				
4-Nitrophenol	<100 µg/kg	TM157	<100	<2000				
4-Nitroaniline	<100 µg/kg	TM157	<100	<2000				
4-Methylphenol	<100 µg/kg	TM157	<100	5380				
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<2000				
4-Chloroaniline	<100 µg/kg	TM157	<100	<2000				
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<2000				
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<2000				
3-Nitroaniline	<100 µg/kg	TM157	<100	<2000				
2-Nitrophenol	<100 µg/kg	TM157	<100	<2000				
2-Nitroaniline	<100 µg/kg	TM157	<100	<2000				
2-Methylphenol	<100 µg/kg	TM157	<100	<2000				
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<2000				

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-45	TP-RPS-50				
Depth (m)			0.00 - 0.50	0.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			28/02/2018	28/02/2018				
Sampled Time			-	-				
Date Received			08/03/2018	08/03/2018				
SDG Ref			180308-106	180308-106				
Lab Sample No.(s)			17174078	17174138				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100	<2000				
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100	<2000				
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100	<2000				
2,4-Dimethylphenol	<100 µg/kg	TM157	<100	<2000				
2,4-Dichlorophenol	<100 µg/kg	TM157	<100	<2000				
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100	<2000				
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100	<2000				
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100	<2000				
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100	<2000				
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100	<2000				
2-Chloronaphthalene	<100 µg/kg	TM157	<100	<2000				
2-Methylnaphthalene	<100 µg/kg	TM157	374	6970				
Acenaphthylene	<100 µg/kg	TM157	<100	32300				
Acenaphthene	<100 µg/kg	TM157	<100	5060				
Anthracene	<100 µg/kg	TM157	205	83700				
Benzo(a)anthracene	<100 µg/kg	TM157	1140	137000				
Benzo(b)fluoranthene	<100 µg/kg	TM157	912	63200				
Benzo(k)fluoranthene	<100 µg/kg	TM157	1140	71200				
Benzo(a)pyrene	<100 µg/kg	TM157	1220	83500				
Benzo(g,h,i)perylene	<100 µg/kg	TM157	711	28700				
Chrysene	<100 µg/kg	TM157	1150	120000				
Fluoranthene	<100 µg/kg	TM157	1980	295000				
Fluorene	<100 µg/kg	TM157	<100	29200				
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	728	37200				
Phenanthrene	<100 µg/kg	TM157	1020	304000				
Pyrene	<100 µg/kg	TM157	1760	255000				
Naphthalene	<100 µg/kg	TM157	399	8640				
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	262	9310				
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100	<2000				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH02A	TP-RPS-04	TP-RPS-45	TP-RPS-45	TP-RPS-50
Depth (m)			0.20 - 0.50	0.75	0.00 - 0.50	2.00	0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			-	28/02/2018	28/02/2018	28/02/2018	28/02/2018
Sampled Time			.	.	.	.	.
Date Received			08/03/2018	08/03/2018	08/03/2018	08/03/2018	08/03/2018
SDG Ref			180308-106	180308-106	180308-106	180308-106	180308-106
Lab Sample No.(s)			17173997	17174105	17174078	17174097	17174138
AGS Reference				ES1	ES1	ES1	ES1
Component	**LOD/Units**	**Method**					
GRO Surrogate % recovery**	%	TM089	42 §	79	71	93 @	32
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	85.5 § M	<44 #	72.6 M	<44 @ M	<44 #
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 § #	<5 #	<5 #	<5 @ #	<5 #
Benzene	<10 µg/kg	TM089	<10 § M	<10 #	<10 M	<10 @ M	<10 #
Toluene	<2 µg/kg	TM089	2.28 § M	2.11 #	2.38 M	<2 @ M	9.2 #
Ethylbenzene	<3 µg/kg	TM089	<3 § M	<3 #	<3 M	<3 @ M	<3 #
m,p-Xylene	<6 µg/kg	TM089	<6 § M	<6 #	<6 M	<6 @ M	<6 #
o-Xylene	<3 µg/kg	TM089	<3 § M	<3 #	<3 M	<3 @ M	<3 #
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9 §	<9	<9	<9 @	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24 §	<24	<24	<24 @	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	12.5 §	<10	<10	<10 @	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	11.4 §	<10	13.1	<10 @	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	18.2 §	<10	10.7	<10 @	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	12.5 §	<10	14.3	14.9 @	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	111 §	9260	2900	<100	37600
Aliphatics >C16-C21	<100 µg/kg	TM173	2980 §	1950	7260	<100	49200
Aliphatics >C21-C35	<100 µg/kg	TM173	33400 §	29900	43400	10000	104000
Aliphatics >C35-C44	<100 µg/kg	TM173	4510 §	5270	9530	1020	10200
Total Aliphatics >C12-C44	<100 µg/kg	TM173	41000 §	46400	63000	11000	201000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10 §	<10	<10	<10 @	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10 §	<10	<10	<10 @	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	19.4 §	<10	13.1	<10 @	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10 §	<10	<10	10.8 @	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	1390 §	11500	7110	<100	232000
Aromatics >EC16-EC21	<100 µg/kg	TM173	8290 §	9240	13500	616	1220000
Aromatics >EC21-EC35	<100 µg/kg	TM173	43300 §	17900	39300	3380	1830000
Aromatics >EC35-EC44	<100 µg/kg	TM173	19800 §	7650	20400	<100	262000
Aromatics >EC40-EC44	<100 µg/kg	TM173	7190 §	2860	9440	<100	78200
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	72700 §	46400	80300	3990	3550000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	114000 §	92800	143000	15000	3750000

Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-45	TP-RPS-50				
Depth (m)			0.00 - 0.50	0.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			28/02/2018	28/02/2018				
Sampled Time			.	.				
Date Received			08/03/2018	08/03/2018				
SDG Ref			180308-106	180308-106				
Lab Sample No.(s)			17174078	17174138				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	98.5	97.8				
Toluene-d8**	%	TM116	98.9	100				
4-Bromofluorobenzene**	%	TM116	89.3	92				
Dichlorodifluoromethane	<6 µg/kg	TM116	<60 M	<120 #				
Chloromethane	<7 µg/kg	TM116	<70 #	<140 #				
Vinyl Chloride	<6 µg/kg	TM116	<60 M	<120 #				
Bromomethane	<10 µg/kg	TM116	<100 M	<200 #				
Chloroethane	<10 µg/kg	TM116	<100 M	<200 #				
Trichlorofluorormethane	<6 µg/kg	TM116	<60 M	<120 #				
1,1-Dichloroethene	<10 µg/kg	TM116	<100 #	<200 #				
Carbon Disulphide	<7 µg/kg	TM116	<70 M	<140 #				
Dichloromethane	<10 µg/kg	TM116	<100 #	<200 #				
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<100 M	<200 #				
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<100 M	<200 #				
1,1-Dichloroethane	<8 µg/kg	TM116	<80 M	<160 #				
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<60 M	<120 #				
2,2-Dichloropropane	<10 µg/kg	TM116	<100	<200				
Bromochloromethane	<10 µg/kg	TM116	<100 M	<200 #				
Chloroform	<8 µg/kg	TM116	<80 M	<160 #				
1,1,1-Trichloroethane	<7 µg/kg	TM116	<70 M	<140 #				
1,1-Dichloropropene	<10 µg/kg	TM116	<100 M	<200 #				
Carbontetrachloride	<10 µg/kg	TM116	<100 M	<200 #				
1,2-Dichloroethane	<5 µg/kg	TM116	<50 M	<100 #				
Benzene	<9 µg/kg	TM116	- M	<180 #				
Trichloroethene	<9 µg/kg	TM116	<90 #	<180 #				
1,2-Dichloropropane	<10 µg/kg	TM116	<100 M	<200 #				
Dibromomethane	<9 µg/kg	TM116	<90 M	<180 #				
Bromodichloromethane	<7 µg/kg	TM116	<70 M	<140 #				
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<100 M	<200 #				
Toluene	<7 µg/kg	TM116	<70 M	<140 #				
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<100	<200				
1,1,2-Trichloroethane	<10 µg/kg	TM116	<100 M	<200 #				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-45		TP-RPS-50					
Depth (m)			0.00 - 0.50		0.50					
Sample Type			Soil/Solid (S)		Soil/Solid (S)					
Date Sampled			28/02/2018		28/02/2018					
Sampled Time			-		-					
Date Received			08/03/2018		08/03/2018					
SDG Ref			180308-106		180308-106					
Lab Sample No.(s)			17174078		17174138					
AGS Reference			ES1		ES1					
Component	**LOD/Units**	**Method**								
1,3-Dichloropropane	<7 µg/kg	TM116	<70	M	<140	#				
Tetrachloroethene	<5 µg/kg	TM116	<50	M	<100	#				
Dibromochloromethane	<10 µg/kg	TM116	<100	M	<200	#				
1,2-Dibromoethane	<10 µg/kg	TM116	<100	M	<200	#				
Chlorobenzene	<5 µg/kg	TM116	<50	M	<100	#				
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<100	M	<200	#				
Ethylbenzene	<4 µg/kg	TM116	<40	M	<80	#				
p/m-Xylene	<10 µg/kg	TM116	<100	#	<200	#				
o-Xylene	<10 µg/kg	TM116	<100	M	<200	#				
Styrene	<10 µg/kg	TM116	<100	#	<200	#				
Bromoform	<10 µg/kg	TM116	<100	M	<200	#				
Isopropylbenzene	<5 µg/kg	TM116	<50	#	<100	#				
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<100	#	<200	#				
1,2,3-Trichloropropane	<16 µg/kg	TM116	<160	M	<320	#				
Bromobenzene	<10 µg/kg	TM116	<100	M	<200	#				
Propylbenzene	<10 µg/kg	TM116	<100	M	<200	#				
2-Chlorotoluene	<9 µg/kg	TM116	<90	M	<180	#				
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<80	M	<160	#				
4-Chlorotoluene	<10 µg/kg	TM116	<100	M	<200	#				
tert-Butylbenzene	<14 µg/kg	TM116	<140	M	<280	#				
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<90	#	<180	#				
sec-Butylbenzene	<10 µg/kg	TM116	<100		<200					
4-Isopropyltoluene	<10 µg/kg	TM116	<100	M	<200	#				
1,3-Dichlorobenzene	<8 µg/kg	TM116	<80	M	<160	#				
1,4-Dichlorobenzene	<5 µg/kg	TM116	<50	M	<100	#				
n-Butylbenzene	<11 µg/kg	TM116	<110		<220					
1,2-Dichlorobenzene	<10 µg/kg	TM116	<100	M	<200	#				
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<140	M	<280	#				
Tert-amyl methyl ether	<10 µg/kg	TM116	<100	#	<200	#				
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<200		<400					
Hexachlorobutadiene	<20 µg/kg	TM116	<200		<400					
Naphthalene	<13 µg/kg	TM116	<130	M	<260	#				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP-RPS-45	TP-RPS-50				
Depth (m)			0.00 - 0.50	0.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			28/02/2018	28/02/2018				
Sampled Time			-	-				
Date Received			08/03/2018	08/03/2018				
SDG Ref			180308-106	180308-106				
Lab Sample No.(s)			17174078	17174138				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<200 #	<400 #				

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Asbestos Identification - Bulk

		Date of Analysis	Analysed by	Comments	Actinolite, Fibrous	Anthophyllite, Fibrous	Asbestos, Amosite (brown)	Asbestos, Chrysotile (white)	Asbestos, Crocidolite (blue)	Non-asbestos fibre	Tremolite, Fibrous
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH02A 0.45 - 0.50 SOLID 08/03/2018 16:08:55 180308-106 17174022 TM048	20/03/2018	James Richards	Material typical of asbestos cement	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected	Not Detected (#)

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH02A 0.20 - 0.50 SOLID 29/03/2018 13:52:03 180308-106 17173997 TM048	04/04/2018	Renata Bozhkov	Loose fibres in soil	Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-04 ES 1 0.75 SOLID 28/02/2018 00:00:00 09/03/2018 08:15:03 180308-106 17174105 TM048	14/03/2018	Barbara Urbanek-Walsh	Loose fibres in soil.	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-45 ES 1 0.00 - 0.50 SOLID 28/02/2018 00:00:00 09/03/2018 17:13:18 180308-106 17174078 TM048	14/03/2018	Barbara Urbanek-Walsh	Loose fibre in soil.	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-45 ES 1 2.00 SOLID 28/02/2018 00:00:00 19/03/2018 14:31:52 180308-106 17174097 TM048	21/03/2018	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-50 ES 1 0.50 SOLID 28/02/2018 00:00:00 08/03/2018 21:09:00 180308-106 17174138 TM048	14/03/2018	James Richards	Fibre bundles in soil	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Test Completion Dates

Lab Sample No(s)	17173997	17174022	17174105	17174113	17174078	17174097	17174138
Customer Sample Ref.	BH02A	BH02A	TP-RPS-04	TP-RPS-04	TP-RPS-45	TP-RPS-45	TP-RPS-50
AGS Ref.			ES1	ES1	ES1	ES1	ES1
Depth	0.20 - 0.50	0.45 - 0.50	0.75	1.20	0.00 - 0.50	2.00	0.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Asbestos ID in Solid Samples	04-Apr-2018		14-Mar-2018		14-Mar-2018	21-Mar-2018	14-Mar-2018
Asbestos Identification		20-Mar-2018					
EPH CWG (Aliphatic) GC (S)	05-Apr-2018		13-Mar-2018		13-Mar-2018	21-Mar-2018	13-Mar-2018
EPH CWG (Aromatic) GC (S)	05-Apr-2018		13-Mar-2018		13-Mar-2018	21-Mar-2018	13-Mar-2018
GRO by GC-FID (S)			12-Mar-2018		12-Mar-2018	21-Mar-2018	12-Mar-2018
Metals in solid samples by OES	04-Apr-2018		15-Mar-2018		13-Mar-2018	20-Mar-2018	12-Mar-2018
PAH by GCMS	04-Apr-2018		15-Mar-2018		14-Mar-2018	21-Mar-2018	15-Mar-2018
PCBs by GCMS					14-Mar-2018		14-Mar-2018
pH	03-Apr-2018		09-Mar-2018	09-Mar-2018	13-Mar-2018	20-Mar-2018	09-Mar-2018
Sample description	29-Mar-2018		08-Mar-2018	08-Mar-2018	09-Mar-2018	19-Mar-2018	08-Mar-2018
Semi Volatile Organic Compounds					14-Mar-2018		14-Mar-2018
TPH CWG GC (S)	05-Apr-2018		13-Mar-2018		13-Mar-2018	21-Mar-2018	13-Mar-2018
VOC MS (S)					14-Mar-2018		14-Mar-2018

ASSOCIATED AQC DATA

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1716	QC 1720	QC 1701	QC 1775
Total Aliphatics >C12-C35	TM173	**88.75** 66.17 : 105.28	**88.33** 70.61 : 106.16	**90.21** 70.61 : 106.16	**87.08** 70.71 : 106.26

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1716	QC 1720	QC 1701	QC 1775
Total Aromatics >EC12-EC35	TM173	**84.67** 65.78 : 102.90	**88.67** 67.75 : 104.04	**90.67** 67.75 : 104.04	**80.0** 65.82 : 105.00

GRO by GC-FID (S)

Component	Method Code	QC 1754	QC 1711	QC 1739
Benzene by GC (Moisture Corrected)	TM089	**96.0** 84.09 : 122.62	**88.5** 84.09 : 122.62	**106.0** 80.70 : 121.69
Ethylbenzene by GC (Moisture Corrected)	TM089	**98.0** 78.42 : 121.07	**91.5** 78.42 : 121.07	**102.5** 76.65 : 121.92
m & p Xylene by GC (Moisture Corrected)	TM089	**97.75** 77.69 : 121.76	**91.5** 77.69 : 121.76	**103.25** 76.25 : 122.54
MTBE GC-FID (Moisture Corrected)	TM089	**100.0** 77.69 : 125.19	**91.5** 77.69 : 125.19	**107.5** 77.67 : 125.50
o Xylene by GC (Moisture Corrected)	TM089	**98.0** 77.88 : 121.47	**91.0** 77.88 : 121.47	**105.0** 76.37 : 122.94
QC	TM089	**87.7** 69.62 : 106.27	**79.86** 69.62 : 106.27	**86.05** 69.58 : 112.76
Toluene by GC (Moisture Corrected)	TM089	**98.5** 78.31 : 121.42	**92.0** 78.31 : 121.42	**103.0** 75.95 : 122.88

Metals in solid samples by OES

Component	Method Code	QC 1727	QC 1703	QC 1769	QC 1725	QC 1764	QC 1730
Aluminium	TM181	**91.11** 75.13 : 109.48	**88.89** 75.13 : 109.48	**95.56** 75.13 : 109.48	**104.44** 75.13 : 109.48	**87.41** 75.13 : 109.48	**91.85** 75.13 : 109.48
Antimony	TM181	**101.93** 84.48 : 110.90	**102.7** 84.48 : 110.90	**101.16** 84.48 : 110.90	**96.91** 84.48 : 110.90	**98.07** 84.48 : 110.90	**95.75** 84.48 : 110.90
Arsenic	TM181	**101.8** 83.14 : 108.73	**93.32** 83.14 : 108.73	**93.57** 83.14 : 108.73	**99.23** 83.14 : 108.73	**97.17** 83.14 : 108.73	**93.32** 83.14 : 108.73
Barium	TM181	**94.53** 82.23 : 104.30	**101.56** 82.23 : 104.30	**98.44** 82.23 : 104.30	**97.66** 82.23 : 104.30	**93.75** 82.23 : 104.30	**92.19** 82.23 : 104.30
Beryllium	TM181	**99.32** 84.19 : 106.77	**100.34** 84.19 : 106.77	**100.68** 84.19 : 106.77	**97.95** 84.19 : 106.77	**95.55** 84.19 : 106.77	**94.52** 84.19 : 106.77
Boron	TM181	**93.5** 76.55 : 106.69	**92.94** 76.55 : 106.69	**94.92** 76.55 : 106.69	**102.26** 76.55 : 106.69	**92.37** 76.55 : 106.69	**90.96** 76.55 : 106.69
Cadmium	TM181	**103.72** 86.37 : 111.59	**100.53** 86.37 : 111.59	**99.47** 86.37 : 111.59	**102.13** 86.37 : 111.59	**103.72** 86.37 : 111.59	**97.34** 86.37 : 111.59
Chromium	TM181	**101.27** 81.29 : 118.71	**101.9** 81.29 : 118.71	**103.38** 81.29 : 118.71	**102.95** 81.29 : 118.71	**97.05** 81.29 : 118.71	**97.26** 81.29 : 118.71

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Metals in solid samples by OES

		QC 1727	QC 1703	QC 1769	QC 1725	QC 1764	QC 1730
Cobalt	TM181	**100.0** 85.45 : 109.14	**105.96** 85.45 : 109.14	**102.82** 85.45 : 109.14	**101.57** 85.45 : 109.14	**101.88** 85.45 : 109.14	**96.87** 85.45 : 109.14
Copper	TM181	**94.32** 81.33 : 103.33	**95.63** 81.33 : 103.33	**96.51** 81.33 : 103.33	**94.32** 81.33 : 103.33	**89.67** 81.33 : 103.33	**90.68** 81.33 : 103.33
Iron	TM181	**97.92** 82.44 : 111.71	**97.22** 82.44 : 111.71	**101.39** 82.44 : 111.71	**102.08** 82.44 : 111.71	**101.39** 82.44 : 111.71	**97.92** 82.44 : 111.71
Lead	TM181	**95.53** 83.33 : 106.95	**94.26** 83.33 : 106.95	**93.19** 83.33 : 106.95	**98.51** 83.33 : 106.95	**97.45** 83.33 : 106.95	**95.96** 83.33 : 106.95
Manganese	TM181	**93.13** 80.56 : 102.33	**92.73** 80.56 : 102.33	**94.55** 80.56 : 102.33	**91.52** 80.56 : 102.33	**90.1** 80.56 : 102.33	**92.93** 80.56 : 102.33
Mercury	TM181	**103.14** 84.13 : 111.85	**96.47** 84.13 : 111.85	**94.51** 84.13 : 111.85	**100.78** 84.13 : 111.85	**100.0** 84.13 : 111.85	**95.69** 84.13 : 111.85
Molybdenum	TM181	**100.77** 84.19 : 110.39	**100.0** 84.19 : 110.39	**98.46** 84.19 : 110.39	**95.37** 84.19 : 110.39	**95.75** 84.19 : 110.39	**95.75** 84.19 : 110.39
Nickel	TM181	**101.86** 84.19 : 109.77	**99.3** 84.19 : 109.77	**101.17** 84.19 : 109.77	**100.23** 84.19 : 109.77	**95.34** 84.19 : 109.77	**95.8** 84.19 : 109.77
Phosphorus	TM181	**92.66** 73.47 : 116.86	**93.56** 73.47 : 116.86	**93.41** 73.47 : 116.86	**96.86** 73.47 : 116.86	**98.05** 73.47 : 116.86	**103.59** 73.47 : 116.86
Selenium	TM181	**99.41** 81.32 : 108.59	**98.22** 81.32 : 108.59	**96.44** 81.32 : 108.59	**97.03** 81.32 : 108.59	**91.99** 81.32 : 108.59	**92.58** 81.32 : 108.59
Strontium	TM181	**96.41** 84.70 : 105.87	**96.62** 84.70 : 105.87	**99.15** 84.70 : 105.87	**99.15** 84.70 : 105.87	**93.45** 84.70 : 105.87	**93.87** 84.70 : 105.87
Thallium	TM181	**98.44** 81.19 : 105.37	**103.91** 81.19 : 105.37	**102.34** 81.19 : 105.37	**97.66** 81.19 : 105.37	**99.22** 81.19 : 105.37	**97.27** 81.19 : 105.37
Tin	TM181	**101.77** 85.92 : 110.00	**98.23** 85.92 : 110.00	**97.52** 85.92 : 110.00	**99.29** 85.92 : 110.00	**102.48** 85.92 : 110.00	**96.81** 85.92 : 110.00
Titanium	TM181	**93.85** 73.44 : 113.17	**93.08** 73.44 : 113.17	**97.69** 73.44 : 113.17	**105.38** 73.44 : 113.17	**89.23** 73.44 : 113.17	**91.54** 73.44 : 113.17
Vanadium	TM181	**93.25** 78.62 : 101.47	**95.09** 78.62 : 101.47	**97.55** 78.62 : 101.47	**95.71** 78.62 : 101.47	**92.94** 78.62 : 101.47	**91.1** 78.62 : 101.47
Zinc	TM181	**99.83** 85.64 : 110.14	**99.65** 85.64 : 110.14	**100.0** 85.64 : 110.14	**101.22** 85.64 : 110.14	**95.46** 85.64 : 110.14	**95.11** 85.64 : 110.14

PAH by GCMS

Component	Method Code	QC 1724	QC 1753	QC 1741	QC 1740
Acenaphthene	TM218	**102.5** 78.95 : 114.22	**102.5** 82.97 : 108.44	**107.5** 83.74 : 115.24	**92.0** 82.09 : 110.18
Acenaphthylene	TM218	**87.5** 64.89 : 106.33	**94.0** 77.27 : 104.05	**101.0** 83.09 : 111.29	**86.0** 77.92 : 100.70
Anthracene	TM218	**95.5** 77.17 : 105.56	**96.0** 78.18 : 102.20	**103.0** 78.10 : 111.70	**85.0** 79.96 : 103.02
Benz(a)anthracene	TM218	**99.5** 80.47 : 122.11	**102.0** 80.40 : 121.27	**107.0** 75.14 : 117.03	**96.0** 80.00 : 122.30
Benzo(a)pyrene	TM218	**108.0** 79.44 : 122.09	**102.5** 86.92 : 120.63	**107.5** 68.39 : 124.32	**96.0** 86.92 : 126.33
Benzo(b)fluoranthene	TM218	**111.5** 81.46 : 113.62	**102.5** 82.24 : 121.86	**102.0** 71.68 : 120.72	**99.0** 84.53 : 122.14
Benzo(ghi)perylene	TM218	**104.5** 79.07 : 113.26	**102.5** 76.26 : 118.18	**103.5** 79.37 : 109.45	**94.5** 77.49 : 119.12
Benzo(k)fluoranthene	TM218	**110.0** 86.00 : 117.59	**105.0** 86.60 : 115.15	**110.5** 76.68 : 119.64	**95.5** 88.94 : 117.08
Chrysene	TM218	**100.0** 79.02 : 117.48	**104.0** 86.11 : 112.00	**106.0** 75.99 : 113.84	**96.0** 87.67 : 116.32

PAH by GCMS

		QC 1724	QC 1753	QC 1741	QC 1740
Dibenzo(ah)anthracene	TM218	**102.5** 85.70 : 123.10	**103.5** 83.84 : 116.37	**104.5** 66.31 : 118.58	**96.5** 85.66 : 119.61
Fluoranthene	TM218	**98.0** 80.37 : 111.80	**95.0** 81.23 : 104.94	**106.0** 82.34 : 110.01	**90.0** 84.49 : 109.33
Fluorene	TM218	**101.0** 79.98 : 109.78	**102.5** 83.68 : 108.62	**110.5** 78.48 : 112.94	**93.5** 84.28 : 107.54
Indeno(123cd)pyrene	TM218	**103.0** 85.41 : 122.03	**103.0** 83.72 : 116.90	**103.0** 68.71 : 118.84	**96.0** 86.46 : 120.70
Naphthalene	TM218	**99.0** 82.33 : 112.21	**98.0** 81.32 : 109.34	**104.5** 82.47 : 113.47	**96.0** 82.88 : 115.56
Phenanthrene	TM218	**99.0** 80.52 : 110.11	**99.0** 82.06 : 103.85	**105.5** 79.05 : 110.59	**89.0** 81.59 : 110.61
Pyrene	TM218	**96.5** 79.57 : 110.12	**95.0** 81.04 : 103.65	**106.5** 78.41 : 108.84	**90.0** 83.25 : 107.60

PCBs by GCMS

Component	Method Code	QC 1712
PCB congener 101	TM168	**109.0** 76.50 : 116.94
PCB congener 105	TM168	**104.0** 75.93 : 120.03
PCB congener 114	TM168	**106.0** 76.64 : 119.06
PCB congener 118	TM168	**106.0** 75.18 : 118.08
PCB congener 123	TM168	**104.0** 75.72 : 117.84
PCB congener 126	TM168	**107.0** 76.10 : 125.90
PCB congener 138	TM168	**109.0** 78.04 : 121.72
PCB congener 153	TM168	**103.0** 77.67 : 119.31
PCB congener 156	TM168	**108.0** 73.48 : 118.60
PCB congener 157	TM168	**106.0** 77.47 : 123.91
PCB congener 167	TM168	**108.0** 75.77 : 121.97
PCB congener 169	TM168	**113.0** 74.49 : 130.71
PCB congener 180	TM168	**107.0** 77.34 : 121.26
PCB congener 189	TM168	**111.0** 75.60 : 127.20
PCB congener 28	TM168	**109.0** 79.43 : 121.67
PCB congener 52	TM168	**115.0** 78.72 : 119.28
PCB congener 77	TM168	**111.0** 74.04 : 120.60
PCB congener 81	TM168	**103.0** 71.38 : 116.14

pH

Component	Method Code	QC 1786	QC 1703	QC 1733	QC 1712	QC 1746
pH	TM133	**101.95** 99.48 : 102.60	**100.26** 99.48 : 102.60	**100.78** 99.25 : 102.83	**101.17** 96.92 : 102.30	**100.39** 96.92 : 102.30

Semi Volatile Organic Compounds

Component	Method Code	QC 1721
4-Bromophenylphenylether (Soil)	TM157	**99.5** 65.45 : 121.76
Benzo(a)anthracene (Soil)	TM157	**107.5** 71.89 : 120.91
Hexachlorobutadiene (Soil)	TM157	**108.5** 69.80 : 117.77
Naphthalene (Soil)	TM157	**104.0** 71.89 : 120.16
Nitrobenzene (Soil)	TM157	**104.0** 70.00 : 118.00
Phenol (Soil)	TM157	**109.0** 68.54 : 114.86

VOC MS (S)

Component	Method Code	QC 1731	QC 1773
1,1,1,2-tetrachloroethane	TM116	**103.2** 79.10 : 119.66	**103.2** 77.56 : 115.55
1,1,1-Trichloroethane	TM116	**110.6** 80.76 : 117.81	**102.4** 73.73 : 118.05
1,1,2-Trichloroethane	TM116	**98.4** 75.16 : 112.70	**89.2** 77.12 : 116.04
1,1-Dichloroethane	TM116	**119.2** 77.84 : 124.12	**106.6** 74.46 : 129.15
1,2-Dichloroethane	TM116	**111.2** 86.58 : 129.62	**102.4** 92.57 : 128.78
1,4-Dichlorobenzene	TM116	**91.4** 71.61 : 124.63	**108.4** 72.76 : 126.34
2-Chlorotoluene	TM116	**87.0** 66.81 : 118.43	**95.4** 69.73 : 114.13
4-Chlorotoluene	TM116	**80.6** 65.88 : 114.76	**91.6** 66.90 : 112.46
Benzene	TM116	**121.8** 84.42 : 119.78	**100.2** 81.05 : 117.28
Carbon Disulphide	TM116	**115.2** 75.11 : 124.81	**93.0** 74.91 : 122.14
Carbontetrachloride	TM116	**103.6** 82.35 : 126.46	**107.4** 78.83 : 123.13
Chlorobenzene	TM116	**105.6** 82.88 : 122.42	**102.0** 75.00 : 115.53
Chloroform	TM116	**112.2** 82.52 : 123.25	**106.4** 77.34 : 121.84
Chloromethane	TM116	**98.6** 53.10 : 124.60	**106.6** 52.63 : 138.74

VOC MS (S)

		QC 1731	QC 1773
Cis-1,2-Dichloroethene	TM116	**117.6** 79.48 : 120.80	**108.4** 80.67 : 126.72
Dibromomethane	TM116	**96.0** 71.69 : 119.43	**102.4** 67.80 : 121.75
Dichloromethane	TM116	**112.6** 81.68 : 125.21	**102.0** 81.11 : 133.25
Ethylbenzene	TM116	**107.6** 80.09 : 119.91	**96.0** 72.53 : 109.84
Hexachlorobutadiene	TM116	**26.0** 9.27 : 160.19	**59.0** 12.82 : 152.73
Isopropylbenzene	TM116	**91.6** 52.15 : 132.52	**80.8** 54.46 : 125.44
Naphthalene	TM116	**100.0** 76.79 : 127.18	**119.0** 80.86 : 128.81
o-Xylene	TM116	**92.0** 68.16 : 107.61	**90.8** 67.46 : 102.22
p/m-Xylene	TM116	**96.7** 77.41 : 112.71	**90.0** 68.32 : 108.91
Sec-Butylbenzene	TM116	**58.4** 44.71 : 117.87	**67.0** 46.09 : 121.51
Tetrachloroethene	TM116	**103.0** 79.68 : 120.25	**103.4** 76.95 : 121.02
Toluene	TM116	**111.0** 82.00 : 116.10	**88.8** 74.24 : 107.42
Trichloroethene	TM116	**104.2** 79.80 : 112.33	**96.0** 77.61 : 111.54
Trichlorofluoromethane	TM116	**98.8** 72.76 : 118.80	**93.2** 71.31 : 128.41
Vinyl Chloride	TM116	**118.6** 64.90 : 133.10	**132.4** 68.26 : 133.45

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Validated

CERTIFICATE OF ANALYSIS

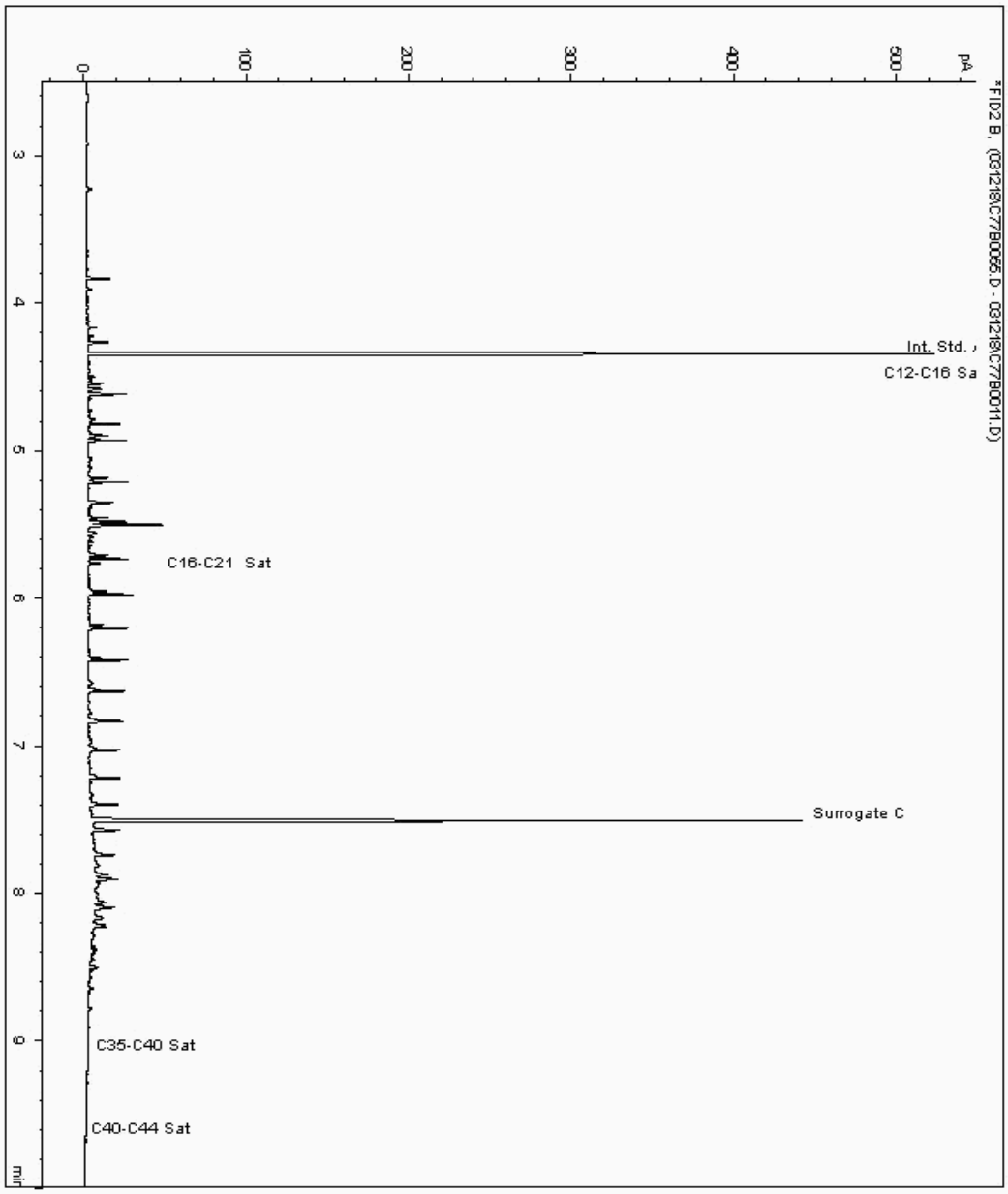
SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17174912 **Sample ID :** TP-RPS-50 **Depth :** 0.50

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16120841-
Date Acquired : 3/13/2018 5:02:36 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.960



Validated

CERTIFICATE OF ANALYSIS

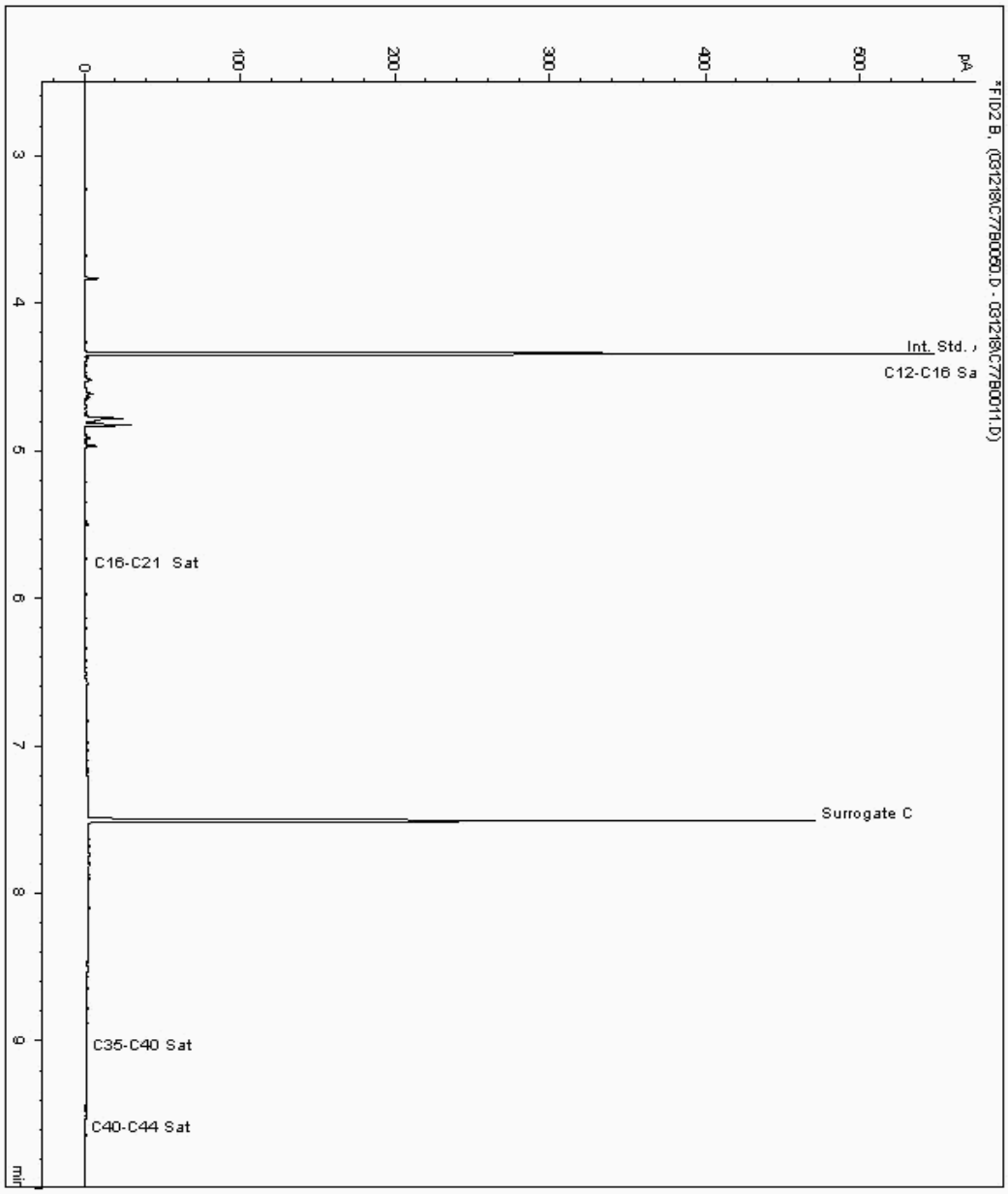
SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17174923 **Sample ID :** TP-RPS-04 **Depth :** 0.75

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16120715-
Date Acquired : 3/13/2018 3:21:42 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.030



CERTIFICATE OF ANALYSIS

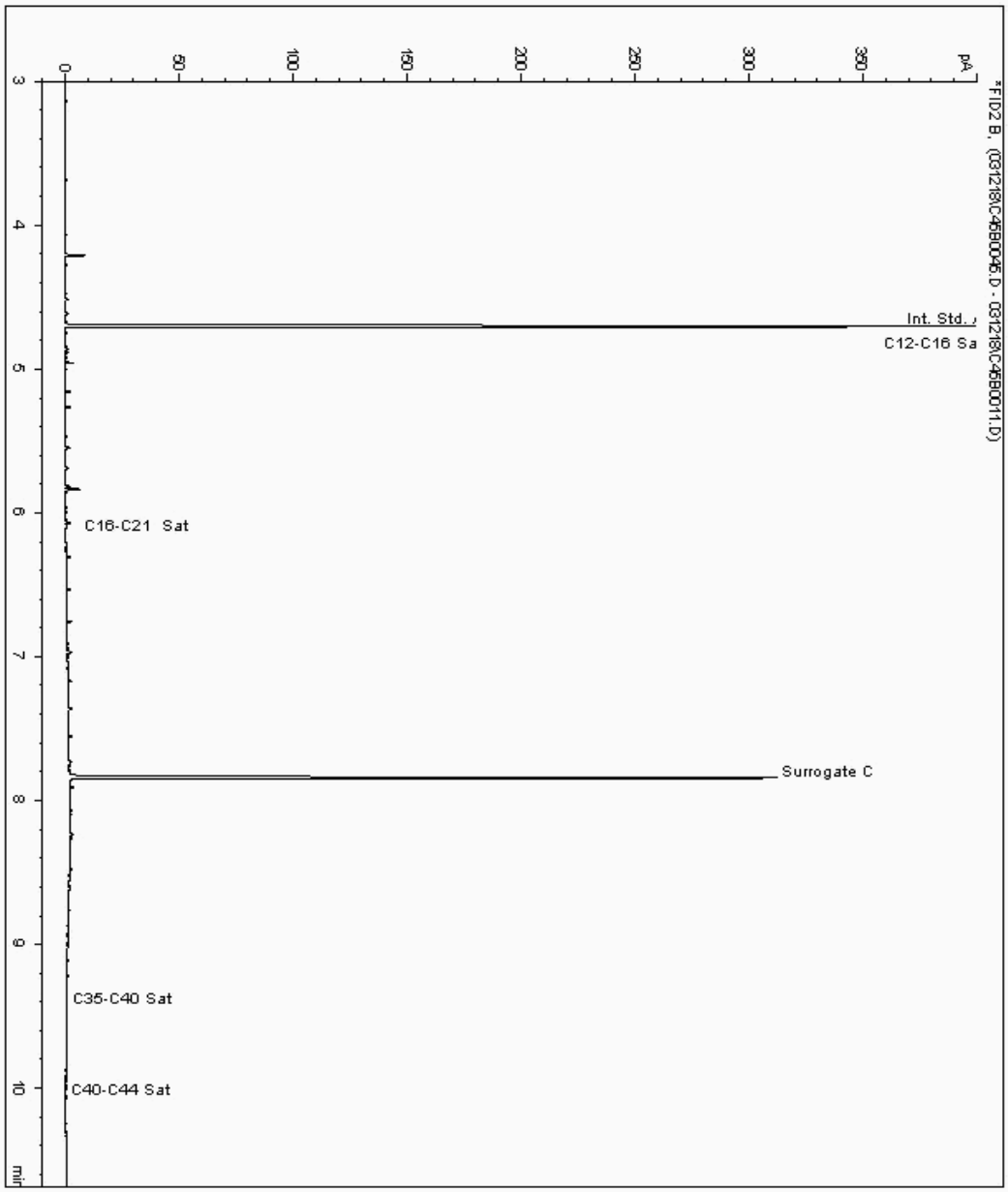
SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17183532 **Sample ID :** TP-RPS-45 **Depth :** 0.00 - 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16120692-
Date Acquired : 13/03/2018 03:06:39 PM
Units : ppb
Dilution: TP-RPS-45[0.00 - 0.50] ->

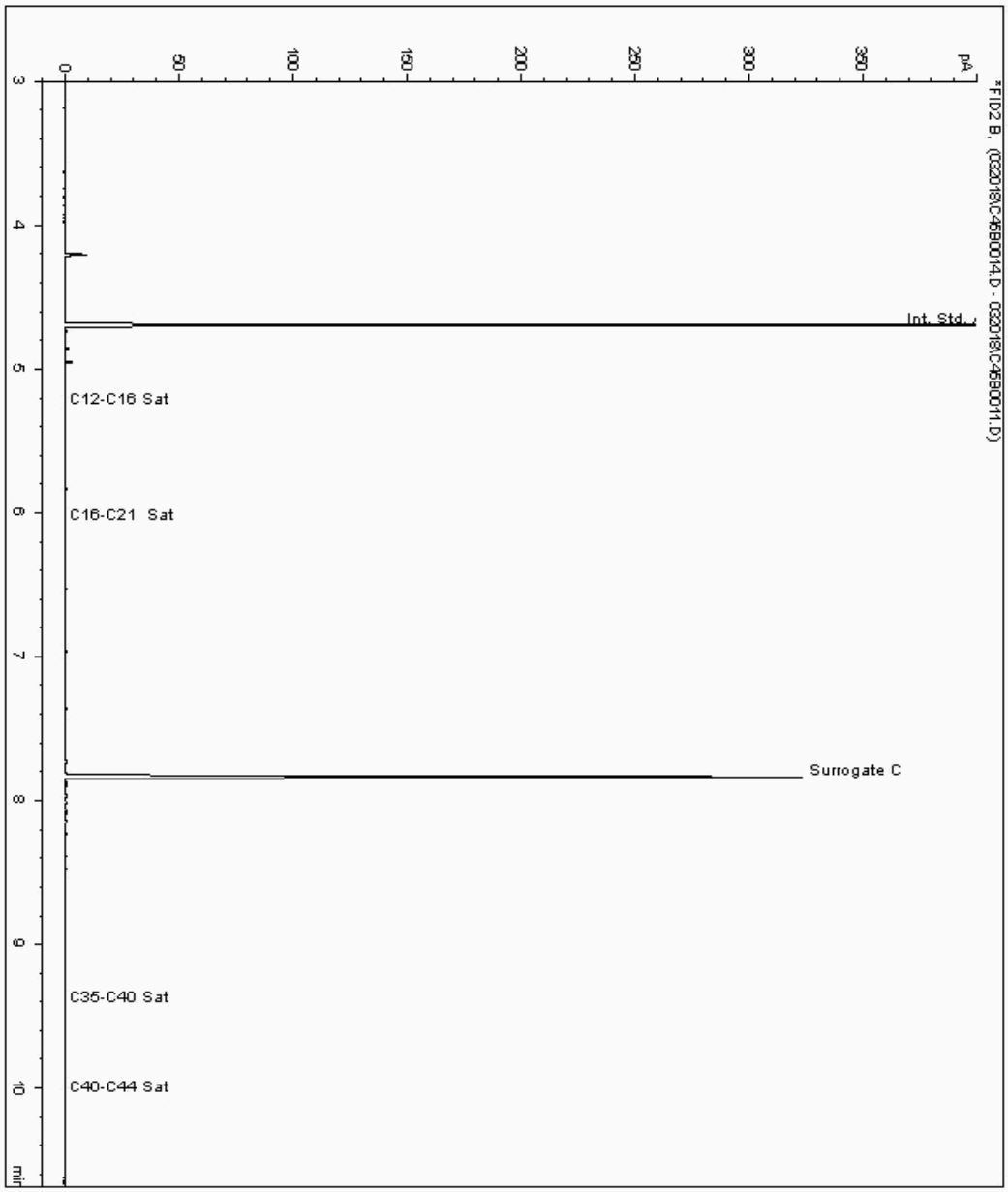


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17232320 **Sample ID :** TP-RPS-45 **Depth :** 2.00

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16164605-
Date Acquired : 20/03/2018 16:08:08 PM
Units : ppb
Dilution: TP-RPS-45[2.00] ->

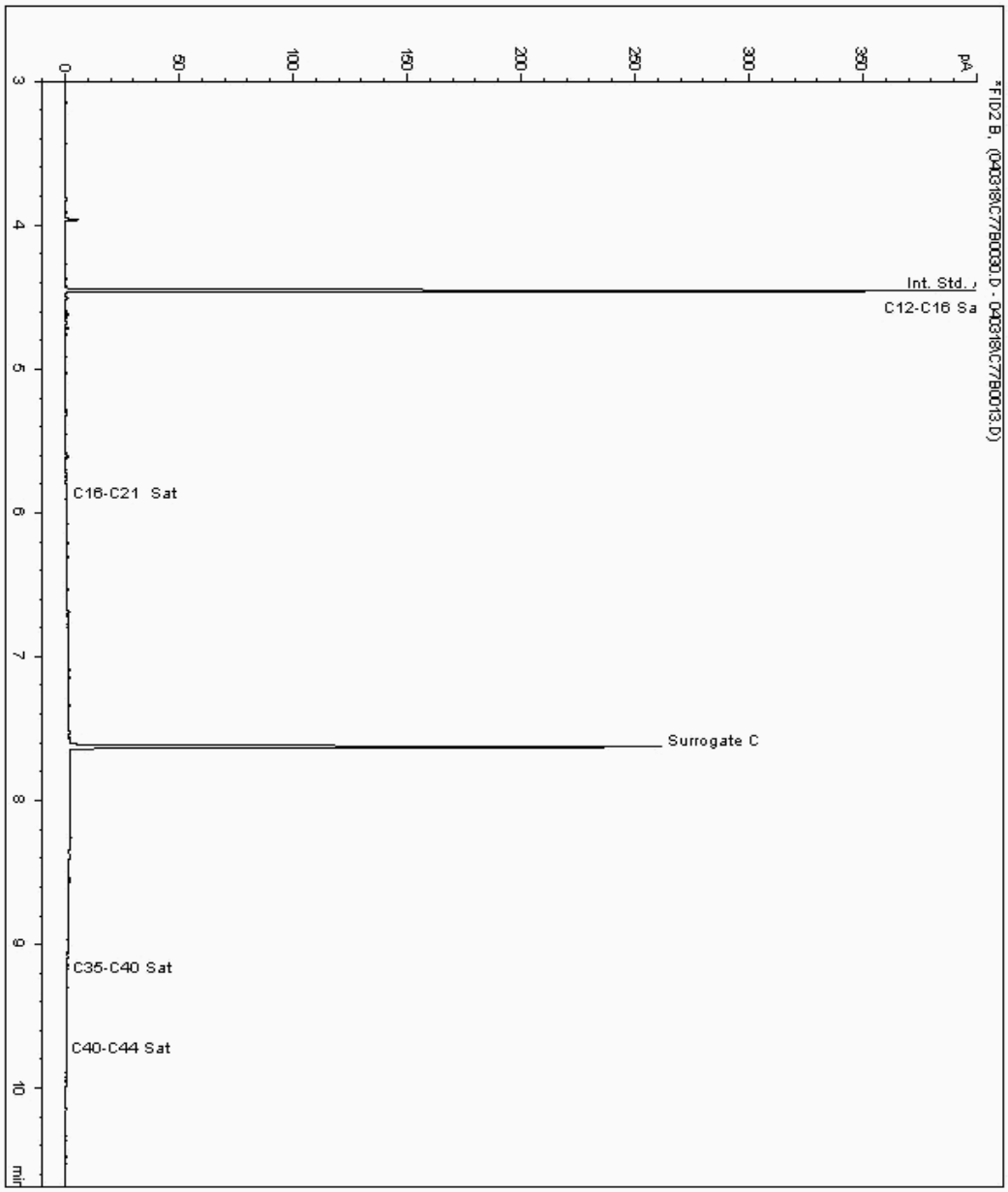


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17291543 **Sample ID :** BH02A **Depth :** 0.20 - 0.50

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16221137-
Date Acquired : 03/04/2018 23:27:27 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

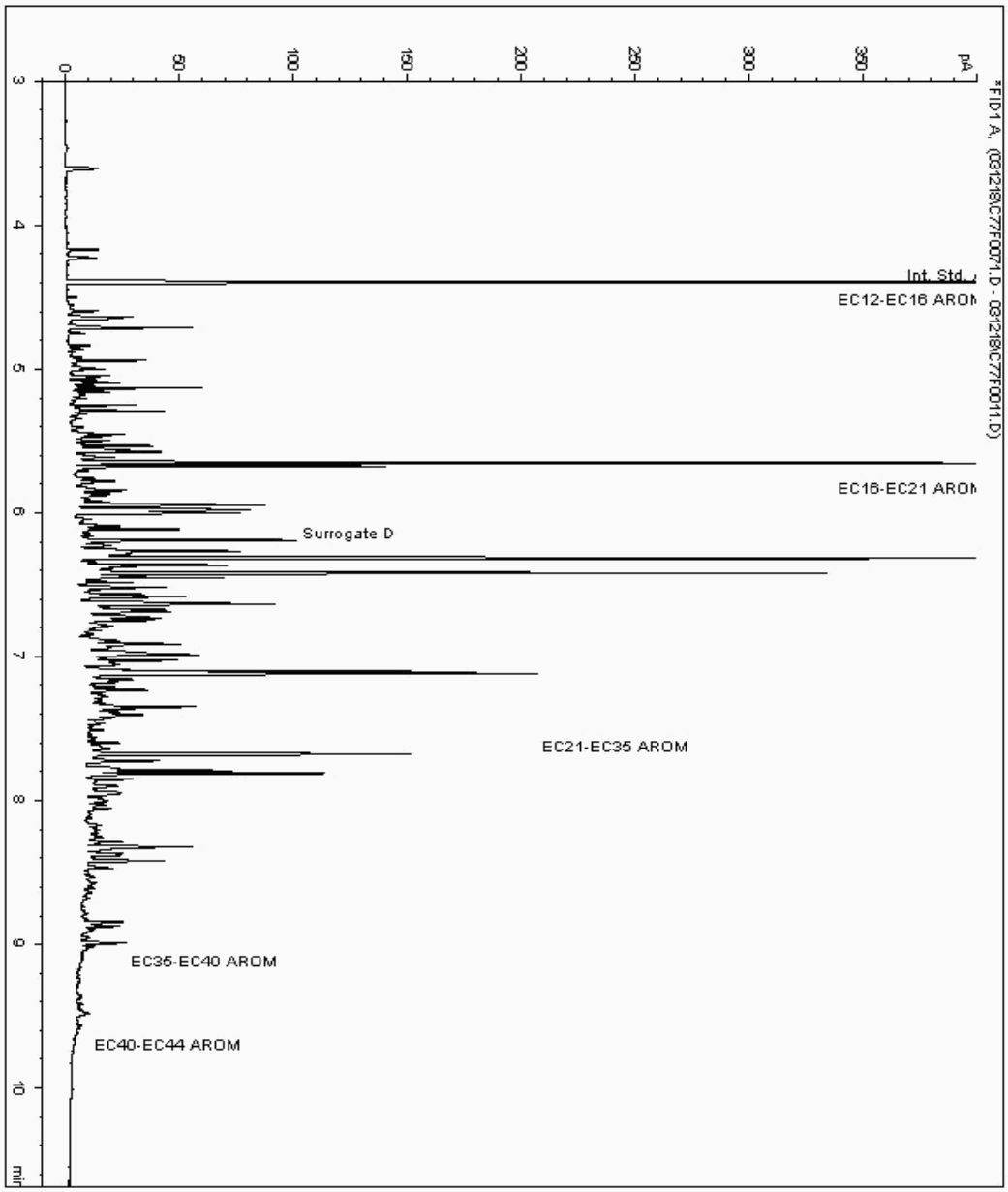
SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17174912 **Sample ID :** TP-RPS-50 **Depth :** 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16120842-
Date Acquired : 3/13/2018 2:31:45 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

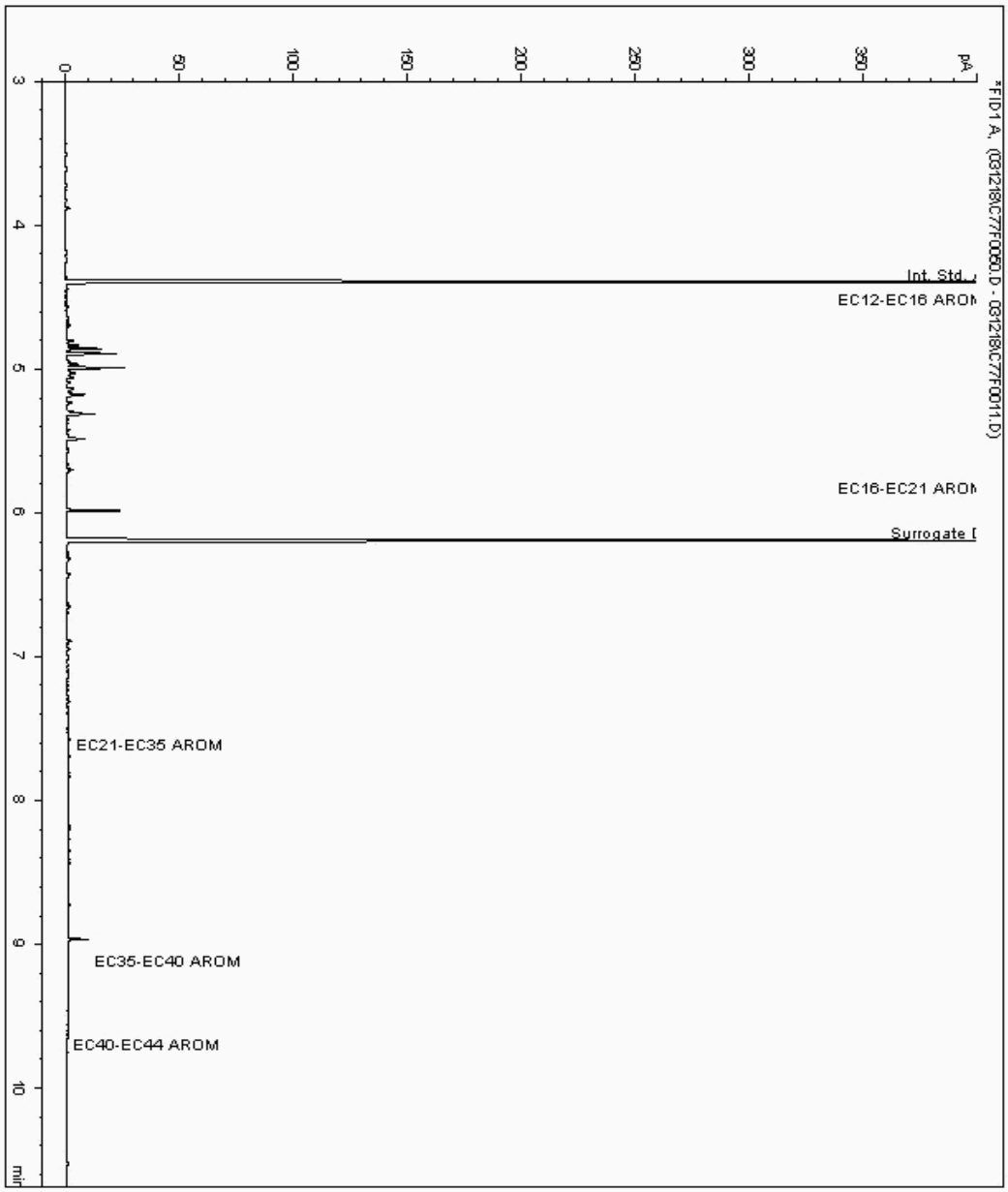
SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17174923 **Sample ID :** TP-RPS-04 **Depth :** 0.75

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16120716-
Date Acquired : 3/13/2018 3:21:42 AM
Units : ppb
Dilution:

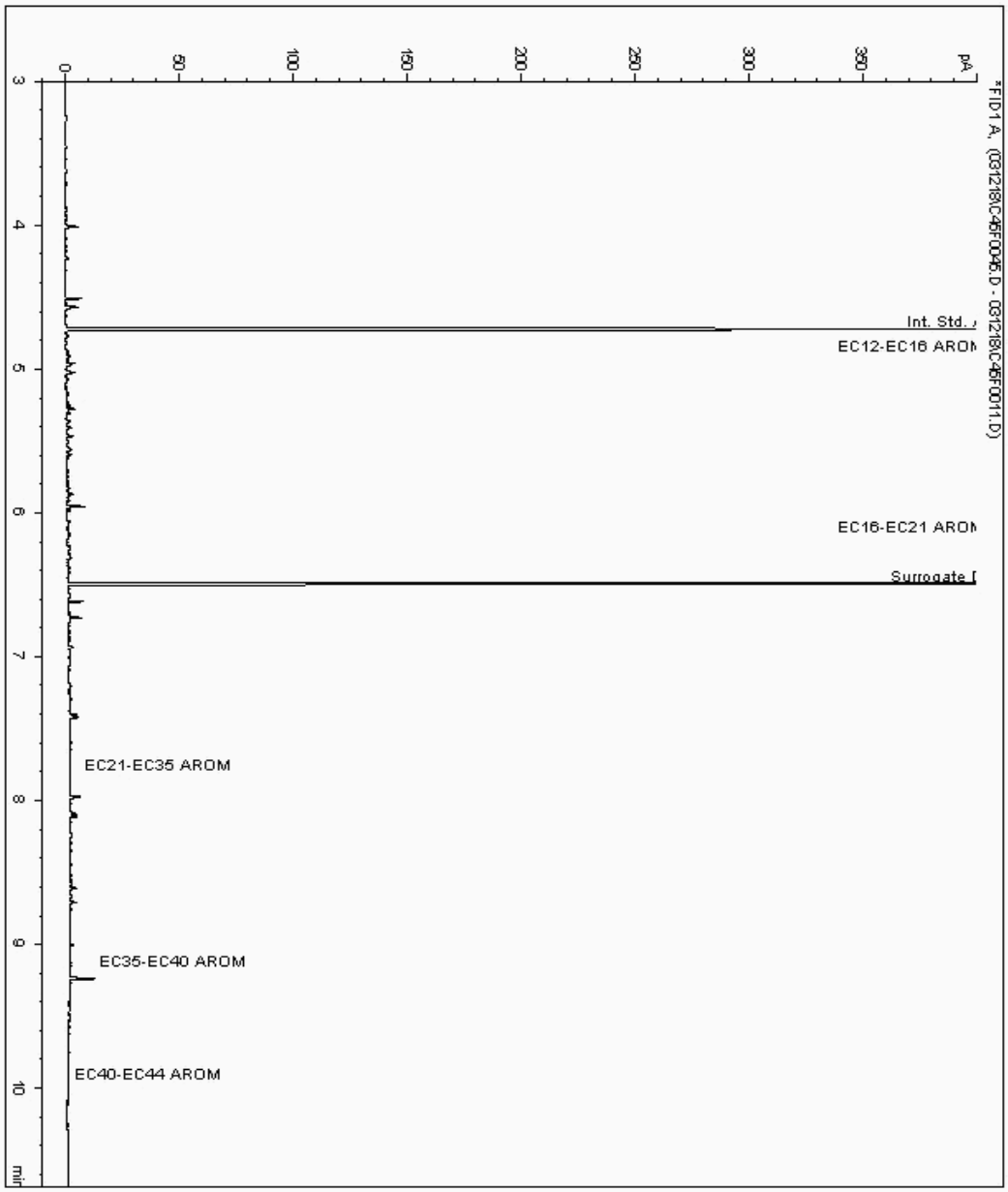


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17183532 **Sample ID :** TP-RPS-45 **Depth :** 0.00 - 0.50

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16120693-
Date Acquired : 13/03/2018 03:06:39 PM
Units : ppb
Dilution: TP-RPS-45[0.00 - 0.50] ->



Validated

CERTIFICATE OF ANALYSIS

SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

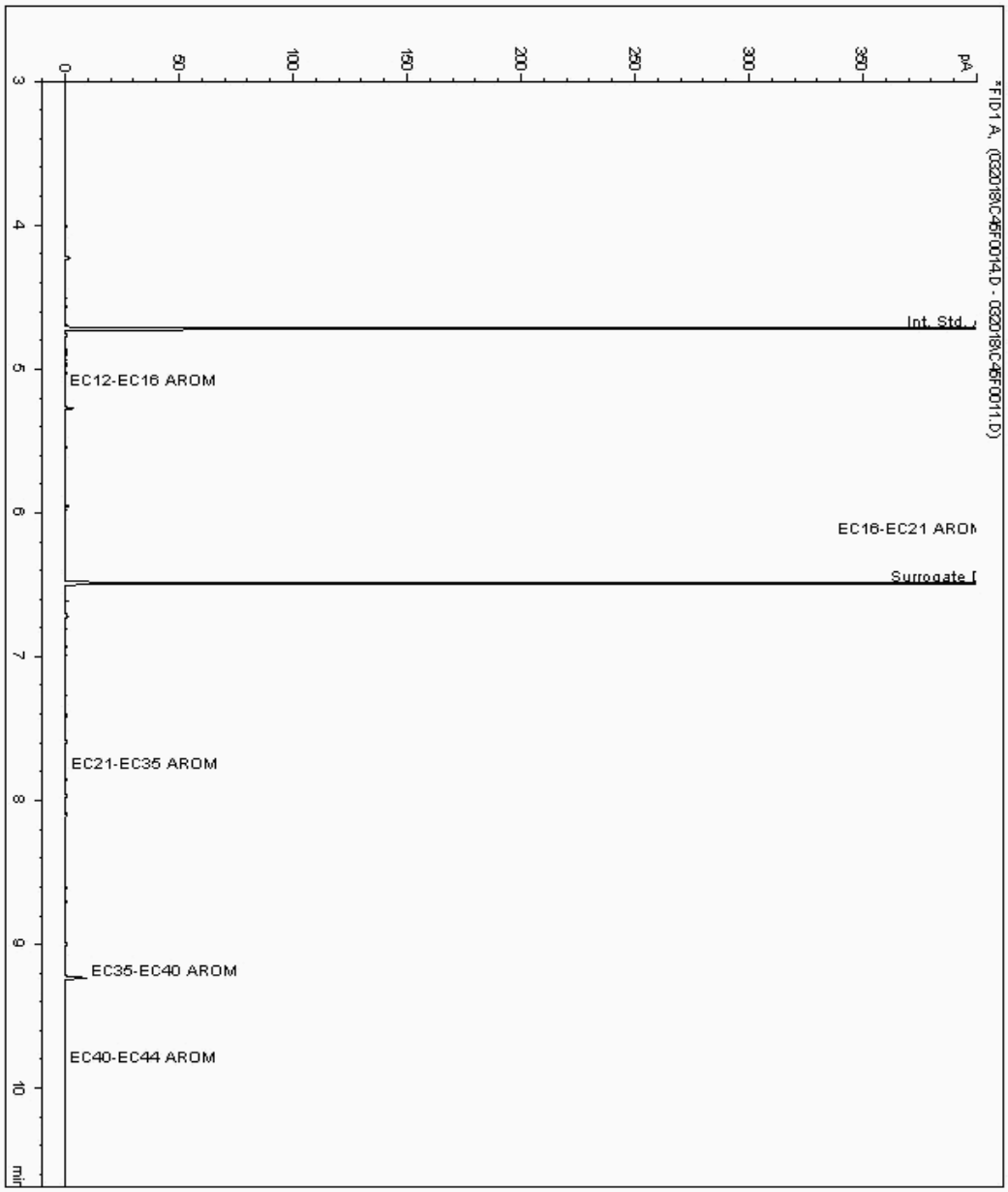
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 17232320
Sample ID : TP-RPS-45

Depth : 2.00

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16164606-
Date Acquired : 20/03/2018 16:08:08 PM
Units : ppb
Dilution: TP-RPS-45[2.00] ->

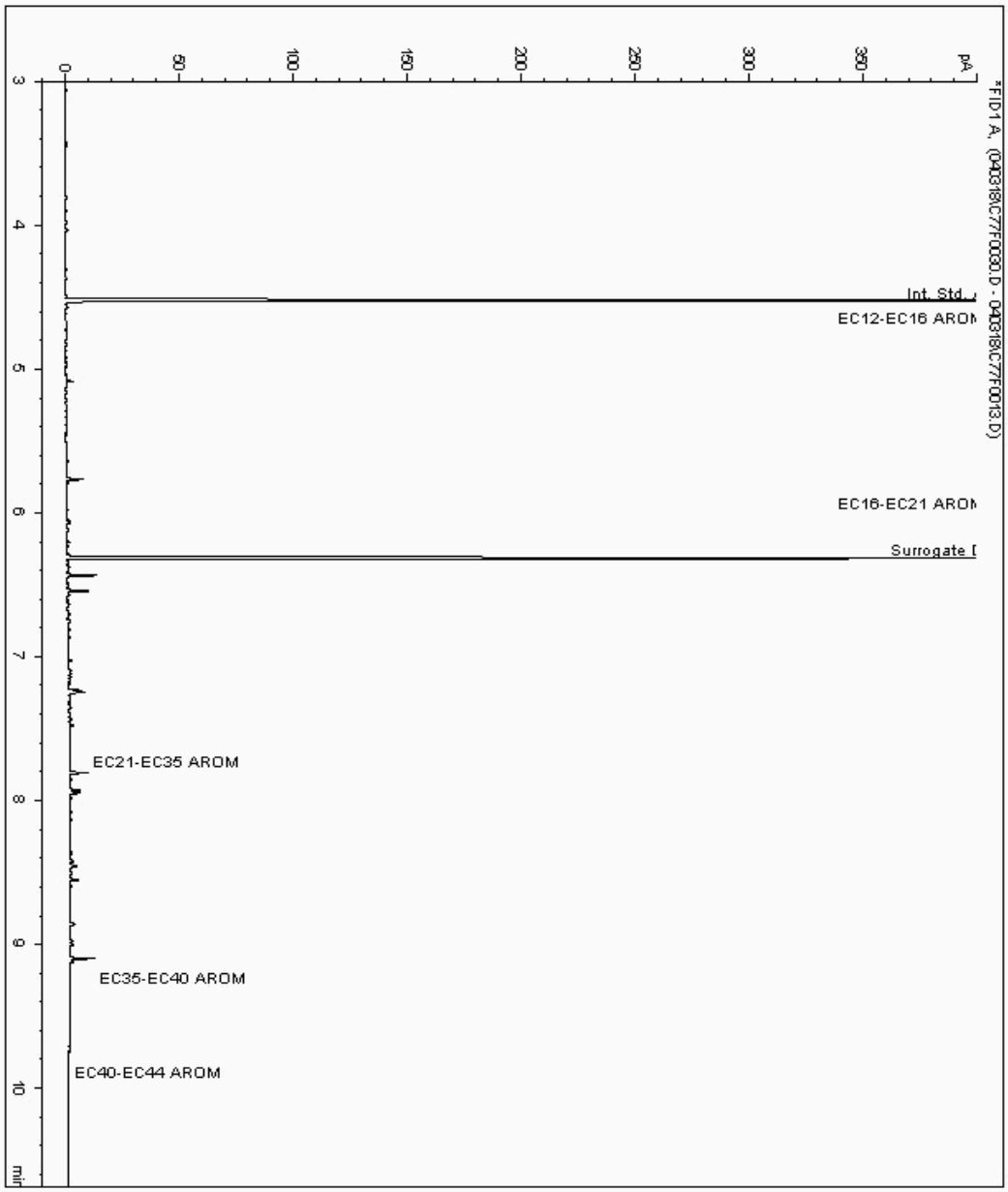


Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17291543 **Sample ID :** BH02A **Depth :** 0.20 - 0.50

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16221138-
Date Acquired : 03/04/2018 23:27:27 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

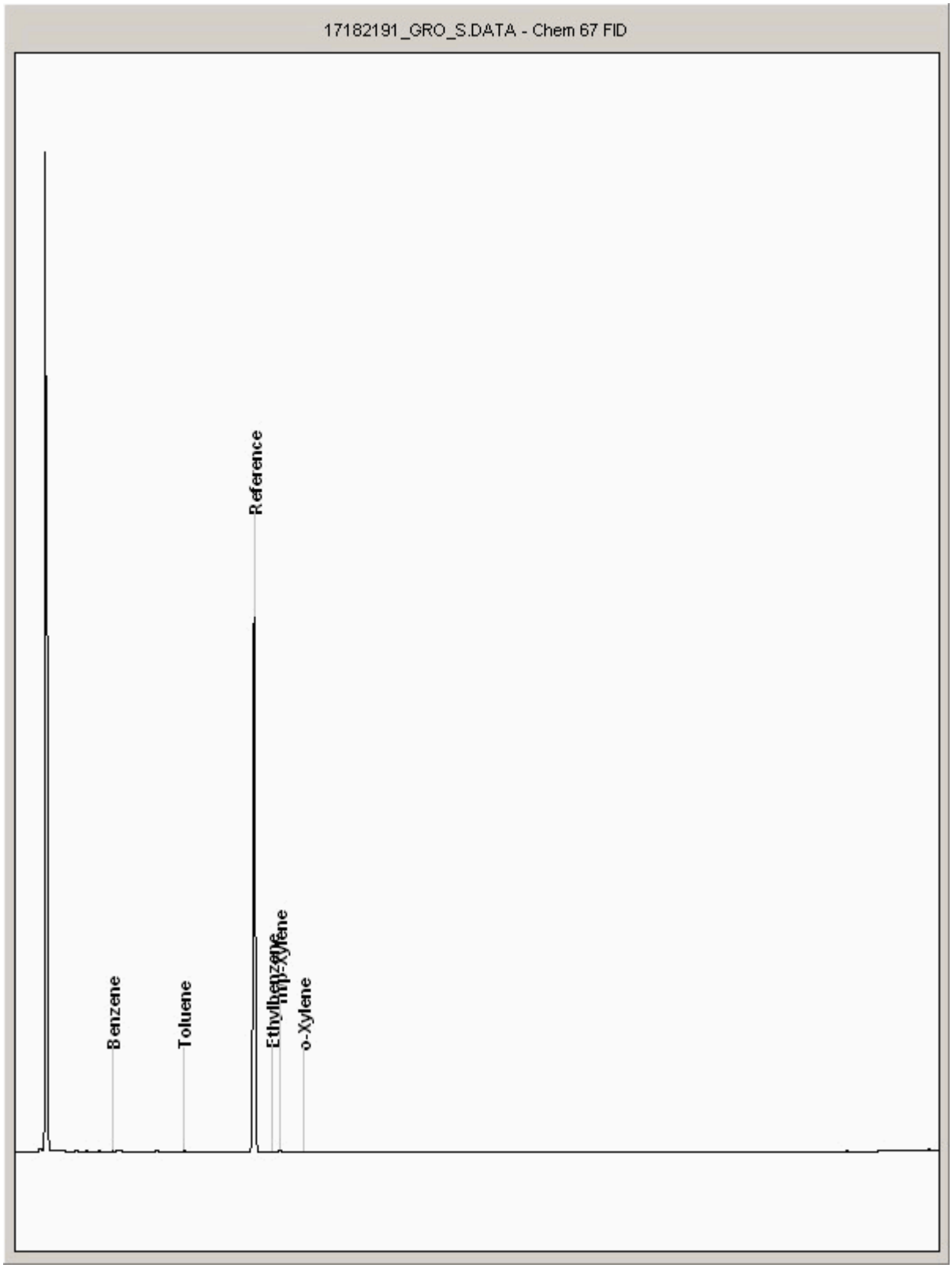
SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17182191
Sample ID : TP-RPS-04

Depth : 0.75



Validated

CERTIFICATE OF ANALYSIS

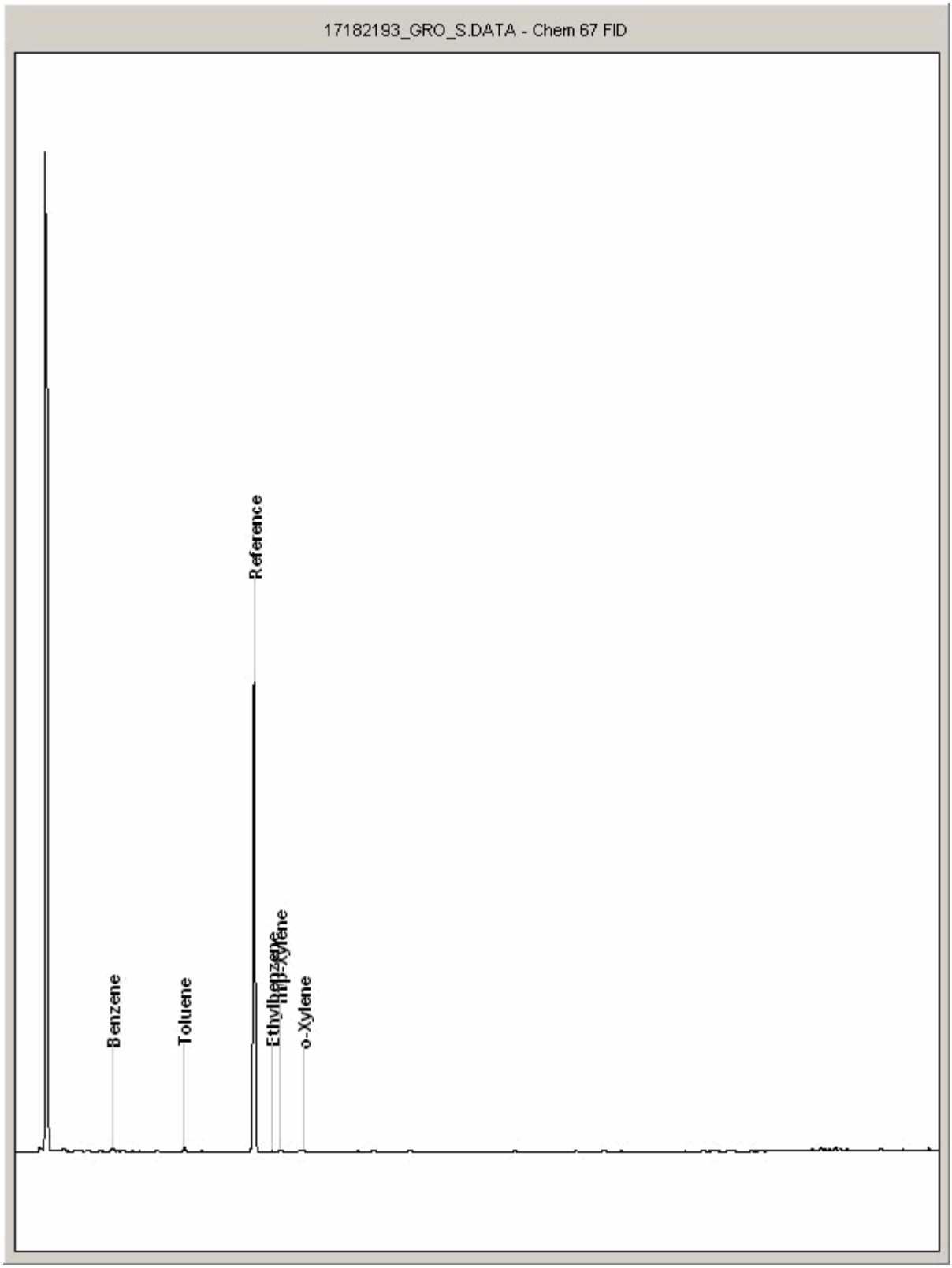
SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17182193
Sample ID : TP-RPS-50

Depth : 0.50



Validated

CERTIFICATE OF ANALYSIS

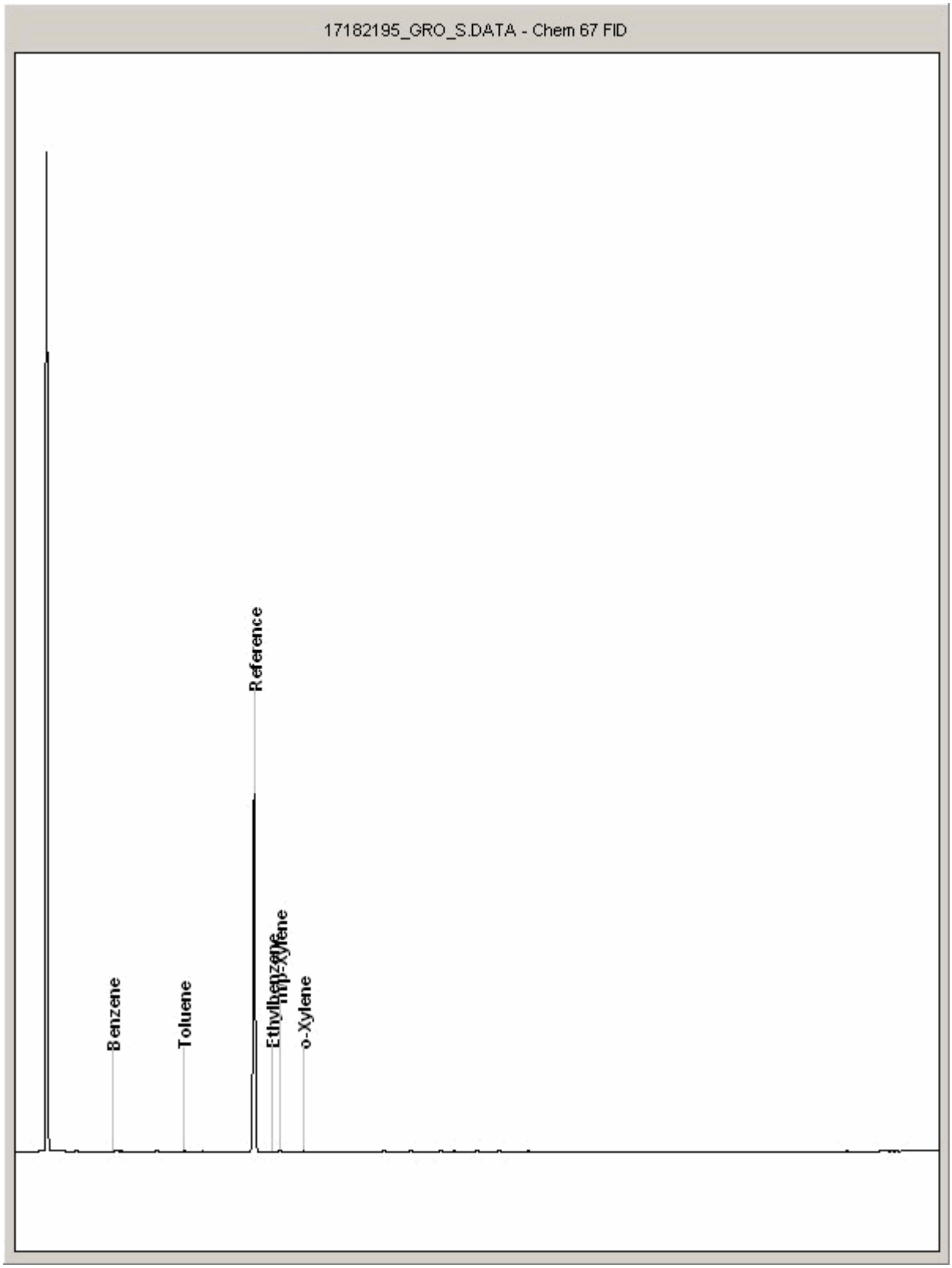
SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17182195
Sample ID : TP-RPS-45

Depth : 0.00 - 0.50



Validated

CERTIFICATE OF ANALYSIS

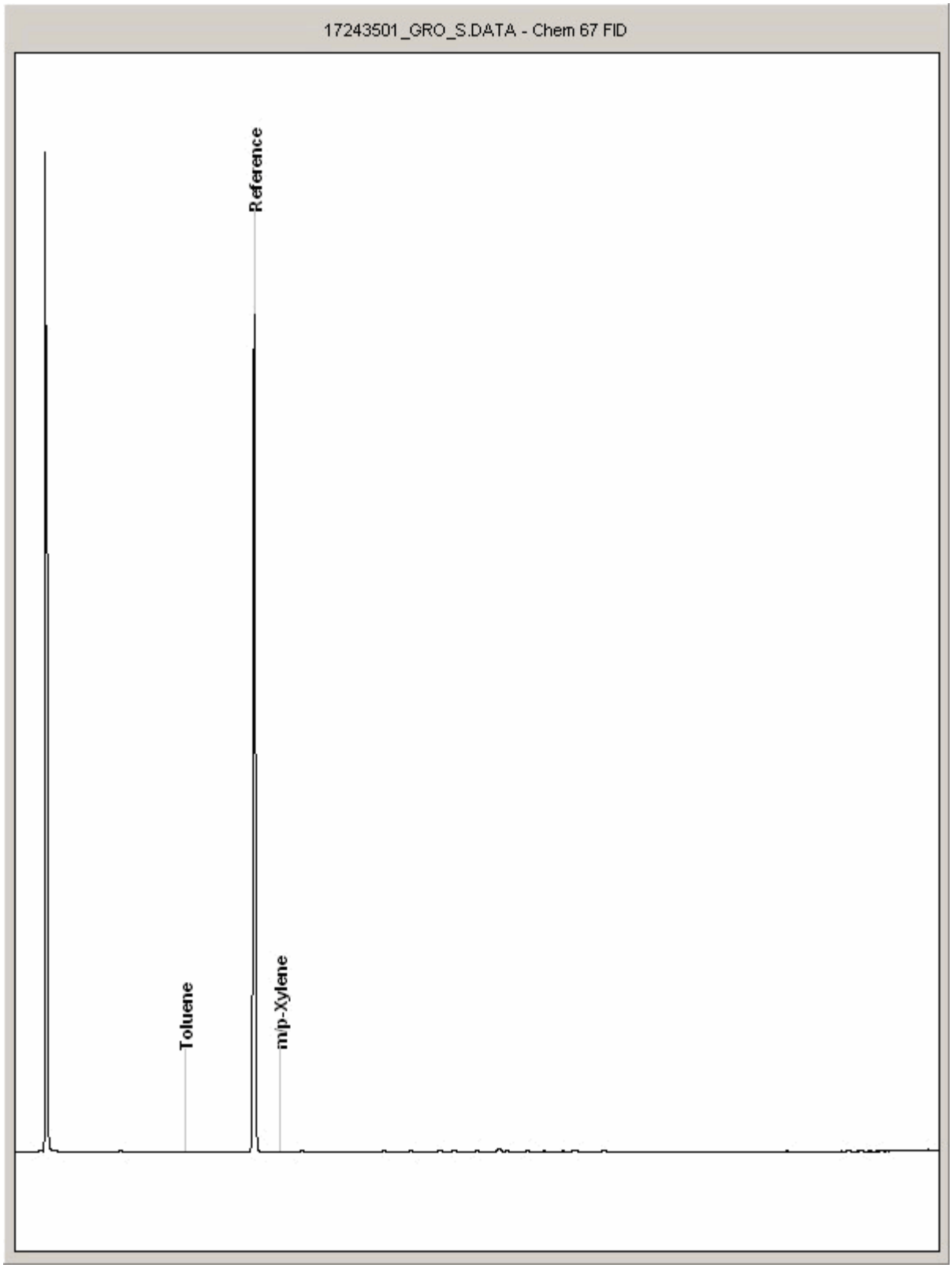
SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17243501
Sample ID : TP-RPS-45

Depth : 2.00



Validated

CERTIFICATE OF ANALYSIS

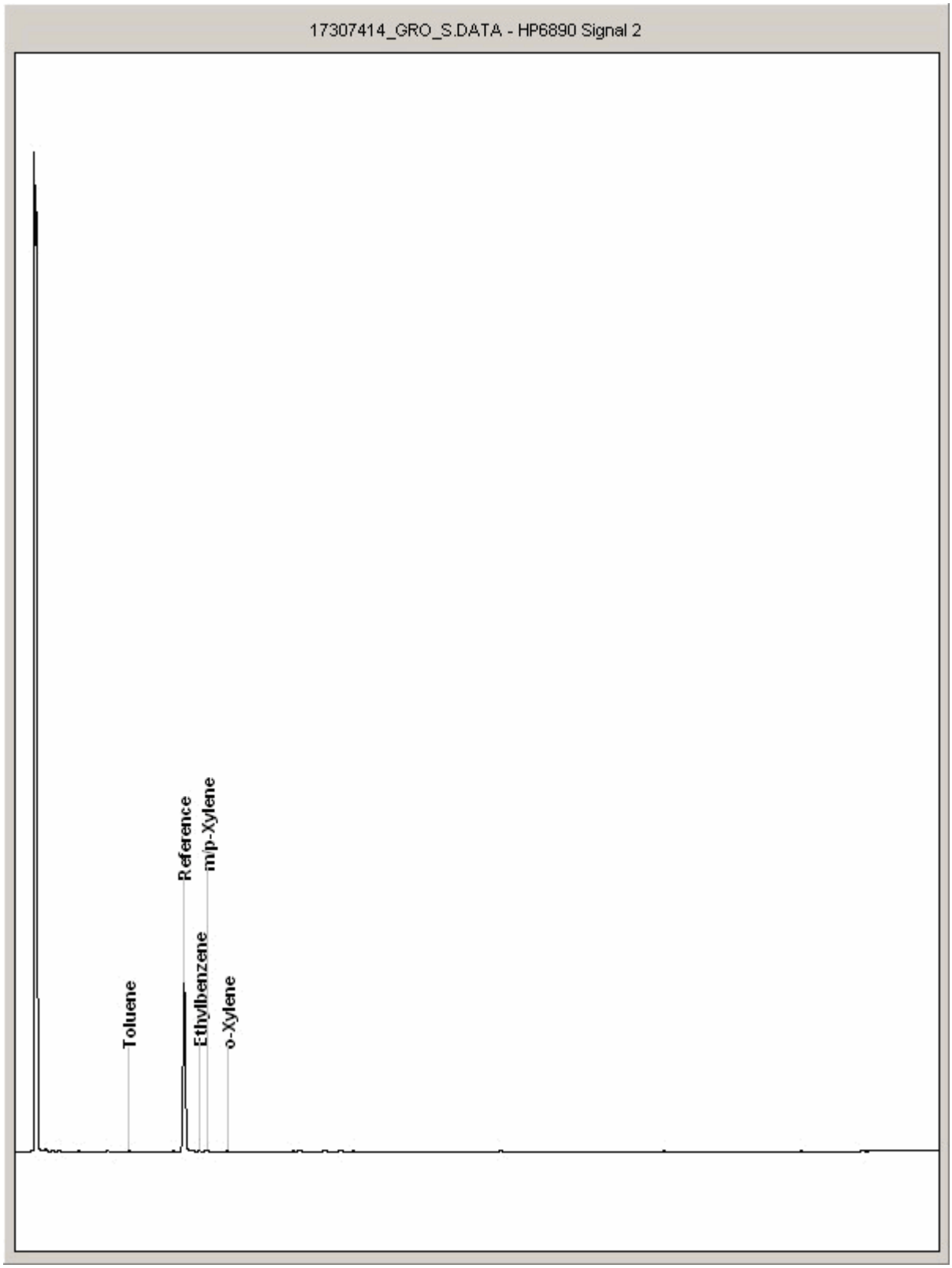
SDG:	180308-106	**Client Reference:**	JER1100	**Report Number:**	450506
Location:	Lostock	**Order Number:**	PO18-196	**Superseded Report:**	449008

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17307414
Sample ID : BH02A

Depth : 0.20 - 0.50



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	16 March 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180310-92
Your Reference:	JER1100
Location:	Lostock
Report No:	448439

We received 4 samples on Saturday March 10, 2018 and 1 of these samples were scheduled for analysis which was completed on Friday March 16, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17189598	BH-RPS-17	ES1	0.10 - 0.30	08/03/2018
17189570	BH-RPS-10a	ES1	0.30 - 0.45	07/03/2018
17189580	BH-RPS-10b	ES1	0.10 - 0.25	07/03/2018
17189588	BH-RPS-10b	ES1	0.35 - 0.50	07/03/2018

Maximum Sample/Coolbox Temperature (°C) : 8.8

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17189598	
Customer Sample Reference			BH-RPS-17	
AGS Reference			ES1	
Depth (m)			0.10 - 0.30	
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 1	X	
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 1	X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1		X
Metals in solid samples by OES	All	NDPs: 0 Tests: 1	X	
PAH by GCMS	All	NDPs: 0 Tests: 1	X	
pH	All	NDPs: 0 Tests: 1	X	
Sample description	All	NDPs: 0 Tests: 1	X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1	X	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17189598	BH-RPS-17	0.10 - 0.30	Grey	Rubble/Soil	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	BH-RPS-17
Depth (m)	0.10 - 0.30
Sample Type	Soil/Solid (S)
Date Sampled	08/03/2018
Sampled Time	.
Date Received	10/03/2018
SDG Ref	180310-92
Lab Sample No.(s)	17189598
AGS Reference	ES1

Component	LOD/Units	Method	BH-RPS-17
Moisture Content Ratio (% of as received sample)	%	PM024	3.5
pH	1 pH Units	TM133	9.15 #
Antimony	<0.6 mg/kg	TM181	<0.6 #
Arsenic	<0.6 mg/kg	TM181	1.26 #
Cadmium	<0.02 mg/kg	TM181	0.234 #
Chromium	<0.9 mg/kg	TM181	4.03 #
Cobalt	<0.1 mg/kg	TM181	0.552 #
Copper	<1.4 mg/kg	TM181	2.05 #
Lead	<0.7 mg/kg	TM181	3.52 #
Manganese	<0.13 mg/kg	TM181	101 #
Mercury	<0.14 mg/kg	TM181	<0.14 #
Molybdenum	<0.1 mg/kg	TM181	0.502 #
Nickel	<0.2 mg/kg	TM181	2.98 #
Selenium	<1 mg/kg	TM181	<1 #
Tin	<0.24 mg/kg	TM181	<0.24 #
Thallium	<0.7 mg/kg	TM181	<0.7 #
Vanadium	<0.2 mg/kg	TM181	8.52 #
Zinc	<1.9 mg/kg	TM181	17.9 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	BH-RPS-17
Depth (m)	0.10 - 0.30
Sample Type	Soil/Solid (S)
Date Sampled	08/03/2018
Sampled Time	.
Date Received	10/03/2018
SDG Ref	180310-92
Lab Sample No.(s)	17189598
AGS Reference	ES1

Component	LOD/Units	Method	BH-RPS-17
Naphthalene-d8 % recovery**	%	TM218	104
Acenaphthene-d10 % recovery**	%	TM218	95.8
Phenanthrene-d10 % recovery**	%	TM218	88.2
Chrysene-d12 % recovery**	%	TM218	92.4
Perylene-d12 % recovery**	%	TM218	97.2
Naphthalene	<9 µg/kg	TM218	<45 #
Acenaphthylene	<12 µg/kg	TM218	<60 #
Acenaphthene	<8 µg/kg	TM218	<40 #
Fluorene	<10 µg/kg	TM218	<50 #
Phenanthrene	<15 µg/kg	TM218	<75 #
Anthracene	<16 µg/kg	TM218	<80 #
Fluoranthene	<17 µg/kg	TM218	94.6 #
Pyrene	<15 µg/kg	TM218	116 #
Benz(a)anthracene	<14 µg/kg	TM218	<70 #
Chrysene	<10 µg/kg	TM218	<50 #
Benzo(b)fluoranthene	<15 µg/kg	TM218	<75 #
Benzo(k)fluoranthene	<14 µg/kg	TM218	<70 #
Benzo(a)pyrene	<15 µg/kg	TM218	<75 #
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<90 #
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<115 #
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<120 #
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<590

Validated

CERTIFICATE OF ANALYSIS

SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	BH-RPS-17
Depth (m)	0.10 - 0.30
Sample Type	Soil/Solid (S)
Date Sampled	08/03/2018
Sampled Time	.
Date Received	10/03/2018
SDG Ref	180310-92
Lab Sample No.(s)	17189598
AGS Reference	ES1

Component	LOD/Units	Method	BH-RPS-17
GRO Surrogate % recovery**	%	TM089	68
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	92.2 #
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #
Benzene	<10 µg/kg	TM089	<10 #
Toluene	<2 µg/kg	TM089	<2 #
Ethylbenzene	<3 µg/kg	TM089	<3 #
m,p-Xylene	<6 µg/kg	TM089	<6 #
o-Xylene	<3 µg/kg	TM089	<3 #
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	17.6
Aliphatics >C8-C10	<10 µg/kg	TM089	15.5
Aliphatics >C10-C12	<10 µg/kg	TM089	23.8
Aliphatics >C12-C16	<100 µg/kg	TM173	29500
Aliphatics >C16-C21	<100 µg/kg	TM173	15200
Aliphatics >C21-C35	<100 µg/kg	TM173	183000
Aliphatics >C35-C44	<100 µg/kg	TM173	79700
Total Aliphatics >C12-C44	<100 µg/kg	TM173	307000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	12.4
Aromatics >EC10-EC12	<10 µg/kg	TM089	16.6
Aromatics >EC12-EC16	<100 µg/kg	TM173	3920
Aromatics >EC16-EC21	<100 µg/kg	TM173	13700
Aromatics >EC21-EC35	<100 µg/kg	TM173	230000
Aromatics >EC35-EC44	<100 µg/kg	TM173	152000
Aromatics >EC40-EC44	<100 µg/kg	TM173	61800
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	399000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	707000

Validated

CERTIFICATE OF ANALYSIS

SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH-RPS-17 ES 1 0.10 - 0.30 SOLID 08/03/2018 00:00:00 10/03/2018 16:14:18 180310-92 17189598 TM048	15/03/2018	Marcin Magdziarek	Loose fibre in soil	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Test Completion Dates

Lab Sample No(s)	17189598
Customer Sample Ref.	BH-RPS-17
AGS Ref.	ES1
Depth	0.10 - 0.30
Type	Soil/Solid (S)
Asbestos ID in Solid Samples	15-Mar-2018
EPH CWG (Aliphatic) GC (S)	15-Mar-2018
EPH CWG (Aromatic) GC (S)	15-Mar-2018
GRO by GC-FID (S)	14-Mar-2018
Metals in solid samples by OES	16-Mar-2018
PAH by GCMS	15-Mar-2018
pH	13-Mar-2018
Sample description	10-Mar-2018
TPH CWG GC (S)	15-Mar-2018

ASSOCIATED AQC DATA

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1774
Total Aliphatics >C12-C35	TM173	**87.71** 66.17 : 105.28

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1774
Total Aromatics >EC12-EC35	TM173	**92.0** 65.78 : 102.90

GRO by GC-FID (S)

Component	Method Code	QC 1798
Benzene by GC (Moisture Corrected)	TM089	**98.0** 84.09 : 122.62
Ethylbenzene by GC (Moisture Corrected)	TM089	**103.0** 78.42 : 121.07
m & p Xylene by GC (Moisture Corrected)	TM089	**103.0** 77.69 : 121.76
MTBE GC-FID (Moisture Corrected)	TM089	**97.5** 77.69 : 125.19
o Xylene by GC (Moisture Corrected)	TM089	**101.5** 77.88 : 121.47
QC	TM089	**93.8** 69.62 : 106.27
Toluene by GC (Moisture Corrected)	TM089	**102.0** 78.31 : 121.42

Metals in solid samples by OES

Component	Method Code	QC 1793	QC 1790
Aluminium	TM181	**88.15** 75.13 : 109.48	**91.85** 75.13 : 109.48
Antimony	TM181	**101.16** 84.48 : 110.90	**100.39** 84.48 : 110.90
Arsenic	TM181	**100.26** 83.14 : 108.73	**98.71** 83.14 : 108.73
Barium	TM181	**96.09** 82.23 : 104.30	**96.88** 82.23 : 104.30
Beryllium	TM181	**99.66** 84.19 : 106.77	**98.29** 84.19 : 106.77
Boron	TM181	**92.94** 76.55 : 106.69	**91.81** 76.55 : 106.69
Cadmium	TM181	**106.38** 86.37 : 111.59	**101.06** 86.37 : 111.59
Chromium	TM181	**102.11** 81.29 : 118.71	**100.42** 81.29 : 118.71

CERTIFICATE OF ANALYSIS

SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Metals in solid samples by OES

		QC 1793	QC 1790
Cobalt	TM181	**103.13** 85.45 : 109.14	**100.63** 85.45 : 109.14
Copper	TM181	**95.34** 81.33 : 103.33	**94.76** 81.33 : 103.33
Iron	TM181	**97.22** 82.44 : 111.71	**98.61** 82.44 : 111.71
Lead	TM181	**99.79** 83.33 : 106.95	**96.38** 83.33 : 106.95
Manganese	TM181	**94.34** 80.56 : 102.33	**93.13** 80.56 : 102.33
Mercury	TM181	**103.92** 84.13 : 111.85	**100.39** 84.13 : 111.85
Molybdenum	TM181	**101.16** 84.19 : 110.39	**98.07** 84.19 : 110.39
Nickel	TM181	**102.8** 84.19 : 109.77	**99.53** 84.19 : 109.77
Phosphorus	TM181	**94.76** 73.47 : 116.86	**94.46** 73.47 : 116.86
Selenium	TM181	**100.3** 81.32 : 108.59	**98.22** 81.32 : 108.59
Strontium	TM181	**96.83** 84.70 : 105.87	**95.35** 84.70 : 105.87
Thallium	TM181	**103.13** 81.19 : 105.37	**97.27** 81.19 : 105.37
Tin	TM181	**104.26** 85.92 : 110.00	**99.65** 85.92 : 110.00
Titanium	TM181	**86.15** 73.44 : 113.17	**90.0** 73.44 : 113.17
Vanadium	TM181	**93.87** 78.62 : 101.47	**92.33** 78.62 : 101.47
Zinc	TM181	**101.57** 85.64 : 110.14	**99.3** 85.64 : 110.14

PAH by GCMS

Component	Method Code	QC 1715
Acenaphthene	TM218	**104.5** 78.17 : 114.45
Acenaphthylene	TM218	**100.0** 73.70 : 105.55
Anthracene	TM218	**100.5** 50.58 : 133.35
Benz(a)anthracene	TM218	**110.5** 73.03 : 124.35
Benzo(a)pyrene	TM218	**109.0** 76.86 : 123.01
Benzo(b)fluoranthene	TM218	**108.5** 75.92 : 130.86
Benzo(ghi)perylene	TM218	**105.5** 80.30 : 117.80
Benzo(k)fluoranthene	TM218	**106.5** 81.49 : 113.89
Chrysene	TM218	**105.5** 77.31 : 114.50

CERTIFICATE OF ANALYSIS

SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

PAH by GCMS

		QC 1715
Dibenzo(ah)anthracene	TM218	**105.0** 77.77 : 118.30
Fluoranthene	TM218	**103.0** 80.77 : 108.59
Fluorene	TM218	**104.5** 79.13 : 110.70
Indeno(123cd)pyrene	TM218	**105.5** 78.65 : 117.12
Naphthalene	TM218	**100.0** 77.09 : 108.37
Phenanthrene	TM218	**101.0** 76.02 : 112.05
Pyrene	TM218	**101.0** 79.98 : 107.66

pH

Component	Method Code	QC 1743
pH	TM133	**100.52** 99.25 : 102.83

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Validated

CERTIFICATE OF ANALYSIS

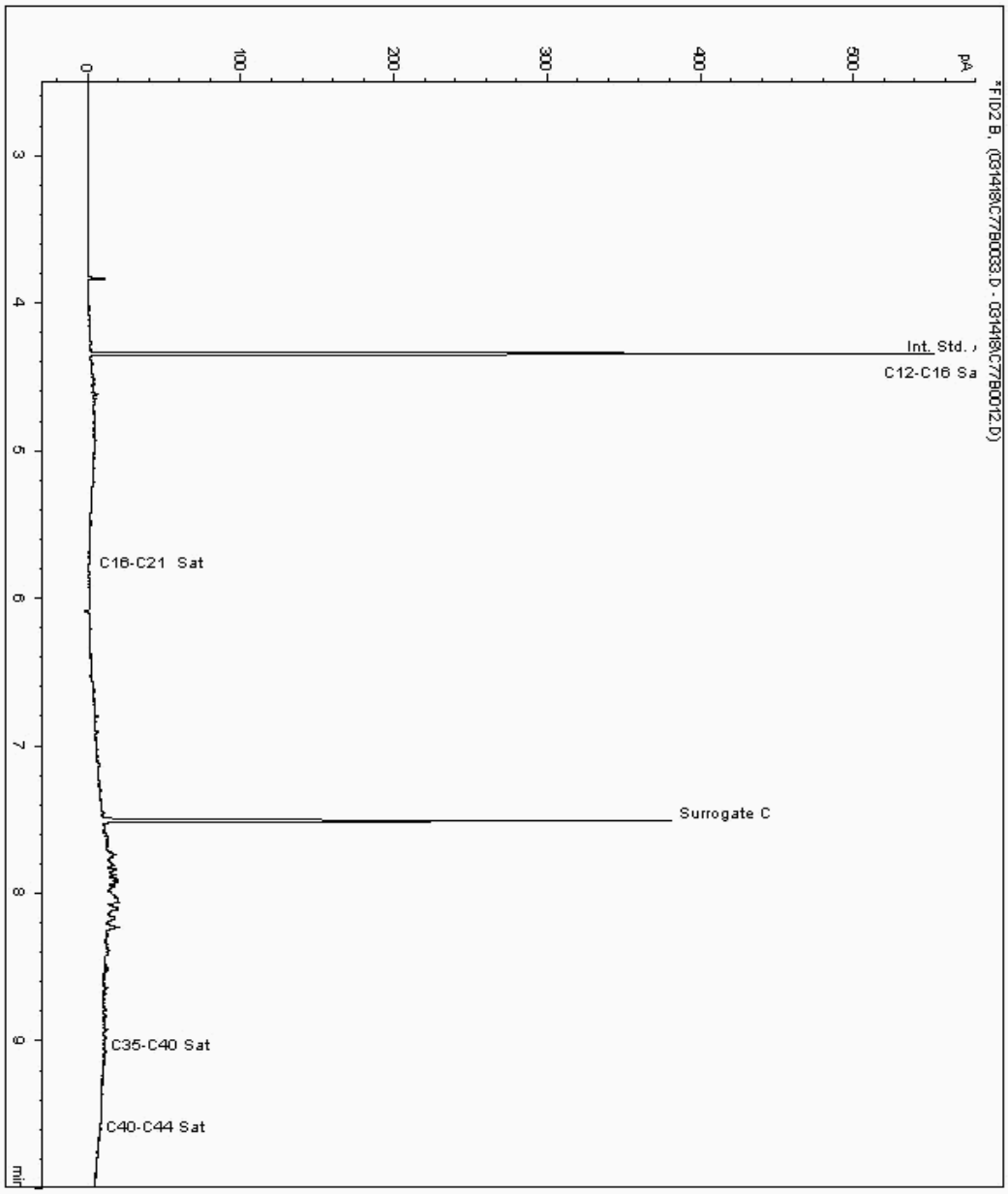
SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17190174 **Depth :** 0.10 - 0.30
Sample ID : BH-RPS-17

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16136961-
Date Acquired : 3/14/2018 5:27:27 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.000



Validated

CERTIFICATE OF ANALYSIS

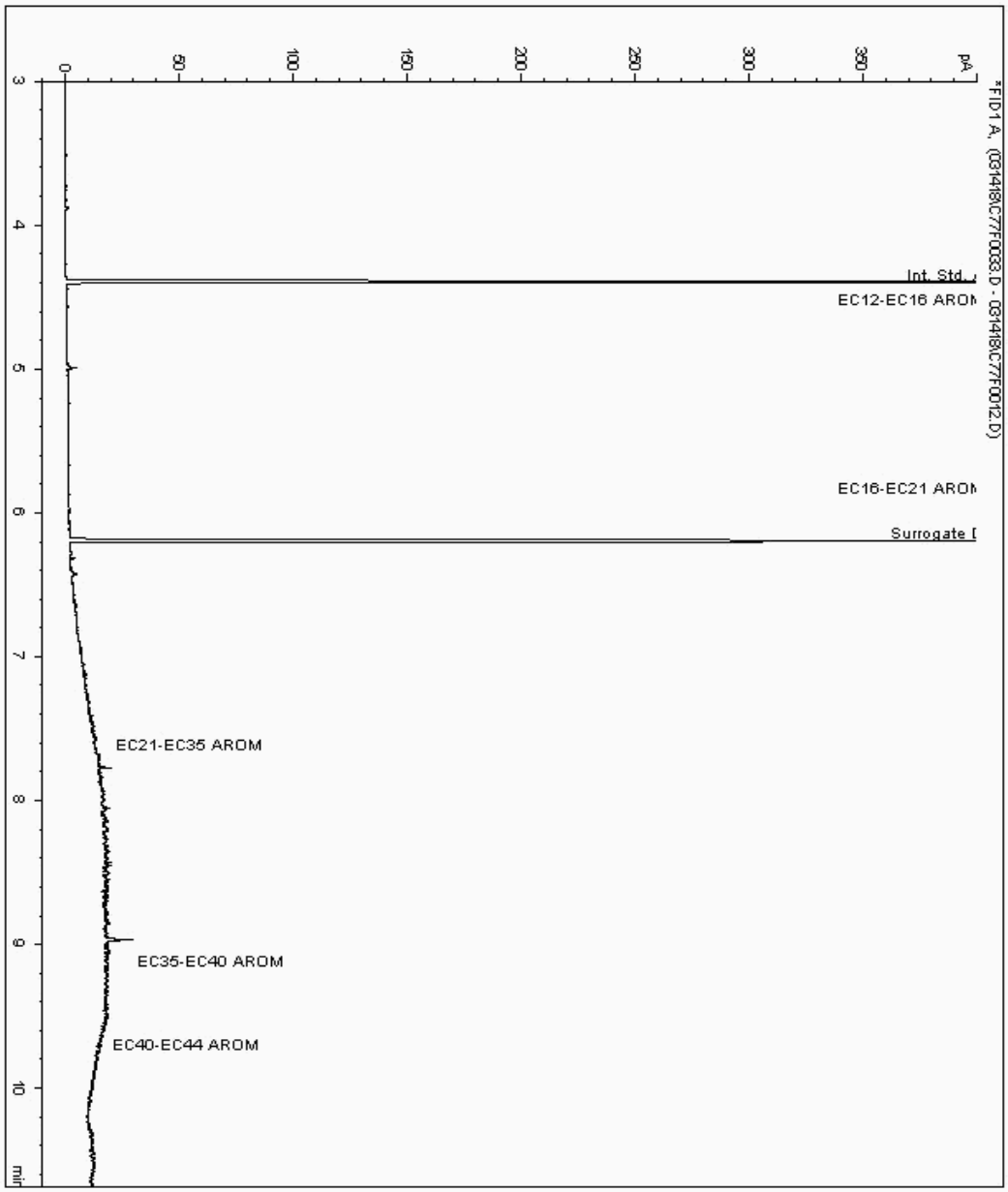
SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17190174 **Sample ID :** BH-RPS-17 **Depth :** 0.10 - 0.30

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16136962-
Date Acquired : 3/14/2018 5:27:27 PM
Units : ppb
Dilution:



Validated

CERTIFICATE OF ANALYSIS

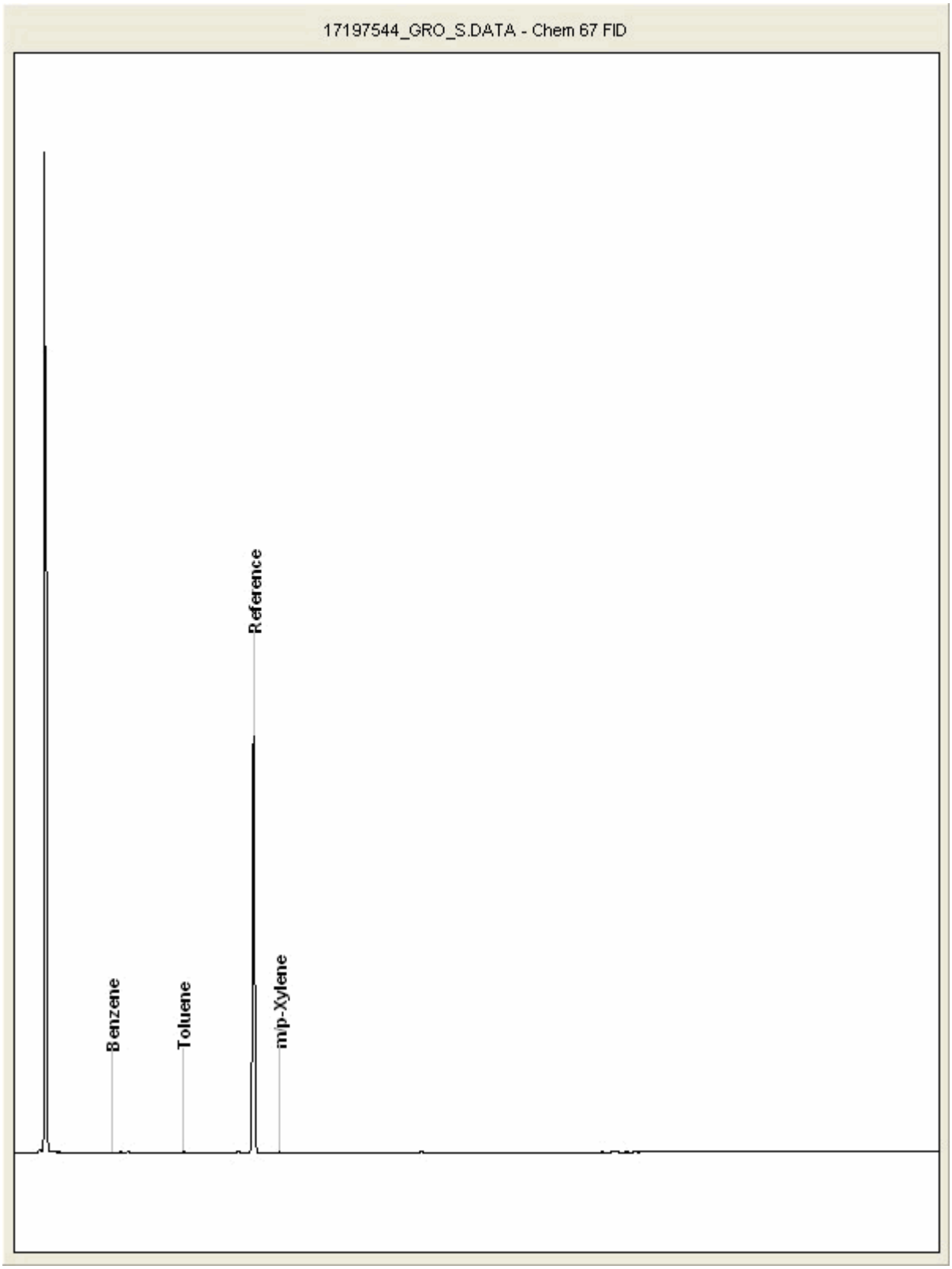
SDG:	180310-92	**Client Reference:**	JER1100	**Report Number:**	448439
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17197544
Sample ID : BH-RPS-17

Depth : 0.10 - 0.30



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	05 April 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180327-28
Your Reference:	JER1100
Location:	Lostock
Report No:	450462

We received 5 samples on Tuesday March 27, 2018 and 3 of these samples were scheduled for analysis which was completed on Thursday April 05, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

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CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17275261	WS-RPS-29a	ES1	0.40	23/03/2018
17275269	WS-RPS-29a	ES1	0.75	23/03/2018
17275279	WS-RPS-29a	ES1	2.60	23/03/2018
17275245	WS-RPS-36a	ES1	0.10 - 0.30	21/03/2018
17275252	WS-RPS-36a	ES1	0.35 - 0.42	21/03/2018

Maximum Sample/Coolbox Temperature (°C) : 10

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17275269			17275245			17275252		
Customer Sample Reference			WS-RPS-29a			WS-RPS-36a			WS-RPS-36a		
AGS Reference			ES1			ES1			ES1		
Depth (m)			0.75			0.10 - 0.30			0.35 - 0.42		
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 3	X			X			X		
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 3		X			X			X	
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 3		X			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 3			X			X			X
Metals in solid samples by OES	All	NDPs: 0 Tests: 3		X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 3		X			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 1		X							
pH	All	NDPs: 0 Tests: 3		X			X			X	
Sample description	All	NDPs: 0 Tests: 3		X			X			X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 2		X			X				
TPH CWG GC (S)	All	NDPs: 0 Tests: 3		X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 2			X			X			

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17275269	WS-RPS-29a	0.75	Dark Brown	Sand	Stones	Vegetation
17275245	WS-RPS-36a	0.10 - 0.30	Grey	Stone/Soil	Stones	None
17275252	WS-RPS-36a	0.35 - 0.42	Grey	Sandy Loam	Stones	Concrete/Aggregate

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29a	WS-RPS-36a	WS-RPS-36a			
Depth (m)			0.75	0.10 - 0.30	0.35 - 0.42			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			23/03/2018	21/03/2018	21/03/2018			
Sampled Time			.	.	.			
Date Received			27/03/2018	27/03/2018	27/03/2018			
SDG Ref			180327-28	180327-28	180327-28			
Lab Sample No.(s)			17275269	17275245	17275252			
AGS Reference			ES1	ES1	ES1			
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	7.8	11	8.7			
pH	1 pH Units	TM133	8.73 M	10.4 #	11.3 M			
PCB congener 118	<3 µg/kg	TM168	<3 M					
PCB congener 81	<3 µg/kg	TM168	<3 M					
PCB congener 77	<3 µg/kg	TM168	<3 M					
PCB congener 123	<3 µg/kg	TM168	<3 M					
PCB congener 114	<3 µg/kg	TM168	<3 M					
PCB congener 105	<3 µg/kg	TM168	<3 M					
PCB congener 126	<3 µg/kg	TM168	<3 M					
PCB congener 167	<3 µg/kg	TM168	<3 M					
PCB congener 156	<3 µg/kg	TM168	<3 M					
PCB congener 157	<3 µg/kg	TM168	<3 M					
PCB congener 169	<3 µg/kg	TM168	<3 M					
PCB congener 189	<3 µg/kg	TM168	<3 M					
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168	<36					
Antimony	<0.6 mg/kg	TM181	1.32 #	<0.6 #	0.643 #			
Arsenic	<0.6 mg/kg	TM181	18.6 M	1.75 #	4.19 M			
Cadmium	<0.02 mg/kg	TM181	0.74 M	0.156 #	0.248 M			
Chromium	<0.9 mg/kg	TM181	4.22 M	4.12 #	4.86 M			
Cobalt	<0.1 mg/kg	TM181	5.09 M	1.36 #	2.5 M			
Copper	<1.4 mg/kg	TM181	17.6 M	6.68 #	19 M			
Lead	<0.7 mg/kg	TM181	71.2 M	8.04 #	9.87 M			
Manganese	<0.13 mg/kg	TM181	331 M	85.1 #	180 M			
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 #	<0.14 M			
Molybdenum	<0.1 mg/kg	TM181	1.73 #	0.371 #	0.5 #			
Nickel	<0.2 mg/kg	TM181	14.8 M	3.92 #	5.28 M			
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #			
Tin	<0.24 mg/kg	TM181	0.845 #	0.297 #	0.564 #			
Thallium	<0.7 mg/kg	TM181	<0.7 #	<0.7 #	<0.7 #			
Vanadium	<0.2 mg/kg	TM181	12.3 #	5.92 #	11 #			
Zinc	<1.9 mg/kg	TM181	55.2 M	15 #	21.7 M			

Validated

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29a	WS-RPS-36a	WS-RPS-36a			
Depth (m)			0.75	0.10 - 0.30	0.35 - 0.42			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			23/03/2018	21/03/2018	21/03/2018			
Sampled Time			.	.	.			
Date Received			27/03/2018	27/03/2018	27/03/2018			
SDG Ref			180327-28	180327-28	180327-28			
Lab Sample No.(s)			17275269	17275245	17275252			
AGS Reference			ES1	ES1	ES1			
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	97	88.9	90.9			
Acenaphthene-d10 % recovery**	%	TM218	96	88	91.1			
Phenanthrene-d10 % recovery**	%	TM218	94	79	87.4			
Chrysene-d12 % recovery**	%	TM218	85.6	55.7	73.8			
Perylene-d12 % recovery**	%	TM218	78.5	44.5	65.7			
Naphthalene	<9 µg/kg	TM218	107 M	91.6 #	101 M			
Acenaphthylene	<12 µg/kg	TM218	<12 M	<12 #	<12 M			
Acenaphthene	<8 µg/kg	TM218	13.8 M	37.5 #	32.1 M			
Fluorene	<10 µg/kg	TM218	<10 M	19.8 #	20.8 M			
Phenanthrene	<15 µg/kg	TM218	230 M	206 #	225 M			
Anthracene	<16 µg/kg	TM218	45.3 M	41.2 #	30.4 M			
Fluoranthene	<17 µg/kg	TM218	326 M	283 #	162 M			
Pyrene	<15 µg/kg	TM218	271 M	260 #	141 M			
Benz(a)anthracene	<14 µg/kg	TM218	152 M	73.2 #	64.3 M			
Chrysene	<10 µg/kg	TM218	136 M	75.7 #	63.5 M			
Benzo(b)fluoranthene	<15 µg/kg	TM218	164 M	100 #	76.3 M			
Benzo(k)fluoranthene	<14 µg/kg	TM218	76.6 M	46.6 #	36.8 M			
Benzo(a)pyrene	<15 µg/kg	TM218	137 M	60.1 #	51.1 M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	76.3 M	29.9 #	27.7 M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	27.4 M	<23 #	<23 M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218	106 M	49.8 #	48.3 M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	1870	1380	1080			

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29a	WS-RPS-36a				
Depth (m)			0.75	0.10 - 0.30				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			23/03/2018	21/03/2018				
Sampled Time			.	.				
Date Received			27/03/2018	27/03/2018				
SDG Ref			180327-28	180327-28				
Lab Sample No.(s)			17275269	17275245				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
Phenol	<100 µg/kg	TM157	<100	<100				
Pentachlorophenol	<100 µg/kg	TM157	<100	<100				
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100				
Nitrobenzene	<100 µg/kg	TM157	<100	<100				
Isophorone	<100 µg/kg	TM157	<100	<100				
Hexachloroethane	<100 µg/kg	TM157	<100	<100				
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100				
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100				
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100				
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100				
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100				
Diethyl phthalate	<100 µg/kg	TM157	<100	<100				
n-Dibutyl phthalate	<100 µg/kg	TM157	454	<100				
Dibenzofuran	<100 µg/kg	TM157	<100	<100				
Carbazole	<100 µg/kg	TM157	<100	<100				
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100				
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100				
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100				
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100				
Azobenzene	<100 µg/kg	TM157	<100	<100				
4-Nitrophenol	<100 µg/kg	TM157	<100	<100				
4-Nitroaniline	<100 µg/kg	TM157	<100	<100				
4-Methylphenol	<100 µg/kg	TM157	<100	<100				
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100				
4-Chloroaniline	<100 µg/kg	TM157	<100	<100				
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100				
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100				
3-Nitroaniline	<100 µg/kg	TM157	<100	<100				
2-Nitrophenol	<100 µg/kg	TM157	<100	<100				
2-Nitroaniline	<100 µg/kg	TM157	<100	<100				
2-Methylphenol	<100 µg/kg	TM157	<100	<100				
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100				

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29a	WS-RPS-36a				
Depth (m)			0.75	0.10 - 0.30				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			23/03/2018	21/03/2018				
Sampled Time			-	-				
Date Received			27/03/2018	27/03/2018				
SDG Ref			180327-28	180327-28				
Lab Sample No.(s)			17275269	17275245				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100	<100				
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100	<100				
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100	<100				
2,4-Dimethylphenol	<100 µg/kg	TM157	<100	<100				
2,4-Dichlorophenol	<100 µg/kg	TM157	<100	<100				
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100	<100				
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100	<100				
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100	<100				
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100	<100				
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100	<100				
2-Chloronaphthalene	<100 µg/kg	TM157	<100	<100				
2-Methylnaphthalene	<100 µg/kg	TM157	<100	<100				
Acenaphthylene	<100 µg/kg	TM157	<100	<100				
Acenaphthene	<100 µg/kg	TM157	<100	<100				
Anthracene	<100 µg/kg	TM157	<100	<100				
Benzo(a)anthracene	<100 µg/kg	TM157	<100	<100				
Benzo(b)fluoranthene	<100 µg/kg	TM157	<100	<100				
Benzo(k)fluoranthene	<100 µg/kg	TM157	<100	<100				
Benzo(a)pyrene	<100 µg/kg	TM157	<100	<100				
Benzo(g,h,i)perylene	<100 µg/kg	TM157	<100	<100				
Chrysene	<100 µg/kg	TM157	<100	<100				
Fluoranthene	<100 µg/kg	TM157	<100	255				
Fluorene	<100 µg/kg	TM157	<100	<100				
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	<100	<100				
Phenanthrene	<100 µg/kg	TM157	<100	154				
Pyrene	<100 µg/kg	TM157	<100	158				
Naphthalene	<100 µg/kg	TM157	<100	<100				
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100	<100				
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100	<100				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29a	WS-RPS-36a	WS-RPS-36a			
Depth (m)			0.75	0.10 - 0.30	0.35 - 0.42			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			23/03/2018	21/03/2018	21/03/2018			
Sampled Time			.	.	.			
Date Received			27/03/2018	27/03/2018	27/03/2018			
SDG Ref			180327-28	180327-28	180327-28			
Lab Sample No.(s)			17275269	17275245	17275252			
AGS Reference			ES1	ES1	ES1			
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	74	21	39			
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 #	333 M			
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 #	<5 #	<5 #			
Benzene	<10 µg/kg	TM089	<10 M	<10 #	<10 M			
Toluene	<2 µg/kg	TM089	2.17 M	7.84 #	20.8 M			
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 #	3.29 M			
m,p-Xylene	<6 µg/kg	TM089	<6 M	6.72 #	20.8 M			
o-Xylene	<3 µg/kg	TM089	<3 M	4.48 #	12 M			
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	11.2	32.8			
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	56.9			
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	25.2			
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	78.8			
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	60.2			
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	39.4			
Aliphatics >C12-C16	<100 µg/kg	TM173	2310	739	3340			
Aliphatics >C16-C21	<100 µg/kg	TM173	5080	3400	8240			
Aliphatics >C21-C35	<100 µg/kg	TM173	27800	47900	38100			
Aliphatics >C35-C44	<100 µg/kg	TM173	13600	19200	11600			
Total Aliphatics >C12-C44	<100 µg/kg	TM173	48800	71200	61400			
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10			
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	20.8			
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	12.3	77.7			
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	26.3			
Aromatics >EC12-EC16	<100 µg/kg	TM173	1620	1630	5170			
Aromatics >EC16-EC21	<100 µg/kg	TM173	3500	6030	11200			
Aromatics >EC21-EC35	<100 µg/kg	TM173	21700	43000	38800			
Aromatics >EC35-EC44	<100 µg/kg	TM173	31600	46500	32100			
Aromatics >EC40-EC44	<100 µg/kg	TM173	17200	25400	16700			
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	58400	97200	87300			
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	107000	168000	149000			

Validated

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29a	WS-RPS-36a				
Depth (m)			0.75	0.10 - 0.30				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			23/03/2018	21/03/2018				
Sampled Time			.	.				
Date Received			27/03/2018	27/03/2018				
SDG Ref			180327-28	180327-28				
Lab Sample No.(s)			17275269	17275245				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	112	110				
Toluene-d8**	%	TM116	101	100				
4-Bromofluorobenzene**	%	TM116	83.6	78.5				
Dichlorodifluoromethane	<6 µg/kg	TM116	<120 M	<120 #				
Chloromethane	<7 µg/kg	TM116	<140 #	<140 #				
Vinyl Chloride	<6 µg/kg	TM116	<120 M	<120 #				
Bromomethane	<10 µg/kg	TM116	<200 M	<200 #				
Chloroethane	<10 µg/kg	TM116	<200 M	<200 #				
Trichlorofluorormethane	<6 µg/kg	TM116	<120 M	<120 #				
1,1-Dichloroethene	<10 µg/kg	TM116	<200 #	<200 #				
Carbon Disulphide	<7 µg/kg	TM116	<140 M	<140 #				
Dichloromethane	<10 µg/kg	TM116	<200 #	<200 #				
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 M	<200 #				
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<200 M	<200 #				
1,1-Dichloroethane	<8 µg/kg	TM116	<160 M	<160 #				
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<120 M	<120 #				
2,2-Dichloropropane	<10 µg/kg	TM116	<200	<200				
Bromochloromethane	<10 µg/kg	TM116	<200 M	<200 #				
Chloroform	<8 µg/kg	TM116	<160 M	<160 #				
1,1,1-Trichloroethane	<7 µg/kg	TM116	<140 M	<140 #				
1,1-Dichloropropene	<10 µg/kg	TM116	<200 M	<200 #				
Carbontetrachloride	<10 µg/kg	TM116	<200 M	<200 #				
1,2-Dichloroethane	<5 µg/kg	TM116	<100 M	<100 #				
Benzene	<9 µg/kg	TM116	<180 M	<180 #				
Trichloroethene	<9 µg/kg	TM116	<180 #	<180 #				
1,2-Dichloropropane	<10 µg/kg	TM116	<200 M	<200 #				
Dibromomethane	<9 µg/kg	TM116	<180 M	<180 #				
Bromodichloromethane	<7 µg/kg	TM116	<140 M	<140 #				
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<200 M	<200 #				
Toluene	<7 µg/kg	TM116	<140 M	<140 #				
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<200	<200				
1,1,2-Trichloroethane	<10 µg/kg	TM116	<200 M	<200 #				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29a	WS-RPS-36a				
Depth (m)			0.75	0.10 - 0.30				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			23/03/2018	21/03/2018				
Sampled Time			-	-				
Date Received			27/03/2018	27/03/2018				
SDG Ref			180327-28	180327-28				
Lab Sample No.(s)			17275269	17275245				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<140 M	<140 #				
Tetrachloroethene	<5 µg/kg	TM116	<100 M	<100 #				
Dibromochloromethane	<10 µg/kg	TM116	<200 M	<200 #				
1,2-Dibromoethane	<10 µg/kg	TM116	<200 M	<200 #				
Chlorobenzene	<5 µg/kg	TM116	<100 M	<100 #				
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<200 M	<200 #				
Ethylbenzene	<4 µg/kg	TM116	<80 M	<80 #				
p/m-Xylene	<10 µg/kg	TM116	<200 #	<200 #				
o-Xylene	<10 µg/kg	TM116	<200 M	<200 #				
Styrene	<10 µg/kg	TM116	<200 #	<200 #				
Bromoform	<10 µg/kg	TM116	<200 M	<200 #				
Isopropylbenzene	<5 µg/kg	TM116	<100 #	<100 #				
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<200 #	<200 #				
1,2,3-Trichloropropane	<16 µg/kg	TM116	<320 M	<320 #				
Bromobenzene	<10 µg/kg	TM116	<200 M	<200 #				
Propylbenzene	<10 µg/kg	TM116	<200 M	<200 #				
2-Chlorotoluene	<9 µg/kg	TM116	<180 M	<180 #				
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<160 M	<160 #				
4-Chlorotoluene	<10 µg/kg	TM116	<200 M	<200 #				
tert-Butylbenzene	<14 µg/kg	TM116	<280 M	<280 #				
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<180 #	<180 #				
sec-Butylbenzene	<10 µg/kg	TM116	<200	<200				
4-Isopropyltoluene	<10 µg/kg	TM116	<200 M	<200 #				
1,3-Dichlorobenzene	<8 µg/kg	TM116	<160 M	<160 #				
1,4-Dichlorobenzene	<5 µg/kg	TM116	<100 M	<100 #				
n-Butylbenzene	<11 µg/kg	TM116	<220	<220				
1,2-Dichlorobenzene	<10 µg/kg	TM116	<200 M	<200 #				
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<280 M	<280 #				
Tert-amyl methyl ether	<10 µg/kg	TM116	<200 #	<200 #				
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<400	<400				
Hexachlorobutadiene	<20 µg/kg	TM116	<400	<400				
Naphthalene	<13 µg/kg	TM116	<260 M	<260 #				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-29a	WS-RPS-36a				
Depth (m)			0.75	0.10 - 0.30				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			23/03/2018	21/03/2018				
Sampled Time			-	-				
Date Received			27/03/2018	27/03/2018				
SDG Ref			180327-28	180327-28				
Lab Sample No.(s)			17275269	17275245				
AGS Reference			ES1	ES1				
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<400 #	<400 #				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-29a ES 1 0.75 SOLID 23/03/2018 00:00:00 29/03/2018 12:47:16 180327-28 17275269 TM048	03/04/2018	Andrzej Ferfecki	loose fibres in soil	Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-36a ES 1 0.10 - 0.30 SOLID 21/03/2018 00:00:00 29/03/2018 11:27:35 180327-28 17275245 TM048	04/04/2018	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS-RPS-36a ES 1 0.35 - 0.42 SOLID 21/03/2018 00:00:00 29/03/2018 12:48:53 180327-28 17275252 TM048	04/04/2018	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Test Completion Dates

Lab Sample No(s)	17275269	17275245	17275252
Customer Sample Ref.	WS-RPS-29a	WS-RPS-36a	WS-RPS-36a
AGS Ref.	ES1	ES1	ES1
Depth	0.75	0.10 - 0.30	0.35 - 0.42
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Asbestos ID in Solid Samples	03-Apr-2018	04-Apr-2018	04-Apr-2018
EPH CWG (Aliphatic) GC (S)	04-Apr-2018	04-Apr-2018	04-Apr-2018
EPH CWG (Aromatic) GC (S)	04-Apr-2018	04-Apr-2018	04-Apr-2018
GRO by GC-FID (S)	05-Apr-2018	05-Apr-2018	05-Apr-2018
Metals in solid samples by OES	04-Apr-2018	04-Apr-2018	04-Apr-2018
PAH by GCMS	04-Apr-2018	04-Apr-2018	04-Apr-2018
PCBs by GCMS	04-Apr-2018		
pH	03-Apr-2018	03-Apr-2018	03-Apr-2018
Sample description	29-Mar-2018	29-Mar-2018	29-Mar-2018
Semi Volatile Organic Compounds	04-Apr-2018	04-Apr-2018	
TPH CWG GC (S)	05-Apr-2018	05-Apr-2018	05-Apr-2018
VOC MS (S)	05-Apr-2018	05-Apr-2018	

ASSOCIATED AQC DATA

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1744
Total Aliphatics >C12-C35	TM173	**92.29** 70.61 : 106.16

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1744
Total Aromatics >EC12-EC35	TM173	**82.0** 67.75 : 104.04

GRO by GC-FID (S)

Component	Method Code	QC 1791
Benzene by GC (Moisture Corrected)	TM089	**107.0** 81.89 : 118.00
Ethylbenzene by GC (Moisture Corrected)	TM089	**105.5** 78.56 : 121.52
m & p Xylene by GC (Moisture Corrected)	TM089	**105.75** 78.34 : 122.60
MTBE GC-FID (Moisture Corrected)	TM089	**106.0** 81.08 : 121.06
o Xylene by GC (Moisture Corrected)	TM089	**106.5** 80.90 : 117.77
QC	TM089	**94.14** 66.09 : 112.19
Toluene by GC (Moisture Corrected)	TM089	**104.5** 81.82 : 117.25

Metals in solid samples by OES

Component	Method Code	QC 1724	QC 1722	QC 1730
Aluminium	TM181	**94.81** 75.13 : 109.48	**91.11** 75.13 : 109.48	**91.85** 75.13 : 109.48
Antimony	TM181	**94.98** 84.48 : 110.90	**92.28** 84.48 : 110.90	**95.75** 84.48 : 110.90
Arsenic	TM181	**95.37** 83.14 : 108.73	**92.29** 83.14 : 108.73	**93.32** 83.14 : 108.73
Barium	TM181	**96.09** 82.23 : 104.30	**89.06** 82.23 : 104.30	**92.19** 82.23 : 104.30
Beryllium	TM181	**97.26** 84.19 : 106.77	**92.12** 84.19 : 106.77	**94.52** 84.19 : 106.77
Boron	TM181	**93.5** 76.55 : 106.69	**89.27** 76.55 : 106.69	**90.96** 76.55 : 106.69
Cadmium	TM181	**99.47** 86.37 : 111.59	**96.28** 86.37 : 111.59	**97.34** 86.37 : 111.59
Chromium	TM181	**100.63** 81.29 : 118.71	**96.2** 81.29 : 118.71	**97.26** 81.29 : 118.71

Metals in solid samples by OES

		QC 1724	QC 1722	QC 1730
Cobalt	TM181	**99.37** 85.45 : 109.14	**96.55** 85.45 : 109.14	**96.87** 85.45 : 109.14
Copper	TM181	**93.16** 81.33 : 103.33	**88.94** 81.33 : 103.33	**90.68** 81.33 : 103.33
Iron	TM181	**100.69** 82.44 : 111.71	**95.14** 82.44 : 111.71	**97.92** 82.44 : 111.71
Lead	TM181	**97.02** 83.33 : 106.95	**92.55** 83.33 : 106.95	**95.96** 83.33 : 106.95
Manganese	TM181	**94.55** 80.56 : 102.33	**91.72** 80.56 : 102.33	**92.93** 80.56 : 102.33
Mercury	TM181	**98.04** 84.13 : 111.85	**94.51** 84.13 : 111.85	**95.69** 84.13 : 111.85
Molybdenum	TM181	**96.53** 84.19 : 110.39	**92.66** 84.19 : 110.39	**95.75** 84.19 : 110.39
Nickel	TM181	**99.3** 84.19 : 109.77	**94.64** 84.19 : 109.77	**95.8** 84.19 : 109.77
Phosphorus	TM181	**106.29** 73.47 : 116.86	**101.35** 73.47 : 116.86	**103.59** 73.47 : 116.86
Selenium	TM181	**94.07** 81.32 : 108.59	**91.1** 81.32 : 108.59	**92.58** 81.32 : 108.59
Strontium	TM181	**96.83** 84.70 : 105.87	**92.81** 84.70 : 105.87	**93.87** 84.70 : 105.87
Thallium	TM181	**98.44** 81.19 : 105.37	**94.14** 81.19 : 105.37	**97.27** 81.19 : 105.37
Tin	TM181	**98.94** 85.92 : 110.00	**95.74** 85.92 : 110.00	**96.81** 85.92 : 110.00
Titanium	TM181	**93.08** 73.44 : 113.17	**88.46** 73.44 : 113.17	**91.54** 73.44 : 113.17
Vanadium	TM181	**94.17** 78.62 : 101.47	**88.34** 78.62 : 101.47	**91.1** 78.62 : 101.47
Zinc	TM181	**97.21** 85.64 : 110.14	**93.02** 85.64 : 110.14	**95.11** 85.64 : 110.14

PAH by GCMS

Component	Method Code	QC 1740
Acenaphthene	TM218	**92.0** 82.09 : 110.18
Acenaphthylene	TM218	**86.0** 77.92 : 100.70
Anthracene	TM218	**85.0** 79.96 : 103.02
Benz(a)anthracene	TM218	**96.0** 80.00 : 122.30
Benzo(a)pyrene	TM218	**96.0** 86.92 : 126.33
Benzo(b)fluoranthene	TM218	**99.0** 84.53 : 122.14
Benzo(ghi)perylene	TM218	**94.5** 77.49 : 119.12
Benzo(k)fluoranthene	TM218	**95.5** 88.94 : 117.08
Chrysene	TM218	**96.0** 87.67 : 116.32

PAH by GCMS

		QC 1740
Dibenzo(ah)anthracene	TM218	**96.5** 85.66 : 119.61
Fluoranthene	TM218	**90.0** 84.49 : 109.33
Fluorene	TM218	**93.5** 84.28 : 107.54
Indeno(123cd)pyrene	TM218	**96.0** 86.46 : 120.70
Naphthalene	TM218	**96.0** 82.88 : 115.56
Phenanthrene	TM218	**89.0** 81.59 : 110.61
Pyrene	TM218	**90.0** 83.25 : 107.60

PCBs by GCMS

Component	Method Code	QC 1778
PCB congener 101	TM168	**94.4** 76.50 : 116.94
PCB congener 105	TM168	**89.3** 75.93 : 120.03
PCB congener 114	TM168	**91.5** 76.64 : 119.06
PCB congener 118	TM168	**92.1** 75.18 : 118.08
PCB congener 123	TM168	**90.1** 75.72 : 117.84
PCB congener 126	TM168	**90.1** 76.10 : 125.90
PCB congener 138	TM168	**93.7** 78.04 : 121.72
PCB congener 153	TM168	**89.3** 77.67 : 119.31
PCB congener 156	TM168	**92.1** 73.48 : 118.60
PCB congener 157	TM168	**90.0** 77.47 : 123.91
PCB congener 167	TM168	**92.1** 75.77 : 121.97
PCB congener 169	TM168	**93.6** 74.49 : 130.71
PCB congener 180	TM168	**92.1** 77.34 : 121.26
PCB congener 189	TM168	**92.8** 75.60 : 127.20
PCB congener 28	TM168	**94.2** 79.43 : 121.67
PCB congener 52	TM168	**99.5** 78.72 : 119.28
PCB congener 77	TM168	**93.7** 74.04 : 120.60
PCB congener 81	TM168	**90.3** 71.38 : 116.14

CERTIFICATE OF ANALYSIS

SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

pH

Component	Method Code	QC 1746	QC 1777
pH	TM133	**100.39** 96.92 : 102.30	**100.65** 96.92 : 102.30

Semi Volatile Organic Compounds

Component	Method Code	QC 1754
4-Bromophenylphenylether (Soil)	TM157	**80.0** 65.45 : 121.76
Benzo(a)anthracene (Soil)	TM157	**92.0** 71.89 : 120.91
Hexachlorobutadiene (Soil)	TM157	**89.5** 69.80 : 117.77
Naphthalene (Soil)	TM157	**85.5** 71.89 : 120.16
Nitrobenzene (Soil)	TM157	**87.5** 70.00 : 118.00
Phenol (Soil)	TM157	**85.5** 68.54 : 114.86

VOC MS (S)

Component	Method Code	QC 1745
1,1,1,2-tetrachloroethane	TM116	**98.0** 77.56 : 115.55
1,1,1-Trichloroethane	TM116	**102.4** 73.73 : 118.05
1,1,2-Trichloroethane	TM116	**91.2** 77.12 : 116.04
1,1-Dichloroethane	TM116	**104.2** 74.46 : 129.15
1,2-Dichloroethane	TM116	**105.2** 92.57 : 128.78
1,4-Dichlorobenzene	TM116	**104.0** 72.76 : 126.34
2-Chlorotoluene	TM116	**101.8** 69.73 : 114.13
4-Chlorotoluene	TM116	**99.4** 66.90 : 112.46
Benzene	TM116	**101.8** 81.05 : 117.28
Carbon Disulphide	TM116	**96.0** 74.91 : 122.14
Carbontetrachloride	TM116	**116.4** 78.83 : 123.13
Chlorobenzene	TM116	**91.4** 75.00 : 115.53
Chloroform	TM116	**104.4** 77.34 : 121.84
Chloromethane	TM116	**86.8** 52.63 : 138.74

VOC MS (S)

		QC 1745
Cis-1,2-Dichloroethene	TM116	**107.8** 80.67 : 126.72
Dibromomethane	TM116	**92.6** 67.80 : 121.75
Dichloromethane	TM116	**102.6** 81.11 : 133.25
Ethylbenzene	TM116	**94.6** 72.53 : 109.84
Hexachlorobutadiene	TM116	**62.6** 12.82 : 152.73
Isopropylbenzene	TM116	**94.8** 54.46 : 125.44
Naphthalene	TM116	**105.6** 80.86 : 128.81
o-Xylene	TM116	**87.8** 67.46 : 102.22
p/m-Xylene	TM116	**88.4** 68.32 : 108.91
Sec-Butylbenzene	TM116	**91.0** 46.09 : 121.51
Tetrachloroethene	TM116	**95.8** 76.95 : 121.02
Toluene	TM116	**95.4** 74.24 : 107.42
Trichloroethene	TM116	**98.8** 77.61 : 111.54
Trichlorofluoromethane	TM116	**94.8** 71.31 : 128.41
Vinyl Chloride	TM116	**97.6** 68.26 : 133.45

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

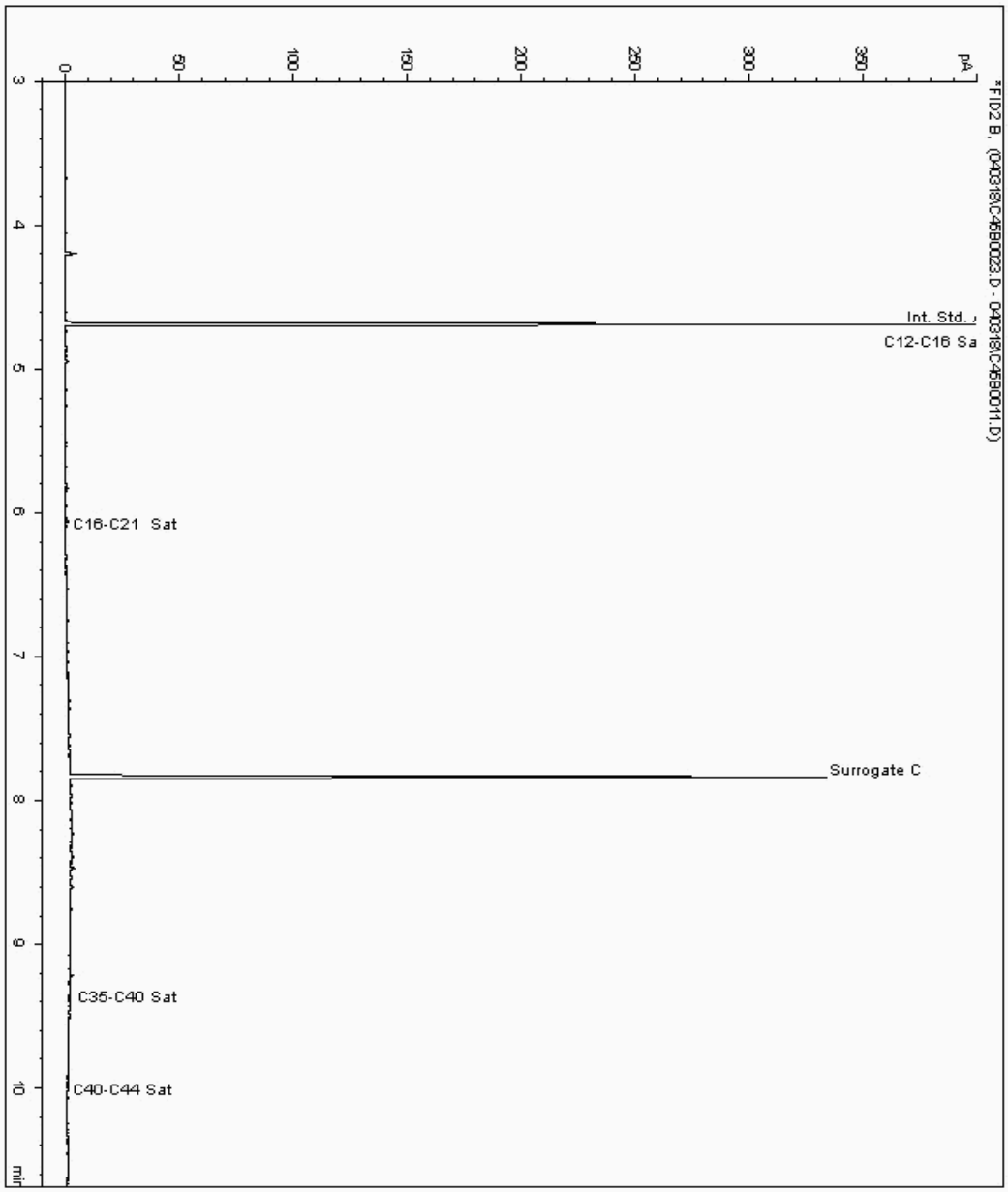
SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17289827 **Sample ID :** WS-RPS-36a **Depth :** 0.10 - 0.30

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16220507-
Date Acquired : 03/04/2018 15:36:16 PM
Units : ppb
Dilution: WS-RPS-36A[0.10 - 0.30] ->



Validated

CERTIFICATE OF ANALYSIS

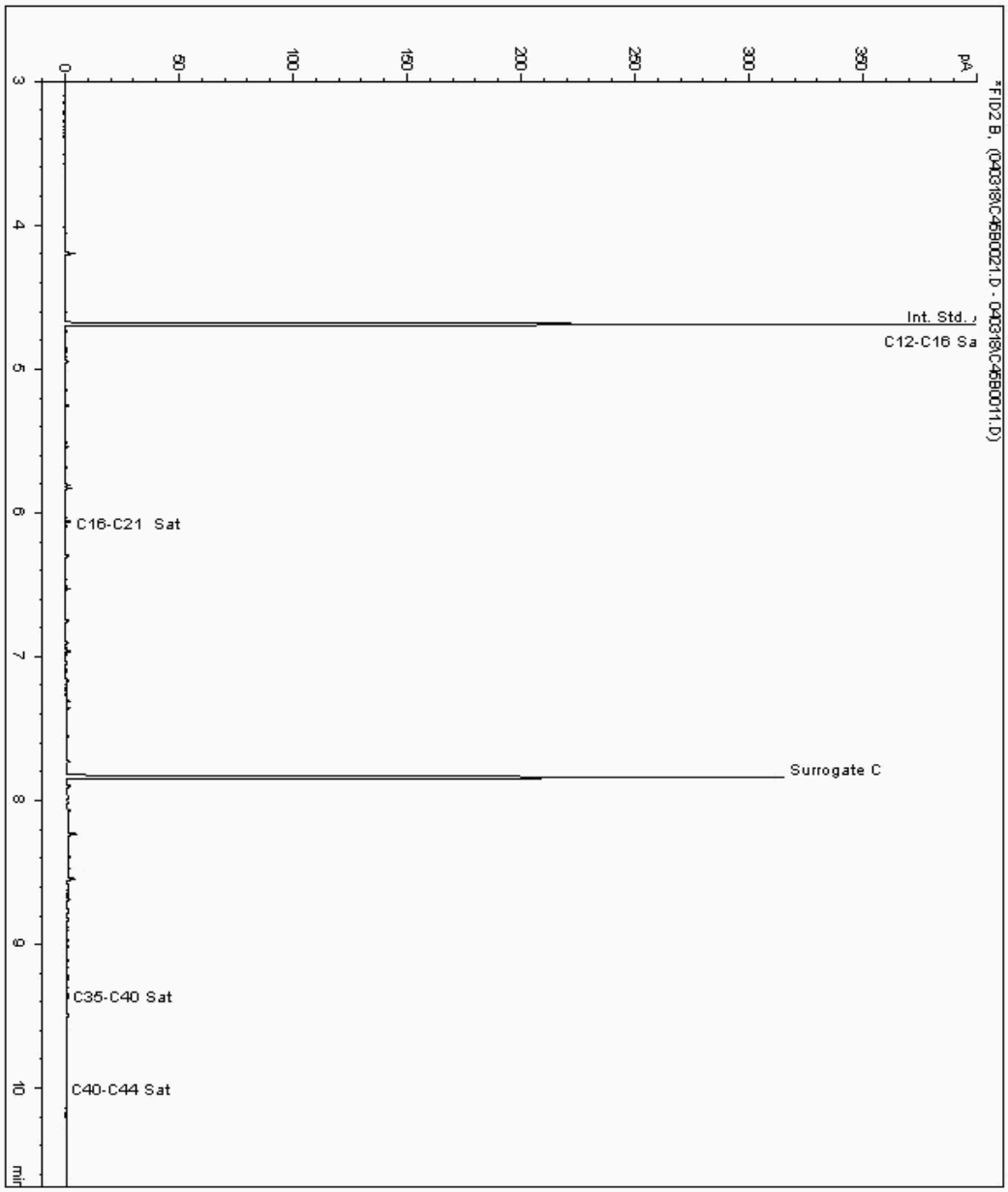
SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17289879 **Depth :** 0.75
Sample ID : WS-RPS-29a

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16220541-
Date Acquired : 03/04/2018 15:03:56 PM
Units : ppb
Dilution: WS-RPS-29A[0.75] ->

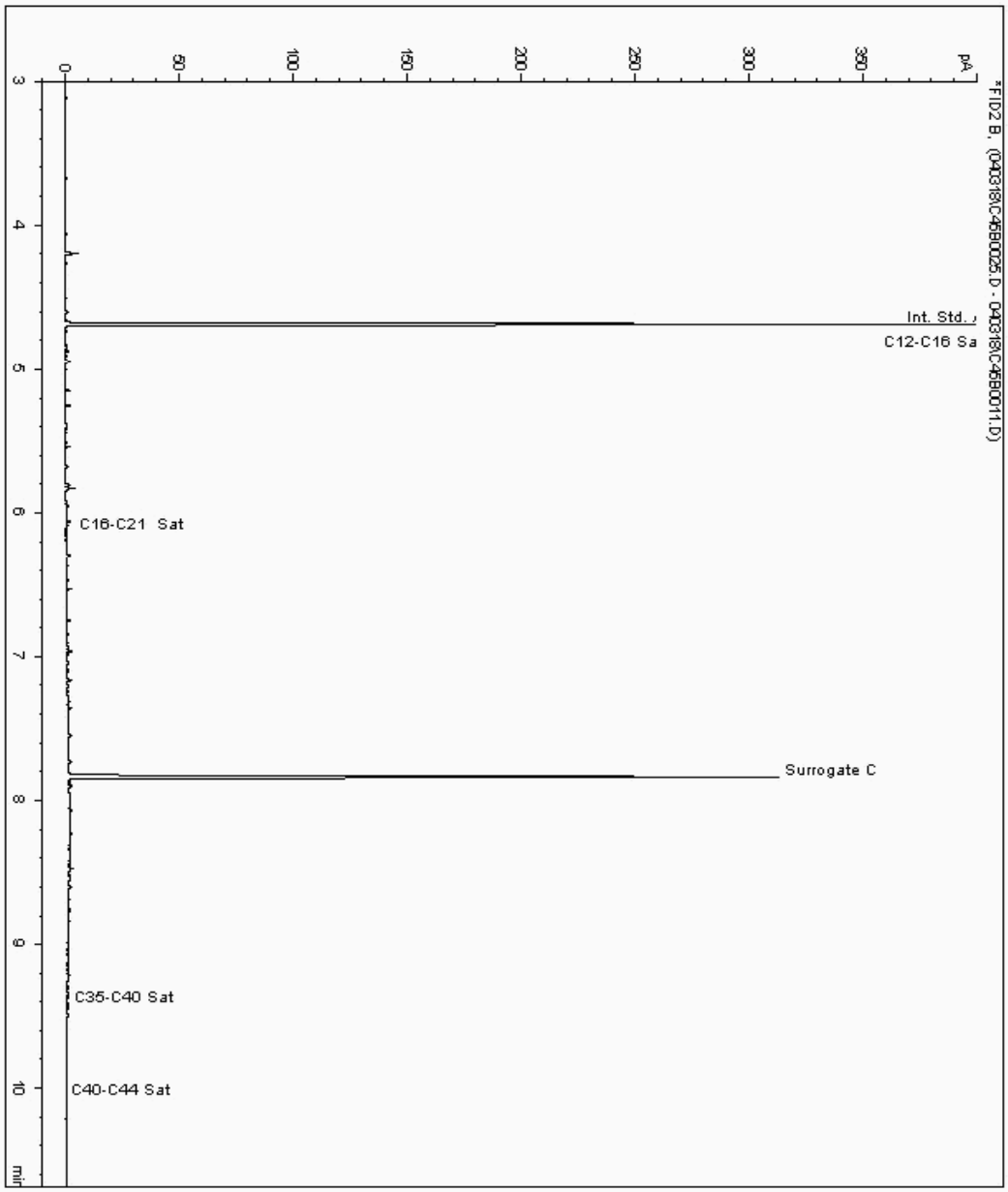


Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17289889 **Sample ID :** WS-RPS-36a **Depth :** 0.35 - 0.42

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16220521-
Date Acquired : 03/04/2018 16:08:36 PM
Units : ppb
Dilution: WS-RPS-36A[0.35 - 0.42] ->



Validated

CERTIFICATE OF ANALYSIS

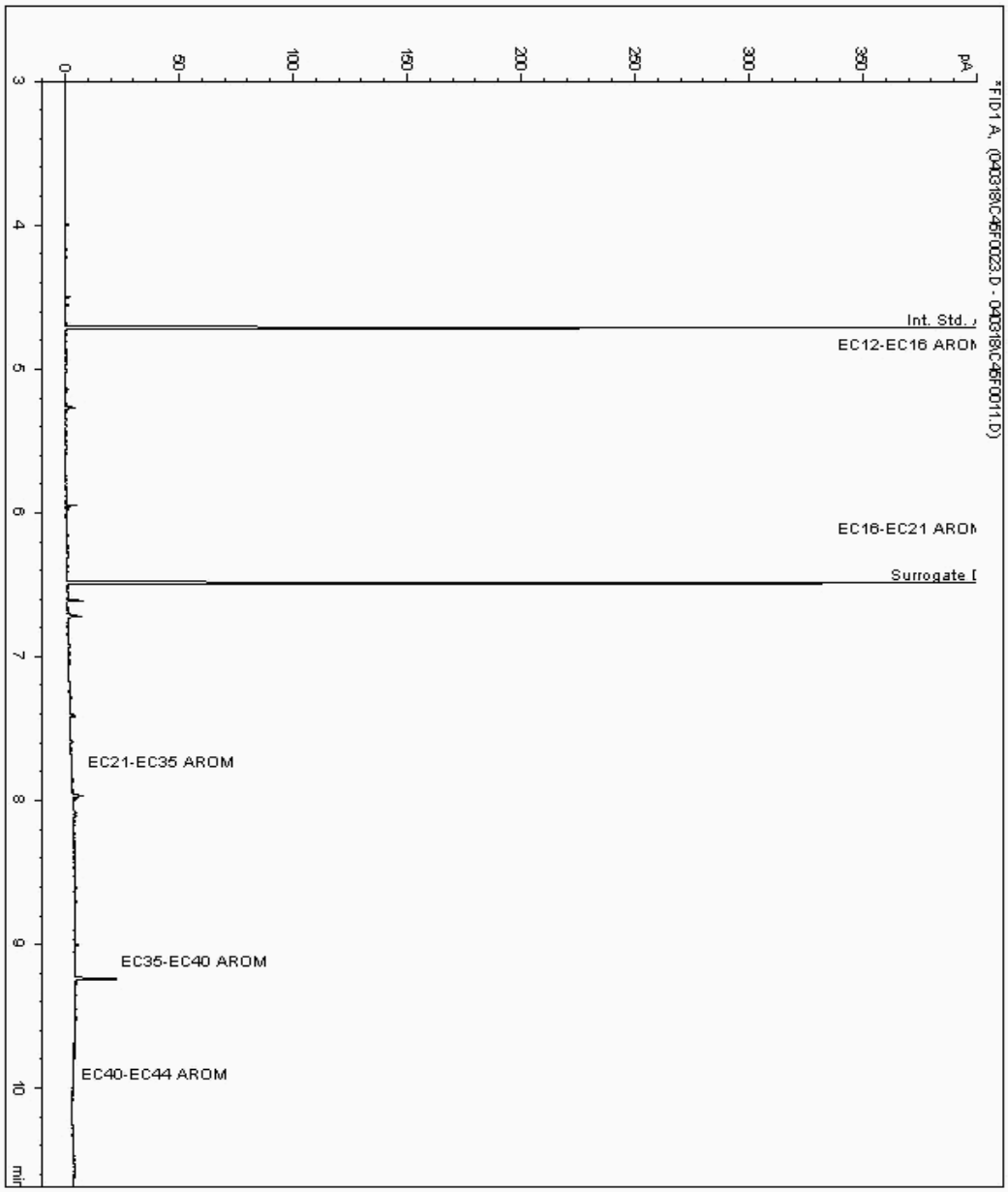
SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17289827 **Sample ID :** WS-RPS-36a **Depth :** 0.10 - 0.30

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16220508-
Date Acquired : 03/04/2018 15:36:16 PM
Units : ppb
Dilution: WS-RPS-36A[0.10 - 0.30] ->



Validated

CERTIFICATE OF ANALYSIS

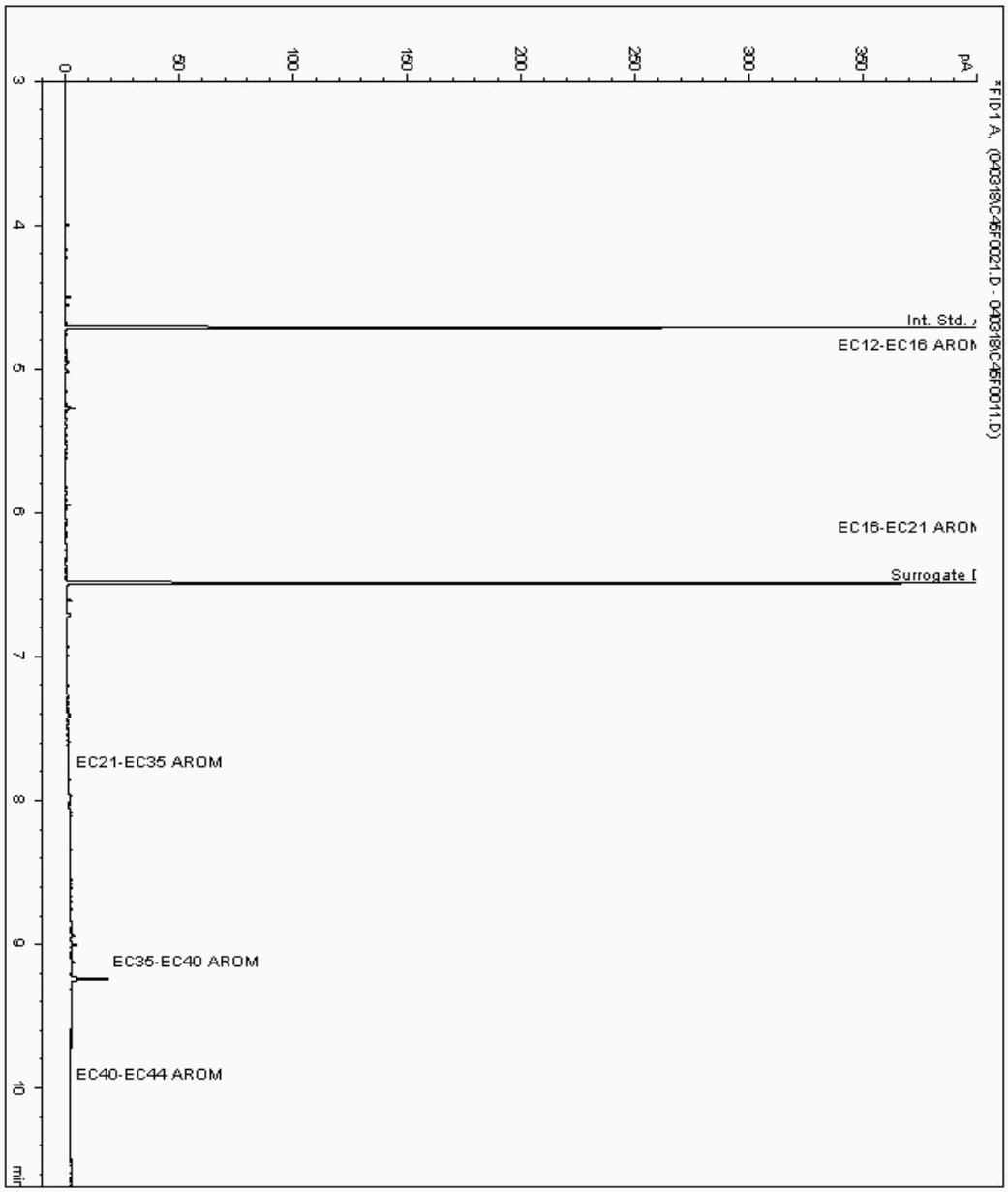
SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17289879 **Depth :** 0.75
Sample ID : WS-RPS-29a

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16220542-
Date Acquired : 03/04/2018 15:03:57 PM
Units : ppb
Dilution: WS-RPS-29A[0.75] ->



Validated

CERTIFICATE OF ANALYSIS

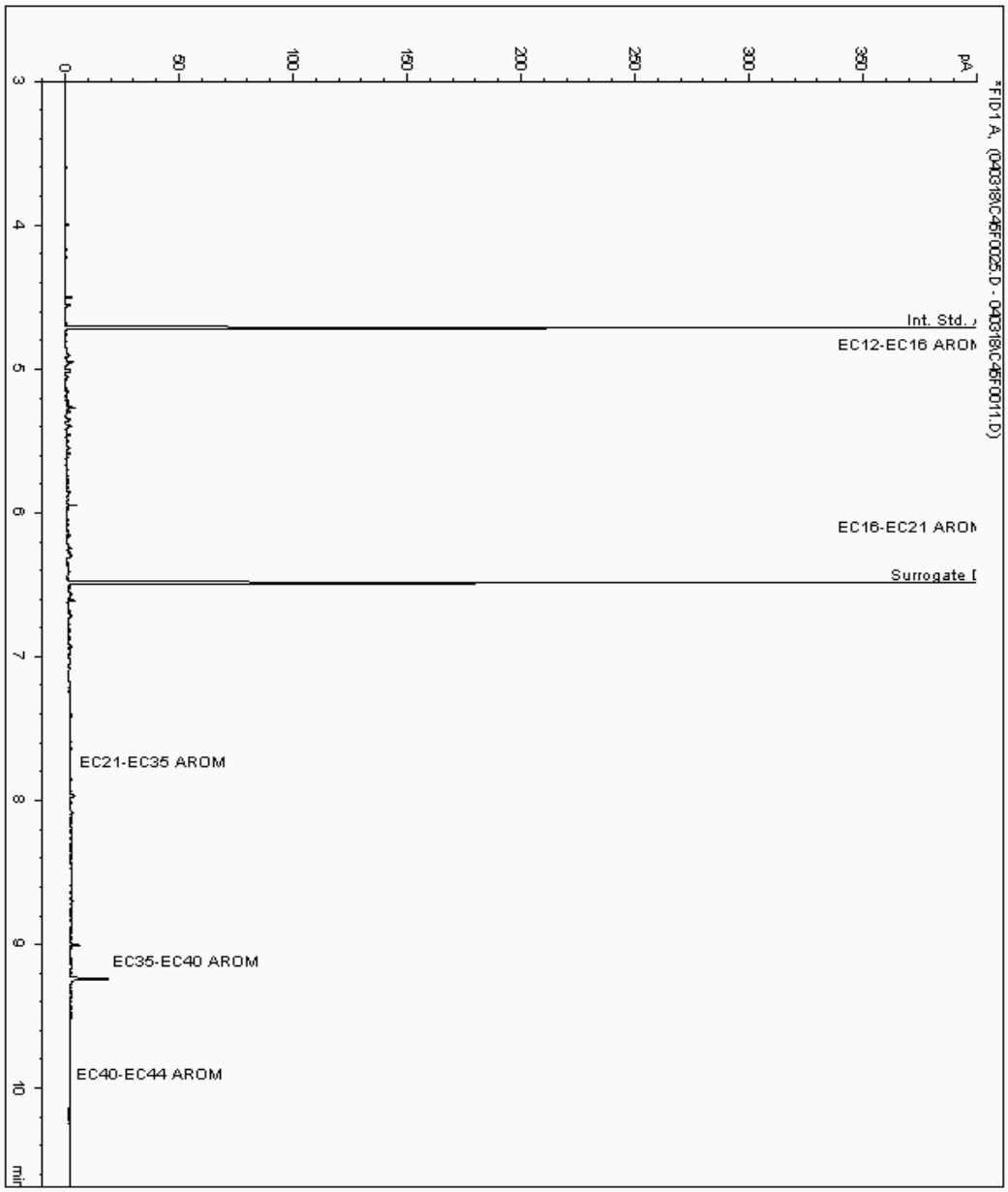
SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17289889 **Sample ID :** WS-RPS-36a **Depth :** 0.35 - 0.42

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16220522-
Date Acquired : 03/04/2018 16:08:36 PM
Units : ppb
Dilution: WS-RPS-36A[0.35 - 0.42] ->



Validated

CERTIFICATE OF ANALYSIS

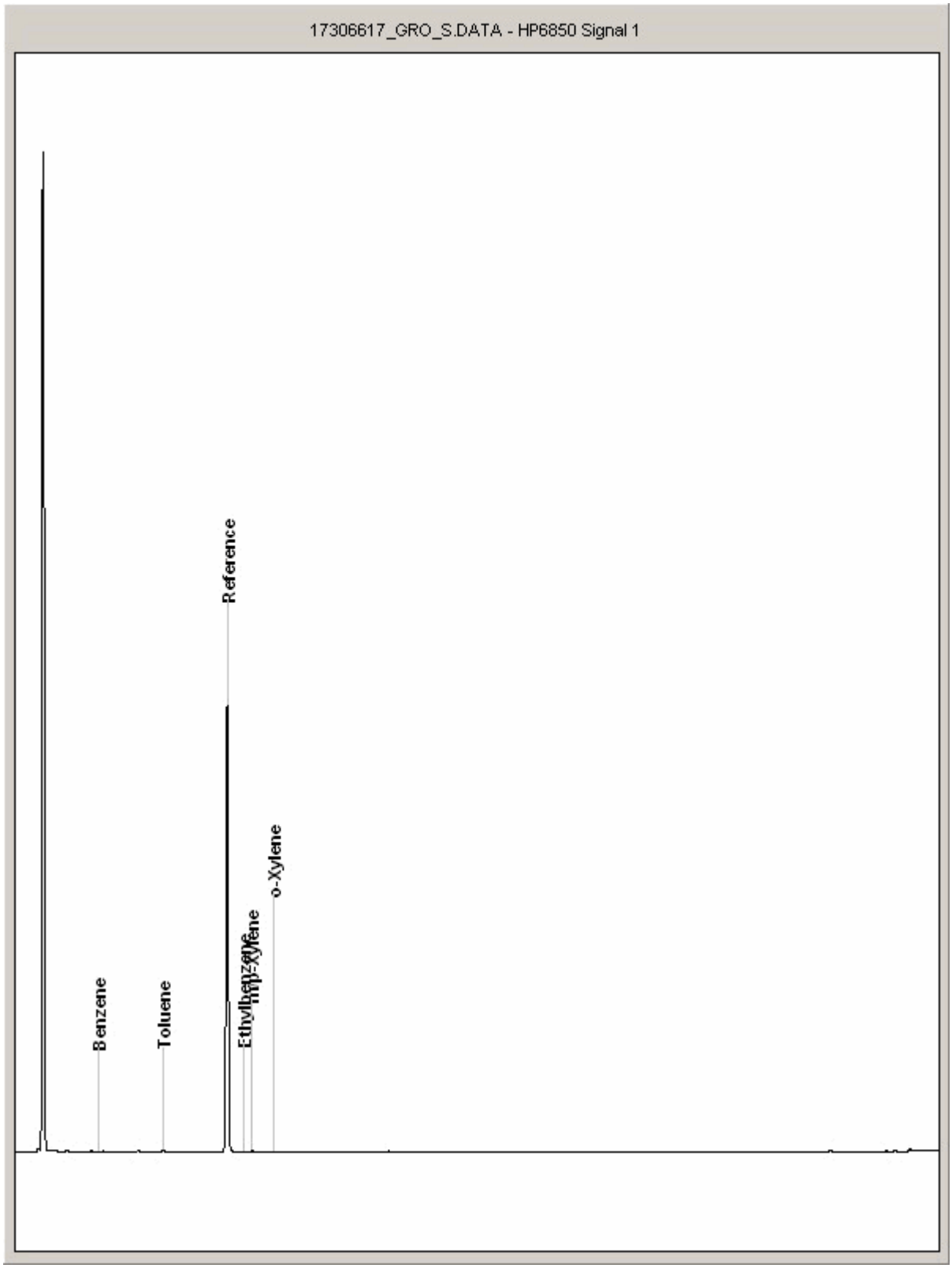
SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17306617
Sample ID : WS-RPS-29a

Depth : 0.75



Validated

CERTIFICATE OF ANALYSIS

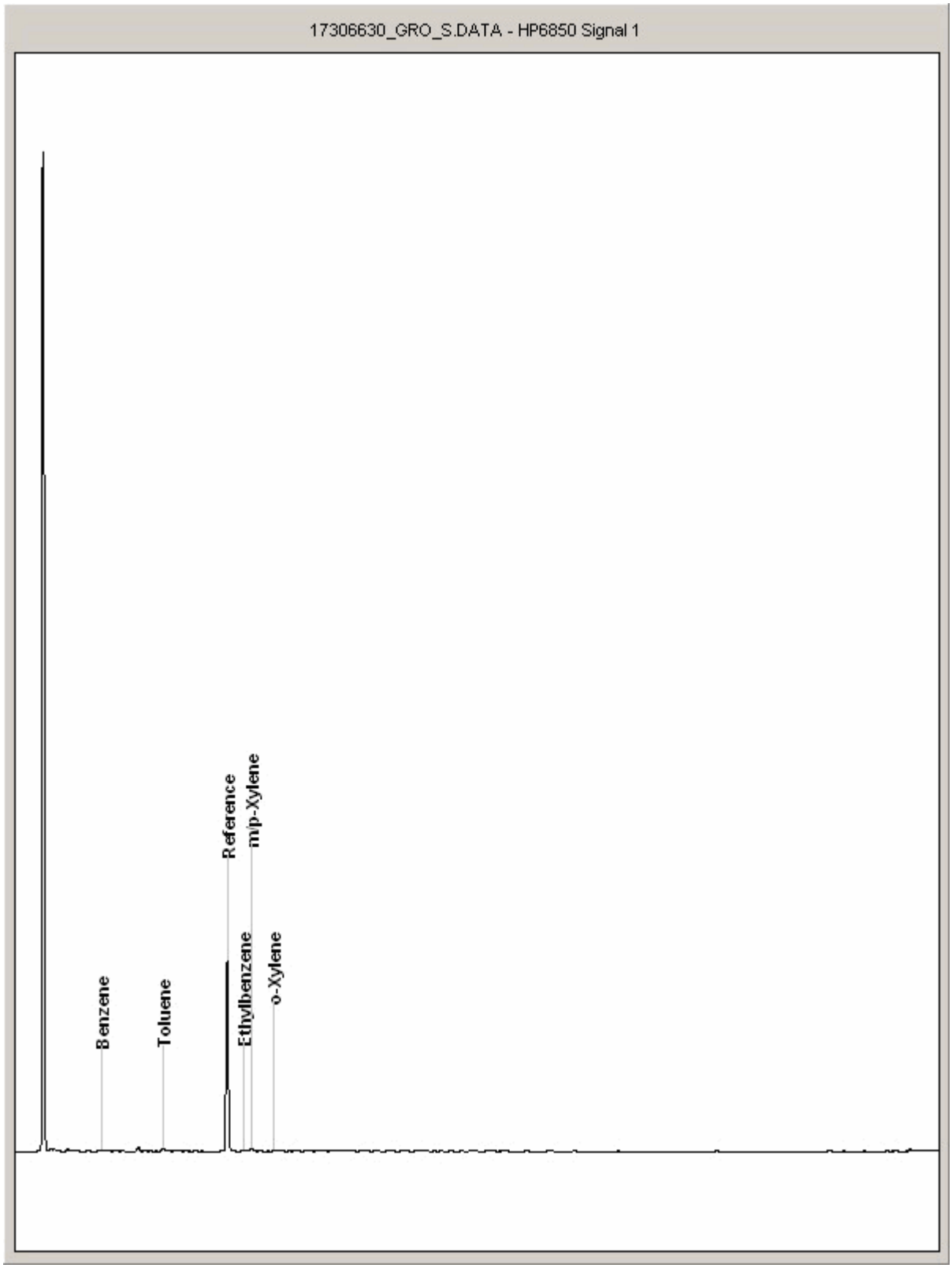
SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17306630
Sample ID : WS-RPS-36a

Depth : 0.35 - 0.42



Validated

CERTIFICATE OF ANALYSIS

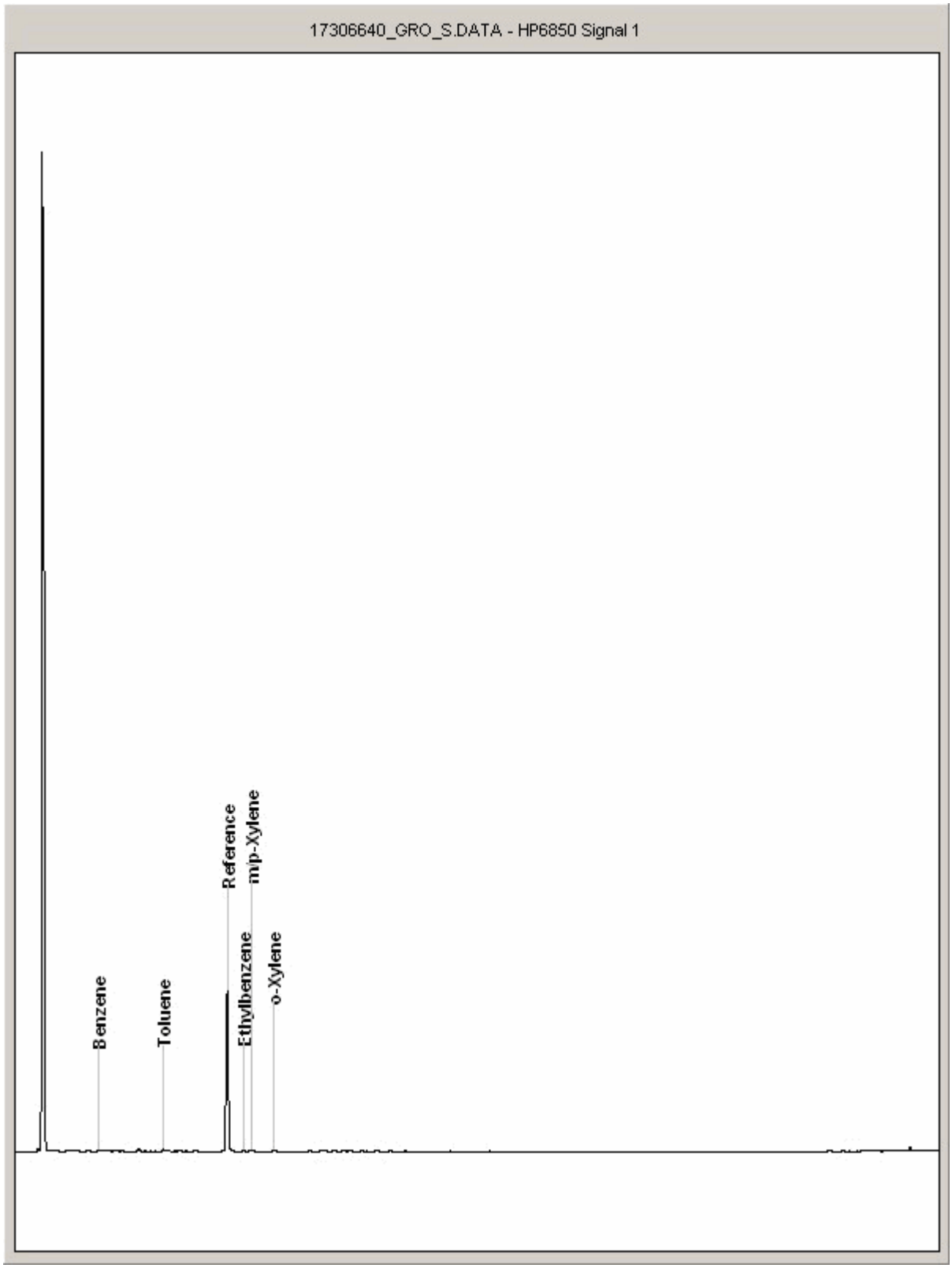
SDG:	180327-28	**Client Reference:**	JER1100	**Report Number:**	450462
Location:	Lostock	**Order Number:**		**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17306640
Sample ID : WS-RPS-36a

Depth : 0.10 - 0.30



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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260 Park Avenue
Aztec West
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Bristol
BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	21 March 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180309-3
Your Reference:	JER1100
Location:	Lostock
Report No:	448966

This report has been revised and directly supersedes 448788 in its entirety.

We received 18 samples on Friday March 09, 2018 and 17 of these samples were scheduled for analysis which was completed on Wednesday March 21, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17192655	BH-RPS-01		1.73	08/03/2018
17177563	BH-RPS-03	EW1	1.95	07/03/2018
17192660	BH-RPS-04		1.63	08/03/2018
17177469	BH-RPS-05	EW1	0.97	06/03/2018
17177516	BH-RPS-06	EW1	0.86	06/03/2018
17177495	BH-RPS-07	EW1	1.13	07/03/2018
17177481	BH-RPS-09	EW1	1.12	07/03/2018
17192658	BH-RPS-10		1.55	08/03/2018
17192661	BH-RPS-24		0.75	08/03/2018
17177544	BH-RPS-23a	EW1	1.02	07/03/2018
17192657	CP-RPS-03		0.93	08/03/2018
17192659	CP-RPS-04A		2.03	08/03/2018
17177466	NO ID			
17177573	WS-RPS-09	EW1	0.97	07/03/2018
17177531	WS-RPS-10	EW1	0.95	06/03/2018
17177600	WS-RPS-19	EW1	2.63	07/03/2018
17177587	WS-RPS-20	EW1	1.46	07/03/2018
17192656	WS-RPS-24		1.68	08/03/2018

Maximum Sample/Coolbox Temperature (°C) : **8**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17192655						17177563						17192660						17177469	
Customer Sample Reference			BH-RPS-01						BH-RPS-03						BH-RPS-04						BH-RPS-05	
AGS Reference									EW1												EW1	
Depth (m)			1.73						1.95						1.63						0.97	
Container			0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17			X						X						X					
Anions by Kone (w)	All	NDPs: 0 Tests: 17		X						X						X						X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 17					X						X						X			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17				X						X						X				
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17	X						X						X						X	
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17	X						X						X						X	
GRO by GC-FID (W)	All	NDPs: 0 Tests: 17						X						X						X		
Mercury Dissolved	All	NDPs: 0 Tests: 17				X						X						X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 17	X						X						X						X	
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 17	X						X						X						X	
pH Value	All	NDPs: 0 Tests: 17		X						X						X						X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 17	X						X						X						X	
TPH CWG (W)	All	NDPs: 0 Tests: 17	X						X						X						X	
VOC MS (W)	All	NDPs: 0 Tests: 17						X						X						X		

17177481	BH-RPS-09	EW1	1.12	NaOH (ALE245)	GW			X											
				HNO3 Filtered (ALE204)	GW				X				X						
				H2SO4 (ALE244)	GW	X													
				500ml Plastic (ALE208)	GW		X									X			
				0.5l glass bottle (ALE227)	GW					X	X			X	X		X	X	
17177495	BH-RPS-07	EW1	1.13	Vial (ALE297)	GW							X							X
				NaOH (ALE245)	GW			X											
				HNO3 Filtered (ALE204)	GW				X				X						
				500ml Plastic (ALE208)	GW		X									X			
				0.5l glass bottle (ALE227)	GW	X				X	X			X	X		X	X	
17177516	BH-RPS-06	EW1	0.86	Vial (ALE297)	GW							X							X
				NaOH (ALE245)	GW			X											
				HNO3 Filtered (ALE204)	GW				X				X						
				H2SO4 (ALE244)	GW	X													
				500ml Plastic (ALE208)	GW		X									X			
				0.5l glass bottle (ALE227)	GW					X	X			X	X		X	X	
17177469	BH-RPS-05	EW1	0.97	Vial (ALE297)	GW							X							X
				NaOH (ALE245)	GW			X											
				HNO3 Filtered (ALE204)	GW				X				X						
				H2SO4 (ALE244)	GW	X													

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17177481	17192658							17192661					17177544						17192657	
Customer Sample Reference			BH-RPS-09	BH-RPS-10							BH-RPS-24					BH-RPS-23a						CP-RPS-03	
AGS Reference			EW1													EW1							
Depth (m)			1.12	1.55							0.75					1.02						0.93	
Container			Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17				X					X						X						
Anions by Kone (w)	All	NDPs: 0 Tests: 17			X					X						X							X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 17						X					X						X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17					X					X						X					X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17		X						X					X						X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17		X						X					X						X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 17	X						X					X						X			
Mercury Dissolved	All	NDPs: 0 Tests: 17					X					X						X					X
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 17		X						X					X						X		
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 17		X						X					X						X		
pH Value	All	NDPs: 0 Tests: 17			X					X						X							X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 17		X						X					X						X		
TPH CWG (W)	All	NDPs: 0 Tests: 17		X						X					X						X		
VOC MS (W)	All	NDPs: 0 Tests: 17	X						X					X						X			

17177531	WS-RPS-10	EW1	0.95	NaOH (ALE245)	GW			X											
				HNO3 Filtered (ALE204)	GW				X				X						
				H2SO4 (ALE244)	GW	X													
				500ml Plastic (ALE208)	GW		X									X			
				0.5l glass bottle (ALE227)	GW					X	X			X	X		X	X	
17177573	WS-RPS-09	EW1	0.97	Vial (ALE297)	GW							X							X
				NaOH (ALE245)	GW			X											
				HNO3 Filtered (ALE204)	GW				X				X						
				H2SO4 (ALE244)	GW	X													
				500ml Plastic (ALE208)	GW		X									X			
				0.5l glass bottle (ALE227)	GW					X	X			X	X		X	X	
17192659	CP-RPS-04A		2.03	Vial (ALE297)	GW							X							X
				NaOH (ALE245)	GW			X											
				HNO3 Filtered (ALE204)	GW				X				X						
				H2SO4 (ALE244)	GW	X													
				500ml Plastic (ALE208)	GW		X									X			
				0.5l glass bottle (ALE227)	GW					X	X			X	X		X	X	
17192657	CP-RPS-03		0.93	Vial (ALE297)	GW							X							X
				NaOH (ALE245)	GW			X											
				H2SO4 (ALE244)	GW	X													

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17177531	17177600							17177587							17192656				
Customer Sample Reference			WS-RPS-10	WS-RPS-19							WS-RPS-20							WS-RPS-24				
AGS Reference			EW1	EW1							EW1											
Depth (m)			0.95	2.63							1.46							1.68				
Container			Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17				X						X						X				
Anions by Kone (w)	All	NDPs: 0 Tests: 17			X						X						X					
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 17						X						X						X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17					X						X						X			
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17		X						X						X						
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17		X						X						X						
GRO by GC-FID (W)	All	NDPs: 0 Tests: 17	X						X						X							X
Mercury Dissolved	All	NDPs: 0 Tests: 17					X						X						X			
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 17		X						X						X						
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 17		X						X						X						
pH Value	All	NDPs: 0 Tests: 17			X						X						X					
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 17		X						X						X						
TPH CWG (W)	All	NDPs: 0 Tests: 17		X						X						X						
VOC MS (W)	All	NDPs: 0 Tests: 17	X						X						X							X

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.73	1.95	1.63	0.97	0.86	1.13
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			08/03/2018	07/03/2018	08/03/2018	06/03/2018	06/03/2018	07/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17192655	17177563	17192660	17177469	17177516	17177495
AGS Reference				EW1		EW1	EW1	EW1
Component	**LOD/Units**	**Method**						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	30.3 #	3.35 #	6.27 #	4.85 #	5.23 #	0.2 2 #
Antimony (diss.filt)	<0.1 µg/l	TM152	3.74	0.443	1.07	1.32	0.811	0.767
Arsenic (diss.filt)	<0.5 µg/l	TM152	25.3 #	7.94 #	10.8 #	4.83 #	10.4 #	21.7 #
Cadmium (diss.filt)	<0.08 µg/l	TM152	0.1 #	<0.08 #	0.166 #	0.108 #	<0.08 #	0.108 #
Chromium (diss.filt)	<1 µg/l	TM152	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Cobalt (diss.filt)	<0.15 µg/l	TM152	2.25 #	1.24 #	4.01 #	7.12 #	0.556 #	7.98 #
Copper (diss.filt)	<0.3 µg/l	TM152	0.789 #	6.57 #	<0.3 #	<0.3 #	0.439 #	<0.3 #
Lead (diss.filt)	<0.2 µg/l	TM152	0.331 #	0.335 #	<0.2 #	0.317 #	1.06 #	<0.2 #
Manganese (diss.filt)	<1 µg/l	TM152	<1 #	2.3 #	5320 #	8130 #	743 #	2000 #
Molybdenum (diss.filt)	<0.5 µg/l	TM152	132 #	23.5 #	16.7 #	14.6 #	12 #	6.97 #
Nickel (diss.filt)	<0.4 µg/l	TM152	48.7 #	13.8 #	6.65 #	53.4 #	3.68 #	24.8 #
Selenium (diss.filt)	<0.5 µg/l	TM152	2.4 #	3.59 #	5.63 #	0.907 #	0.578 #	<0.5 #
Thallium (diss.filt)	<2 µg/l	TM152	<2	<2	<2	<2	<2	<2
Uranium (diss.filt)	<0.5 µg/l	TM152	<0.5	<0.5	6.2	4.1	0.935	11.2
Vanadium (diss.filt)	<1 µg/l	TM152	41.7 #	6.46 #	<1 #	<1 #	2.85 #	<1 #
Zinc (diss.filt)	<1 µg/l	TM152	<1 #	2.75 #	7.67 #	5.47 #	6.34 #	2.9 #
Tin (Diss.Filt)	<3 µg/l	TM152	<3	<3	<3	<3	<3	<3
Mercury (diss.filt)	<0.01 µg/l	TM183	0.674 #	0.0278 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #
Chloride	<2 mg/l	TM184	6220 #	3210 #	14000 #	13700 #	1830 #	1510 #
Sulphate (soluble) as S	<1 mg/l	TM184	118 #	20.3 #	276 #	307 #	159 #	540 #
PCB congener 118	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 77	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 81	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 105	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 114	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 123	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 126	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 156	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 157	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 167	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 169	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03
PCB congener 189	<0.015 µg/l	TM197	<0.03	<0.075	<0.015	<0.015	<0.015	<0.03

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.73	1.95	1.63	0.97	0.86	1.13
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			08/03/2018	07/03/2018	08/03/2018	06/03/2018	06/03/2018	07/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17192655	17177563	17192660	17177469	17177516	17177495
AGS Reference				EW1		EW1	EW1	EW1
Component	**LOD/Units**	**Method**						
Cyanide, Total	<0.05 mg/l	TM227	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Cyanide, Free	<0.05 mg/l	TM227	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
pH	<1 pH Units	TM256	12.5 #	11.4 #	7.2 #	7.63 #	8.19 #	8.13 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04A
Depth (m)			1.12	1.55	0.75	1.02	0.93	2.03
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	08/03/2018	08/03/2018	07/03/2018	08/03/2018	08/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177481	17192658	17192661	17177544	17192657	17192659
AGS Reference			EW1			EW1		
Component	**LOD/Units**	**Method**						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	5.42 #	29.1 #	5.05 #	1.33 #	16.6 #	0.652 #
Antimony (diss.filt)	<0.1 µg/l	TM152	0.741	5.57	<0.1	0.307	1.76	1.96
Arsenic (diss.filt)	<0.5 µg/l	TM152	8.35 #	62.2 #	4.94 #	10.4 #	2.65 #	2.49 #
Cadmium (diss.filt)	<0.08 µg/l	TM152	0.481 #	<0.08 #	<0.08 #	1.77 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152	<6 #	<1 #	<1 #	<1 #	<1 #	<1 #
Cobalt (diss.filt)	<0.15 µg/l	TM152	1.43 #	0.643 #	2.14 #	2.04 #	0.462 #	0.67 #
Copper (diss.filt)	<0.3 µg/l	TM152	<1.8 #	<0.3 #	52.7 #	<0.3 #	1.62 #	1.89 #
Lead (diss.filt)	<0.2 µg/l	TM152	<1.2 #	<0.2 #	10.2 #	0.714 #	<0.2 #	<0.2 #
Manganese (diss.filt)	<1 µg/l	TM152	2270 #	1.18 #	1.53 #	3140 #	40.9 #	251 #
Molybdenum (diss.filt)	<0.5 µg/l	TM152	10.6 #	91.5 #	50.2 #	1.33 #	7.38 #	6.16 #
Nickel (diss.filt)	<0.4 µg/l	TM152	5.4 #	9.15 #	80.6 #	9.76 #	1.49 #	4.62 #
Selenium (diss.filt)	<0.5 µg/l	TM152	<3 #	1.68 #	12 #	6.12 #	1.51 #	9.72 #
Thallium (diss.filt)	<2 µg/l	TM152	<12	<2	<2	<2	<2	<2
Uranium (diss.filt)	<0.5 µg/l	TM152	5.62	<0.5	<0.5	10.5	2.04	9.5
Vanadium (diss.filt)	<1 µg/l	TM152	<6 #	69.5 #	<1 #	<1 #	2.26 #	<1 #
Zinc (diss.filt)	<1 µg/l	TM152	<6 #	<1 #	<1 #	10.3 #	<1 #	<1 #
Tin (Diss.Filt)	<3 µg/l	TM152	<3	<3	<3	<3	<3	<3
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 #	0.0545 #	0.168 #	<0.01 #	<0.01 2 #	<0.01 #
Chloride	<2 mg/l	TM184	37900 #	7930 #	2090 #	11300 #	484 #	1070 #
Sulphate (soluble) as S	<1 mg/l	TM184	247 #	34.3 #	164 #	50 #	72 #	407 #
PCB congener 118	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 77	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 81	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 105	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 114	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 123	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 126	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 156	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 157	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 167	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 169	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075
PCB congener 189	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015	<0.075

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04A
Depth (m)			1.12	1.55	0.75	1.02	0.93	2.03
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	08/03/2018	08/03/2018	07/03/2018	08/03/2018	08/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177481	17192658	17192661	17177544	17192657	17192659
AGS Reference			EW1			EW1		
Component	**LOD/Units**	**Method**						
Cyanide, Total	<0.05 mg/l	TM227	0.101 #	0.077 #	<0.05 #	<0.05 #	0.525 #	<0.05 #
Cyanide, Free	<0.05 mg/l	TM227	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
pH	<1 pH Units	TM256	8.07 #	10.9 #	12.5 #	7.18 #	7.93 #	7.66 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			0.97	0.95	2.63	1.46	1.68
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	06/03/2018	07/03/2018	07/03/2018	08/03/2018
Sampled Time			.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177573	17177531	17177600	17177587	17192656
AGS Reference			EW1	EW1	EW1	EW1	
Component	**LOD/Units**	**Method**					
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	3.58 #	1.66 #	7.33 #	1.56 #	<0.2 #
Antimony (diss.filt)	<0.1 µg/l	TM152	0.357	0.111	0.558	<0.1	2.63
Arsenic (diss.filt)	<0.5 µg/l	TM152	5.84 #	1.25 #	4010 #	0.958 #	7.33 #
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152	<1 #	1.23 #	<1 #	<1 #	<1 #
Cobalt (diss.filt)	<0.15 µg/l	TM152	2.5 #	0.15 #	7.62 #	<0.15 #	<0.15 #
Copper (diss.filt)	<0.3 µg/l	TM152	17 #	10.3 #	<0.3 #	2.71 #	0.406 #
Lead (diss.filt)	<0.2 µg/l	TM152	1.33 #	2.72 #	<0.2 #	0.713 #	<0.2 #
Manganese (diss.filt)	<1 µg/l	TM152	1.87 #	<1 #	2690 #	<1 #	6.39 #
Molybdenum (diss.filt)	<0.5 µg/l	TM152	40.4 #	20.7 #	9 #	12.1 #	1.13 #
Nickel (diss.filt)	<0.4 µg/l	TM152	33.8 #	8.6 #	10.4 #	2.74 #	0.665 #
Selenium (diss.filt)	<0.5 µg/l	TM152	2.33 #	13.1 #	<0.5 #	1.69 #	0.715 #
Thallium (diss.filt)	<2 µg/l	TM152	<2	<2	<2	<2	<2
Uranium (diss.filt)	<0.5 µg/l	TM152	<0.5	<0.5	1.02	<0.5	0.707
Vanadium (diss.filt)	<1 µg/l	TM152	1.23 #	1.61 #	<1 #	<1 #	1.25 #
Zinc (diss.filt)	<1 µg/l	TM152	2.76 #	4.12 #	10.3 #	2.39 #	<1 #
Tin (Diss.Filt)	<3 µg/l	TM152	<3	<3	<3	<3	<3
Mercury (diss.filt)	<0.01 µg/l	TM183	0.323 #	0.029 #	<0.01 #	0.0183 #	<0.01 #
Chloride	<2 mg/l	TM184	729 #	450 #	1370 #	501 #	30.4 #
Sulphate (soluble) as S	<1 mg/l	TM184	<1 #	84.3 #	60 #	67.7 #	151 #
PCB congener 118	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 77	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 81	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 105	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 114	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 123	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 126	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 156	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 157	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 167	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 169	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015
PCB congener 189	<0.015 µg/l	TM197	<0.075	<0.015	<0.015	<0.015	<0.015

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			0.97	0.95	2.63	1.46	1.68
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	06/03/2018	07/03/2018	07/03/2018	08/03/2018
Sampled Time			-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177573	17177531	17177600	17177587	17192656
AGS Reference			EW1	EW1	EW1	EW1	
Component	**LOD/Units**	**Method**					
Cyanide, Total	<0.05 mg/l	TM227	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Cyanide, Free	<0.05 mg/l	TM227	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
pH	<1 pH Units	TM256	13.2 #	12.7 #	7.29 #	12.5 #	8.06 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.73	1.95	1.63	0.97	0.86	1.13
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			08/03/2018	07/03/2018	08/03/2018	06/03/2018	06/03/2018	07/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17192655	17177563	17192660	17177469	17177516	17177495
AGS Reference				EW1		EW1	EW1	EW1
Component	**LOD/Units**	**Method**						
Naphthalene (aq)	<0.01 µg/l	TM178	31.4	0.343	0.095	0.149	0.544 @	0.321
Acenaphthene (aq)	<0.005 µg/l	TM178	9.13	0.0626	0.014	0.0342	4.3 @	0.0933
Acenaphthylene (aq)	<0.005 µg/l	TM178	0.359	0.0389	0.00984	0.0354	1.08 @	0.121
Fluoranthene (aq)	<0.005 µg/l	TM178	4.76	1.56	0.171	0.155	2.43 @	4.29
Anthracene (aq)	<0.005 µg/l	TM178	1.48	0.126	0.0254	0.0317	0.846 @	0.377
Phenanthrene (aq)	<0.005 µg/l	TM178	20.1	0.648	0.194	0.267	1.1 @	1.45
Fluorene (aq)	<0.005 µg/l	TM178	2.56	0.079	0.0324	0.0779	2.7 @	0.103
Chrysene (aq)	<0.005 µg/l	TM178	1.83	1.09	0.131	0.0706	0.347 @	2.79
Pyrene (aq)	<0.005 µg/l	TM178	4.44	1.42	0.173	0.148	1.92 @	4.25
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	1.72	0.893	0.0851	0.0549	0.305 @	2.41
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	2.66	0.94	0.156	<0.005	0.268 @	3.91
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	1.34	0.676	0.0979	<0.005	0.15 @	1.69
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	1.52	0.714	0.118	0.0408	0.203 @	3.11
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	0.38	<0.025	<0.005	<0.005	0.0246 @	0.477
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	1.7	0.515	0.0956	<0.005	0.146 @	2.27
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	1.31	0.411	0.0626	<0.005	0.116 @	1.91
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	86.7	9.53	1.46	1.07	16.5 @	29.6

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04A
Depth (m)			1.12	1.55	0.75	1.02	0.93	2.03
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	08/03/2018	08/03/2018	07/03/2018	08/03/2018	08/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177481	17192658	17192661	17177544	17192657	17192659
AGS Reference			EW1			EW1		
Component	**LOD/Units**	**Method**						
Naphthalene (aq)	<0.01 µg/l	TM178	0.175	0.287	0.458	<0.01	0.129	0.0878
Acenaphthene (aq)	<0.005 µg/l	TM178	0.0499	0.0436	0.283	<0.005	0.123	0.0472
Acenaphthylene (aq)	<0.005 µg/l	TM178	0.0487	0.0254	0.0824	<0.005	0.178	0.0326
Fluoranthene (aq)	<0.005 µg/l	TM178	1.51	0.988	6.86	0.0106	11.5	2.09
Anthracene (aq)	<0.005 µg/l	TM178	0.111	0.0614	1.62	<0.005	0.688	0.131
Phenanthrene (aq)	<0.005 µg/l	TM178	0.685	0.422	3.59	0.00561	3.88	0.89
Fluorene (aq)	<0.005 µg/l	TM178	0.0834	0.0446	0.321	<0.005	0.112	0.0547
Chrysene (aq)	<0.005 µg/l	TM178	0.991	0.611	3.27	<0.005	8.75	1.5
Pyrene (aq)	<0.005 µg/l	TM178	1.52	0.922	6.64	0.013	10.8	2.17
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	0.717	0.51	3.41	<0.005	7.31	1.07
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	1.28	1.14	5.49	0.00897	15.9	2.54
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	0.648	0.517	2.73	<0.005	7.97	1.43
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	0.978	0.724	3.58	0.00664	12.7	1.88
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	0.126	0.0838	0.509	<0.005	1.99	0.184
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	0.793	0.583	2.66	<0.005	9.62	1.5
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	0.602	0.474	2.4	<0.005	9.11	0.819
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	10.3	7.44	43.9	<0.082	101	16.4

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			0.97	0.95	2.63	1.46	1.68
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	06/03/2018	07/03/2018	07/03/2018	08/03/2018
Sampled Time			.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177573	17177531	17177600	17177587	17192656
AGS Reference			EW1	EW1	EW1	EW1	
Component	**LOD/Units**	**Method**					
Naphthalene (aq)	<0.01 µg/l	TM178	2.31	1.97 @	0.042	3.06	<0.01
Acenaphthene (aq)	<0.005 µg/l	TM178	0.728	0.18 @	0.0148	0.61	<0.005
Acenaphthylene (aq)	<0.005 µg/l	TM178	0.254	0.0533 @	0.00644	0.152	<0.005
Fluoranthene (aq)	<0.005 µg/l	TM178	9.11	0.259 @	0.213	5.37	0.0169
Anthracene (aq)	<0.005 µg/l	TM178	1.09	0.161 @	0.0275	1.85	<0.005
Phenanthrene (aq)	<0.005 µg/l	TM178	5.04	0.719 @	0.0696	8.42	0.00679
Fluorene (aq)	<0.005 µg/l	TM178	0.782	0.15 @	0.0131	0.554	<0.005
Chrysene (aq)	<0.005 µg/l	TM178	6.51	0.0244 @	0.102	1.22	0.0129
Pyrene (aq)	<0.005 µg/l	TM178	9.04	0.188 @	0.195	4.13	0.017
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	5.6	0.0338 @	0.083	1.31	0.0116
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	11.9	0.012 @	0.114	1.41	0.0217
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	5.11	0.00692 @	0.0669	0.644	0.0141
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	9.15	0.00977 @	0.0806	1.12	0.0166
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	1.56	<0.005 @	<0.005	0.123	<0.005
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	6.99	0.0059 @	0.0794	0.614	0.025
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	5.81	<0.005 @	0.0511	0.565	<0.005
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	81	3.78 @	1.16	31.2	0.143

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.73	1.95	1.63	0.97	0.86	1.13
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			08/03/2018	07/03/2018	08/03/2018	06/03/2018	06/03/2018	07/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17192655	17177563	17192660	17177469	17177516	17177495
AGS Reference				EW1		EW1	EW1	EW1
Component	**LOD/Units**	**Method**						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	2.56 #	<10 #	<1 #	<1 #	<1 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	3.27 #	<10 #	<1 #	<1 #	5.13 #	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176	15.2 #	<10 #	<1 #	22.4 #	2.42 #	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	<10	<1	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176	84.4 #	<10 #	<1 #	34.8 #	1.7 #	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<10	<1	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Acenaphthylene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	1.61 #	<1 #
Acenaphthene (aq)	<1 µg/l	TM176	2.74 #	<10 #	<1 #	<1 #	3.89 #	<1 #
Anthracene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	25.3 #	51.2 #	<2 #	<2 #	<2 #	2.76 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.73	1.95	1.63	0.97	0.86	1.13
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			08/03/2018	07/03/2018	08/03/2018	06/03/2018	06/03/2018	07/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17192655	17177563	17192660	17177469	17177516	17177495
AGS Reference				EW1		EW1	EW1	EW1
Component	**LOD/Units**	**Method**						
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Carbazole (aq)	<1 µg/l	TM176	2 #	<10 #	<1 #	<1 #	1.64 #	<1 #
Chrysene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176	2.03 #	<10 #	<1 #	<1 #	2.17 #	<1 #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 #	<50 #	<5 #	<5 #	<5 #	<5 #
Fluoranthene (aq)	<1 µg/l	TM176	1.17 #	<10 #	<1 #	<1 #	<1 #	<1 #
Fluorene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	2.95 #	<1 #
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176	<1	<10	<1	<1	<1	<1
Phenol (aq)	<1 µg/l	TM176	121	<10	<1	14.4	<1	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Naphthalene (aq)	<1 µg/l	TM176	15.3 #	<10 #	<1 #	<1 #	15.2 #	<1 #
Isophorone (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1	<10	<1	<1	<1	<1
Phenanthrene (aq)	<1 µg/l	TM176	4.74 #	<10 #	<1 #	<1 #	4.1 #	<1 #
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Pyrene (aq)	<1 µg/l	TM176	1.08 #	<10 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04A
Depth (m)			1.12	1.55	0.75	1.02	0.93	2.03
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	08/03/2018	08/03/2018	07/03/2018	08/03/2018	08/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177481	17192658	17192661	17177544	17192657	17192659
AGS Reference			EW1			EW1		
Component	**LOD/Units**	**Method**						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<10 #	2.25 #	<1 #	<1 #	<1 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176	<10 #	12.4 #	<1 #	<1 #	<1 #	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176	<10	<1	<1	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176	<10 #	21.8 #	6.47 #	<1 #	<1 #	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176	<10	<1	<1	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Acenaphthylene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Acenaphthene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Anthracene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<20 #	<2 #	9.69 #	<2 #	<2 #	5.16 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04A
Depth (m)			1.12	1.55	0.75	1.02	0.93	2.03
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	08/03/2018	08/03/2018	07/03/2018	08/03/2018	08/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177481	17192658	17192661	17177544	17192657	17192659
AGS Reference			EW1			EW1		
Component	**LOD/Units**	**Method**						
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<10 #	<1 #	2.23 #	<1 #	1.59 #	<1 #
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<10 #	<1 #	3.4 #	<1 #	2.6 #	<1 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<10 #	<1 #	1.38 #	<1 #	<1 #	<1 #
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<10 #	<1 #	2.43 #	<1 #	1.79 #	<1 #
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<10 #	<1 #	1.97 #	<1 #	1.44 #	<1 #
Carbazole (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chrysene (aq)	<1 µg/l	TM176	<10 #	<1 #	1.91 #	<1 #	1.6 #	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<50 #	<5 #	<5 #	<5 #	<5 #	<5 #
Fluoranthene (aq)	<1 µg/l	TM176	<10 #	<1 #	4.34 #	<1 #	2.77 #	<1 #
Fluorene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobenzene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176	<10	<1	<1	<1	<1	<1
Phenol (aq)	<1 µg/l	TM176	<10	11.2	15.1	<1	<1	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Isophorone (aq)	<1 µg/l	TM176	<10 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<10	<1	<1	<1	<1	<1
Phenanthrene (aq)	<1 µg/l	TM176	<10 #	<1 #	2.06 #	<1 #	1.15 #	<1 #
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<10 #	<1 #	1.68 #	<1 #	1.22 #	<1 #
Pyrene (aq)	<1 µg/l	TM176	<10 #	<1 #	4.18 #	<1 #	2.5 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			0.97	0.95	2.63	1.46	1.68
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	06/03/2018	07/03/2018	07/03/2018	08/03/2018
Sampled Time			.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177573	17177531	17177600	17177587	17192656
AGS Reference			EW1	EW1	EW1	EW1	
Component	**LOD/Units**	**Method**					
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	5.89 ♦ #	<1 #	<1 #	<1 #	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	1.57 #	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176	<5	<1	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176	5.87 ♦ #	2.15 #	<1 #	7.26 #	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176	<5	<1	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Acenaphthylene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Acenaphthene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Anthracene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	1.04 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	12.4 ♦ #	<2 #	<2 #	<2 #	<2 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			0.97	0.95	2.63	1.46	1.68
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	06/03/2018	07/03/2018	07/03/2018	08/03/2018
Sampled Time			-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177573	17177531	17177600	17177587	17192656
AGS Reference			EW1	EW1	EW1	EW1	
Component	**LOD/Units**	**Method**					
Benzo(a)anthracene (aq)	<1 µg/l	TM176	10 ♦ #	<1 #	<1 #	1.65 #	<1 #
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	17.4 ♦ #	<1 #	<1 #	1.95 #	<1 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	7.08 ♦ #	<1 #	<1 #	<1 #	<1 #
Benzo(a)pyrene (aq)	<1 µg/l	TM176	13.1 ♦ #	<1 #	<1 #	1.5 #	<1 #
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	10.7 ♦ #	<1 #	<1 #	<1 #	<1 #
Carbazole (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	1.91 #	<1 #
Chrysene (aq)	<1 µg/l	TM176	8.75 ♦ #	<1 #	<1 #	1.46 #	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<25 ♦ #	<5 #	<5 #	<5 #	<5 #
Fluoranthene (aq)	<1 µg/l	TM176	15.3 ♦ #	<1 #	<1 #	4.71 #	<1 #
Fluorene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Hexachlorobenzene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176	<5	<1	<1	<1	<1
Phenol (aq)	<1 µg/l	TM176	7.66	3.9	<1	8.51	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Naphthalene (aq)	<1 µg/l	TM176	5.2 ♦ #	1.15 #	<1 #	2.08 #	<1 #
Isophorone (aq)	<1 µg/l	TM176	<5 ♦ #	<1 #	<1 #	<1 #	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<5	<1	<1	<1	<1
Phenanthrene (aq)	<1 µg/l	TM176	10.7 ♦ #	<1 #	<1 #	7.02 #	<1 #
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	8.61 ♦ #	<1 #	<1 #	<1 #	<1 #
Pyrene (aq)	<1 µg/l	TM176	14 ♦ #	<1 #	<1 #	3.75 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.73	1.95	1.63	0.97	0.86	1.13
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			08/03/2018	07/03/2018	08/03/2018	06/03/2018	06/03/2018	07/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17192655	17177563	17192660	17177469	17177516	17177495
AGS Reference				EW1		EW1	EW1	EW1
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM245	100	74	104	85	88	74 1
GRO >C5-C12	<50 µg/l	TM245	92 #	<50 #	<50 #	64 #	512 #	<50 1 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3 1
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7 1
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4 1
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5 1
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8 1
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3 1
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11 1
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28 1
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10 1
Aliphatics >C6-C8	<10 µg/l	TM245	13	<10	<10	13	36	<10 1
Aliphatics >C8-C10	<10 µg/l	TM245	16	<10	<10	12	136	<10 1
Aliphatics >C10-C12	<10 µg/l	TM245	26	13	<10	13	140	<10 1
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	102	<50	<10	179	<10	24
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	772	97	21	1440	35	295
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	15500	1440	700	8110	384	4060
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	16400	1540	721	9730	419	4380
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10 1
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10 1
Aromatics >EC8-EC10	<10 µg/l	TM245	11	<10	<10	<10	97	<10 1
Aromatics >EC10-EC12	<10 µg/l	TM245	17	<10	<10	<10	93	<10 1
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	102	<50	<10	39	32	<20
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	318	<50	15	208	38	52
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	4390	372	238	1700	146	884
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	4810	372	253	1950	216	936
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	21300	1940	992	11700	1150	5320
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	16300	1540	721	9550	419	4360

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04A
Depth (m)			1.12	1.55	0.75	1.02	0.93	2.03
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	08/03/2018	08/03/2018	07/03/2018	08/03/2018	08/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177481	17192658	17192661	17177544	17192657	17192659
AGS Reference			EW1			EW1		
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM245	77	89	115	94	108	104
GRO >C5-C12	<50 µg/l	TM245	<50 #	<50 #	<50 #	<50 #	<50 #	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<50	<10	21	<10	<10	57
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	218	<10	105	<10	57	956
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	5040	<10	3030	14	1490	4340
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	5260	<10	3150	14	1550	5350
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<50	<10	14	<10	<10	<50
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	106	28	67	<10	75	<50
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	943	258	742	<10	626	612
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	1050	286	823	<10	701	612
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	6320	288	3990	20	2250	5970
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	5260	<10	3130	14	1550	5300

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			0.97	0.95	2.63	1.46	1.68
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	06/03/2018	07/03/2018	07/03/2018	08/03/2018
Sampled Time			.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177573	17177531	17177600	17177587	17192656
AGS Reference			EW1	EW1	EW1	EW1	
Component	**LOD/Units**	**Method**					
GRO Surrogate % recovery**	%	TM245	85	84	78	84	97
GRO >C5-C12	<50 µg/l	TM245	190 #	<50 #	<50 #	<50 #	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245	12	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245	30	18	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245	71	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	444	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	770	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	1830	<10	39	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	3040	<10	39	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	22	13	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	48	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	195	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	405	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	1270	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	1870	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	5100	48	49	13	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	2600	<10	39	<10	<10

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.73	1.95	1.63	0.97	0.86	1.13
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			08/03/2018	07/03/2018	08/03/2018	06/03/2018	06/03/2018	07/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17192655	17177563	17192660	17177469	17177516	17177495
AGS Reference				EW1		EW1	EW1	EW1
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM208	0.452 1	3.52 1	99.7	97.8	101	107
Toluene-d8**	%	TM208	96.1 1	97.4 1	97.9	95.7	97.4	94.3
4-Bromofluorobenzene**	%	TM208	91.4 1	94.4 1	92.5	87.9	98.9	76.6
Dichlorodifluoromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Chloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Vinyl chloride	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Bromomethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Chloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Trichlorofluoromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Carbon disulphide	<1 µg/l	TM208	<1 1 #	2.1 1 #	<1 #	<1 #	<1 #	<1 #
Dichloromethane	<3 µg/l	TM208	<3 1 #	<3 1 #	<3 #	<3 #	<3 #	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
2,2-Dichloropropane	<1 µg/l	TM208	<1 1	<1 1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Chloroform	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	1.42 #	<1 #	<1 #
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloropropene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Carbontetrachloride	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Benzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	1.57 #	<1 #
Trichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloropropane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Dibromomethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Bromodichloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	3.24 #	2.08 #	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.73	1.95	1.63	0.97	0.86	1.13
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			08/03/2018	07/03/2018	08/03/2018	06/03/2018	06/03/2018	07/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17192655	17177563	17192660	17177469	17177516	17177495
AGS Reference				EW1		EW1	EW1	EW1
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Tetrachloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Dibromochloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromoethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Chlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	3.02 #	<1 #
o-Xylene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	2.01 #	<1 #
Styrene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Bromoform	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Isopropylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	5.46 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Bromobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Propylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	1.42 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	3.34 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1 1	<1 1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene	<1 µg/l	TM208	10.2 1 #	<1 1 #	<1 #	<1 #	22.2 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.73	1.95	1.63	0.97	0.86	1.13
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			08/03/2018	07/03/2018	08/03/2018	06/03/2018	06/03/2018	07/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17192655	17177563	17192660	17177469	17177516	17177495
AGS Reference				EW1		EW1	EW1	EW1
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1 1	<1 1	<1	<1	<1	<1

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04A
Depth (m)			1.12	1.55	0.75	1.02	0.93	2.03
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	08/03/2018	08/03/2018	07/03/2018	08/03/2018	08/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177481	17192658	17192661	17177544	17192657	17192659
AGS Reference			EW1			EW1		
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM208	97.9	79.4	0.45 1	102	102	99.5
Toluene-d8**	%	TM208	91.5	98.6	98.7 1	98.3	96.6	96.6
4-Bromofluorobenzene**	%	TM208	78.7	95.4	97.7 1	99.1	88.5	92.8
Dichlorodifluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Chloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Vinyl chloride	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Bromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Chloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Trichlorofluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,1-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Carbon disulphide	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Dichloromethane	<3 µg/l	TM208	<3 #	<3 #	<3 1 #	<3 #	<3 #	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,1-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1 1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Chloroform	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,1-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Carbontetrachloride	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,2-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Benzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Trichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Dibromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Bromodichloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04A
Depth (m)			1.12	1.55	0.75	1.02	0.93	2.03
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	08/03/2018	08/03/2018	07/03/2018	08/03/2018	08/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177481	17192658	17192661	17177544	17192657	17192659
AGS Reference			EW1			EW1		
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Tetrachloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Dibromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Styrene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Bromoform	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Isopropylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Bromobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Propylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1 1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
Naphthalene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04A
Depth (m)			1.12	1.55	0.75	1.02	0.93	2.03
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	08/03/2018	08/03/2018	07/03/2018	08/03/2018	08/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177481	17192658	17192661	17177544	17192657	17192659
AGS Reference			EW1			EW1		
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 1 #	<1 #	<1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1 1	<1	<1	<1

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			0.97	0.95	2.63	1.46	1.68
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	06/03/2018	07/03/2018	07/03/2018	08/03/2018
Sampled Time			.	.	.	.	.
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177573	17177531	17177600	17177587	17192656
AGS Reference			EW1	EW1	EW1	EW1	
Component	**LOD/Units**	**Method**					
Dibromofluoromethane**	%	TM208	0.467	0.485 1	102	0.438 1	106
Toluene-d8**	%	TM208	94.8	99.3 1	96.9	99.8 1	100
4-Bromofluorobenzene**	%	TM208	85.4	101 1	94.5	99.8 1	92
Dichlorodifluoromethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Chloromethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Vinyl chloride	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Bromomethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Chloroethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Trichlorofluoromethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,1-Dichloroethene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Carbon disulphide	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Dichloromethane	<3 µg/l	TM208	<3 #	<3 1 #	<3 #	<3 1 #	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,1-Dichloroethane	<1 µg/l	TM208	5.19 #	<1 1 #	<1 #	<1 1 #	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1 1	<1	<1 1	<1
Bromochloromethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Chloroform	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	5.14 #
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,1-Dichloropropene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Carbontetrachloride	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,2-Dichloroethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Benzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Trichloroethene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Dibromomethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Bromodichloromethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Toluene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			0.97	0.95	2.63	1.46	1.68
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	06/03/2018	07/03/2018	07/03/2018	08/03/2018
Sampled Time			-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177573	17177531	17177600	17177587	17192656
AGS Reference			EW1	EW1	EW1	EW1	
Component	**LOD/Units**	**Method**					
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Tetrachloroethene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Dibromochloromethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Ethylbenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
o-Xylene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Styrene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Bromoform	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Isopropylbenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Bromobenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Propylbenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208	1.74 #	<1 1 #	<1 #	<1 1 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1 1	<1	<1 1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
Naphthalene	<1 µg/l	TM208	1.47 #	1.08 1 #	<1 #	2.32 1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			0.97	0.95	2.63	1.46	1.68
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			07/03/2018	06/03/2018	07/03/2018	07/03/2018	08/03/2018
Sampled Time			-	-	-	-	-
Date Received			09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
SDG Ref			180309-3	180309-3	180309-3	180309-3	180309-3
Lab Sample No.(s)			17177573	17177531	17177600	17177587	17192656
AGS Reference			EW1	EW1	EW1	EW1	
Component	**LOD/Units**	**Method**					
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 1 #	<1 #	<1 1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1 1	<1	<1 1	<1

Table of Results - Appendix

Method No	Reference	Description
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Test Completion Dates

Lab Sample No(s)	17192655	17177563	17192660	17177469	17177516	17177495	17177481	17192658	17192661	17177544
Customer Sample Ref.	BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07	BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a
AGS Ref.		EW1		EW1	EW1	EW1	EW1			EW1
Depth	1.73	1.95	1.63	0.97	0.86	1.13	1.12	1.55	0.75	1.02
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	16-Mar-2018	16-Mar-2018	16-Mar-2018	16-Mar-2018	16-Mar-2018	17-Mar-2018	20-Mar-2018	16-Mar-2018	16-Mar-2018	16-Mar-2018
Anions by Kone (w)	17-Mar-2018	20-Mar-2018	17-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	17-Mar-2018	17-Mar-2018	20-Mar-2018
Cyanide Comp/Free/Total/Thiocyanate	16-Mar-2018	16-Mar-2018	16-Mar-2018	19-Mar-2018	16-Mar-2018	19-Mar-2018	16-Mar-2018	16-Mar-2018	16-Mar-2018	19-Mar-2018
Dissolved Metals by ICP-MS	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018	16-Mar-2018	19-Mar-2018	19-Mar-2018	16-Mar-2018	19-Mar-2018
EPH CWG (Aliphatic) Aqueous GC (W)	17-Mar-2018	17-Mar-2018	17-Mar-2018	17-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	17-Mar-2018	17-Mar-2018	17-Mar-2018
EPH CWG (Aromatic) Aqueous GC (W)	17-Mar-2018	17-Mar-2018	17-Mar-2018	17-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	17-Mar-2018	17-Mar-2018	17-Mar-2018
GRO by GC-FID (W)	14-Mar-2018	15-Mar-2018	14-Mar-2018	15-Mar-2018	15-Mar-2018	16-Mar-2018	15-Mar-2018	14-Mar-2018	14-Mar-2018	15-Mar-2018
Mercury Dissolved	14-Mar-2018	14-Mar-2018	14-Mar-2018	14-Mar-2018	13-Mar-2018	14-Mar-2018	14-Mar-2018	14-Mar-2018	14-Mar-2018	14-Mar-2018
PAH Spec MS - Aqueous (W)	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018	21-Mar-2018	21-Mar-2018	21-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018
PCB Congeners - Aqueous (W)	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018
pH Value	15-Mar-2018	16-Mar-2018	15-Mar-2018	16-Mar-2018	16-Mar-2018	16-Mar-2018	16-Mar-2018	15-Mar-2018	15-Mar-2018	16-Mar-2018
SVOC MS (W) - Aqueous	14-Mar-2018	15-Mar-2018	14-Mar-2018	15-Mar-2018	14-Mar-2018	15-Mar-2018	15-Mar-2018	14-Mar-2018	14-Mar-2018	15-Mar-2018
TPH CWG (W)	17-Mar-2018	17-Mar-2018	17-Mar-2018	17-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	17-Mar-2018	17-Mar-2018	17-Mar-2018
VOC MS (W)	14-Mar-2018	16-Mar-2018	13-Mar-2018	14-Mar-2018	14-Mar-2018	14-Mar-2018	14-Mar-2018	13-Mar-2018	14-Mar-2018	14-Mar-2018

Lab Sample No(s)	17192657	17192659	17177573	17177531	17177600	17177587	17192656
Customer Sample Ref.	CP-RPS-03	CP-RPS-04A	WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
AGS Ref.			EW1	EW1	EW1	EW1	
Depth	0.93	2.03	0.97	0.95	2.63	1.46	1.68
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	16-Mar-2018	16-Mar-2018	16-Mar-2018	17-Mar-2018	15-Mar-2018	17-Mar-2018	16-Mar-2018
Anions by Kone (w)	17-Mar-2018	17-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	17-Mar-2018
Cyanide Comp/Free/Total/Thiocyanate	16-Mar-2018	16-Mar-2018	19-Mar-2018	19-Mar-2018	16-Mar-2018	19-Mar-2018	16-Mar-2018
Dissolved Metals by ICP-MS	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018	16-Mar-2018	16-Mar-2018	19-Mar-2018
EPH CWG (Aliphatic) Aqueous GC (W)	17-Mar-2018	17-Mar-2018	20-Mar-2018	20-Mar-2018	17-Mar-2018	20-Mar-2018	17-Mar-2018
EPH CWG (Aromatic) Aqueous GC (W)	17-Mar-2018	17-Mar-2018	20-Mar-2018	20-Mar-2018	17-Mar-2018	20-Mar-2018	17-Mar-2018
GRO by GC-FID (W)	14-Mar-2018	14-Mar-2018	15-Mar-2018	15-Mar-2018	15-Mar-2018	15-Mar-2018	14-Mar-2018
Mercury Dissolved	14-Mar-2018	14-Mar-2018	14-Mar-2018	13-Mar-2018	14-Mar-2018	14-Mar-2018	14-Mar-2018
PAH Spec MS - Aqueous (W)	19-Mar-2018	19-Mar-2018	21-Mar-2018	21-Mar-2018	19-Mar-2018	21-Mar-2018	19-Mar-2018
PCB Congeners - Aqueous (W)	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018
pH Value	15-Mar-2018	15-Mar-2018	16-Mar-2018	16-Mar-2018	16-Mar-2018	16-Mar-2018	15-Mar-2018
SVOC MS (W) - Aqueous	14-Mar-2018	14-Mar-2018	20-Mar-2018	15-Mar-2018	15-Mar-2018	18-Mar-2018	14-Mar-2018
TPH CWG (W)	17-Mar-2018	17-Mar-2018	20-Mar-2018	20-Mar-2018	17-Mar-2018	20-Mar-2018	17-Mar-2018
VOC MS (W)	14-Mar-2018	13-Mar-2018	16-Mar-2018	16-Mar-2018	14-Mar-2018	16-Mar-2018	14-Mar-2018

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 1771	QC 1727	QC 1739	QC 1734	QC 1766	QC 1783
Ammoniacal Nitrogen as N	TM099	**97.6** 93.47 : 108.25	**99.6** 93.47 : 108.25	**98.4** 93.47 : 108.25	**97.6** 93.47 : 108.25	**98.4** 93.47 : 108.25	**97.6** 93.47 : 108.25

Component	Method Code	QC 1796
Ammoniacal Nitrogen as N	TM099	**100.0** 93.47 : 108.25

Anions by Kone (w)

Component	Method Code	QC 1757	QC 1765	QC 1746
Chloride	TM184	**101.0** 92.93 : 115.43	**99.3** 92.93 : 115.43	**103.0** 92.93 : 115.43
Phosphate (Ortho as PO4)	TM184	96.40 : 108.40	96.40 : 108.40	96.40 : 108.40
Sulphate (soluble)	TM184	**101.6** 90.53 : 113.03	**101.6** 90.53 : 113.03	**101.6** 90.53 : 113.03
TON as NO3	TM184	96.26 : 111.21	96.26 : 111.21	96.26 : 111.21

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 1794	QC 1719	QC 1775
Free Cyanide (W)	TM227	**101.5** 93.25 : 112.75	**102.5** 93.25 : 112.75	**103.5** 93.25 : 112.75
Thiocyanate (W)	TM227	**103.75** 97.75 : 109.75	**104.5** 97.75 : 109.75	**106.25** 97.75 : 109.75
Total Cyanide (W)	TM227	**103.0** 95.25 : 111.75	**107.25** 95.25 : 111.75	**104.75** 95.25 : 111.75

Dissolved Metals by ICP-MS

Component	Method Code	QC 1779	QC 1795	QC 1716	QC 1704	QC 1730	QC 1732
Aluminium	TM152	**98.67** 90.09 : 112.69	**98.0** 90.09 : 112.69	**101.0** 89.90 : 110.02	**105.33** 89.90 : 110.02	**111.33** 89.90 : 110.02	**105.0** 90.09 : 112.69
Antimony	TM152	**99.0** 81.00 : 119.70	**100.0** 81.00 : 119.70	**104.33** 79.80 : 122.00	**104.67** 79.80 : 122.00	**100.5** 79.80 : 122.00	**104.83** 81.00 : 119.70
Arsenic	TM152	**101.67** 92.40 : 113.00	**102.33** 92.40 : 113.00	**98.67** 90.42 : 111.32	**99.33** 90.42 : 111.32	**97.33** 90.42 : 111.32	**103.0** 92.40 : 113.00
Barium	TM152	**100.17** 93.11 : 112.81	**100.83** 93.11 : 112.81	**107.67** 92.02 : 112.48	**107.17** 92.02 : 112.48	**106.67** 92.02 : 112.48	**105.67** 93.11 : 112.81
Beryllium	TM152	**98.0** 88.27 : 113.27	**99.17** 88.27 : 113.27	**101.67** 86.15 : 118.35	**107.5** 86.15 : 118.35	**110.5** 86.15 : 118.35	**104.33** 88.27 : 113.27
Bismuth	TM152	**97.67** 86.72 : 115.61	**98.33** 86.72 : 115.61	**105.0** 88.90 : 106.90	**110.33** 88.90 : 106.90	**109.33** 88.90 : 106.90	**109.33** 86.72 : 115.61
Borate	TM152			**97.53** 88.00 : 112.00	**107.41** 88.00 : 112.00	**112.96** 88.00 : 112.00	

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Dissolved Metals by ICP-MS

		QC 1779	QC 1795	QC 1716	QC 1704	QC 1730	QC 1732
Boron	TM152	**96.67** 86.47 : 111.70	**96.33** 86.47 : 111.70	**97.67** 86.68 : 117.67	**107.67** 86.68 : 117.67	**113.0** 86.68 : 117.67	**102.67** 86.47 : 111.70
Cadmium	TM152	**100.17** 90.28 : 114.48	**98.0** 90.28 : 114.48	**101.67** 92.07 : 109.87	**104.33** 92.07 : 109.87	**104.83** 92.07 : 109.87	**103.5** 90.28 : 114.48
Chromium	TM152	**96.17** 91.07 : 114.29	**95.83** 91.07 : 114.29	**101.33** 90.87 : 108.50	**102.67** 90.87 : 108.50	**102.83** 90.87 : 108.50	**102.67** 91.07 : 114.29
Cobalt	TM152	**95.0** 89.58 : 114.68	**94.5** 89.58 : 114.68	**97.67** 84.39 : 114.26	**102.83** 84.39 : 114.26	**103.0** 84.39 : 114.26	**97.67** 89.58 : 114.68
Copper	TM152	**99.5** 88.45 : 117.93	**97.83** 88.45 : 117.93	**100.67** 91.20 : 110.79	**103.5** 91.20 : 110.79	**103.0** 91.20 : 110.79	**102.67** 88.45 : 117.93
Lead	TM152	**98.0** 89.25 : 115.12	**95.83** 89.25 : 115.12	**106.67** 85.65 : 113.58	**109.67** 85.65 : 113.58	**108.83** 85.65 : 113.58	**107.0** 89.25 : 115.12
Lithium	TM152	**97.5** 88.50 : 116.05	**95.0** 88.50 : 116.05	**100.5** 89.26 : 119.04	**108.17** 89.26 : 119.04	**117.33** 89.26 : 119.04	**103.17** 88.50 : 116.05
Manganese	TM152	**99.67** 91.63 : 112.33	**97.83** 91.63 : 112.33	**102.67** 90.63 : 109.13	**106.0** 90.63 : 109.13	**106.67** 90.63 : 109.13	**103.5** 91.63 : 112.33
Molybdenum	TM152	**93.83** 91.08 : 111.63	**96.17** 91.08 : 111.63	**98.17** 87.00 : 108.89	**95.33** 87.00 : 108.89	**93.5** 87.00 : 108.89	**100.5** 91.08 : 111.63
Nickel	TM152	**98.0** 89.60 : 117.38	**97.5** 89.60 : 117.38	**100.0** 92.11 : 110.56	**103.83** 92.11 : 110.56	**103.83** 92.11 : 110.56	**101.17** 89.60 : 117.38
Niobium	TM152	96.38 : 128.85	96.38 : 128.85				96.38 : 128.85
Phosphorus	TM152	**100.0** 90.43 : 111.75	**102.5** 90.43 : 111.75	**101.0** 90.52 : 115.47	**100.17** 90.52 : 115.47	**102.5** 90.52 : 115.47	**111.0** 90.43 : 111.75
Selenium	TM152	**97.17** 88.22 : 113.50	**100.83** 88.22 : 113.50	**97.17** 88.44 : 113.86	**101.83** 88.44 : 113.86	**100.67** 88.44 : 113.86	**103.67** 88.22 : 113.50
Silver	TM152	**92.17** 94.00 : 112.00	**90.83** 94.00 : 112.00	**95.17** 94.00 : 112.00	**96.83** 94.00 : 112.00	**97.33** 94.00 : 112.00	**93.67** 94.00 : 112.00
Strontium	TM152	**99.67** 91.27 : 106.32	**100.67** 91.27 : 106.32	**101.33** 90.72 : 114.82	**102.33** 90.72 : 114.82	**103.33** 90.72 : 114.82	**103.0** 91.27 : 106.32
Tellurium	TM152	**85.67** 81.16 : 111.23	**90.0** 81.16 : 111.23	**104.17** 86.97 : 108.87	**100.5** 86.97 : 108.87	**99.33** 86.97 : 108.87	**98.33** 81.16 : 111.23
Thallium	TM152	**85.17** 81.70 : 117.09	**95.67** 81.70 : 117.09	**102.0** 80.92 : 114.72	**112.17** 80.92 : 114.72	**111.5** 80.92 : 114.72	**104.17** 81.70 : 117.09
Titanium	TM152	**103.67** 89.62 : 110.62	**102.0** 89.62 : 110.62	**108.0** 90.08 : 111.18	**114.67** 90.08 : 111.18	**118.67** 90.08 : 111.18	**105.17** 89.62 : 110.62
Tungsten	TM152	**96.83** 90.13 : 111.33	**95.0** 90.13 : 111.33	**104.67** 91.72 : 109.22	**110.83** 91.72 : 109.22	**109.0** 91.72 : 109.22	**105.17** 90.13 : 111.33
Uranium	TM152	**98.5** 92.30 : 116.90	**99.33** 92.30 : 116.90	**103.67** 90.58 : 113.28	**108.5** 90.58 : 113.28	**107.67** 90.58 : 113.28	**108.67** 92.30 : 116.90
Vanadium	TM152	**98.67** 88.22 : 118.55	**100.67** 88.22 : 118.55	**99.17** 88.43 : 114.30	**103.17** 88.43 : 114.30	**106.83** 88.43 : 114.30	**105.0** 88.22 : 118.55
Zinc	TM152	**98.33** 89.30 : 115.44	**98.67** 89.30 : 115.44	**104.33** 86.52 : 115.27	**106.33** 86.52 : 115.27	**104.33** 86.52 : 115.27	**104.33** 89.30 : 115.44
Zirconium	TM152	85.51 : 109.42	85.51 : 109.42				85.51 : 109.42

Component	Method Code	QC 1744
Aluminium	TM152	**100.0** 90.09 : 112.69
Antimony	TM152	**96.67** 81.00 : 119.70
Arsenic	TM152	**95.83** 92.40 : 113.00

Dissolved Metals by ICP-MS

		QC 1744
Barium	TM152	**97.83** 93.11 : 112.81
Beryllium	TM152	**98.17** 88.27 : 113.27
Bismuth	TM152	**102.67** 86.72 : 115.61
Boron	TM152	**98.33** 86.47 : 111.70
Cadmium	TM152	**97.83** 90.28 : 114.48
Chromium	TM152	**97.5** 91.07 : 114.29
Cobalt	TM152	**94.17** 89.58 : 114.68
Copper	TM152	**97.17** 88.45 : 117.93
Lead	TM152	**102.67** 89.25 : 115.12
Lithium	TM152	**96.33** 88.50 : 116.05
Manganese	TM152	**98.0** 91.63 : 112.33
Molybdenum	TM152	**94.0** 91.08 : 111.63
Nickel	TM152	**97.17** 89.60 : 117.38
Niobium	TM152	96.38 : 128.85
Phosphorus	TM152	**100.17** 90.43 : 111.75
Selenium	TM152	**91.17** 88.22 : 113.50
Silver	TM152	**90.5** 94.00 : 112.00
Strontium	TM152	**95.0** 91.27 : 106.32
Tellurium	TM152	**92.17** 81.16 : 111.23
Thallium	TM152	**91.5** 81.70 : 117.09
Titanium	TM152	**99.67** 89.62 : 110.62
Tungsten	TM152	**102.0** 90.13 : 111.33
Uranium	TM152	**102.33** 92.30 : 116.90
Vanadium	TM152	**95.67** 88.22 : 118.55
Zinc	TM152	**97.67** 89.30 : 115.44
Zirconium	TM152	85.51 : 109.42

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

EPH CWG (Aliphatic) Aqueous GC (W)

Component	Method Code	QC 1773
Total Aliphatics >C10-C40	TM174	**115.68** 57.59 : 130.56

EPH CWG (Aromatic) Aqueous GC (W)

Component	Method Code	QC 1763	QC 1785
Total Aromatics >EC10-EC40	TM174	**97.56** 61.18 : 130.02	**95.61** 59.92 : 128.54

GRO by GC-FID (W)

Component	Method Code	QC 1746	QC 1731	QC 1746	QC 1700	QC 1786
Benzene by GC	TM245	**97.5** 76.38 : 121.90	**99.0** 76.38 : 121.90	**100.0** 79.13 : 118.84	**89.0** 77.76 : 121.54	**95.0** 77.76 : 121.54
Ethylbenzene by GC	TM245	**100.5** 74.02 : 123.14	**101.5** 74.02 : 123.14	**100.0** 79.54 : 115.99	**91.5** 76.04 : 121.93	**97.5** 76.04 : 121.93
m & p Xylene by GC	TM245	**100.5** 74.03 : 123.21	**101.25** 74.03 : 123.21	**99.75** 78.44 : 116.32	**90.5** 75.79 : 121.81	**97.0** 75.79 : 121.81
MTBE GC-FID	TM245	**97.0** 76.82 : 121.46	**98.5** 76.82 : 121.46	**102.0** 81.43 : 120.09	**89.0** 78.56 : 122.20	**95.5** 78.56 : 122.20
o Xylene by GC	TM245	**99.0** 74.37 : 122.75	**100.0** 74.37 : 122.75	**100.0** 76.85 : 120.29	**90.0** 76.38 : 121.51	**96.0** 76.38 : 121.51
QC	TM245	**100.35** 63.32 : 125.20	**107.24** 63.32 : 125.20	**105.3** 78.36 : 134.92	**104.79** 66.08 : 129.83	**108.23** 66.08 : 129.83
Toluene by GC	TM245	**100.5** 75.75 : 124.83	**102.0** 75.75 : 124.83	**102.0** 79.00 : 121.96	**91.5** 76.66 : 123.55	**97.5** 76.66 : 123.55

Mercury Dissolved

Component	Method Code	QC 1794	QC 1714	QC 1723	QC 1727
Mercury Dissolved (CVAF)	TM183	**98.9** 73.51 : 120.83	**99.7** 73.51 : 120.83	**94.5** 73.51 : 120.83	**96.6** 73.51 : 120.83

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 1782	QC 1714
Acenaphthene by GCMS	TM178	**109.2** 85.60 : 119.20	**112.4** 77.20 : 130.00
Acenaphthylene by GCMS	TM178	**108.4** 85.28 : 115.28	**111.6** 78.80 : 129.20
Anthracene by GCMS	TM178	**109.6** 63.28 : 135.04	**105.6** 78.40 : 124.00
Benz(a)anthracene by GCMS	TM178	**103.2** 82.80 : 126.00	**109.6** 78.80 : 122.00

PAH Spec MS - Aqueous (W)

		QC 1782	QC 1714
Benzo(a)pyrene by GCMS	TM178	**102.4** 89.60 : 125.60	**113.2** 89.20 : 120.40
Benzo(b)fluoranthene by GCMS	TM178	**96.4** 83.60 : 123.44	**111.6** 85.60 : 124.00
Benzo(ghi)perylene by GCMS	TM178	**106.8** 79.44 : 113.28	**99.2** 89.20 : 115.60
Benzo(k)fluoranthene by GCMS	TM178	**114.4** 84.60 : 146.28	**119.2** 90.80 : 126.80
Chrysene by GCMS	TM178	**114.8** 79.00 : 124.84	**115.6** 90.80 : 124.40
Dibenzo(ah)anthracene by GCMS	TM178	**97.2** 73.28 : 112.88	**107.2** 83.60 : 112.40
Fluoranthene by GCMS	TM178	**104.4** 77.08 : 123.88	**113.6** 84.40 : 120.40
Fluorene by GCMS	TM178	**110.4** 83.20 : 124.00	**112.4** 83.60 : 124.40
Indeno(123cd)pyrene by GCMS	TM178	**103.6** 77.84 : 104.72	**104.0** 90.40 : 109.60
Naphthalene by GCMS	TM178	**113.6** 83.48 : 122.12	**117.2** 73.60 : 128.80
Phenanthrene by GCMS	TM178	**111.6** 80.12 : 119.96	**112.4** 91.60 : 118.00
Pyrene by GCMS	TM178	**102.4** 76.20 : 128.28	**114.0** 84.80 : 123.20

PCB Congeners - Aqueous (W)

Component	Method Code	QC 1776
PCB congener 101	TM197	**109.6** 60.09 : 116.40
PCB congener 105	TM197	**105.6** 71.03 : 110.99
PCB congener 114	TM197	**106.4** 72.71 : 110.48
PCB congener 118	TM197	**108.8** 70.89 : 111.75
PCB congener 123	TM197	**92.0** 71.04 : 109.29
PCB congener 126	TM197	**98.0** 57.93 : 119.82
PCB congener 138	TM197	**104.8** 72.39 : 112.98
PCB congener 153	TM197	**103.6** 62.30 : 116.99
PCB congener 156	TM197	**104.8** 65.00 : 101.00
PCB congener 157	TM197	**106.0** 72.58 : 113.35
PCB congener 167	TM197	**113.6** 67.45 : 111.28
PCB congener 169	TM197	**110.8** 64.53 : 118.23
PCB congener 180	TM197	**117.6** 59.13 : 117.99

PCB Congeners - Aqueous (W)

		QC 1776
PCB congener 189	TM197	**109.6** 62.63 : 114.65
PCB congener 28	TM197	**105.2** 60.05 : 117.23
PCB congener 52	TM197	**110.0** 75.58 : 115.87
PCB congener 77	TM197	**108.8** 68.03 : 109.07
PCB congener 81	TM197	**101.6** 71.33 : 115.52

pH Value

Component	Method Code	QC 1782	QC 1772	QC 1738	QC 1713
pH	TM256	**100.4** 99.87 : 102.29	**101.48** 99.19 : 102.43	**100.54** 99.20 : 102.14	**101.08** 99.20 : 102.14

SVOC MS (W) - Aqueous

Component	Method Code	QC 1765	QC 1766	QC 1785	QC 1706
4-Bromophenylphenylether	TM176	**76.48** 50.00 : 112.88	**79.68** 54.32 : 116.91	**74.0** 50.00 : 112.88	**72.88** 50.00 : 112.88
Benzo(a)anthracene	TM176	**82.4** 55.05 : 113.56	**81.6** 56.24 : 120.56	**81.6** 55.05 : 113.56	**75.52** 55.05 : 113.56
Benzo(a)pyrene	TM176	**85.6** 54.16 : 108.40	**84.0** 59.36 : 117.68	**85.6** 54.16 : 108.40	**77.12** 54.16 : 108.40
Butylbenzyl phthalate	TM176	**77.44** 49.84 : 109.84	**77.12** 45.10 : 118.90	**76.56** 49.84 : 109.84	**69.6** 49.84 : 109.84
Hexachlorobutadiene	TM176	**79.2** 47.38 : 106.56	**71.52** 49.76 : 92.00	**71.28** 47.38 : 106.56	**66.0** 47.38 : 106.56
Naphthalene	TM176	**87.2** 66.80 : 125.36	**85.6** 63.60 : 123.60	**84.0** 66.80 : 125.36	**79.36** 66.80 : 125.36
Nitrobenzene	TM176	**85.6** 64.40 : 111.61	**79.92** 61.40 : 115.88	**81.6** 64.40 : 111.61	**76.88** 64.40 : 111.61
Phenol	TM176	**50.24** 38.60 : 66.55	**48.32** 39.44 : 60.56	**49.36** 38.60 : 66.55	**45.6** 38.60 : 66.55

VOC MS (W)

Component	Method Code	QC 1771	QC 1704	QC 1734	QC 1791	QC 1739	QC 1776
1,1,1,2-Tetrachloroethane	TM208	**101.5** 78.82 : 115.90	**102.5** 78.82 : 115.90	**106.0** 78.82 : 115.90	**97.0** 78.82 : 115.90	**92.5** 79.47 : 113.27	**88.5** 79.47 : 113.27
1,1,1-Trichloroethane	TM208	**98.0** 79.61 : 114.35	**93.0** 79.61 : 114.35	**98.0** 79.61 : 114.35	**94.0** 79.61 : 114.35	**95.5** 81.01 : 112.00	**92.0** 81.01 : 112.00
1,1-Dichloroethane	TM208	**98.5** 79.99 : 118.57	**96.0** 79.99 : 118.57	**100.5** 79.99 : 118.57	**93.5** 79.99 : 118.57	**97.0** 82.09 : 116.41	**94.5** 82.09 : 116.41
1,2-Dichloroethane	TM208	**97.0** 79.35 : 124.02	**99.5** 79.35 : 124.02	**97.5** 79.35 : 124.02	**95.0** 79.35 : 124.02	**94.5** 80.28 : 123.63	**93.5** 80.28 : 123.63
2-Chlorotoluene	TM208	**101.0** 80.04 : 111.63	**98.5** 80.04 : 111.63	**102.5** 80.04 : 111.63	**94.0** 80.04 : 111.63	**91.0** 78.99 : 111.63	**87.5** 78.99 : 111.63
4-Chlorotoluene	TM208	**101.0** 80.15 : 113.42	**97.5** 80.15 : 113.42	**103.5** 80.15 : 113.42	**95.5** 80.15 : 113.42	**93.0** 79.41 : 112.80	**90.5** 79.41 : 112.80

CERTIFICATE OF ANALYSIS

SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

VOC MS (W)

		QC 1771	QC 1704	QC 1734	QC 1791	QC 1739	QC 1776
Benzene	TM208	**99.5** 81.89 : 116.75	**95.0** 81.89 : 116.75	**100.0** 81.89 : 116.75	**94.0** 81.89 : 116.75	**100.0** 83.14 : 116.86	**97.0** 83.14 : 116.86
Bromomethane	TM208	**92.0** 75.84 : 123.69	**90.5** 75.84 : 123.69	**90.5** 75.84 : 123.69	**91.5** 75.84 : 123.69	**93.5** 78.66 : 116.49	**90.0** 78.66 : 116.49
Carbontetrachloride	TM208	**100.0** 79.73 : 118.91	**96.5** 79.73 : 118.91	**100.5** 79.73 : 118.91	**97.5** 79.73 : 118.91	**97.5** 81.73 : 114.22	**93.0** 81.73 : 114.22
Chlorobenzene	TM208	**101.5** 82.01 : 111.65	**99.0** 82.01 : 111.65	**104.5** 82.01 : 111.65	**95.5** 82.01 : 111.65	**91.5** 84.54 : 112.32	**89.5** 84.54 : 112.32
Chloroform	TM208	**101.5** 82.31 : 120.71	**99.0** 82.31 : 120.71	**101.5** 82.31 : 120.71	**99.5** 82.31 : 120.71	**100.5** 83.67 : 118.08	**96.5** 83.67 : 118.08
Chloromethane	TM208	**74.5** 53.07 : 117.38	**67.0** 53.07 : 117.38	**73.0** 53.07 : 117.38	**73.5** 53.07 : 117.38	**81.5** 60.45 : 118.08	**80.0** 60.45 : 118.08
Cis-1,2-Dichloroethene	TM208	**107.0** 84.04 : 126.19	**104.0** 84.04 : 126.19	**106.0** 84.04 : 126.19	**103.0** 84.04 : 126.19	**104.0** 88.44 : 126.72	**102.0** 88.44 : 126.72
Dichloromethane	TM208	**95.5** 81.20 : 120.83	**95.0** 81.20 : 120.83	**94.5** 81.20 : 120.83	**94.5** 81.20 : 120.83	**95.5** 81.65 : 120.83	**92.5** 81.65 : 120.83
Ethylbenzene	TM208	**101.5** 80.54 : 112.31	**96.0** 80.54 : 112.31	**101.5** 80.54 : 112.31	**93.0** 80.54 : 112.31	**93.0** 78.70 : 114.10	**90.5** 78.70 : 114.10
Hexachlorobutadiene	TM208	**93.5** 71.97 : 116.40	**90.5** 71.97 : 116.40	**94.5** 71.97 : 116.40	**88.5** 71.97 : 116.40	**91.5** 66.83 : 108.27	**86.0** 66.83 : 108.27
o-Xylene	TM208	**98.5** 79.22 : 112.31	**96.0** 79.22 : 112.31	**99.0** 79.22 : 112.31	**91.5** 79.22 : 112.31	**91.0** 78.40 : 110.68	**87.5** 78.40 : 110.68
p/m-Xylene	TM208	**102.25** 79.85 : 111.06	**96.0** 79.85 : 111.06	**101.75** 79.85 : 111.06	**92.25** 79.85 : 111.06	**92.25** 79.66 : 110.44	**90.0** 79.66 : 110.44
Tert-butyl methyl ether	TM208	**96.0** 72.34 : 115.36	**93.5** 72.34 : 115.36	**99.0** 72.34 : 115.36	**91.5** 72.34 : 115.36	**97.5** 68.23 : 127.69	**97.5** 68.23 : 127.69
Tetrachloroethene	TM208	**102.0** 79.79 : 111.18	**99.5** 79.79 : 111.18	**105.0** 79.79 : 111.18	**101.0** 79.79 : 111.18	**97.0** 81.10 : 112.63	**93.0** 81.10 : 112.63
Toluene	TM208	**100.5** 81.59 : 111.56	**97.5** 81.59 : 111.56	**102.5** 81.59 : 111.56	**96.5** 81.59 : 111.56	**96.5** 83.98 : 111.19	**93.5** 83.98 : 111.19
Trichloroethene	TM208	**99.0** 79.53 : 112.32	**97.0** 79.53 : 112.32	**100.0** 79.53 : 112.32	**96.5** 79.53 : 112.32	**93.5** 81.17 : 111.80	**91.0** 81.17 : 111.80
Vinyl Chloride	TM208	**90.0** 73.93 : 128.95	**84.5** 73.93 : 128.95	**88.5** 73.93 : 128.95	**92.0** 73.93 : 128.95	**92.0** 72.73 : 123.40	**89.5** 72.73 : 123.40

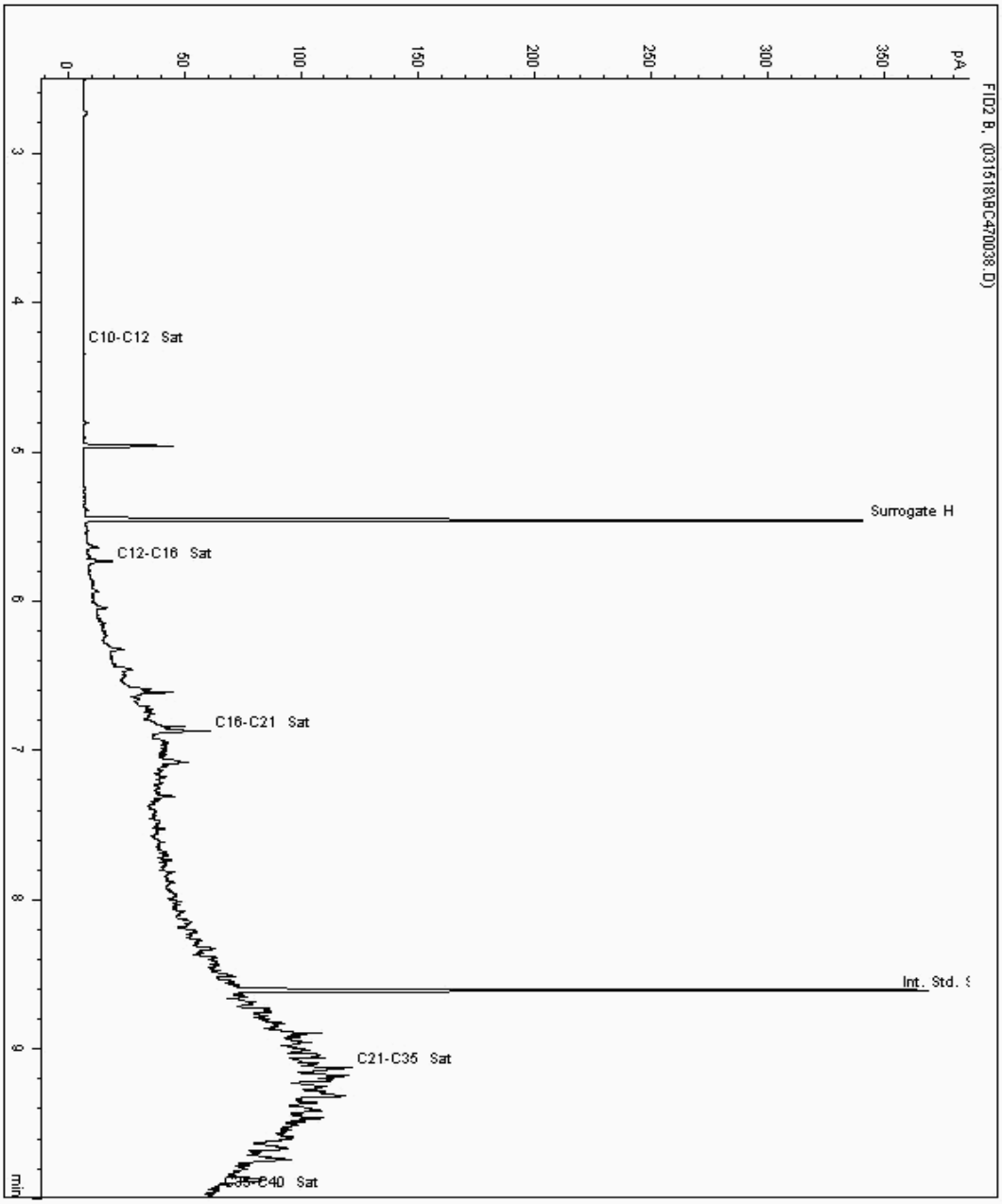
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17180162 **Sample ID :** BH-RPS-05 **Depth :** 0.97

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16124916-
Date Acquired : 16/03/18 03:25:22 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

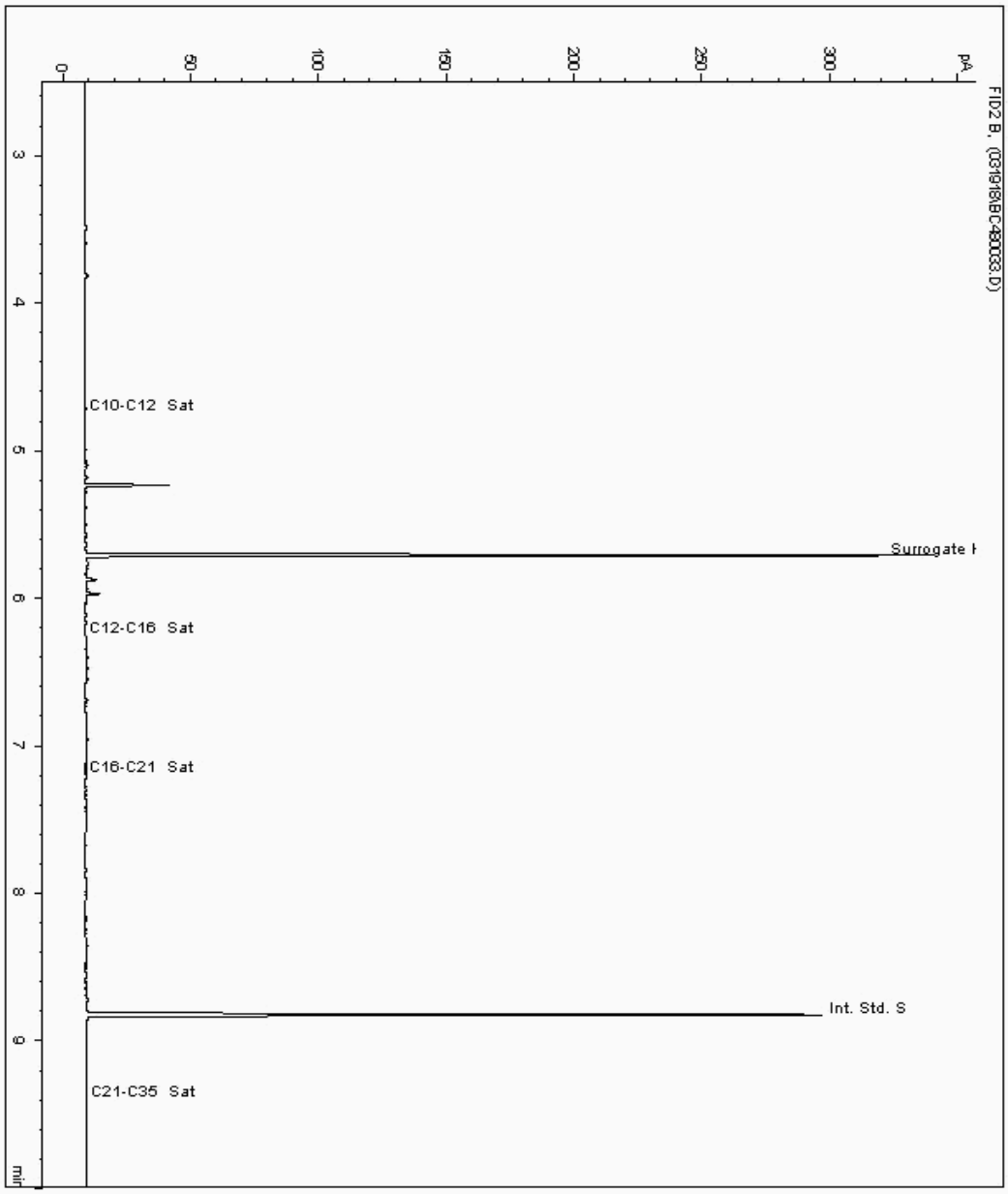
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17180186 **Sample ID :** WS-RPS-20 **Depth :** 1.46

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16125109-
Date Acquired : 20/03/2018 11:25:22 PM
Units : ppb
Dilution : SE WS-RPS-20[1.46] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

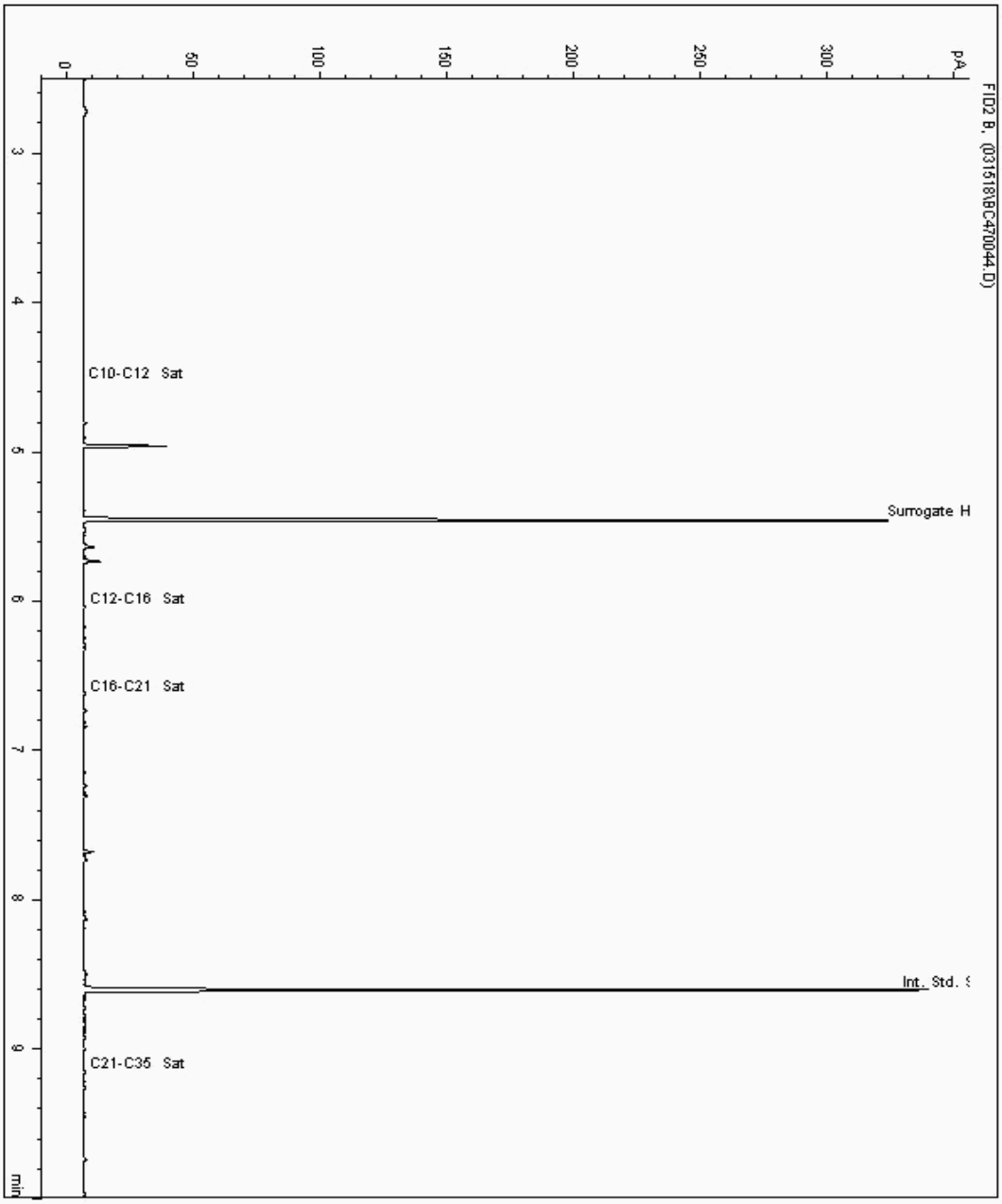
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17180198 **Sample ID :** BH-RPS-23a **Depth :** 1.02

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16125016-
Date Acquired : 16/03/18 05:45:27 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

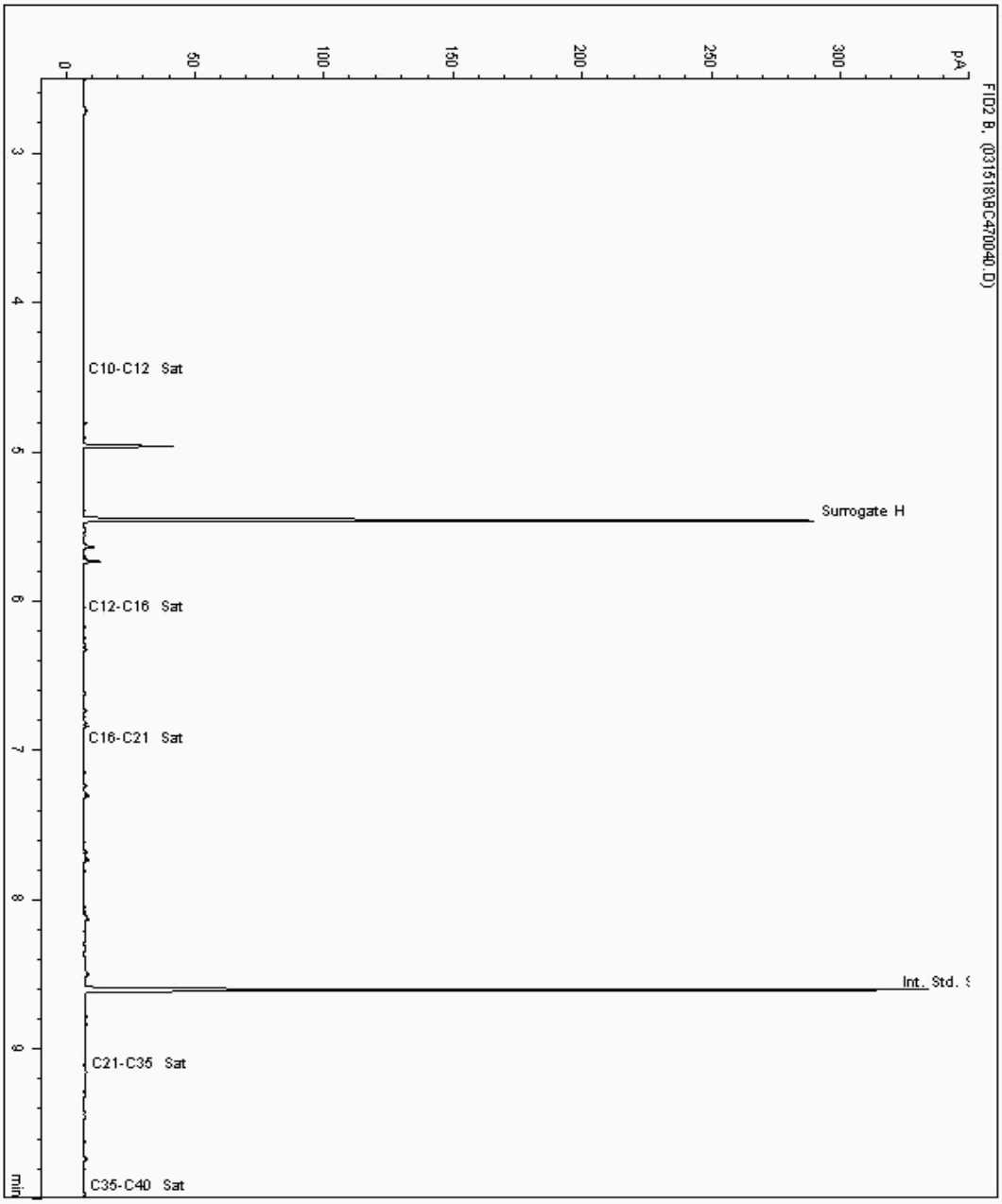


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17180269 **Sample ID :** WS-RPS-19 **Depth :** 2.63

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16125124-
Date Acquired : 16/03/18 04:11:43 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

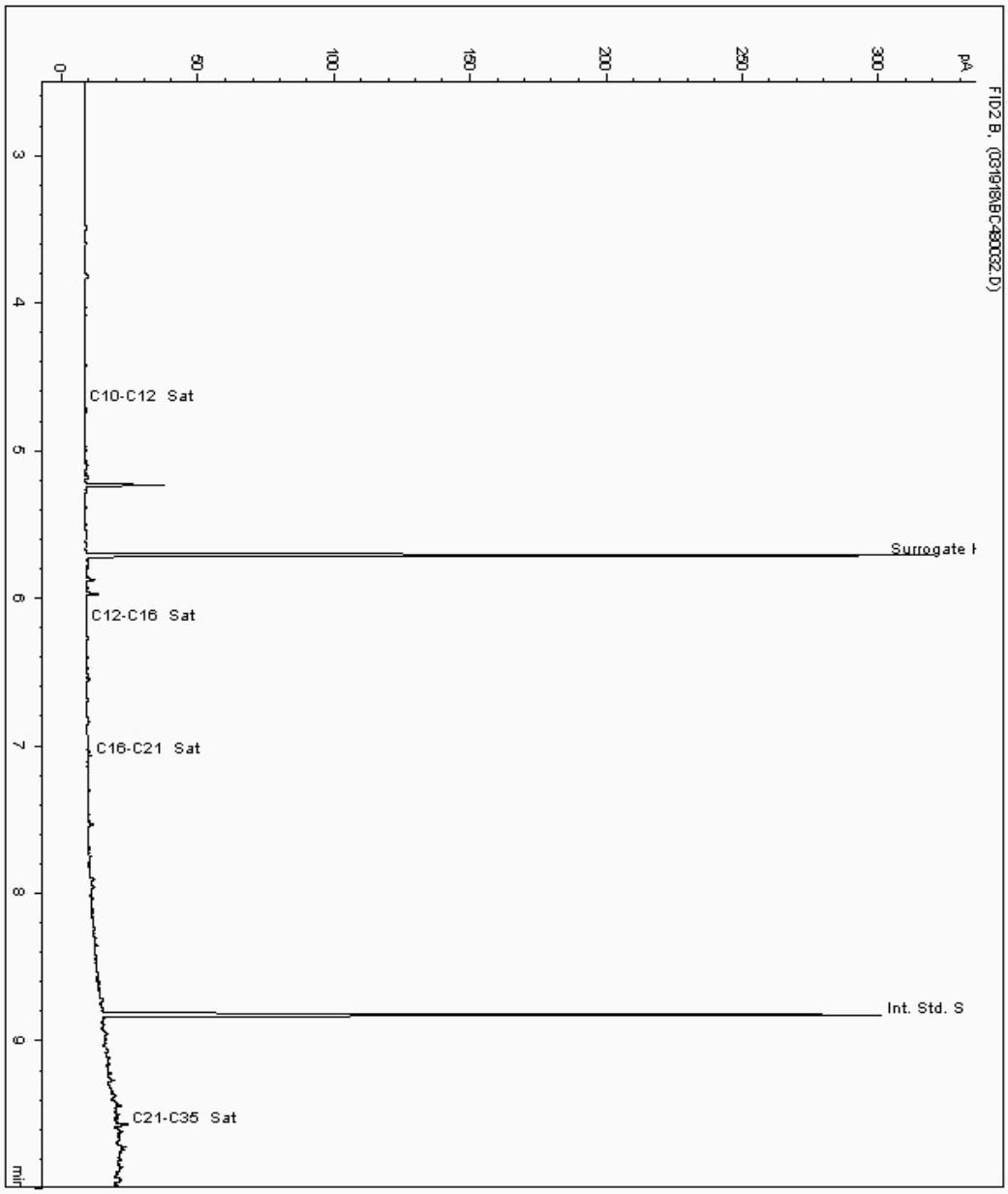


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17188618 **Sample ID :** BH-RPS-09 **Depth :** 1.12

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16124932-
Date Acquired : 20/03/2018 11:02:10 PM
Units : ppb
Dilution : SE BH-RPS-09[1.12] ->
CF : 1
Multiplier : 0.125



Validated

CERTIFICATE OF ANALYSIS

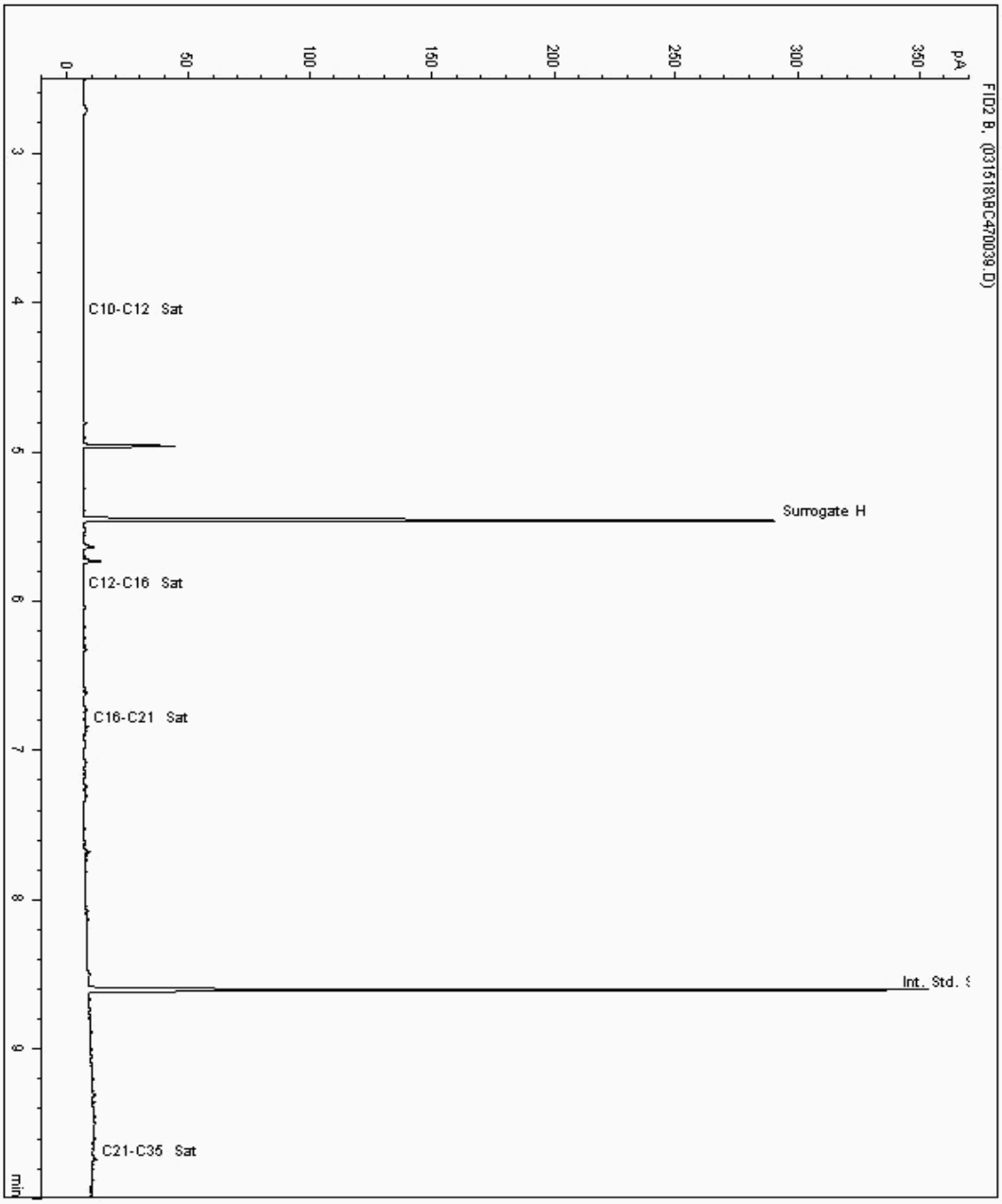
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17188657 **Sample ID :** BH-RPS-03 **Depth :** 1.95

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16125055-
Date Acquired : 16/03/18 03:48:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.125

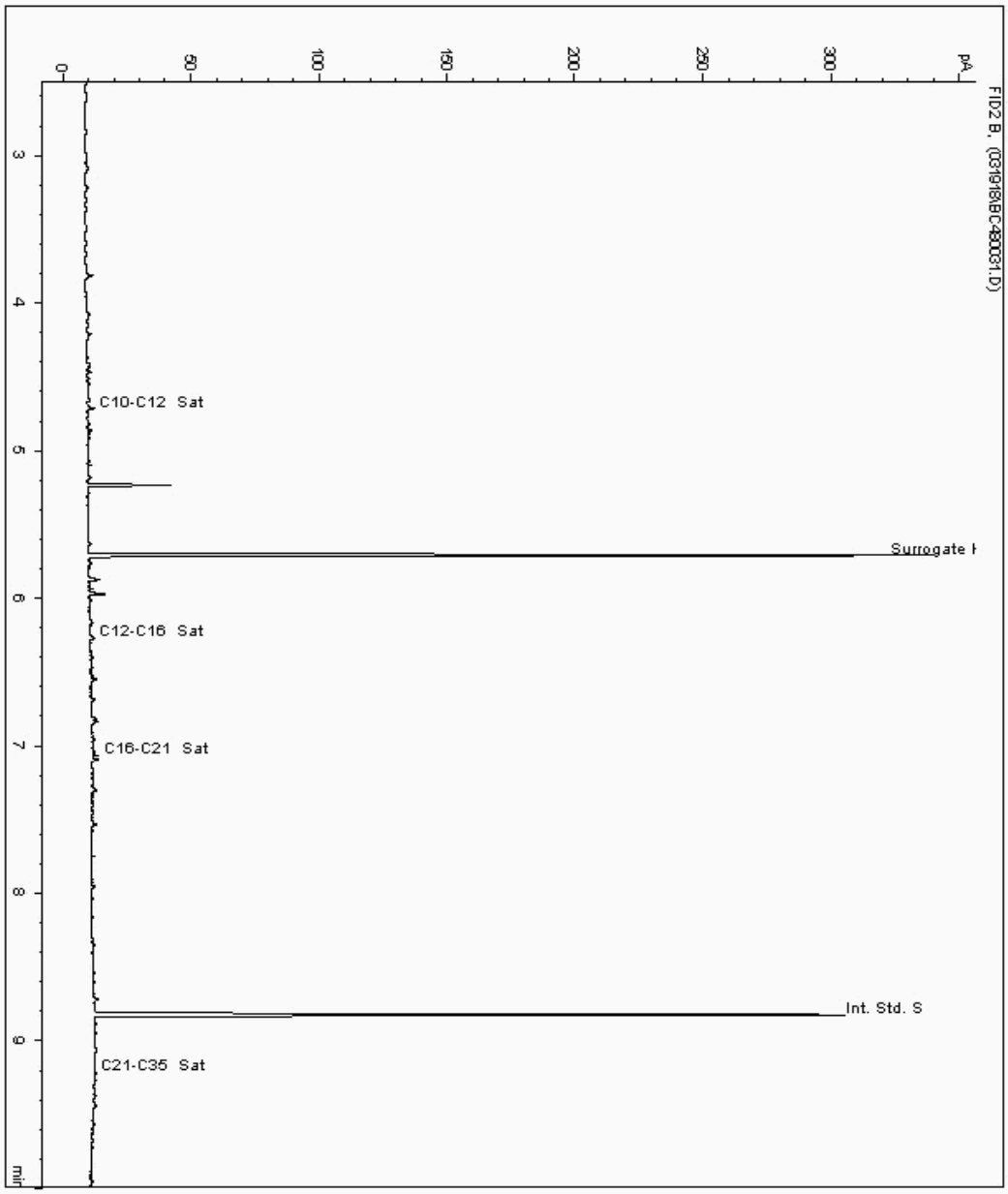


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17188741 **Sample ID :** WS-RPS-09 **Depth :** 0.97

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16125070-
Date Acquired : 20/03/2018 10:38:42 PM
Units : ppb
Dilution : SE WS-RPS-09[0.97] ->
CF : 1
Multiplier : 0.125



Validated

CERTIFICATE OF ANALYSIS

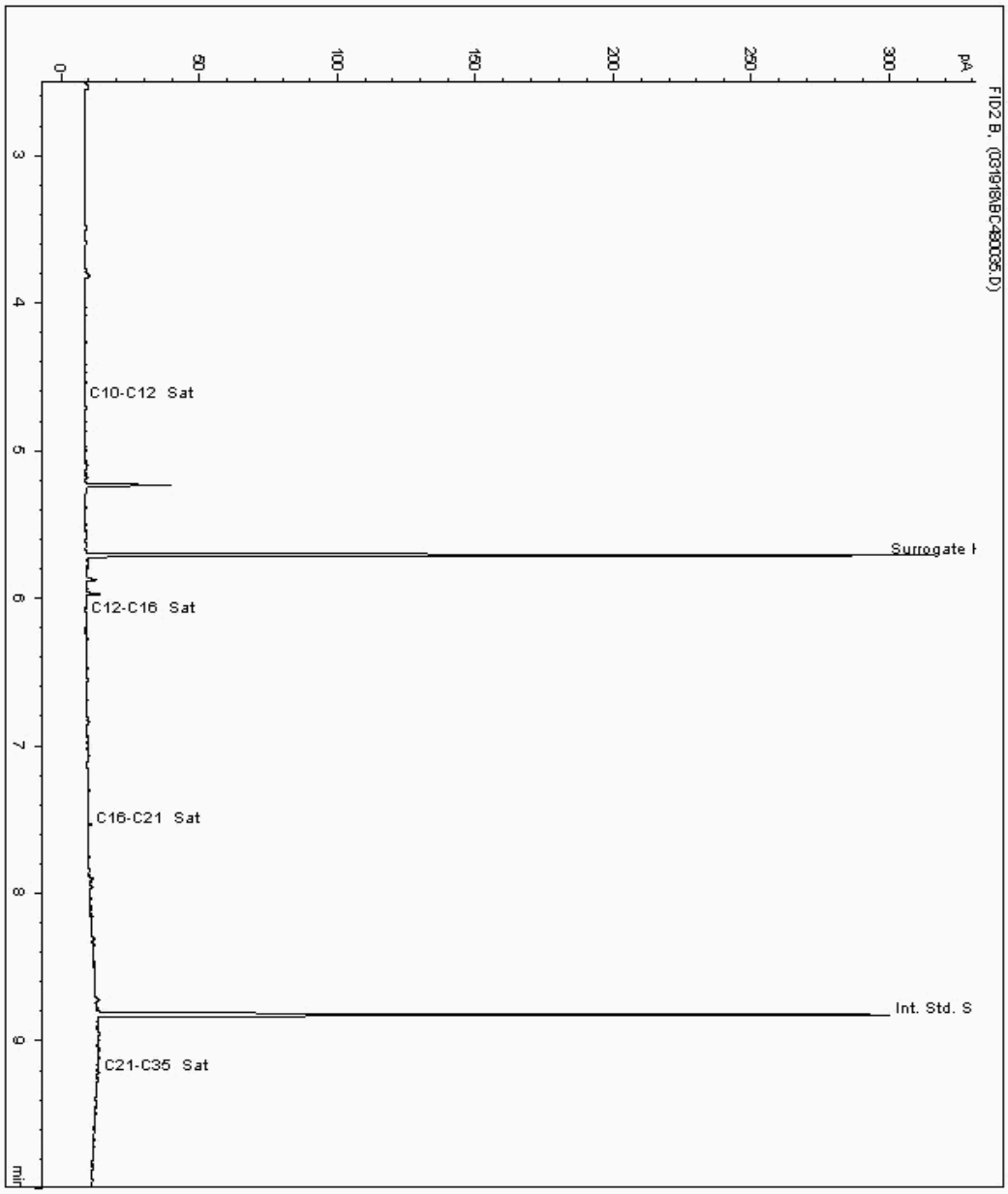
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17188750 **Sample ID :** BH-RPS-06 **Depth :** 0.86

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16124962-
Date Acquired : 20/03/2018 12:11:37 PM
Units : ppb
Dilution : SE BH-RPS-06[0.86] ->
CF : 1
Multiplier : 0.025

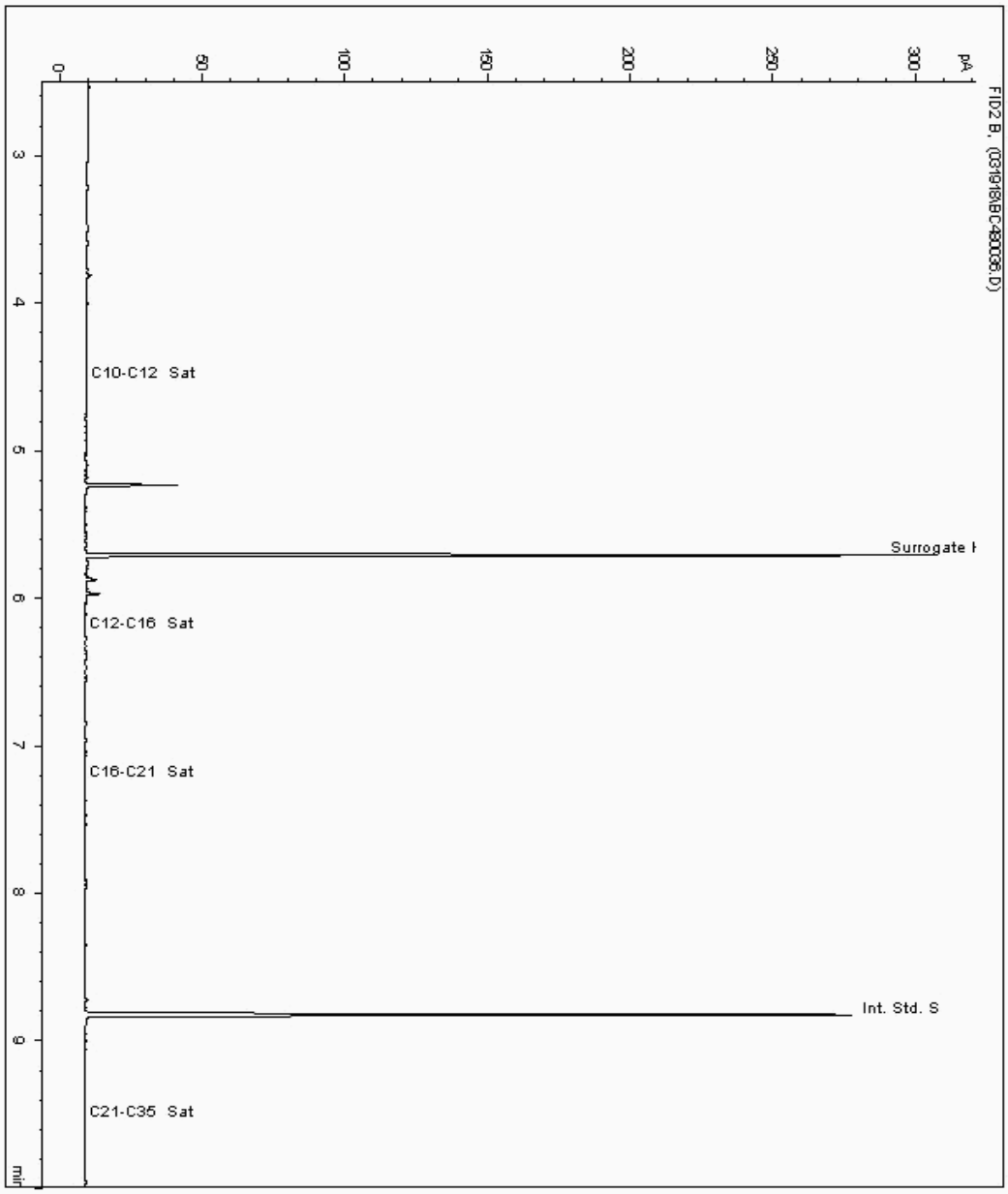


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17188779 **Sample ID :** WS-RPS-10 **Depth :** 0.95

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16125000-
Date Acquired : 20/03/2018 12:34:53 PM
Units : ppb
Dilution : SE WS-RPS-10[0.95] ->
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

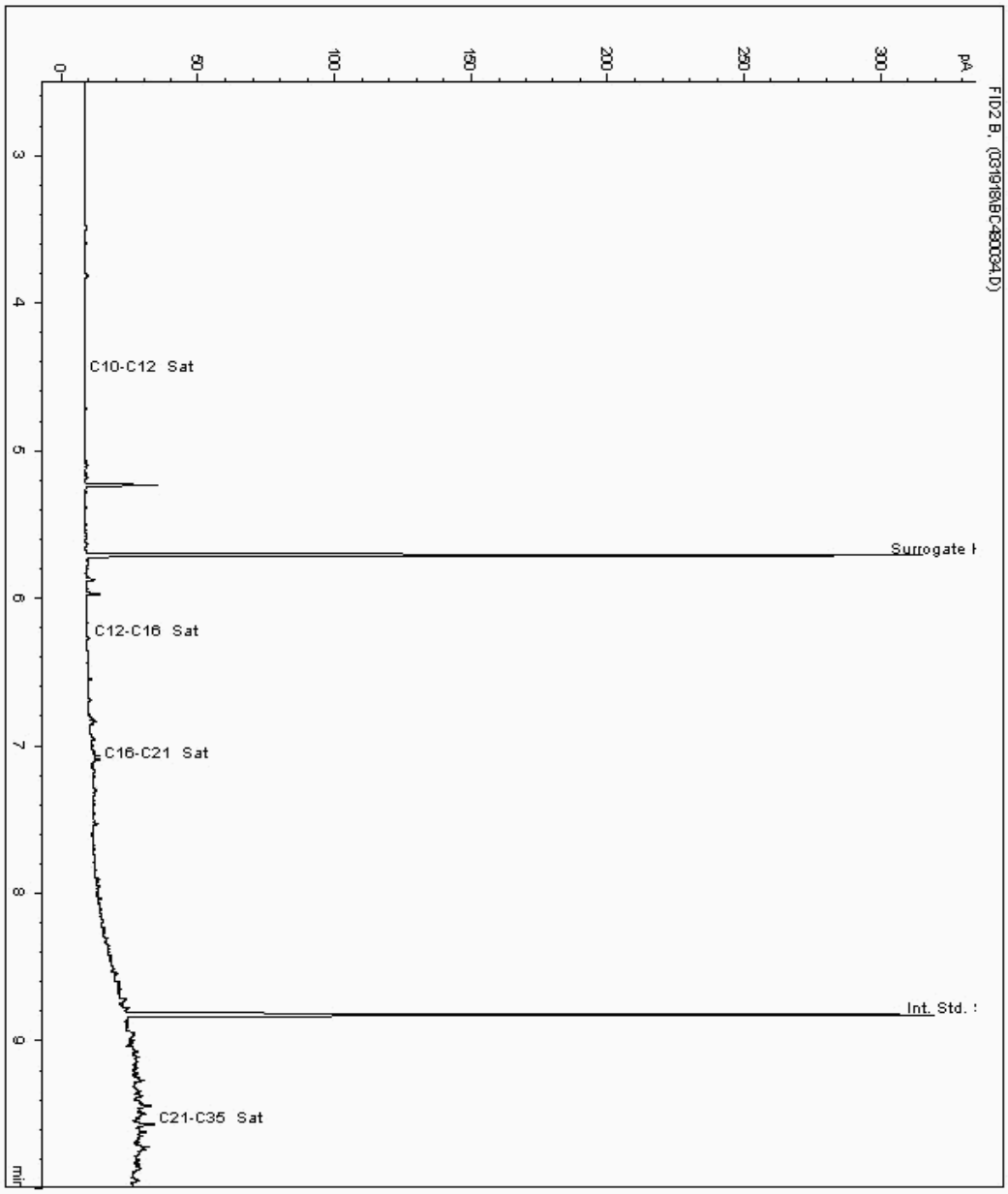
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17189619 **Sample ID :** BH-RPS-07 **Depth :** 1.13

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16124947-
Date Acquired : 20/03/2018 11:48:39 PM
Units : ppb
Dilution : SE BH-RPS-07[1.13] ->
CF : 1
Multiplier : 0.050

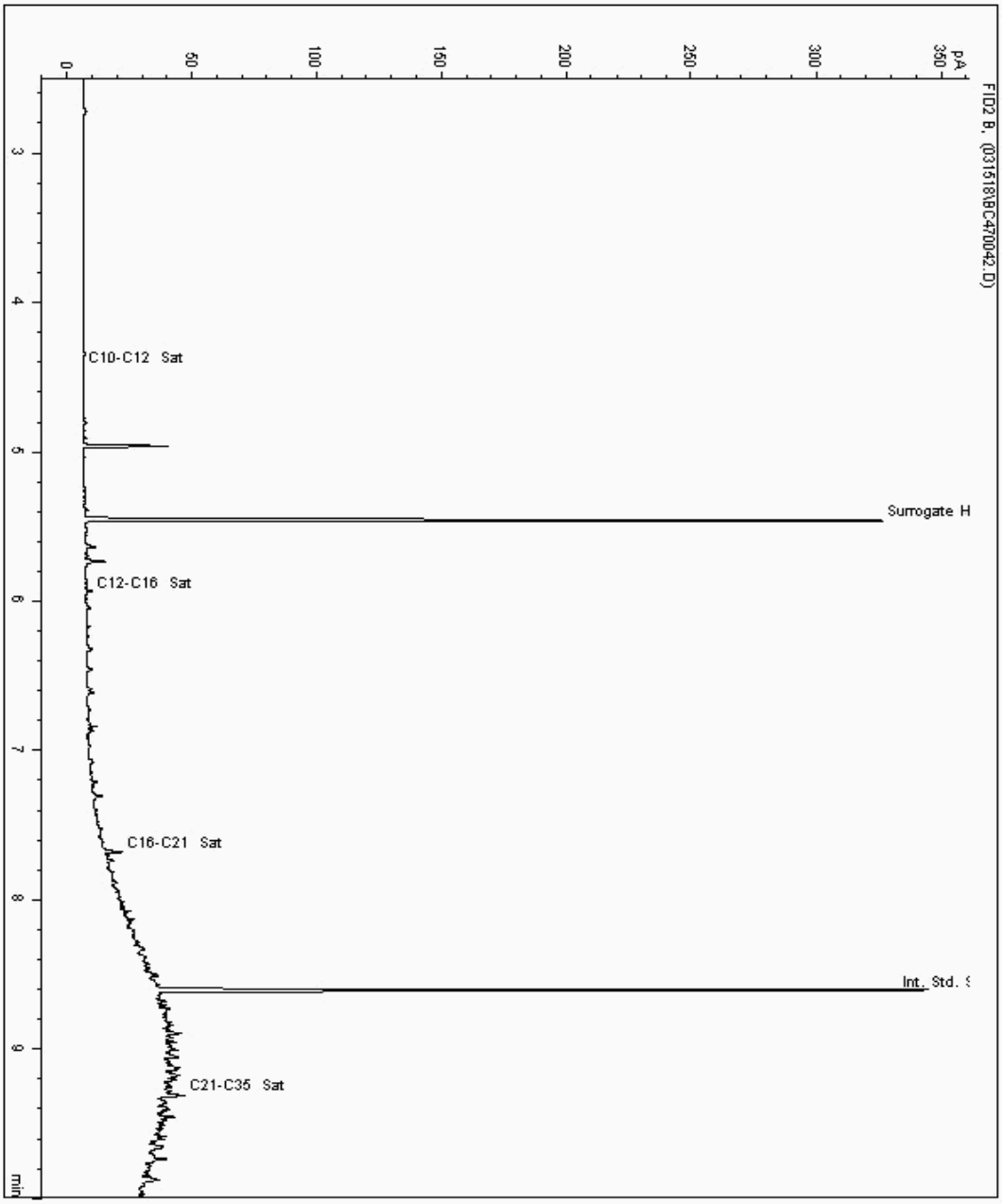


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17194938 **Sample ID :** BH-RPS-24 **Depth :** 0.75

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16139510-
Date Acquired : 16/03/18 04:58:16 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

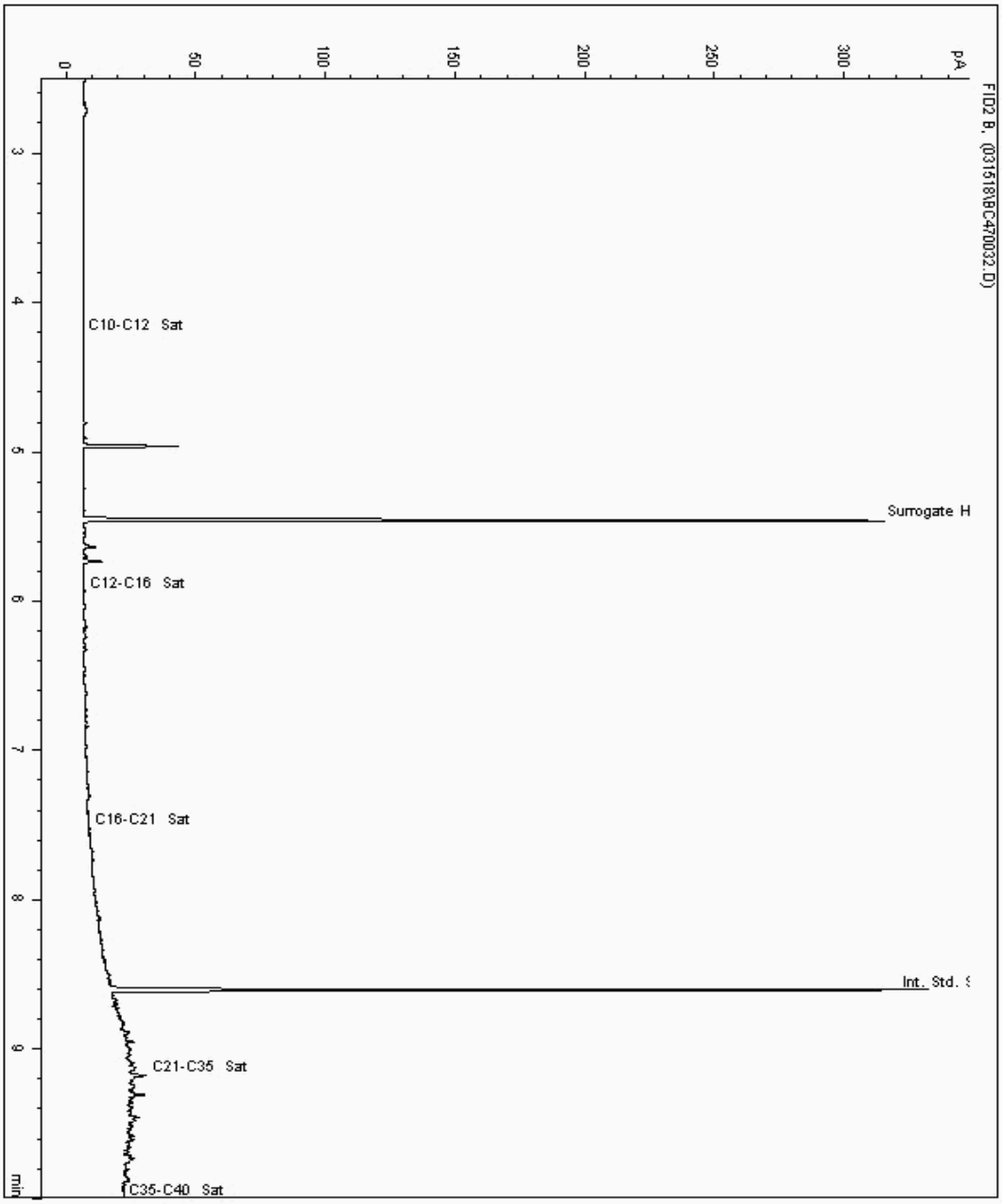


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17194947 **Sample ID :** CP-RPS-03 **Depth :** 0.93

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16139442-
Date Acquired : 16/03/18 01:18:38 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

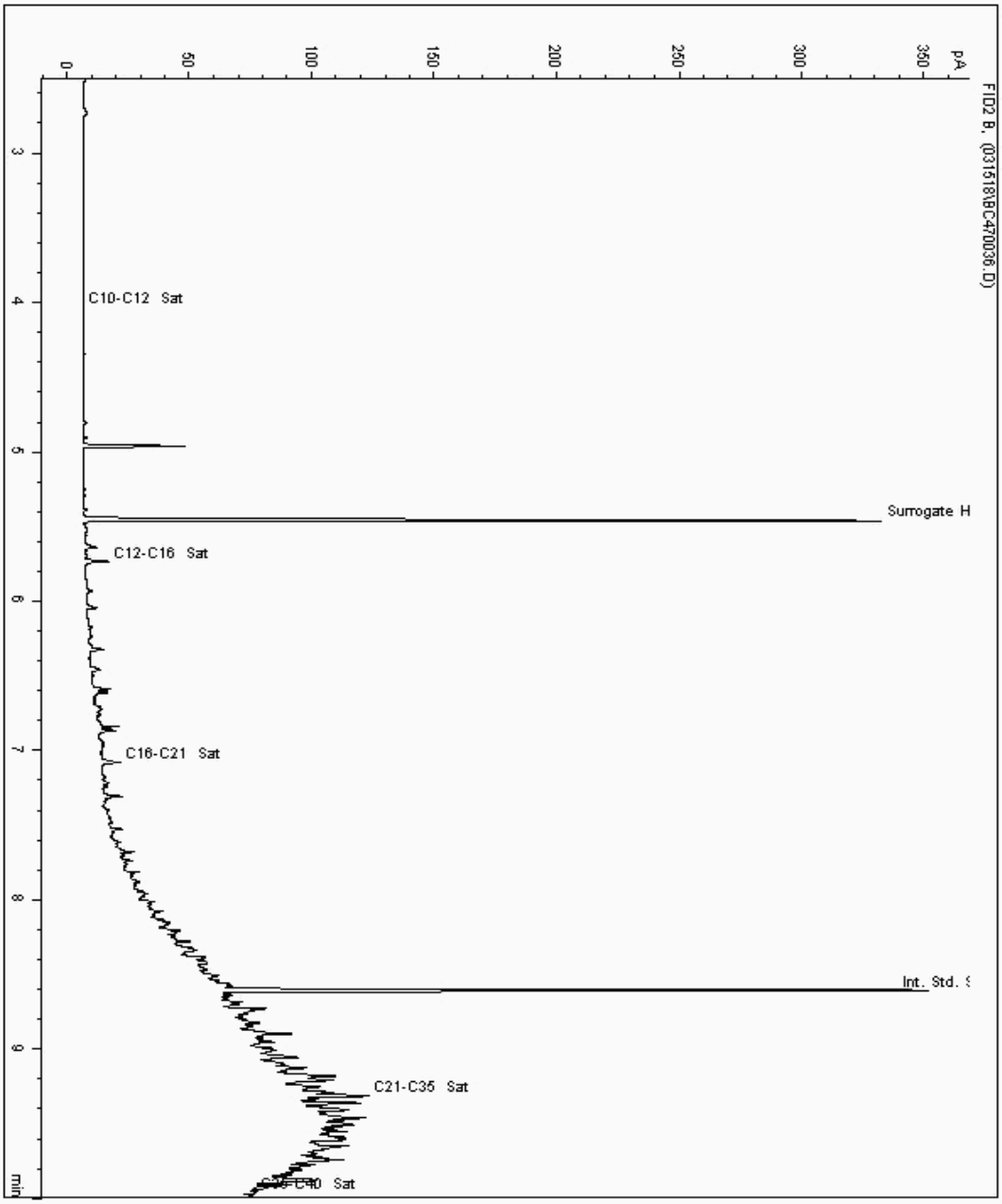
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17194952 **Sample ID :** BH-RPS-01 **Depth :** 1.73

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16139406-
Date Acquired : 16/03/18 02:38:44 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

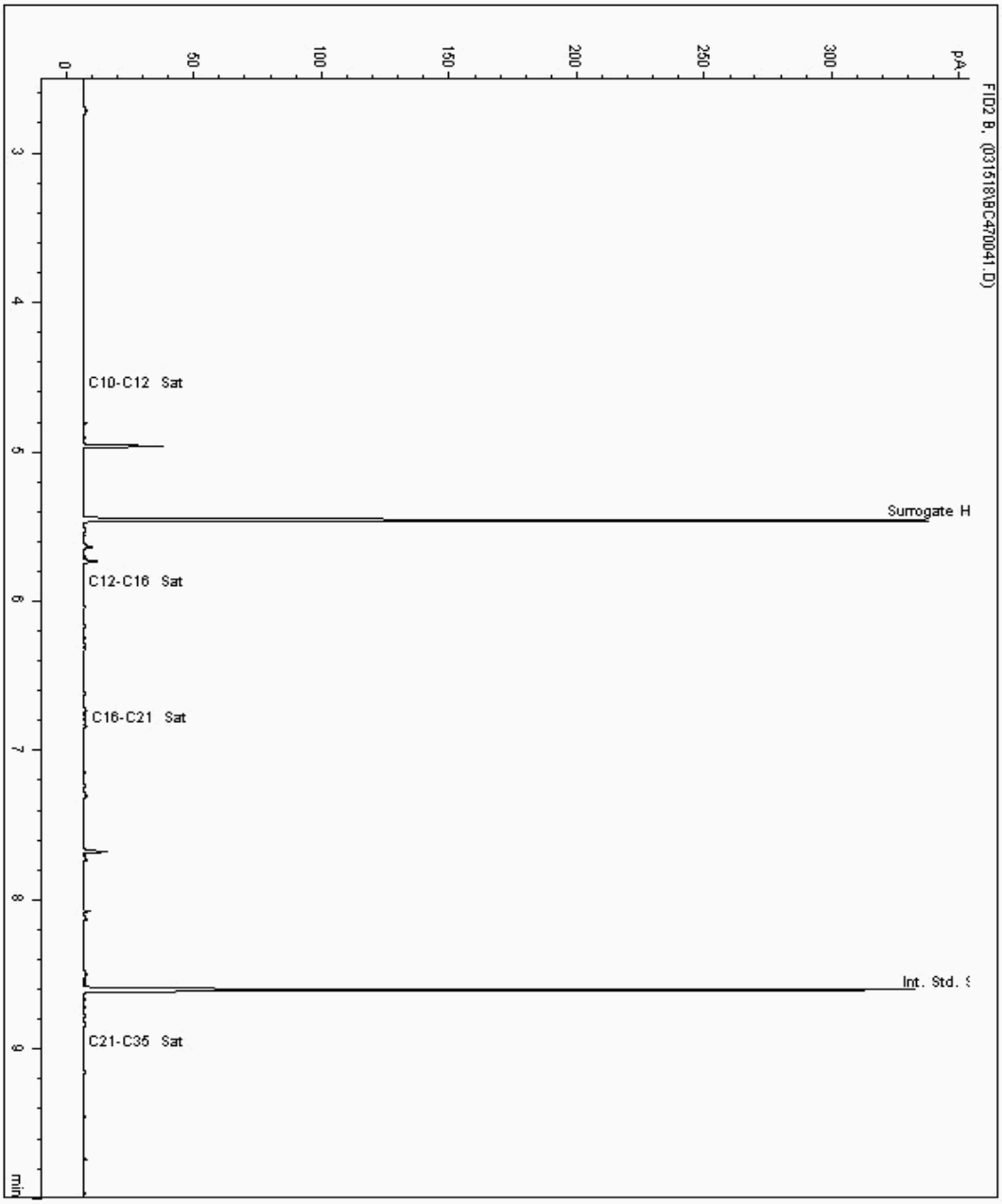
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17194954 **Sample ID :** WS-RPS-24 **Depth :** 1.68

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16139426-
Date Acquired : 16/03/18 04:35:06 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

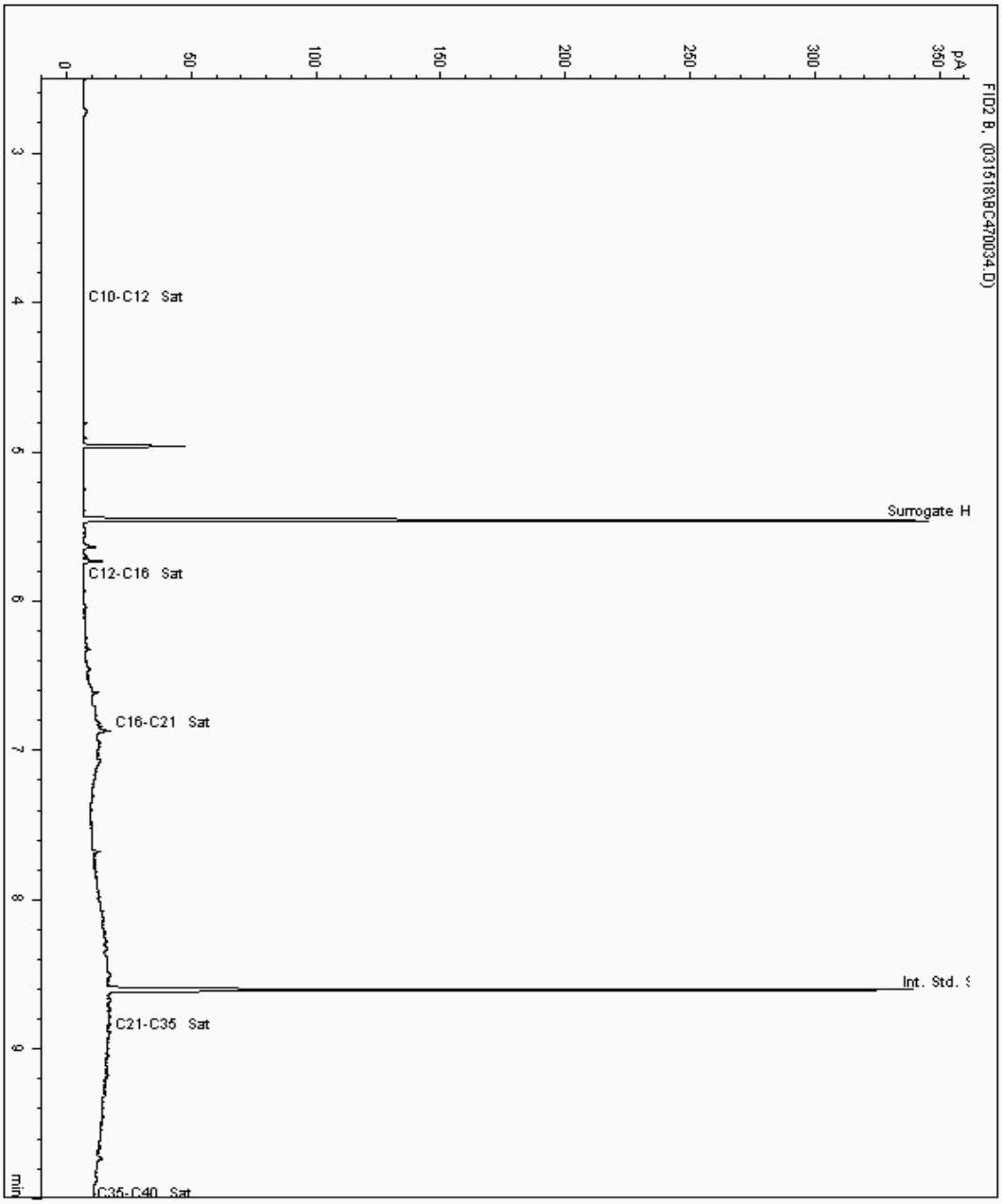
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17194993 **Sample ID :** CP-RPS-04A **Depth :** 2.03

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16139478-
Date Acquired : 16/03/18 01:51:57 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.125

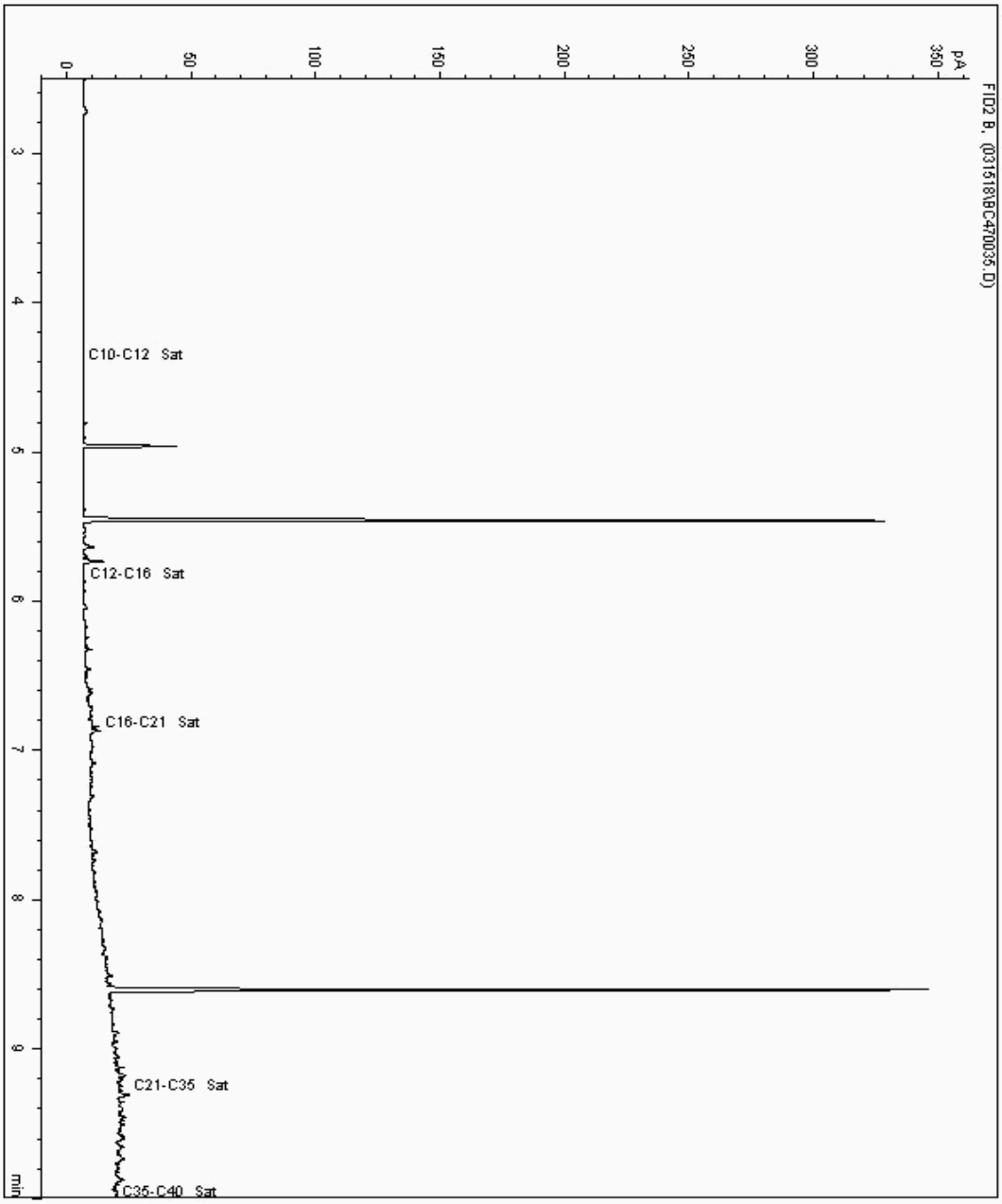


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17194997 **Sample ID :** BH-RPS-10 **Depth :** 1.55

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16139458-
Date Acquired : 16/03/18 02:15:30 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

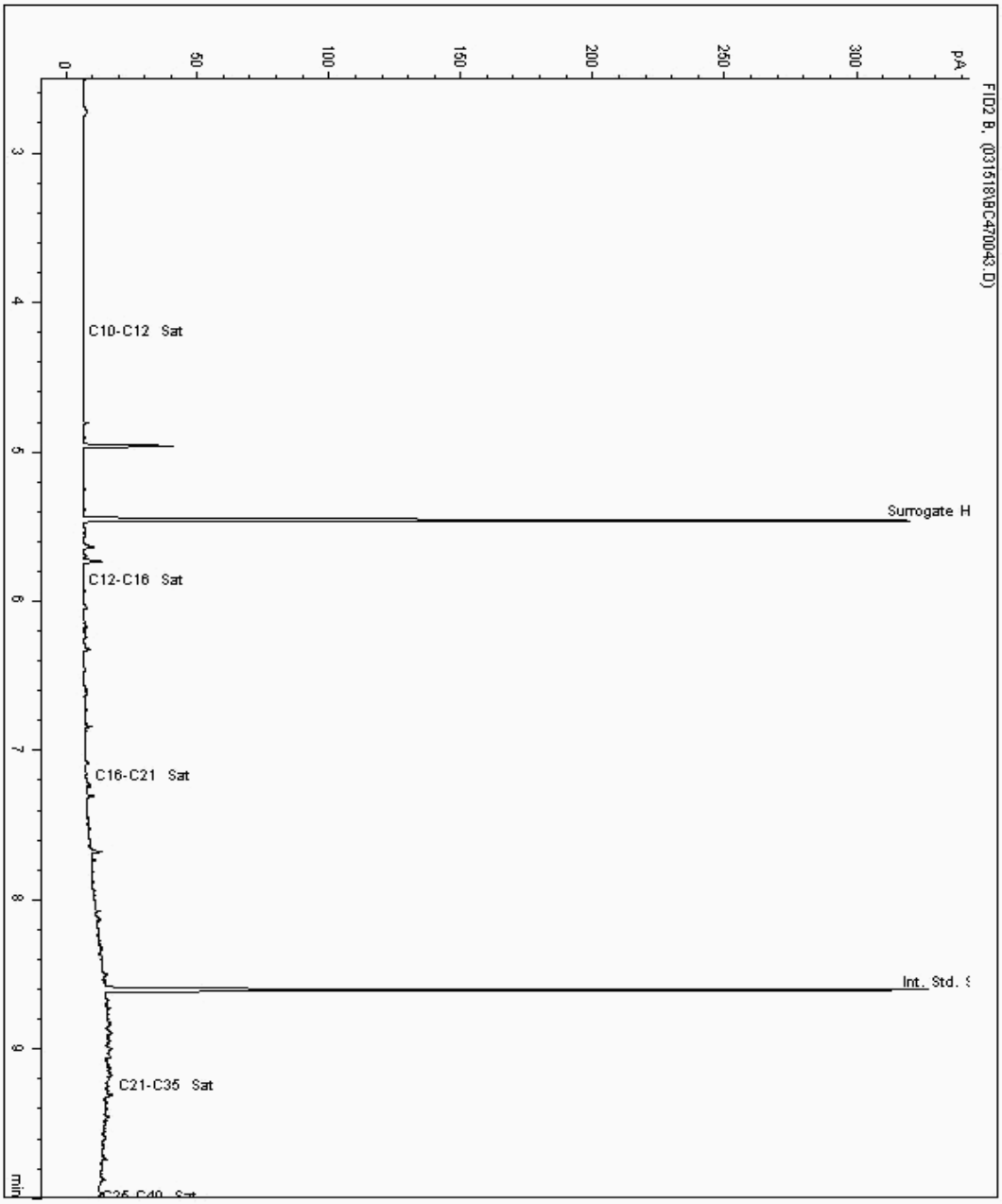


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17194999 **Sample ID :** BH-RPS-04 **Depth :** 1.63

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16139494-
Date Acquired : 16/03/18 05:21:45 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

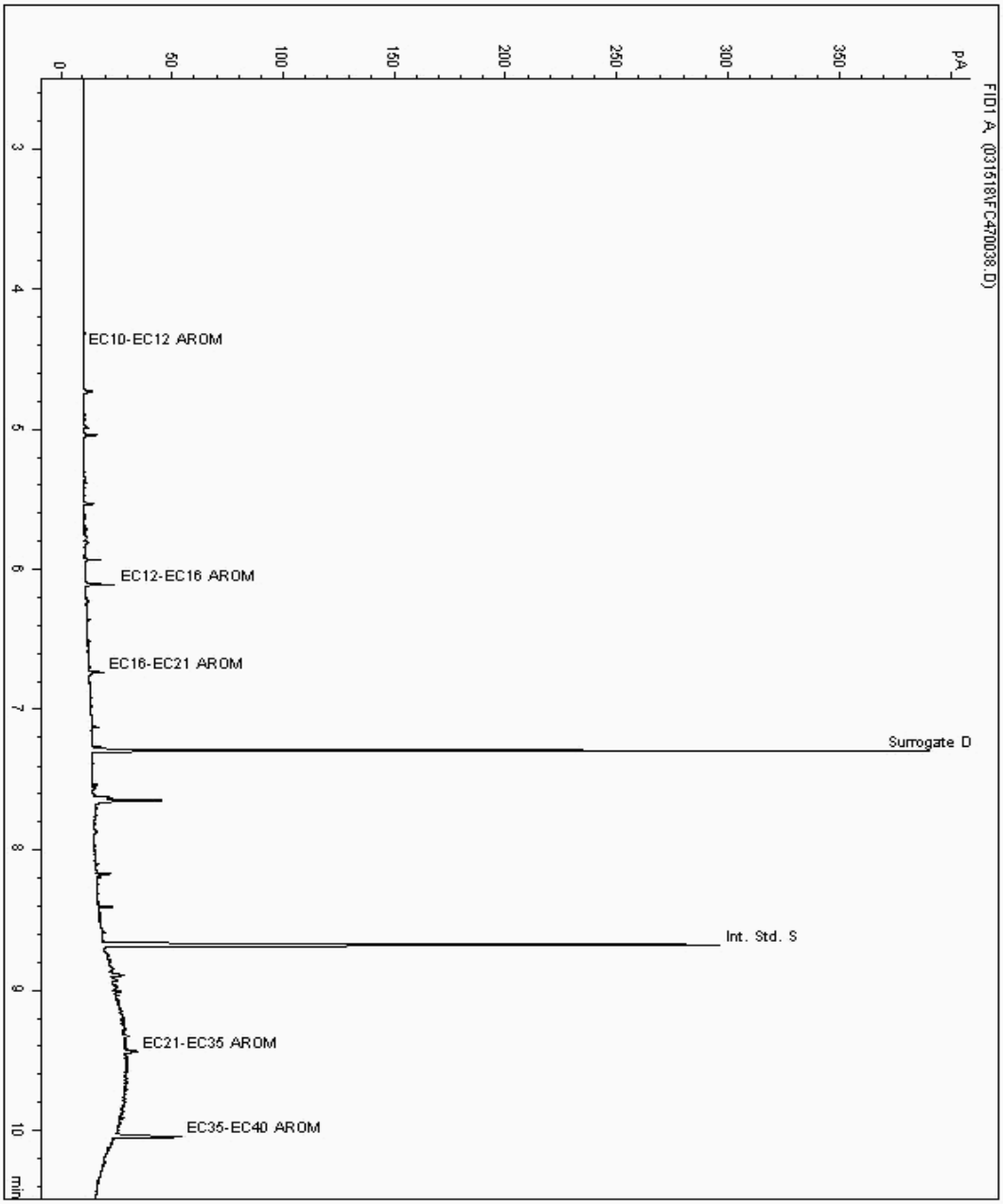
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17180162 **Sample ID :** BH-RPS-05 **Depth :** 0.97

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16124917-
Date Acquired : 16/03/18 03:25:23 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

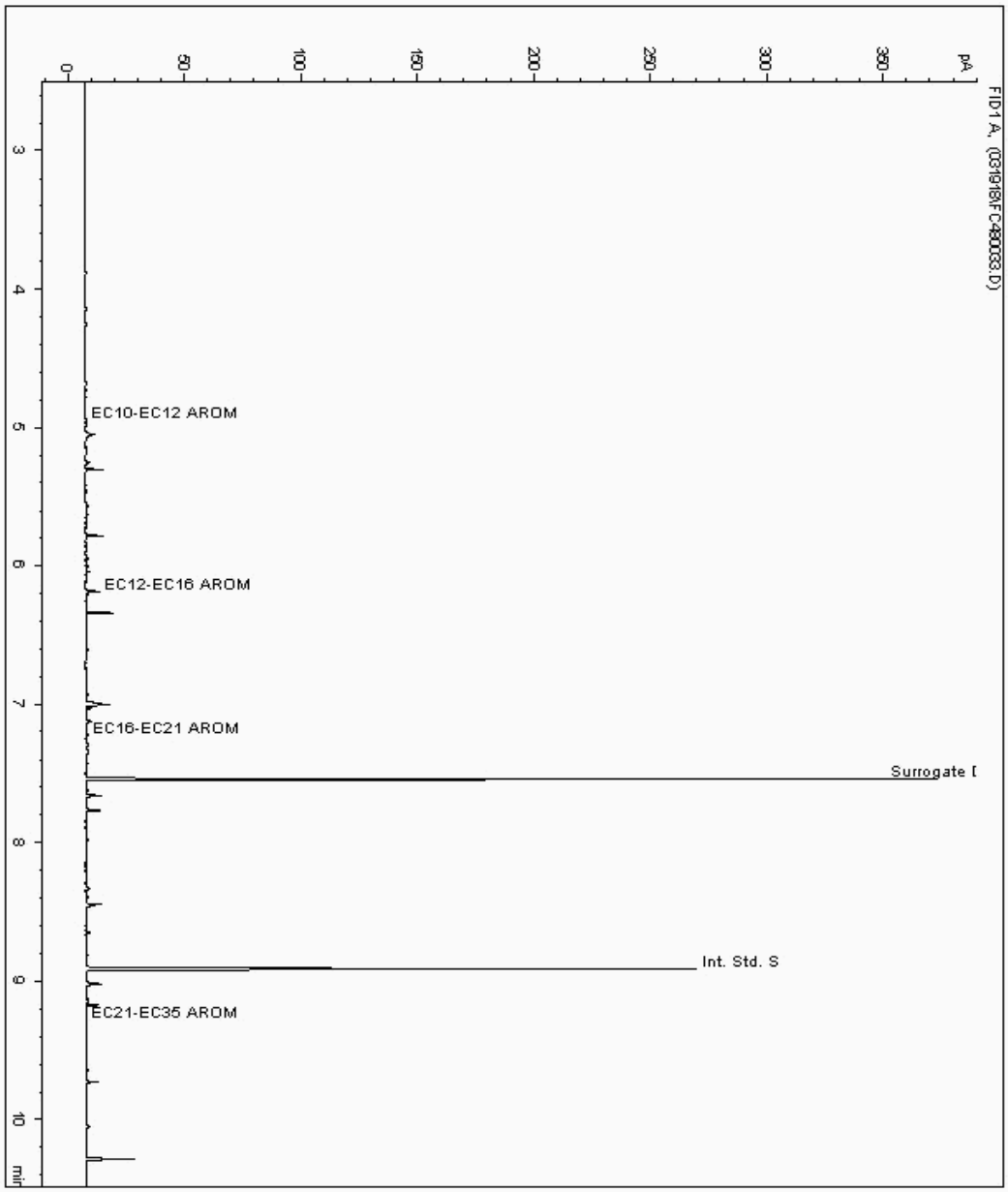


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17180186 **Sample ID :** WS-RPS-20 **Depth :** 1.46

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16125110-
Date Acquired : 20/03/2018 11:25:22 PM
Units : ppb
Dilution : SE WS-RPS-20[1.46] ->
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

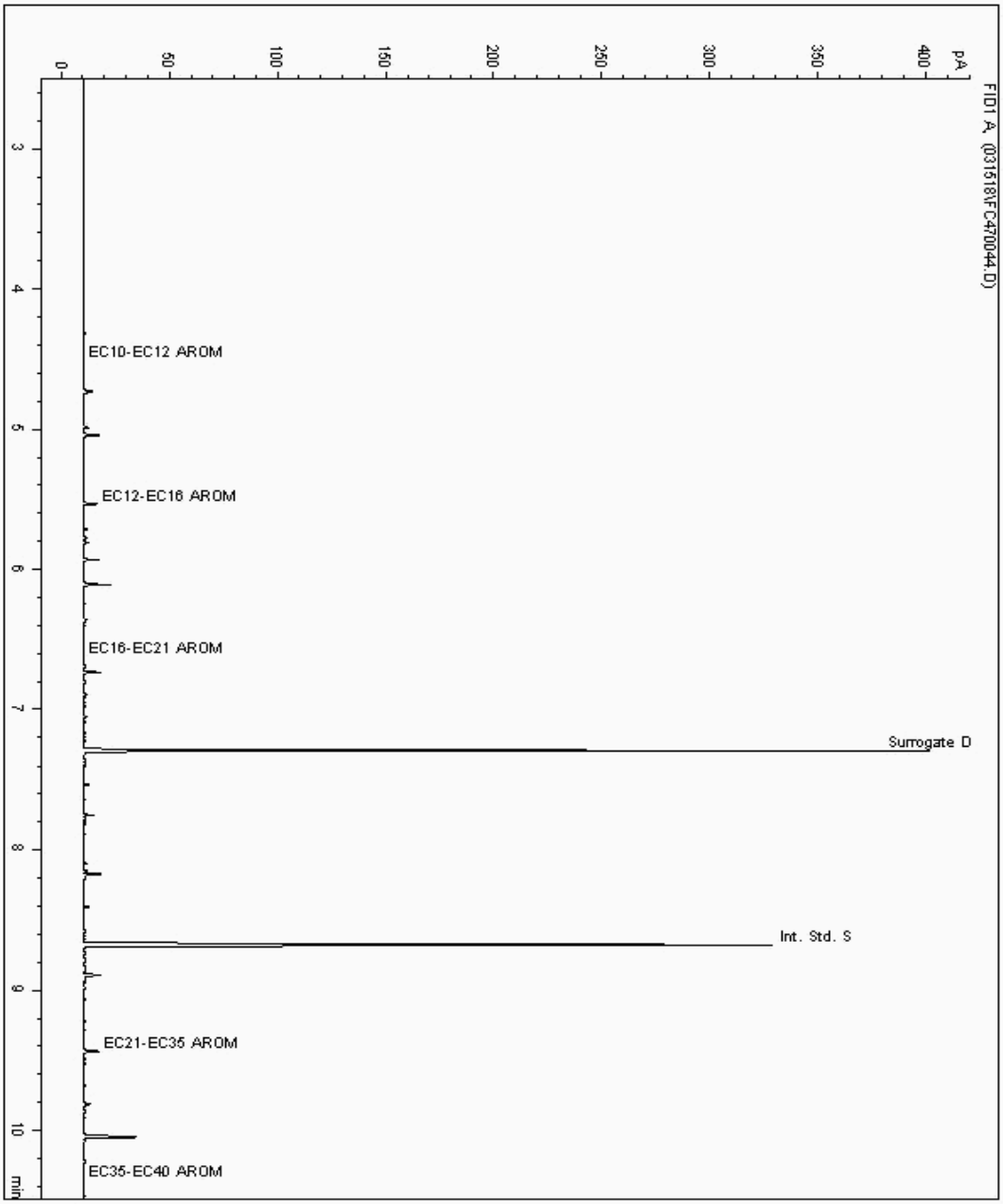
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17180198 **Sample ID :** BH-RPS-23a **Depth :** 1.02

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16125017-
Date Acquired : 16/03/18 05:45:27 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

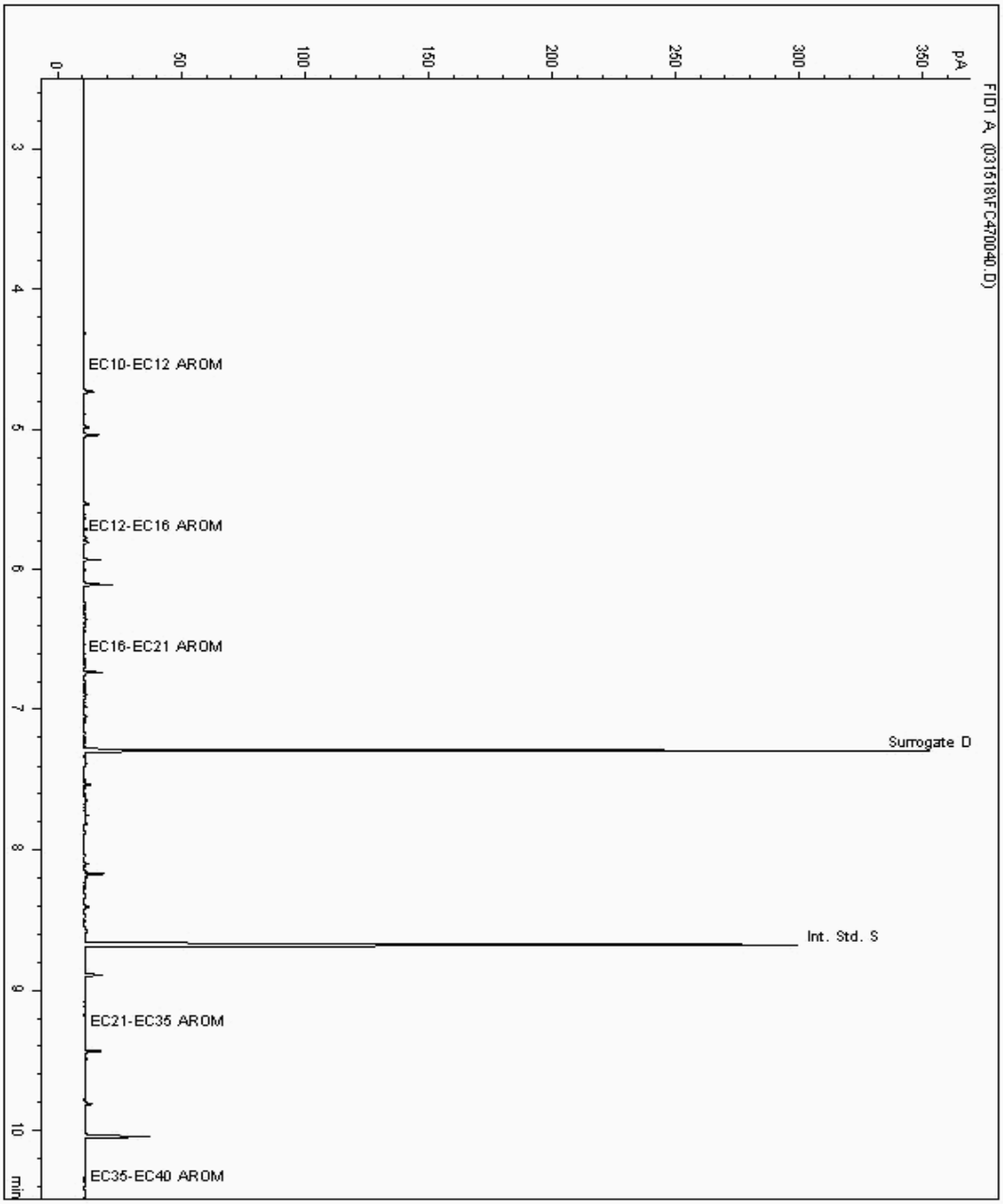


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17180269 **Sample ID :** WS-RPS-19 **Depth :** 2.63

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16125125-
Date Acquired : 16/03/18 04:11:43 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

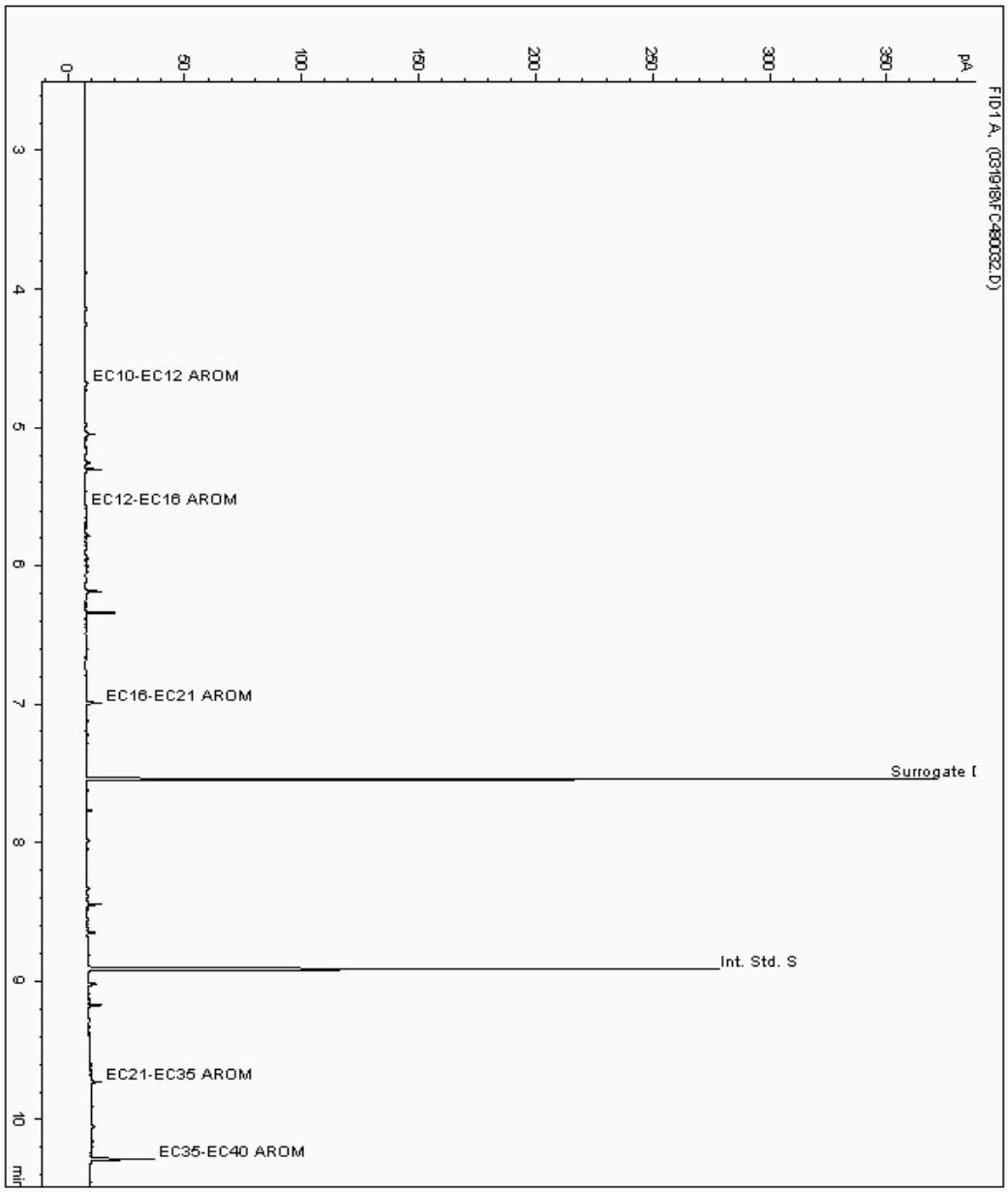


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17188618 **Sample ID :** BH-RPS-09 **Depth :** 1.12

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16124933-
Date Acquired : 20/03/2018 11:02:10 PM
Units : ppb
Dilution : SE BH-RPS-09[1.12] ->
CF : 1
Multiplier : 0.125



CERTIFICATE OF ANALYSIS

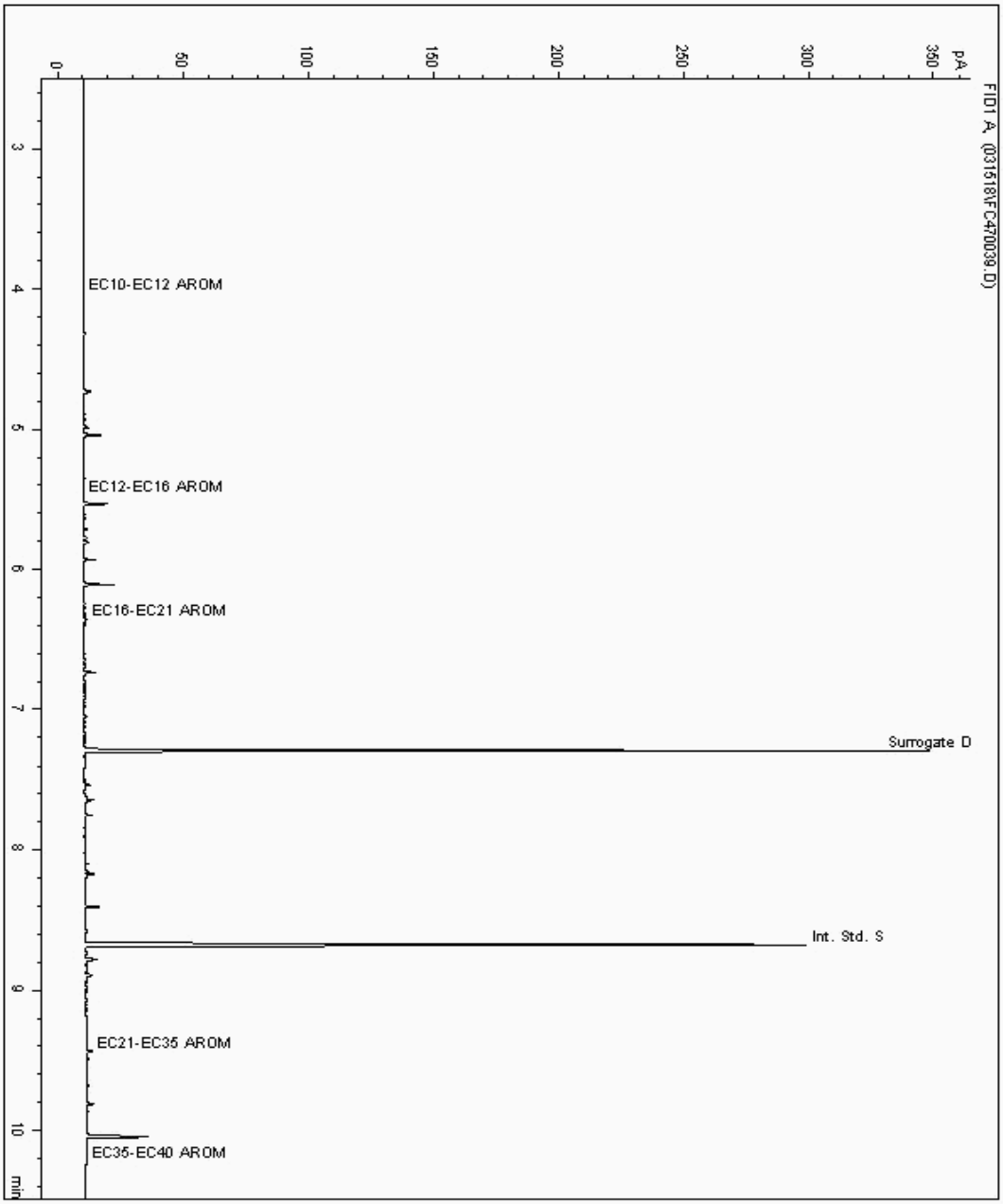
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17188657 **Sample ID :** BH-RPS-03 **Depth :** 1.95

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16125056-
Date Acquired : 16/03/18 03:48:34 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.125

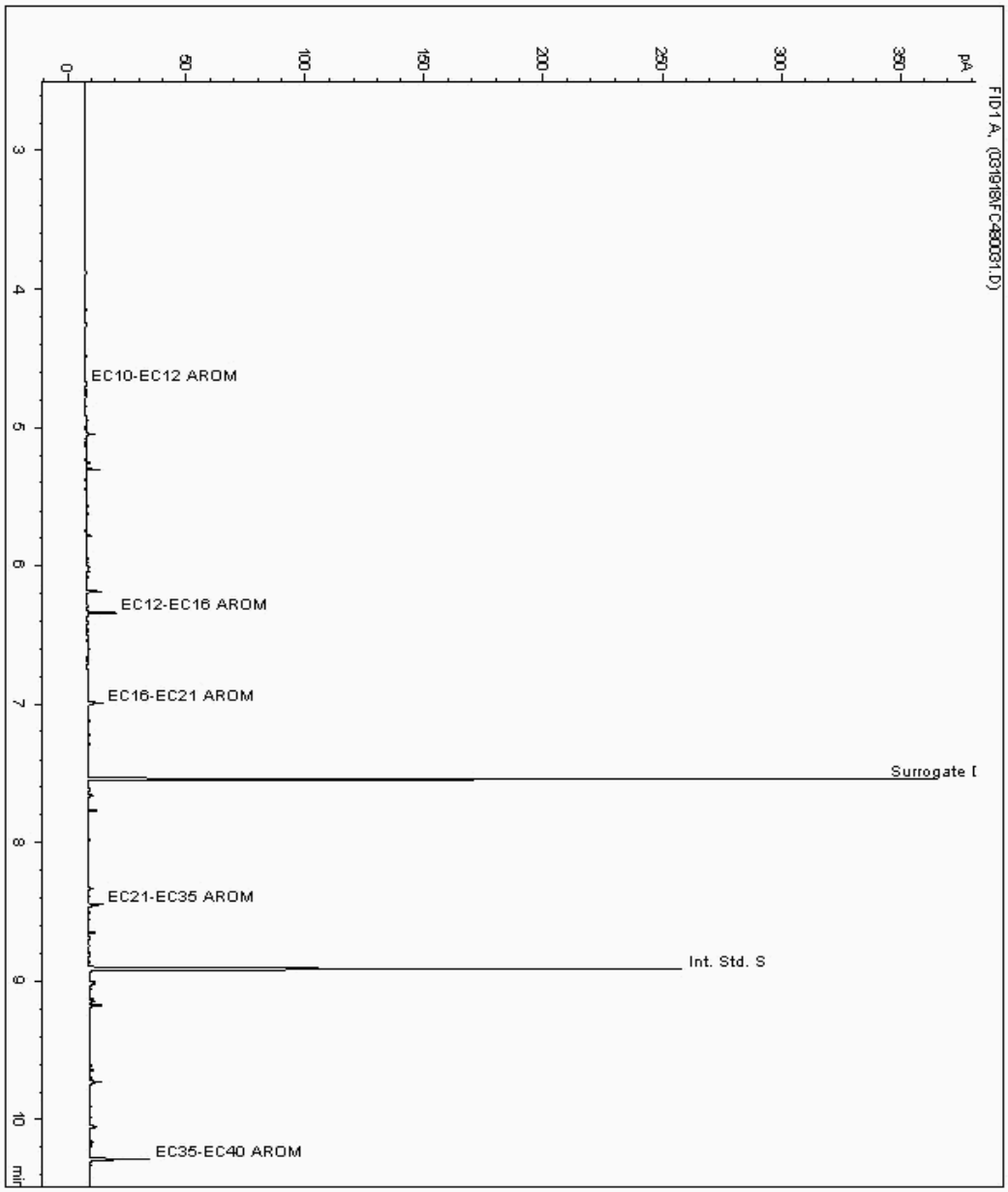


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17188741 **Sample ID :** WS-RPS-09 **Depth :** 0.97

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16125071-
Date Acquired : 20/03/2018 10:38:42 PM
Units : ppb
Dilution : SE WS-RPS-09[0.97] ->
CF : 1
Multiplier : 0.125

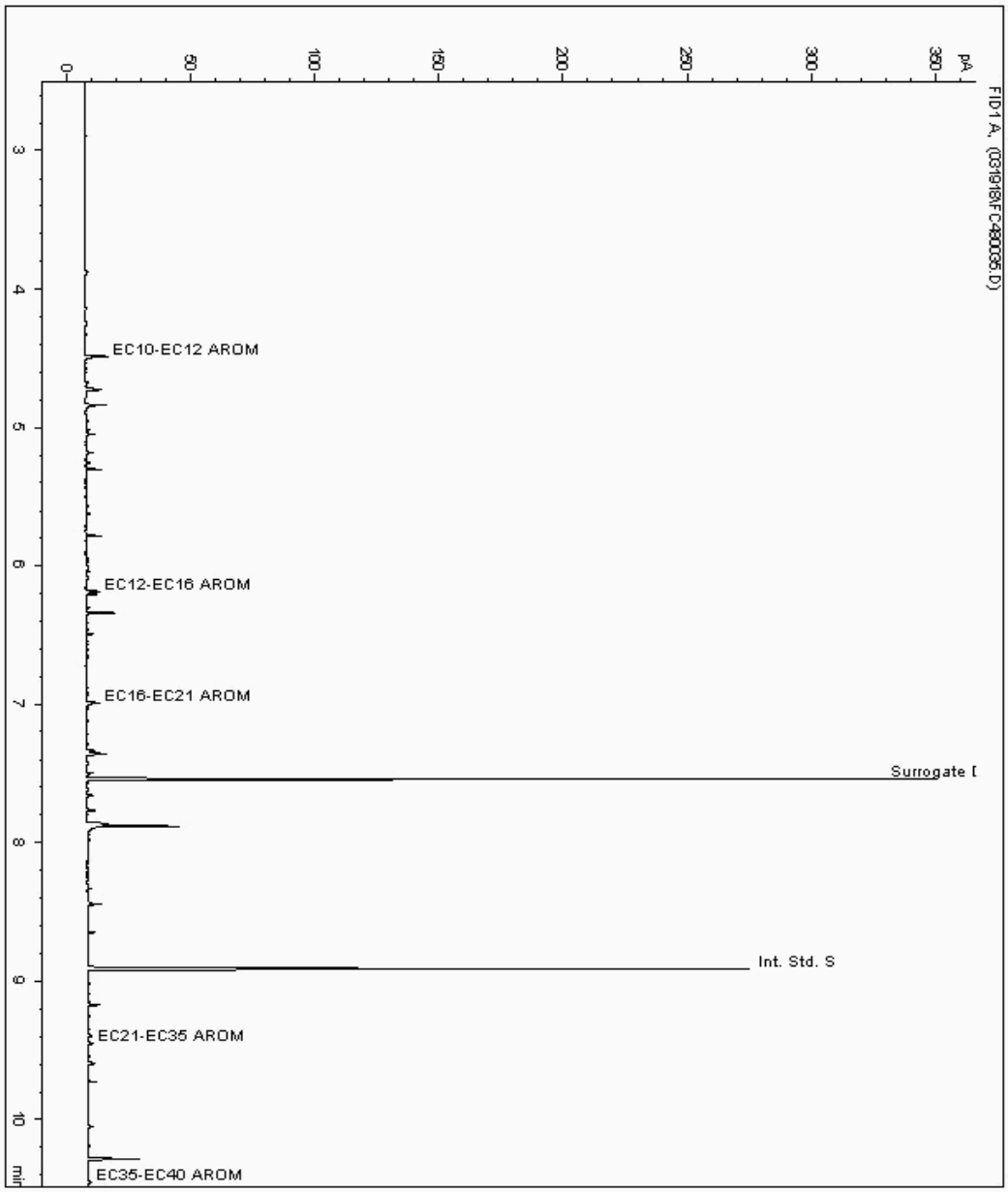


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17188750 **Sample ID :** BH-RPS-06 **Depth :** 0.86

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16124963-
Date Acquired : 20/03/2018 12:11:36 PM
Units : ppb
Dilution : SE BH-RPS-06[0.86] ->
CF : 1
Multiplier : 0.025

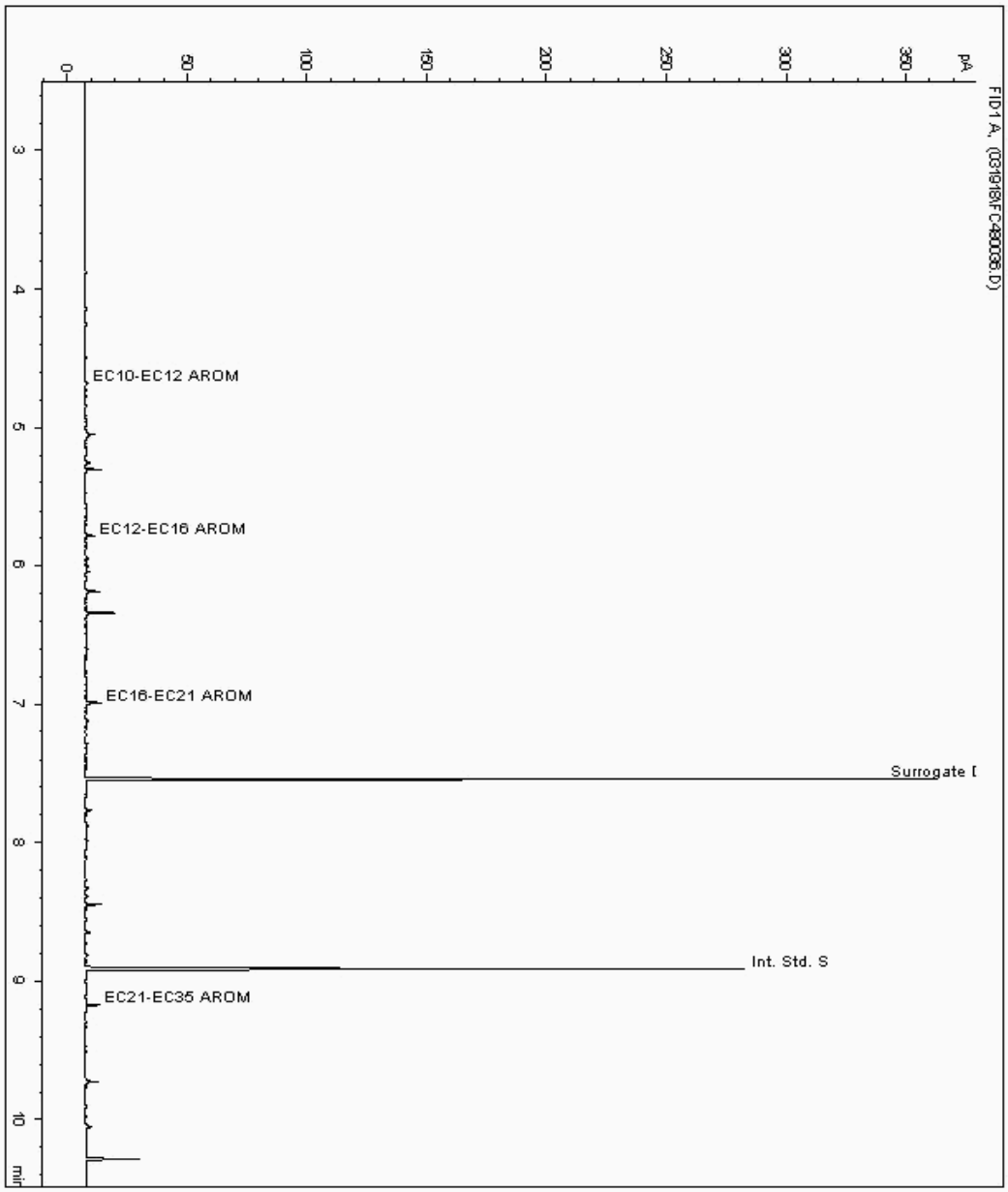


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17188779 **Sample ID :** WS-RPS-10 **Depth :** 0.95

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16125001-
Date Acquired : 20/03/2018 12:34:54 PM
Units : ppb
Dilution : SE WS-RPS-10[0.95] ->
CF : 1
Multiplier : 0.025

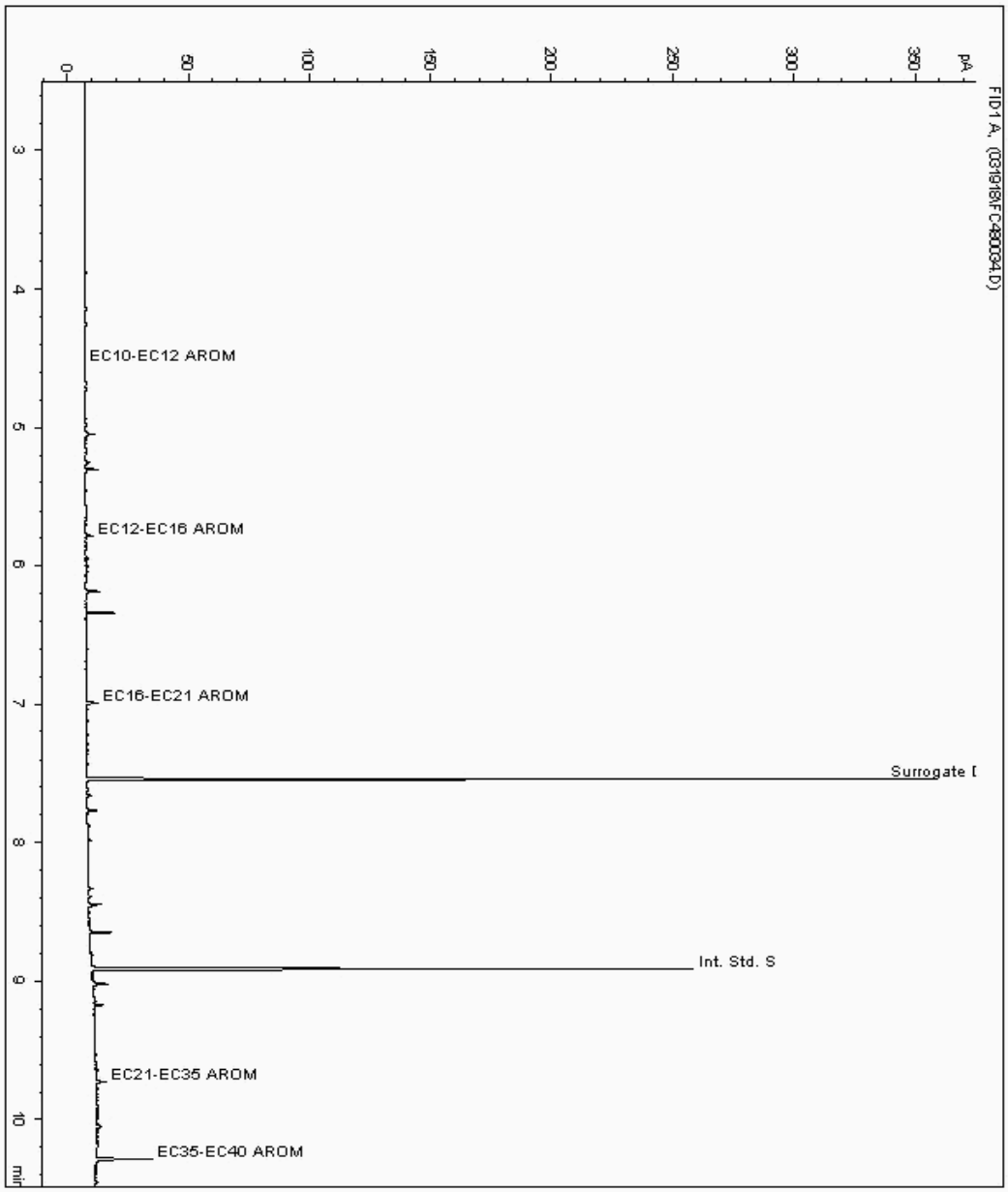


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17189619 **Sample ID :** BH-RPS-07 **Depth :** 1.13

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16124948-
Date Acquired : 20/03/2018 11:48:38 PM
Units : ppb
Dilution : SE BH-RPS-07[1.13] ->
CF : 1
Multiplier : 0.050



Validated

CERTIFICATE OF ANALYSIS

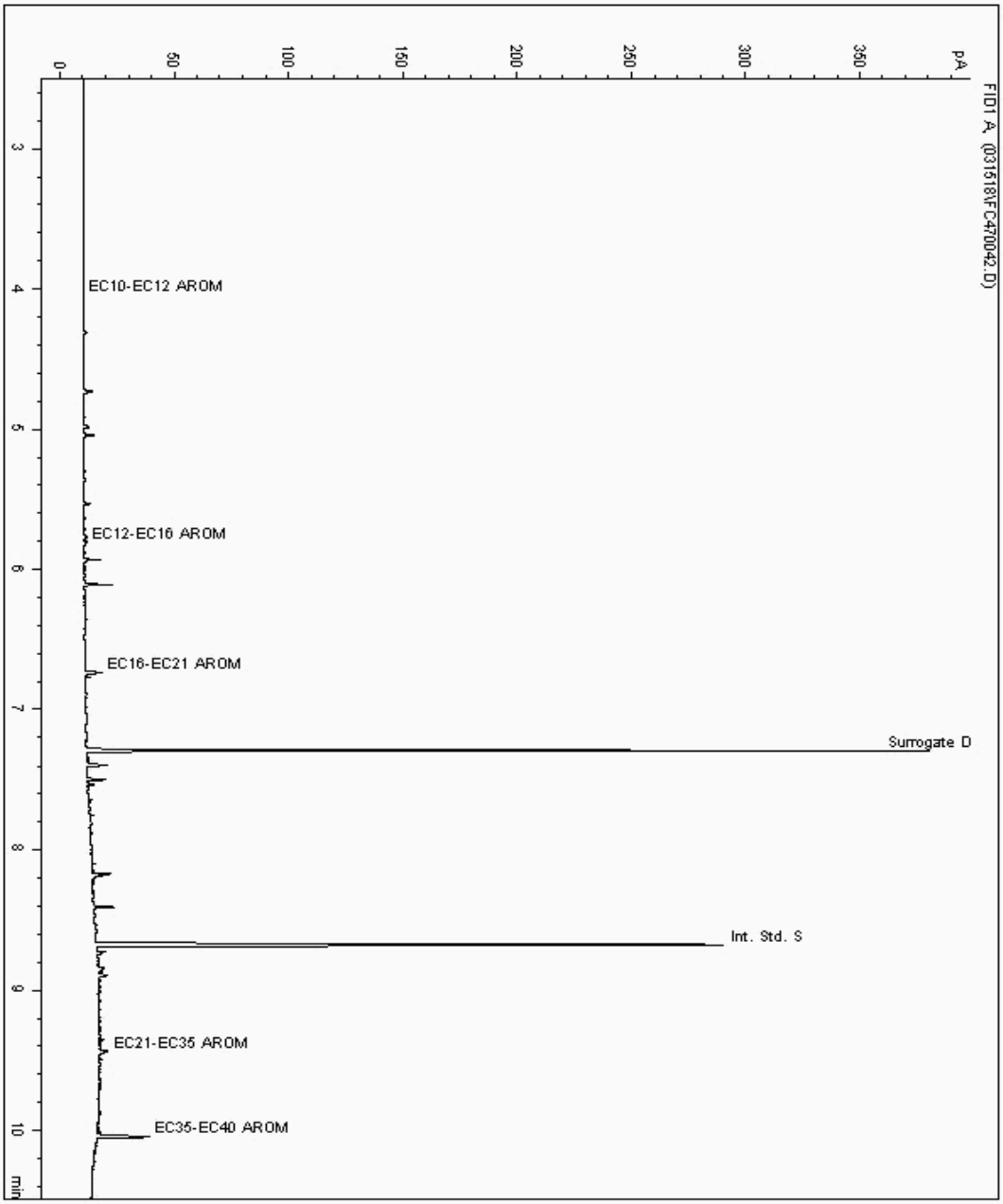
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17194938 **Sample ID :** BH-RPS-24 **Depth :** 0.75

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16139511-
Date Acquired : 16/03/18 04:58:16 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

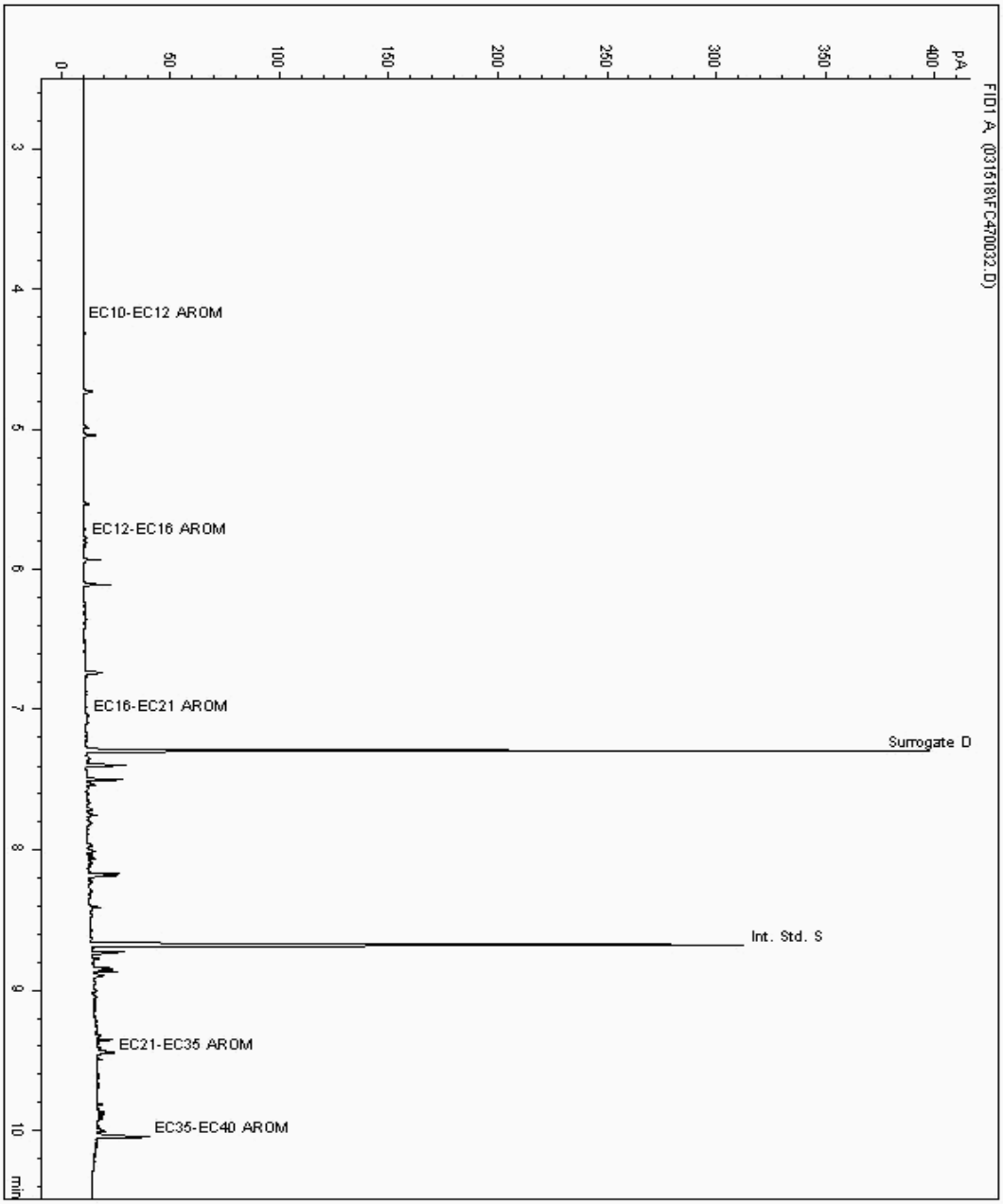
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17194947 **Sample ID :** CP-RPS-03 **Depth :** 0.93

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16139443-
Date Acquired : 16/03/18 01:18:38 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

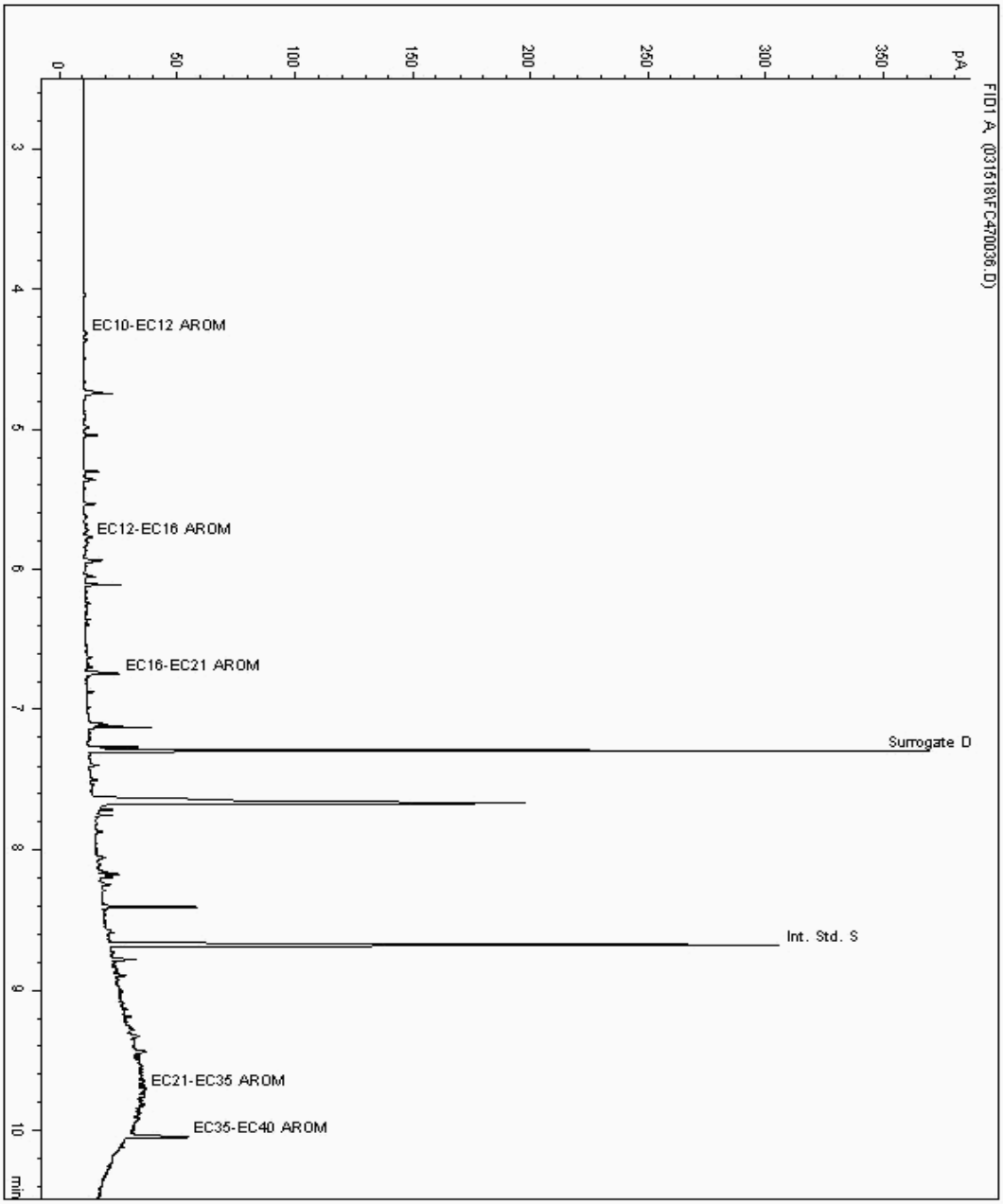


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17194952 **Sample ID :** BH-RPS-01 **Depth :** 1.73

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16139407-
Date Acquired : 16/03/18 02:38:44 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



Validated

CERTIFICATE OF ANALYSIS

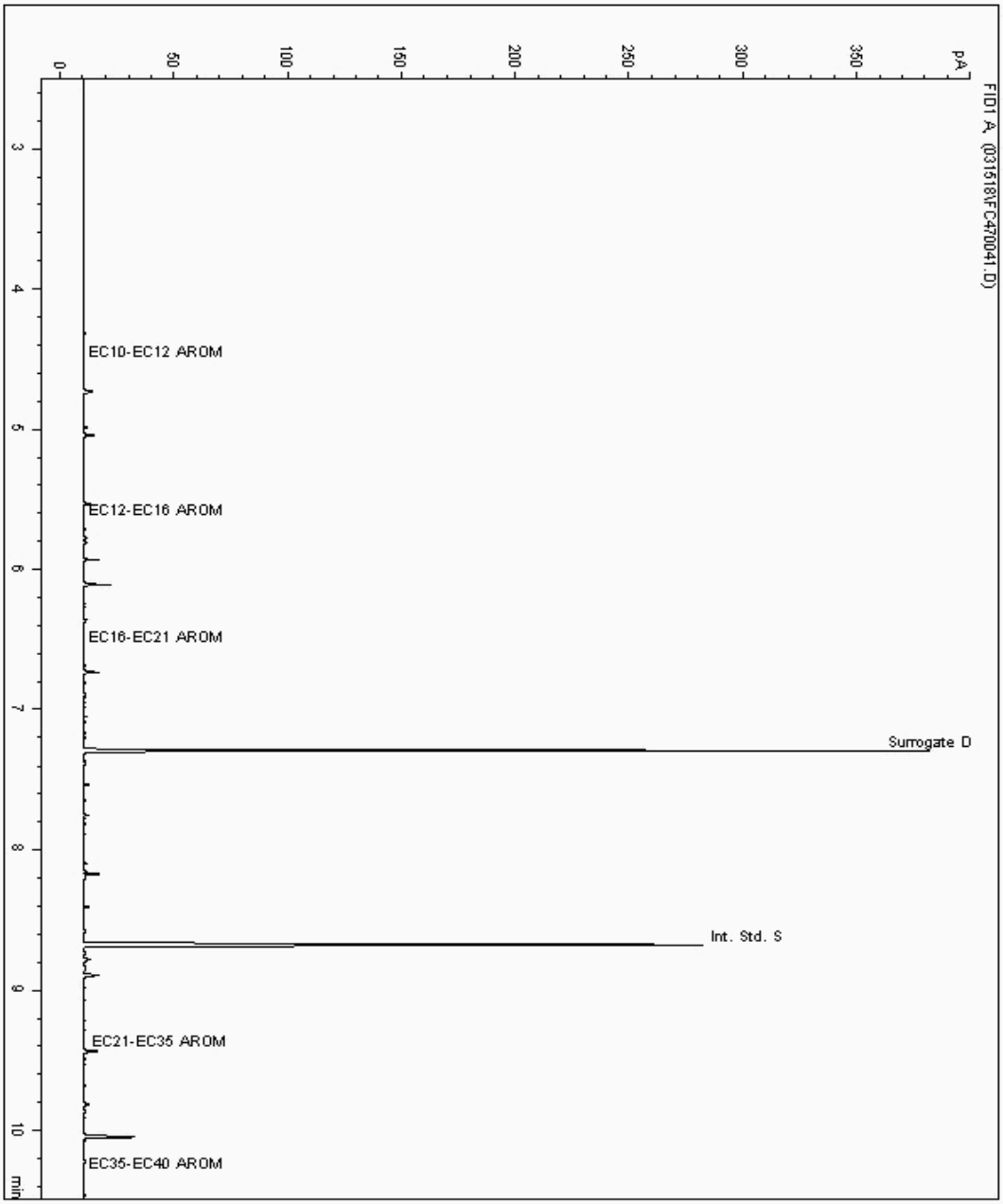
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17194954 **Sample ID :** WS-RPS-24 **Depth :** 1.68

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16139427-
Date Acquired : 16/03/18 04:35:07 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

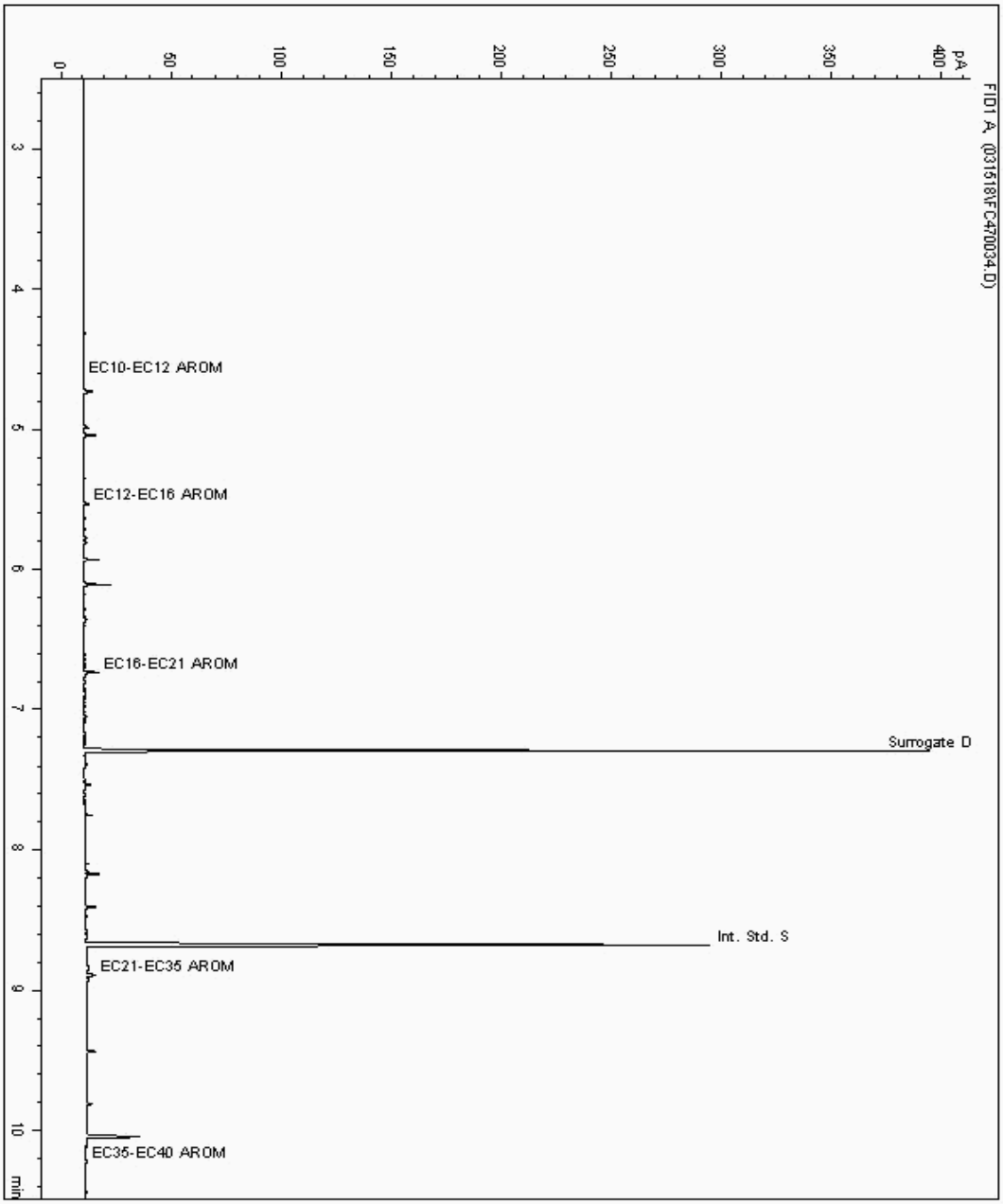
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17194993 **Sample ID :** CP-RPS-04A **Depth :** 2.03

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16139479-
Date Acquired : 16/03/18 01:51:57 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.125



Validated

CERTIFICATE OF ANALYSIS

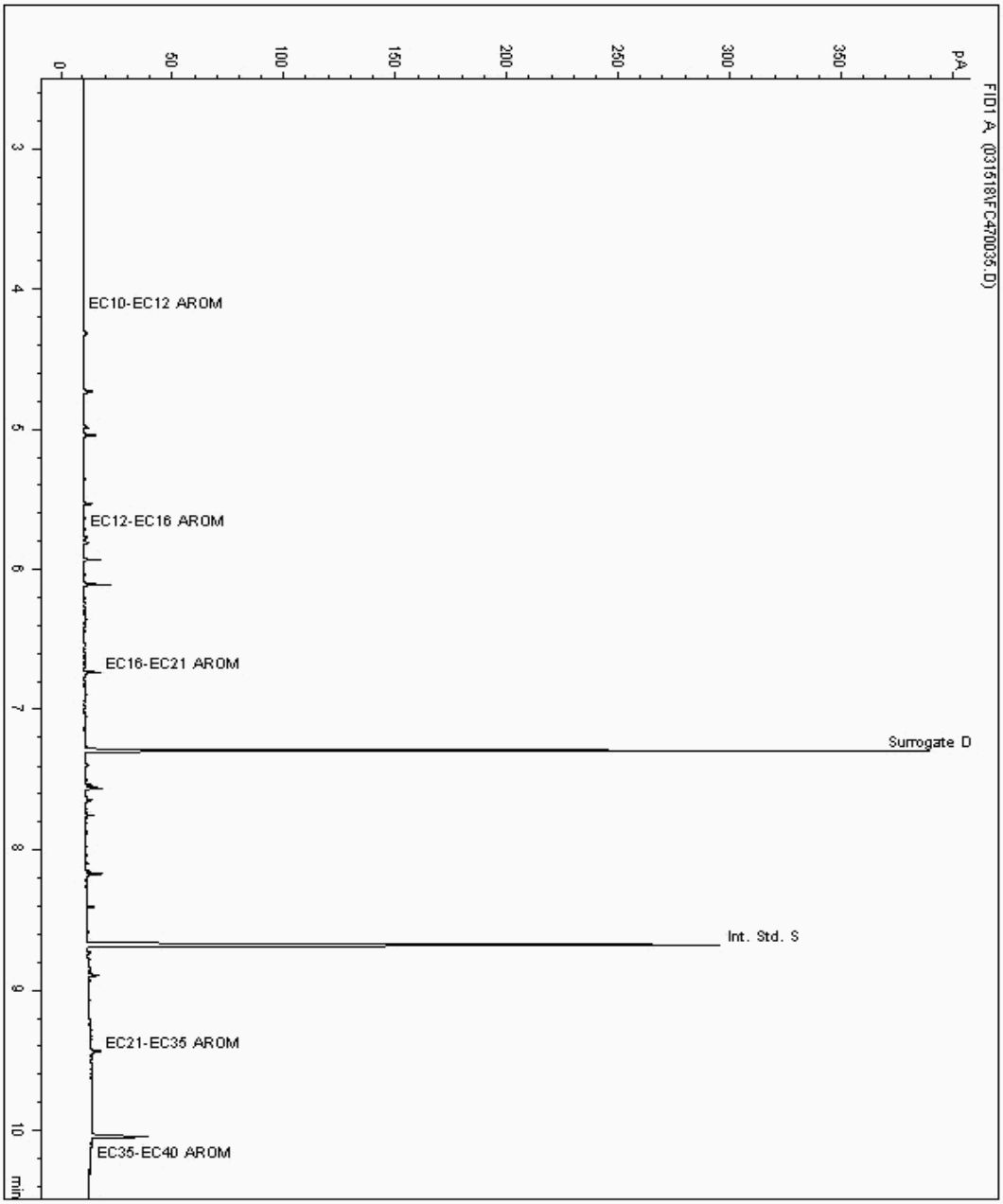
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17194997 **Sample ID :** BH-RPS-10 **Depth :** 1.55

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16139459-
Date Acquired : 16/03/18 02:15:30 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

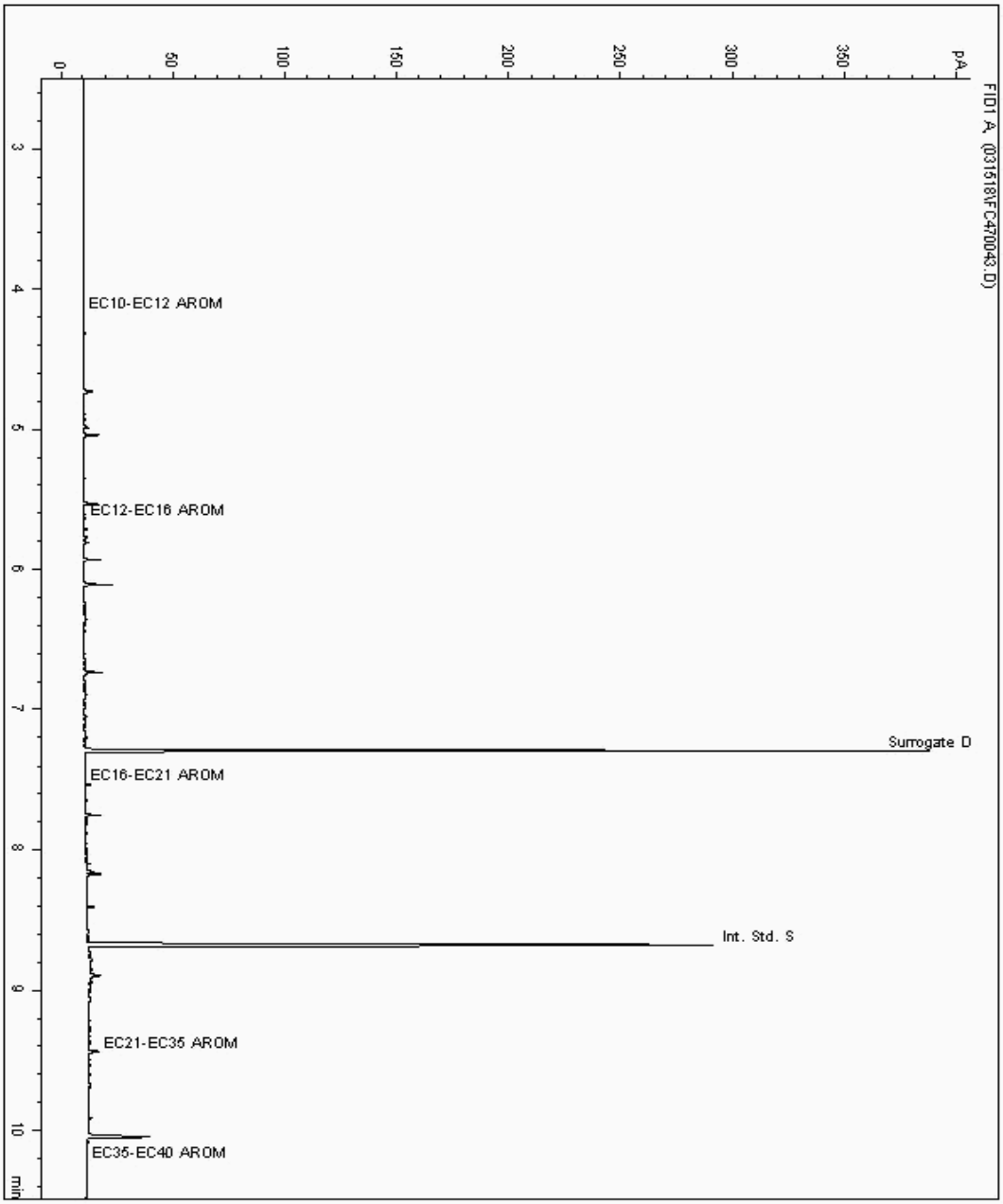
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17194999 **Sample ID :** BH-RPS-04 **Depth :** 1.63

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16139495-
Date Acquired : 16/03/18 05:21:45 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

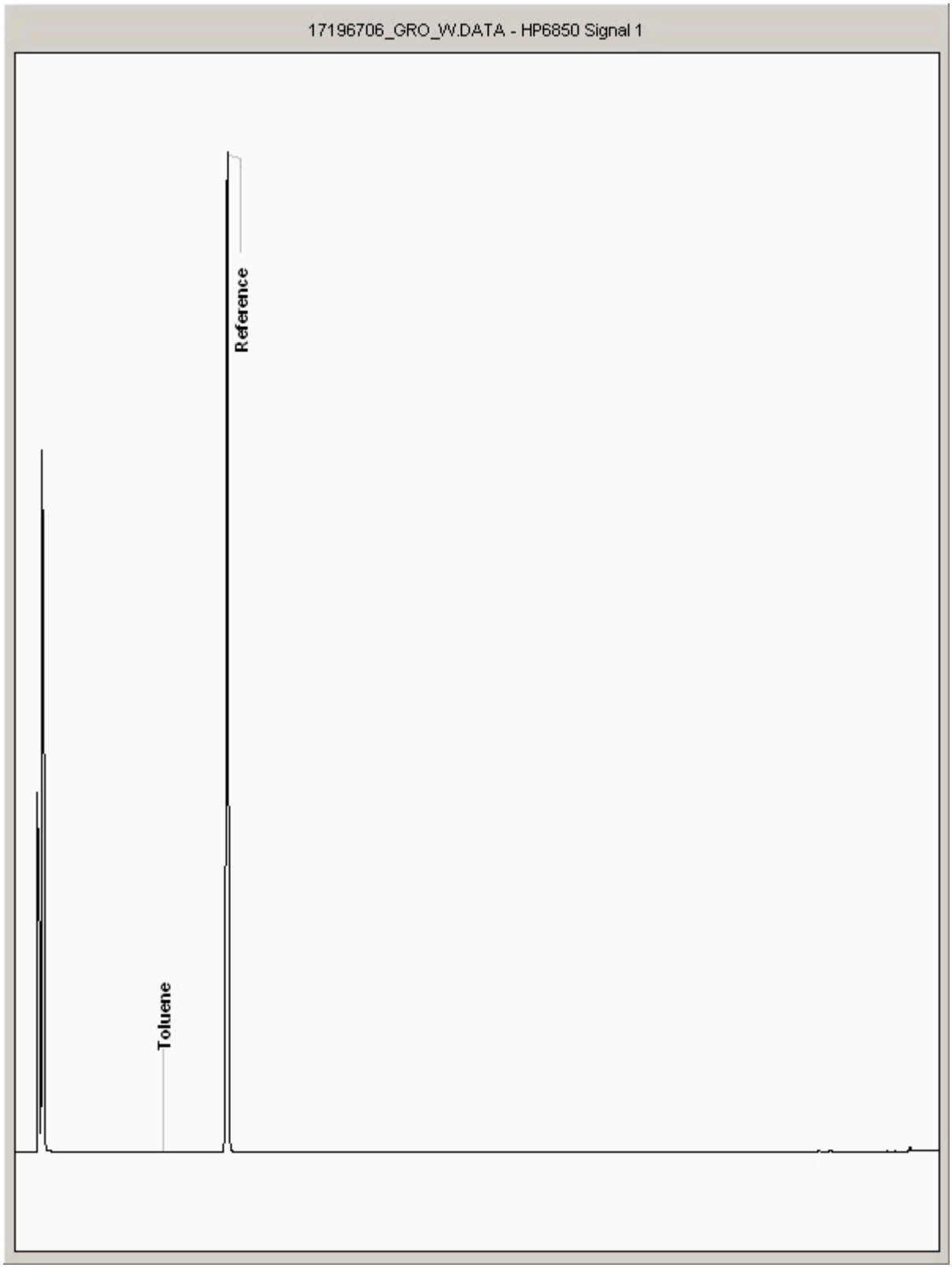
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17196706
Sample ID : BH-RPS-04

Depth : 1.63



Validated

CERTIFICATE OF ANALYSIS

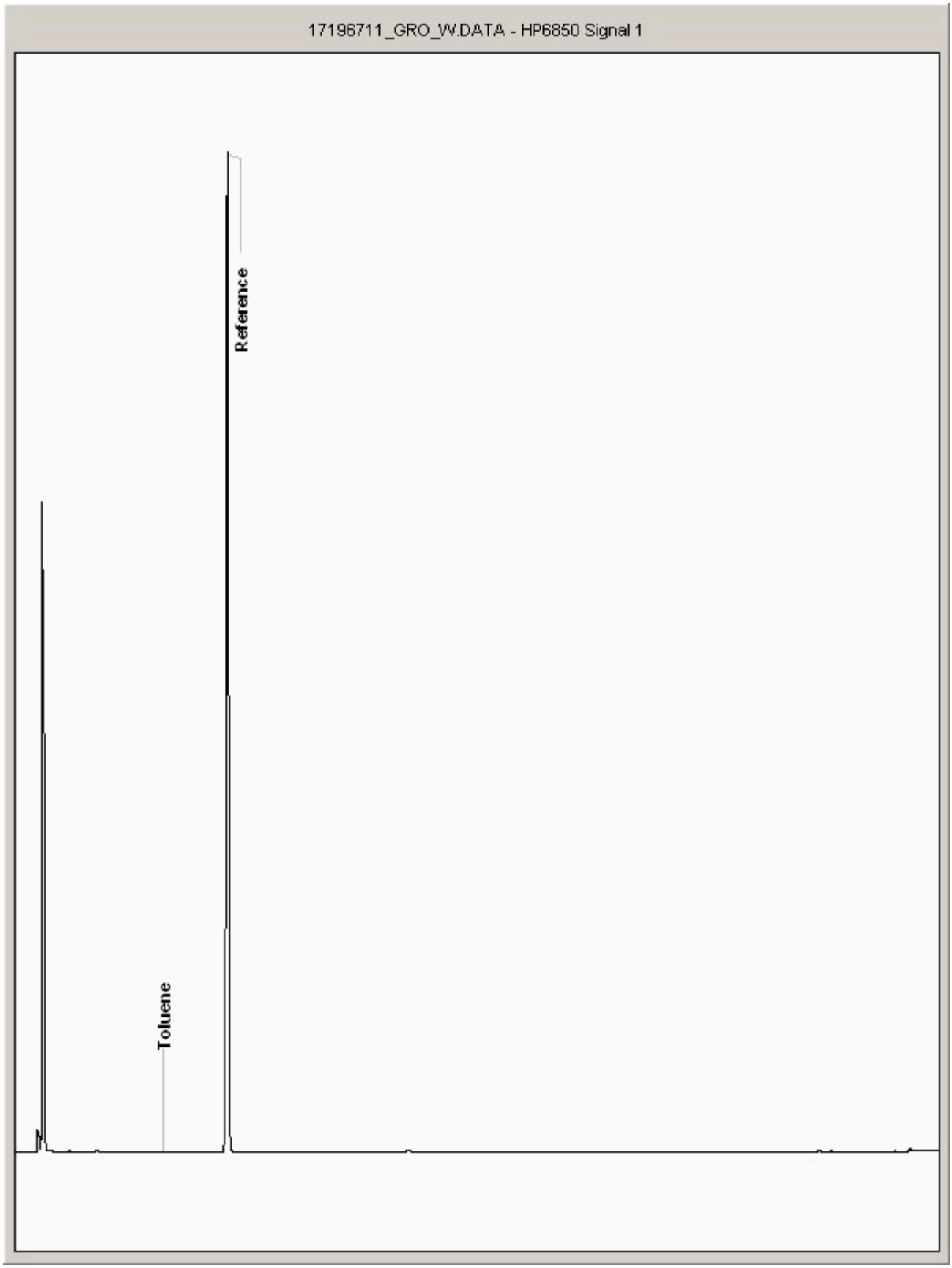
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17196711
Sample ID : BH-RPS-24

Depth : 0.75



Validated

CERTIFICATE OF ANALYSIS

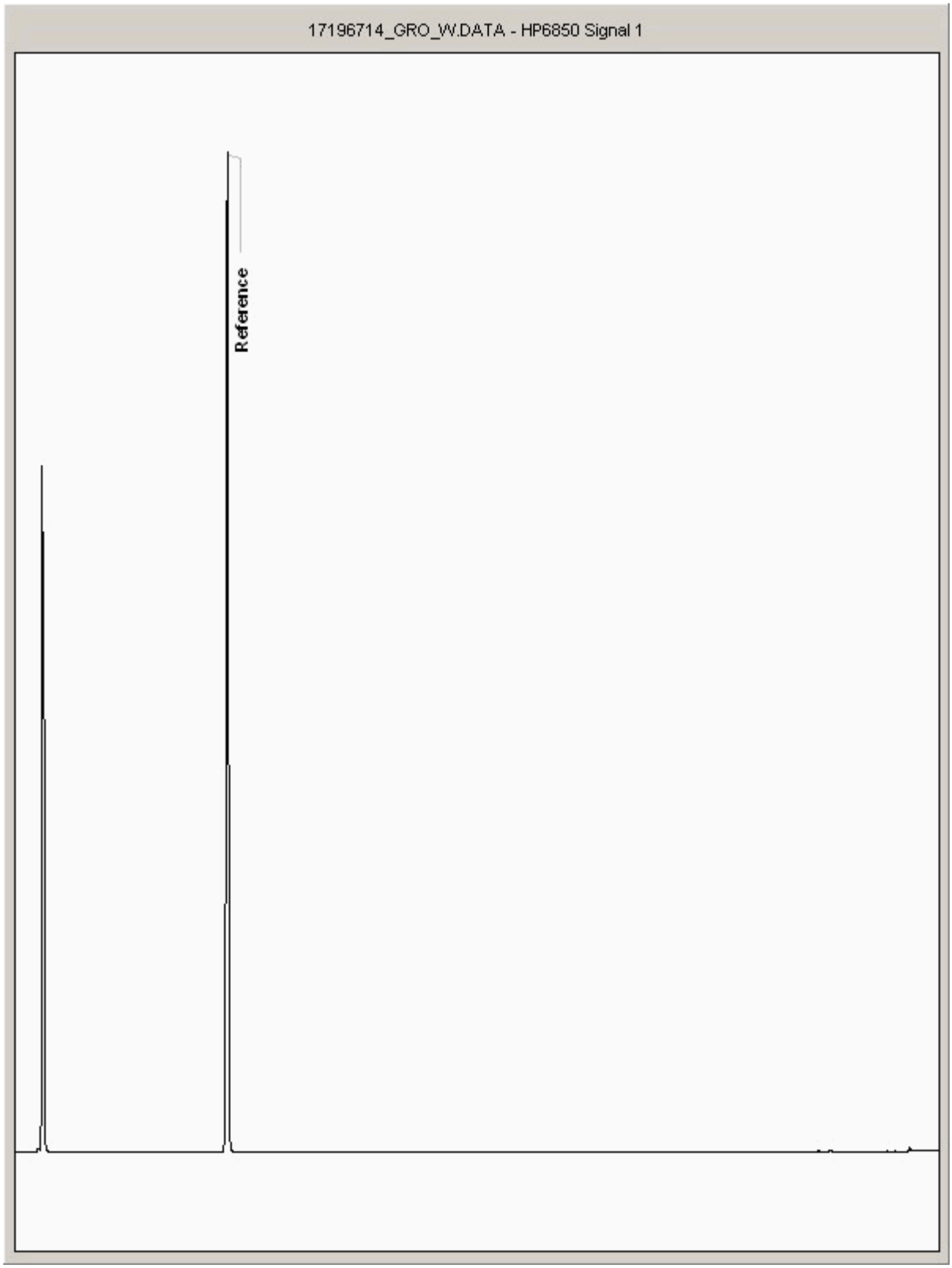
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17196714
Sample ID : CP-RPS-04A

Depth : 2.03



Validated

CERTIFICATE OF ANALYSIS

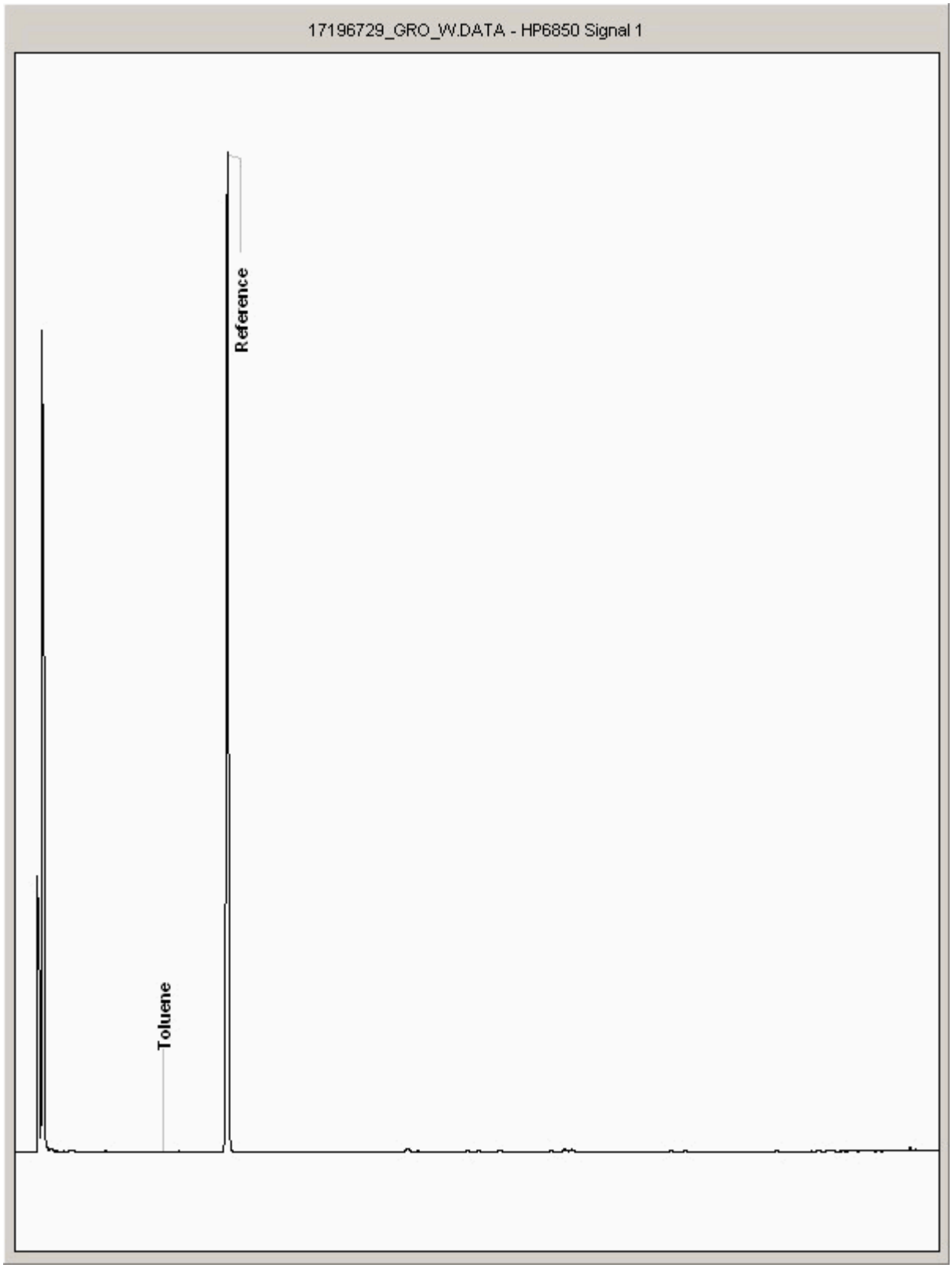
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17196729
Sample ID : BH-RPS-01

Depth : 1.73



Validated

CERTIFICATE OF ANALYSIS

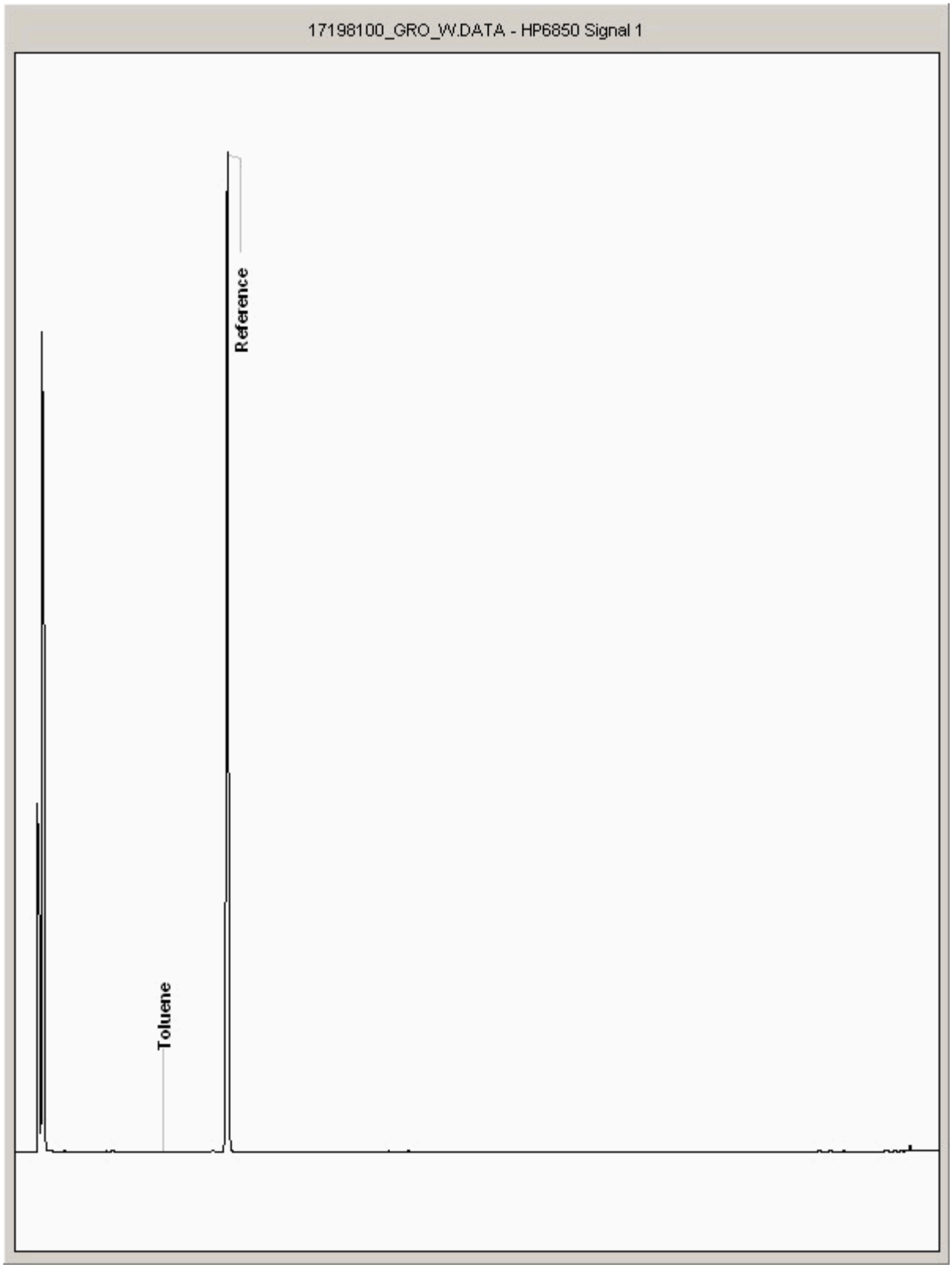
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17198100
Sample ID : BH-RPS-10

Depth : 1.55



Validated

CERTIFICATE OF ANALYSIS

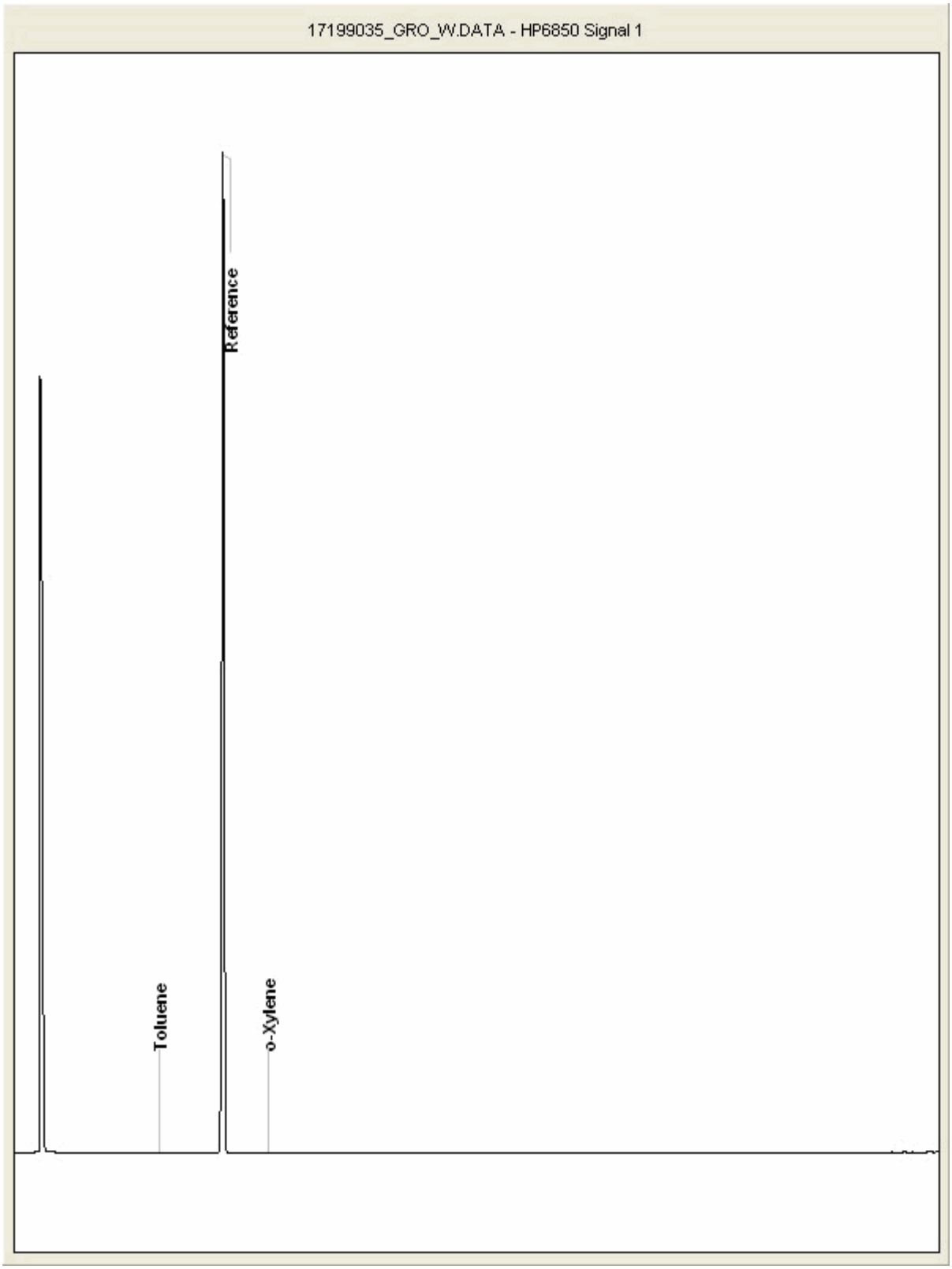
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17199035
Sample ID : CP-RPS-03

Depth : 0.93



Validated

CERTIFICATE OF ANALYSIS

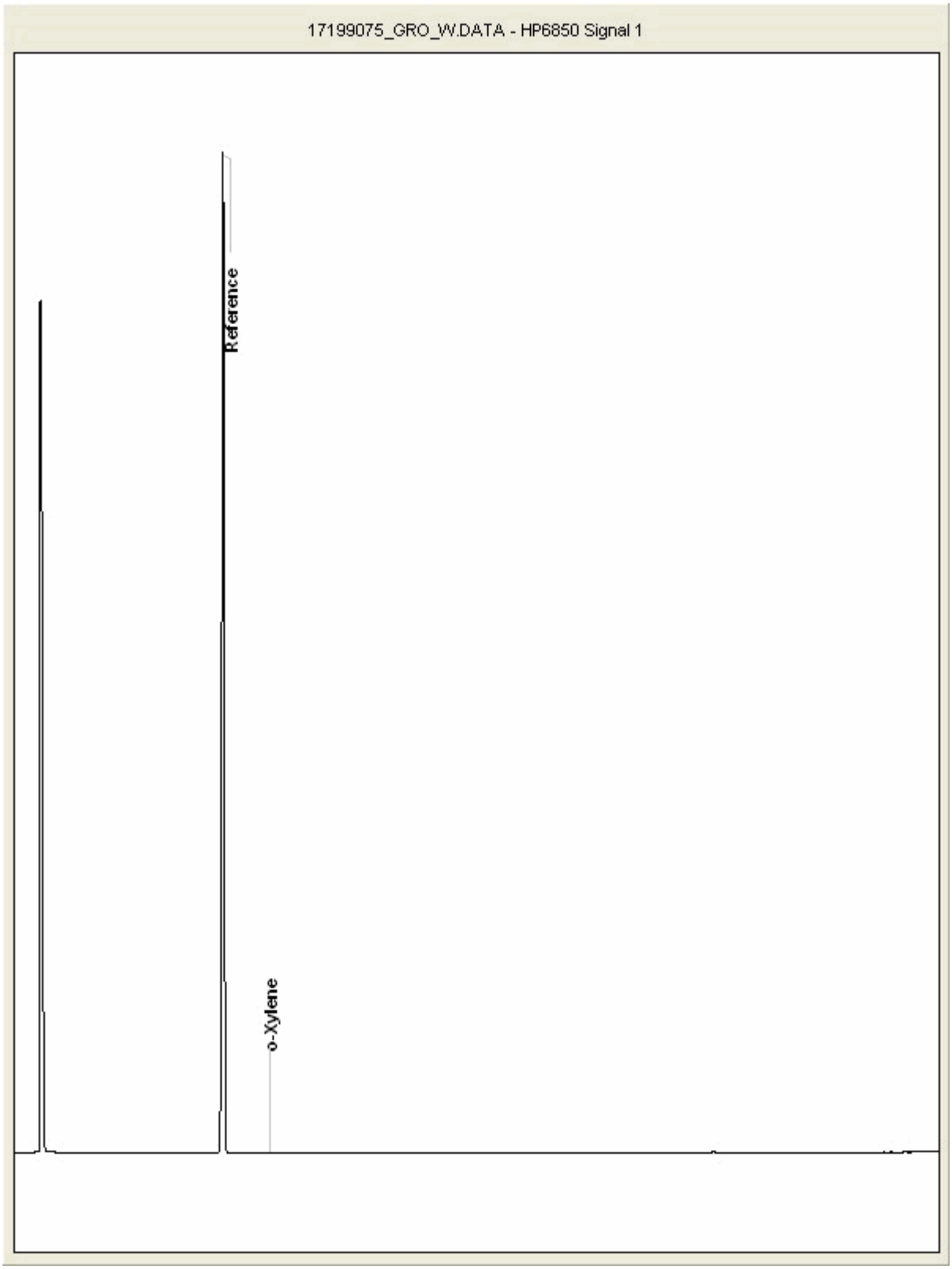
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17199075
Sample ID : WS-RPS-24

Depth : 1.68



Validated

CERTIFICATE OF ANALYSIS

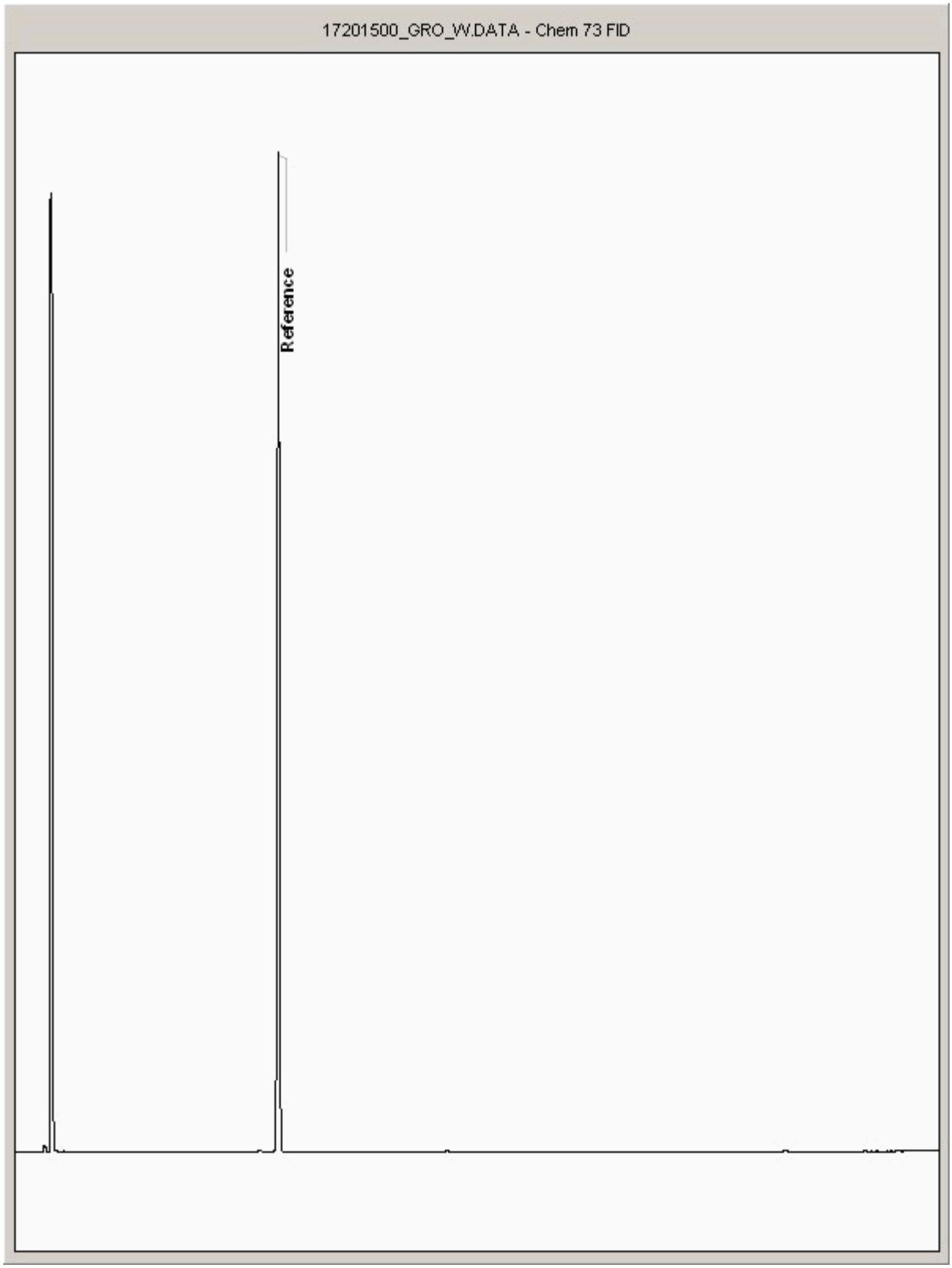
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17201500
Sample ID : WS-RPS-19

Depth : 2.63



Validated

CERTIFICATE OF ANALYSIS

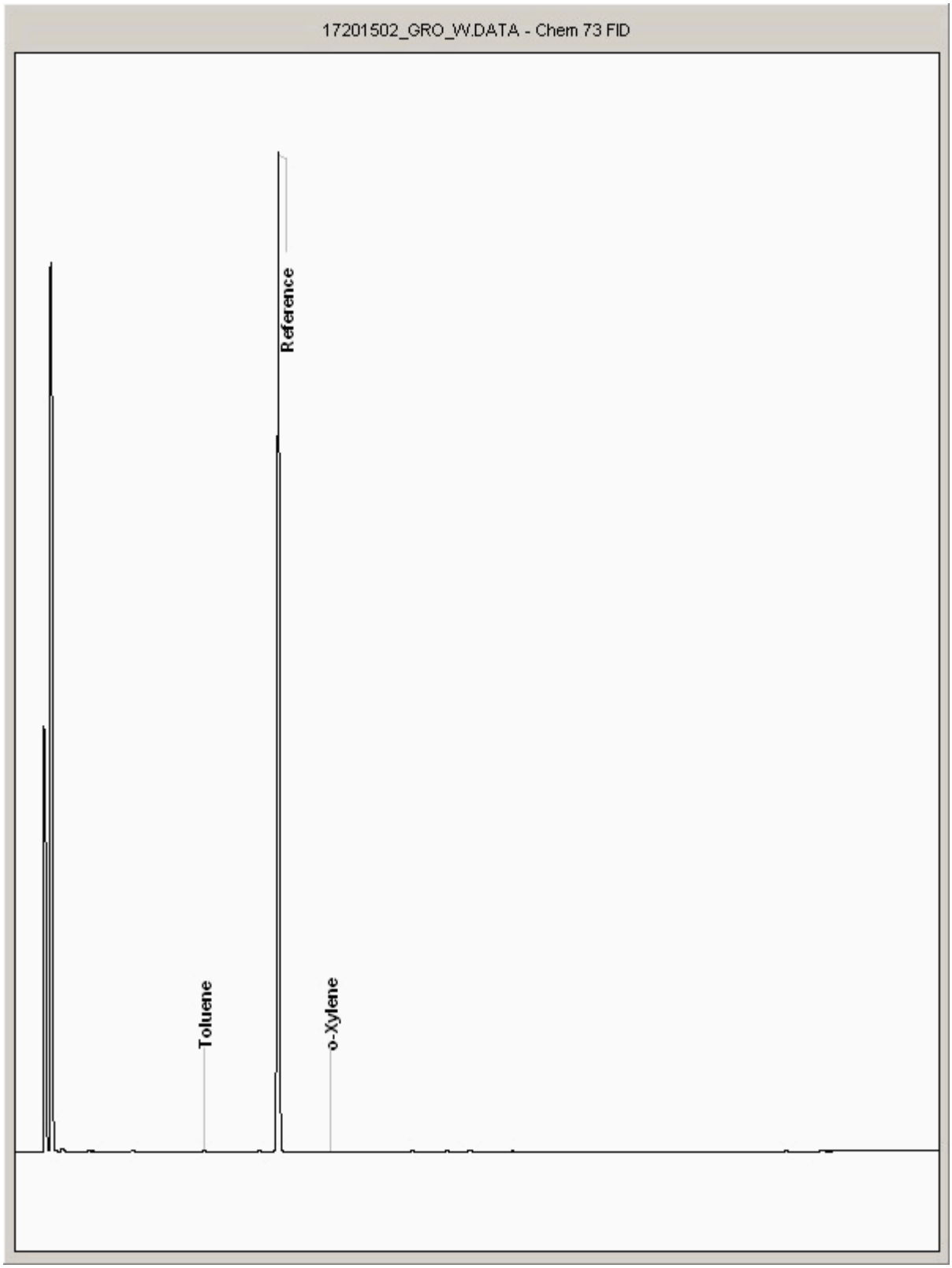
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17201502
Sample ID : BH-RPS-05

Depth : 0.97



Validated

CERTIFICATE OF ANALYSIS

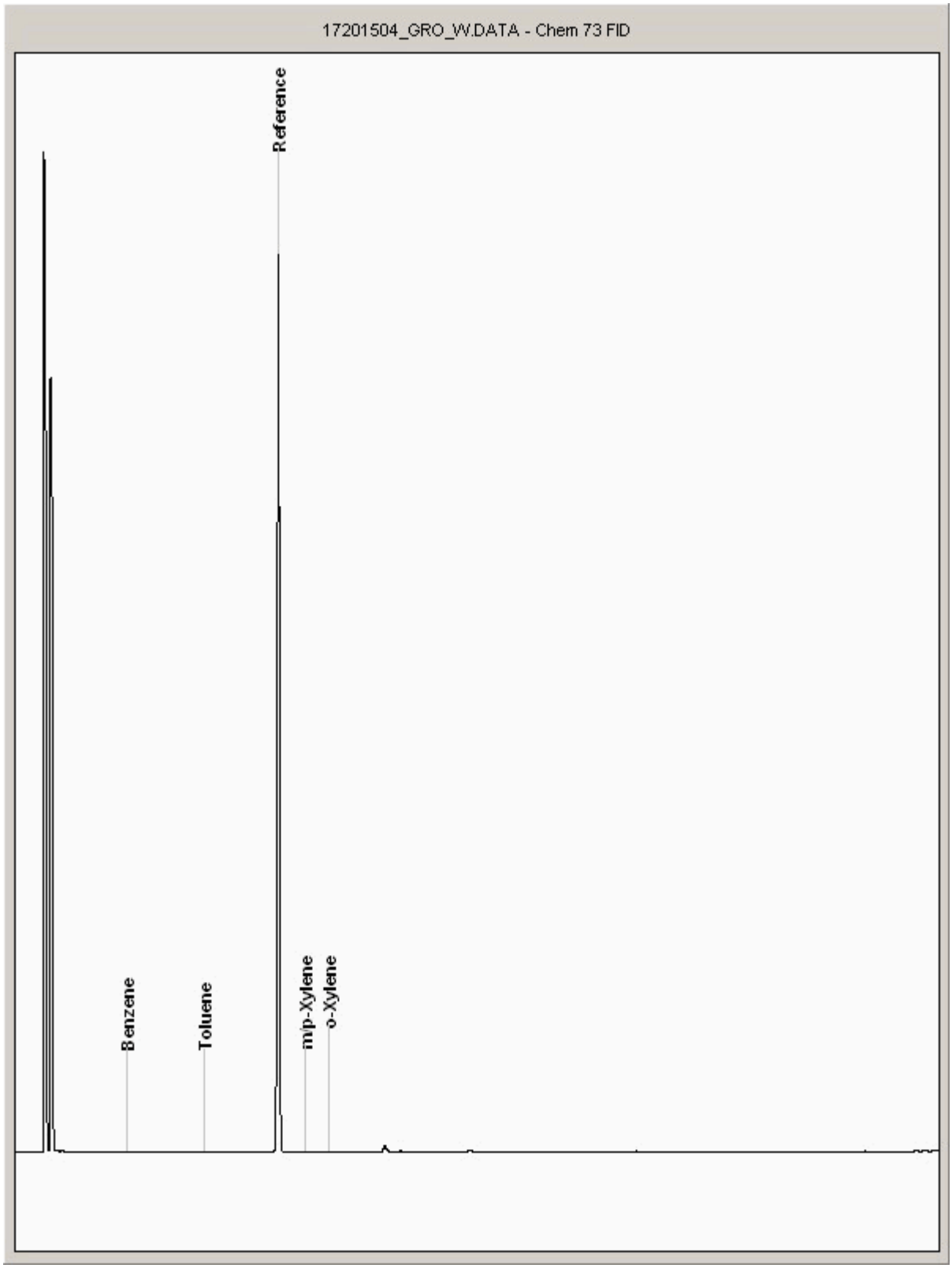
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17201504
Sample ID : WS-RPS-10

Depth : 0.95



Validated

CERTIFICATE OF ANALYSIS

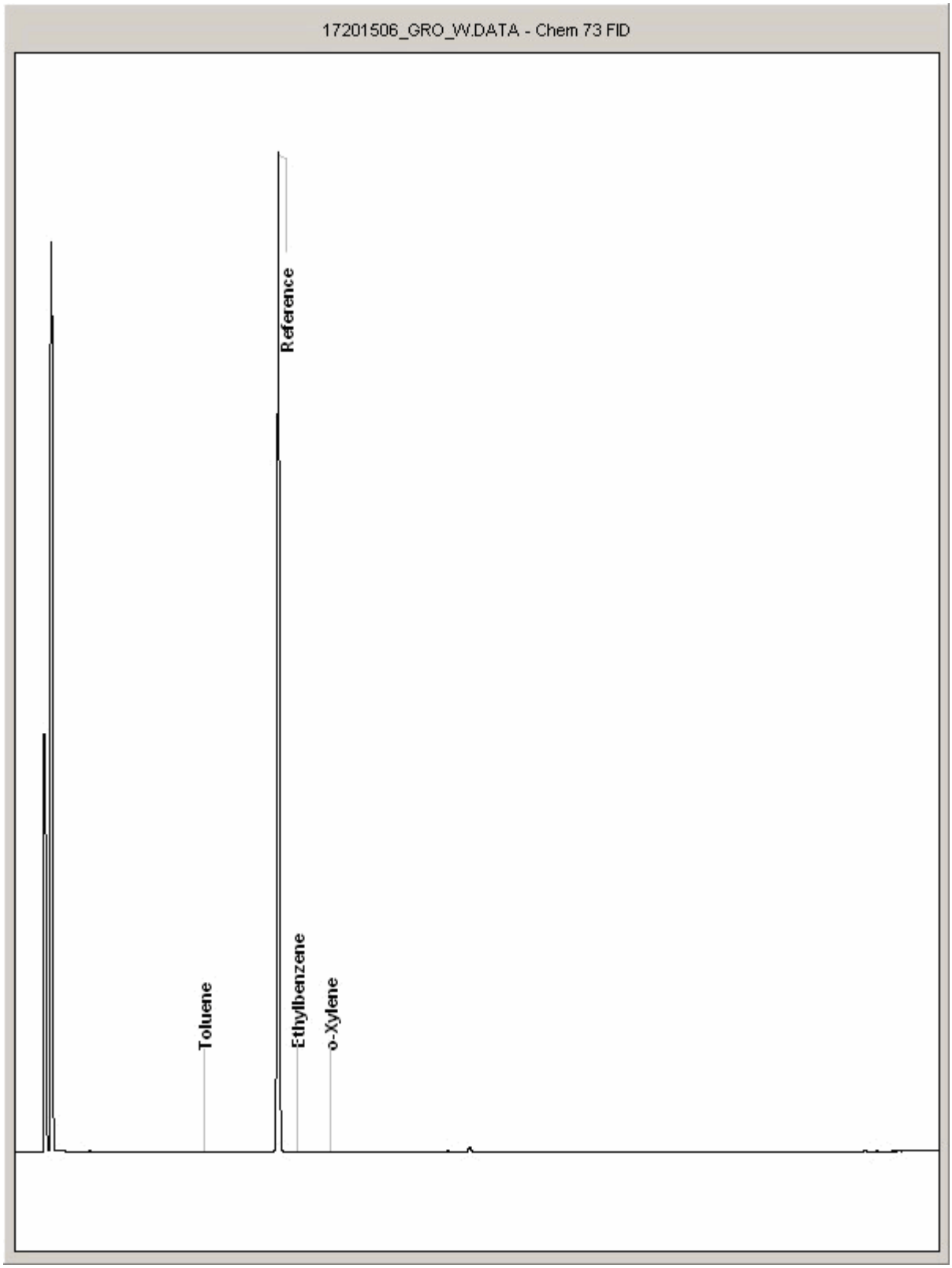
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17201506
Sample ID : BH-RPS-03

Depth : 1.95



Validated

CERTIFICATE OF ANALYSIS

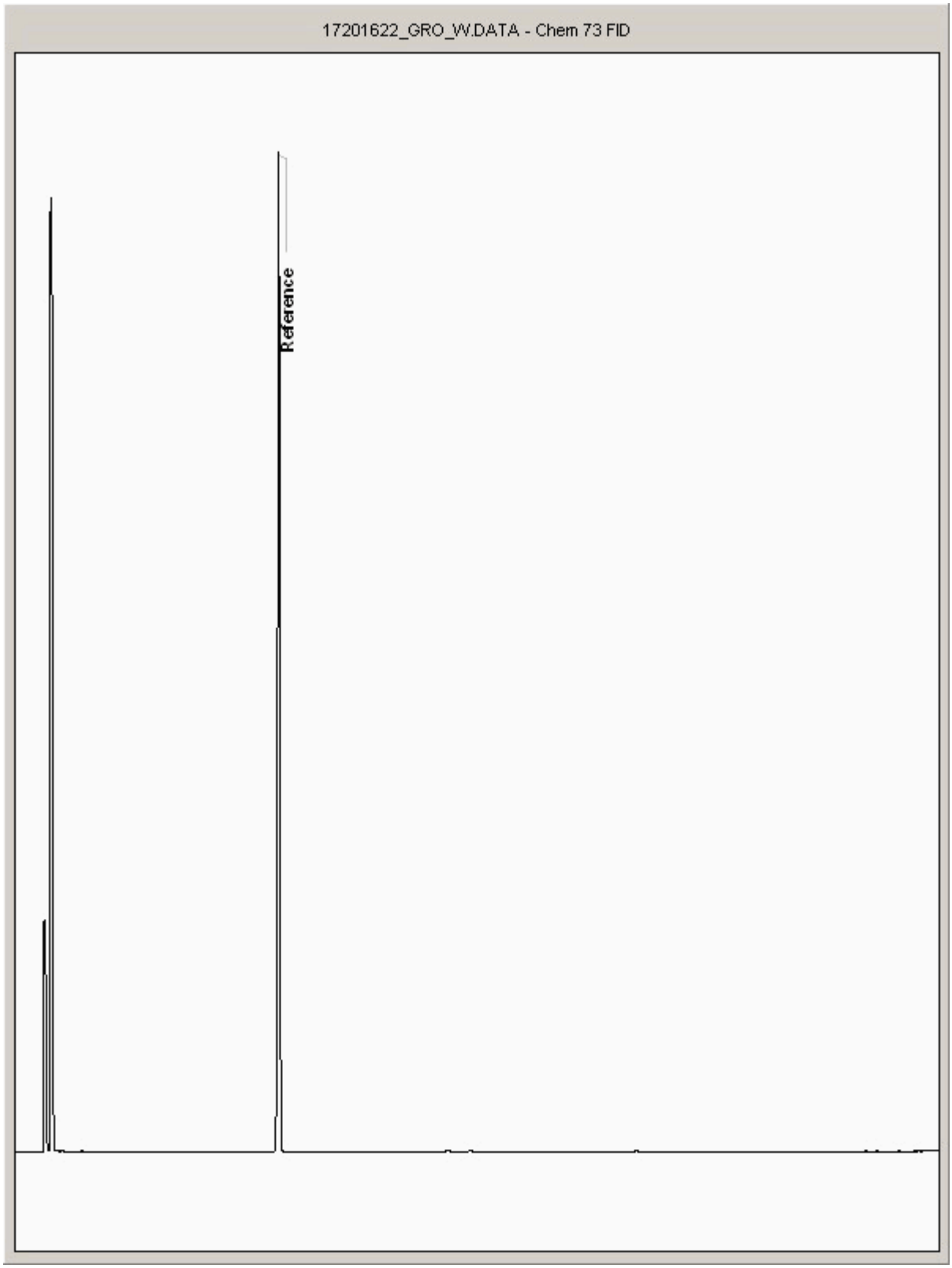
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17201622
Sample ID : WS-RPS-20

Depth : 1.46



Validated

CERTIFICATE OF ANALYSIS

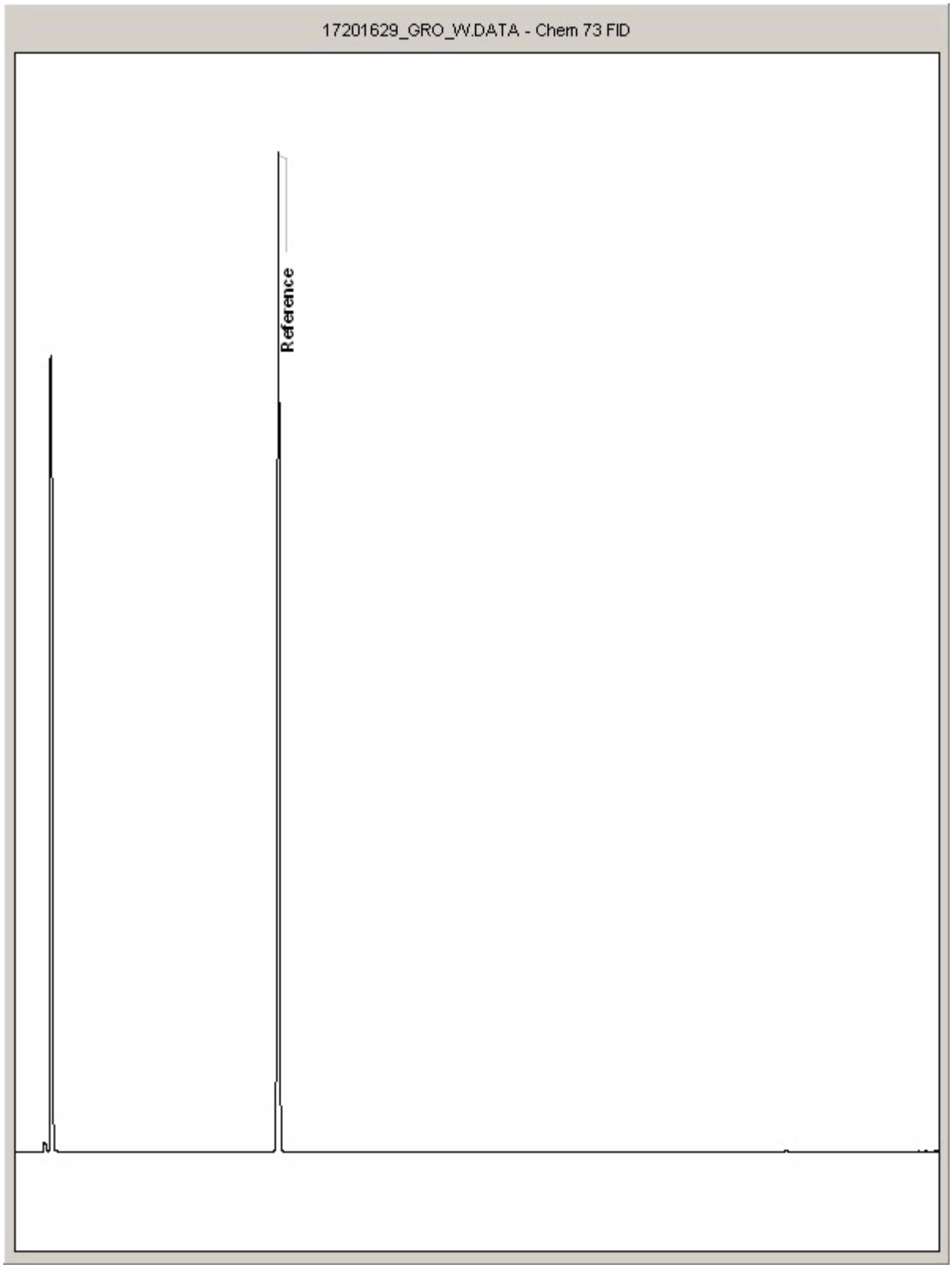
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17201629
Sample ID : BH-RPS-23a

Depth : 1.02



Validated

CERTIFICATE OF ANALYSIS

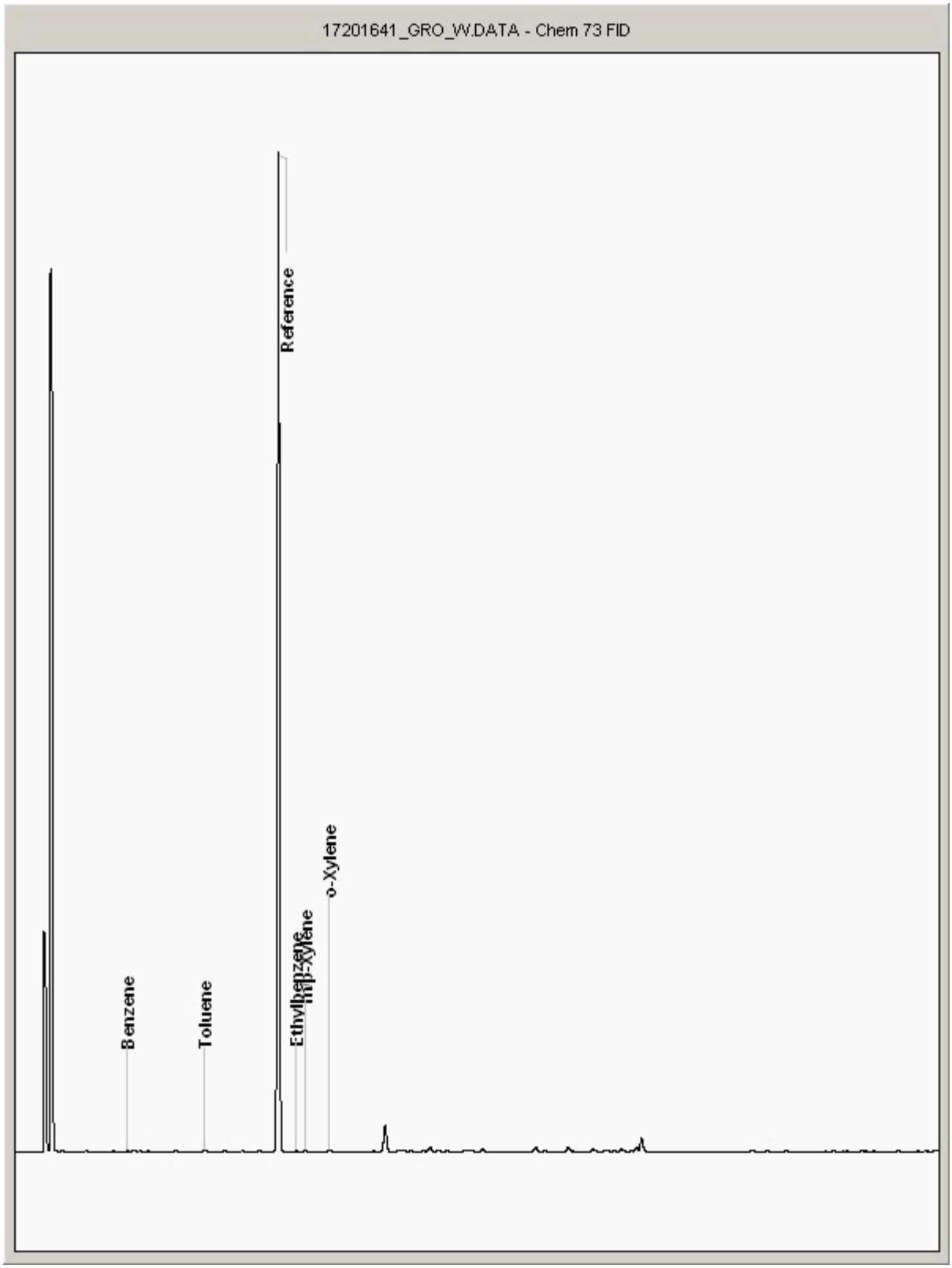
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17201641
Sample ID : BH-RPS-06

Depth : 0.86



Validated

CERTIFICATE OF ANALYSIS

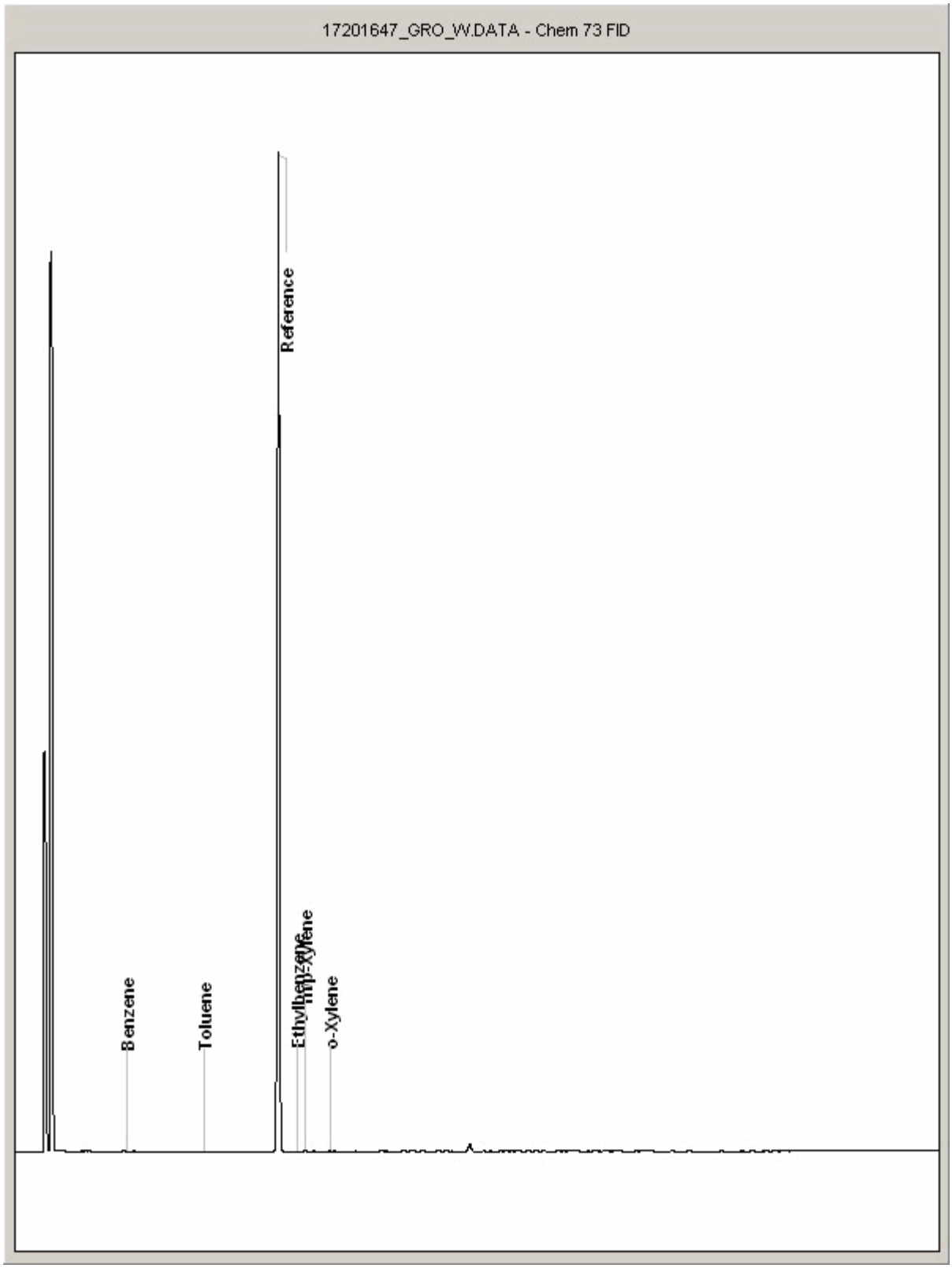
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17201647
Sample ID : WS-RPS-09

Depth : 0.97



Validated

CERTIFICATE OF ANALYSIS

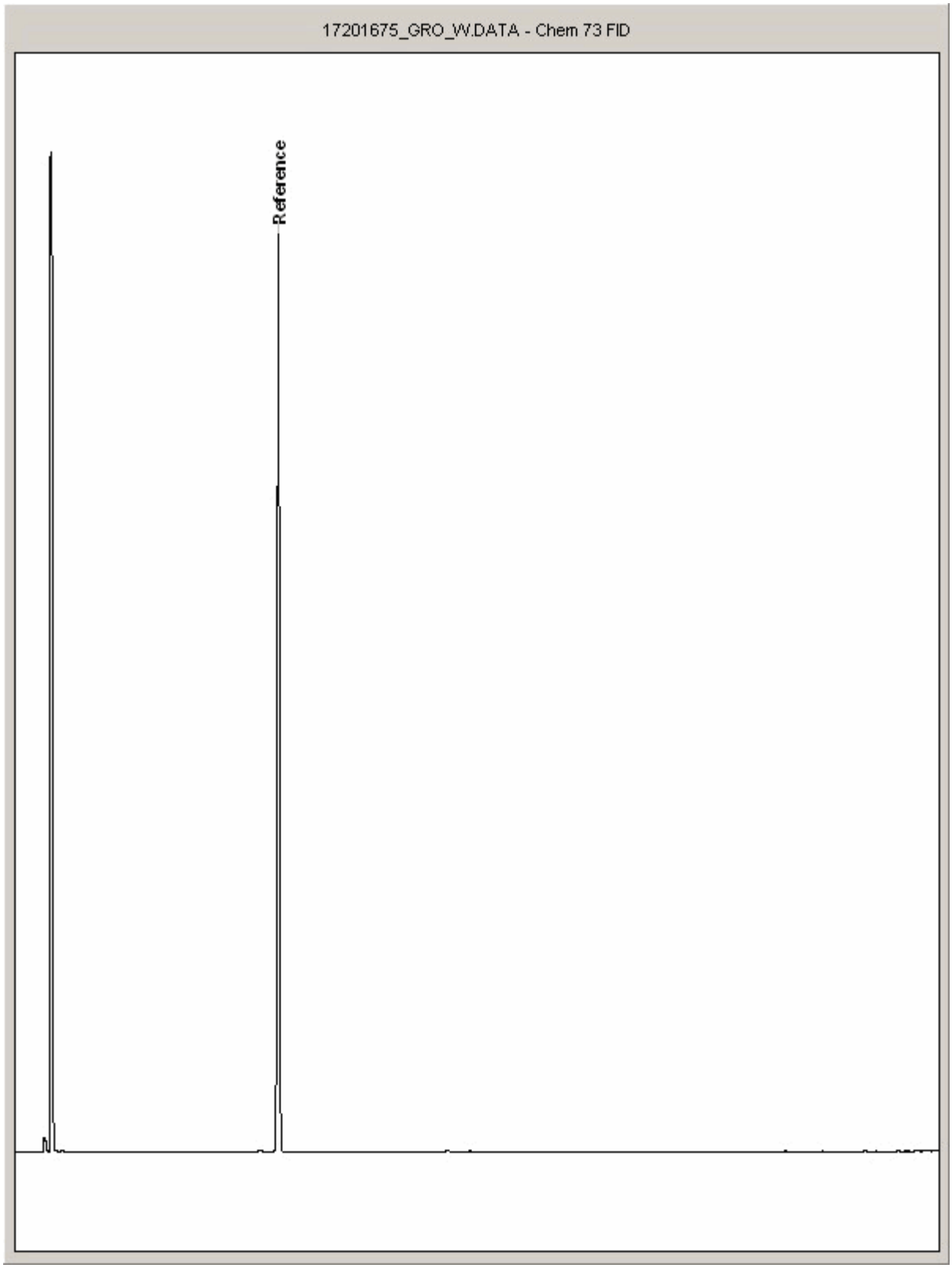
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17201675
Sample ID : BH-RPS-09

Depth : 1.12



Validated

CERTIFICATE OF ANALYSIS

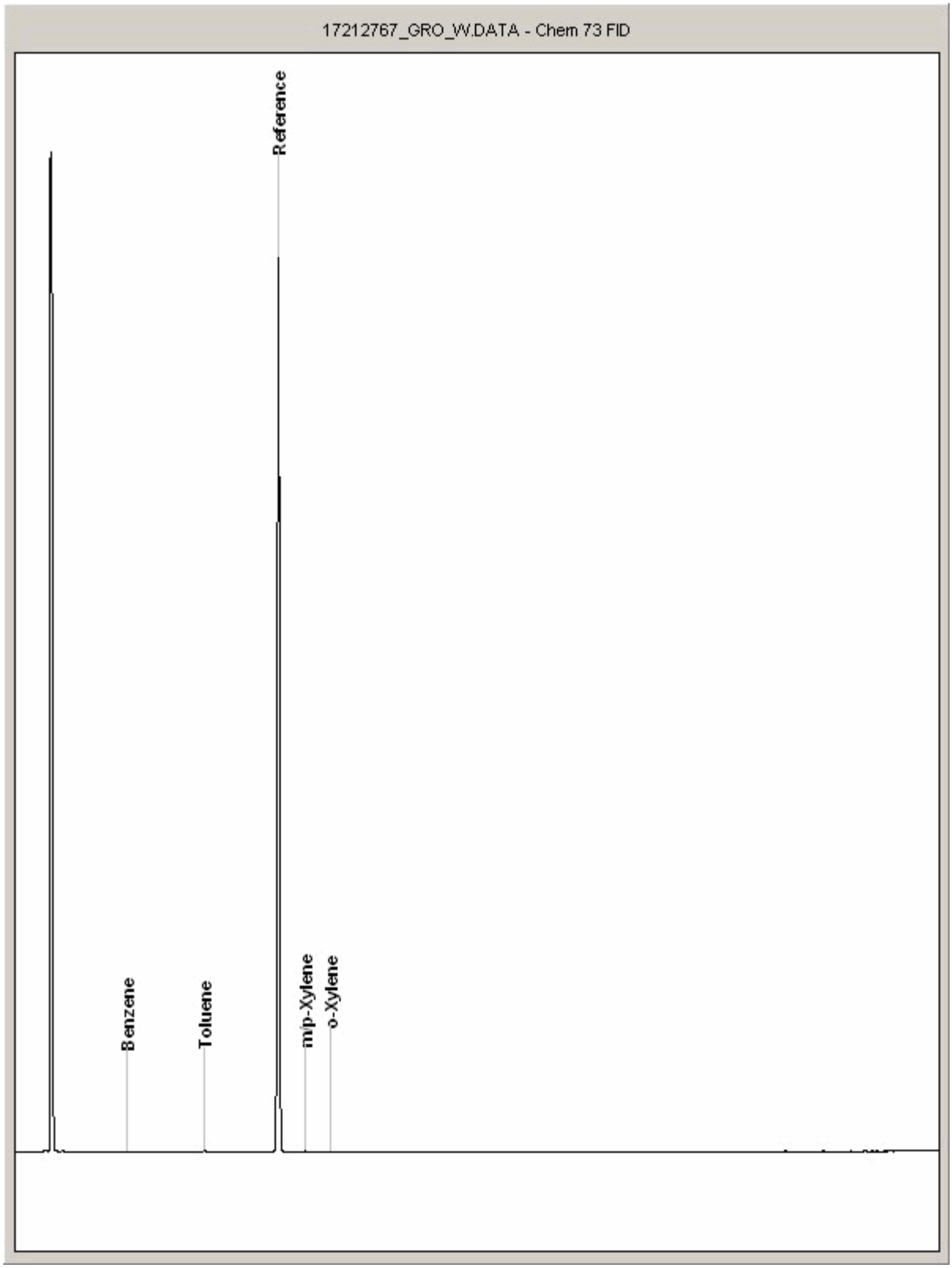
SDG:	180309-3	**Client Reference:**	JER1100	**Report Number:**	448966
Location:	Lostock	**Order Number:**		**Superseded Report:**	448788

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17212767
Sample ID : BH-RPS-07

Depth : 1.13



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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RPS Consultants Ltd
260 Park Avenue
Aztec West
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Bristol
BS32 4SY

Attention: Russell Jordan

CERTIFICATE OF ANALYSIS

Date:	18 April 2018
Customer:	H_RPS_ADB
Sample Delivery Group (SDG):	180328-90
Your Reference:	JER1100
Location:	Lostock
Report No:	452362

This report has been revised and directly supersedes 450964 in its entirety.

We received 17 samples on Wednesday March 28, 2018 and 17 of these samples were scheduled for analysis which was completed on Wednesday April 18, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17284703	BH-RPS-01	EW2	1.62	27/03/2018
17284784	BH-RPS-03	EW2	2.36	26/03/2018
17284764	BH-RPS-04	EW2	1.64	26/03/2018
17284596	BH-RPS-05	EW2	1.14	26/03/2018
17284714	BH-RPS-06	EW2	0.87	26/03/2018
17284733	BH-RPS-07	EW2	1.25	26/03/2018
17284774	BH-RPS-09	EW2	1.10	26/03/2018
17284694	BH-RPS-10	EW2	1.60	27/03/2018
17284756	BH-RPS-24	EW2	0.84	26/03/2018
17284744	BH-RPS-23a	EW2	2.00	26/03/2018
17284670	CP-RPS-03	EW2	1.03	27/03/2018
17284655	CP-RPS-04a	EW2	1.86	27/03/2018
17284610	WS-RPS-09	EW2	1.08	26/03/2018
17284724	WS-RPS-10	EW2	1.05	26/03/2018
17284624	WS-RPS-19	EW2	2.52	26/03/2018
17284637	WS-RPS-20	EW2	1.36	26/03/2018
17284680	WS-RPS-24	EW2	1.46	27/03/2018

Maximum Sample/Coolbox Temperature (°C) : 7

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17284703						17284784						17284764						17284596		
Customer Sample Reference			BH-RPS-01						BH-RPS-03						BH-RPS-04						BH-RPS-05		
AGS Reference			EW2						EW2						EW2						EW2		
Depth (m)			1.62						2.36						1.64						1.14		
Container			0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17			X						X					X						X
Anions by Kone (w)	All	NDPs: 0 Tests: 17		X						X					X						X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 17					X					X						X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 18				X				X							X					
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17	X						X					X						X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17	X						X					X						X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 17						X					X						X			
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 17	X						X					X						X		
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 17	X						X					X						X		
pH Value	All	NDPs: 0 Tests: 17		X						X					X						X	
Silicon Dissolved by ICP-OES	All	NDPs: 0 Tests: 17				X				X							X					
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 17	X						X					X						X		
Total Metals by ICP-MS	All	NDPs: 0 Tests: 17		X						X					X						X	
TPH CWG (W)	All	NDPs: 0 Tests: 17	X						X					X						X		
VOC MS (W)	All	NDPs: 0 Tests: 17						X					X						X			

17284774	BH-RPS-09	EW2	1.10	NaOH (ALE245)	GW			X												
				HNO3 Filtered (ALE204)	GW				X							X				
				H2SO4 (ALE244)	GW	X														
				500ml Plastic (ALE208)	GW		X								X			X		
				0.5l glass bottle (ALE227)	GW					X	X		X	X			X		X	
17284733	BH-RPS-07	EW2	1.25	Vial (ALE297)	GW							X								X
				NaOH (ALE245)	GW			X												
				HNO3 Filtered (ALE204)	GW				X							X				
				H2SO4 (ALE244)	GW	X														
				500ml Plastic (ALE208)	GW		X								X			X		
				0.5l glass bottle (ALE227)	GW					X	X		X	X			X		X	
17284714	BH-RPS-06	EW2	0.87	Vial (ALE297)	GW							X								X
				NaOH (ALE245)	GW			X												
				HNO3 Filtered (ALE204)	GW				X							X				
				H2SO4 (ALE244)	GW	X														
				500ml Plastic (ALE208)	GW		X								X			X		
				0.5l glass bottle (ALE227)	GW					X	X		X	X			X		X	
17284596	BH-RPS-05	EW2	1.14	Vial (ALE297)	GW							X								X
				NaOH (ALE245)	GW			X												
				HNO3 Filtered (ALE204)	GW				X							X				

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17284774	17284694						17284756					17284744						17284670	
Customer Sample Reference			BH-RPS-09	BH-RPS-10						BH-RPS-24					BH-RPS-23a						CP-RPS-03	
AGS Reference			EW2	EW2						EW2					EW2						EW2	
Depth (m)			1.10	1.60						0.84					2.00						1.03	
Container			Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17				X					X						X						
Anions by Kone (w)	All	NDPs: 0 Tests: 17			X					X						X							X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 17						X					X						X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 18					X					X						X					
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17		X						X					X						X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17		X						X					X						X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 17	X						X					X						X			
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 17		X						X					X						X		
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 17		X						X					X						X		
pH Value	All	NDPs: 0 Tests: 17			X					X						X							X
Silicon Dissolved by ICP-OES	All	NDPs: 0 Tests: 17					X					X						X					
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 17		X						X					X						X		
Total Metals by ICP-MS	All	NDPs: 0 Tests: 17			X					X						X							X
TPH CWG (W)	All	NDPs: 0 Tests: 17		X						X					X						X		
VOC MS (W)	All	NDPs: 0 Tests: 17	X						X					X						X			

17284724	WS-RPS-10	EW2	1.05	HNO3 Filtered (ALE204)	GW				X							X				
				H2SO4 (ALE244)	GW	X														
				500ml Plastic (ALE208)	GW		X								X			X		
				0.5l glass bottle (ALE227)	GW					X	X		X	X			X		X	
17284610	WS-RPS-09	EW2	1.08	Vial (ALE297)	GW							X								X
				NaOH (ALE245)	GW			X												
				HNO3 Filtered (ALE204)	GW				X							X				
				H2SO4 (ALE244)	GW	X														
				500ml Plastic (ALE208)	GW		X								X			X		
				0.5l glass bottle (ALE227)	GW					X	X		X	X			X		X	
17284655	CP-RPS-04a	EW2	1.86	Vial (ALE297)	GW							X								X
				NaOH (ALE245)	GW			X												
				HNO3 Filtered (ALE204)	GW				X							X				
				H2SO4 (ALE244)	GW	X														
				500ml Plastic (ALE208)	GW		X		X						X			X		
				0.5l glass bottle (ALE227)	GW					X	X		X	X			X		X	
17284670	CP-RPS-03	EW2	1.03	Vial (ALE297)	GW							X								X
				NaOH (ALE245)	GW			X												
				HNO3 Filtered (ALE204)	GW				X							X				
				H2SO4 (ALE244)	GW	X														

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17284724								17284624								17284637								17284680							
Customer Sample Reference			WS-RPS-10								WS-RPS-19								WS-RPS-20								WS-RPS-24							
AGS Reference			EW2								EW2								EW2								EW2							
Depth (m)			1.05								2.52								1.36								1.46							
Container			NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17					X						X						X															
Anions by Kone (w)	All	NDPs: 0 Tests: 17				X						X						X																
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 17	X						X						X																		X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 18						X						X																				
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17			X						X						X																	
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17			X						X						X																	
GRO by GC-FID (W)	All	NDPs: 0 Tests: 17		X						X						X																		X
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 17			X						X						X																	
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 17			X						X						X																	
pH Value	All	NDPs: 0 Tests: 17				X						X						X																
Silicon Dissolved by ICP-OES	All	NDPs: 0 Tests: 17						X						X																				
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 17			X						X						X																	
Total Metals by ICP-MS	All	NDPs: 0 Tests: 17				X						X						X																
TPH CWG (W)	All	NDPs: 0 Tests: 17			X						X						X																	
VOC MS (W)	All	NDPs: 0 Tests: 17		X						X						X																		X

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.62	2.36	1.64	1.14	0.87	1.25
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			27/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284703	17284784	17284764	17284596	17284714	17284733
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	19.2 #	3.29 #	6.36 #	5.98 #	4.59 #	0.269 #
Aluminium (diss.filt)	<10 µg/l	TM152	408 #	30.2 2 #	<60 #	<60 #	15.6 #	11.2 #
Arsenic (diss.filt)	<0.5 µg/l	TM152	17.3 #	3.76 2 #	11.1 #	5.81 #	11.1 #	5.92 #
Barium (diss.filt)	<0.2 µg/l	TM152	245 #	490 2 #	141 #	376 #	178 #	43.9 #
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.1 #	<0.1 2 #	<0.6 #	<0.6 #	<0.1 #	<0.1 #
Boron (diss.filt)	<10 µg/l	TM152	111 #	13.9 2 #	11.4 #	158 #	173 #	452 #
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 #	<0.08 2 #	<0.48 #	<0.48 #	<0.08 #	0.123 #
Chromium (diss.filt)	<1 µg/l	TM152	<1 #	<1 2 #	<6 #	<6 #	<1 #	<1 #
Cobalt (diss.filt)	<0.5 µg/l	TM152	1.34 #	1.15 2 #	<3 #	12 #	<0.5 #	2.9 #
Copper (diss.filt)	<0.3 µg/l	TM152	1.43 #	24.7 2 #	<1.8 #	<1.8 #	<0.3 #	<0.3 #
Lead (diss.filt)	<0.2 µg/l	TM152	0.638 #	<0.2 2 #	<1.2 #	<1.2 #	<0.2 #	0.209 #
Lithium (diss.filt)	<1 µg/l	TM152	>104 #	<1 2 #	93.9 #	104 #	101 #	103 #
Manganese (diss.filt)	<3 µg/l	TM152	<3 #	<3 2 #	523 #	10800 #	461 #	1100 #
Molybdenum (diss.filt)	<3 µg/l	TM152	53.5 #	21.3 2 #	<3 #	<18 #	10.8 #	<3 #
Nickel (diss.filt)	<0.4 µg/l	TM152	21.6 #	12.9 2 #	<2.4 #	51.5 #	3.01 #	8.75 #
Phosphorus (diss.filt)	<10 µg/l	TM152	42.1 #	23.3 2 #	<60 #	104 #	15 #	18.1 #
Strontium (diss.filt)	<1 µg/l	TM152	1020 #	1520 2 #	1240 #	34500 #	2290 #	5910 #
Titanium (tot.unfilt)	<1 µg/l	TM152	171 2 #	104 2 #	363 2 #	301 2 #	78.7 2 #	258 2 #
Vanadium (diss.filt)	<1 µg/l	TM152	17.4 #	3.3 2 #	<6 #	<6 #	2.92 #	<1 #
Zinc (diss.filt)	<1 µg/l	TM152	<1 #	<1 2 #	<1 #	<6 #	<1 #	4.89 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152	2220 #	533 2 #	4540 #	2820 #	495 #	697 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	0.19 #	0.106 2 #	23 #	206 #	22.6 #	207 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152	32.5 #	6.16 2 #	2.57 #	32.7 #	18.2 #	8.53 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152	- #	989 2 #	- #	5170 #	- #	533 #
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0931 #	<0.019 2 #	1.26 #	3.46 #	0.0346 #	0.239 #
Chloride	<2 mg/l	TM184	3380 #	2190 #	13800 #	12300 #	1590 #	1300 #
Sulphate (soluble) as S	<1 mg/l	TM184	86.3 #	21.1 #	282 #	302 #	142 #	513 #
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
PCB congener 77	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
PCB congener 81	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
PCB congener 105	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
PCB congener 114	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.62	2.36	1.64	1.14	0.87	1.25
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			27/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284703	17284784	17284764	17284596	17284714	17284733
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
PCB congener 123	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
PCB congener 126	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
PCB congener 156	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
PCB congener 157	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
PCB congener 167	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
PCB congener 169	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
PCB congener 189	<0.015 µg/l	TM197	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
Cyanide, Total	<0.05 mg/l	TM227	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Cyanide, Free	<0.05 mg/l	TM227	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
pH	<1 pH Units	TM256	12.7 #	11.9 #	7.07 #	6.94 #	7.57 #	7.59 #
Silicon (diss.filt)	<0.05 mg/l	TM284	0.363	0.472	3.15	2.25	4.03	4.91

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04a
Depth (m)			1.10	1.60	0.84	2.00	1.03	1.86
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	27/03/2018	26/03/2018	26/03/2018	27/03/2018	27/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284774	17284694	17284756	17284744	17284670	17284655
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	6.09 #	32.9 #	4.75 #	1.17 #	6.24 #	0.569 #
Aluminium (diss.filt)	<10 µg/l	TM152	<60 #	242 #	30.1 #	<10 #	76.9 #	33.5 #
Arsenic (diss.filt)	<0.5 µg/l	TM152	8.57 #	38.3 #	1.29 #	2.2 #	6.49 #	1.11 #
Barium (diss.filt)	<0.2 µg/l	TM152	782 #	636 #	895 #	1580 #	49.8 #	114 #
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.6 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Boron (diss.filt)	<10 µg/l	TM152	80.2 #	21 #	<10 #	32.9 #	81.5 #	149 #
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.48 #	0.114 #	<0.08 #	1.02 #	0.371 #	0.115 #
Chromium (diss.filt)	<1 µg/l	TM152	<6 #	<1 #	<1 #	<1 #	1.66 #	<1 #
Cobalt (diss.filt)	<0.5 µg/l	TM152	<3 #	0.66 #	1.27 #	2.04 #	<0.5 #	0.861 #
Copper (diss.filt)	<0.3 µg/l	TM152	<1.8 #	1.23 #	36 #	1.08 #	3.26 #	<0.3 #
Lead (diss.filt)	<0.2 µg/l	TM152	<1.2 #	0.277 #	7.98 #	0.586 #	3.13 #	0.709 #
Lithium (diss.filt)	<1 µg/l	TM152	89.4 #	5.19 #	10.8 #	61.9 #	53.7 #	48.1 #
Manganese (diss.filt)	<3 µg/l	TM152	3140 #	<3 #	3.27 #	4230 #	25.5 #	399 #
Molybdenum (diss.filt)	<3 µg/l	TM152	<18 #	106 #	31.2 #	<3 #	5.99 #	<3 #
Nickel (diss.filt)	<0.4 µg/l	TM152	4.34 #	19.7 #	48.2 #	9.77 #	2.95 #	4.29 #
Phosphorus (diss.filt)	<10 µg/l	TM152	107 #	66.3 #	27.7 #	14.8 #	20.8 #	18 #
Strontium (diss.filt)	<1 µg/l	TM152	9060 #	1110 #	4770 #	7030 #	636 #	2770 #
Titanium (tot.unfilt)	<1 µg/l	TM152	874 2 #	103 2 #	141 #	44.3 2 #	274 2 #	317 2 #
Vanadium (diss.filt)	<1 µg/l	TM152	<6 #	23.6 #	2.05 #	<1 #	5.63 #	<1 #
Zinc (diss.filt)	<1 µg/l	TM152	<6 #	<1 #	<1 #	11.6 #	2.51 #	4.54 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152	13000 #	2370 #	437 #	2920 #	174 #	868 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	44.4 #	0.0443 #	0.24 #	206 #	5.62 #	66.8 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152	45.2 #	7.85 #	25.7 #	12.6 #	9.97 #	10.1 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152	7390 #	- #	- #	2440 #	- #	454 #
Iron (Dis.Filt)	<0.019 mg/l	TM152	<0.114 #	0.0322 #	0.0488 #	0.468 #	0.329 #	0.0417 #
Chloride	<2 mg/l	TM184	44600 #	3850 #	1600 #	9890 #	274 #	1430 #
Sulphate (soluble) as S	<1 mg/l	TM184	240 #	17 #	103 #	42.3 #	42.7 #	276 #
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 77	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 81	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 105	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 114	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04a
Depth (m)			1.10	1.60	0.84	2.00	1.03	1.86
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	27/03/2018	26/03/2018	26/03/2018	27/03/2018	27/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284774	17284694	17284756	17284744	17284670	17284655
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
PCB congener 123	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 126	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 156	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 157	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 167	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 169	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 189	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Cyanide, Total	<0.05 mg/l	TM227	0.094 #	<0.05 #	<0.05 #	<0.05 #	0.397 #	<0.05 #
Cyanide, Free	<0.05 mg/l	TM227	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
pH	<1 pH Units	TM256	7.66 #	12.5 #	12.6 #	7.13 #	7.59 #	7.44 #
Silicon (diss.filt)	<0.05 mg/l	TM284	1.43	2.22	<0.05	3	10.5	4.58

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			1.08	1.05	2.52	1.36	1.46
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	26/03/2018	26/03/2018	26/03/2018	27/03/2018
Sampled Time			.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284610	17284724	17284624	17284637	17284680
AGS Reference			EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**					
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	4.63 #	1.01 #	8.08 #	1.33 #	0.248 #
Aluminium (diss.filt)	<10 µg/l	TM152	<10 #	24.9 #	20.1 #	<10 #	107 #
Arsenic (diss.filt)	<0.5 µg/l	TM152	2.44 #	1 #	4400 #	0.679 #	8.95 #
Barium (diss.filt)	<0.2 µg/l	TM152	412 #	258 #	517 #	145 #	21.4 #
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Boron (diss.filt)	<10 µg/l	TM152	<10 #	15.9 #	375 #	24.6 #	18.2 #
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152	<1 #	1.71 #	<1 #	3.31 #	<1 #
Cobalt (diss.filt)	<0.5 µg/l	TM152	1.48 #	<0.5 #	7.98 #	<0.5 #	<0.5 #
Copper (diss.filt)	<0.3 µg/l	TM152	7.04 #	14.7 #	1.07 #	26.3 #	<0.3 #
Lead (diss.filt)	<0.2 µg/l	TM152	1.23 #	0.349 #	0.627 #	5.3 #	0.353 #
Lithium (diss.filt)	<1 µg/l	TM152	4.11 #	6.74 #	67.8 #	29.1 #	4.43 #
Manganese (diss.filt)	<3 µg/l	TM152	<3 #	<3 #	3070 #	<3 #	10.1 #
Molybdenum (diss.filt)	<3 µg/l	TM152	19.7 #	20.4 #	8.02 #	13 #	<3 #
Nickel (diss.filt)	<0.4 µg/l	TM152	25.9 #	8.77 #	11.8 #	5.2 #	<0.4 #
Phosphorus (diss.filt)	<10 µg/l	TM152	25.9 #	<10 #	22.8 #	<10 #	18.5 #
Strontium (diss.filt)	<1 µg/l	TM152	929 #	532 #	1070 #	481 #	156 #
Titanium (tot.unfilt)	<1 µg/l	TM152	138 2 #	10.6 2 #	35.4 2 #	24.2 2 #	75.1 2 #
Vanadium (diss.filt)	<1 µg/l	TM152	<1 #	2.46 #	<1 #	<1 #	1.74 #
Zinc (diss.filt)	<1 µg/l	TM152	3.25 #	<1 #	16.3 #	1.95 #	<1 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152	171 #	199 #	551 #	59.3 #	25.6 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	0.103 #	0.0668 #	89.8 #	0.049 #	1.47 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152	8.43 #	10.2 #	15 #	12.2 #	1.02 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152	967 #	- #	393 #	779 #	- #
Iron (Dis.Filt)	<0.019 mg/l	TM152	<0.019 #	<0.019 #	30.6 #	<0.019 #	0.0264 #
Chloride	<2 mg/l	TM184	567 #	286 #	1810 #	449 #	36.1 #
Sulphate (soluble) as S	<1 mg/l	TM184	5.37 #	72.7 #	53.7 #	68 #	128 #
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 77	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 81	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 105	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 114	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24	
Depth (m)			1.08	1.05	2.52	1.36	1.46	
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	
Date Sampled			26/03/2018	26/03/2018	26/03/2018	26/03/2018	27/03/2018	
Sampled Time			-	-	-	-	-	
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	
Lab Sample No.(s)			17284610	17284724	17284624	17284637	17284680	
AGS Reference			EW2	EW2	EW2	EW2	EW2	
Component	**LOD/Units**	**Method**						
PCB congener 123	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	
PCB congener 126	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	
PCB congener 156	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	
PCB congener 157	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	
PCB congener 167	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	
PCB congener 169	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	
PCB congener 189	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	
Cyanide, Total	<0.05 mg/l	TM227	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	
Cyanide, Free	<0.05 mg/l	TM227	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	
pH	<1 pH Units	TM256	12.7 #	12.6 #	7.37 #	12.6 #	8.13 #	
Silicon (diss.filt)	<0.05 mg/l	TM284	<0.05	0.179	5.33	<0.05	2.74	

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.62	2.36	1.64	1.14	0.87	1.25
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			27/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284703	17284784	17284764	17284596	17284714	17284733
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
Naphthalene (aq)	<0.01 µg/l	TM178	20	0.341	0.117	0.209	4.12	0.0574
Acenaphthene (aq)	<0.005 µg/l	TM178	5.92	0.03	<0.025	0.021	7.71	0.0171
Acenaphthylene (aq)	<0.005 µg/l	TM178	0.255	0.0224	<0.025	0.0229	2.11	0.0108
Fluoranthene (aq)	<0.005 µg/l	TM178	1.7	0.0538	0.223	0.114	1.8	0.54
Anthracene (aq)	<0.005 µg/l	TM178	0.31	0.0107	<0.025	0.0217	0.991	0.0396
Phenanthrene (aq)	<0.005 µg/l	TM178	11.8	0.0965	0.191	0.168	7.09	0.203
Fluorene (aq)	<0.005 µg/l	TM178	0.762	0.0179	0.029	0.0349	7.29	0.0168
Chrysene (aq)	<0.005 µg/l	TM178	0.515	0.0211	0.132	0.0349	0.135	0.255
Pyrene (aq)	<0.005 µg/l	TM178	1.46	0.0491	0.24	0.113	1.2	0.529
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	0.47	0.0207	0.144	0.0369	0.14	0.269
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	0.632	0.0265	0.25	0.0703	0.124	0.476
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	0.292	0.0106	0.113	0.0567	0.0541	0.195
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	0.395	0.0148	0.178	0.0644	0.0854	0.337
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	0.0611	<0.005	0.0321	<0.005	0.0138	0.0508
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	0.274	<0.005	0.122	0.0254	0.0539	0.246
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	0.288	0.012	0.134	0.023	0.0646	0.253
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	45.1	0.727	1.91	1.02	33	3.5

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04a
Depth (m)			1.10	1.60	0.84	2.00	1.03	1.86
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	27/03/2018	26/03/2018	26/03/2018	27/03/2018	27/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284774	17284694	17284756	17284744	17284670	17284655
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
Naphthalene (aq)	<0.01 µg/l	TM178	0.0585	0.994	0.519	<0.01	0.0574	0.0166
Acenaphthene (aq)	<0.005 µg/l	TM178	0.0131	0.0815	0.23	0.0782	0.0466	<0.005
Acenaphthylene (aq)	<0.005 µg/l	TM178	0.0103	0.0149	0.0513	<0.005	0.0633	0.00637
Fluoranthene (aq)	<0.005 µg/l	TM178	0.392	0.465	1.73	0.0253	4.16	0.342
Anthracene (aq)	<0.005 µg/l	TM178	0.0287	0.0407	0.26	0.00604	0.207	0.0166
Phenanthrene (aq)	<0.005 µg/l	TM178	0.156	0.439	1.1	0.0349	1.33	0.157
Fluorene (aq)	<0.005 µg/l	TM178	0.0208	0.0365	0.228	0.0169	0.0439	0.00877
Chrysene (aq)	<0.005 µg/l	TM178	0.284	0.427	0.575	<0.005	2.72	0.175
Pyrene (aq)	<0.005 µg/l	TM178	0.375	0.482	1.56	0.0213	3.77	0.33
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	0.222	0.448	0.641	<0.005	2.24	0.163
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	0.441	0.747	0.99	<0.005	4.57	0.401
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	0.183	0.319	0.415	<0.005	1.9	0.152
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	0.268	0.43	0.685	0.00577	3.24	0.236
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	0.0454	0.0749	0.0971	<0.005	0.484	0.0386
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	0.267	0.265	0.518	<0.005	2.29	0.221
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	0.216	0.327	0.557	0.00661	2.69	0.209
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	2.98	5.59	10.2	0.195	29.8	2.47

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			1.08	1.05	2.52	1.36	1.46
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	26/03/2018	26/03/2018	26/03/2018	27/03/2018
Sampled Time			.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284610	17284724	17284624	17284637	17284680
AGS Reference			EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**					
Naphthalene (aq)	<0.01 µg/l	TM178	2.46	1.15	0.0211	4.03	<0.01
Acenaphthene (aq)	<0.005 µg/l	TM178	0.282	0.107	0.0158	0.939	<0.005
Acenaphthylene (aq)	<0.005 µg/l	TM178	0.058	0.0258	0.00977	0.215	<0.005
Fluoranthene (aq)	<0.005 µg/l	TM178	0.403	0.158	0.423	8	0.00857
Anthracene (aq)	<0.005 µg/l	TM178	0.0934	0.0365	0.048	2.67	<0.005
Phenanthrene (aq)	<0.005 µg/l	TM178	0.537	0.403	0.151	10.6	<0.005
Fluorene (aq)	<0.005 µg/l	TM178	0.21	0.0801	0.0177	0.744	<0.005
Chrysene (aq)	<0.005 µg/l	TM178	0.159	0.0373	0.181	2.1	<0.005
Pyrene (aq)	<0.005 µg/l	TM178	0.361	0.114	0.401	6.3	0.00867
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	0.176	0.0337	0.185	2.66	<0.005
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	0.332	0.0961	0.295	3.15	0.00792
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	0.152	0.0345	0.138	1.38	<0.005
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	0.277	0.0674	0.226	2.69	0.00585
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	0.039	0.0109	0.0346	0.309	<0.005
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	0.219	0.0766	0.168	1.37	<0.005
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	0.201	0.0807	0.175	1.59	0.00634
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	5.96	2.51	2.49	48.7	<0.082

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.62	2.36	1.64	1.14	0.87	1.25
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			27/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284703	17284784	17284764	17284596	17284714	17284733
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	4 #	<1 #	<8 #	<1 #	2.73 #	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176	7.95 #	<1 #	<8 #	15.7 #	1.06 #	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	<1	<8	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176	43.8 #	7.07 #	<8 #	6.98 #	<1 #	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<1	<8	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Acenaphthylene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	1.11 #	<1 #
Acenaphthene (aq)	<1 µg/l	TM176	4.05 #	<1 #	<8 #	<1 #	4.68 #	<1 #
Anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	16.2 #	6.78 #	<16 #	4.12 #	<2 #	3.73 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.62	2.36	1.64	1.14	0.87	1.25
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			27/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284703	17284784	17284764	17284596	17284714	17284733
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Carbazole (aq)	<1 µg/l	TM176	2.18 #	<1 #	<8 #	<1 #	1.62 #	<1 #
Chrysene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176	4.14 #	<1 #	<8 #	<1 #	2.77 #	<1 #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 #	<5 #	<40 #	<5 #	<5 #	<5 #
Fluoranthene (aq)	<1 µg/l	TM176	1.49 #	<1 #	<8 #	<1 #	1.16 #	<1 #
Fluorene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	4.04 #	<1 #
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176	<1	<1	<8	<1	<1	<1
Phenol (aq)	<1 µg/l	TM176	57.9	1.31	<8	<1	<1	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Naphthalene (aq)	<1 µg/l	TM176	11.7 #	<1 #	<8 #	<1 #	6.26 #	<1 #
Isophorone (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1	<1	<8	<1	<1	<1
Phenanthrene (aq)	<1 µg/l	TM176	8.48 #	<1 #	<8 #	<1 #	2.63 #	<1 #
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<8 #	<1 #	<1 #	<1 #
Pyrene (aq)	<1 µg/l	TM176	1.34 #	<1 #	<8 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04a
Depth (m)			1.10	1.60	0.84	2.00	1.03	1.86
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	27/03/2018	26/03/2018	26/03/2018	27/03/2018	27/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284774	17284694	17284756	17284744	17284670	17284655
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #	1.02 #	<1 #	<1 #	<1 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176	<1 #	13.7 #	<1 #	<1 #	<1 #	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #	35.5 #	7 #	<1 #	<1 #	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Acenaphthylene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Acenaphthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	3.59 #	<2 #	4.56 #	<2 #	<2 #	<2 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04a
Depth (m)			1.10	1.60	0.84	2.00	1.03	1.86
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	27/03/2018	26/03/2018	26/03/2018	27/03/2018	27/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284774	17284694	17284756	17284744	17284670	17284655
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	1.51 #	<1 #
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1 #	1.18 #	<1 #	<1 #	2.72 #	<1 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	1.06 #	<1 #
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	1.9 #	<1 #
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	1.59 #	<1 #
Carbazole (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chrysene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	1.56 #	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
Fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #	1.38 #	<1 #	2.72 #	<1 #
Fluorene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<1	<1
Phenol (aq)	<1 µg/l	TM176	<1	15.6	17.8	<1	<1	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Isophorone (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<1	<1
Phenanthrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	1.04 #	<1 #
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	1.38 #	<1 #
Pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	1.3 #	<1 #	2.53 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			1.08	1.05	2.52	1.36	1.46
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	26/03/2018	26/03/2018	26/03/2018	27/03/2018
Sampled Time			.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284610	17284724	17284624	17284637	17284680
AGS Reference			EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**					
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	1.83 #	<1 #	<1 #	<1 #	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176	3.44 #	<1 #	<1 #	1.12 #	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176	14.6 #	1.2 #	<1 #	5.57 #	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Acenaphthylene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Acenaphthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	1 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2 #	<2 #	<2 #	<2 #	<2 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			1.08	1.05	2.52	1.36	1.46
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	26/03/2018	26/03/2018	26/03/2018	27/03/2018
Sampled Time			-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284610	17284724	17284624	17284637	17284680
AGS Reference			EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**					
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	2.67 #	<1 #
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	3.27 #	<1 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	1.3 #	<1 #
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	2.73 #	<1 #
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	1.74 #	<1 #
Carbazole (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	2.1 #	<1 #
Chrysene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	2.31 #	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 #	<5 #	<5 #	<5 #	<5 #
Fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	6.12 #	<1 #
Fluorene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<1
Phenol (aq)	<1 µg/l	TM176	15.9	2.27	<1	6.32	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene (aq)	<1 µg/l	TM176	1.82 #	<1 #	<1 #	2.15 #	<1 #
Isophorone (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<1
Phenanthrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	7.33 #	<1 #
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	1.55 #	<1 #
Pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	4.94 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.62	2.36	1.64	1.14	0.87	1.25
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			27/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284703	17284784	17284764	17284596	17284714	17284733
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM245	88	90	88	95	88	81
GRO >C5-C12	<50 µg/l	TM245	87 #	<50 #	<50 #	56 #	566 #	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	4	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245	13	<10	<10	12	33	<10
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	133	<10
Aliphatics >C10-C12	<10 µg/l	TM245	30	11	<10	10	172	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	40	<10	<50	102	11	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	139	<10	<50	662	<10	43
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	3100	139	1400	4130	64	570
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	3280	139	1400	4890	75	613
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	98	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	20	<10	<10	<10	115	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	49	<10	<50	13	55	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	85	<10	<50	59	24	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	565	<10	215	531	<10	102
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	699	<10	215	603	79	102
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	4070	176	1620	5550	716	719
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	3240	139	1400	4790	64	613

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04a
Depth (m)			1.10	1.60	0.84	2.00	1.03	1.86
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	27/03/2018	26/03/2018	26/03/2018	27/03/2018	27/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284774	17284694	17284756	17284744	17284670	17284655
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM245	71	93	90	88	83	74
GRO >C5-C12	<50 µg/l	TM245	<50 #	60 #	77 #	<50 #	<50 #	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	13	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245	<10	10	18	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245	<10	12	23	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	24	<10	<10	<10	<10	20
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	102	35	22	<10	21	56
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	2010	661	807	<10	573	305
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	2140	696	829	<10	594	381
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	15	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	12	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	17	<10	<10	<10	21	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	312	96	130	<10	178	19
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	341	96	130	<10	199	19
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	2480	852	1040	<10	793	404
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	2110	696	829	<10	594	361

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			1.08	1.05	2.52	1.36	1.46
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	26/03/2018	26/03/2018	26/03/2018	27/03/2018
Sampled Time			.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284610	17284724	17284624	17284637	17284680
AGS Reference			EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**					
GRO Surrogate % recovery**	%	TM245	85	97	85	92	89
GRO >C5-C12	<50 µg/l	TM245	152 #	<50 #	<50 #	<50 #	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245	11	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245	22	11	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245	54	11	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	40	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	48	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	128	<10	58	79	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	216	<10	58	79	<10
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	17	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	36	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	49	<10	<10	14	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	30	<10	<10	52	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	37	<10	<10	67	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	116	<10	<10	133	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	482	48	61	226	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	176	<10	58	79	<10

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.62	2.36	1.64	1.14	0.87	1.25
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			27/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284703	17284784	17284764	17284596	17284714	17284733
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM208	0.48	0.727	103	107	108	107
Toluene-d8**	%	TM208	97.6	98.6	98.1	97	98.1	97.5
4-Bromofluorobenzene**	%	TM208	97.3	101	94.8	97.7	101	95.6
Dichlorodifluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Vinyl chloride	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Trichlorofluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Carbon disulphide	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dichloromethane	<3 µg/l	TM208	<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chloroform	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Carbontetrachloride	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Benzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	1.63 #	<1 #
Trichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dibromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromodichloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	3.2 #	2.93 #	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.62	2.36	1.64	1.14	0.87	1.25
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			27/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284703	17284784	17284764	17284596	17284714	17284733
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Tetrachloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dibromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	1.07 #	<1 #
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	4.03 #	<1 #
o-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	2.12 #	<1 #
Styrene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromoform	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Isopropylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	4.74 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Propylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	2.58 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	3.85 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	5.57 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene	<1 µg/l	TM208	9.74 #	<1 #	<1 #	<1 #	39.5 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07
Depth (m)			1.62	2.36	1.64	1.14	0.87	1.25
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			27/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284703	17284784	17284764	17284596	17284714	17284733
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04a
Depth (m)			1.10	1.60	0.84	2.00	1.03	1.86
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	27/03/2018	26/03/2018	26/03/2018	27/03/2018	27/03/2018
Sampled Time			.	.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284774	17284694	17284756	17284744	17284670	17284655
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM208	99.4	0.449	0.491	107	111	112
Toluene-d8**	%	TM208	97.7	97.1	97.6	98.1	96.5	97
4-Bromofluorobenzene**	%	TM208	93.8	95.5	97	99.3	95.6	97
Dichlorodifluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Vinyl chloride	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Trichlorofluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Carbon disulphide	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dichloromethane	<3 µg/l	TM208	<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethane	<1 µg/l	TM208	<1 #	1.33 #	<1 #	<1 #	<1 #	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chloroform	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Carbontetrachloride	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Benzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Trichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	3.47 #	<1 #
1,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dibromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromodichloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208	<1 #	1.05 #	<1 #	<1 #	<1 #	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04a
Depth (m)			1.10	1.60	0.84	2.00	1.03	1.86
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	27/03/2018	26/03/2018	26/03/2018	27/03/2018	27/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284774	17284694	17284756	17284744	17284670	17284655
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Tetrachloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dibromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Styrene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromoform	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Isopropylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Propylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a	CP-RPS-03	CP-RPS-04a
Depth (m)			1.10	1.60	0.84	2.00	1.03	1.86
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	27/03/2018	26/03/2018	26/03/2018	27/03/2018	27/03/2018
Sampled Time			-	-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284774	17284694	17284756	17284744	17284670	17284655
AGS Reference			EW2	EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			1.08	1.05	2.52	1.36	1.46
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	26/03/2018	26/03/2018	26/03/2018	27/03/2018
Sampled Time			.	.	.	.	.
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284610	17284724	17284624	17284637	17284680
AGS Reference			EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**					
Dibromofluoromethane**	%	TM208	0.479	0.475	113	0.414	107
Toluene-d8**	%	TM208	98.4	98.4	97.6	98.1	96.6
4-Bromofluorobenzene**	%	TM208	96.6	98.1	98.1	97.6	98.2
Dichlorodifluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Chloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Vinyl chloride	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Bromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Chloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Trichlorofluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Carbon disulphide	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Dichloromethane	<3 µg/l	TM208	<3 #	<3 #	<3 #	<3 #	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethane	<1 µg/l	TM208	8.13 #	<1 #	<1 #	<1 #	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Chloroform	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	3.89 #
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Carbontetrachloride	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Benzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Trichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Dibromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Bromodichloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			1.08	1.05	2.52	1.36	1.46
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	26/03/2018	26/03/2018	26/03/2018	27/03/2018
Sampled Time			-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284610	17284724	17284624	17284637	17284680
AGS Reference			EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**					
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Tetrachloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Dibromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208	1.01 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Styrene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Bromoform	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Isopropylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Bromobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Propylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208	1.09 #	<1 #	<1 #	<1 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208	2.87 #	<1 #	<1 #	<1 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene	<1 µg/l	TM208	1.24 #	<1 #	<1 #	2 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
Depth (m)			1.08	1.05	2.52	1.36	1.46
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			26/03/2018	26/03/2018	26/03/2018	26/03/2018	27/03/2018
Sampled Time			-	-	-	-	-
Date Received			28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
SDG Ref			180328-90	180328-90	180328-90	180328-90	180328-90
Lab Sample No.(s)			17284610	17284724	17284624	17284637	17284680
AGS Reference			EW2	EW2	EW2	EW2	EW2
Component	**LOD/Units**	**Method**					
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1

Table of Results - Appendix

Method No	Reference	Description
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM284		

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Test Completion Dates

Lab Sample No(s)	17284703	17284784	17284764	17284596	17284714	17284733	17284774	17284694	17284756	17284744
Customer Sample Ref.	BH-RPS-01	BH-RPS-03	BH-RPS-04	BH-RPS-05	BH-RPS-06	BH-RPS-07	BH-RPS-09	BH-RPS-10	BH-RPS-24	BH-RPS-23a
AGS Ref.	EW2	EW2	EW2	EW2	EW2	EW2	EW2	EW2	EW2	EW2
Depth	1.62	2.36	1.64	1.14	0.87	1.25	1.10	1.60	0.84	2.00
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
Anions by Kone (w)	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018
Cyanide Comp/Free/Total/Thiocyanate	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
Dissolved Metals by ICP-MS	09-Apr-2018	09-Apr-2018	09-Apr-2018	09-Apr-2018	09-Apr-2018	09-Apr-2018	09-Apr-2018	06-Apr-2018	06-Apr-2018	09-Apr-2018
EPH CWG (Aliphatic) Aqueous GC (W)	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
EPH CWG (Aromatic) Aqueous GC (W)	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
GRO by GC-FID (W)	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018
PAH Spec MS - Aqueous (W)	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018
PCB Congeners - Aqueous (W)	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
pH Value	29-Mar-2018	04-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	05-Apr-2018	03-Apr-2018	03-Apr-2018
Silicon Dissolved by ICP-OES	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
SVOC MS (W) - Aqueous	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018
Total Metals by ICP-MS	05-Apr-2018	06-Apr-2018	06-Apr-2018	05-Apr-2018	06-Apr-2018	09-Apr-2018	06-Apr-2018	06-Apr-2018	09-Apr-2018	06-Apr-2018
TPH CWG (W)	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
VOC MS (W)	04-Apr-2018	04-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	04-Apr-2018	04-Apr-2018	03-Apr-2018

Lab Sample No(s)	17284670	17284655	17284610	17284724	17284624	17284637	17284680
Customer Sample Ref.	CP-RPS-03	CP-RPS-04a	WS-RPS-09	WS-RPS-10	WS-RPS-19	WS-RPS-20	WS-RPS-24
AGS Ref.	EW2	EW2	EW2	EW2	EW2	EW2	EW2
Depth	1.03	1.86	1.08	1.05	2.52	1.36	1.46
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	06-Apr-2018	05-Apr-2018	05-Apr-2018
Anions by Kone (w)	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018	06-Apr-2018
Cyanide Comp/Free/Total/Thiocyanate	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
Dissolved Metals by ICP-MS	09-Apr-2018	18-Apr-2018	09-Apr-2018	09-Apr-2018	09-Apr-2018	09-Apr-2018	06-Apr-2018
EPH CWG (Aliphatic) Aqueous GC (W)	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
EPH CWG (Aromatic) Aqueous GC (W)	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
GRO by GC-FID (W)	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018	31-Mar-2018
PAH Spec MS - Aqueous (W)	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018
PCB Congeners - Aqueous (W)	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
pH Value	29-Mar-2018	29-Mar-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	29-Mar-2018	29-Mar-2018
Silicon Dissolved by ICP-OES	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
SVOC MS (W) - Aqueous	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018
Total Metals by ICP-MS	05-Apr-2018	05-Apr-2018	05-Apr-2018	06-Apr-2018	05-Apr-2018	06-Apr-2018	06-Apr-2018
TPH CWG (W)	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018
VOC MS (W)	03-Apr-2018	03-Apr-2018	04-Apr-2018	04-Apr-2018	03-Apr-2018	04-Apr-2018	03-Apr-2018

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 1767	QC 1723	QC 1745	QC 1770	QC 1738	QC 1701
Ammoniacal Nitrogen as N	TM099	**96.8** 93.47 : 108.25	**97.2** 93.47 : 108.25	**96.8** 93.47 : 108.25	**98.0** 93.47 : 108.25	**98.0** 93.47 : 108.25	**96.8** 93.47 : 108.25

Component	Method Code	QC 1795
Ammoniacal Nitrogen as N	TM099	**98.8** 93.47 : 108.25

Anions by Kone (w)

Component	Method Code	QC 1723
Chloride	TM184	**100.0** 92.93 : 115.43
Phosphate (Ortho as PO4)	TM184	96.40 : 108.40
Sulphate (soluble)	TM184	**100.8** 90.53 : 113.03
TON as NO3	TM184	96.26 : 111.21

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 1778	QC 1797
Free Cyanide (W)	TM227	**98.75** 93.25 : 112.75	**105.25** 93.25 : 112.75
Thiocyanate (W)	TM227	**104.0** 97.75 : 109.75	**107.75** 97.75 : 109.75
Total Cyanide (W)	TM227	**105.25** 95.25 : 111.75	**106.75** 95.25 : 111.75

Dissolved Metals by ICP-MS

Component	Method Code	QC 1768	QC 1716	QC 1778	QC 1765	QC 1713	QC 1778
Aluminium	TM152	**101.33** 90.09 : 112.69	**100.67** 88.00 : 112.00	**100.67** 88.00 : 112.00	**103.33** 88.00 : 112.00	**101.33** 88.00 : 112.00	**104.33** 90.09 : 112.69
Antimony	TM152	**106.33** 81.00 : 119.70	**105.0** 88.00 : 112.00	**103.67** 88.00 : 112.00	**105.67** 88.00 : 112.00	**105.0** 88.00 : 112.00	**101.83** 81.00 : 119.70
Arsenic	TM152	**103.33** 92.40 : 113.00	**102.17** 88.00 : 112.00	**102.67** 88.00 : 112.00	**104.17** 88.00 : 112.00	**102.0** 88.00 : 112.00	**99.33** 92.40 : 113.00
Barium	TM152	**103.17** 93.11 : 112.81	**102.5** 88.00 : 112.00	**104.33** 88.00 : 112.00	**98.83** 88.00 : 112.00	**100.17** 88.00 : 112.00	**99.67** 93.11 : 112.81
Beryllium	TM152	**100.5** 88.27 : 113.27	**100.83** 88.00 : 112.00	**99.83** 88.00 : 112.00	**105.33** 88.00 : 112.00	**103.33** 88.00 : 112.00	**104.17** 88.27 : 113.27
Bismuth	TM152	**103.17** 86.72 : 115.61	**101.0** 88.90 : 106.90	**101.5** 88.90 : 106.90	**102.5** 88.90 : 106.90	**101.17** 88.90 : 106.90	**107.83** 86.72 : 115.61
Borate	TM152		**101.23** 88.00 : 112.00	**98.77** 88.00 : 112.00	**104.94** 88.00 : 112.00	**102.47** 88.00 : 112.00	

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Dissolved Metals by ICP-MS

		QC 1768	QC 1716	QC 1778	QC 1765	QC 1713	QC 1778
Boron	TM152	**100.0** 86.47 : 111.70	**101.33** 88.00 : 112.00	**99.0** 88.00 : 112.00	**105.0** 88.00 : 112.00	**102.33** 88.00 : 112.00	**104.0** 86.47 : 111.70
Cadmium	TM152	**101.0** 90.28 : 114.48	**101.0** 88.00 : 112.00	**101.0** 88.00 : 112.00	**104.0** 88.00 : 112.00	**103.33** 88.00 : 112.00	**101.67** 90.28 : 114.48
Calcium	TM152				**101.33** 81.00 : 119.00	**100.53** 81.00 : 119.00	
Chromium	TM152	**103.67** 91.07 : 114.29	**101.5** 88.00 : 112.00	**101.17** 88.00 : 112.00	**101.33** 88.00 : 112.00	**100.17** 88.00 : 112.00	**102.83** 91.07 : 114.29
Cobalt	TM152	**98.17** 89.58 : 114.68	**96.67** 88.00 : 112.00	**96.0** 88.00 : 112.00	**94.17** 88.00 : 112.00	**92.33** 88.00 : 112.00	**102.33** 89.58 : 114.68
Copper	TM152	**106.83** 88.45 : 117.93	**104.33** 85.52 : 115.00	**103.83** 85.52 : 115.00	**103.33** 85.52 : 115.00	**99.67** 85.52 : 115.00	**102.83** 88.45 : 117.93
Iron	TM152				**101.33** 92.00 : 113.00	**100.0** 92.00 : 113.00	
Lead	TM152	**103.33** 89.25 : 115.12	**101.67** 88.00 : 112.00	**100.5** 88.00 : 112.00	**103.33** 88.00 : 112.00	**100.83** 88.00 : 112.00	**107.17** 89.25 : 115.12
Lithium	TM152	**99.83** 88.50 : 116.05	**100.0** 88.00 : 112.00	**98.67** 88.00 : 112.00	**105.17** 88.00 : 112.00	**102.17** 88.00 : 112.00	**104.17** 88.50 : 116.05
Magnesium	TM152				**102.67** 89.00 : 109.00	**99.2** 89.00 : 109.00	
Manganese	TM152	**104.83** 91.63 : 112.33	**104.5** 88.00 : 112.00	**102.33** 88.00 : 112.00	**103.0** 88.00 : 112.00	**101.83** 88.00 : 112.00	**102.33** 91.63 : 112.33
Molybdenum	TM152	**100.33** 91.08 : 111.63	**98.5** 88.00 : 112.00	**98.83** 88.00 : 112.00	**97.0** 88.00 : 112.00	**95.5** 88.00 : 112.00	**96.67** 91.08 : 111.63
Nickel	TM152	**105.0** 89.60 : 117.38	**102.67** 88.00 : 112.00	**102.17** 88.00 : 112.00	**101.83** 88.00 : 112.00	**98.67** 88.00 : 112.00	**104.83** 89.60 : 117.38
Niobium	TM152	96.38 : 128.85	88.00 : 112.00	88.00 : 112.00	88.00 : 112.00	88.00 : 112.00	96.38 : 128.85
Phosphorus	TM152	**103.33** 90.43 : 111.75	**102.83** 88.00 : 112.00	**101.5** 88.00 : 112.00	**105.17** 88.00 : 112.00	**105.5** 88.00 : 112.00	**103.5** 90.43 : 111.75
Potassium	TM152				**102.67** 87.00 : 112.00	**102.13** 87.00 : 112.00	
Selenium	TM152	**104.5** 88.22 : 113.50	**102.67** 88.00 : 112.00	**106.0** 88.00 : 112.00	**106.17** 88.00 : 112.00	**104.33** 88.00 : 112.00	**98.5** 88.22 : 113.50
Silver	TM152	**98.33** 94.00 : 112.00	**96.67** 94.00 : 112.00	**96.0** 94.00 : 112.00	**99.17** 94.00 : 112.00	**95.17** 94.00 : 112.00	**95.0** 94.00 : 112.00
Sodium	TM152				**101.33** 84.00 : 113.00	**99.47** 84.00 : 113.00	
Strontium	TM152	**103.67** 91.27 : 106.32	**103.33** 88.00 : 112.00	**105.0** 88.00 : 112.00	**105.0** 88.00 : 112.00	**103.33** 88.00 : 112.00	**97.33** 91.27 : 106.32
Tellurium	TM152	**108.5** 81.16 : 111.23	**106.17** 88.00 : 112.00	**108.33** 88.00 : 112.00	**107.17** 88.00 : 112.00	**107.33** 88.00 : 112.00	**96.0** 81.16 : 111.23
Thallium	TM152	**101.83** 81.70 : 117.09	**100.0** 88.00 : 112.00	**98.0** 88.00 : 112.00	**101.83** 88.00 : 112.00	**98.83** 88.00 : 112.00	**106.17** 81.70 : 117.09
Tin	TM152				**105.17** 91.00 : 109.00	**104.0** 91.00 : 109.00	
Titanium	TM152	**103.0** 89.62 : 110.62	**101.67** 88.00 : 112.00	**102.83** 88.00 : 112.00	**104.33** 88.00 : 112.00	**103.5** 88.00 : 112.00	**105.5** 89.62 : 110.62
Tungsten	TM152	**103.33** 90.13 : 111.33	**101.5** 88.00 : 112.00	**100.33** 88.00 : 112.00	**105.83** 88.00 : 112.00	**100.67** 88.00 : 112.00	**106.67** 90.13 : 111.33
Uranium	TM152	**100.17** 92.30 : 116.90	**99.67** 88.00 : 112.00	**97.5** 88.00 : 112.00	**98.83** 88.00 : 112.00	**96.0** 88.00 : 112.00	**109.33** 92.30 : 116.90

Dissolved Metals by ICP-MS

		QC 1768	QC 1716	QC 1778	QC 1765	QC 1713	QC 1778
Vanadium	TM152	**104.83** 88.22 : 118.55	**103.33** 88.00 : 112.00	**100.83** 88.00 : 112.00	**101.5** 88.00 : 112.00	**100.67** 88.00 : 112.00	**99.33** 88.22 : 118.55
Zinc	TM152	**105.67** 89.30 : 115.44	**104.33** 88.00 : 112.00	**103.0** 88.00 : 112.00	**103.67** 88.00 : 112.00	**101.33** 88.00 : 112.00	**102.33** 89.30 : 115.44
Zirconium	TM152	85.51 : 109.42	88.00 : 112.00	88.00 : 112.00	88.00 : 112.00	88.00 : 112.00	85.51 : 109.42

Component	Method Code	QC 1723
Aluminium	TM152	**104.0** 90.09 : 112.69
Antimony	TM152	**100.67** 81.00 : 119.70
Arsenic	TM152	**97.0** 92.40 : 113.00
Barium	TM152	**102.17** 93.11 : 112.81
Beryllium	TM152	**105.17** 88.27 : 113.27
Bismuth	TM152	**103.0** 86.72 : 115.61
Boron	TM152	**103.67** 86.47 : 111.70
Cadmium	TM152	**102.0** 90.28 : 114.48
Chromium	TM152	**97.5** 91.07 : 114.29
Cobalt	TM152	**97.67** 89.58 : 114.68
Copper	TM152	**99.33** 88.45 : 117.93
Lead	TM152	**102.5** 89.25 : 115.12
Lithium	TM152	**102.17** 88.50 : 116.05
Manganese	TM152	**100.67** 91.63 : 112.33
Molybdenum	TM152	**97.0** 91.08 : 111.63
Nickel	TM152	**99.33** 89.60 : 117.38
Niobium	TM152	96.38 : 128.85
Phosphorus	TM152	**101.83** 90.43 : 111.75
Selenium	TM152	**97.5** 88.22 : 113.50
Silver	TM152	**92.5** 94.00 : 112.00
Strontium	TM152	**101.67** 91.27 : 106.32
Tellurium	TM152	**100.17** 81.16 : 111.23
Thallium	TM152	**102.33** 81.70 : 117.09

Dissolved Metals by ICP-MS

		QC 1723
Titanium	TM152	**102.17** 89.62 : 110.62
Tungsten	TM152	**101.0** 90.13 : 111.33
Uranium	TM152	**99.17** 92.30 : 116.90
Vanadium	TM152	**100.67** 88.22 : 118.55
Zinc	TM152	**99.67** 89.30 : 115.44
Zirconium	TM152	 85.51 : 109.42

EPH CWG (Aliphatic) Aqueous GC (W)

Component	Method Code	QC 1705
Total Aliphatics >C10-C40	TM174	**96.2** 57.59 : 130.56

EPH CWG (Aromatic) Aqueous GC (W)

Component	Method Code	QC 1711
Total Aromatics >EC10-EC40	TM174	**78.78** 59.92 : 128.54

GRO by GC-FID (W)

Component	Method Code	QC 1770
Benzene by GC	TM245	**109.5** 79.13 : 118.84
Ethylbenzene by GC	TM245	**107.0** 79.54 : 115.99
m & p Xylene by GC	TM245	**108.5** 78.44 : 116.32
MTBE GC-FID	TM245	**110.5** 81.43 : 120.09
o Xylene by GC	TM245	**109.5** 76.85 : 120.29
QC	TM245	**99.26** 78.36 : 134.92
Toluene by GC	TM245	**107.0** 79.00 : 121.96

PAH Spec MS - Aqueous (W)

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 1713
Acenaphthene by GCMS	TM178	**106.0** 85.60 : 119.20
Acenaphthylene by GCMS	TM178	**105.6** 85.28 : 115.28
Anthracene by GCMS	TM178	**106.8** 63.28 : 135.04
Benz(a)anthracene by GCMS	TM178	**106.4** 82.80 : 126.00
Benzo(a)pyrene by GCMS	TM178	**108.0** 89.60 : 125.60
Benzo(b)fluoranthene by GCMS	TM178	**105.2** 83.60 : 123.44
Benzo(ghi)perylene by GCMS	TM178	**101.2** 79.44 : 113.28
Benzo(k)fluoranthene by GCMS	TM178	**118.4** 84.60 : 146.28
Chrysene by GCMS	TM178	**111.2** 79.00 : 124.84
Dibenzo(ah)anthracene by GCMS	TM178	**104.8** 73.28 : 112.88
Fluoranthene by GCMS	TM178	**113.2** 77.08 : 123.88
Fluorene by GCMS	TM178	**108.0** 83.20 : 124.00
Indeno(123cd)pyrene by GCMS	TM178	**98.8** 77.84 : 104.72
Naphthalene by GCMS	TM178	**111.2** 83.48 : 122.12
Phenanthrene by GCMS	TM178	**111.2** 80.12 : 119.96
Pyrene by GCMS	TM178	**113.6** 76.20 : 128.28

PCB Congeners - Aqueous (W)

Component	Method Code	QC 1719
PCB congener 101	TM197	60.09 : 116.40
PCB congener 126	TM197	57.93 : 119.82
PCB congener 153	TM197	62.30 : 116.99
PCB congener 180	TM197	59.13 : 117.99
PCB congener 28	TM197	60.05 : 117.23

pH Value

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

pH Value

Component	Method Code	QC 1793	QC 1722	QC 1752	QC 1723	QC 1710	QC 1765
pH	TM256	**100.94** 99.20 : 102.14	**101.35** 99.19 : 102.43	**102.02** 99.87 : 102.29	**101.48** 99.19 : 102.43	**100.27** 99.19 : 102.43	**101.48** 99.20 : 102.14

Silicon Dissolved by ICP-OES

Component	Method Code	QC 1731	QC 1793
Silicon	TM129	**107.5** 83.33 : 108.33	**106.67** 83.33 : 108.33

SVOC MS (W) - Aqueous

Component	Method Code	QC 1769	QC 1796
4-Bromophenylphenylether	TM176	**77.92** 54.32 : 116.91	**88.8** 54.32 : 116.91
Benzo(a)anthracene	TM176	**84.8** 56.24 : 120.56	**93.6** 56.24 : 120.56
Benzo(a)pyrene	TM176	**90.4** 59.36 : 117.68	**98.4** 59.36 : 117.68
Butylbenzyl phthalate	TM176	**78.24** 45.10 : 118.90	**85.6** 45.10 : 118.90
Hexachlorobutadiene	TM176	**56.88** 49.76 : 92.00	**83.2** 49.76 : 92.00
Naphthalene	TM176	**81.6** 63.60 : 123.60	**96.8** 63.60 : 123.60
Nitrobenzene	TM176	**79.84** 61.40 : 115.88	**91.2** 61.40 : 115.88
Phenol	TM176	**48.08** 39.44 : 60.56	**56.08** 39.44 : 60.56

Total Metals by ICP-MS

Component	Method Code	QC 1739	QC 1719
Aluminium	TM152	**96.33** 89.90 : 110.02	**100.33** 89.90 : 110.02
Antimony	TM152	**107.67** 80.45 : 122.65	**103.33** 80.45 : 122.65
Arsenic	TM152	**101.0** 85.20 : 116.13	**98.5** 85.20 : 116.13
Barium	TM152	**99.33** 92.02 : 112.48	**99.17** 92.02 : 112.48
Beryllium	TM152	**98.17** 86.15 : 118.35	**100.0** 86.15 : 118.35
Bismuth	TM152	**106.67** 88.90 : 106.90	**97.17** 88.90 : 106.90
Boron	TM152	**93.0** 86.68 : 117.67	**101.67** 86.68 : 117.67
Cadmium	TM152	**104.0** 92.07 : 109.87	**99.5** 92.07 : 109.87

Total Metals by ICP-MS

		QC 1739	QC 1719
Calcium	TM152	**106.67** 81.38 : 119.09	**103.73** 81.38 : 119.09
Chromium	TM152	**96.17** 90.87 : 108.50	**98.17** 90.87 : 108.50
Cobalt	TM152	**89.0** 84.39 : 114.26	**92.83** 84.39 : 114.26
Copper	TM152	**100.17** 84.61 : 114.08	**99.67** 84.61 : 114.08
Iron	TM152	**94.0** 92.05 : 112.89	**98.0** 92.05 : 112.89
Lead	TM152	**102.83** 85.65 : 113.58	**98.5** 85.65 : 113.58
Lithium	TM152	**92.83** 89.26 : 119.04	**100.33** 89.26 : 119.04
Magnesium	TM152	**92.27** 89.21 : 108.96	**98.67** 89.21 : 108.96
Manganese	TM152	**93.67** 90.63 : 109.13	**98.5** 90.63 : 109.13
Molybdenum	TM152	**87.5** 87.00 : 108.89	**95.67** 87.00 : 108.89
Nickel	TM152	**98.5** 89.44 : 107.89	**99.5** 89.44 : 107.89
Phosphorus	TM152	**100.0** 90.52 : 115.47	**99.83** 90.52 : 115.47
Potassium	TM152	**97.6** 86.97 : 112.46	**100.0** 86.97 : 112.46
Selenium	TM152	**95.17** 88.44 : 113.86	**102.0** 88.44 : 113.86
Silver	TM152	**97.0** 76.93 : 112.73	**95.0** 76.93 : 112.73
Sodium	TM152	**91.47** 84.47 : 113.44	**100.8** 84.47 : 113.44
Strontium	TM152	**95.33** 90.72 : 114.82	**99.33** 90.72 : 114.82
Tellurium	TM152	**103.0** 86.97 : 108.87	**101.5** 86.97 : 108.87
Thallium	TM152	**102.67** 80.92 : 114.72	**97.67** 80.92 : 114.72
Tin	TM152	**102.33** 90.79 : 108.79	**101.0** 90.79 : 108.79
Titanium	TM152	**97.67** 90.08 : 111.18	**99.83** 90.08 : 111.18
Uranium	TM152	**95.83** 90.58 : 113.28	**95.33** 90.58 : 113.28
Vanadium	TM152	**97.17** 88.43 : 114.30	**99.0** 88.43 : 114.30
Zinc	TM152	**97.0** 86.52 : 115.27	**100.0** 86.52 : 115.27

VOC MS (W)

CERTIFICATE OF ANALYSIS

SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

VOC MS (W)

Component	Method Code	QC 1763	QC 1746
1,1,1,2-Tetrachloroethane	TM208	**93.5** 81.85 : 113.65	**97.0** 79.47 : 113.27
1,1,1-Trichloroethane	TM208	**88.5** 81.48 : 111.75	**99.5** 81.01 : 112.00
1,1-Dichloroethane	TM208	**87.0** 79.60 : 118.57	**101.5** 82.09 : 116.41
1,2-Dichloroethane	TM208	**90.5** 77.15 : 121.46	**98.0** 80.28 : 123.63
2-Chlorotoluene	TM208	**91.0** 81.26 : 111.62	**95.5** 78.99 : 111.63
4-Chlorotoluene	TM208	**90.0** 81.39 : 113.40	**96.0** 79.41 : 112.80
Benzene	TM208	**89.0** 81.22 : 118.60	**103.5** 83.14 : 116.86
Bromomethane	TM208	**89.0** 75.42 : 133.17	**94.0** 78.66 : 116.49
Carbontetrachloride	TM208	**93.5** 82.11 : 114.90	**101.5** 81.73 : 114.22
Chlorobenzene	TM208	**91.5** 81.61 : 113.62	**97.0** 84.54 : 112.32
Chloroform	TM208	**94.5** 80.05 : 117.79	**100.5** 83.67 : 118.08
Chloromethane	TM208	**75.0** 58.04 : 120.53	**85.5** 60.45 : 118.08
Cis-1,2-Dichloroethene	TM208	**97.0** 82.23 : 124.89	**103.0** 88.44 : 126.72
Dichloromethane	TM208	**87.5** 78.23 : 120.65	**96.0** 81.65 : 120.83
Ethylbenzene	TM208	**88.5** 79.55 : 110.51	**98.0** 78.70 : 114.10
Hexachlorobutadiene	TM208	**95.5** 70.94 : 118.10	**89.5** 66.83 : 108.27
o-Xylene	TM208	**88.0** 79.71 : 111.54	**93.5** 78.40 : 110.68
p/m-Xylene	TM208	**88.0** 79.64 : 111.14	**96.25** 79.66 : 110.44
Tert-butyl methyl ether	TM208	**80.5** 70.18 : 125.95	**91.5** 68.23 : 127.69
Tetrachloroethene	TM208	**95.5** 79.34 : 112.46	**100.0** 81.10 : 112.63
Toluene	TM208	**90.0** 79.88 : 116.83	**99.0** 83.98 : 111.19
Trichloroethene	TM208	**91.0** 82.30 : 112.45	**96.5** 81.17 : 111.80
Vinyl Chloride	TM208	**82.0** 74.66 : 118.65	**95.0** 72.73 : 123.40

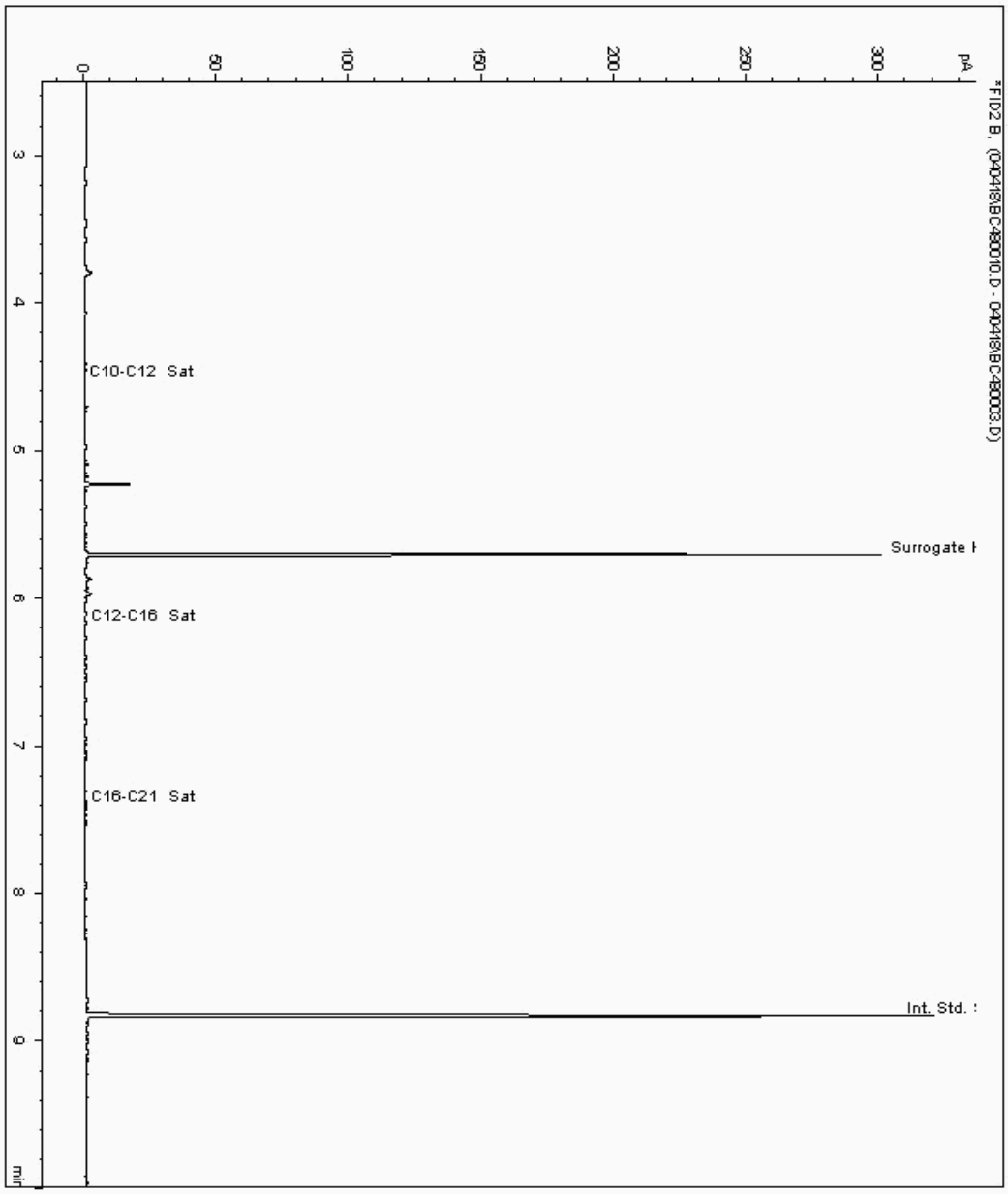
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17287941 **Sample ID :** WS-RPS-20 **Depth :** 1.36

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16228957-
Date Acquired : 04/04/2018 16:21:56 PM
Units : ppb
Dilution : SE WS-RPS-20[1.36] ->
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

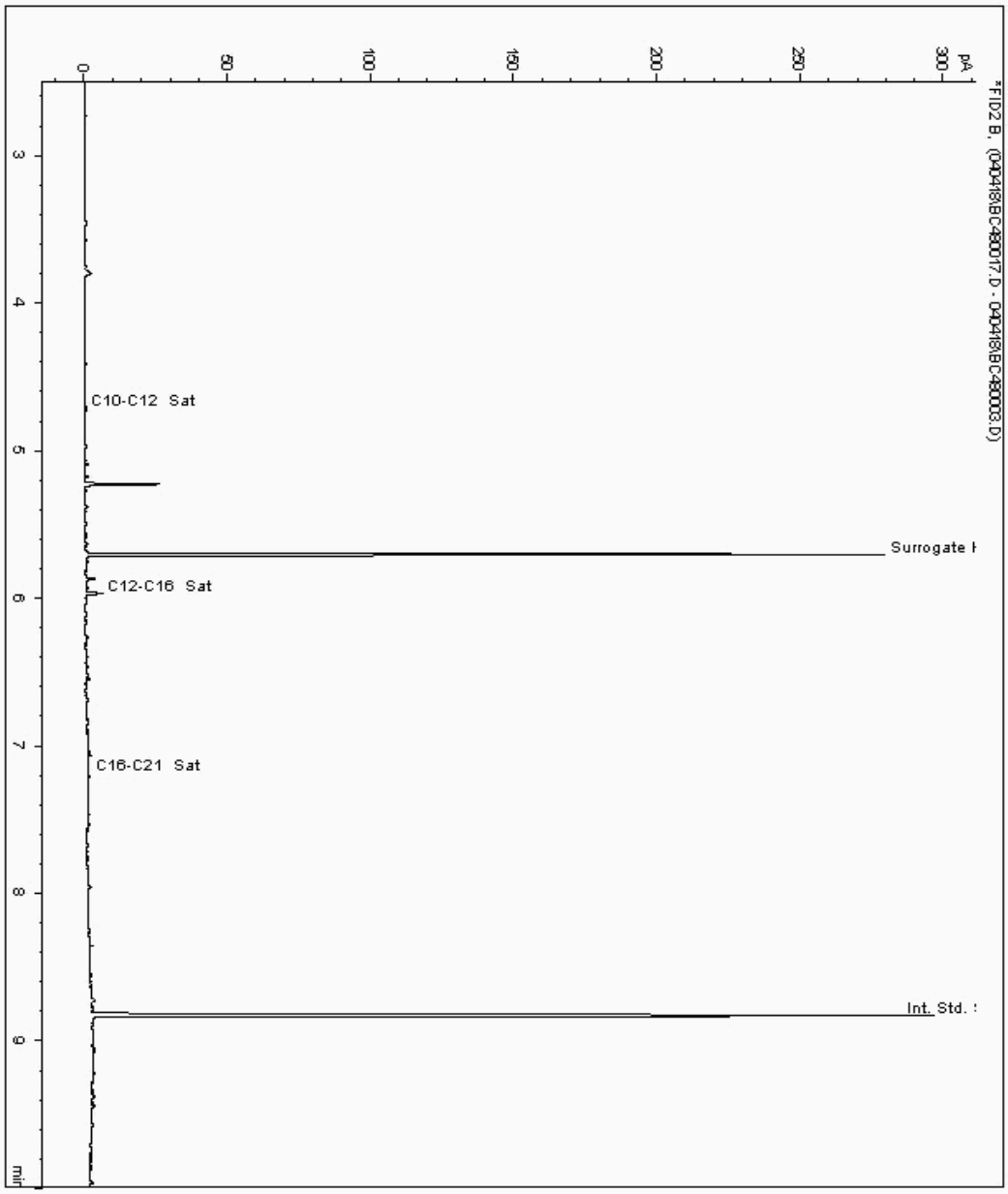
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17287968 **Sample ID :** CP-RPS-04a **Depth :** 1.86

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16228981-
Date Acquired : 04/04/2018 19:05:14 PM
Units : ppb
Dilution : SE CP-RPS-04A[1.86] ->
CF : 1
Multiplier : 0.025

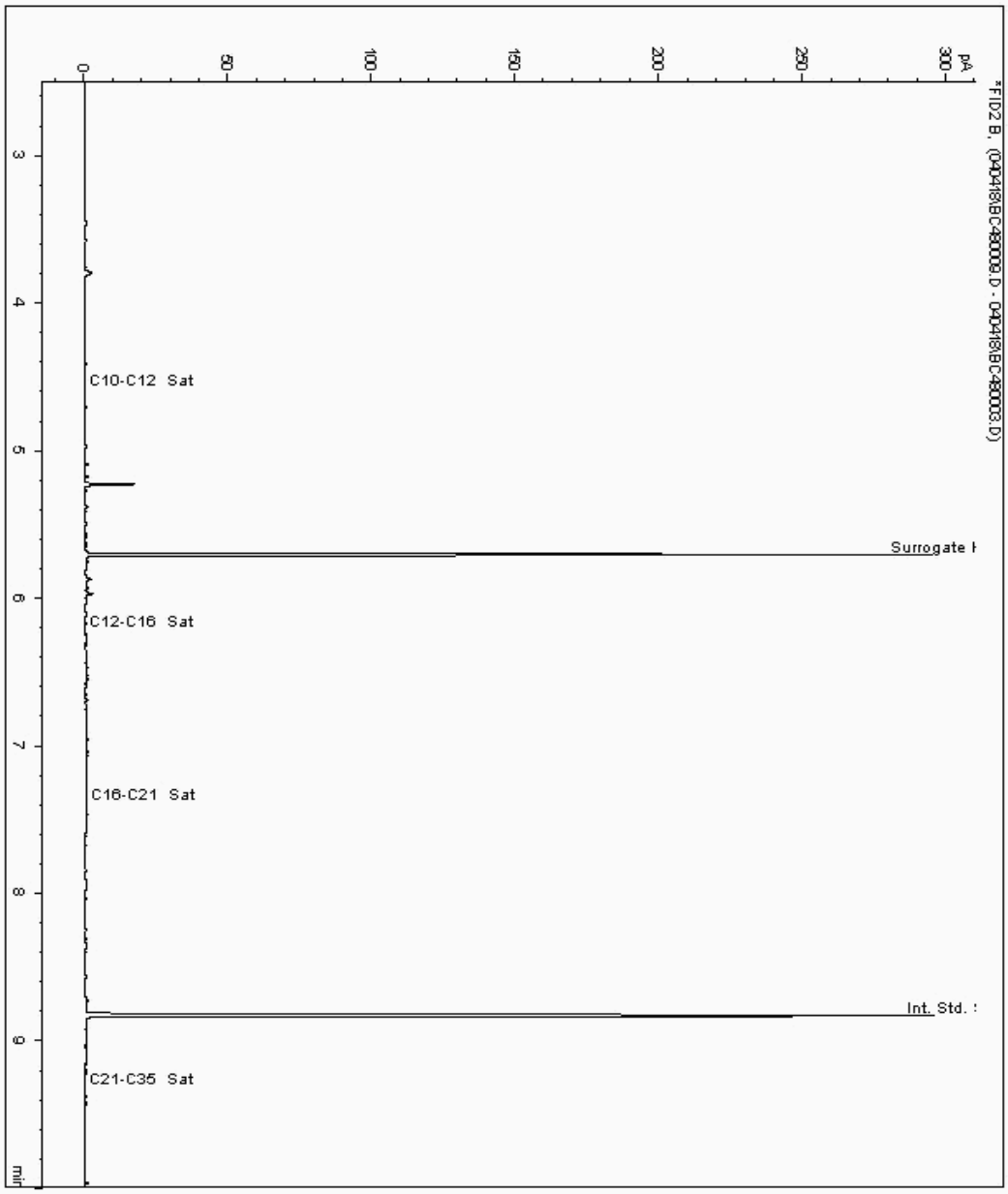


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17287996 **Sample ID :** WS-RPS-24 **Depth :** 1.46

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229066-
Date Acquired : 04/04/2018 15:58:17 PM
Units : ppb
Dilution : SE WS-RPS-24[1.46] ->
CF : 1
Multiplier : 0.025

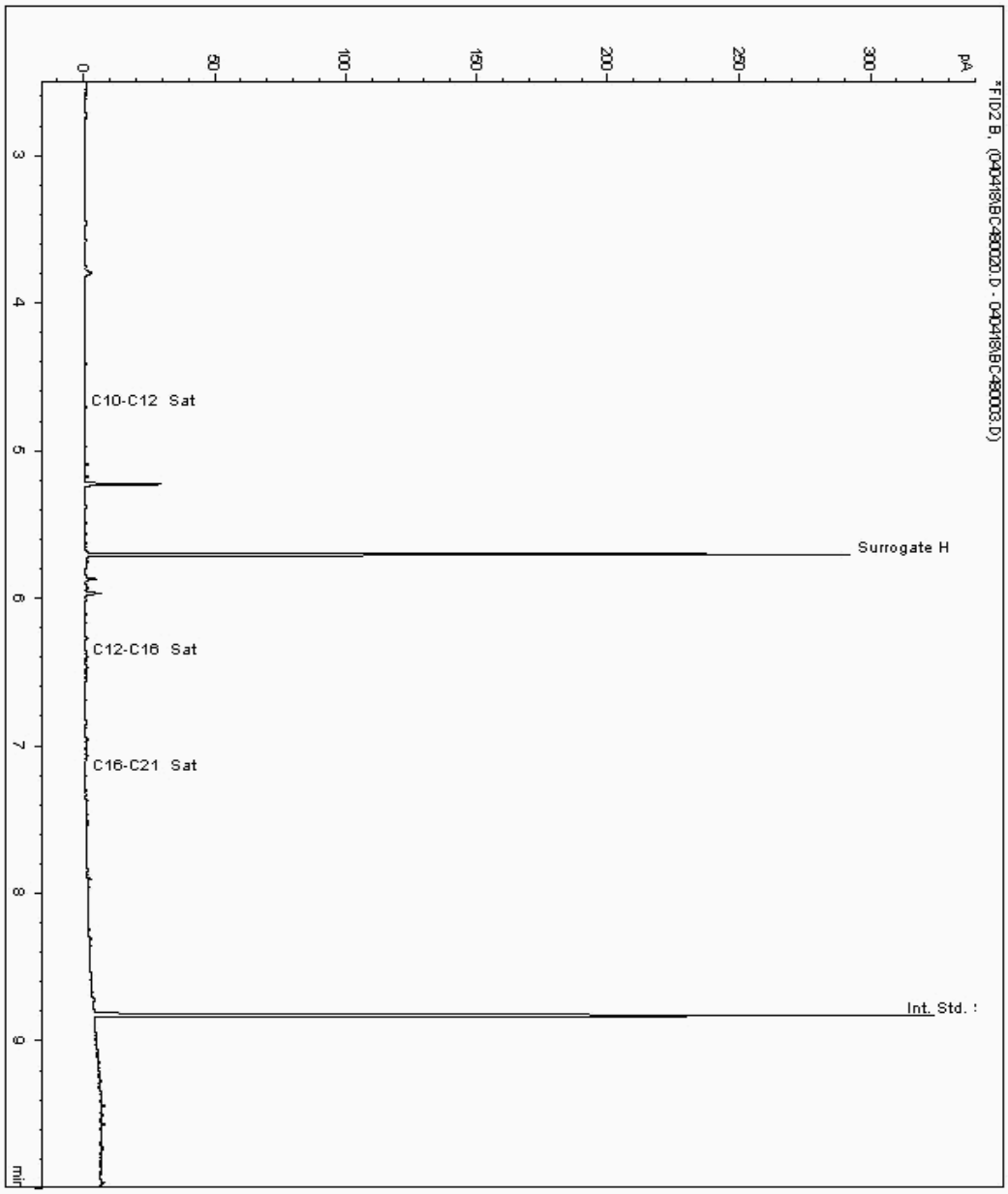


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17288009 **Sample ID :** CP-RPS-03 **Depth :** 1.03

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229014-
Date Acquired : 04/04/2018 20:15:04 PM
Units : ppb
Dilution : SE CP-RPS-03[1.03] ->
CF : 1
Multiplier : 0.025

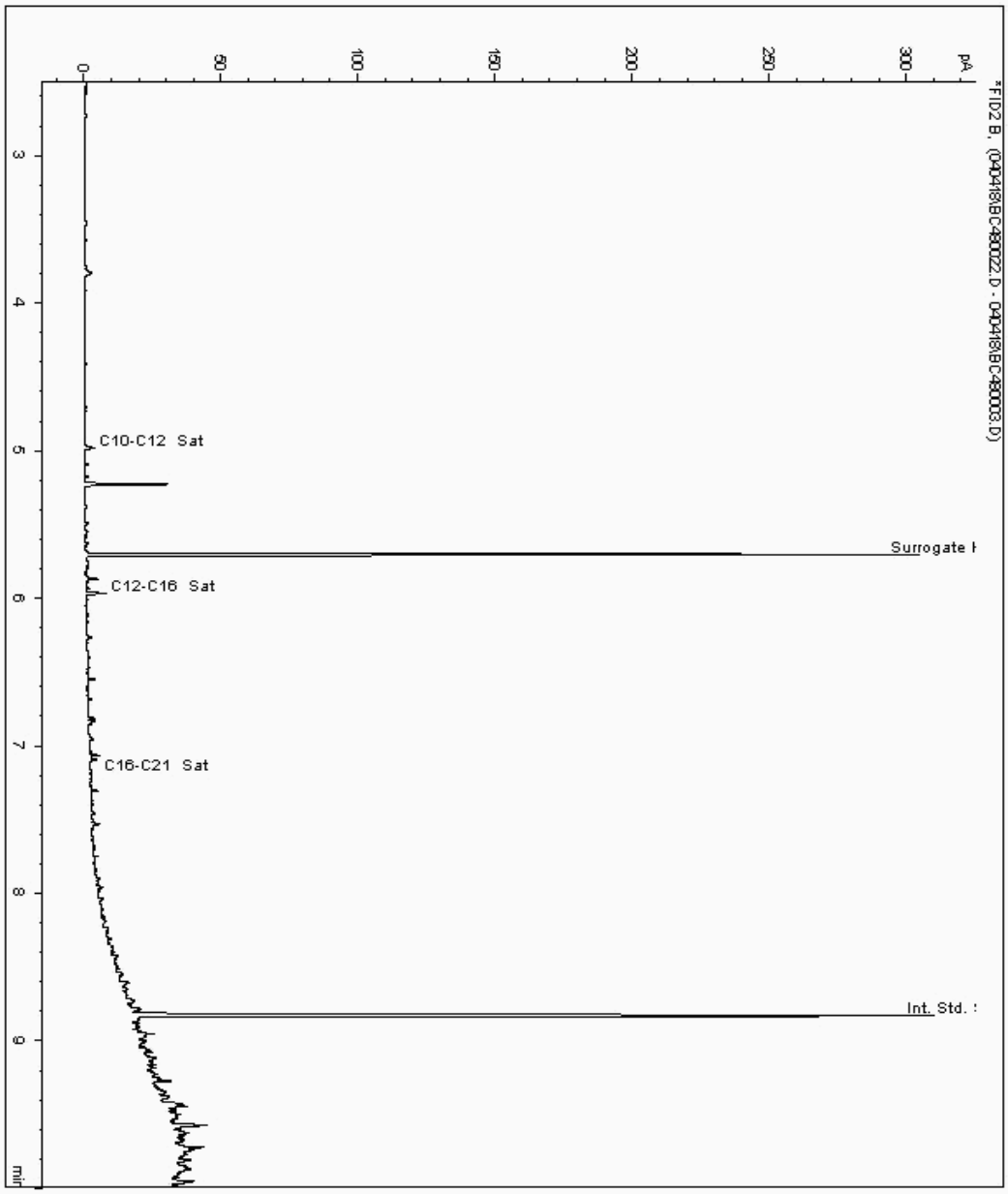


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17288023 **Sample ID :** BH-RPS-01 **Depth :** 1.62

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229121-
Date Acquired : 04/04/2018 21:01:39 PM
Units : ppb
Dilution : SE BH-RPS-01[1.62] ->
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

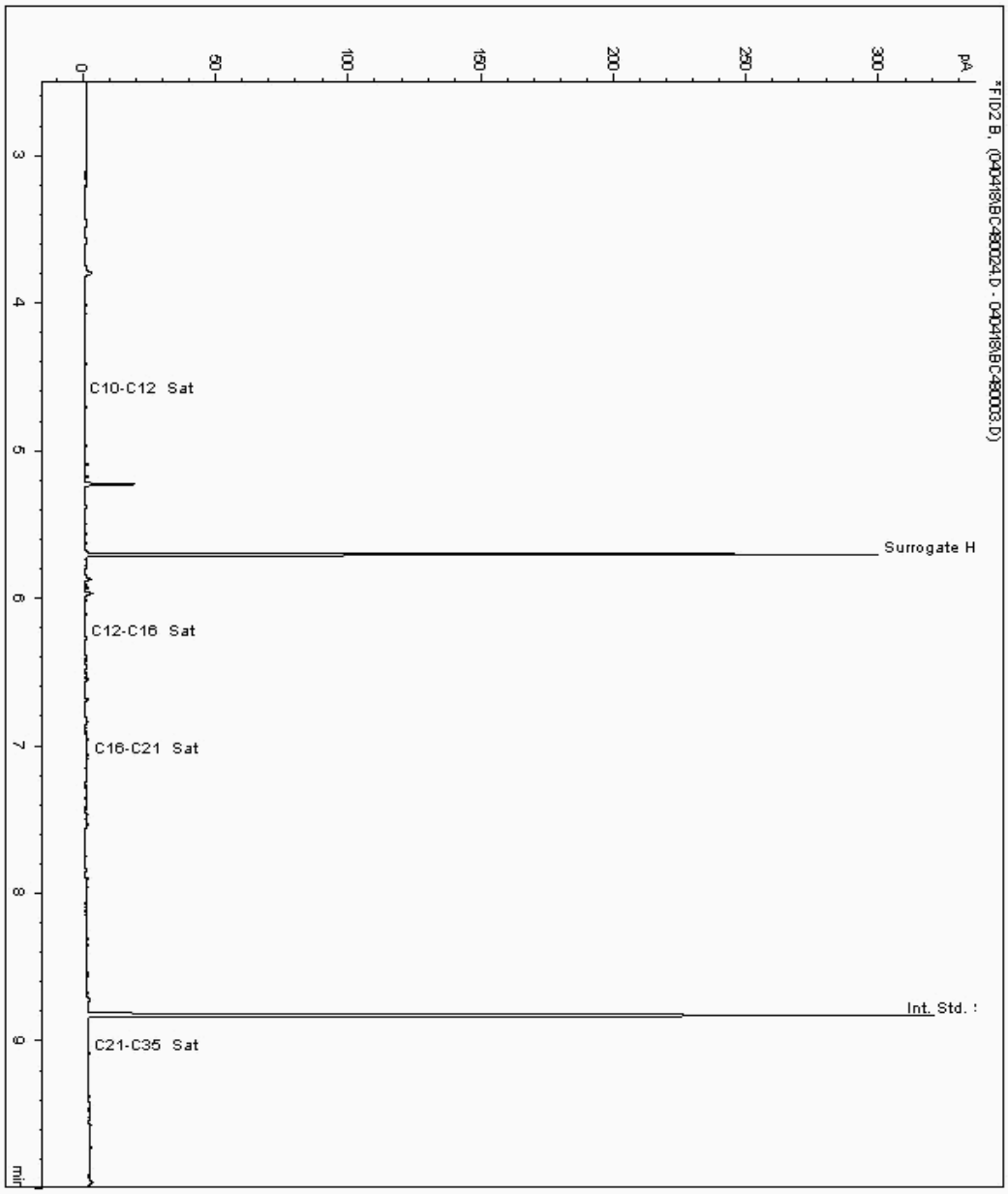
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17288024 **Sample ID :** BH-RPS-03 **Depth :** 2.36

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229488-
Date Acquired : 04/04/2018 21:48:03 PM
Units : ppb
Dilution : SE BH-RPS-03[2.36] ->
CF : 1
Multiplier : 0.025

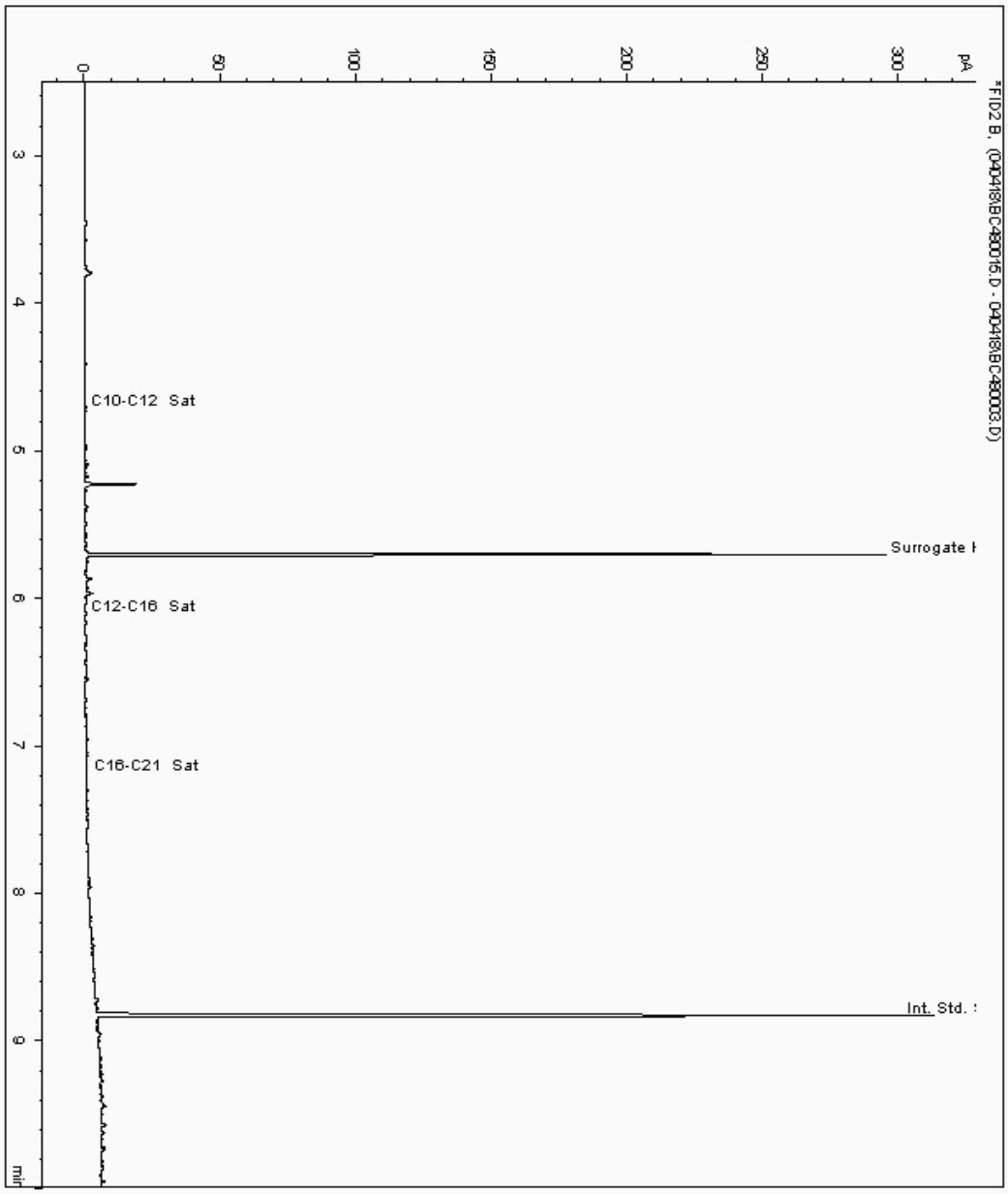


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17288054 **Sample ID :** BH-RPS-10 **Depth :** 1.60

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229087-
Date Acquired : 04/04/2018 18:18:31 PM
Units : ppb
Dilution : SE BH-RPS-10[1.60] ->
CF : 1
Multiplier : 0.025

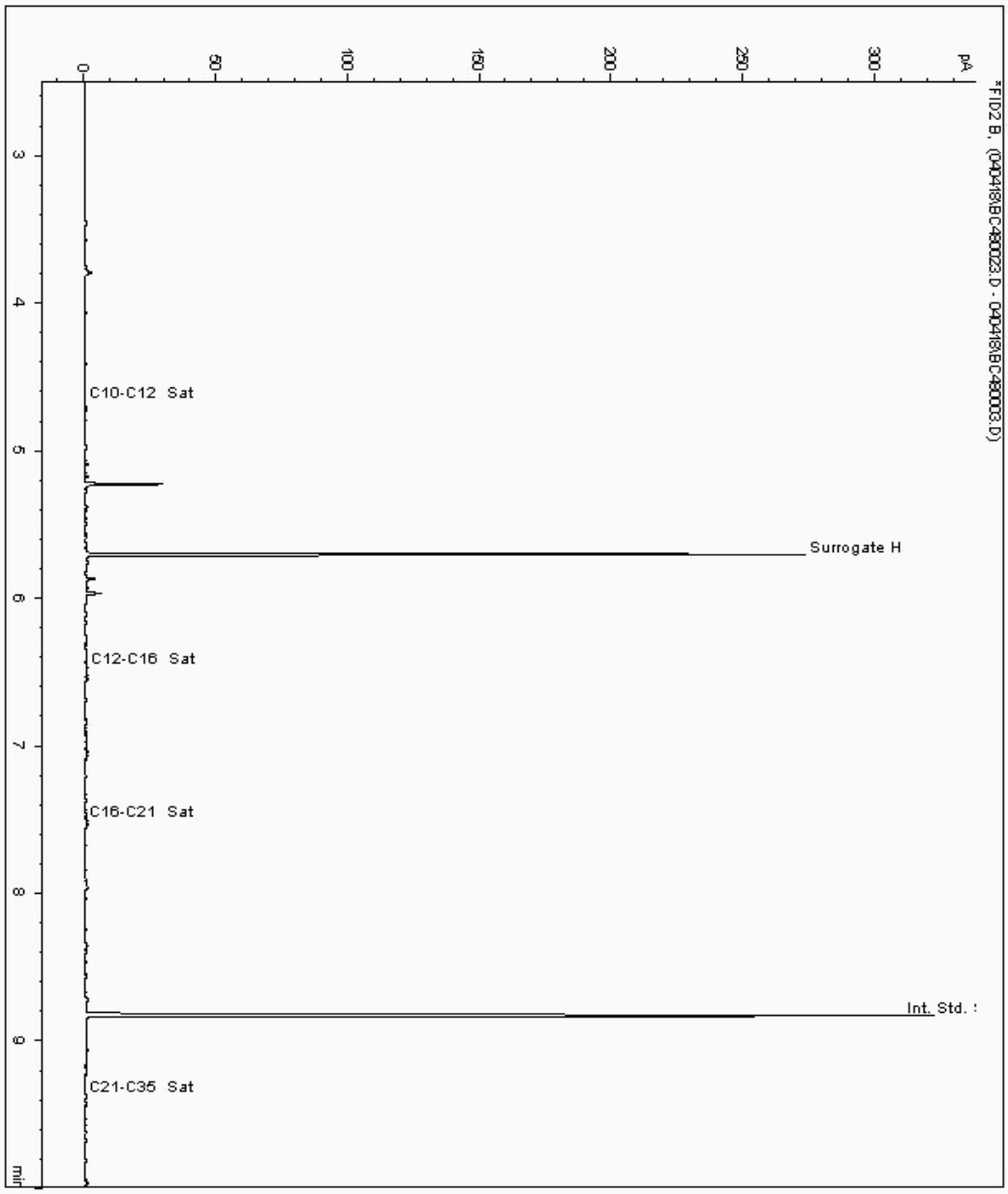


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17290942 **Sample ID :** WS-RPS-10 **Depth :** 1.05

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229192-
Date Acquired : 04/04/2018 21:24:49 PM
Units : ppb
Dilution : SE WS-RPS-10[1.05] ->
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

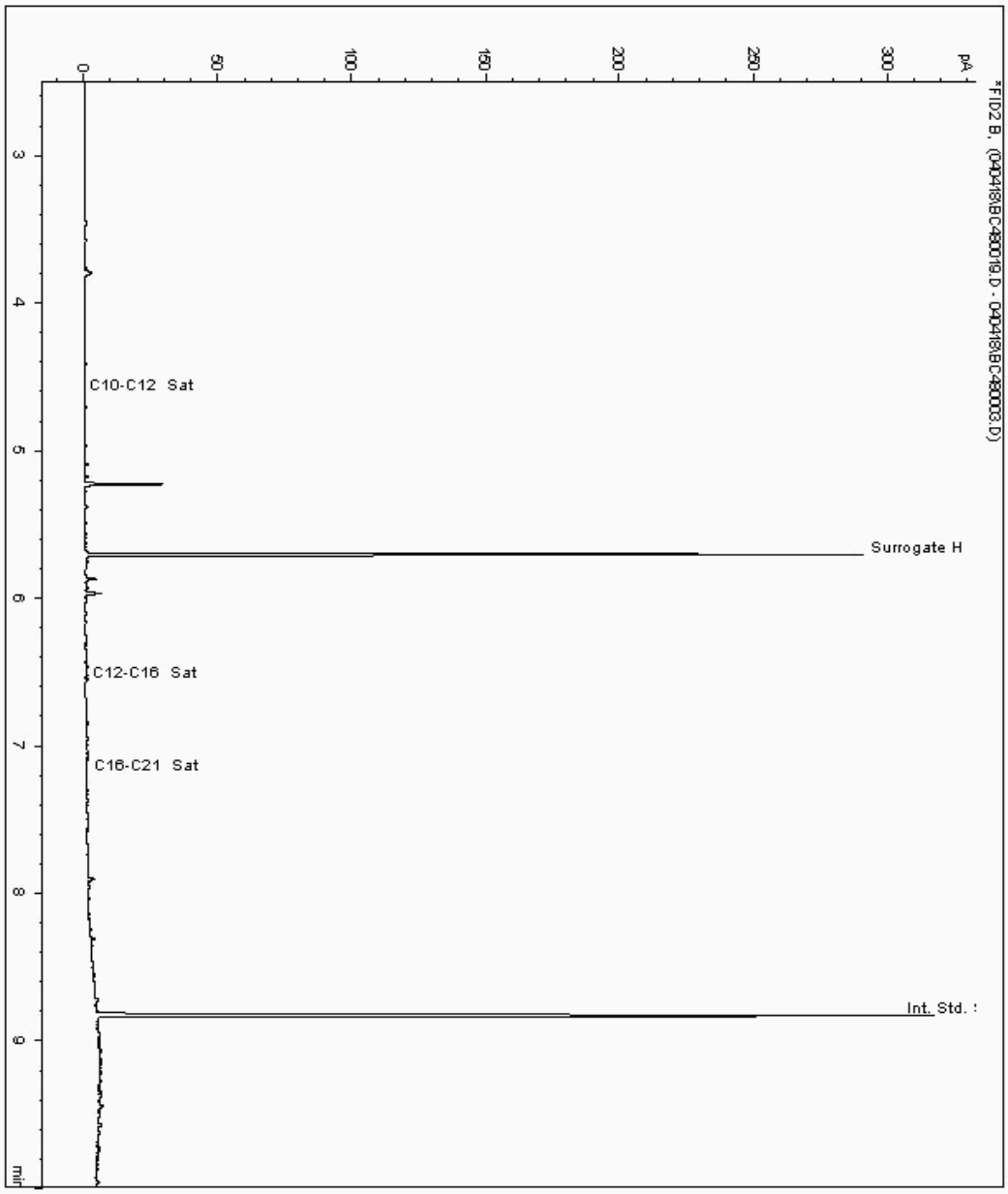
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17291028 **Sample ID :** BH-RPS-07 **Depth :** 1.25

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229234-
Date Acquired : 04/04/2018 19:51:52 PM
Units : ppb
Dilution : SE BH-RPS-07[1.25] ->
CF : 1
Multiplier : 0.025

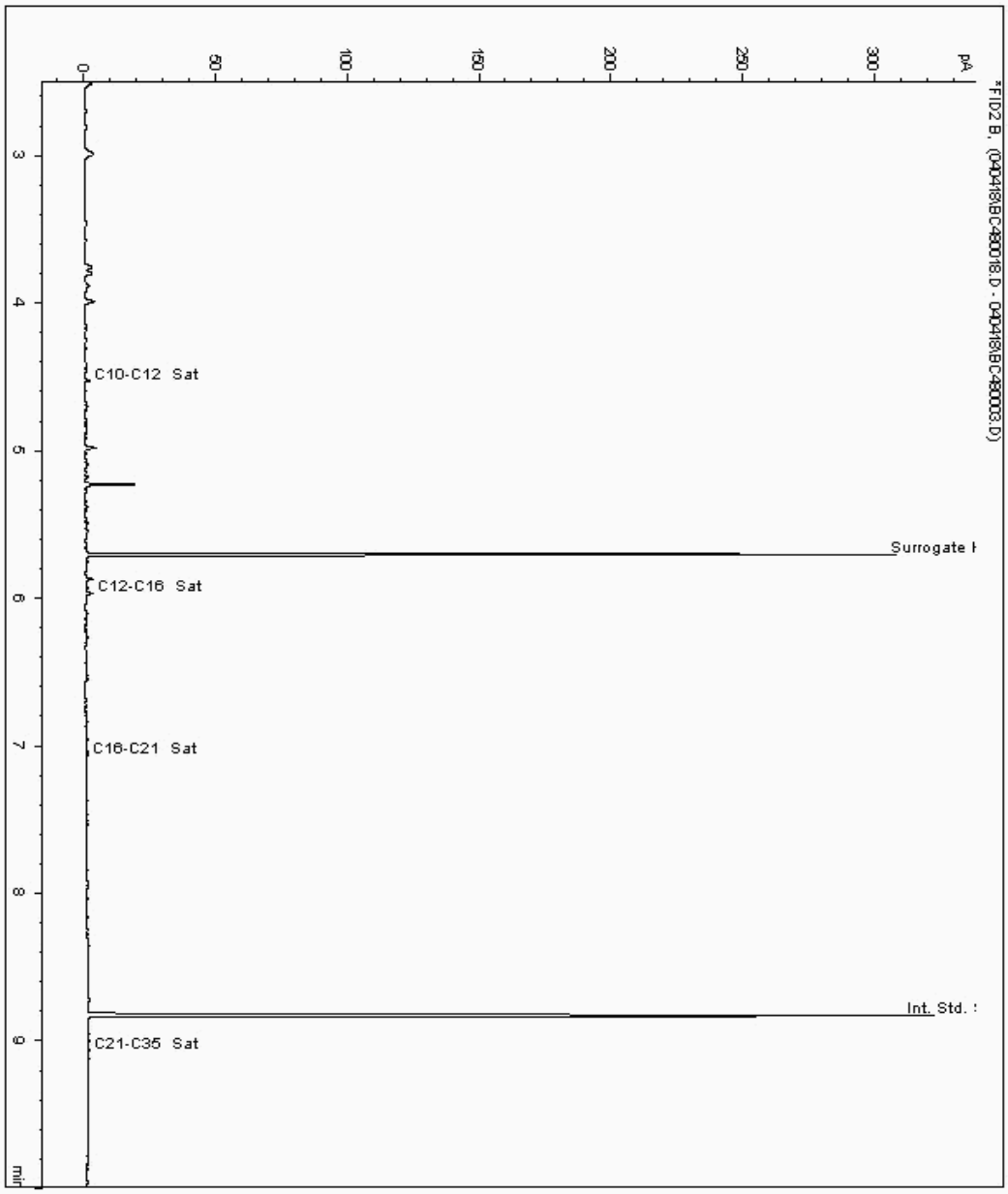


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17291141 **Sample ID :** BH-RPS-06 **Depth :** 0.87

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229161-
Date Acquired : 04/04/2018 19:28:25 PM
Units : ppb
Dilution : SE BH-RPS-06[0.87] ->
CF : 1
Multiplier : 0.025

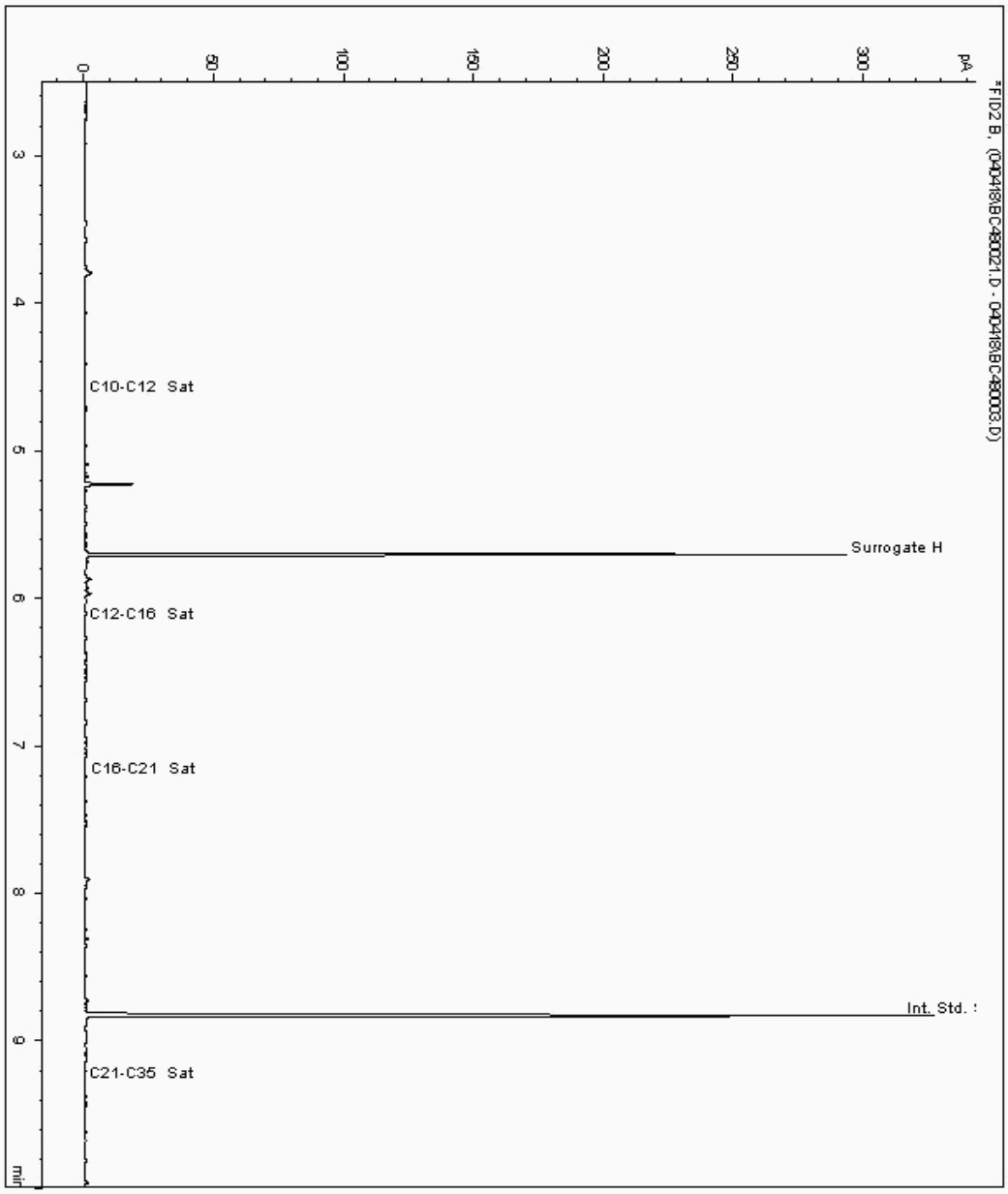


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17291219 **Sample ID :** BH-RPS-23a **Depth :** 2.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229267-
Date Acquired : 04/04/2018 20:38:14 PM
Units : ppb
Dilution : SE BH-RPS-23A[2.00] ->
CF : 1
Multiplier : 0.025

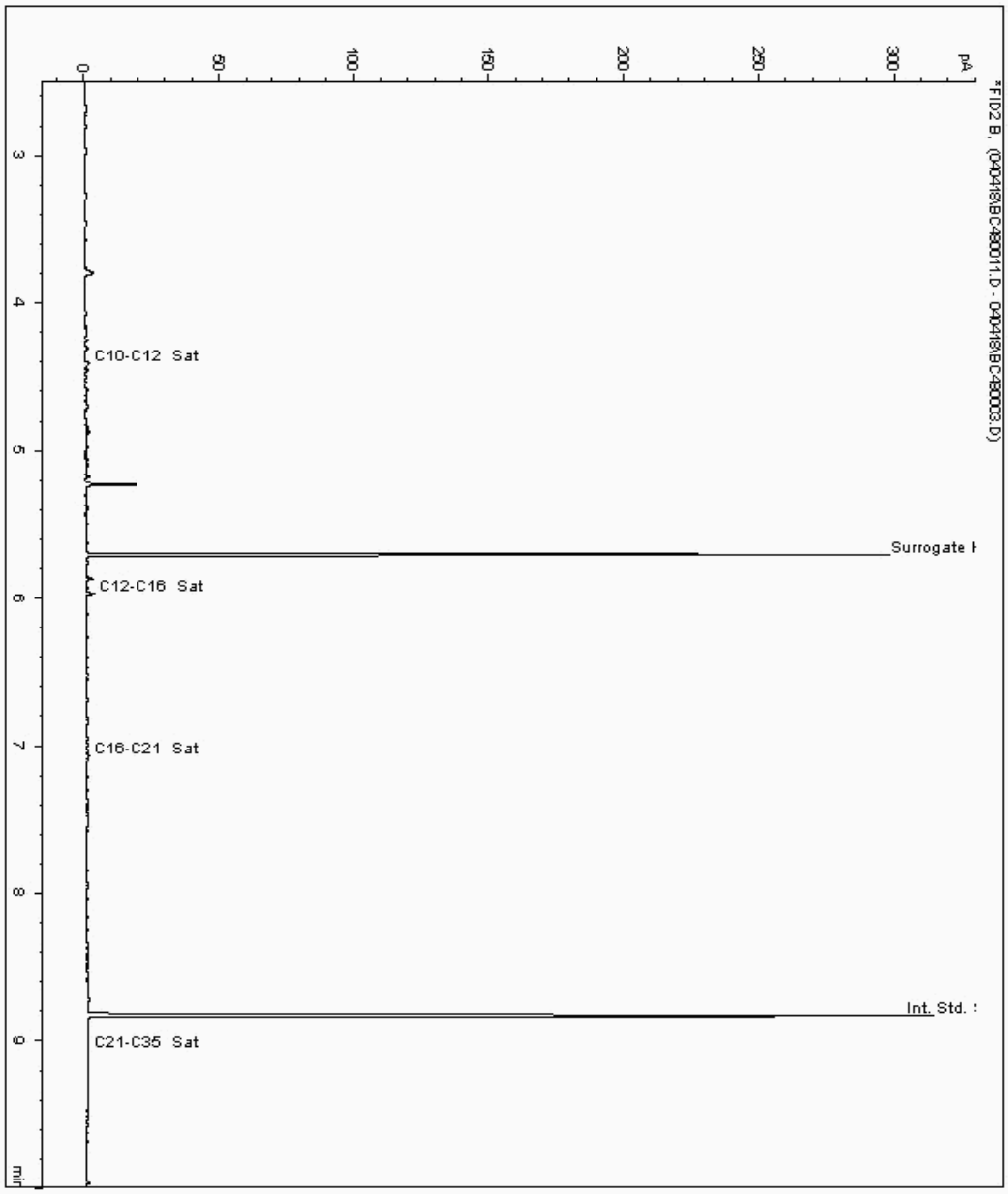


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17292072 **Sample ID :** WS-RPS-09 **Depth :** 1.08

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16228903-
Date Acquired : 04/04/2018 16:45:15 PM
Units : ppb
Dilution : SE WS-RPS-09[1.08] ->
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

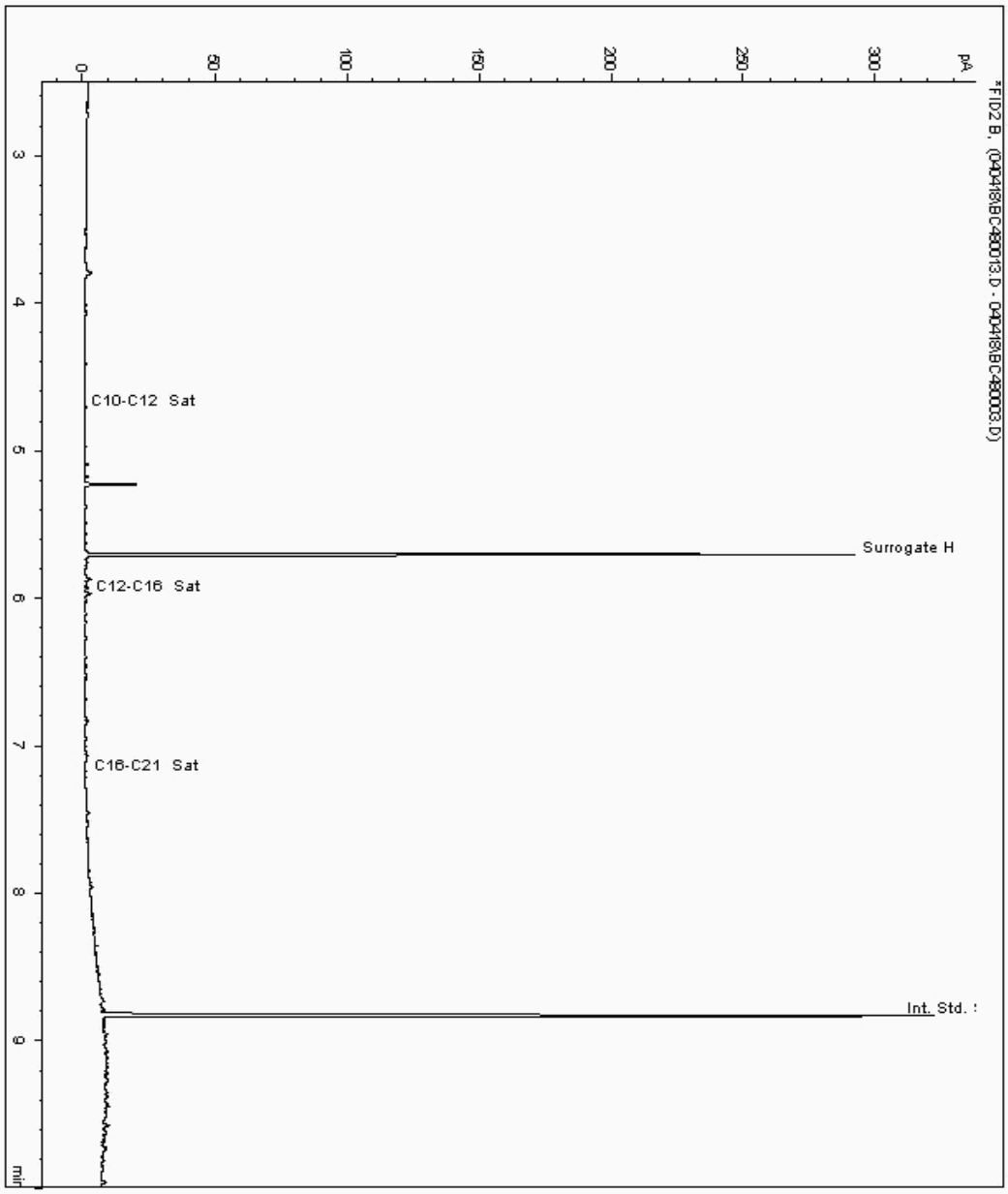
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17292375 **Sample ID :** BH-RPS-24 **Depth :** 0.84

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229320-
Date Acquired : 04/04/2018 17:32:01 PM
Units : ppb
Dilution : SE BH-RPS-24[0.84] ->
CF : 1
Multiplier : 0.025

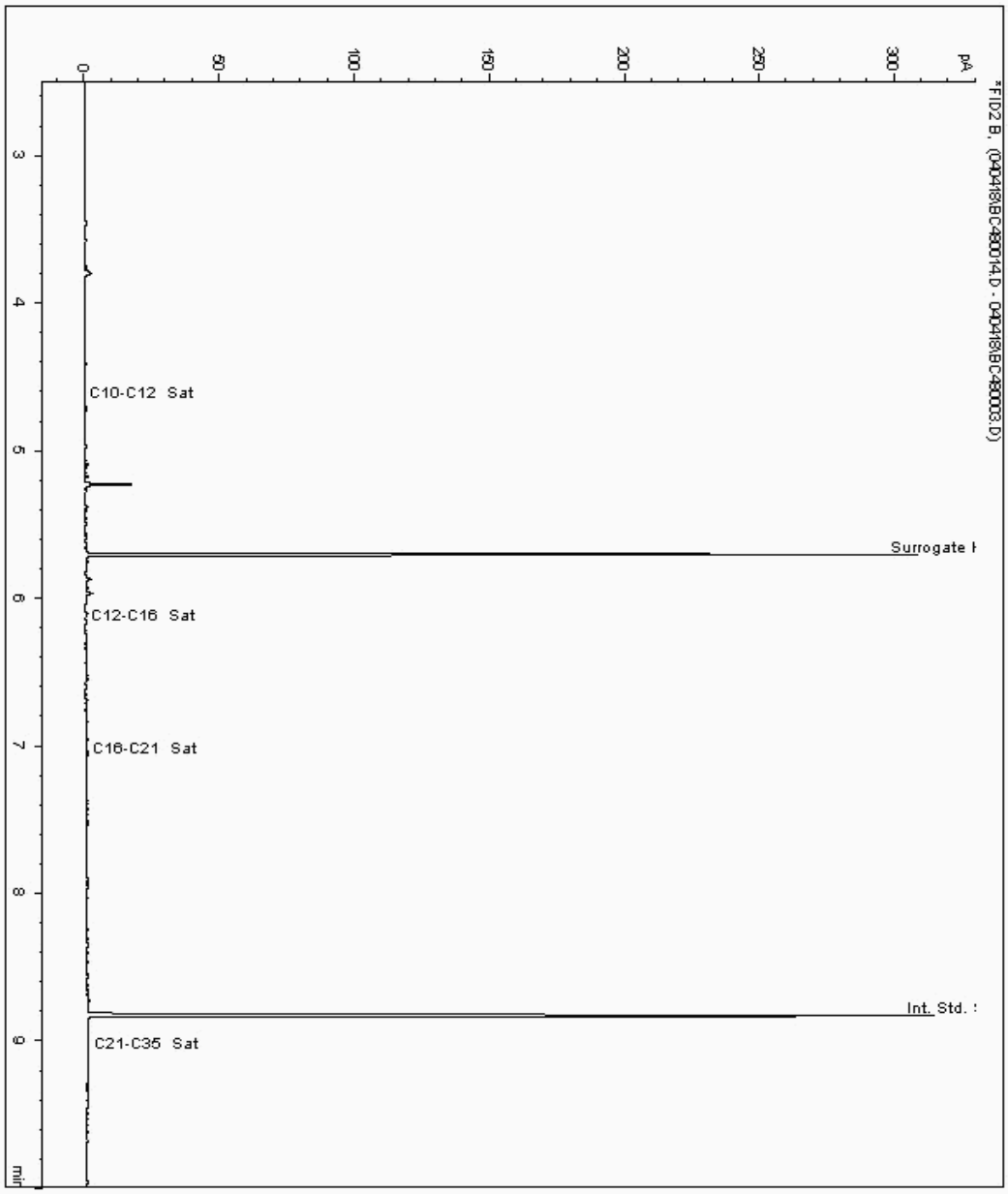


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17292426 **Sample ID :** WS-RPS-19 **Depth :** 2.52

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16228922-
Date Acquired : 04/04/2018 17:55:16 PM
Units : ppb
Dilution : SE WS-RPS-19[2.52] ->
CF : 1
Multiplier : 0.025

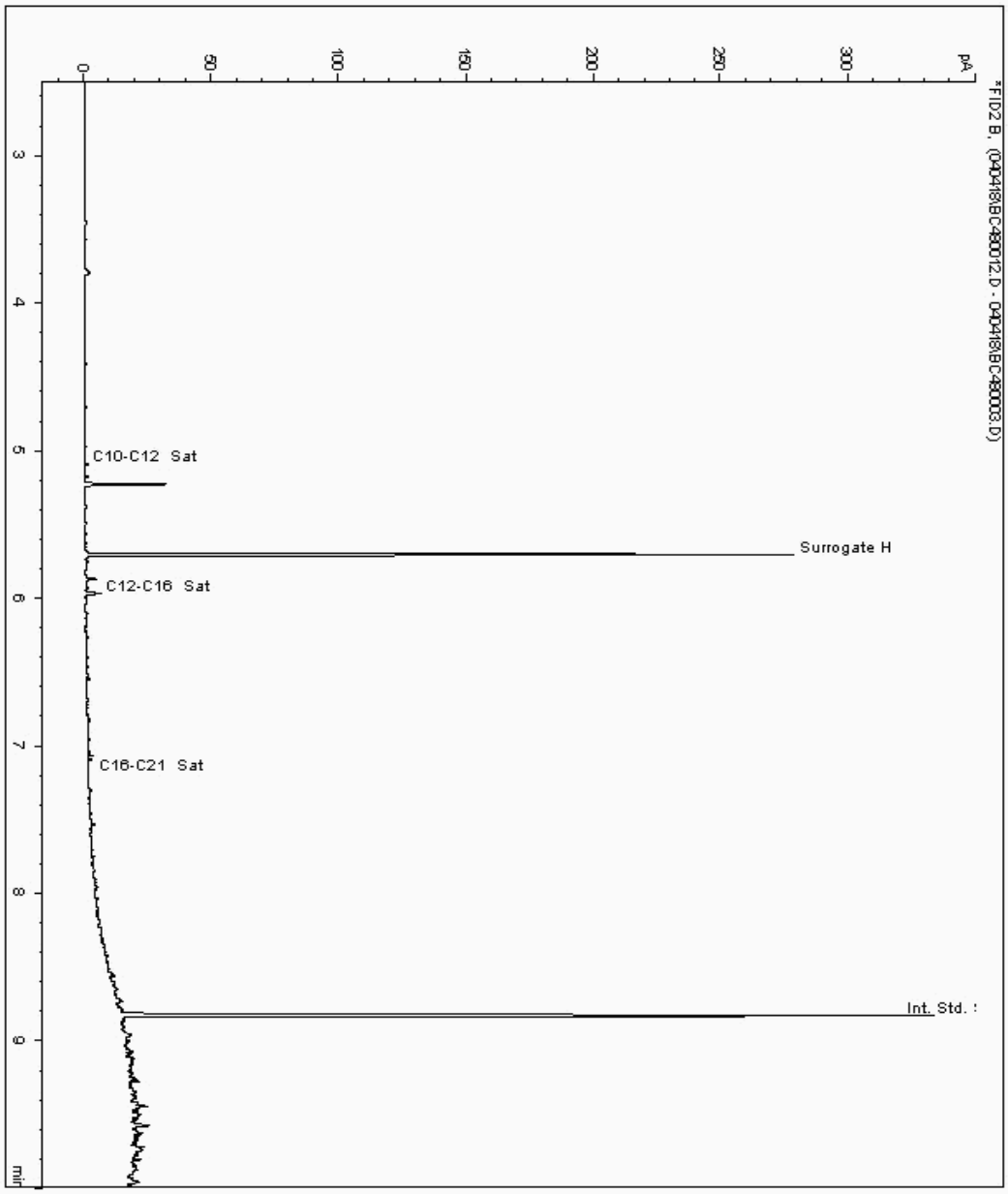


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17292460 **Sample ID :** BH-RPS-09 **Depth :** 1.10

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229405-
Date Acquired : 04/04/2018 17:08:31 PM
Units : ppb
Dilution : SE BH-RPS-09[1.10] ->
CF : 1
Multiplier : 0.025

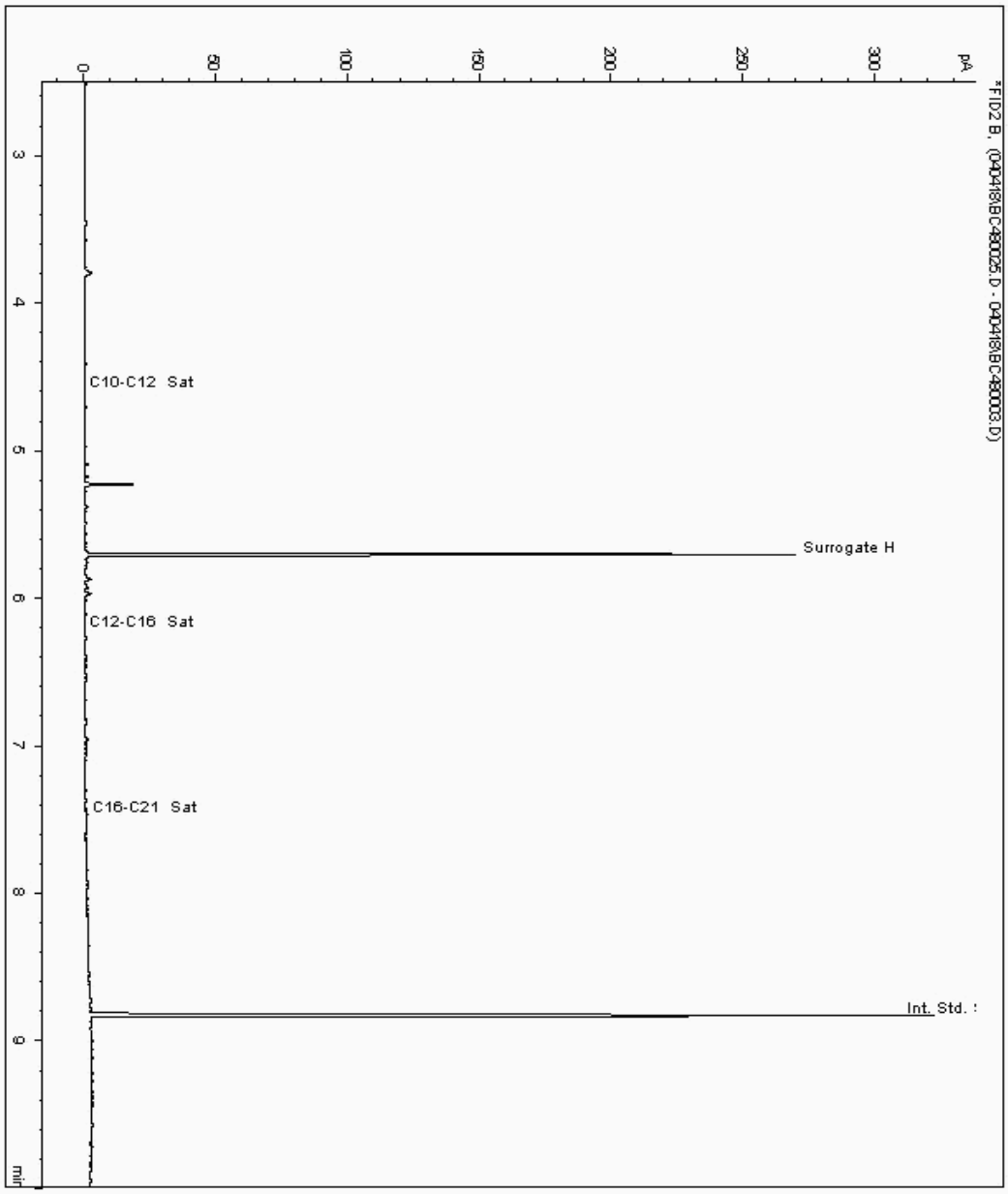


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17292466 **Sample ID :** BH-RPS-04 **Depth :** 1.64

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16229359-
Date Acquired : 04/04/2018 22:11:27 PM
Units : ppb
Dilution : SE BH-RPS-04[1.64] ->
CF : 1
Multiplier : 0.125

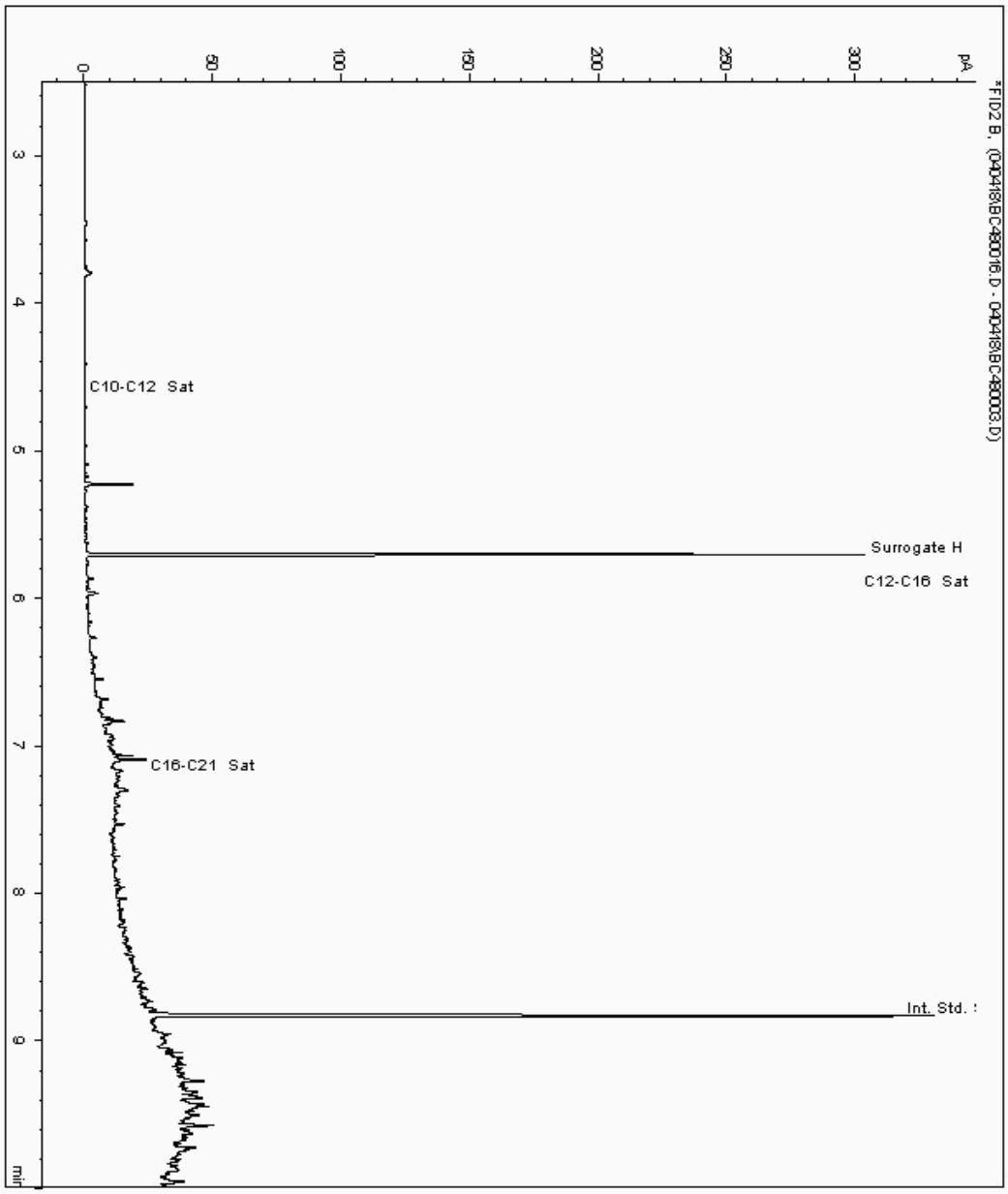


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 17292492 **Sample ID :** BH-RPS-05 **Depth :** 1.14

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16228870-
Date Acquired : 04/04/2018 18:42:01 PM
Units : ppb
Dilution : SE BH-RPS-05[1.14] ->
CF : 1
Multiplier : 0.025

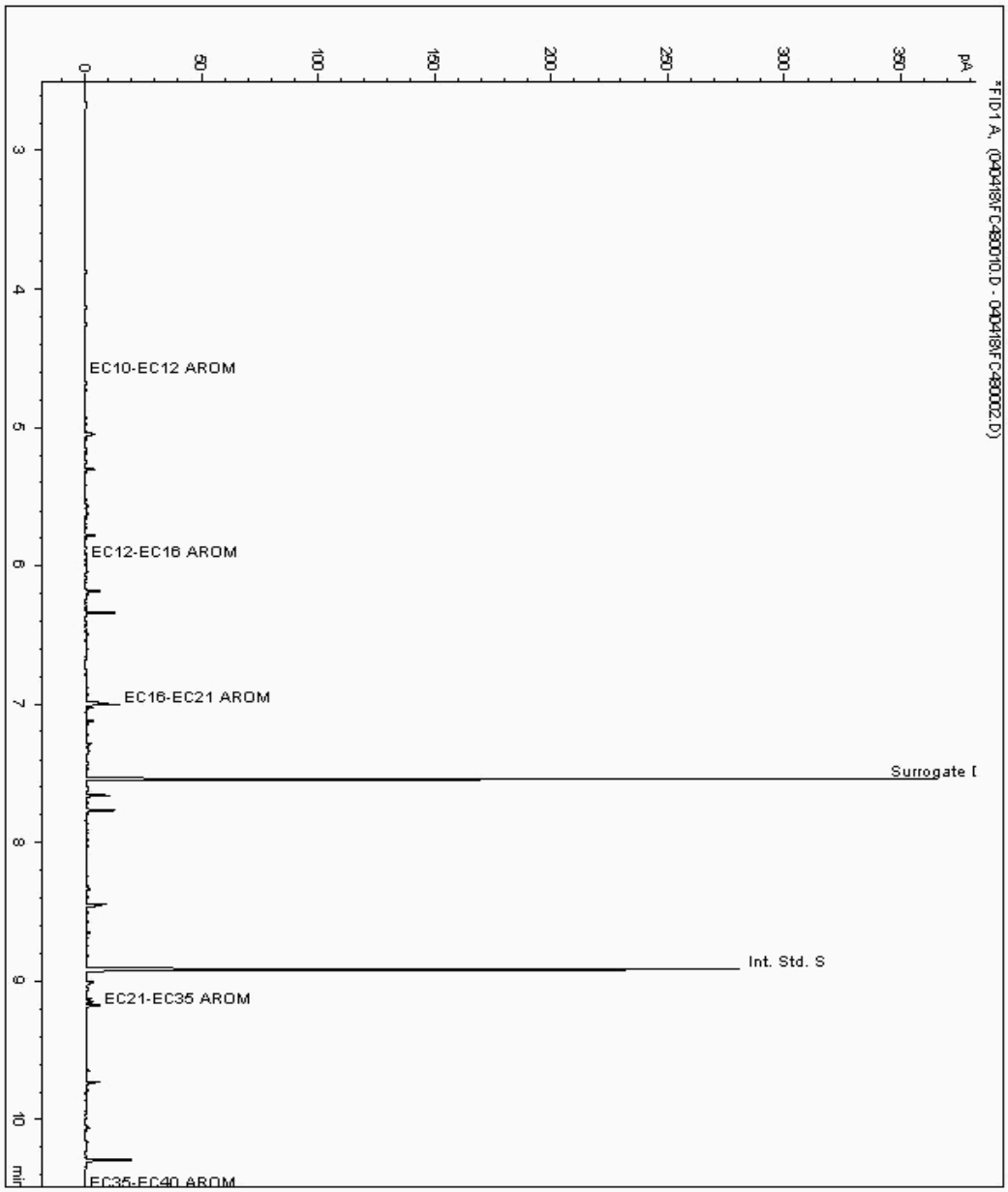


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17287941 **Sample ID :** WS-RPS-20 **Depth :** 1.36

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16228958-
Date Acquired : 04/04/2018 16:21:55 PM
Units : ppb
Dilution : SE WS-RPS-20[1.36] ->
CF : 1
Multiplier : 0.025

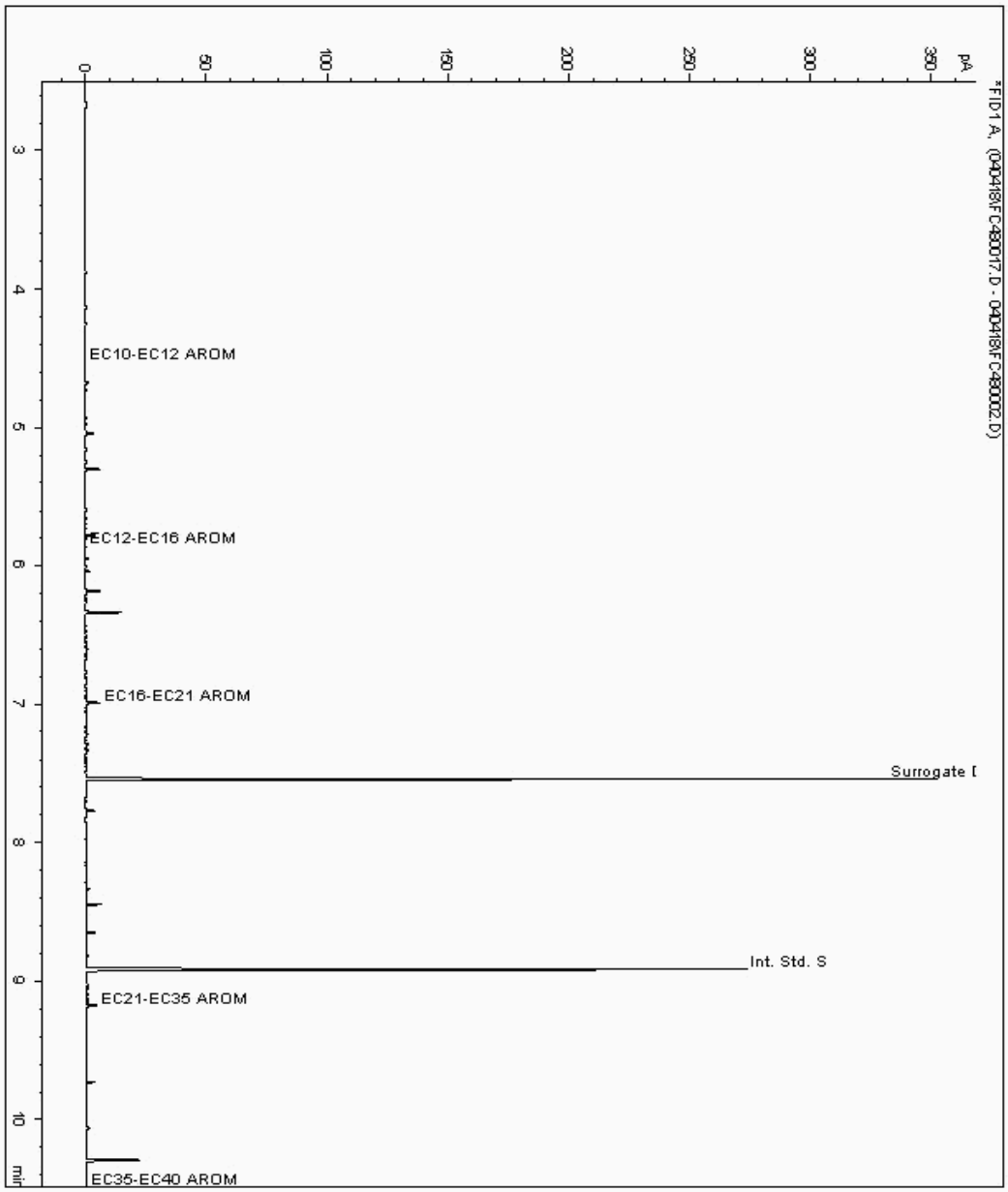


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17287968 **Sample ID :** CP-RPS-04a **Depth :** 1.86

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16228982-
Date Acquired : 04/04/2018 19:05:13 PM
Units : ppb
Dilution : SE CP-RPS-04A[1.86] ->
CF : 1
Multiplier : 0.025

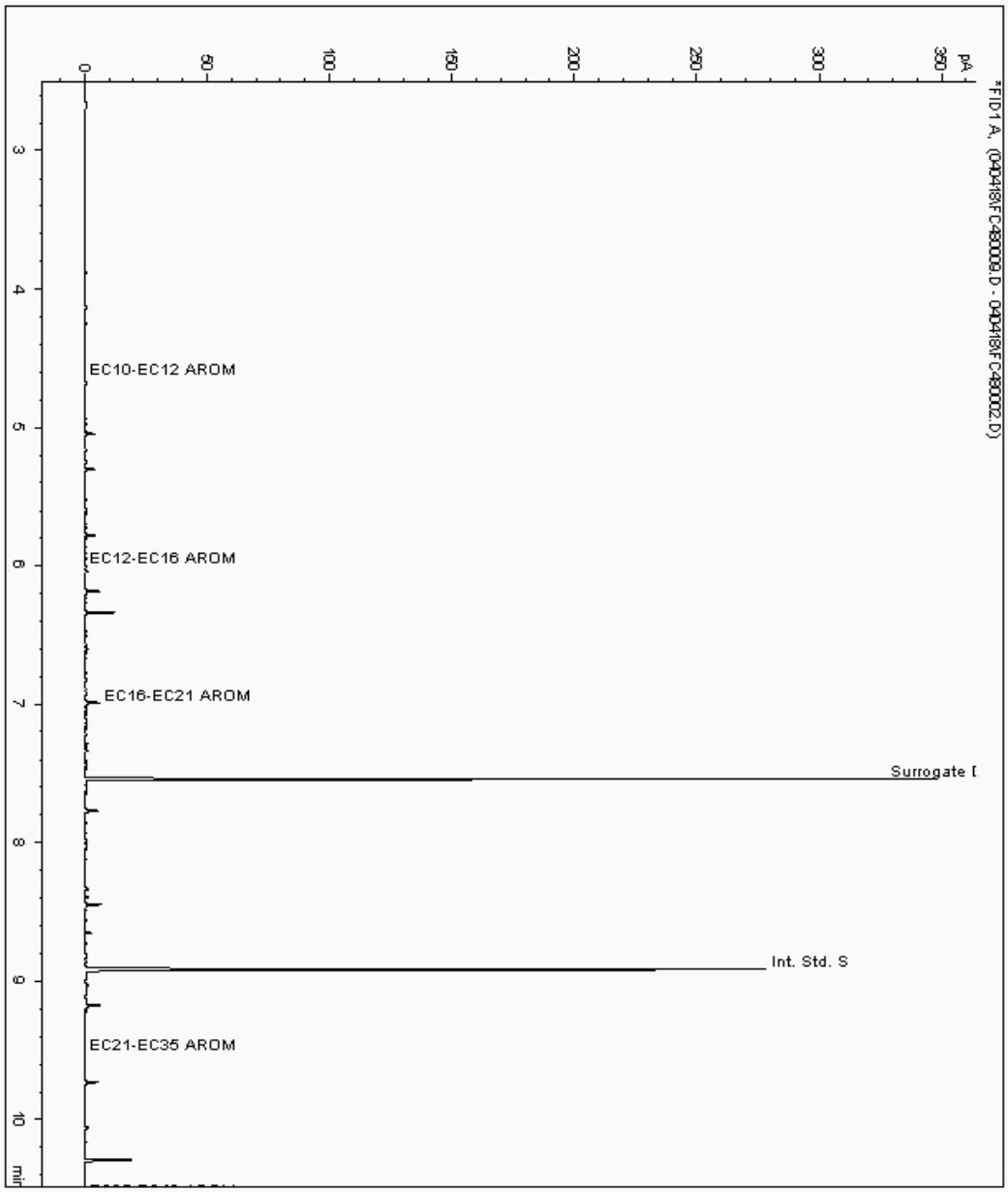


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17287996 **Sample ID :** WS-RPS-24 **Depth :** 1.46

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229067-
Date Acquired : 04/04/2018 15:58:17 PM
Units : ppb
Dilution : SE WS-RPS-24[1.46] ->
CF : 1
Multiplier : 0.025

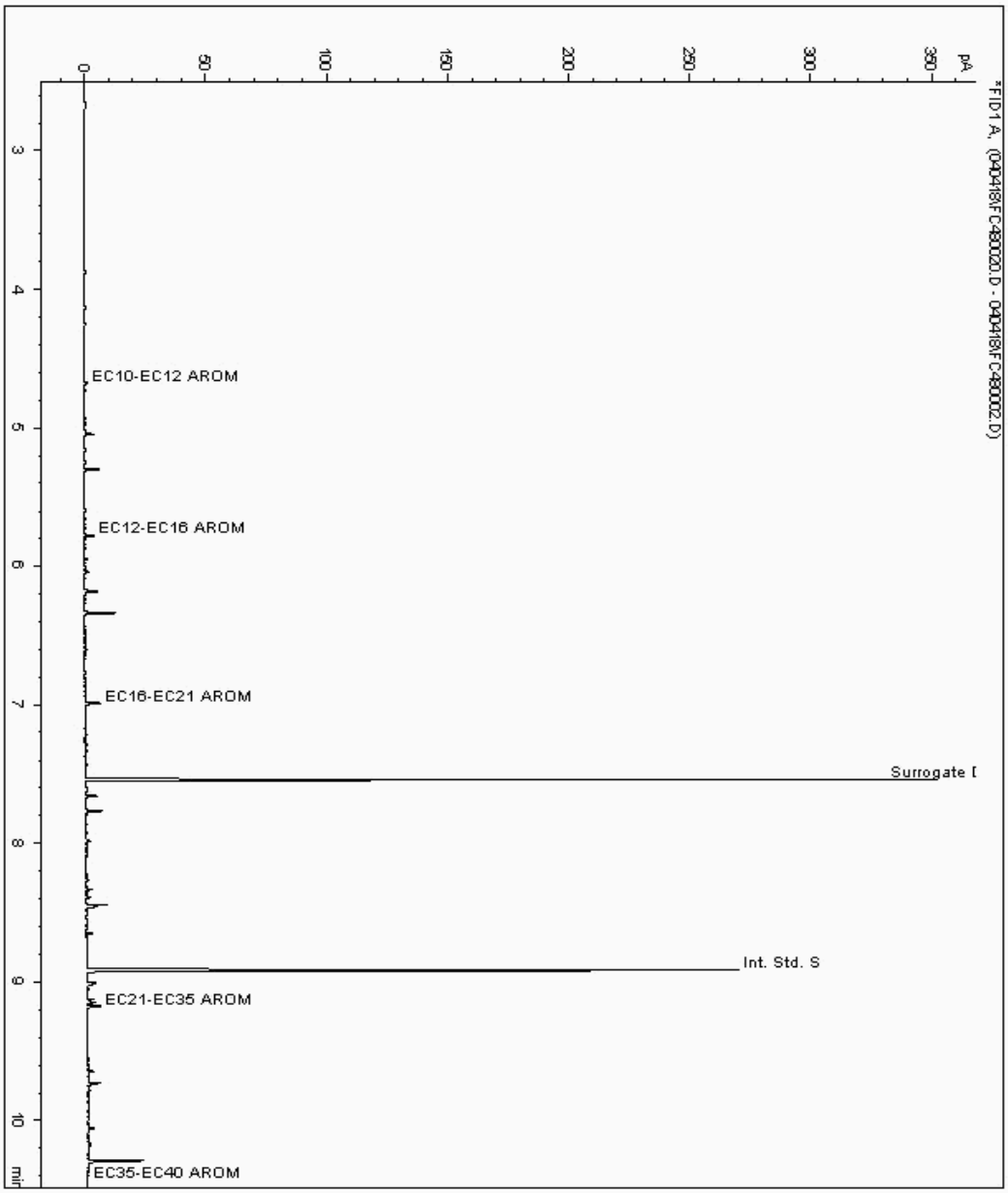


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17288009 **Sample ID :** CP-RPS-03 **Depth :** 1.03

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229015-
Date Acquired : 04/04/2018 20:15:04 PM
Units : ppb
Dilution : SE CP-RPS-03[1.03] ->
CF : 1
Multiplier : 0.025

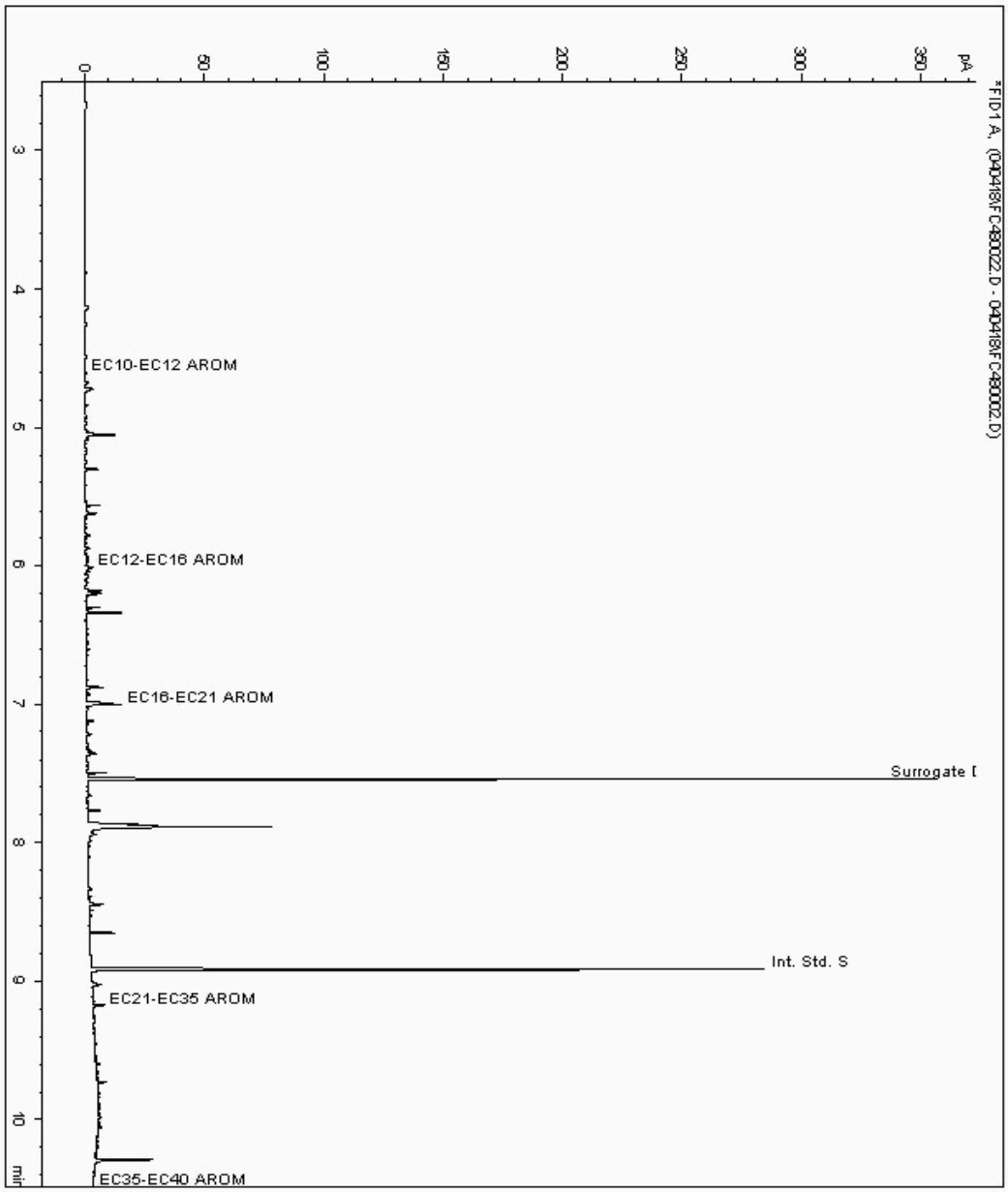


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17288023 **Sample ID :** BH-RPS-01 **Depth :** 1.62

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229122-
Date Acquired : 04/04/2018 21:01:39 PM
Units : ppb
Dilution : SE BH-RPS-01[1.62] ->
CF : 1
Multiplier : 0.025

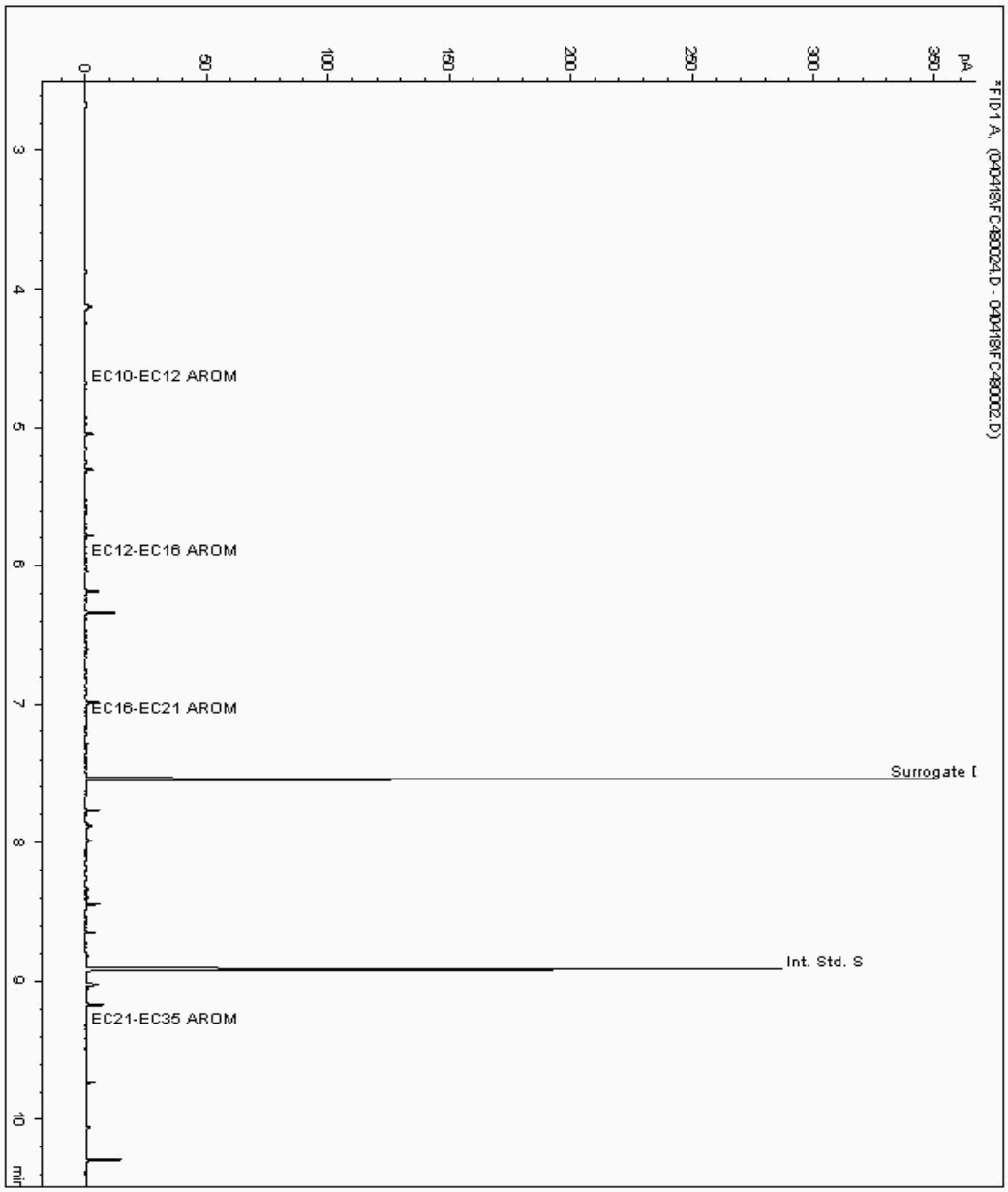


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17288024 **Sample ID :** BH-RPS-03 **Depth :** 2.36

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229489-
Date Acquired : 04/04/2018 21:48:03 PM
Units : ppb
Dilution : SE BH-RPS-03[2.36] ->
CF : 1
Multiplier : 0.025

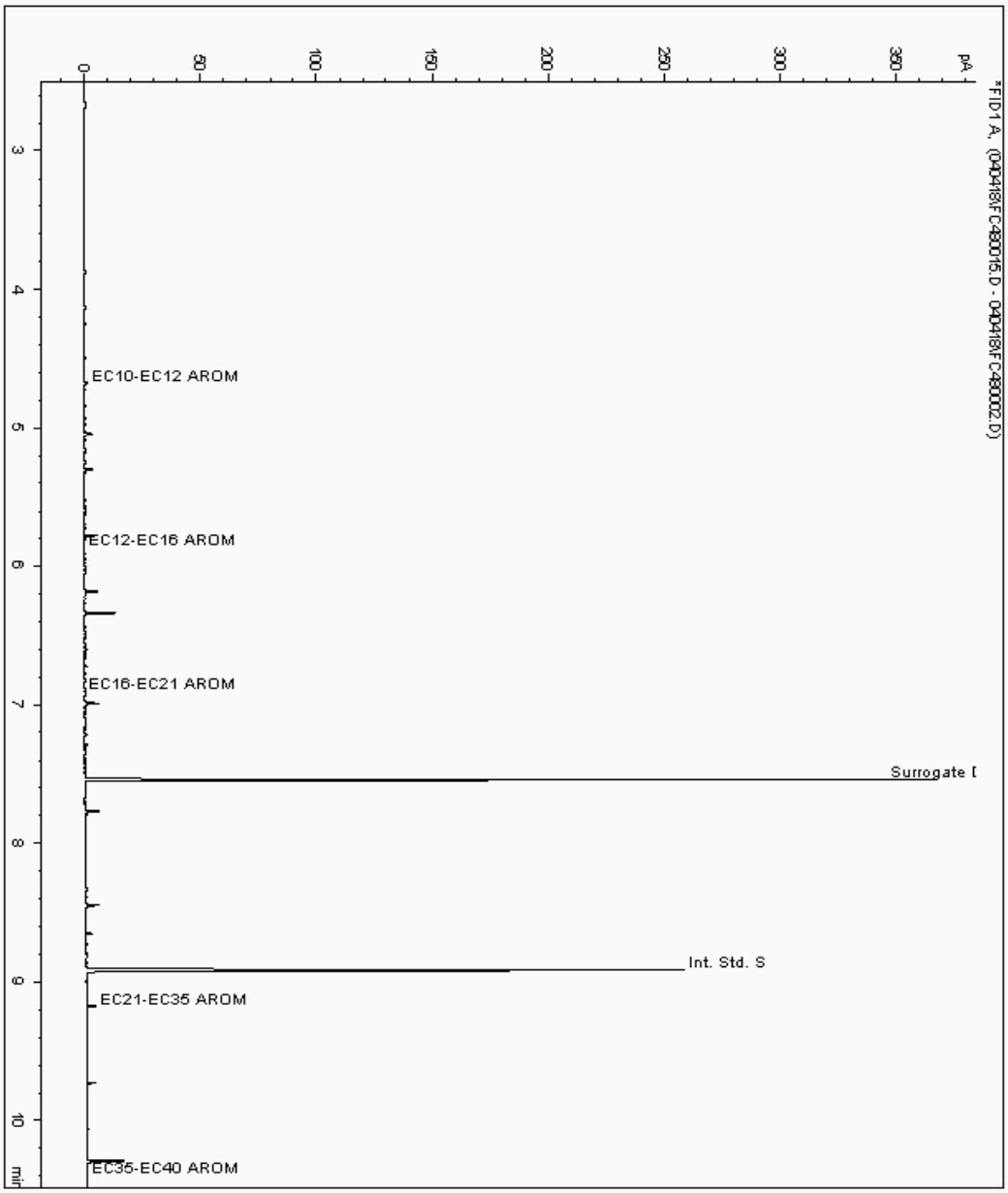


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17288054 **Sample ID :** BH-RPS-10 **Depth :** 1.60

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229088-
Date Acquired : 04/04/2018 18:18:30 PM
Units : ppb
Dilution : SE BH-RPS-10[1.60] ->
CF : 1
Multiplier : 0.025

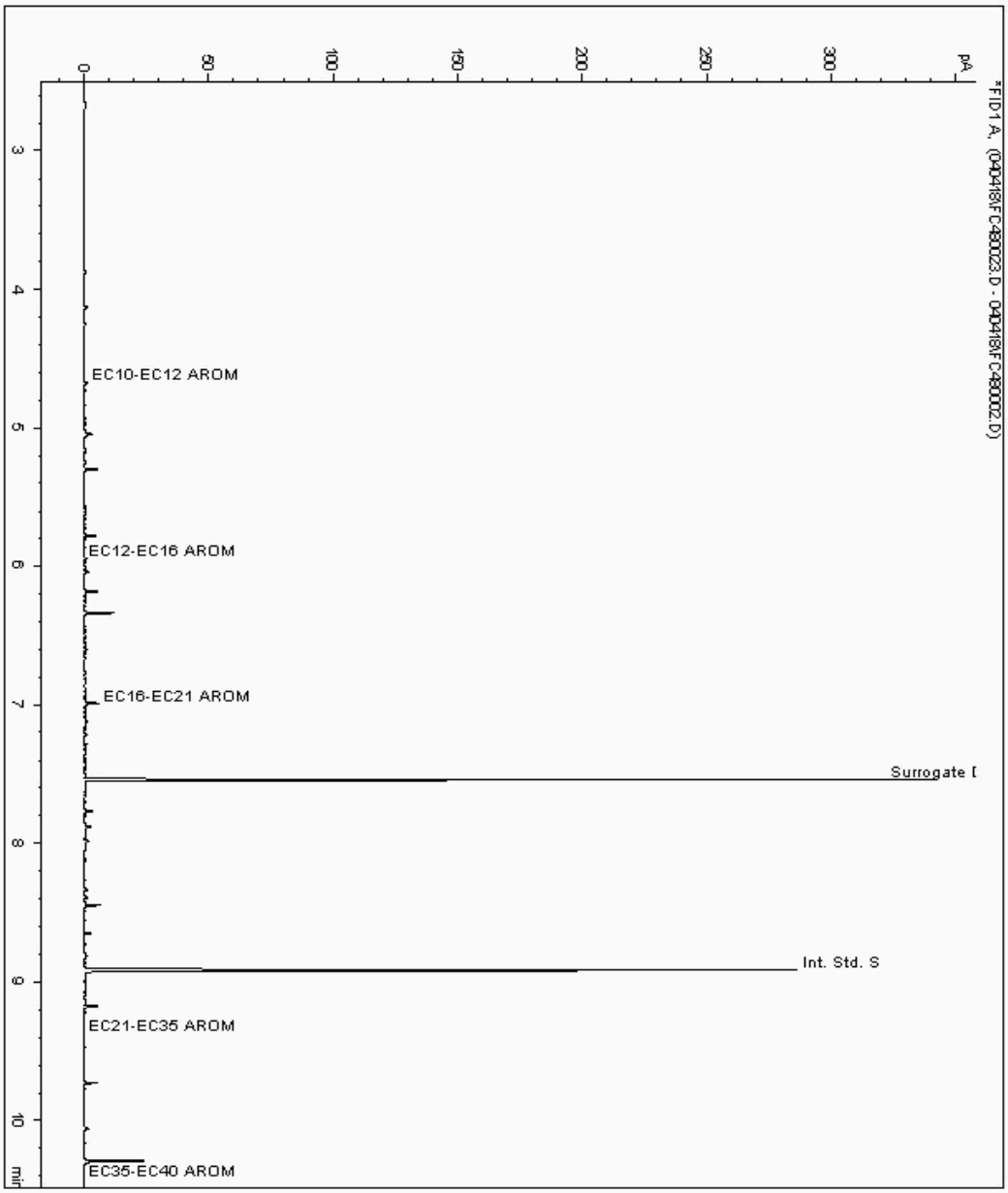


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17290942 **Sample ID :** WS-RPS-10 **Depth :** 1.05

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229193-
Date Acquired : 04/04/2018 21:24:49 PM
Units : ppb
Dilution : SE WS-RPS-10[1.05] ->
CF : 1
Multiplier : 0.025

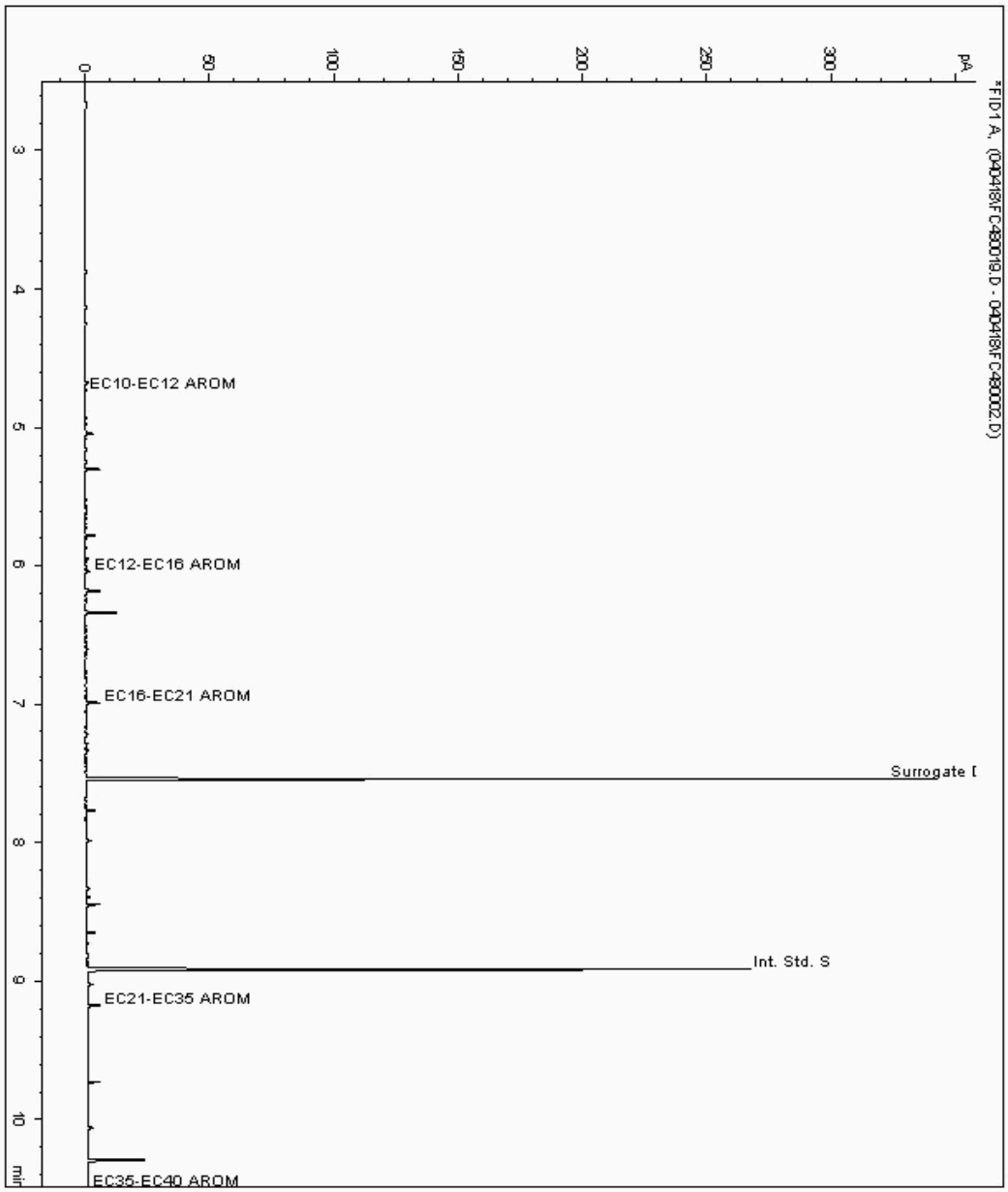


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17291028 **Sample ID :** BH-RPS-07 **Depth :** 1.25

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229235-
Date Acquired : 04/04/2018 19:51:52 PM
Units : ppb
Dilution : SE BH-RPS-07[1.25] ->
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

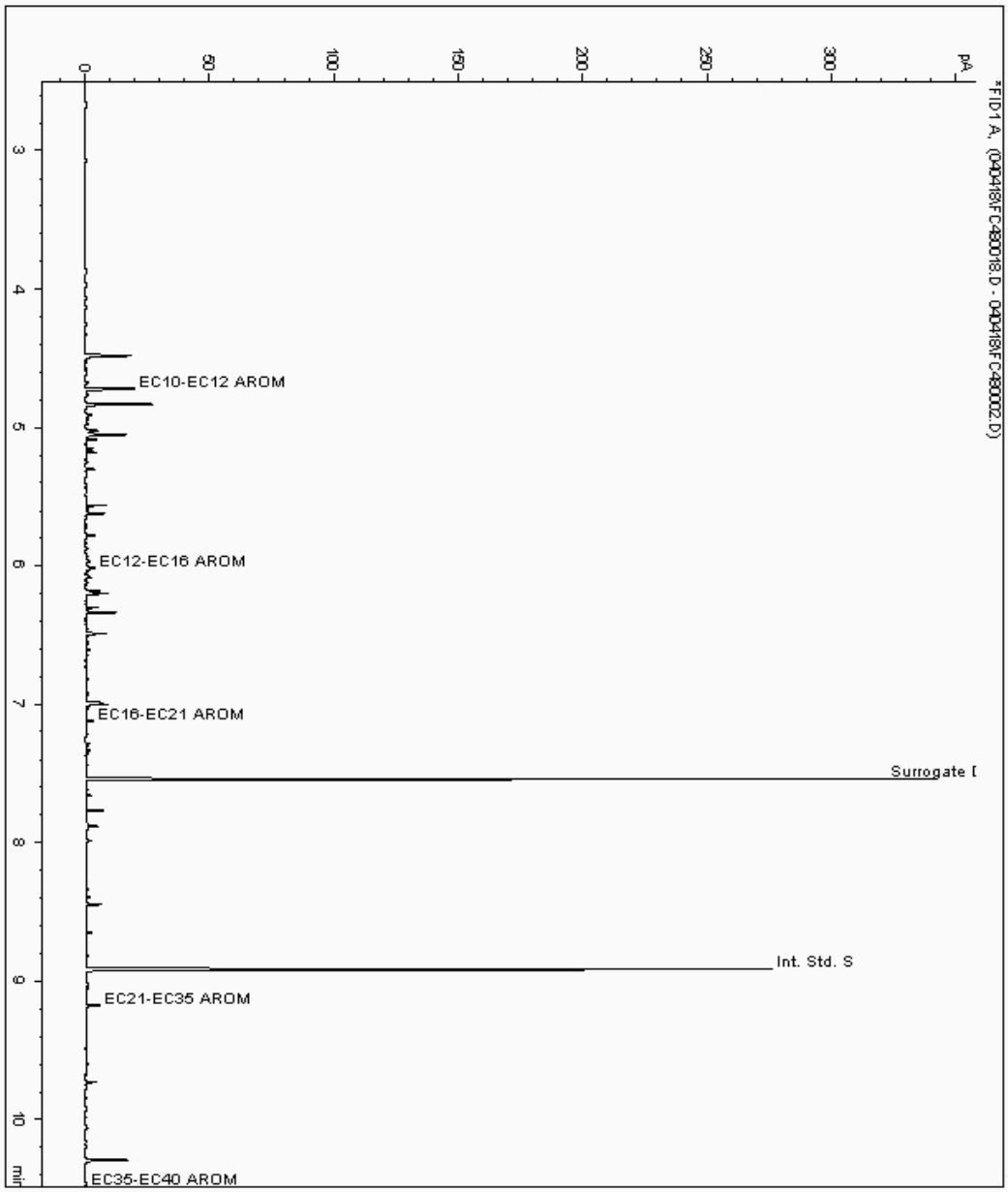
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17291141 **Sample ID :** BH-RPS-06 **Depth :** 0.87

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229162-
Date Acquired : 04/04/2018 19:28:26 PM
Units : ppb
Dilution : SE BH-RPS-06[0.87] ->
CF : 1
Multiplier : 0.025

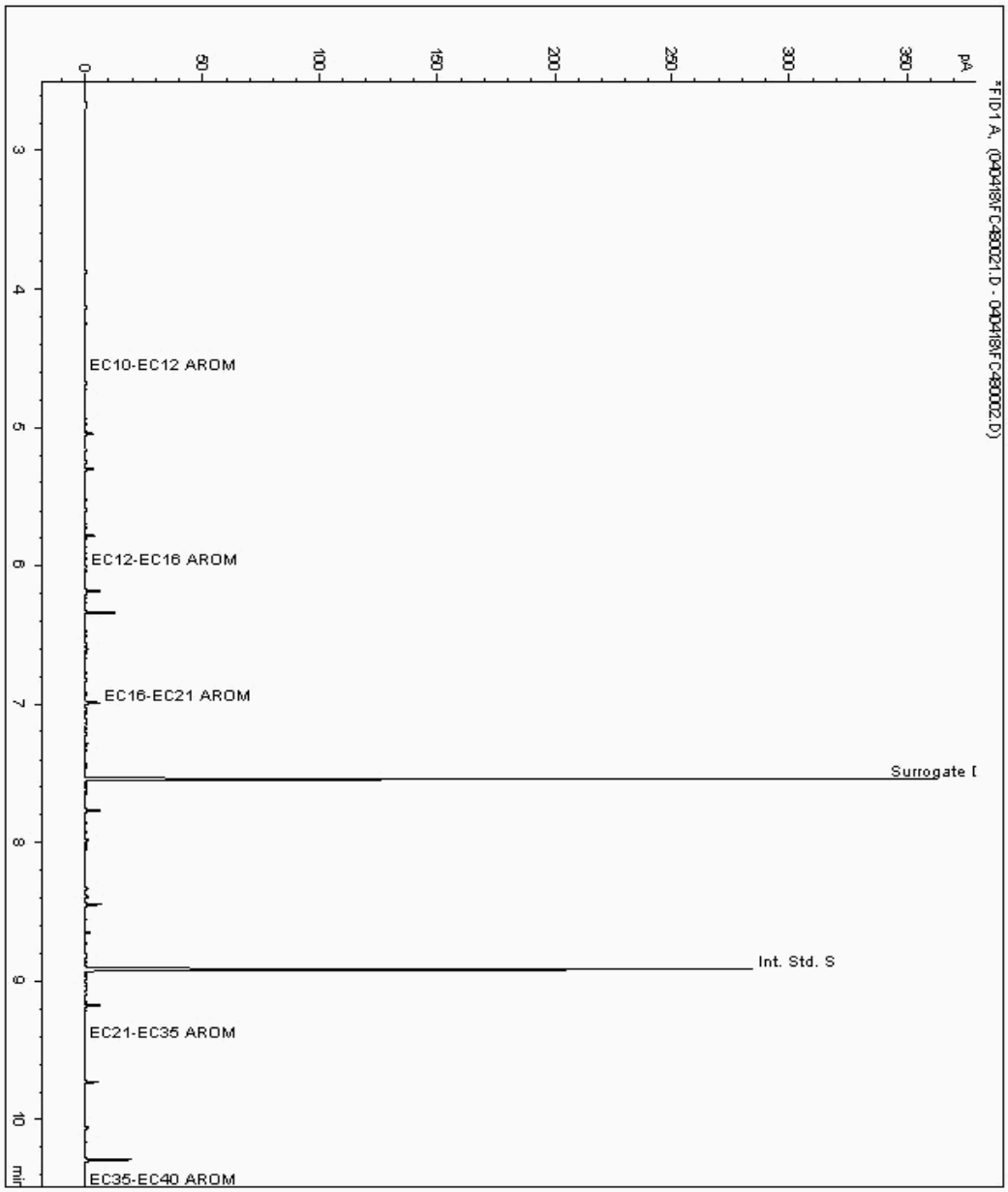


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17291219 **Sample ID :** BH-RPS-23a **Depth :** 2.00

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229268-
Date Acquired : 04/04/2018 20:38:14 PM
Units : ppb
Dilution : SE BH-RPS-23A[2.00] ->
CF : 1
Multiplier : 0.025

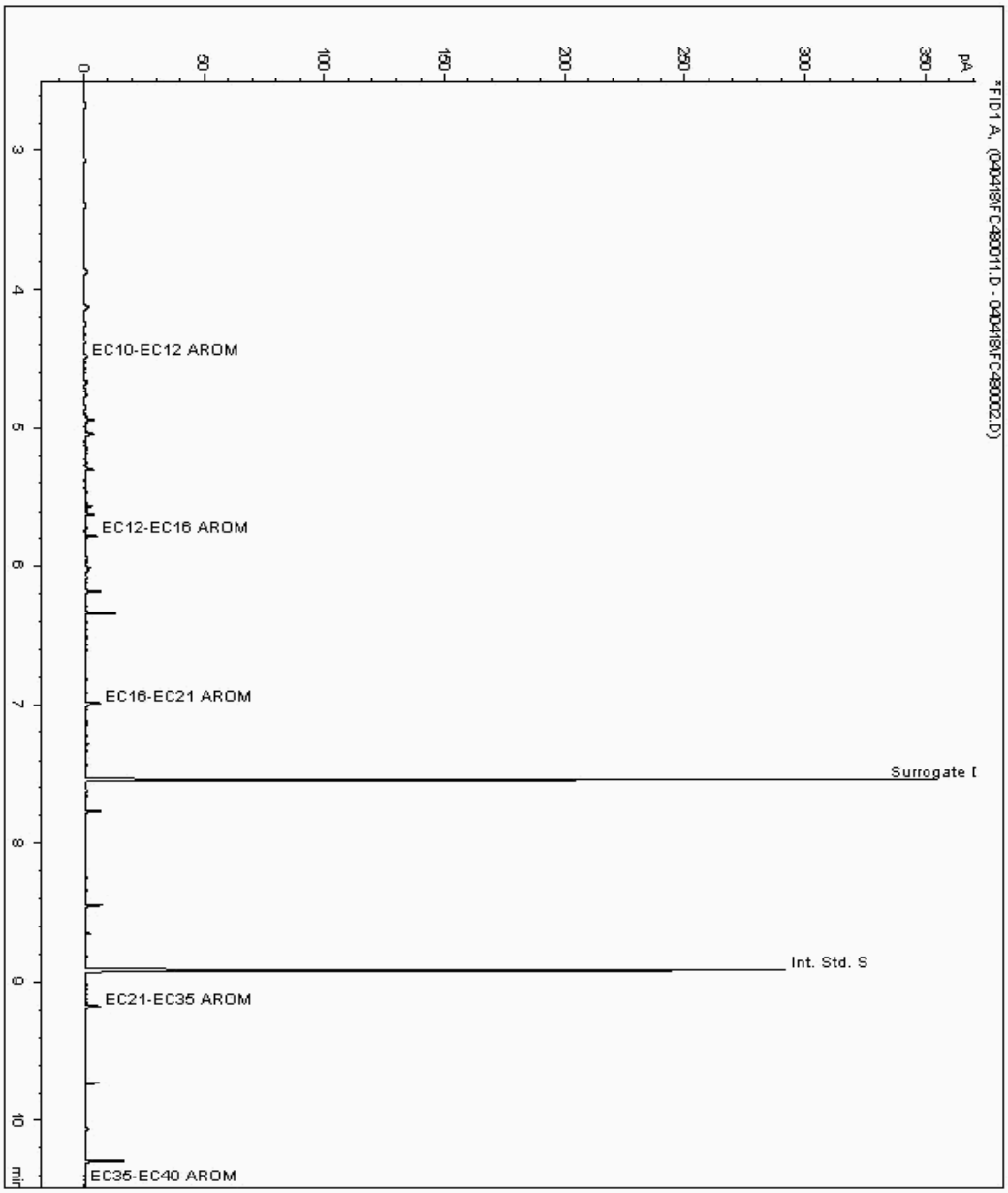


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17292072 **Sample ID :** WS-RPS-09 **Depth :** 1.08

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16228904-
Date Acquired : 04/04/2018 16:45:14 PM
Units : ppb
Dilution : SE WS-RPS-09[1.08] ->
CF : 1
Multiplier : 0.025

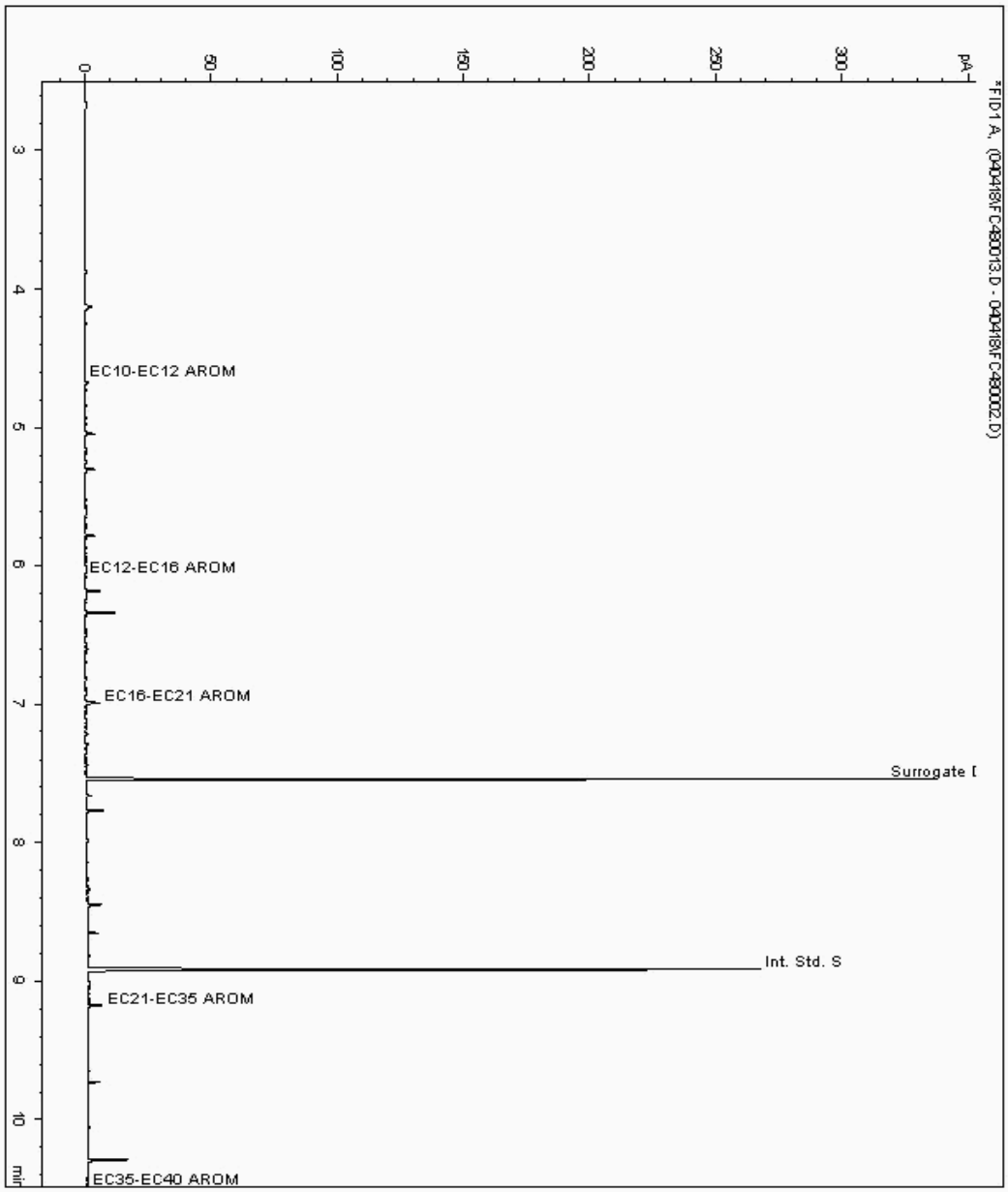


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17292375 **Sample ID :** BH-RPS-24 **Depth :** 0.84

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229321-
Date Acquired : 04/04/2018 17:32:02 PM
Units : ppb
Dilution : SE BH-RPS-24[0.84] ->
CF : 1
Multiplier : 0.025

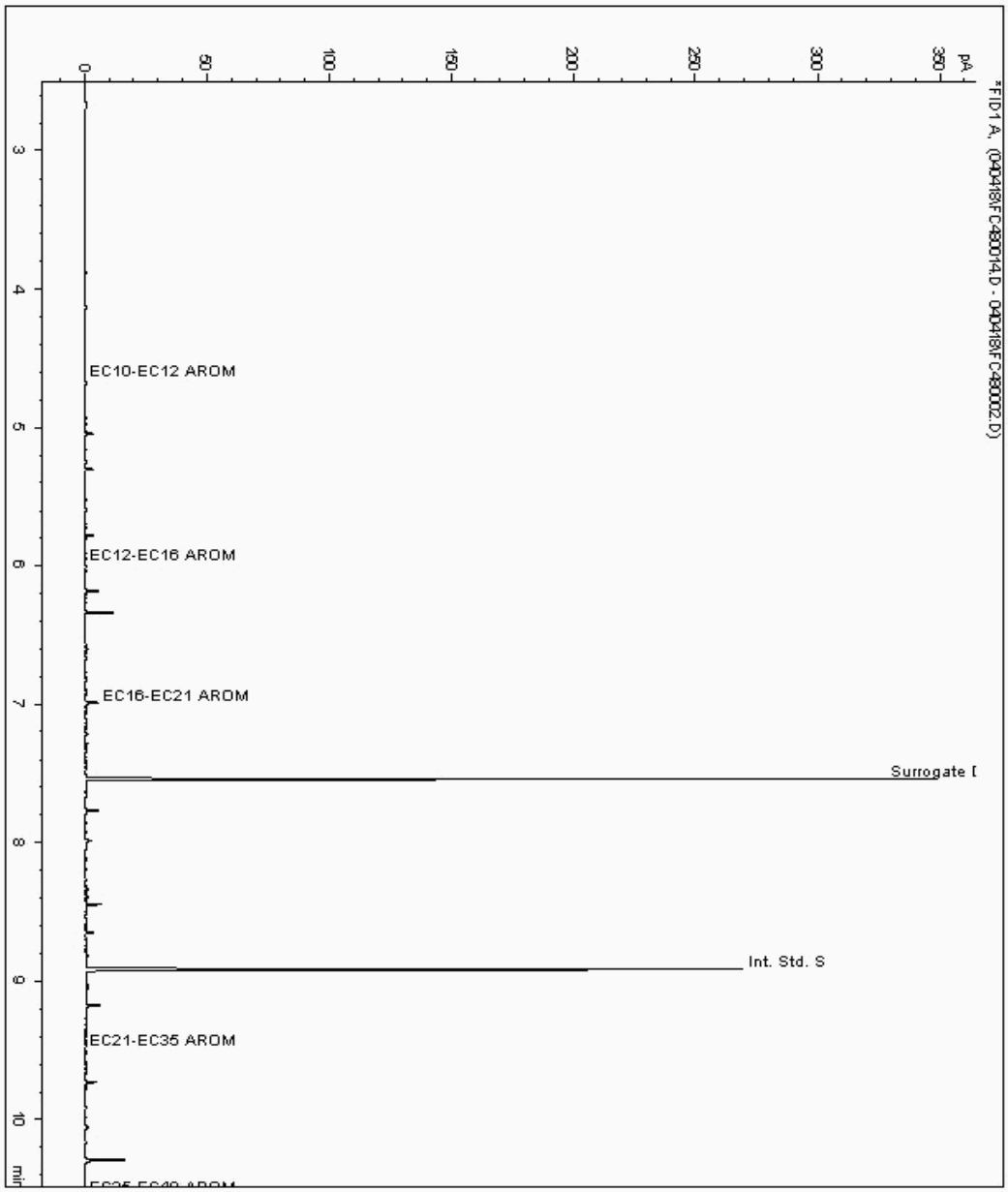


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17292426 **Sample ID :** WS-RPS-19 **Depth :** 2.52

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16228923-
Date Acquired : 04/04/2018 17:55:17 PM
Units : ppb
Dilution : SE WS-RPS-19[2.52] ->
CF : 1
Multiplier : 0.025

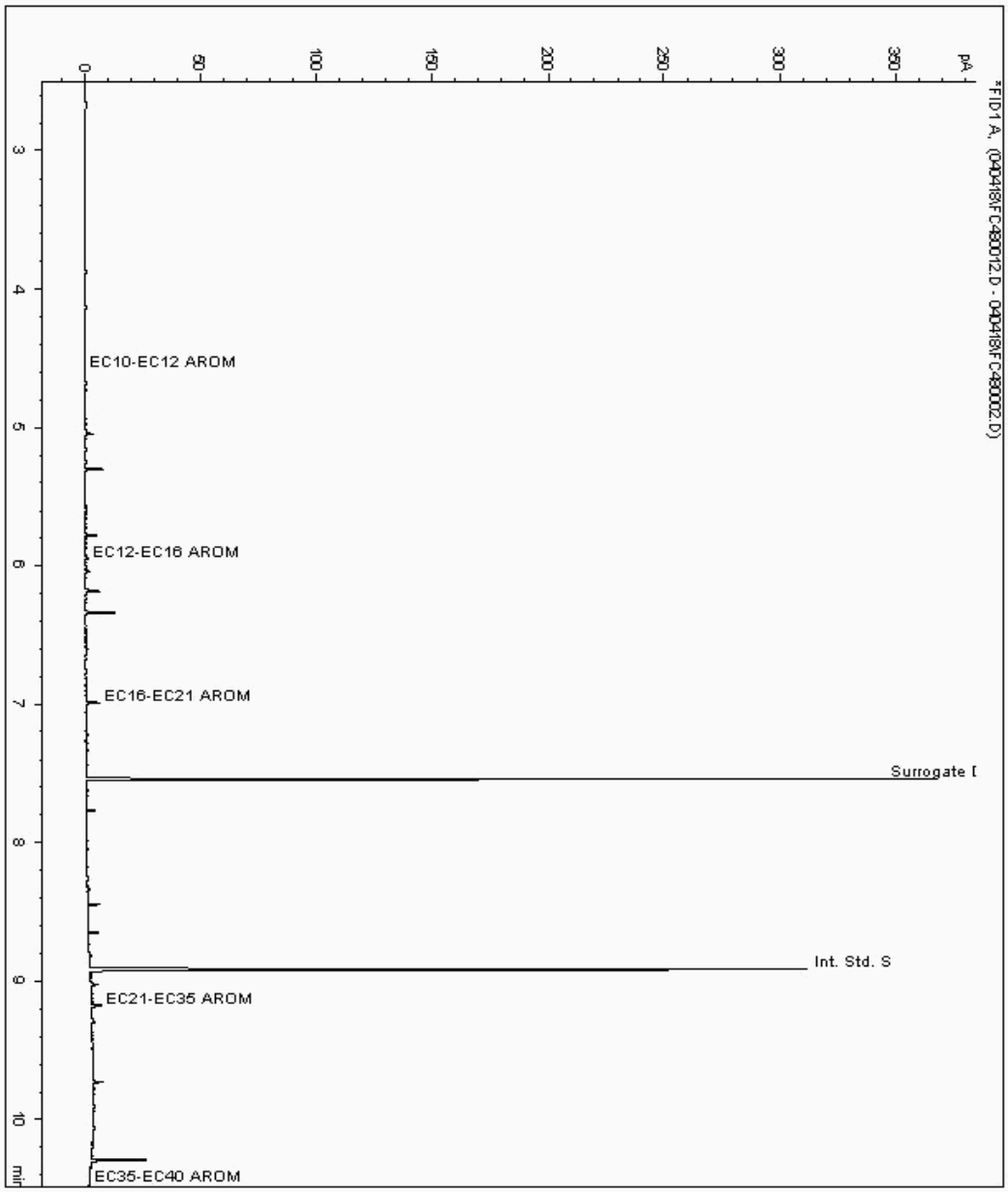


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17292460 **Sample ID :** BH-RPS-09 **Depth :** 1.10

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229406-
Date Acquired : 04/04/2018 17:08:30 PM
Units : ppb
Dilution : SE BH-RPS-09[1.10] ->
CF : 1
Multiplier : 0.025

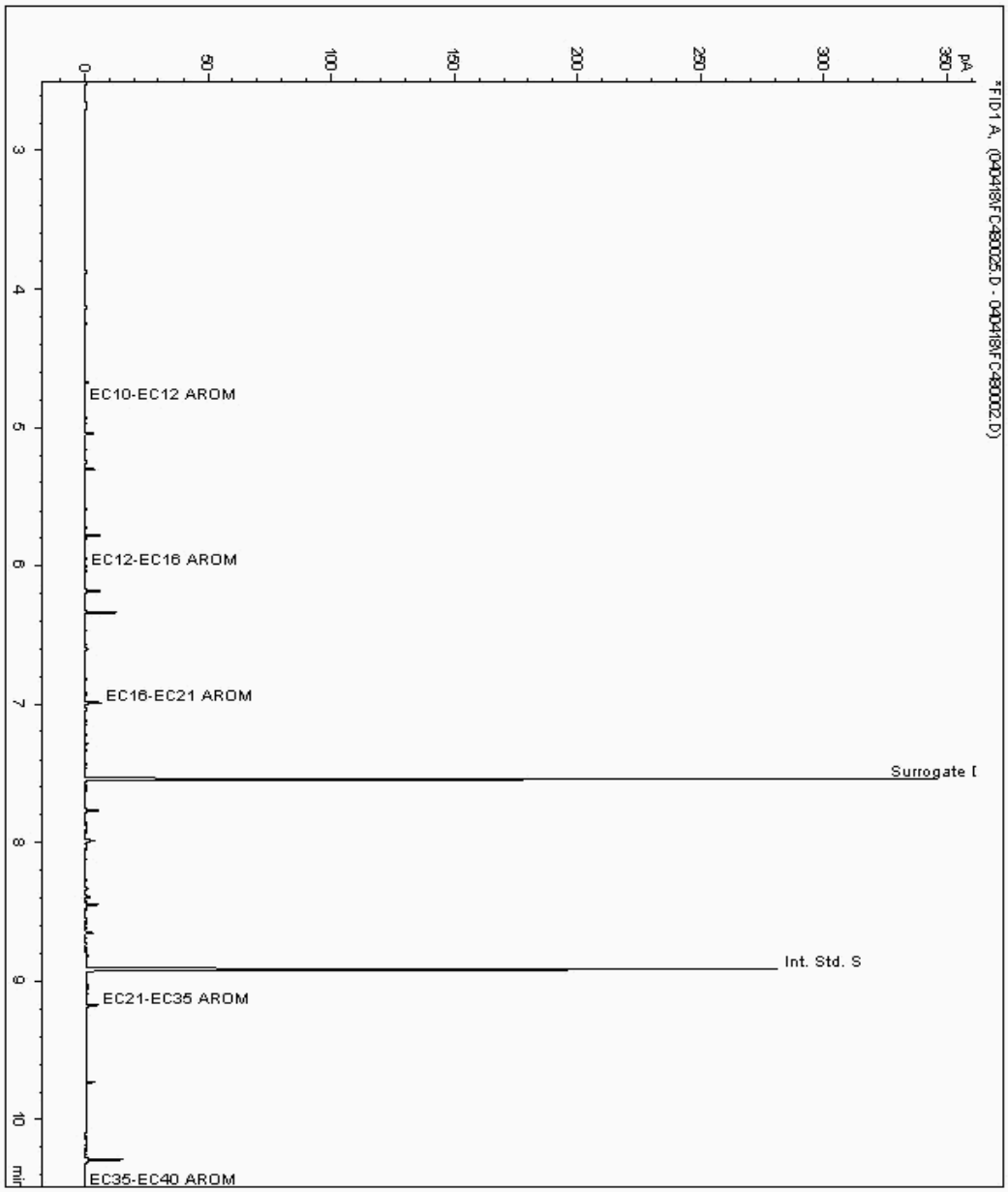


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17292466 **Sample ID :** BH-RPS-04 **Depth :** 1.64

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16229360-
Date Acquired : 04/04/2018 22:11:27 PM
Units : ppb
Dilution : SE BH-RPS-04[1.64] ->
CF : 1
Multiplier : 0.125

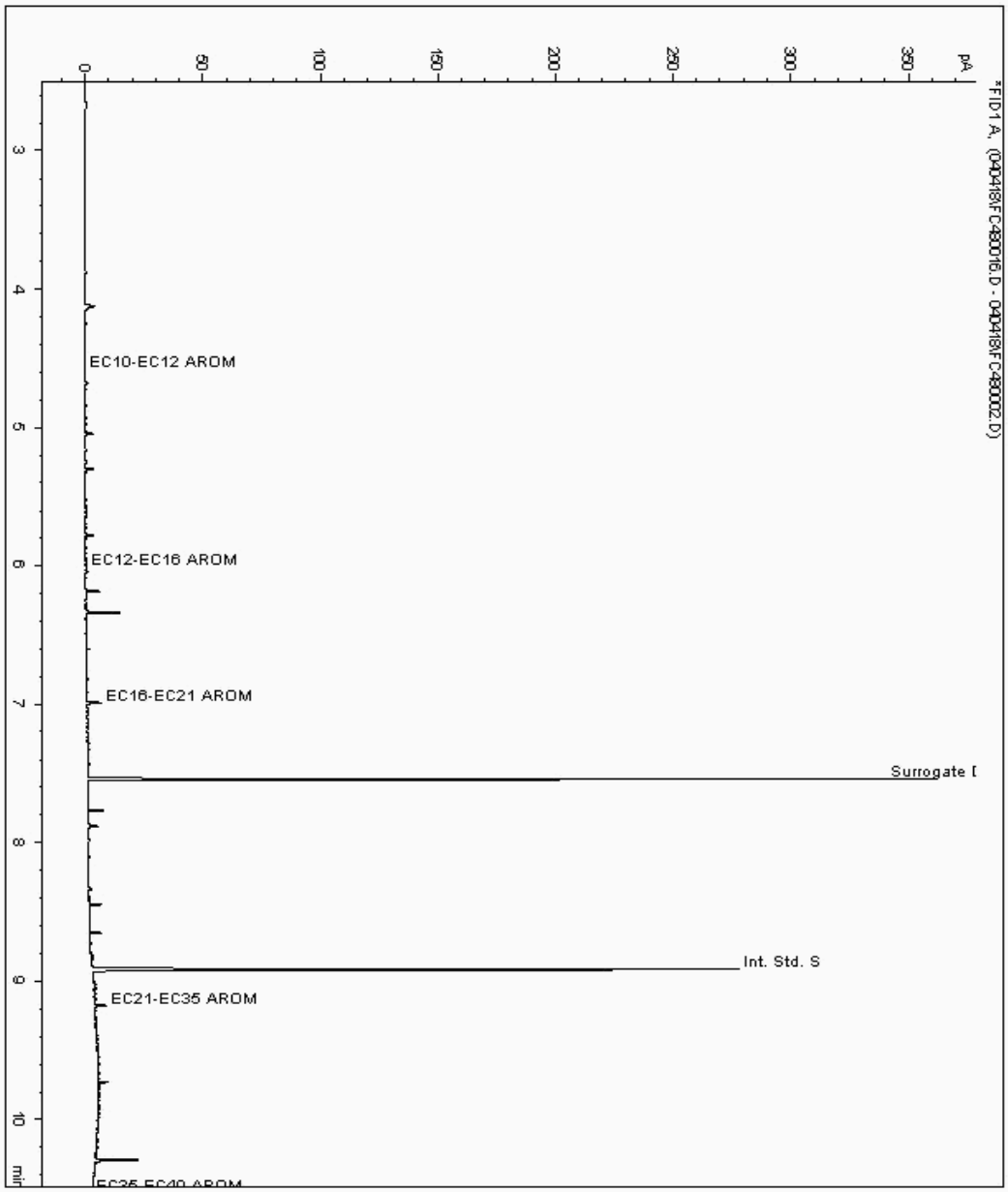


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 17292492 **Sample ID :** BH-RPS-05 **Depth :** 1.14

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 16228871-
Date Acquired : 04/04/2018 18:42:00 PM
Units : ppb
Dilution : SE BH-RPS-05[1.14] ->
CF : 1
Multiplier : 0.025



Validated

CERTIFICATE OF ANALYSIS

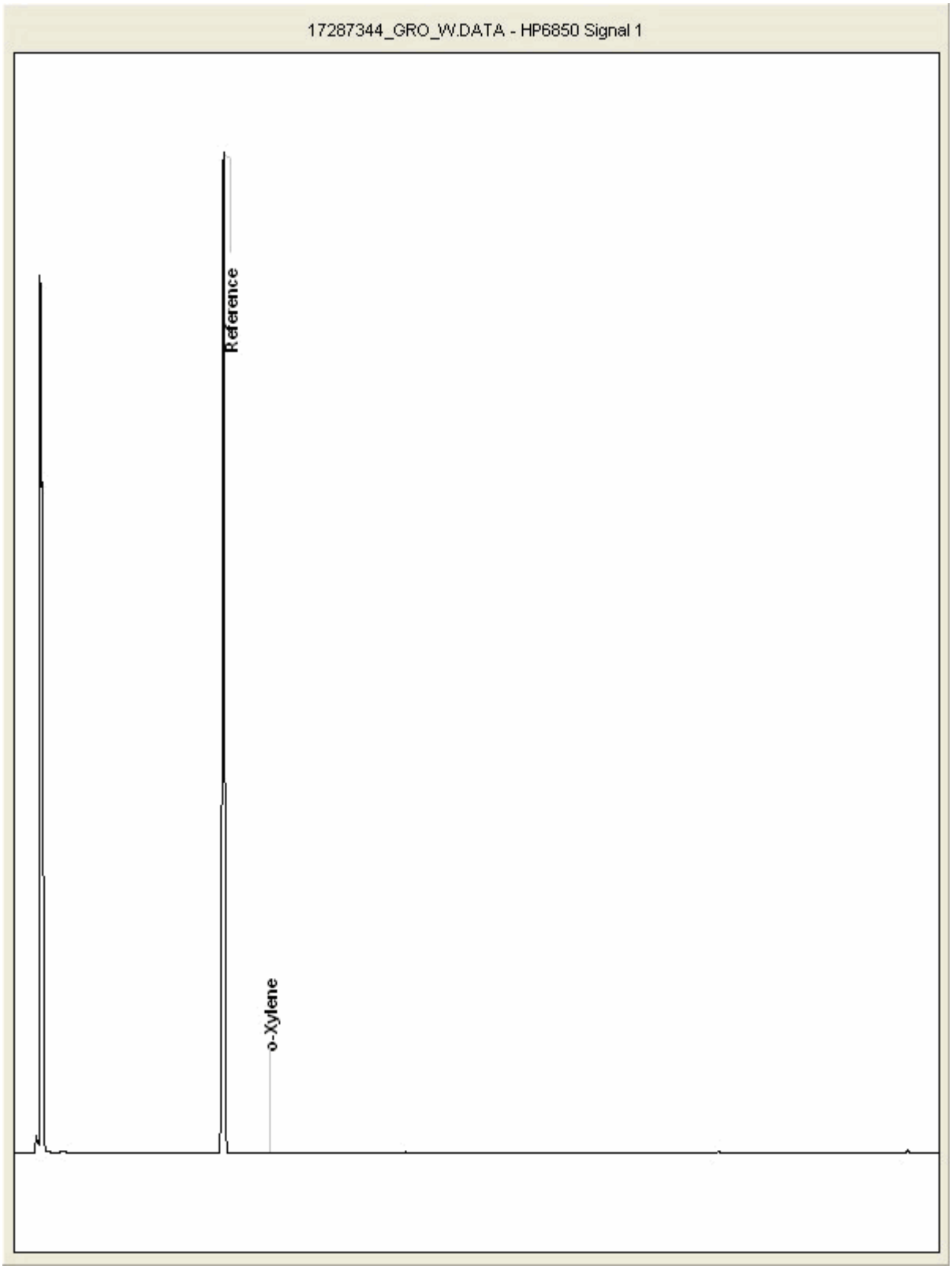
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287344
Sample ID : BH-RPS-23a

Depth : 2.00



Validated

CERTIFICATE OF ANALYSIS

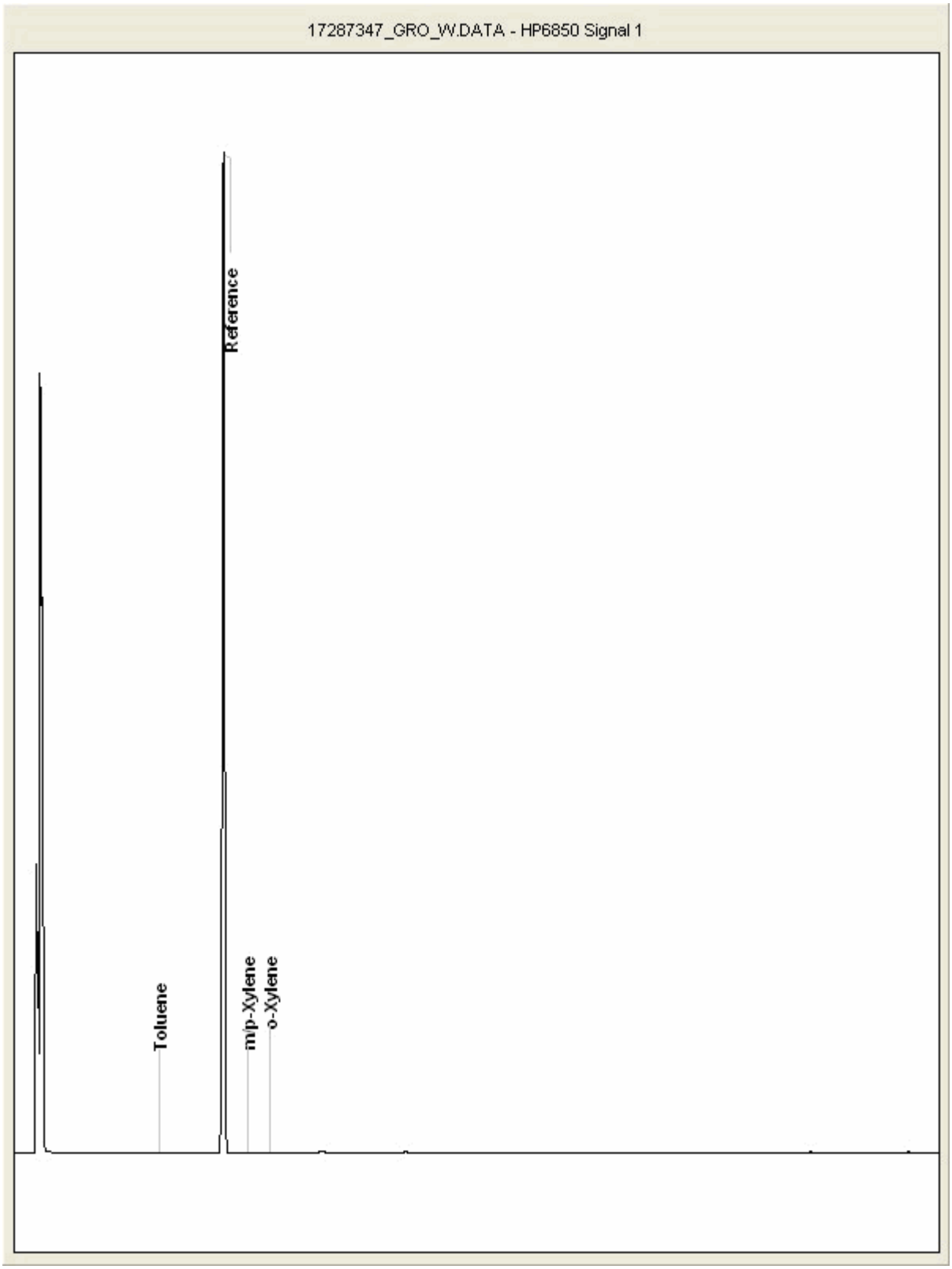
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287347
Sample ID : WS-RPS-10

Depth : 1.05



Validated

CERTIFICATE OF ANALYSIS

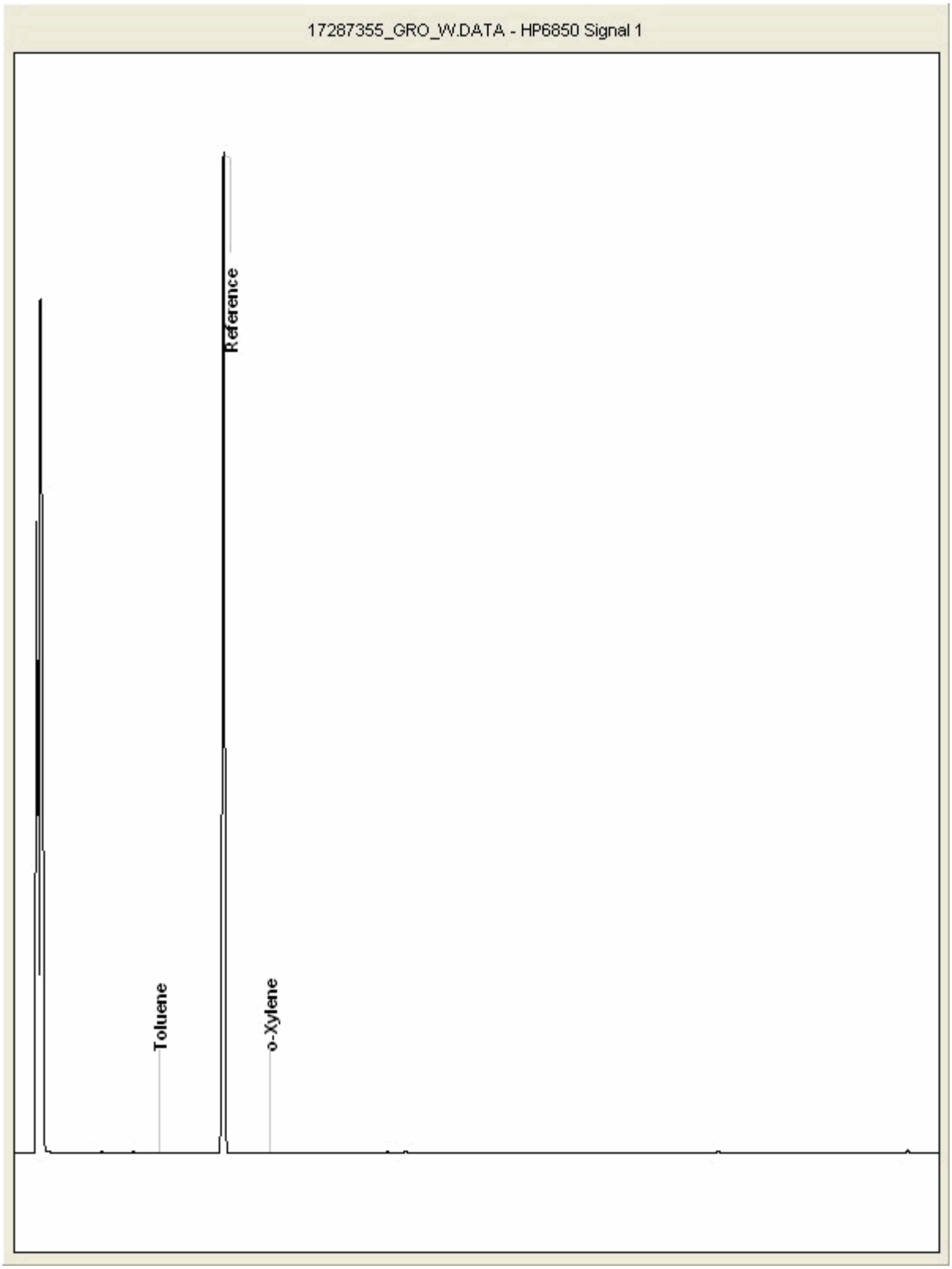
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287355
Sample ID : BH-RPS-04

Depth : 1.64



Validated

CERTIFICATE OF ANALYSIS

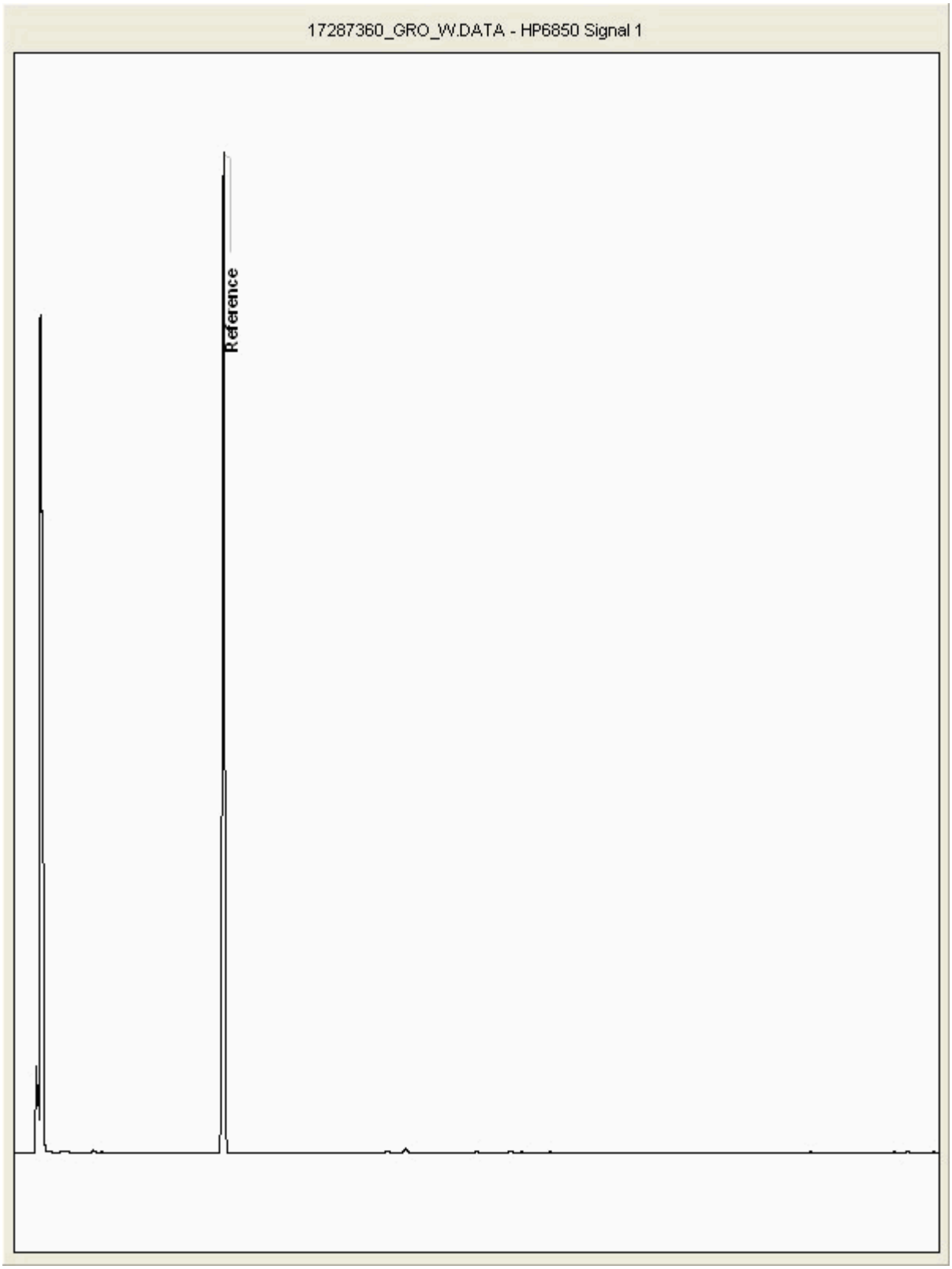
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287360
Sample ID : BH-RPS-24

Depth : 0.84



Validated

CERTIFICATE OF ANALYSIS

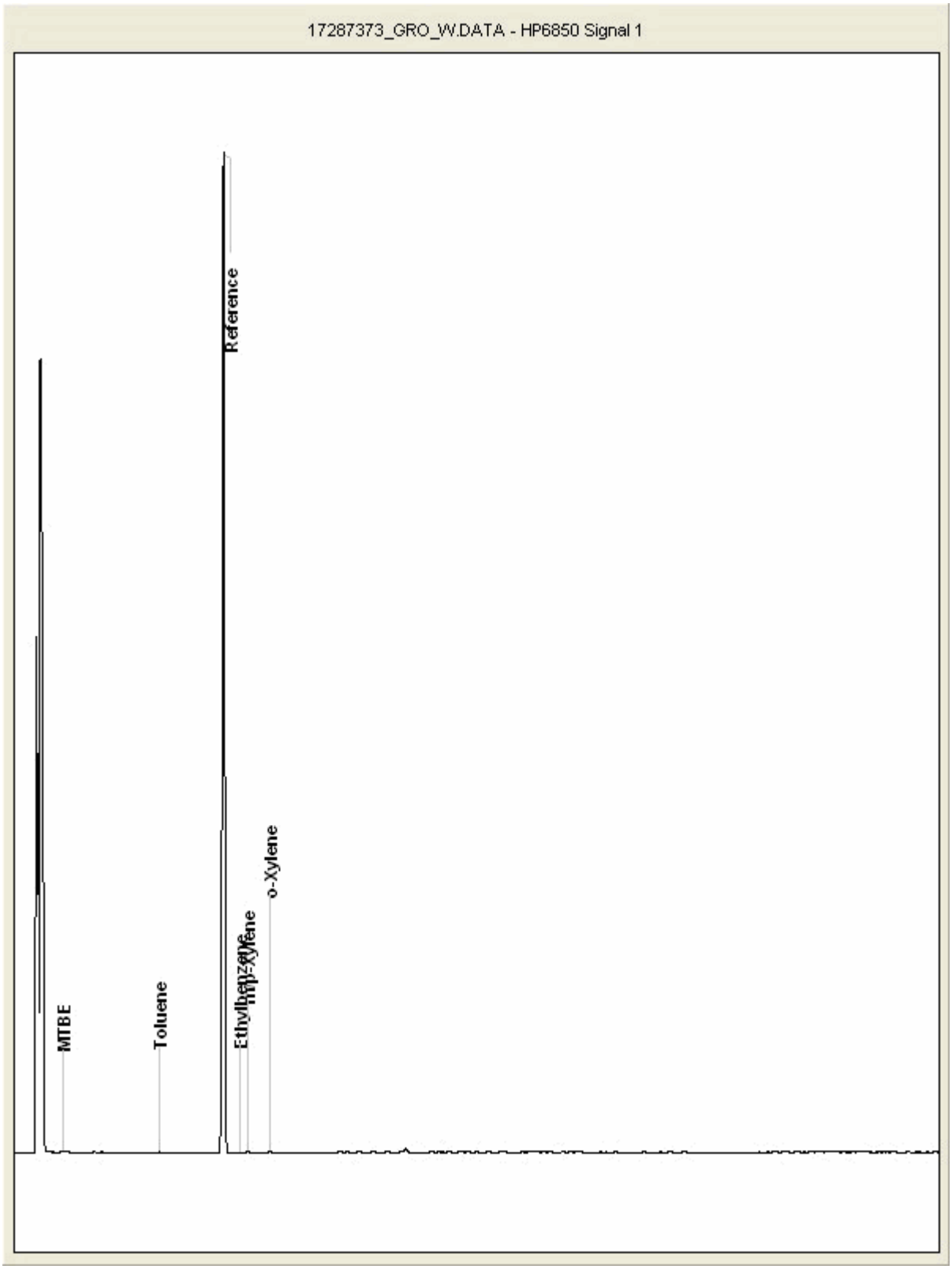
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287373
Sample ID : WS-RPS-09

Depth : 1.08



Validated

CERTIFICATE OF ANALYSIS

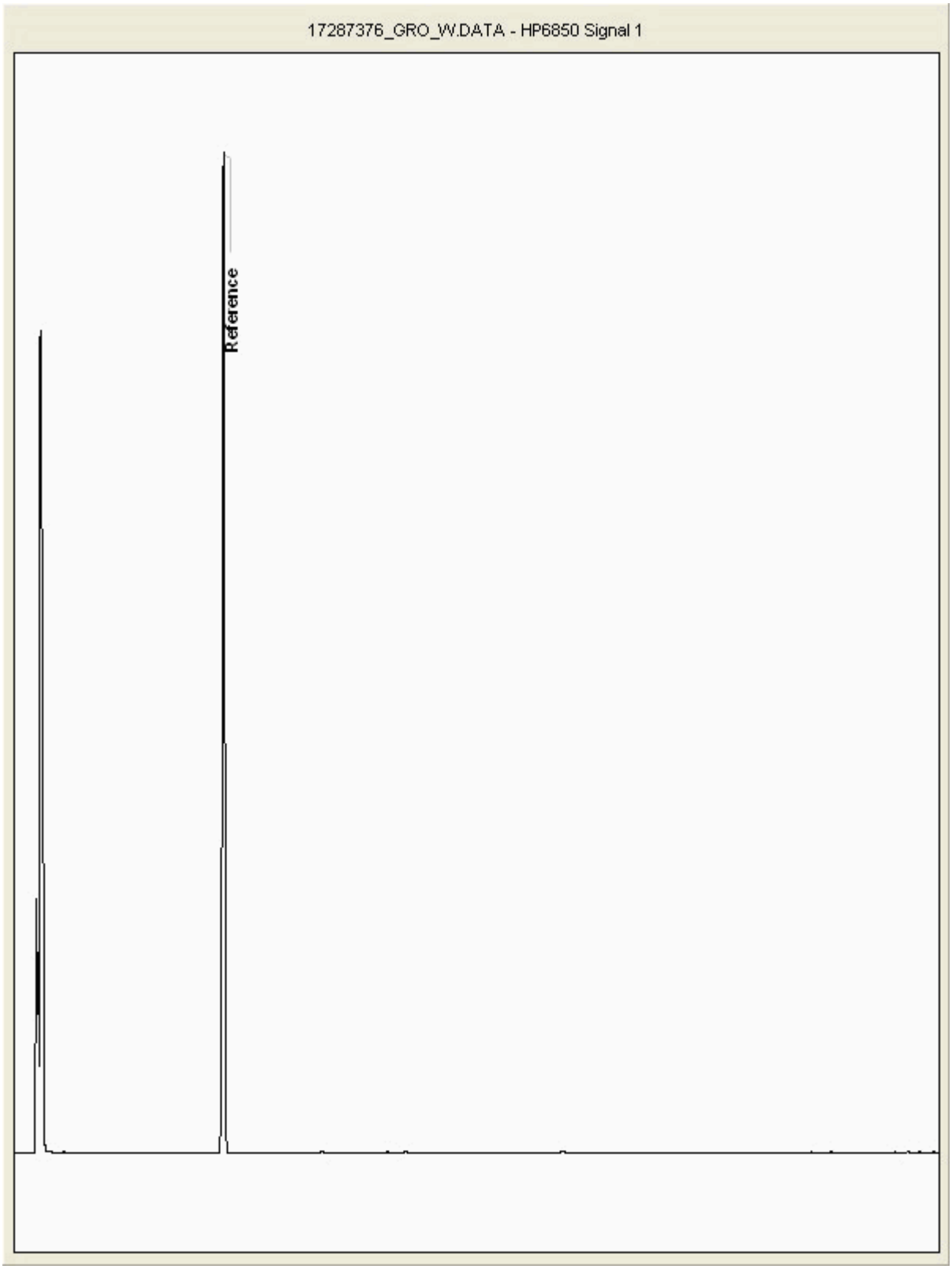
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287376
Sample ID : WS-RPS-20

Depth : 1.36



Validated

CERTIFICATE OF ANALYSIS

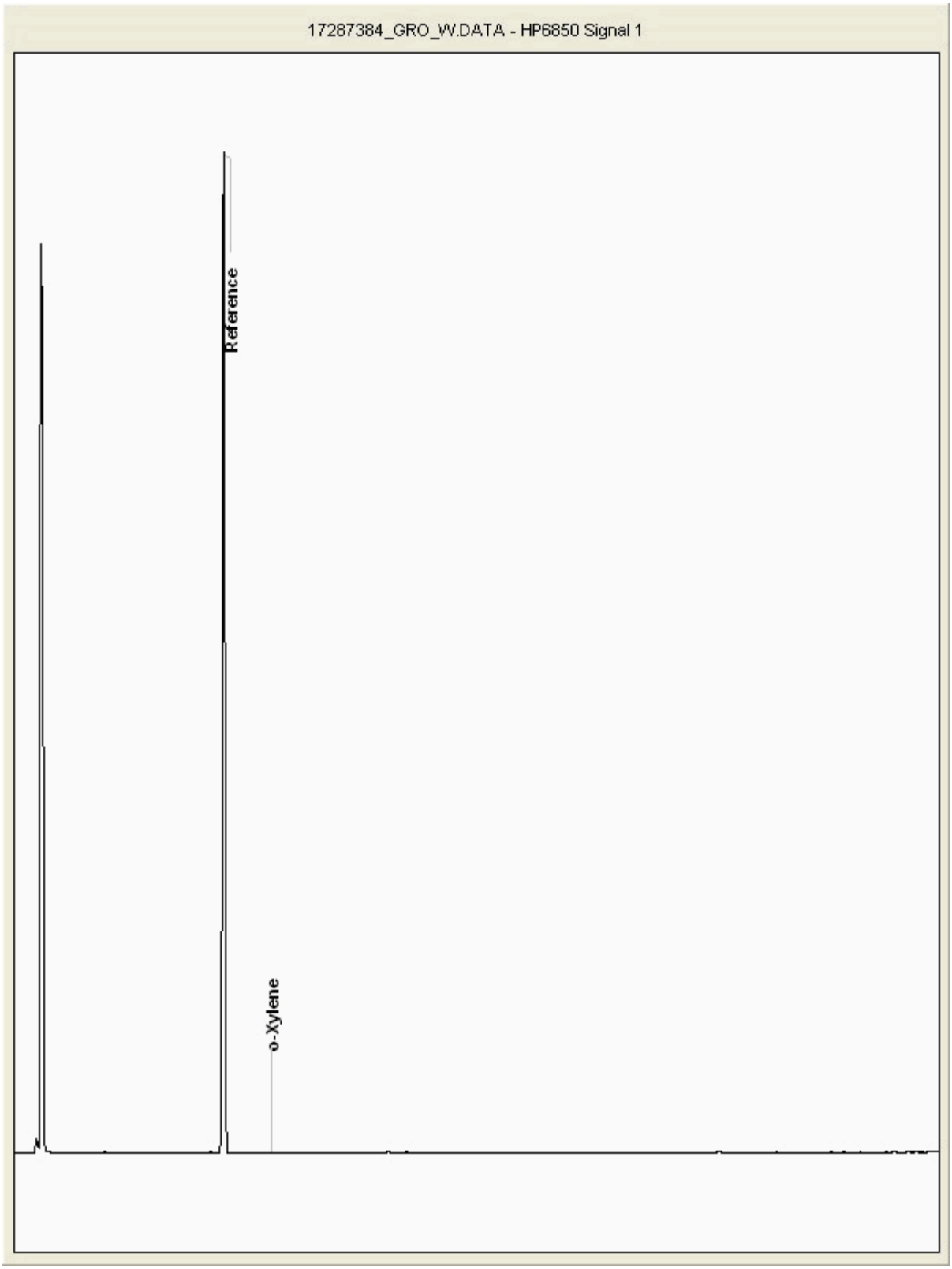
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287384
Sample ID : BH-RPS-09

Depth : 1.10



Validated

CERTIFICATE OF ANALYSIS

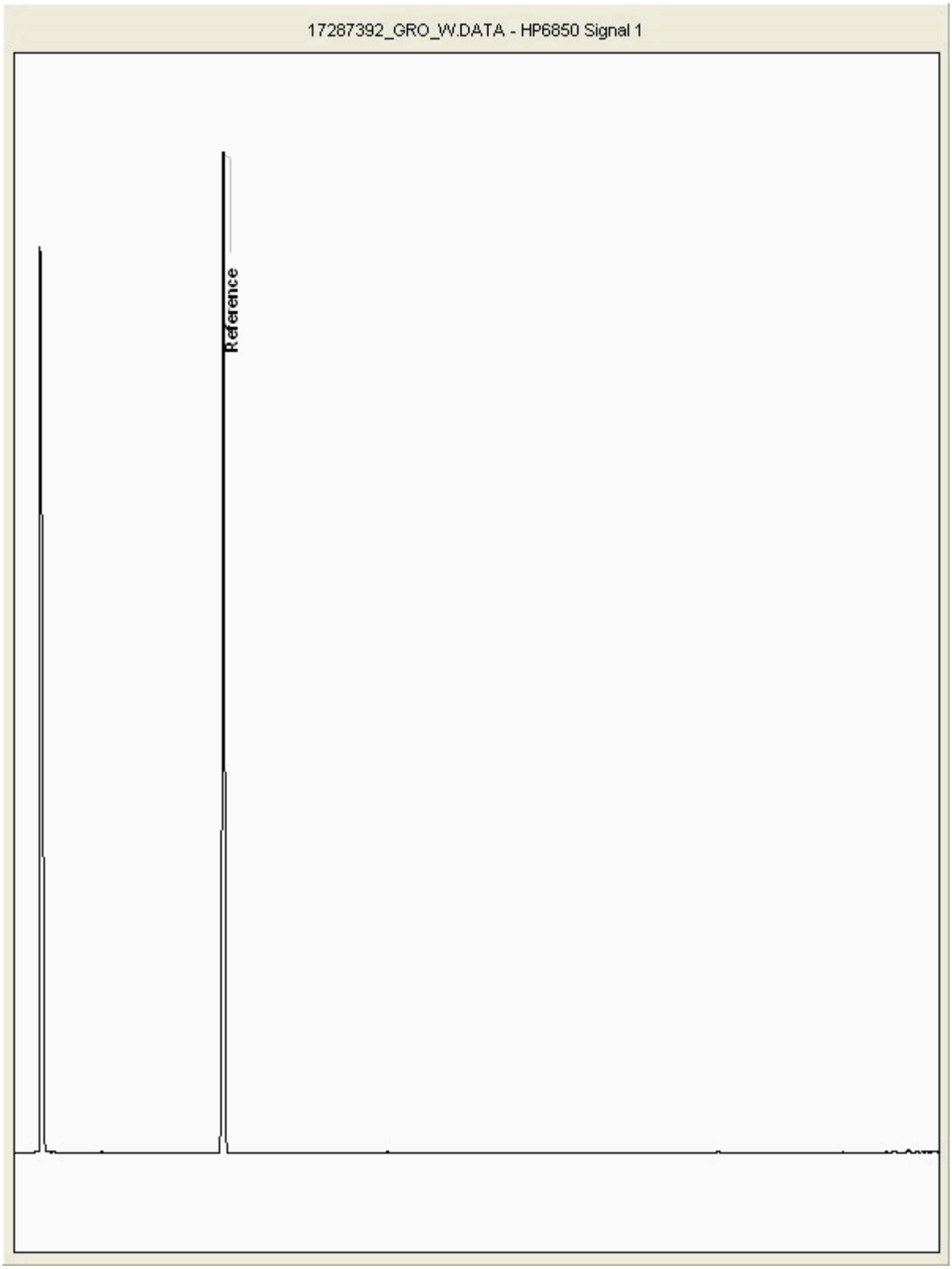
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287392
Sample ID : BH-RPS-07

Depth : 1.25



Validated

CERTIFICATE OF ANALYSIS

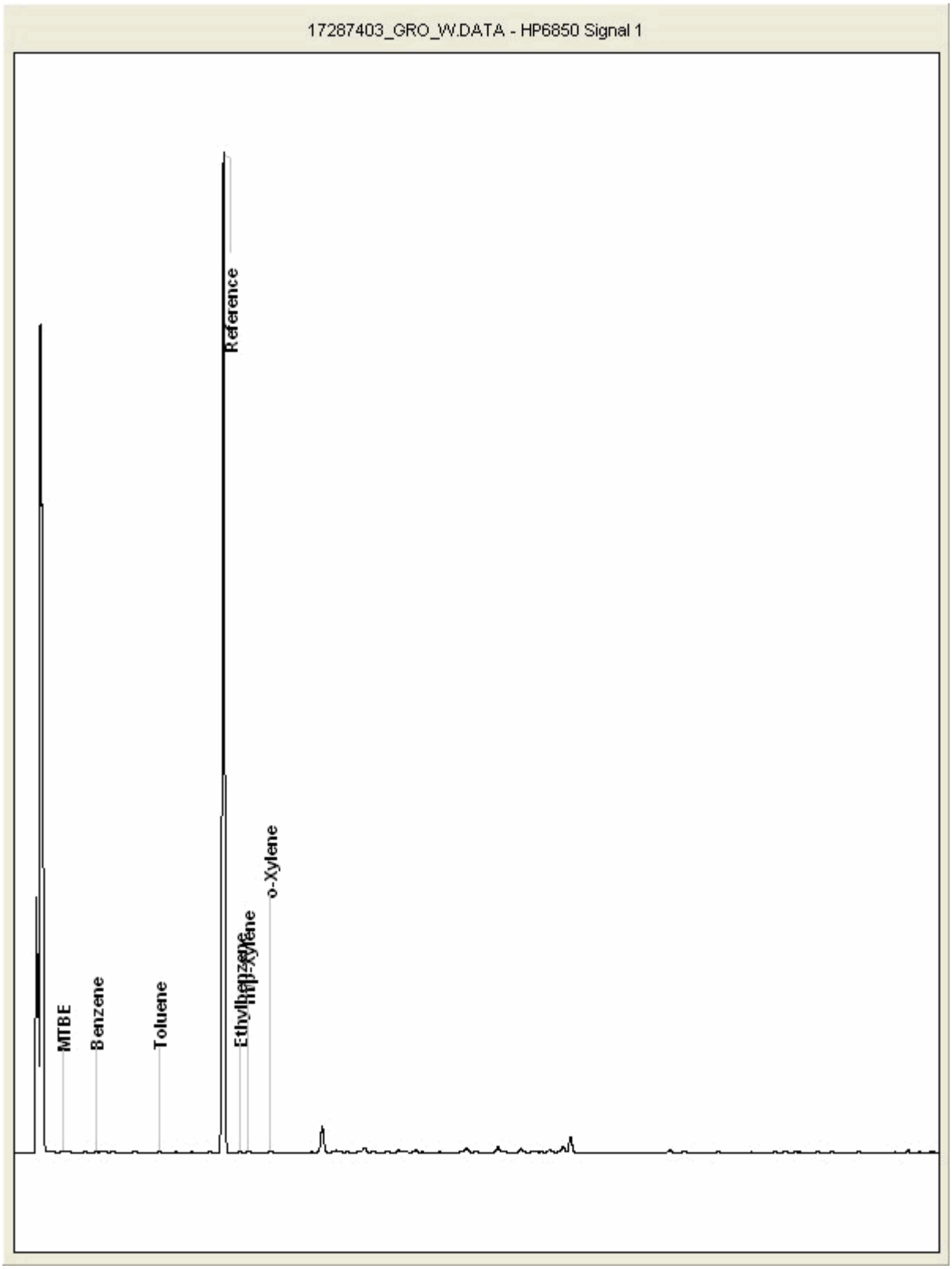
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287403
Sample ID : BH-RPS-06

Depth : 0.87



Validated

CERTIFICATE OF ANALYSIS

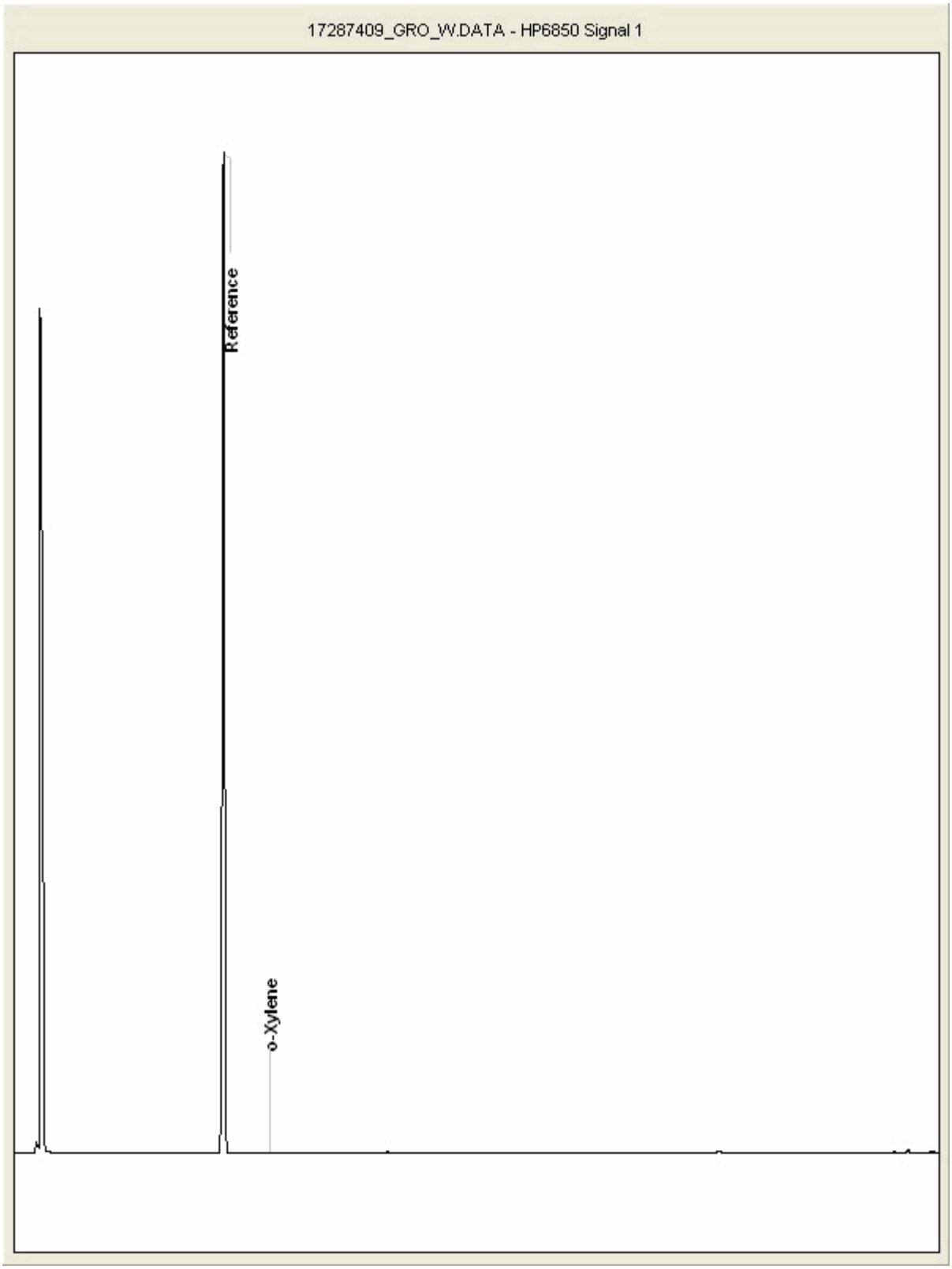
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287409
Sample ID : WS-RPS-19

Depth : 2.52



Validated

CERTIFICATE OF ANALYSIS

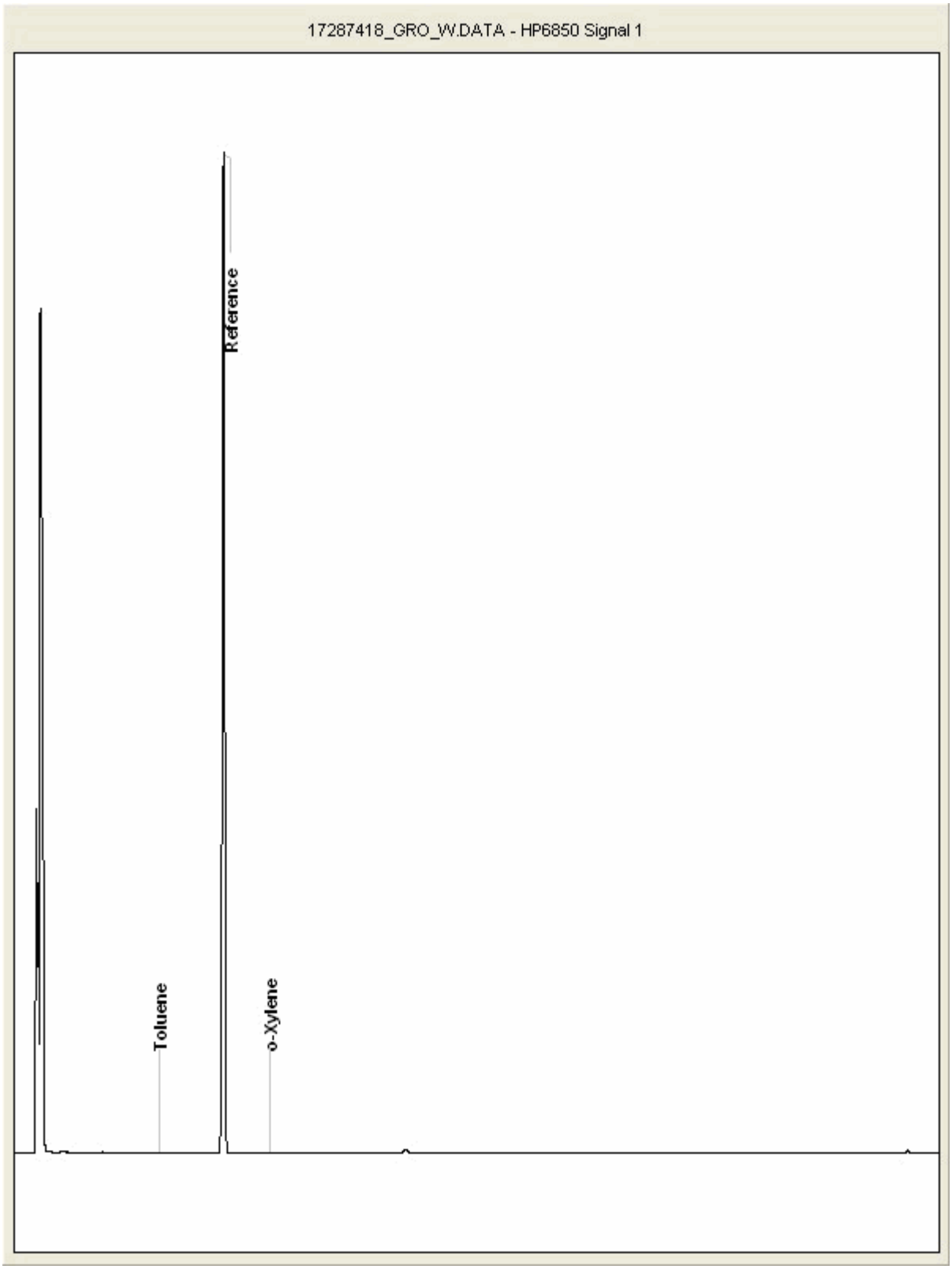
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287418
Sample ID : BH-RPS-03

Depth : 2.36



Validated

CERTIFICATE OF ANALYSIS

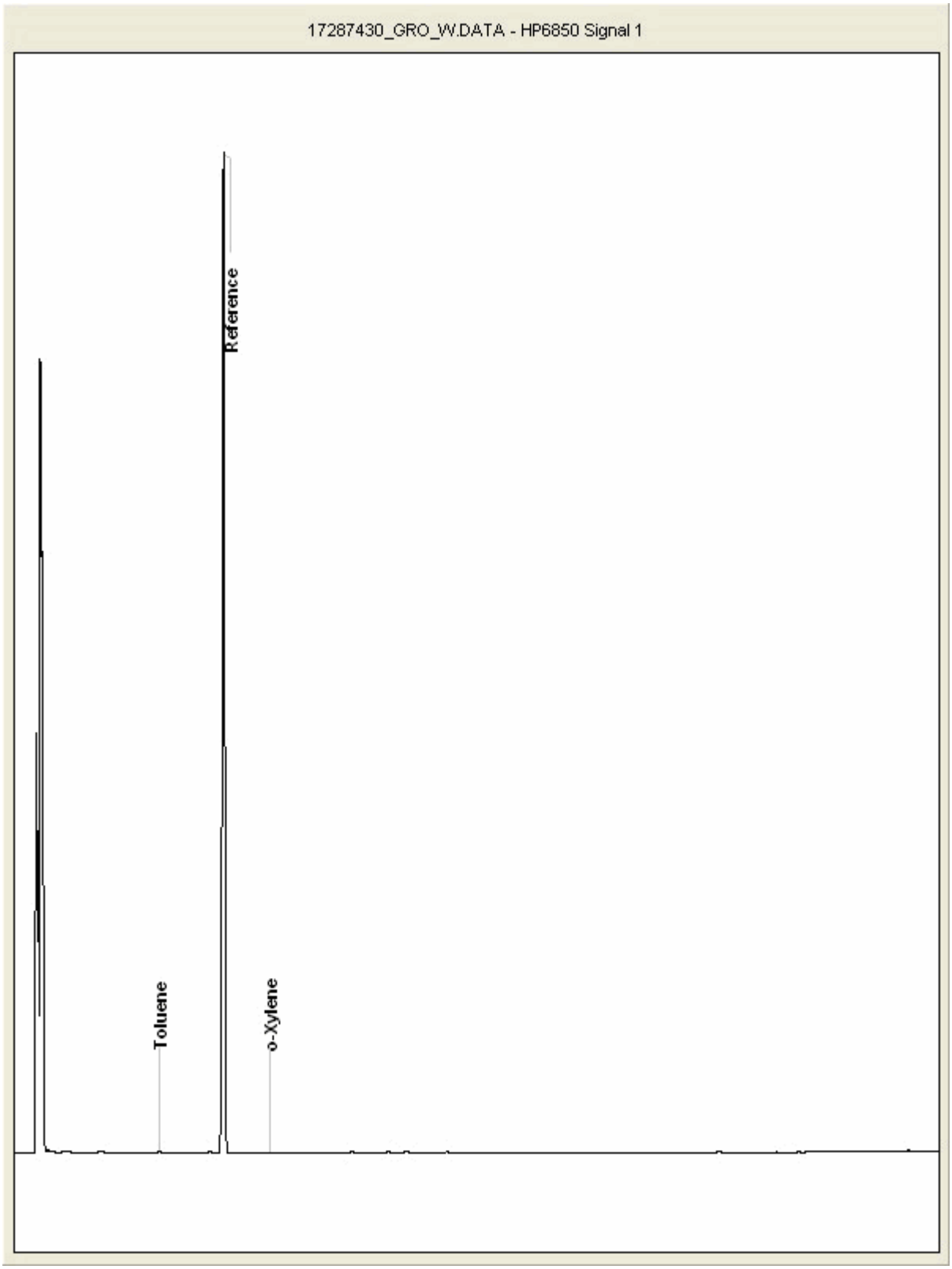
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287430
Sample ID : BH-RPS-05

Depth : 1.14



Validated

CERTIFICATE OF ANALYSIS

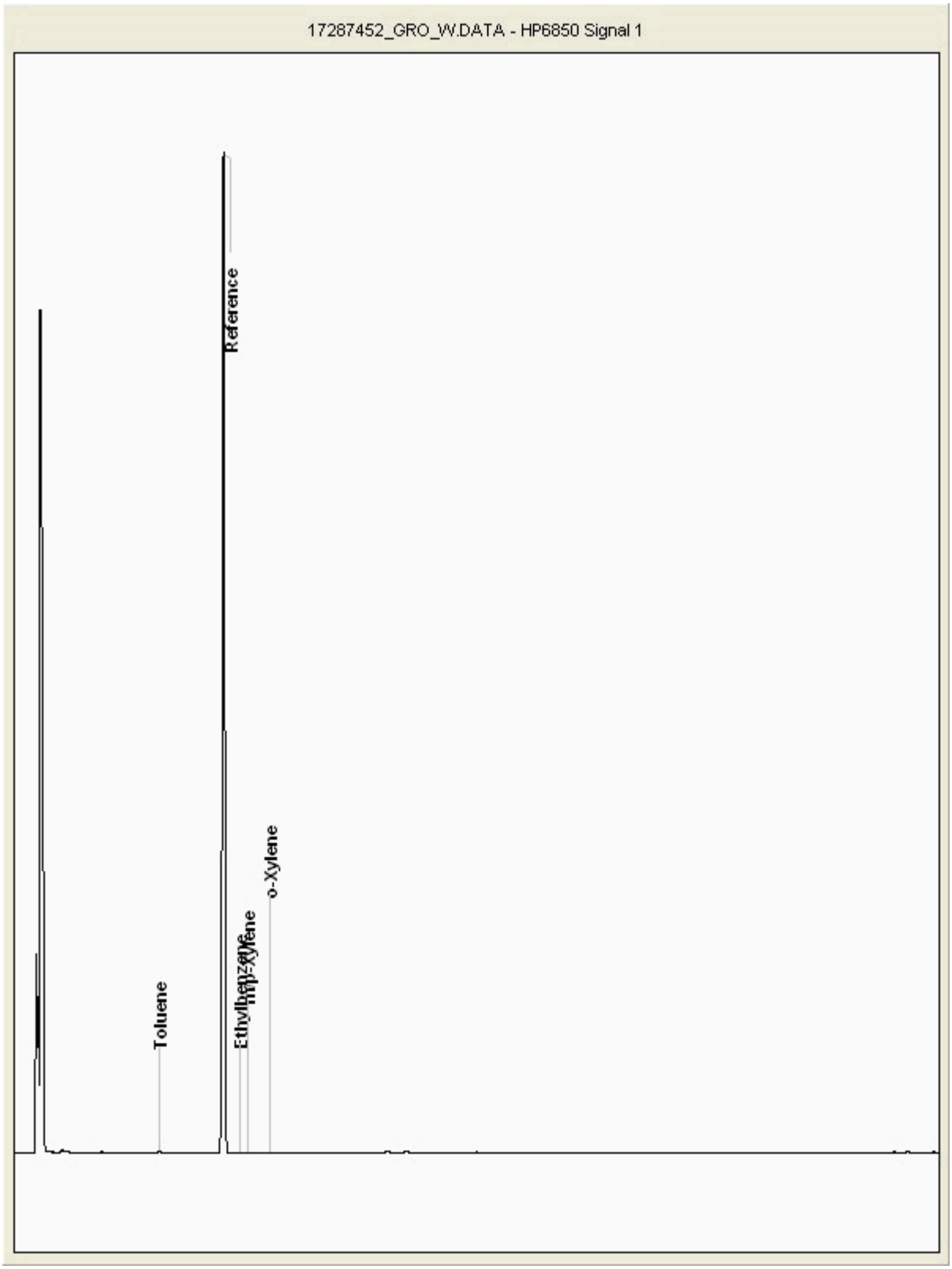
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287452
Sample ID : BH-RPS-10

Depth : 1.60



Validated

CERTIFICATE OF ANALYSIS

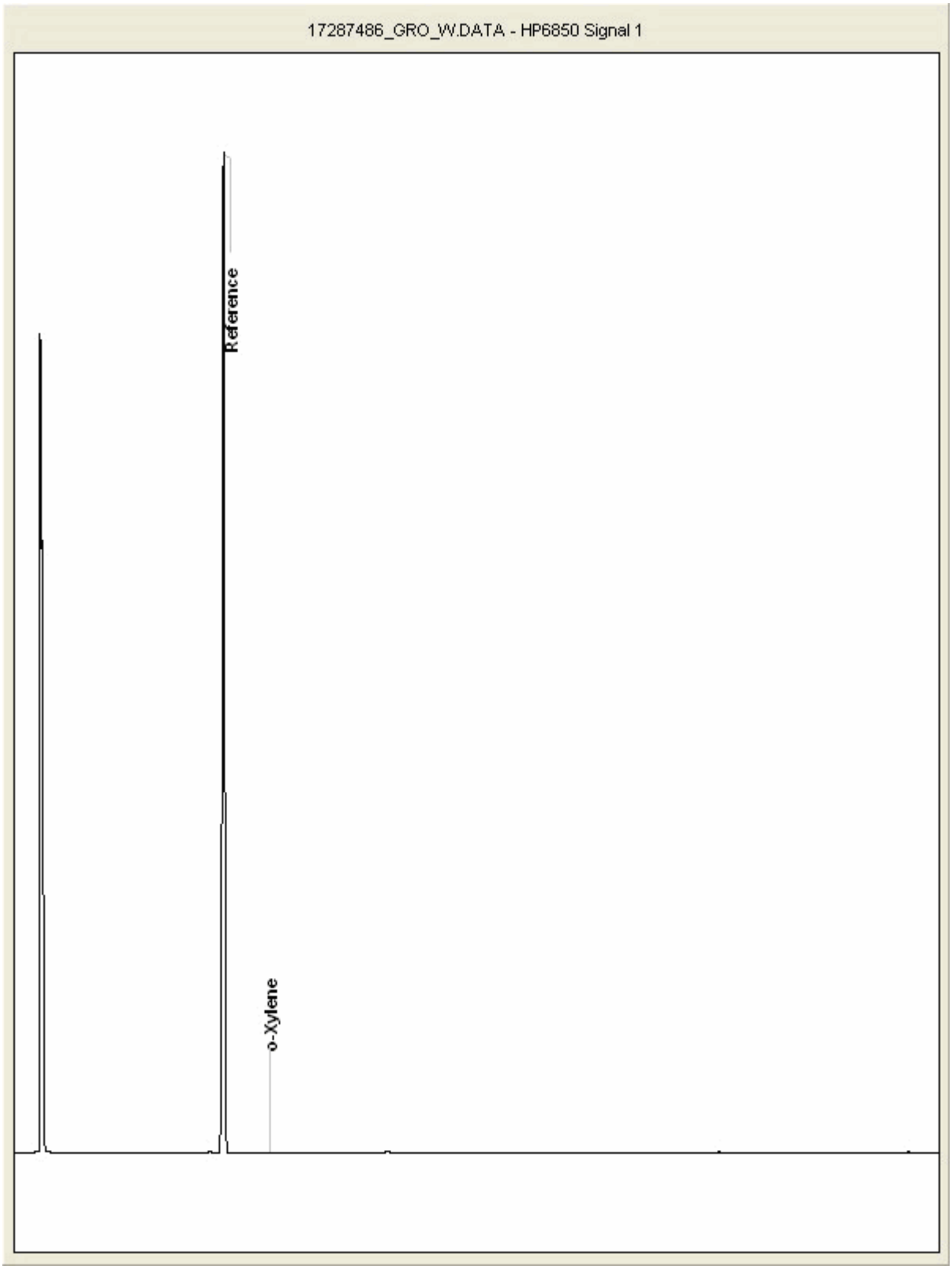
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287486
Sample ID : WS-RPS-24

Depth : 1.46



Validated

CERTIFICATE OF ANALYSIS

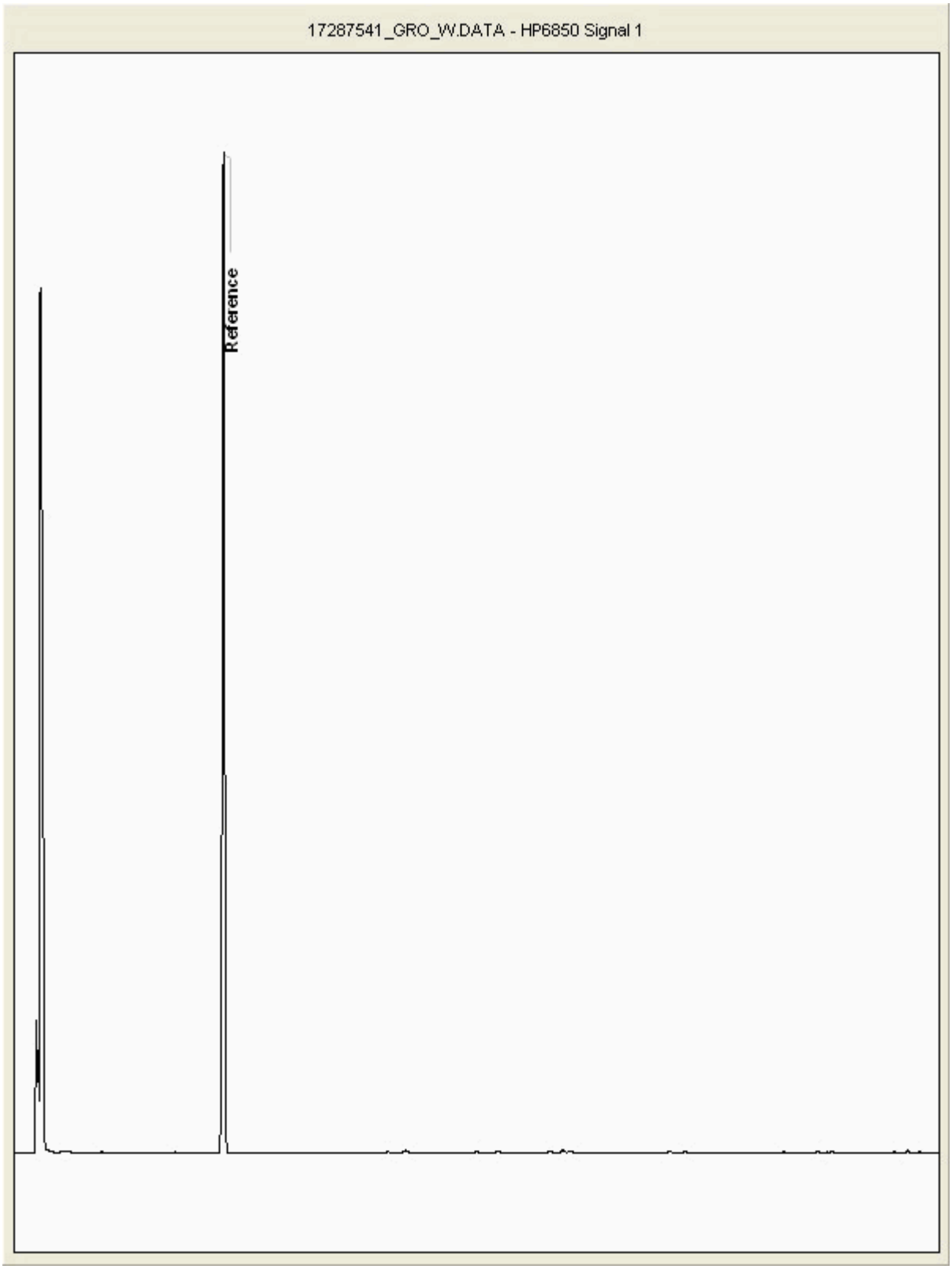
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287541
Sample ID : BH-RPS-01

Depth : 1.62



Validated

CERTIFICATE OF ANALYSIS

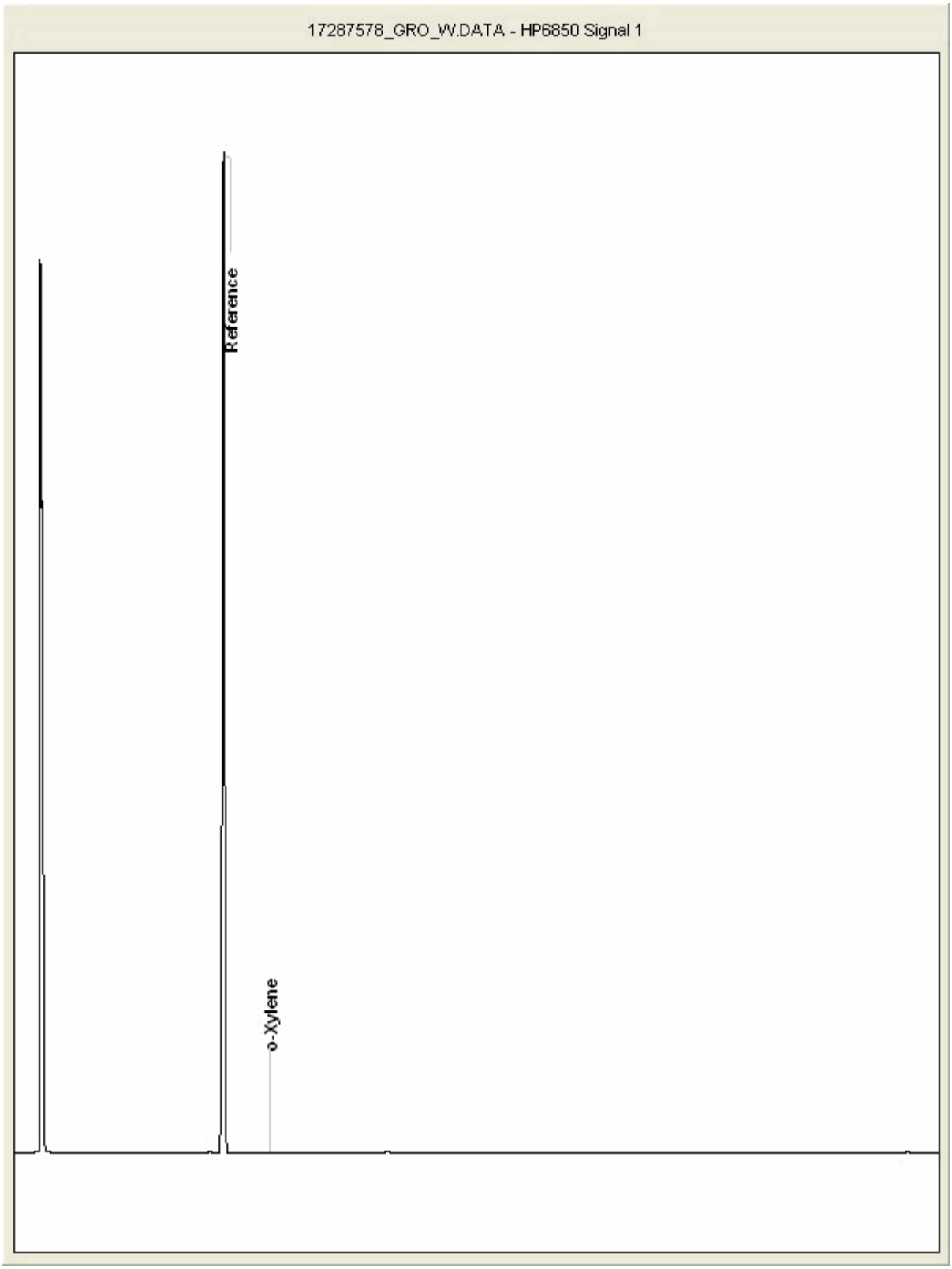
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287578
Sample ID : CP-RPS-03

Depth : 1.03



Validated

CERTIFICATE OF ANALYSIS

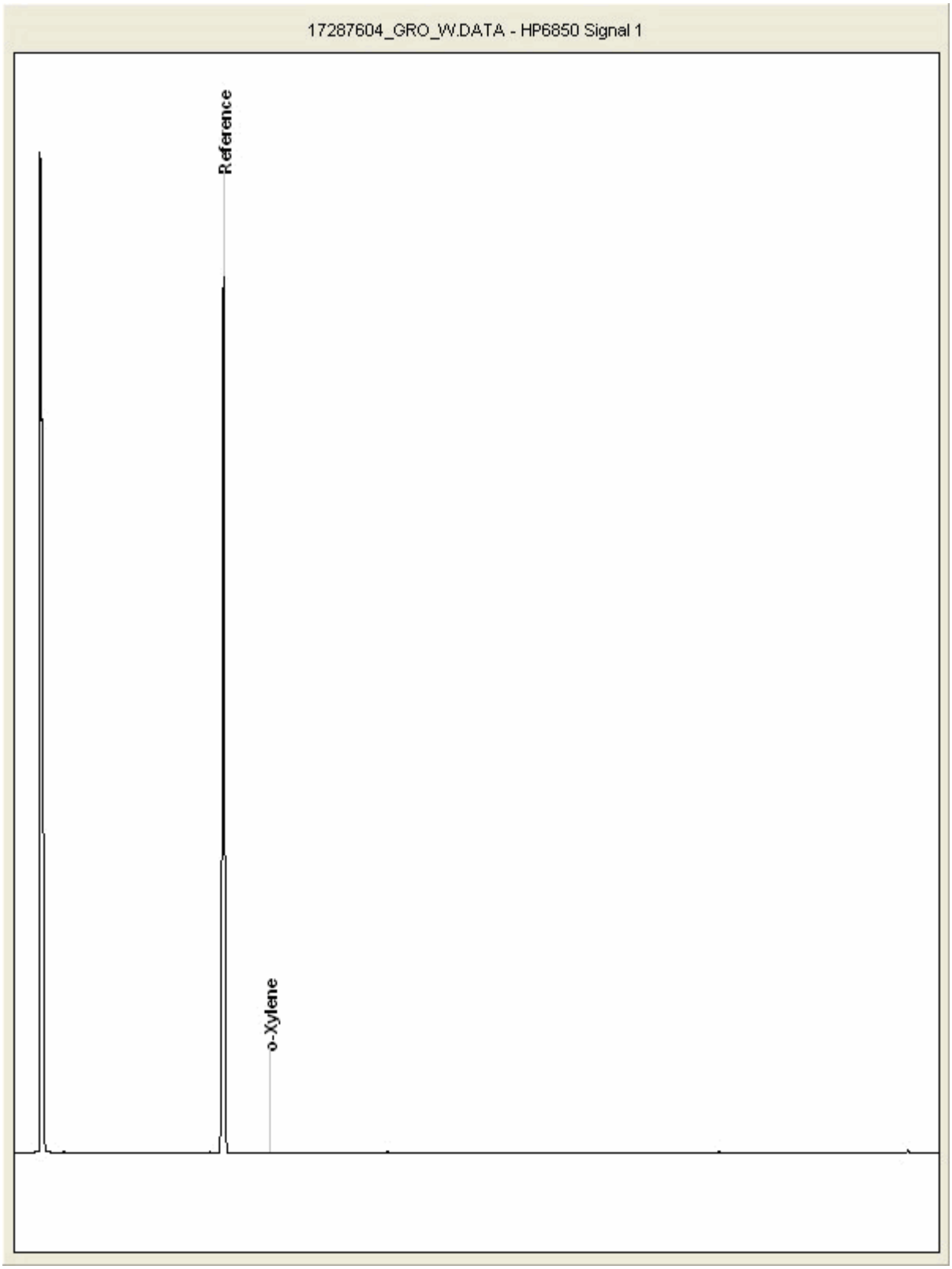
SDG:	180328-90	**Client Reference:**	JER1100	**Report Number:**	452362
Location:	Lostock	**Order Number:**		**Superseded Report:**	450964

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 17287604
Sample ID : CP-RPS-04a

Depth : 1.86



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

HazWasteOnline™

Waste Classification Report

J2HA4-T5SL2-9RLL4

Job name

Lostock EfW

Description/Comments

Project

JER1100

Site

Lostock EfW

Waste Stream Template

Example waste stream template for contaminated soils

Classified by

Name:
Ahlim Hashm
Date:
03/04/2018 09:46:45 UTC
Telephone:
01291 621821

Company:
RPS Group
Conrad House
Beaufort Square
Chepstow
NP16 5EP

Report

Created by: Ahlim Hashm
Created date: 03/04/2018 09:46 UTC

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	Max concentrations from all natural soil samples		Non Hazardous		2
2	Max concentrations from Lime Waste samples		Hazardous	HP 8	4
3	Max concentrations from Made Ground soil samples (not inc. lime waste)[2]		Hazardous	HP 7, HP 8, HP 11, HP 14	6

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	9
Appendix B: Rationale for selection of metal species	10
Appendix C: Version	11

Classification of sample: Max concentrations from all natural soil samples

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
Max concentrations from all natural soil samples

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		1.03	mg/kg	1.197	1.233	mg/kg	0.000123 %		
2		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.13	mg/kg	1.32	12.055	mg/kg	0.00121 %		
3		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.304	mg/kg	1.142	0.347	mg/kg	0.0000347 %		
4		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		46.1	mg/kg	1.462	67.378	mg/kg	0.00674 %		
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		22.2	mg/kg	1.126	24.995	mg/kg	0.0025 %		
6		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	33.4	mg/kg	1.56	52.098	mg/kg	0.00334 %		
7		manganese { manganese sulphate }	025-003-00-4	232-089-9	7785-87-7		761	mg/kg	2.749	2091.657	mg/kg	0.209 %		
8		molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3.29	mg/kg	1.5	4.936	mg/kg	0.000494 %		
9		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		57.2	mg/kg	2.976	170.242	mg/kg	0.017 %		
10		zinc { zinc chromate }	024-007-00-3				60.5	mg/kg	2.774	167.836	mg/kg	0.0168 %		
11		TPH (C6 to C40) petroleum group			TPH		69.3	mg/kg		69.3	mg/kg	0.00693 %		
12		pH			PH		10.3	pH		10.3	pH	10.3 pH		
13		naphthalene	601-052-00-2	202-049-5	91-20-3		53.5	mg/kg		53.5	mg/kg	0.00535 %		
14		phenanthrene		201-581-5	85-01-8		0.111	mg/kg		0.111	mg/kg	0.0000111 %		
15		anthracene		204-371-1	120-12-7		0.0225	mg/kg		0.0225	mg/kg	0.00000225 %		
16		fluoranthene		205-912-4	206-44-0		0.0971	mg/kg		0.0971	mg/kg	0.00000971 %		

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
17		pyrene				0.0715 mg/kg		0.0715 mg/kg	0.00000715 %		
			204-927-3	129-00-0							
18		benzo[a]anthracene				0.0799 mg/kg		0.0799 mg/kg	0.00000799 %		
		601-033-00-9	200-280-6	56-55-3							
19		chrysene				0.0597 mg/kg		0.0597 mg/kg	0.00000597 %		
		601-048-00-0	205-923-4	218-01-9							
20		benzo[b]fluoranthene				0.12 mg/kg		0.12 mg/kg	0.000012 %		
		601-034-00-4	205-911-9	205-99-2							
21		benzo[k]fluoranthene				0.0311 mg/kg		0.0311 mg/kg	0.00000311 %		
		601-036-00-5	205-916-6	207-08-9							
22		benzo[a]pyrene; benzo[def]chrysene				0.0677 mg/kg		0.0677 mg/kg	0.00000677 %		
		601-032-00-3	200-028-5	50-32-8							
23		indeno[123-cd]pyrene				0.0535 mg/kg		0.0535 mg/kg	0.00000535 %		
			205-893-2	193-39-5							
24		benzo[ghi]perylene				0.0706 mg/kg		0.0706 mg/kg	0.00000706 %		
			205-883-8	191-24-2							
								Total:	0.27 %		

Key

	User supplied data
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because TPH concentrations are unlikely to lead to flammable soils.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00693%)

Classification of sample: Max concentrations from Lime Waste samples

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
Max concentrations from Lime Waste samples

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 12.9 pH)

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4.77	mg/kg	1.197	5.71	mg/kg	0.000571 %		
2		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		94.6	mg/kg	1.32	124.903	mg/kg	0.0125 %		
3		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.19	mg/kg	1.142	1.359	mg/kg	0.000136 %		
4		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		40.5	mg/kg	1.462	59.193	mg/kg	0.00592 %		
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		66.5	mg/kg	1.126	74.872	mg/kg	0.00749 %		
6		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	264	mg/kg	1.56	411.791	mg/kg	0.0264 %		
7		manganese { manganese sulphate }	025-003-00-4	232-089-9	7785-87-7		856	mg/kg	2.749	2352.771	mg/kg	0.235 %		
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		6.94	mg/kg	1.353	9.393	mg/kg	0.000939 %		
9		molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		4.1	mg/kg	1.5	6.151	mg/kg	0.000615 %		
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		43.6	mg/kg	2.976	129.765	mg/kg	0.013 %		
11		zinc { zinc chromate }	024-007-00-3				172	mg/kg	2.774	477.153	mg/kg	0.0477 %		
12		TPH (C6 to C40) petroleum group			TPH		288	mg/kg		288	mg/kg	0.0288 %		
13		toluene	601-021-00-3	203-625-9	108-88-3		0.0036	mg/kg		0.0036	mg/kg	0.00000036 %		
14		pH			PH		12.9	pH		12.9	pH	12.9 pH		

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
15		naphthalene				1.2 mg/kg		1.2 mg/kg	0.00012 %		
		601-052-00-2	202-049-5	91-20-3							
16	●	acenaphthylene				0.233 mg/kg		0.233 mg/kg	0.0000233 %		
			205-917-1	208-96-8							
17	●	acenaphthene				0.0349 mg/kg		0.0349 mg/kg	0.00000349 %		
			201-469-6	83-32-9							
18	●	fluorene				0.029 mg/kg		0.029 mg/kg	0.0000029 %		
			201-695-5	86-73-7							
19	●	phenanthrene				1.8 mg/kg		1.8 mg/kg	0.00018 %		
			201-581-5	85-01-8							
20	●	anthracene				0.266 mg/kg		0.266 mg/kg	0.0000266 %		
			204-371-1	120-12-7							
21	●	fluoranthene				2.38 mg/kg		2.38 mg/kg	0.000238 %		
			205-912-4	206-44-0							
22	●	pyrene				2.37 mg/kg		2.37 mg/kg	0.000237 %		
			204-927-3	129-00-0							
23		benzo[a]anthracene				2.13 mg/kg		2.13 mg/kg	0.000213 %		
		601-033-00-9	200-280-6	56-55-3							
24		chrysene				2.39 mg/kg		2.39 mg/kg	0.000239 %		
		601-048-00-0	205-923-4	218-01-9							
25		benzo[b]fluoranthene				3.31 mg/kg		3.31 mg/kg	0.000331 %		
		601-034-00-4	205-911-9	205-99-2							
26		benzo[k]fluoranthene				1.29 mg/kg		1.29 mg/kg	0.000129 %		
		601-036-00-5	205-916-6	207-08-9							
27		benzo[a]pyrene; benzo[def]chrysene				2.41 mg/kg		2.41 mg/kg	0.000241 %		
		601-032-00-3	200-028-5	50-32-8							
28	●	indeno[123-cd]pyrene				1.59 mg/kg		1.59 mg/kg	0.000159 %		
			205-893-2	193-39-5							
29		dibenz[a,h]anthracene				0.507 mg/kg		0.507 mg/kg	0.0000507 %		
		601-041-00-2	200-181-8	53-70-3							
30	●	benzo[ghi]perylene				1.98 mg/kg		1.98 mg/kg	0.000198 %		
			205-883-8	191-24-2							
								Total:	0.382 %		

Key

	User supplied data
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because TPH and Toluene concentrations are unlikely to lead to flammable soils.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene: (conc.: 3.6e-07%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0288%)

Classification of sample: Max concentrations from Made Ground soil samples (not inc. lime waste)[2]

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:	LoW Code:	
Max concentrations from Made Ground soil samples (not inc. lime waste)[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
	Entry:	17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

arsenic trioxide: (compound conc.: 0.149%)

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.375%)

HP 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 12.4 pH)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.375%)

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Risk phrases hit:

R52/53 "Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinand:

benzo[a]anthracene: (conc.: 0.00853%)

R50/53 "Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinand:

arsenic trioxide: (compound conc.: 0.149%)

R51/53 "Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinands:

manganese sulphate: (compound conc.: 7.614%)
TPH (C6 to C40) petroleum group: (conc.: 0.375%)

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		13.1	mg/kg	1.197	15.682	mg/kg	0.00157 %		
2		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		1130	mg/kg	1.32	1491.968	mg/kg	0.149 %		
3		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		6.89	mg/kg	1.142	7.871	mg/kg	0.000787 %		
4		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		25.3	mg/kg	1.462	36.977	mg/kg	0.0037 %		
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		247	mg/kg	1.126	278.094	mg/kg	0.0278 %		
6		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	440	mg/kg	1.56	686.319	mg/kg	0.044 %		
7		manganese { manganese sulphate }	025-003-00-4	232-089-9	7785-87-7		27700	mg/kg	2.749	76135.218	mg/kg	7.614 %		
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		289	mg/kg	1.353	391.158	mg/kg	0.0391 %		
9		molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		12.5	mg/kg	1.5	18.752	mg/kg	0.00188 %		
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		162	mg/kg	2.976	482.155	mg/kg	0.0482 %		
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				11.3	mg/kg	2.554	28.856	mg/kg	0.00289 %		
12		zinc { zinc chromate }	024-007-00-3				32	mg/kg	2.774	88.773	mg/kg	0.00888 %		
13		TPH (C6 to C40) petroleum group			TPH		3750	mg/kg		3750	mg/kg	0.375 %		
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		0.0246	mg/kg		0.0246	mg/kg	0.00000246 %		
15		benzene	601-020-00-8	200-753-7	71-43-2		0.0255	mg/kg		0.0255	mg/kg	0.00000255 %		
16		toluene	601-021-00-3	203-625-9	108-88-3		0.0748	mg/kg		0.0748	mg/kg	0.00000748 %		
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		0.0085	mg/kg		0.0085	mg/kg	0.00000085 %		
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		0.0544	mg/kg		0.0544	mg/kg	0.00000544 %		
19		pH			PH		12.4	pH		12.4	pH	12.4 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		9.82	mg/kg		9.82	mg/kg	0.000982 %		
21		acenaphthylene		205-917-1	208-96-8		23.3	mg/kg		23.3	mg/kg	0.00233 %		
22		acenaphthene		201-469-6	83-32-9		3.09	mg/kg		3.09	mg/kg	0.000309 %		
23		fluorene		201-695-5	86-73-7		16.4	mg/kg		16.4	mg/kg	0.00164 %		
24		phenanthrene		201-581-5	85-01-8		149	mg/kg		149	mg/kg	0.0149 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
25	•	anthracene				45.3	mg/kg		45.3	mg/kg	0.00453 %		
			204-371-1	120-12-7									
26	•	fluoranthene				164	mg/kg		164	mg/kg	0.0164 %		
			205-912-4	206-44-0									
27	•	pyrene				122	mg/kg		122	mg/kg	0.0122 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				85.3	mg/kg		85.3	mg/kg	0.00853 %		
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				66.1	mg/kg		66.1	mg/kg	0.00661 %		
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				82.5	mg/kg		82.5	mg/kg	0.00825 %		
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				28.8	mg/kg		28.8	mg/kg	0.00288 %		
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				64.3	mg/kg		64.3	mg/kg	0.00643 %		
		601-032-00-3	200-028-5	50-32-8									
33	•	indeno[123-cd]pyrene				23.4	mg/kg		23.4	mg/kg	0.00234 %		
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				9.84	mg/kg		9.84	mg/kg	0.000984 %		
		601-041-00-2	200-181-8	53-70-3									
35	•	benzo[ghi]perylene				25.2	mg/kg		25.2	mg/kg	0.00252 %		
			205-883-8	191-24-2									
36		carbon tetrachloride; tetrachloromethane				0.032	mg/kg		0.032	mg/kg	0.0000032 %		
		602-008-00-5	200-262-8	56-23-5									
										Total:	8.408 %		

Key

	User supplied data
	Hazardous result
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because TPH, BTEX and MTBE concentrations are unlikely to lead to flammable soils.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinands:

tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane: (conc.: 2.46e-06%)
benzene: (conc.: 2.55e-06%)
toluene: (conc.: 7.48e-06%)
ethylbenzene: (conc.: 8.5e-07%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 0.375%)
xylene: (conc.: 5.44e-06%)

Appendix A: Classifier defined and non CLP determinands

chromium(III) oxide (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R61 , R60 , R50/53 , R43 , R42 , R38 , R37 , R36 , R22 , R20
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

dicopper oxide; copper (I) oxide (EC Number: 215-270-7, CAS Number: 1317-39-1)

CLP index number: 029-002-00-X
Description/Comments: M-factor for long-term aquatic hazard not included as per paragraph (5), ATP9
Data source: Regulation (EU) 2016/1179 of 19 July 2016 (ATP9)
Additional Risk Phrases: N R50/53 >= 0.25 %, N R50/53
Additional Hazard Statement(s): None.
Reason for additional Hazards Statement(s)/Risk Phrase(s):
10/10/2016 - N R50/53 >= 0.25 % risk phrase sourced from: WM3 v1 still uses ecotoxic risk phrases
10/10/2016 - N R50/53 risk phrase sourced from: WM3 v1 still uses ecotoxic risk phrases

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25/05/2015
Risk Phrases: R65 , R63 , R51/53 , R46 , R45 , R10
Hazard Statements: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Risk Phrases: None.
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s)/Risk Phrase(s):
03/06/2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25/05/2015
Risk Phrases: None.
Hazard Statements: None.

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R38 , R37 , R36 , R27 , R26 , R22
Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: N R51/53 , N R50/53 , R38 , R37 , R36
Hazard Statements: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: N R50/53
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: N R50/53 , R43 , R40 , R38 , R37 , R36 , R22
Hazard Statements: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: N R50/53 , R43 , R38 , R37 , R36
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21/08/2015
Risk Phrases: N R50/53 , Xn R22
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21/08/2015
Risk Phrases: N R50/53 , Xi R36/37/38
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: R40
Hazard Statements: Carc. 2 H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23/07/2015
Risk Phrases: N R50/53
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

Appendix B: Rationale for selection of metal species

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings (edit as required)

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(III) compounds {chromium(III) oxide}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

manganese {manganese sulphate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil. (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition, May 2015
HazWasteOnline Classification Engine Version: 2018.88.3517.7191 (31 Mar 2018)
HazWasteOnline Database: 2018.88.3517.7191 (31 Mar 2018)

This classification utilises the following guidance and legislation:
WM3 - Waste Classification - May 2015
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

SAMPLE ID	Asbestos Quantification (Total %)	Phenol	Ethylbenzene	Toluene	Benzene	o-Xylene	m,p,o Xylenes	Aromatics >C6-7	Aromatics >C7-8	Aromatics >C8-10	Aromatics >C10-12	m,p xylenes	Aliphatics >C5-6	Aliphatics >C6-8	Aliphatics >C8-10	Aliphatics >C10-12	GRO >C5-12	Ethylbenzene	Toluene	Benzene	o-Xylene	m,p xylenes	1,4-Dichlorobenzene	1,2-dichloroethane	Chlorobenzene	1,2,4-Trichlorobenzene	Tetrachloroethene	1,3-Dichlorobenzene	Carbon tetrachloride	1,1,1,2-tetrachloroethane	Chloroform	1,1,1-trichloroethane	Vinyl chloride	Carbon disulfide	1,1-dichloroethane	Trichloroethene	1,2,3-trichlorobenzene	Hexachlorobutadiene	Napthalene	1,2-Dichlorobenzene
SCREENING CRITERIA																																								
Commercial (S4UL)	0	440	5700000	56000000	27000	6600000	5900000	26000000	56000000	3500000	16000000	5900000	3200000	7800000	2000000	9700000	2000000	5700000	56000000	27000	6600000	5900000	4400000	670	56000	220000	19000	30000	2900	110000	99000	660000	59	11000	670	1200	102000	31000	190000	2000000
Commercial (C4SL)	0	[redacted]			90000	[redacted]														90000	[redacted]																			
SUMMARY																																								
No. Tested	18	8	87	87	87	87	87	85	85	85	85	87	85	85	85	85	85	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
No. Detected	7	0	4	44	1	13	8	1	7	30	13	8	15	36	26	21	31	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	0	0	1	0
Maximum Value	N/A	N/A	8.5	74.8	25.5	20.4	54.4	25.5	74.8	173	463	34	79.9	1250	252	695	1340	44	14	118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	32	N/A	N/A	362	N/A	35.8	N/A	N/A	N/A	N/A	21.1	N/A
Minimum Detected Value	N/A	N/A	3.1	2.09	25.5	3.16	9.48	25.5	13.9	12.3	10.5	6.32	10.1	10.3	10.1	10.4	54.4	44	14	118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	32	N/A	N/A	362	N/A	14.5	N/A	N/A	N/A	N/A	21.1	N/A
No. of S4UL Exceedances	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of C4SL Exceedances	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Method	Asbestos	Phenols	BTEX															VOC's																						
DATA																																								
Unit	N/A	mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
BH-RPS-01/ES/0.3-0.4	0.0023	<LoD	<LoD	2.4	<LoD	<LoD	<LoD	<LoD	<LoD	21.6	<LoD	<LoD	18	25.2	28.8	<LoD	98.4	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-01/ES/1.2-1.5			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	24	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-01/ES/5-5.5			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	13.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	21.1	<LoD
BH-RPS-02a/ES/0.2-0.5			<LoD	2.28	<LoD	<LoD	<LoD	<LoD	<LoD	19.4	<LoD	<LoD	12.5	11.4	18.2	12.5	85.5																							
BH-RPS-03/ES/0.95-1.1		<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-04/ES/0.3		<LoD	<LoD	7.38	<LoD	<LoD	<LoD	<LoD	<LoD	14.8	<LoD	<LoD	<LoD	35.7	13.5	<LoD	89.8	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-04/ES/0.65-0.9			<LoD	3.6	<LoD	<LoD	<LoD	<LoD	<LoD	21.6	12.6	<LoD	<LoD	30.6	30.6	18	126																							
BH-RPS-04/ES/7.8-8.4			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
BH-RPS-05/ES/0.3			<LoD	2.8	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-06/ES/0.4-0.5			<LoD	3.54	<LoD	4.72	<LoD	<LoD	<LoD	29.5	13	<LoD	20.1	51.9	27.1	20.1	181	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-06/ES/1.9-2.2			<LoD	2.52	<LoD	5.04	<LoD	<LoD	<LoD	125	56.7	<LoD	10.1	45.4	173	85.7	501	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-07/ES/0.6-1	0.0039		<LoD	3.9	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-09/ES/0.2-0.65			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-09/ES/1.3-1.5			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
BH-RPS-10/ES/0.7-0.9	0.0142		<LoD	4.96	<LoD	3.72	<LoD	<LoD	<LoD	23.6	19.8	<LoD	17.4	49.6	26	28.5	175	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	362	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-10/ES/3.5-3.8			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	173	<LoD	<LoD	<LoD	67	252	13.8	524	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-10/ES/4.7-4.85			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
BH-RPS-10/ES/6-6.2			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
BH-RPS-12/ES/0.3-0.6			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-12/ES/3.1-3.3			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-12/ES/6.5-6.8			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
BH-RPS-16/ES/7-7.5		<LoD	<LoD	5.9	<LoD	<LoD	<LoD	<LoD	<LoD	21.2	<LoD	<LoD	11.8	13	28.3	13	103	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	35.8	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-17/ES/0.1-0.3			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	12.4	16.6	<LoD	<LoD	17.6	15.5	23.8	92.2																							
BH-RPS-23a/ES/0.4-0.85		<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-23a/ES/1.4-1.6			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	11.3	<LoD	<LoD																							
BH-RPS-23a/ES/3.2-3.5			<LoD	<LoD	<LoD	<LoD	<LoD					<LoD																												
CP-RPS-01/ES/0.3-0.55			<LoD	2.11	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	32	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
CP-RPS-02/ES/0.1			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
CP-RPS-04/ES/0.6	<LoD		<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
CP-RPS-05/ES/0.5			<LoD	9.84	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
CP-RPS-05/ES/2-3			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
CP-RPS-06/ES/0.7-1.2			<LoD	13.9	<LoD	<LoD	<LoD	<LoD	13.9	15.1	<LoD	<LoD	17.6	35.3	10.1	<LoD	105	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-01/ES/0.35			<LoD	2.26	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-02/ES/0.15-0.4																																								
TP-RPS-03/ES/0.4-0.9			<LoD	4.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
TP-RPS-04/ES/0.75			<LoD	2.11	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
TP-RPS-11/ES/1	<LoD		<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
TP-RPS-17/ES/0.2	<LoD		<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-17/ES/1.2			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
TP-RPS-19/ES/0.2			<LoD	2.14	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
TP-RPS-19/ES/1.9	<LoD		<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
TP-RPS-21/ES/0.5	3.05		<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	14	118	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-24/ES/0.3-0.4			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
TP-RPS-25/ES/0.2			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	12.7	<LoD	<LoD	<LoD																							
TP-RPS-28/ES/0.6		<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-30/ES/0.2			<LoD	<LoD	<LoD	4.92	22.1	<LoD	<LoD	38.1	<LoD	17.2	12.3	33.2	19.7	<LoD	111																							
TP-RPS-35/ES/0.2			<LoD	4.76	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-35/ES/1.6			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	13.6	42.7	<LoD	<LoD	19.4	17.5	64	165																							
TP-RPS-35/ES/2.4			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
TP-RPS-37/ES/0.2			<LoD	4.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-37/ES/1.7			<LoD	<LoD	<LoD	<LoD	<LoD					<LoD																												
TP-RPS-38/ES/0.8			8.5	74.8	25.5	20.4	54.4	25.5	74.8	116	42.5	34	79.9	214	79.9	62.9	695	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-39/ES/0.2			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
TP-RPS-40/ES/0.2			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	14.6	1250	<LoD	<LoD	1290																							
TP-RPS-41/ES/0.2			<LoD	5.24	<LoD	<LoD	<LoD	<LoD	<LoD	14.4	10.5	<LoD	<LoD	21	13.1	15.7	86.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-45/ES/0-0.5			<LoD	2.38	<LoD	<LoD	<LoD	<LoD	<LoD	13.1	<LoD	<LoD	<LoD	13.1	10.7	14.3	72.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-45/ES/2			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	10.8	<LoD	<LoD	<LoD	<LoD	14.9	<LoD																							
TP-RPS-46/ES/0.2			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	13.9	<LoD	<LoD	<LoD	17.4	17.4	10.4	73.1																							
TP-RPS-46/ES/0.7			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
TP-RPS-50/ES/0.5			<LoD	9.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-51/ES/0.4			<LoD	8.82	<LoD	<LoD	<LoD	<LoD	<LoD	22.7	<LoD	<LoD	11.3	35.3	22.7	13.9	123																							
WS-RPS-01/ES/0.5			<LoD	5.36	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	18.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-08/ES/0.2-0.5	0.0217	<LoD	<LoD	2.44	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	15.9	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-09/ES/0.8			<LoD	4.38	<LoD	<LoD	<LoD	<LoD	<LoD	56.9	463	<LoD	10.9	29.5	77.7	695	1340																							
WS-RPS-10/ES/0.4-0.5			<LoD	3.54	<LoD	<LoD	<LoD	<LoD	<LoD	15.3	18.9	<LoD	13	17.7	16.5	29.5	114	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-11/ES/1.1			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-12/ES/0.2-0.5			3.1	6.2	<LoD	<LoD	<LoD	<LoD	<LoD	16.5	<LoD	<LoD	14.5	56.8	10.3	<LoD	108	44	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-13/ES/0.05-0.45	0.0027		<LoD	3.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
WS-RPS-14/ES/0.2-0.4			<LoD	4.96	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-15/ES/0.5-1			<LoD	16.4	<LoD	3.51	11.7	<LoD	16.4	16.4	<LoD	8.19	<LoD	22.2	<LoD	<LoD	74.9																							
WS-RPS-16/ES2/0.5	<LoD		<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-16/ES/0.5	0.106																																							
WS-RPS-17/ES/0.4-0.6			<LoD	2.09	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-18/ES/0.2-0.7			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
WS-RPS-21/ES/0.2			<LoD	2.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-21/ES/0.75-1			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
WS-RPS-23/ES/0-0.4	<LoD		<LoD	15.1	<LoD	3.24	<LoD	<LoD	15.1	18.3	<LoD	<LoD	<LoD	24.8	11.9	<LoD	109																							
WS-RPS-23/ES/0.7-1			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD																							
WS-RPS-24/ES/0.5	<LoD		<LoD	2.22	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	13.3	54.4																							
WS-RPS-24/ES/2.6-3			<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	42.2	315	<LoD	<LoD	11.2	62	474	914	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	14.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-25/ES/0.35-0.5	<LoD		<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-28/ES/0.2	<LoD		<LoD	4.56	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	10.3	<LoD	<LoD	<LoD																							
WS-RPS-29/ES/0.25-0.6			3.16	8.43	<LoD	3.16	9.48	<LoD	<LoD	17.9	<LoD	6.32	<LoD	11.6	<LoD	<LoD	70.6																							
WS-RPS-29/ES/0.6-0.9	<LoD		<LoD	7.62	<LoD	3.26	<LoD	<LoD	<LoD	18.5	<LoD	<LoD	<LoD	26.1	20.7	14.1	114	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-29a/ES/0.75			<LoD	2.17	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-30/ES/0-0.3		<LoD	<LoD	15.5	<LoD	4.44	14.4	<LoD	15.5	20	<LoD	9.99	<LoD	12.2	<LoD	<LoD	83.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-30/ES/0.5-0.8	<LoD		<LoD	15.2	<LoD	3.51	10.5	<LoD	15.2	17.6	<LoD	7.02	<LoD	25.7	<LoD	<LoD	104																							
WS-RPS-36a/ES/0.1-0.3			<LoD	7.84	<LoD	4.48	11.2	<LoD	<LoD	12.3	<LoD	6.72	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-36a/ES/0.35-0.42			3.29	20.8	<LoD	12	32.8	<LoD	20.8	77.7	26.3	20.8	25.2	78.8	60.2	39.4	333																							

SCREENING CRITERIA																												
Commercial (S4UL)	440000	4400000	220000	30000	31000	190000	2000000	110000	5.2E+08	3500000	54000000	3900000	500000	44000	23000000	1200000	83000000	350000	35000	3500	170000	84000000	22000000	63000000	400000	3500000	3500000	3500000
Commercial (C4SL)																			36000									
SUMMARY																												
No. Tested	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
No. Detected	1	0	0	0	0	17	0	0	10	0	21	19	19	19	21	19	4	19	19	8	19	4	20	4	0	0	0	0
Maximum Value	3100	N/A	N/A	N/A	N/A	8640	N/A	N/A	83700	N/A	255000	28700	37200	63200	295000	71200	32300	120000	83500	9310	137000	5060	304000	29200	N/A	N/A	N/A	N/A
Minimum Detected Value	3100	N/A	N/A	N/A	N/A	179	N/A	N/A	151	N/A	158	129	123	114	158	116	272	157	115	113	121	191	147	257	N/A	N/A	N/A	N/A
No. of S4UL Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
No. of C4SL Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Method	SVOC's																											
DATA																												
Unit	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SAMPLE ID	Phenol	1,4-Dichlorobenzene	1,2,4-Trichlorobenzene	1,3-Dichlorobenzene	Hexachlorobutadiene	Napthalene	1,2-Dichlorobenzene	Hexachlorobenzene	Anthracene	2,4-Dichlorophenol	Pyrene	Benzo (g,h,i) perylene	Indeno(1,2,3-cd)pyrene	Benzo(b)fluoranthene	Fluoranthene	Benzo(k)fluoranthene	Acenaphthylene	Chrysene	Benzo(a)pyrene	Dibenz-a-h-anthracene	Benzo(a)anthracene	Acenaphthene	Phenanthrene	Fluorene	Pentachlorophenol	2,4,6-Trichlorophenol	2-Chlorophenol	2,4,5-Trichlorophenol
BH-RPS-01/ES/0.3-0.4	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	281	215	247	281	280	303	<LoD	331	317	<LoD	264	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-01/ES/1.2-1.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	774	383	418	556	904	593	<LoD	658	546	<LoD	551	<LoD	499	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-01/ES/5-5.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-02a/ES/0.2-0.5																												
BH-RPS-03/ES/0.95-1.1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-04/ES/0.3	<LoD	<LoD	<LoD	<LoD	<LoD	3420	<LoD	<LoD	627	<LoD	6020	2050	2260	3630	7020	3570	335	4060	3950	317	4360	<LoD	2620	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-04/ES/0.65-0.9																												
BH-RPS-04/ES/7.8-8.4																												
BH-RPS-05/ES/0.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-06/ES/0.4-0.5	<LoD	<LoD	<LoD	<LoD	<LoD	460	<LoD	<LoD	376	<LoD	1260	295	236	328	1340	308	<LoD	486	352	<LoD	519	202	1210	257	<LoD	<LoD	<LoD	<LoD
BH-RPS-06/ES/1.9-2.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-07/ES/0.6-1	<LoD	<LoD	<LoD	<LoD	<LoD	270	<LoD	<LoD	216	<LoD	2850	1050	1200	1260	2760	1280	<LoD	1480	1430	264	1460	<LoD	1060	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-09/ES/0.2-0.65	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-09/ES/1.3-1.5																												
BH-RPS-10/ES/0.7-0.9	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	244	171	201	214	218	207	<LoD	202	221	<LoD	137	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-10/ES/3.5-3.8	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-10/ES/4.7-4.85																												
BH-RPS-10/ES/6-6.2																												
BH-RPS-12/ES/0.3-0.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-12/ES/3.1-3.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-12/ES/6.5-6.8																												
BH-RPS-16/ES/7-7.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-17/ES/0.1-0.3																												
BH-RPS-23a/ES/0.4-0.85	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	826	484	430	423	755	465	<LoD	432	540	<LoD	382	<LoD	172	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-23a/ES/1.4-1.6																												
BH-RPS-23a/ES/3.2-3.5																												
CP-RPS-01/ES/0.3-0.55	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
CP-RPS-02/ES/0.1																												
CP-RPS-04/ES/0.6																												
CP-RPS-05/ES/0.5																												
CP-RPS-05/ES/2-3																												
CP-RPS-06/ES/0.7-1.2	<LoD	<LoD	<LoD	<LoD	<LoD	179	<LoD	<LoD	<LoD	<LoD	188	<LoD	<LoD	<LoD	158	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	198	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-01/ES/0.35	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	278	<LoD	2380	1140	1470	1420	2440	1200	<LoD	1330	1560	194	1330	<LoD	964	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-02/ES/0.15-0.4	<LoD	<LoD	<LoD	<LoD	<LoD	223	<LoD	<LoD	924	<LoD	8690	2810	3620	4050	9780	4020	272	4890	4530	388	4520	191	4640	287	<LoD	<LoD	<LoD	<LoD
TP-RPS-03/ES/0.4-0.9																												
TP-RPS-04/ES/0.75																												
TP-RPS-11/ES/1																												
TP-RPS-17/ES/0.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-17/ES/1.2																												
TP-RPS-19/ES/0.2																												
TP-RPS-19/ES/1.9																												
TP-RPS-21/ES/0.5	<LoD	<LoD	<LoD	<LoD	<LoD	323	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-24/ES/0.3-0.4																												
TP-RPS-25/ES/0.2																												
TP-RPS-28/ES/0.6	<LoD	<LoD	<LoD	<LoD	<LoD	322	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-30/ES/0.2																												
TP-RPS-35/ES/0.2	<LoD	<LoD	<LoD	<LoD	<LoD	277	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	147	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-35/ES/1.6																												
TP-RPS-35/ES/2.4																												
TP-RPS-37/ES/0.2	<LoD	<LoD	<LoD	<LoD	<LoD	591	<LoD	<LoD	151	<LoD	1590	568	600	733	1590	777	<LoD	980	790	<LoD	834	<LoD	942	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-37/ES/1.7																												
TP-RPS-38/ES/0.8	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-39/ES/0.2																												
TP-RPS-40/ES/0.2																												
TP-RPS-41/ES/0.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-45/ES/0-0.5	<LoD	<LoD	<LoD	<LoD	<LoD	399	<LoD	<LoD	205	<LoD	1760	711	728	912	1980	1140	<LoD	1150	1220	262	1140	<LoD	1020	<LoD	<LoD	<LoD	<LoD	<LoD
TP-RPS-45/ES/2																												
TP-RPS-46/ES/0.2																												
TP-RPS-46/ES/0.7																												
TP-RPS-50/ES/0.5	3100	<LoD	<LoD	<LoD	<LoD	8640	<LoD	<LoD	83700	<LoD	255000	28700	37200	63200	295000	71200	32300	120000	83500	9310	137000	5060	304000	29200	<LoD	<LoD	<LoD	<LoD
TP-RPS-51/ES/0.4																												
WS-RPS-01/ES/0.5	<LoD	<LoD	<LoD	<LoD	<LoD	330	<LoD	<LoD	<LoD	<LoD	1380	659	796	836	1410	709	<LoD	916	848	113	819	<LoD	497	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-08/ES/0.2-0.5	<LoD	<LoD	<LoD	<LoD	<LoD	3010	<LoD	<LoD	<LoD	<LoD	925	273	254	333	835	332	<LoD	509	388	<LoD	483	<LoD	1660	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-09/ES/0.8																												
WS-RPS-10/ES/0.4-0.5	<LoD	<LoD	<LoD	<LoD	<LoD	196	<LoD	<LoD	<LoD	<LoD	277	187	169	181	220	128	<LoD	158	181	<LoD	174	<LoD	166	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-11/ES/1.1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-12/ES/0.2-0.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-13/ES/0.05-0.45																												
WS-RPS-14/ES/0.2-0.4	<LoD	<LoD	<LoD	<LoD	<LoD	1600	<LoD	<LoD	2270	<LoD	6360	1640	2060	2320	7400	2220	1130	3060	2720	217	3290	529	7810	1720	<LoD	<LoD	<LoD	<LoD
WS-RPS-15/ES/0.5-1																												
WS-RPS-16/ES2/0.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-16/ES/0.5																												
WS-RPS-17/ES/0.4-0.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-18/ES/0.2-0.7																												
WS-RPS-21/ES/0.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	338	170	199	239	361	151	<LoD	215	158	<LoD	135	<LoD	149	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-21/ES/0.75-1																												
WS-RPS-23/ES/0-0.4																												
WS-RPS-23/ES/0.7-1																												
WS-RPS-24/ES/0.5																												
WS-RPS-24/ES/2.6-3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-25/ES/0.35-0.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	129	123	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-28/ES/0.2																												
WS-RPS-29/ES/0.25-0.6																												
WS-RPS-29/ES/0.6-0.9	<LoD	<LoD	<LoD	<LoD	<LoD	2540	<LoD	<LoD	194	<LoD	822	261	294	452	617	463	<LoD	477	431	<LoD	431	<LoD	864	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-29a/ES/0.75	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-30/ES/0-0.3	<LoD	<LoD	<LoD	<LoD	<LoD	968	<LoD	<LoD	<LoD	<LoD	226	<LoD	<LoD	114	180	116	<LoD	157	115	<LoD	121	<LoD	353	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-30/ES/0.5-0.8																												
WS-RPS-36a/ES/0.1-0.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	158	<LoD	<LoD	<LoD	255	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	154	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-36a/ES/0.35-0.42																												

SAMPLE ID	PCB-118 2,3',4,4',5 - Pentachlorobiphenyl	PCB 77	PCB 105	PCB 169	PCB-156 2,3,3',4,4',5 - Hexachlorobiphenyl	PCB 189	PCB 167	PCB 126	PCB 123	PCB 157	PCB 81	PCB 114	Sum of detected WHO 12 PCBs	Pcb, Total Of 7 Congeners	PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	PCB-138 2,2',3,4,4',5' - Hexachlorobiphenyl	PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	PCB-52 2,2',5,5' - Tetrachlorobiphenyl	PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	PCB-28 2,4,4' - Trichlorobiphenyl	Aromatics >C12-16	Aromatics >C16-21	Aromatics >C21-35	Aromatics >C35-44	Aromatics >C40-44	Aromatics >C12-44	Aliphatics & Aromatics >C5-44	Aliphatics >C12-16	Aliphatics >C16-21	Aliphatics >C21-35	Aliphatics >C35-44
SCREENING CRITERIA																															
Commercial (S4UL)	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	36000000	28000000	28000000	28000000	28000000	28000000	2000000	59000000	1.6E+09	1.6E+09	1.6E+09
Commercial (C4SL)																															
SUMMARY																															
No. Tested	54	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	85	85	85	85	85	85	85	85	85	85	85
No. Detected	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	64	71	80	76	66	80	82	63	68	80	67
Maximum Value	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.8	3.34	3.85	N/A	N/A	N/A	232000	1220000	1830000	600000	359000	3550000	3750000	58000	87100	474000	261000
Minimum Detected Value	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.8	3.34	3.85	N/A	N/A	N/A	138	471	997	254	588	997	1940	111	645	912	334
No. of S4UL Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
No. of C4SL Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Method	PCB's																				TPH										
DATA																															
Unit	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
BH-RPS-01/ES/0.3-0.4	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								7390	12000	32900	7630	2450	59900	80800	4330	4890	11500	<LoD
BH-RPS-01/ES/1.2-1.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	654	21500	96700	23800	8450	143000	255000	757	11800	74600	24900
BH-RPS-01/ES/5-5.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	997	<LoD	<LoD	997	4830	207	1110	2000	500
BH-RPS-02a/ES/0.2-0.5																					1390	8290	43300	19800	7190	72700	114000	111	2980	33400	4510
BH-RPS-03/ES/0.95-1.1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								291	1350	10100	1960	705	13700	28200	3710	2010	5760	3000
BH-RPS-04/ES/0.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	10500	28100	110000	22800	6230	171000	214000	5020	6860	31100	<LoD
BH-RPS-04/ES/0.65-0.9																					3680	23000	77500	21900	7290	126000	159000	<LoD	1900	24200	7090
BH-RPS-04/ES/7.8-8.4																					<LoD	520	7380	6940	3180	14800	42400	<LoD	1580	19300	6660
BH-RPS-05/ES/0.3	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	6360	12800	70000	21100	7610	110000	287000	6950	14500	104000	50900
BH-RPS-06/ES/0.4-0.5	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	23600	47400	153000	38100	14200	262000	380000	9800	14700	73400	19400
BH-RPS-06/ES/1.9-2.2																					<LoD	1010	6380	1010	<LoD	8400	10100	<LoD	<LoD	1200	<LoD
BH-RPS-07/ES/0.6-1	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	3590	20600	88200	34000	14200	146000	211000	2690	4310	39100	18300
BH-RPS-09/ES/0.2-0.65	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								<LoD	<LoD	1830	545	<LoD	2370	37900	1860	4330	19800	9460
BH-RPS-09/ES/1.3-1.5																					<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	25000	<LoD	<LoD	14700	10300
BH-RPS-10/ES/0.7-0.9	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	4300	19500	87800	23700	8160	135000	244000	8190	24800	64700	10900
BH-RPS-10/ES/3.5-3.8	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	3930	37400	21500	8440	62900	205000	1550	10800	99700	29400
BH-RPS-10/ES/4.7-4.85	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-10/ES/6-6.2																					<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-12/ES/0.3-0.6	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1030	<LoD	<LoD	1030	2540	<LoD	<LoD	1510	<LoD
BH-RPS-12/ES/3.1-3.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								428	1290	6300	5290	5300	13300	14800	<LoD	<LoD	1130	334
BH-RPS-12/ES/6.5-6.8	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	138	4100	24800	39400	27700	68400	69300	<LoD	<LoD	912	<LoD
BH-RPS-16/ES/7-7.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	10700	1160	<LoD	11800	17800	<LoD	<LoD	5910	<LoD
BH-RPS-17/ES/0.1-0.3																					3920	13700	230000	152000	61800	399000	707000	29500	15200	183000	79700
BH-RPS-23a/ES/0.4-0.85	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	622	4550	31400	15300	5650	51800	78100	<LoD	<LoD	17600	8710
BH-RPS-23a/ES/1.4-1.6	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	7180	3140	1090	10300	14000	<LoD	<LoD	3710	<LoD
BH-RPS-23a/ES/3.2-3.5	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD											
CP-RPS-01/ES/0.3-0.55	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1150	2550	13100	7910	3320	24700	47900	938	1790	14400	6090
CP-RPS-02/ES/0.1	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	8190	36300	246000	206000	90900	497000	741000	6930	3610	111000	123000
CP-RPS-04/ES/0.6	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	4890	2420	<LoD	7310	51400	2970	4320	21400	15400
CP-RPS-05/ES/0.5	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	5190	8150	23300	19000	10400	55600	79800	3160	3090	13000	4980
CP-RPS-05/ES/2-3																					2710	18700	32500	7560	2680	61500	64800	<LoD	949	2430	<LoD
CP-RPS-06/ES/0.7-1.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	735	838	13700	3480	907	18700	55700	1950	4560	19800	10500
TP-RPS-01/ES/0.35	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								9190	73600	233000	104000	44700	420000	661000	2420	9600	93300	136000
TP-RPS-02/ES/0.15-0.4																															
TP-RPS-03/ES/0.4-0.9																					4330	9470	45800	28700	13100	88300	157000	2420	5580	49800	10800
TP-RPS-04/ES/0.75																					11500	9240	17900	7650	2860	46400	92800	9260	1950	29900	5270
TP-RPS-11/ES/1	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	2900	6730	29800	9630	2890	49000	59800	<LoD	645	8420	1710
TP-RPS-17/ES/0.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	506	787	4290	707	<LoD	6290	7730	<LoD	<LoD	1440	<LoD
TP-RPS-17/ES/1.2																					185	471	9100	2680	588	12400	13900	<LoD	<LoD	1410	<LoD
TP-RPS-19/ES/0.2	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	2710	10600	45200	22500	9040	81100	115000	<LoD	1930	24800	6890
TP-RPS-19/ES/1.9	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	338	1240	2640	254	<LoD	4470	4470	<LoD	<LoD	<LoD	<LoD
TP-RPS-21/ES/0.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								1400	2250	8460	4180	1760	16300	28600	529	1660	9030	1130
TP-RPS-24/ES/0.3-0.4	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1540	13000	3650	1160	18200	79900	1560	5150	43000	12000
TP-RPS-25/ES/0.2																					10700	17800	60100	13300	3150	102000	150000	<LoD	4400	37600	5940
TP-RPS-28/ES/0.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								13400	21000	54900	8440	<LoD	97700	148000	8480	9640	27800	4570
TP-RPS-30/ES/0.2																					1620	2320	14900	17400	6030	36300	57300	938	1290	17400	1350
TP-RPS-35/ES/0.2																					8100	13000	50600	24400	9180	96100	175000	5640	11900	41700	19500
TP-RPS-35/ES/1.6																					5420	11500	23100	3780	681	43900	110000	27300	29000	9740	<LoD
TP-RPS-35/ES/2.4																					<LoD	<LoD	1420	513	<LoD	1940	1940	<LoD	<LoD	<LoD	<LoD
TP-RPS-37/ES/0.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								10700	19300	59300	13200	4010	103000	153000	7600	4410	37800	920
TP-RPS-37/ES/1.7	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD											
TP-RPS-38/ES/0.8																					6220	10400	100000	61700	25100	178000	281000	2410	5810	66400	27200
TP-RPS-39/ES/0.2																					29000	66700	191000	45700	15600	333000	585000	19200	49600	157000	26200
TP-RPS-40/ES/0.2																					16700	41800	105000	23200	7910	187000	306000	12800	24500	54900	25300
TP-RPS-41/ES/0.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								4120	8770	37500	11800	4070	62200	125000	2580	6470	43900	9910
TP-RPS-45/ES/0-0.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								7110	13500	39300	20400	9440	80300	143000	2900	7260	43400	9530
TP-RPS-45/ES/2																					<LoD	616	3380	<LoD	<LoD	3990	15000	<LoD	<LoD	10000	1020
TP-RPS-46/ES/0.2																					2090	21200	332000	324000	162000	680000	1350000	1140	18900	474000	178000
TP-RPS-46/ES/0.7	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	6240	19500	92400	32400	11100	151000	288000	4240	29500	89500	13900
TP-RPS-50/ES/0.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								232000	1220000	1830000	262000	78200	3550000	3750000	37600	49200	104000	10200
TP-RPS-51/ES/0.4																					6290	6860	13900	<LoD	<LoD	27100	35700	2430	2070	3950	<LoD
WS-RPS-01/ES/0.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								12900	25300	77800	31600	13400	148000	195000	5780	8050	31500	2120
WS-RPS-08/ES/0.2-0.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								23300	43400	163000	52700	19100	282000	470000	8950	19000	129000	30400
WS-RPS-09/ES/0.8																					36200	102000	170000	59400	23800	368000	597000	58000	87100	71600	11200
WS-RPS-10/ES/0.4-0.5	<LoD													<LoD	3.8	3.34	3.85	<LoD	<LoD	<LoD	13300	23100	75600	17600	6270	130000	196000	15200	14500	30900	5780
WS-RPS-11/ES/1.1	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	716	28100	24000	9710	52900	288000	1630	<LoD	129000	104000
WS-RPS-12/ES/0.2-0.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								2620	9160	131000	351000	192000	494000	844000	2590	8700	109000	229000
WS-RPS-13/ES/0.05-0.45																					1930	8630	101000	60200	24100	172000	316000	4240	9540	90900	39100
WS-RPS-14/ES/0.2-0.4	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								5010	21400	49500	12600	3930	88600	127000	1330	3750	25800	7160
WS-RPS-15/ES/0.5-1																					5130	9920	27700	11300	4640	54000	78300	3000	3640	16200	1410
WS-RPS-16/ES2/0.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1570	4520	37800	15600	5940	59500	121000	1590	4940	44400	10100
WS-RPS-16/ES/0.5																															
WS-RPS-17/ES/0.4-0.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								<LoD	<LoD	4260	1170	<LoD	5440	32600	2610	3230	13300	7980
WS-RPS-18/ES/0.2-0.7																					<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	15000	1950	2060	7110	3890
WS-RPS-21/ES/0.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								4310	11200	105000	105000	51800	226000	463000	3280	7670	144000	81400
WS-RPS-21/ES/0.75-1																					<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-23/ES/0-0.4																					15200	17800	39300	7330	2240	79600	103000	5660	6070	11800	<LoD
WS-RPS-23/ES/0.7-1																					<LoD	<LoD	3040	648	<LoD	3690	36900	2540	5020	15300	10300
WS-RPS-24/ES/0.5	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	9160	21000	238000	600000	359000	868000	1320000	9310	11500	169000	261000
WS-RPS-24/ES/2.6-3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								6250	4130	4290	4270	1360	18900	77500	27200	19100	7880	3520
WS-RPS-25/ES/0.35-0.5	<LoD													<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1710	14600	5560	2080	21900	38200	1030	1730	12200	1380
WS-RPS-28/ES/0.2																					11700	22100	76700	45100	19100	156000	252000	5960	9670	58300	22400
WS-RPS-29/ES/0.25-0.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	8110	14400	36600	24300	13100	83400	127000	8380	5970	19900	8780
WS-RPS-29/ES/0.6-0.9	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								23300	30800	78200	13800	3740	146000	209000	11700	13500	36000	1880
WS-RPS-29a/ES/0.75	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD								1620	3500	21700	31600	17200	58400	107000	2310	5080	27800	13600
WS-RPS-30/ES/0-0.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	3880	5760	17400	8590	3760	35600	56700	2760	3460	11500	3340
WS-RPS-30/ES/0.5-0.8																					7340	14700	52300	11200	3600	85500	129000	3460	6510	30900	2560
WS-RPS-36a/ES/0.1-0.3																					1630	6030	43000	46500	25400	97200	168000	739	3400	47900	19200
WS-RPS-36a/ES/0.35-0.42																					5170	11200	38800	32100	16700	87300	149000	3340	8240	38100	11600

SAMPLE ID	Lead	Mercury	Nickel	Arsenic	Cadmium	Chromium	Copper	Vanadium	Zinc	Selenium	Napthalene	Anthracene	Pyrene	Benzo (g,h,i) perylene	Indeno(1,2,3-cd)pyrene	Benzo(b)fluoranthene	Fluoranthene	Benzo(k)fluoranthene	Acenaphthylene	Chrysene	Benzo(a)pyrene	Dibenz-a-h-anthracene	Benzo(a)anthracene	Acenaphthene	Phenanthrene	Fluorene	Lead	Nickel	Arsenic	Cadmium	Chromium	Copper	Zinc
SCREENING CRITERIA																																	
Commercial (S4UL)	2300	58	980	640	190	8600	68000	9000	730000	12000	190000	5.2E+08	54000000	3900000	500000	44000	23000000	1200000	83000000	350000	35000	3500	170000	84000000	22000000	63000000	2300	980	640	190	8600	68000	730000
Commercial (C4SL)	2300			640	220																36000						2300		640	220			
SUMMARY																																	
No. Tested	86	86	86	86	86	86	86	86	86	86	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	28	28	28	28	28	28	28
No. Detected	86	27	86	86	81	83	86	86	86	10	70	59	71	66	64	72	71	65	50	71	69	51	67	46	69	43	19	18	23	3	10	20	13
Maximum Value	440	289	162	1130	6.89	46.1	247	176	469	11.3	9820	45300	122000	25200	23400	82500	164000	28800	23300	66100	64300	9840	85300	3090	149000	16400	0.238	0.0558	21.6	0.00259	0.239	0.0831	0.589
Minimum Detected Value	3.52	0.178	1.74	1.01	0.0266	1.67	2.05	3.72	14.4	1.07	15.3	20	28	37.6	25.2	19.7	28	20.8	14.6	13.8	21.6	27.4	16.2	9.97	29.9	12.1	0.00212	0.00424	0.00562	0.000808	0.0106	0.00674	0.0102
No. of S4UL Exceedances	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
No. of C4SL Exceedances	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Method	Metals										PAH's																Metals						
DATA																																	
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH-RPS-01/ES/0.3-0.4	60.3	<LoD	48.9	26.7	0.1	5.39	78.3	78.3	98.3	<LoD	2190	34.7	363	300	167	413	325	168	14.6	293	220	60.2	237	<LoD	756	<LoD							
BH-RPS-01/ES/1.2-1.5	264	1.58	19.3	18	0.336	1.67	44.5	38.5	133	<LoD	93.8	266	2370	1980	1590	3220	2380	1290	172	2390	2390	507	2130	14.4	1800	<LoD							
BH-RPS-01/ES/5-5.5	7.12	<LoD	1.74	8.2	0.188	2.89	6.7	6.73	14.8	<LoD	59.8	<LoD	39	<LoD	<LoD	<LoD	62.3	<LoD	<LoD	13.8	<LoD	<LoD	<LoD	16.4	125	<LoD							
BH-RPS-02a/ES/0.2-0.5	115	0.292	28.3	11.3	0.864	10.4	48	33.5	146	<LoD	114	130	1070	451	362	894	1320	383	29.3	599	536	128	614	25.7	712	21.2							
BH-RPS-03/ES/0.95-1.1	10.9	<LoD	13.5	23.4	1.71	10.9	21.2	27.7	50.1	<LoD	77.7	40.4	726	400	264	642	786	245	52.5	543	417	75.3	506	<LoD	151	<LoD							
BH-RPS-04/ES/0.3	376	5.6	45.3	30.6	0.536	10.6	75	65.3	127	<LoD	1970	656	5360	2480	2020	5530	6080	2250	461	3540	3620	757	3970	31.2	2390	73.9	0.00776	0.00462	0.0317	<LoD	<LoD	0.0201	<LoD
BH-RPS-04/ES/0.65-0.9	120	6.94	17.1	40.4	1.16	7.84	33.8	33.9	66.1	<LoD	709	170	1080	1830	1310	3310	1200	1130	233	1600	2410	400	1710	17.6	719	29							
BH-RPS-04/ES/7.8-8.4	6.47	<LoD	19.1	5.02	<LoD	14.1	14.2	21.1	34.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD							
BH-RPS-05/ES/0.3	28.8	<LoD	67.1	10.2	0.884	12.9	61.6	60.7	150	<LoD	278	55.8	113	37.6	<LoD	43.2	126	<LoD	<LoD	47.8	37.9	<LoD	74.4	15.7	243	29.8	<LoD	0.0558	0.0126	0.000808	<LoD	<LoD	0.0442
BH-RPS-06/ES/0.4-0.5	229	0.991	51.9	24.5	0.262	5.17	74.3	38.9	71.5	<LoD	1060	775	2850	890	595	1890	3470	616	72.7	1240	1260	193	1520	372	2690	493	0.0872	0.0237	0.101	<LoD	<LoD	0.0238	0.0426
BH-RPS-06/ES/1.9-2.2	11.7	<LoD	23.3	6.85	0.236	14.8	13.9	23.7	79.5	<LoD	93.9	42.2	71	<LoD	<LoD	30.6	93.5	<LoD	15.3	25.4	24.4	<LoD	20.4	30	138	39.9							
BH-RPS-07/ES/0.6-1	62.3	1.34	49.6	59.8	1.22	<LoD	99	74	101	<LoD	1000	366	2890	1550	1210	3110	3300	1140	232	1800	2060	369	1900	30.7	1490	61.6	0.134	0.0136	0.365	0.00259	0.0578	0.0555	0.222
BH-RPS-09/ES/0.2-0.65	22.6	<LoD	4.55	1.2	1.08	3.27	4.14	3.72	28.1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD							
BH-RPS-09/ES/1.3-1.5	49.6	<LoD	20.6	11.5	1.19	40.5	28	53.3	63.2	<LoD	26.5	<LoD	<LoD	<LoD	<LoD	80.2	<LoD	<LoD	<LoD	27.3	52.5	<LoD	<LoD	<LoD	<LoD	<LoD							
BH-RPS-10/ES/0.7-0.9	210	5.33	57.9	37.5	0.97	11	221	72.4	153	<LoD	1040	332	1020	1050	750	1720	922	717	170	556	911	247	504	51.6	691	42.6							
BH-RPS-10/ES/3.5-3.8	12.4	<LoD	11.3	14.6	0.635	12.3	14	23.9	40.4	<LoD	19	34.1	172	273	216	400	182	184	<LoD	169	325	70.6	201	<LoD	149	<LoD							
BH-RPS-10/ES/4.7-4.85	5.15	<LoD	16.3	3.68	<LoD	11.6	11.9	17.7	28.1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD							
BH-RPS-10/ES/6-6.2	5.56	<LoD	35.4	4.57	<LoD	25.2	12.2	30.7	56.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD							
BH-RPS-12/ES/0.3-0.6	27.1	<LoD	34.2	3.99	0.0592	6.52	7.45	14	25.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	0.00991	0.0615	<LoD	<LoD	<LoD	<LoD
BH-RPS-12/ES/3.1-3.3	9.54	<LoD	6.43	4.55	0.0269	4.88	5.11	7.86	14.4	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD							
BH-RPS-12/ES/6.5-6.8	5.96	<LoD	57.2	2.84	<LoD	46.1	5.17	36.6	60.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD							
BH-RPS-16/ES/7-7.5	4.82	<LoD	8.88	2.06	0.0568	8.56	4.82	11.4	19.8	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	0.0106	0.0205	<LoD	<LoD	<LoD	<LoD
BH-RPS-17/ES/0.1-0.3	3.52	<LoD	2.98	1.26	0.234	4.03	2.05	8.52	17.9	<LoD	<LoD	<LoD	116	<LoD	<LoD	<LoD	94.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD							
BH-RPS-23a/ES/0.4-0.85	9.33	<LoD	21.4	7.03	0.208	14.5	12.7	22.3	50.6	<LoD	59.7	33.2	341	301	188	340	348	129	22.7	165	290	46	199	42.9	126	15.2	<LoD	<LoD	0.124	<LoD	<LoD	0.00699	<LoD
BH-RPS-23a/ES/1.4-1.6	24.1	<LoD	24	6.42	0.0874	19	14.6	25.9	47.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	20.5	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	0.0048	0.0123	0.0722	<LoD	<LoD	0.00674	0.0102
BH-RPS-23a/ES/3.2-3.5																											<LoD	<LoD	0.00919	0.0013	<LoD	<LoD	0.252
CP-RPS-01/ES/0.3-0.55	24.9	6.54	8.38	6.61	0.629	4.12	11.5	9.06	38.8	<LoD	61.4	21.9	116	106	64.8	135	127	51.6	<LoD	75.1	91.1	<LoD	88.7	<LoD	123	<LoD	0.082	0.00592	0.1	<LoD	0.0267	0.0265	0.0294
CP-RPS-02/ES/0.1	15.3	<LoD	8.28	1.98	0.233	10.2	7.13	9.67	30.2	<LoD	35.5	374	1510	714	572	1450	1900	576	34.9	807	1050	168	962	153	1180	109	0.0156	<LoD	0.0534	<LoD	<LoD	0.0117	<LoD
CP-RPS-04/ES/0.6	18.1	<LoD	24.3	14.3	0.341	13	34.3	65.1	45.7	<LoD	27.7	32.7	155	125	90.2	200	182	67.4	22.5	98.2	120	30.4	106	16.4	160	16.5	<LoD	0.00424	0.00936	<LoD	0.239	0.0447	<LoD
CP-RPS-05/ES/0.5	233	0.21	31	1130	0.323	2.54	83.4	40.5	62.9	7.75	2440	298	1930	521	385	1490	2510	538	141	1070	660	142	1170	30.7	1790	54.1	0.00974	<LoD	21.6	<LoD	<LoD	0.0125	<LoD
CP-RPS-05/ES/2-3	81.6	<LoD	22	321	0.0266	10.1	32	23	42.5	1.79	478	532	2310	464	393	823	3390	513	152	1210	603	135	1150	94.7	2450	175							
CP-RPS-06/ES/0.7-1.2	33.4	<LoD	12.8	8.66	0.304	9.35	19.2	16.5	44.4	<LoD	63.3	<LoD	58.7	53.9	37.8	87.3	75.5	25	<LoD	33.6	45.1	<LoD	40.1	<LoD	111	<LoD	0.0612	0.0106	0.0773	<LoD	<LoD	0.026	<LoD
TP-RPS-01/ES/0.35	199	0.375	23.2	39.9	0.794	8.78	64.8	22.1	212	<LoD	288	889	3680	1650	1260	3410	3510	1330	224	1470	1870	376	1530	64.7	2210	153							
TP-RPS-02/ES/0.15-0.4	399	0.226	42.5	104	1.26	6.01	247	37.9	274	4.59	659	539	5420	1820	1440	3690	5710	1260	242	2740	2550	456	2470	106	2920	184							
TP-RPS-03/ES/0.4-0.9	40	<LoD	19.6	14	0.478	6.7	39.4	25.9	49.2	<LoD	571	97.5	396	202	135	327	405	136	42.4	227	211	39.2	197	12.3	447	12.1							
TP-RPS-04/ES/0.75	32.8	<LoD	4.56	2.64	0.521	4.75	7.98	5.39	38.8	<LoD	56.2	20	64.7	43.7	25.8	77.1	73.8	22.3	<LoD	52.9	39.5	<LoD	48.3	<LoD	94.6	<LoD							
TP-RPS-11/ES/1	17.8	<LoD	15.3	20.8	0.539	9.32	20.1	28.6	53.5	<LoD	1200	88.7	606	529	332	694	643	227	32.4	411	486	88.7	405	34.9	1050	<LoD	0.00834	0.0075	0.0145	<LoD	0.0424	<LoD	0.0227
TP-RPS-17/ES/0.2	29	<LoD	3.95	1.6	1.01	3.57	3.74	4.89	19.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	0.00212	<LoD	<LoD	<LoD	0.0272	<LoD	<LoD
TP-RPS-17/ES/1.2	32.7	<LoD	18.6	9.13	0.162	13.8	22.2	23.5	55.1	<LoD	25.8	22.5	71.5	70.6	53.5	120	97.1	31.1	<LoD	59.7	67.7	<LoD	79.9	<LoD	85.7	<LoD							
TP-RPS-19/ES/0.2	317	<LoD	13.2	14.8	0.822	4.77	21.9	13.3	81.2	<LoD	213	112	733	439	334	739	890	303	97.6	483	486	110	483	12.9	426	13.4	0.00371	<LoD	0.0668	<LoD	0.0139	0.00682	<LoD
TP-RPS-19/ES/1.9	20.9	<LoD	15.6	30.8	0.522	6.52	24.9	25.1	62.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	19.7	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	0.109	<LoD	0.0131	<LoD	<LoD
TP-RPS-21/ES/0.5	63.4	<LoD	66.8	93.1	2.12	10.5	111	62.3	469	1.07	326	<LoD	72.6	63.5	32.6	80.1	74.1	27.2	<LoD	49	41.8	<LoD	65.8	<LoD	200	<LoD							
TP-RPS-24/ES/0.3-0.4	18	0.401	7.52	13.2	0.709	9.65	14.9	17.7	38.6	<LoD	23.1	30.4	206	363	281	393	239	141	38.8	183	295	81.7	214	<LoD	142	<LoD	0.148	0.00539	<LoD	<LoD	0.0255	0.0251	0.589
TP-RPS-25/ES/0.2	65.4	0.753	52.6	32.3	0.92	14.8	88.8	85.9	158	1.43	527	56.6	364	221	145	371	402	127	34.2	261	264	42.6	293	<LoD	424	14							
TP-RPS-28/ES/0.6	21.5	<LoD	61	38.1	0.199	16.2	71.7	122	39	<LoD	4860	149	732	484	187	771	819	171	29.2	405	321	80	464	11.3	2310	14.2							
TP-RPS-30/ES/0.2	44	<LoD	24.5	4.86	0.347	9.88	28.7	77.5	148	3.87	61	30	204	125	90.1	241	264	89.1	<LoD	126	149	30.1	164	9.97	195	12.8							
TP-RPS-35/ES/0.2	59.8	<LoD	53.9	25.2	0.435	3.7	84.5	57.6	115	<LoD	1470	144	412	438	215	476	379	137	85.7	219	275	<LoD	229	<LoD	998	<LoD							
TP-RPS-35/ES/1.6	6.59	<LoD	8.51	11	0.636	8.77	11.9	15.6	27.6	<LoD	87.2	218	665	527	397	760	819	348	44.2	441	712	117	530	<LoD	876	<LoD							
TP-RPS-35/ES/2.4	6.4	<LoD	20.4	6.85	0.153	17	18	23.3	29.7	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD							
TP-RPS-37/ES/0.2	113	289	162	158	1.96	<LoD	176	120	148	<LoD	1620	166	1550	815	508	1480	1500	445	62.3	953	949	182	1040	25.1	1270	38.9							
TP-RPS-37/ES/1.7																											0.119	0.00505	<LoD	<LoD	<LoD	0.0107	0.0277
TP-RPS-38/ES/0.8	12.4	<LoD	24.2	12.9	1.16	14.5	31.1	39.6	68.7	<LoD	2010	107	529	286	156	398	571	150	26.8	301	336	50.7	419	19.5	776	29							
TP-RPS-39/ES/0.2	45.9	0.432	49.9	54.5	0.986	8.23	58.5	34	99.2	1.18	1090	226	757	558	278	662	708	111	53	379	444	99	443	42	1470	42.3							
TP-RPS-40/ES/0.2	52.4	<LoD	72.4	13.9	0.278	11.9	60.3	93.1	46.8	<LoD	340	116	568	462	157	561	463	141	16.6	249	318	55.6	352	17.5	713	13.4							
TP-RPS-41/ES/0.2	30.1	0.28	56.6	32.3	1.07	11.2	93.3	84.5	150	1.42	433	78.2	372	215	129	347	421	112	37.4	224	227	43.8	256	20.3	473	31.6							
TP-RPS-45/ES/0-0.5	72.7	1.3	47.1	53.5	0.612	17.1	82.5	28.2	295	11.3	1150	184	1730	865	642	1460	2060	673	45.6	1080	1140	196	1080	54.8	1360	55.2							
TP-RPS-45/ES/2	10.5	0.178	3.04	14.4	0.0789	3.6	9.14	4.85	16.6	<LoD	<LoD	<LoD	28	<LoD	<LoD	20.5	30.4	<LoD	<LoD	14.6	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD							
TP-RPS-46/ES/0.2	134	<LoD	10.6	4.02	3.57	8.88	14.9	9.36	145	<LoD	15.3	22.9	137	134	89.7	185	124	67.2	30.9	73.8	142	<LoD	63.9	<LoD	64.7	<LoD							
TP-RPS-46/ES/0.7	89.7	0.638	40.3	60	0.661	9.03	82.1	64.5	87.6	<LoD	1060	174	842	1090	551	931	862	272	94.5	439	527	134	443	22.5	919	27.6	0.00562	<LoD	0.322	<LoD	0.0106	0.00836	<LoD
TP-RPS-50/ES/0.5	286	<LoD	30.9	484	0.804	2.86	196	24.2	175	4.81	9820	45300	122000	25200	23400	82500	164000	28800	23300	66100	64300	9840	85300	3090	149000	16400							
TP-RPS-51/ES/0.4	34.5	<LoD	61.1	42.6	0.305	14.2	78.4	98.9	59.8	<LoD	1480	79.6	295	228	104	263	293	92.7	20	173	173	39.6	208	14.5	703	14.7							
WS-RPS-01/ES/0.5	227	4.01	44.7	32.4	3.65	7.74	66.3	62.4	171	<LoD	1520	154	1570	804	545	1350	1770	571	75.3	1110	871	197	881	27.3	1010	31							
WS-RPS-08/ES/0.2-0.5	69	2.3	52	42.7	0.0676	6.22	94.2	47.6	114	<LoD	2540	306	1250	735	375	1080	1460	324	155	753	684	126	839	32.7	2230	50.3							
WS-RPS-09/ES/0.8	33.9	0.365	13.7	20.7	0.416	5.15	28.9	23.8	63.3	<LoD	930	107	465	218	136	317	466	115	51.6	211	222	44.1	232	20	591	56.2							
WS-RPS-10/ES/0.4-0.5	46.1	<LoD	51.7	12.5	0.272	2.11	50.7	35.6	49.2	<LoD	736	122	932	599	365	1010	862	319	47.9	495	618	99.9	513	21.4	757	31.7	<LoD	0.0217	<LoD	<LoD	<LoD	<LoD	0.0384
WS-RPS-11/ES/1.1	7.01	<LoD	8.03	10.8	0.863	11.5	19.6	13.8	50.5	<LoD	26.9	<LoD	78.8	104	84.7	111	95.5	68.8	<LoD	61.7	91.1	<LoD	27.3	<LoD	93.9	<LoD	0.238	0.00577	<LoD	<LoD	0.0145	0.0244	0.134
WS-RPS-12/ES/0.2-0.5	15.8	<LoD	9.18	4.98	0.373	4.28	6.05	5.97	40.2	<LoD	152	<LoD	34	49.7	<LoD	45.5	35	<LoD	<LoD	31.2	27.7	<LoD	16.2	<LoD	281	<LoD							
WS-RPS-13/ES/0.05-0.45	35.1	<LoD	12.4	14.4	0.397	17	12.7	28.5	104	<LoD	249	160	1030	666	518	1420	1220	499	61.6	779	940	173	873	21	705	35.7							
WS-RPS-14/ES/0.2-0.4	14.4	<LoD	38.5	15.1	0.123	4.53	49.6	42.8	23.2	<LoD	406	307	1320	358	285	780	1820	273	173	524	820	92	637	44.1	1350	145							
WS-RPS-15/ES/0.5-1	63.1	<LoD	54.5	25.4	0.316	6.35	71	81.6	132	<LoD	3590	168	777	176	113	372	834	158	758	409	236	42.3	325	50.5	950	156							
WS-RPS-16/ES2/0.5	272	8.6	36.4	16.4	6.89	8.75	60.8	44.3	141	<LoD	181	32.5	331	425	189	461	420	134	36.5	231	197	63.1	172	<LoD	463	<LoD	0.0136	0.00573	0.076	<LoD	<LoD	0.0334	<LoD
WS-RPS-16/ES/0.5																																	
WS-RPS-17/ES/0.4-0.6	10.7	<LoD	4.93	1.75	0.425	5	4.38	7.56	40.2	<LoD	46.9	<LoD	60.2	40.6	25.2	73.6	67.8	22.3	<LoD	45.1	40.2	<LoD	42.9	<LoD	97.9	<LoD							
WS-RPS-18/ES/0.2-0.7	14.7	<LoD	5.32	1.01	0.692	4.67	3.4	5.81	29.6	<LoD	43.9	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD							
WS-RPS-21/ES/0.2	65.8	<LoD	13.1	7	0.367	6.95	23.7	12.4	52.8	<LoD	210	155	587	251	179	479	548	186	65.1	261	231	66.7	211	16	278	21.1							
WS-RPS-21/ES/0.75-1	8.28	<LoD	8.14	2.8	0.0481	5.18	12.4	8.63	15.2	<LoD	36.6	<LoD	30.7	<LoD	<LoD	29.8	28	20.8	<LoD	17.7	21.6	<LoD	<LoD	<LoD	37.3	<LoD							
WS-RPS-23/ES/0-0.4	38.6	<LoD	43.5	19.1	0.0992	18.9	56.5	98.7	40.2	<LoD	1470	51	301	274	121	372	293	115	19.2	225	190	51.1	263	<LoD	954	<LoD							
WS-RPS-23/ES/0.7-1	42.3	<LoD	43.6	94.6	0.233	10.9	66.5	79.4	172	<LoD	138	<LoD	51.1	90.1	45.9	80.6	54.8	25.2	<LoD	22.5	32.5	<LoD	20.9	<LoD	152	<LoD							
WS-RPS-24/ES/0.5	61.3	0.209	37.4	24.8	0.493	10.3	51	89.1	81.3	<LoD	791	<LoD	707	925	549	801	616	394	<LoD	422	663	<LoD	407	<LoD	796	<LoD	0.0143	0.00619	0.0553	<LoD	<LoD	0.0224	0.0155
WS-RPS-24/ES/2.6-3	26.5	<LoD	19.7	7.57	0.183	14.6	15.4	21.2	45.5	<LoD																							
WS-RPS-25/ES/0.35-0.5	440	0.737	13.9	15.2	0.386	<LoD	26.8	12.9	71.6	<LoD	<LoD	<LoD	65.6	170	112	232	68.6	67.2	<LoD	90.7	98.2	36.9	69.6	<LoD	29.9	<LoD	0.0139	<LoD	0.135	<LoD	<LoD	0.0125	<LoD
WS-RPS-28/ES/0.2	106	0.202	34.2	18.4	2.32	16.6	55.1	31.7	96.3	<LoD	956	191	951	905	543	1270	1250	473	31	765	881	253	958	26.1	1070	43.8							
WS-RPS-29/ES/0.25-0.6	44.7	<LoD	21.1	11.8	0.483	11.5	20.4	19.2	48.3	<LoD	618	70.8	349	166	108	368	397	119	35.4	185	179	36.6	186	10.5	602	20.1	<LoD	<LoD	0.00562	<LoD	<LoD	0.00773	<LoD
WS-RPS-29/ES/0.6-0.9	54.2	<LoD	13.9	12.3	0.372	4.57	39.8	16.9	56.5	<LoD	3290	346	975	558	340	1260	987	403	141	544	678	126	645	39.1	1440	56.3							
WS-RPS-29a/ES/0.75	71.2	<LoD	14.8	18.6	0.74	4.22	17.6	12.3	55.2	<LoD	107	45.3	271	106	76.3	164	326	76.6	<LoD	136	137	27.4	152	13.8	230	<LoD							
WS-RPS-30/ES/0-0.3	35.1	<LoD	63.7	23.1	<LoD	25.3	61.9	106	34	<LoD	558	37.2	218	165	105	294	235	103	27.8	162	164	34.3	165	<LoD	275	<LoD	0.00574	0.0283	0.115	<LoD	<LoD	0.0831	0.0148
WS-RPS-30/ES/0.5-0.8	236	16.5	69.2	67.8	0.436	12.1	95.6	176	175	<LoD	1360	271	2310	1120	840	2500	2680	948	115	1470	1520	283	1670	55	1820	53.4							
WS-RPS-36a/ES/0.1-0.3	8.04	<LoD	3.92	1.75	0.156	4.12	6.68	5.92	15	<LoD	91.6	41.2	260	49.8	29.9	100	283	46.6	<LoD	75.7	60.1	<LoD	73.2	37.5	206	19.8							
WS-RPS-36a/ES/0.35-0.42	9.87	<LoD	5.28	4.19	0.248	4.86	19	11	21.7	<LoD	101	30.4	141	48.3	27.7	76.3	162	36.8	<LoD	63.5	51.1	<LoD	64.3	32.1	225	20.8							

SCREENING CRITERIA	*Denotes screening value when converted*																	
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQS (Freshwater)	1.1	1	N/A	N/A	N/A	10.9	50	3.4	N/A	123	1	1.2	N/A	4	N/A	N/A	0.08	0.07
SUMMARY																		
No. Tested	34	17	17	17	17	34	34	34	17	34	34	34	34	34	17	17	34	17
No. Detected	32	12	11	15	17	17	34	4	15	25	20	21	24	32	14	0	11	7
Maximum Value	32.9	30.6	408	452	13000	16.3	4400	3.31	5.57	10800	52.7	10.2	12	80.6	13.1	N/A	1.77	0.674
Minimum Detected Value	0.248	0.0264	11.2	11.4	25.6	1.95	0.679	1.23	0.111	1.18	0.406	0.209	0.462	0.665	0.578	N/A	0.1	0.0183
No. of UK DWS Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of EQS-F Exceedances	27	3	0	0	0	2	3	0	0	16	17	7	0	26	0	0	11	3
No. of EQS-EC Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DATA	Inorganic	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals
Unit	mg/l	ug/l	ug/l	ug/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
SAMPLE ID	**Ammoniacal Nitrogen as N**	**Iron**	**Aluminimum**	**Boron**	**Sodium**	**Zinc**	**Arsenic**	**Chromium**	**Antimony**	**Manganese**	**Copper**	**Lead**	**Cobalt**	**Nickel**	**Selenium**	**Tin**	**Cadmium**	**Mercury**
BH-RPS-01/EW/1	30.3					<LoD	25.3	<LoD	3.74	<LoD	0.789	0.331	2.25	48.7	2.4	<LoD	0.1	0.674
BH-RPS-03/EW/1	3.35					2.75	7.94	<LoD	0.443	2.3	6.57	0.335	1.24	13.8	3.59	<LoD	<LoD	0.0278
BH-RPS-04/EW/1	6.27					7.67	10.8	<LoD	1.07	5320	<LoD	<LoD	4.01	6.65	5.63	<LoD	0.166	<LoD
BH-RPS-05/EW/1	4.85					5.47	4.83	<LoD	1.32	8130	<LoD	0.317	7.12	53.4	0.907	<LoD	0.108	<LoD
BH-RPS-06/EW/1	5.23					6.34	10.4	<LoD	0.811	743	0.439	1.06	0.556	3.68	0.578	<LoD	<LoD	<LoD
BH-RPS-07/EW/1	<LoD					2.9	21.7	<LoD	0.767	2000	<LoD	<LoD	7.98	24.8	<LoD	<LoD	0.108	<LoD
BH-RPS-09/EW/1	5.42					<LoD	8.35	<LoD	0.741	2270	<LoD	<LoD	1.43	5.4	<LoD	<LoD	0.481	<LoD
BH-RPS-10/EW/1	29.1					<LoD	62.2	<LoD	5.57	1.18	<LoD	<LoD	0.643	9.15	1.68	<LoD	<LoD	0.0545
BH-RPS-23a/EW/1	1.33					10.3	10.4	<LoD	0.307	3140	<LoD	0.714	2.04	9.76	6.12	<LoD	1.77	<LoD
BH-RPS-24/EW/1	5.05					<LoD	4.94	<LoD	<LoD	1.53	52.7	10.2	2.14	80.6	12	<LoD	<LoD	0.168
CP-RPS-03/EW/1	16.6					<LoD	2.65	<LoD	1.76	40.9	1.62	<LoD	0.462	1.49	1.51	<LoD	<LoD	<LoD
CP-RPS-04a/EW/1	0.652					<LoD	2.49	<LoD	1.96	251	1.89	<LoD	0.67	4.62	9.72	<LoD	<LoD	<LoD
WS-RPS-09/EW/1	3.58					2.76	5.84	<LoD	0.357	1.87	17	1.33	2.5	33.8	2.33	<LoD	<LoD	0.323
WS-RPS-10/EW/1	1.66					4.12	1.25	1.23	0.111	<LoD	10.3	2.72	<LoD	8.6	13.1	<LoD	<LoD	0.029
WS-RPS-19/EW/1	7.33					10.3	4010	<LoD	0.558	2690	<LoD	<LoD	7.62	10.4	<LoD	<LoD	<LoD	<LoD
WS-RPS-20/EW/1	1.56					2.39	0.958	<LoD	<LoD	<LoD	2.71	0.713	<LoD	2.74	1.69	<LoD	<LoD	0.0183
WS-RPS-24/EW/1	<LoD					<LoD	7.33	<LoD	2.63	6.39	0.406	<LoD	<LoD	0.665	0.715	<LoD	<LoD	<LoD
BH-RPS-01/EW/2	19.2	0.0931	408	111	2220	<LoD	17.3	<LoD		<LoD	1.43	0.638	1.34	21.6			<LoD	
BH-RPS-03/EW/2	3.29	<LoD	30.2	13.9	533	<LoD	3.76	<LoD		<LoD	24.7	<LoD	1.15	12.9			<LoD	
BH-RPS-04/EW/2	6.36	1.26	<LoD	11.4	4540	<LoD	11.1	<LoD		523	<LoD	<LoD	<LoD	<LoD			<LoD	
BH-RPS-05/EW/2	5.98	3.46	<LoD	158	2820	<LoD	5.81	<LoD		10800	<LoD	<LoD	12	51.5			<LoD	
BH-RPS-06/EW/2	4.59	0.0346	15.6	173	495	<LoD	11.1	<LoD		461	<LoD	<LoD	<LoD	3.01			<LoD	
BH-RPS-07/EW/2	0.269	0.239	11.2	452	697	4.89	5.92	<LoD		1100	<LoD	0.209	2.9	8.75			0.123	
BH-RPS-09/EW/2	6.09	<LoD	<LoD	80.2	13000	<LoD	8.57	<LoD		3140	<LoD	<LoD	<LoD	4.34			<LoD	
BH-RPS-10/EW/2	32.9	0.0322	242	21	2370	<LoD	38.3	<LoD		<LoD	1.23	0.277	0.66	19.7			0.114	
BH-RPS-23a/EW/2	1.17	0.468	<LoD	32.9	2920	11.6	2.2	<LoD		4230	1.08	0.586	2.04	9.77			1.02	
BH-RPS-24/EW/2	4.75	0.0488	30.1	<LoD	437	<LoD	1.29	<LoD		3.27	36	7.98	1.27	48.2			<LoD	
CP-RPS-03/EW/2	6.24	0.329	76.9	81.5	174	2.51	6.49	1.66		25.5	3.26	3.13	<LoD	2.95			0.371	
CP-RPS-04a/EW/2	0.569	0.0417	33.5	149	868	4.54	1.11	<LoD		399	<LoD	0.709	0.861	4.29			0.115	
WS-RPS-09/EW/2	4.63	<LoD	<LoD	<LoD	171	3.25	2.44	<LoD		<LoD	7.04	1.23	1.48	25.9			<LoD	
WS-RPS-10/EW/2	1.01	<LoD	24.9	15.9	199	<LoD	1	1.71		<LoD	14.7	0.349	<LoD	8.77			<LoD	
WS-RPS-19/EW/2	8.08	30.6	20.1	375	551	16.3	4400	<LoD		3070	1.07	0.627	7.98	11.8			<LoD	
WS-RPS-20/EW/2	1.33	<LoD	<LoD	24.6	59.3	1.95	0.679	3.31		<LoD	26.3	5.3	<LoD	5.2			<LoD	
WS-RPS-24/EW/2	0.248	0.0264	107	18.2	25.6	<LoD	8.95	<LoD		10.1	<LoD	0.353	<LoD	<LoD			<LoD	

Glacial Till
Made Ground
Lime Waste
Mercia Mudstone

SCREENING CRITERIA							*Denotes screening value of combined PAH values*																		
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQS (Freshwater)	N/A	N/A	1.3	0.6	N/A	N/A	N/A	4.2	0.4	N/A	0.4	7.5	N/A	N/A	0.1	2	0.05	N/A	0.00017	0.0063	0.4	N/A	N/A	N/A	N/A
SUMMARY																									
No. Tested	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
No. Detected	34	33	12	0	0	0	2	0	0	0	0	0	4	0	2	9	0	7	6	10	0	5	0	5	0
Maximum Value	44600	540	51.2	N/A	N/A	N/A	7.08	N/A	N/A	N/A	N/A	N/A	4.68	N/A	1.04	15.3	N/A	17.4	13.1	15.3	N/A	10.7	N/A	8.61	N/A
Minimum Detected Value	30.4	5.37	2.76	N/A	N/A	N/A	1.38	N/A	N/A	N/A	N/A	N/A	2.74	N/A	1	1.15	N/A	1.18	1.5	1.16	N/A	1.44	N/A	1.22	N/A
No. of UK DWS Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of EQS-F Exceedances	0	0	12	0	0	0	0	0	0	0	0	0	0	0	2	7	0	0	6	10	0	0	0	0	0
No. of EQS-EC Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DATA	Inorganic	Inorganic	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC	SVOC
Unit	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
SAMPLE ID	**Chloride**	**Sulphate**	**bis(2-ethylhexyl)phthalate**	**Hexachlorobutadiene**	**Hexachloroethane**	**4-Chloroaniline**	**Benzo(k)fluoranthene**	**2,4-Dichlorophenol**	**Pentachlorophenol**	**Di-n-octyl phthalate**	**1,2,4-Trichlorobenzene**	**Butylbenzylphthalate**	**Acenaphthene**	**1,4-Dichlorobenzene**	**Anthracene**	**Napthalene**	**Hexachlorobenzene**	**Benzo(b)fluoranthene**	**Benzo(a)pyrene**	**Fluoranthene**	**1,2,4 trichlorobenzene**	**Benzo (g,h,i) perylene**	**1,2-Dichlorobenzene**	**Indeno(1,2,3-cd)pyrene**	**4-chloro-3-methylphenol**
BH-RPS-01/EW/1	6220	118	25.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	2.74	<LoD	<LoD	15.3	<LoD	<LoD	<LoD	1.17	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-03/EW/1	3210	20.3	51.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-04/EW/1	14000	276	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-05/EW/1	13700	307	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-06/EW/1	1830	159	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	3.89	<LoD	<LoD	15.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-07/EW/1	1510	540	2.76	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-09/EW/1	37900	247	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-10/EW/1	7930	34.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-23a/EW/1	11300	50	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-24/EW/1	2090	164	9.69	<LoD	<LoD	<LoD	1.38	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	3.4	2.43	4.34	<LoD	1.97	<LoD	1.68	<LoD
CP-RPS-03/EW/1	484	72	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	2.6	1.79	2.77	<LoD	1.44	<LoD	1.22	<LoD
CP-RPS-04a/EW/1	1070	407	5.16	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-09/EW/1	729	<LoD	12.4	<LoD	<LoD	<LoD	7.08	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	5.2	<LoD	17.4	13.1	15.3	<LoD	10.7	<LoD	8.61	<LoD
WS-RPS-10/EW/1	450	84.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1.15	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-19/EW/1	1370	60	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-20/EW/1	501	67.7	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1.04	2.08	<LoD	1.95	1.5	4.71	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-24/EW/1	30.4	151	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-01/EW/2	3380	86.3	16.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	4.05	<LoD	<LoD	11.7	<LoD	<LoD	<LoD	1.49	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-03/EW/2	2190	21.1	6.78	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-04/EW/2	13800	282	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-05/EW/2	12300	302	4.12	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-06/EW/2	1590	142	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	4.68	<LoD	<LoD	6.26	<LoD	<LoD	<LoD	1.16	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-07/EW/2	1300	513	3.73	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-09/EW/2	44600	240	3.59	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-10/EW/2	3850	17	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1.18	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-23a/EW/2	9890	42.3	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-24/EW/2	1600	103	4.56	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1.38	<LoD	<LoD	<LoD	<LoD	<LoD
CP-RPS-03/EW/2	274	42.7	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	2.72	1.9	2.72	<LoD	1.59	<LoD	1.38	<LoD
CP-RPS-04a/EW/2	1430	276	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-09/EW/2	567	5.37	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1.82	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-10/EW/2	286	72.7	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-19/EW/2	1810	53.7	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-20/EW/2	449	68	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1	2.15	<LoD	3.27	2.73	6.12	<LoD	1.74	<LoD	1.55	<LoD
WS-RPS-24/EW/2	36.1	128	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD

Glacial Till
Made Ground
Lime Waste
Mercia Mudstone

SCREENING CRITERIA			*Denotes screening value of combined PAH values*																						
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQS (Freshwater)	7.7	N/A	N/A	N/A	N/A	N/A	0.1	2	N/A	0.00017	0.0063	N/A	N/A	0.6	10	12	N/A	N/A	N/A	0.4	N/A	2	0.4	N/A	N/A
SUMMARY																									
No. Tested	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
No. Detected	14	0	0	1	30	29	30	30	32	34	34	29	30	0	2	0	0	1	0	0	0	9	0	1	3
Maximum Value	121	N/A	N/A	1.02	7.97	9.13	2.67	31.4	15.9	12.7	11.5	9.62	9.11	N/A	1.63	N/A	N/A	3.47	N/A	N/A	N/A	39.5	N/A	1.07	5.14
Minimum Detected Value	1.31	N/A	N/A	1.02	0.00692	0.0131	0.00604	0.0166	0.00792	0.00577	0.00857	0.0059	0.00634	N/A	1.57	N/A	N/A	3.47	N/A	N/A	N/A	1.08	N/A	1.07	1.42
No. of UK DWS Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of EQS-F Exceedances	9	0	0	0	0	0	16	7	0	34	34	0	0	0	0	0	0	0	0	0	0	5	0	0	0
No. of EQS-EC Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DATA	SVOC	SVOC	SVOC	SVOC	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	SVOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
SAMPLE ID	**Phenol**	**1,3-Dichlorobenzene**	**Di-n-butyl phthalate**	**2-Chlorophenol**	**Benzo(k)fluoranthene**	**Acenaphthene**	**Anthracene**	**Napthalene**	**Benzo(b)fluoranthene**	**Benzo(a)pyrene**	**Fluoranthene**	**Benzo (g,h,i) perylene**	**Indeno(1,2,3-cd)pyrene**	**Hexachlorobutadiene**	**Benzene**	**Carbon tetrachloride**	**1,2-dichloropropane**	**Trichloroethene**	**Tetrachloroethene**	**1,2,4-Trichlorobenzene**	**1,4-Dichlorobenzene**	**Napthalene**	**1,2,3-trichlorobenzene**	**Ethylbenzene**	**Chloroform**
BH-RPS-01/EW/1	121	<LoD	<LoD	<LoD	1.34	9.13	1.48	31.4	2.66	1.52	4.76	1.7	1.31	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	10.2	<LoD	<LoD	<LoD
BH-RPS-03/EW/1	<LoD	<LoD	<LoD	<LoD	0.676	0.0626	0.126	0.343	0.94	0.714	1.56	0.515	0.411	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-04/EW/1	<LoD	<LoD	<LoD	<LoD	0.0979	0.014	0.0254	0.095	0.156	0.118	0.171	0.0956	0.0626	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-05/EW/1	14.4	<LoD	<LoD	<LoD	<LoD	0.0342	0.0317	0.149	<LoD	0.0408	0.155	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1.42
BH-RPS-06/EW/1	<LoD	<LoD	<LoD	<LoD	0.15	4.3	0.846	0.544	0.268	0.203	2.43	0.146	0.116	<LoD	1.57	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	22.2	<LoD	<LoD	<LoD
BH-RPS-07/EW/1	<LoD	<LoD	<LoD	<LoD	1.69	0.0933	0.377	0.321	3.91	3.11	4.29	2.27	1.91	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-09/EW/1	<LoD	<LoD	<LoD	<LoD	0.648	0.0499	0.111	0.175	1.28	0.978	1.51	0.793	0.602	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-10/EW/1	11.2	<LoD	<LoD	<LoD	0.517	0.0436	0.0614	0.287	1.14	0.724	0.988	0.583	0.474	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-23a/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	0.00897	0.00664	0.0106	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-24/EW/1	15.1	<LoD	<LoD	<LoD	2.73	0.283	1.62	0.458	5.49	3.58	6.86	2.66	2.4	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
CP-RPS-03/EW/1	<LoD	<LoD	<LoD	<LoD	7.97	0.123	0.688	0.129	15.9	12.7	11.5	9.62	9.11	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
CP-RPS-04a/EW/1	<LoD	<LoD	<LoD	<LoD	1.43	0.0472	0.131	0.0878	2.54	1.88	2.09	1.5	0.819	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-09/EW/1	7.66	<LoD	<LoD	<LoD	5.11	0.728	1.09	2.31	11.9	9.15	9.11	6.99	5.81	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1.47	<LoD	<LoD	<LoD
WS-RPS-10/EW/1	3.9	<LoD	<LoD	<LoD	0.00692	0.18	0.161	1.97	0.012	0.00977	0.259	0.0059	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1.08	<LoD	<LoD	<LoD
WS-RPS-19/EW/1	<LoD	<LoD	<LoD	<LoD	0.0669	0.0148	0.0275	0.042	0.114	0.0806	0.213	0.0794	0.0511	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-20/EW/1	8.51	<LoD	<LoD	<LoD	0.644	0.61	1.85	3.06	1.41	1.12	5.37	0.614	0.565	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	2.32	<LoD	<LoD	<LoD
WS-RPS-24/EW/1	<LoD	<LoD	<LoD	<LoD	0.0141	<LoD	<LoD	<LoD	0.0217	0.0166	0.0169	0.025	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	5.14
BH-RPS-01/EW/2	57.9	<LoD	<LoD	<LoD	0.292	5.92	0.31	20	0.632	0.395	1.7	0.274	0.288	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	9.74	<LoD	<LoD	<LoD
BH-RPS-03/EW/2	1.31	<LoD	<LoD	<LoD	0.0106	0.03	0.0107	0.341	0.0265	0.0148	0.0538	<LoD	0.012	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-04/EW/2	<LoD	<LoD	<LoD	<LoD	0.113	<LoD	<LoD	0.117	0.25	0.178	0.223	0.122	0.134	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-05/EW/2	<LoD	<LoD	<LoD	<LoD	0.0567	0.021	0.0217	0.209	0.0703	0.0644	0.114	0.0254	0.023	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-06/EW/2	<LoD	<LoD	<LoD	<LoD	0.0541	7.71	0.991	4.12	0.124	0.0854	1.8	0.0539	0.0646	<LoD	1.63	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	39.5	<LoD	1.07	<LoD
BH-RPS-07/EW/2	<LoD	<LoD	<LoD	<LoD	0.195	0.0171	0.0396	0.0574	0.476	0.337	0.54	0.246	0.253	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-09/EW/2	<LoD	<LoD	<LoD	<LoD	0.183	0.0131	0.0287	0.0585	0.441	0.268	0.392	0.267	0.216	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-10/EW/2	15.6	<LoD	<LoD	1.02	0.319	0.0815	0.0407	0.994	0.747	0.43	0.465	0.265	0.327	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-23a/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	0.0782	0.00604	<LoD	<LoD	0.00577	0.0253	<LoD	0.00661	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-24/EW/2	17.8	<LoD	<LoD	<LoD	0.415	0.23	0.26	0.519	0.99	0.685	1.73	0.518	0.557	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
CP-RPS-03/EW/2	<LoD	<LoD	<LoD	<LoD	1.9	0.0466	0.207	0.0574	4.57	3.24	4.16	2.29	2.69	<LoD	<LoD	<LoD	<LoD	3.47	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
CP-RPS-04a/EW/2	<LoD	<LoD	<LoD	<LoD	0.152	<LoD	0.0166	0.0166	0.401	0.236	0.342	0.221	0.209	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-09/EW/2	15.9	<LoD	<LoD	<LoD	0.152	0.282	0.0934	2.46	0.332	0.277	0.403	0.219	0.201	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1.24	<LoD	<LoD	<LoD
WS-RPS-10/EW/2	2.27	<LoD	<LoD	<LoD	0.0345	0.107	0.0365	1.15	0.0961	0.0674	0.158	0.0766	0.0807	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-19/EW/2	<LoD	<LoD	<LoD	<LoD	0.138	0.0158	0.048	0.0211	0.295	0.226	0.423	0.168	0.175	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-20/EW/2	6.32	<LoD	<LoD	<LoD	1.38	0.939	2.67	4.03	3.15	2.69	8	1.37	1.59	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	2	<LoD	<LoD	<LoD
WS-RPS-24/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	0.00792	0.00585	0.00857	<LoD	0.00634	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	3.89

Glacial Till
Made Ground
Lime Waste
Mercia Mudstone

SCREENING CRITERIA																						
																Sum (3)	Sum (3)	Sum (3)				
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EQS (Freshwater)	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	140	N/A	20	N/A	74	N/A	N/A	0.4	0.4	0.4	N/A	10	N/A	74
SUMMARY																						
No. Tested	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
No. Detected	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	0	0	0
Maximum Value	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.24	N/A	N/A	N/A	N/A	N/A	0.525	N/A	N/A	N/A
Minimum Detected Value	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.05	N/A	N/A	N/A	N/A	N/A	0.077	N/A	N/A	N/A
No. of UK DWS Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of EQS-F Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of EQS-EC Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DATA	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	VOC	Inorganic	VOC	VOC	VOC
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	0	0	0	0	ug/l	ug/l	ug/l
SAMPLE ID	**Styrene**	**1,2-dibromoethane**	**Bromodichloromethane**	**1,2-dichloroethane**	**1,2-Dichlorobenzene**	**Bromoform**	**Dibromochloromethane**	**Vinyl chloride**	**1,1,2,2-tetrachloroethane**	**4-chlorotoluene**	**Dichloromethane**	**1,3-Dichlorobenzene**	**Toluene**	**Bromochloromethane**	**2-chlorotoluene**	**1,2,4 trichlorobenzene**	**1,2,3 trichlorobenzene**	**1,3,5 trichlorobenzene**	**Cyanide**	**Benzene**	**Ethylbenzene**	**Toluene**
BH-RPS-01/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-03/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-04/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-05/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	3.24	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-06/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	2.08	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-07/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-09/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	0.101	<LoD	<LoD	<LoD
BH-RPS-10/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	0.077	<LoD	<LoD	<LoD
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BH-RPS-24/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
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WS-RPS-09/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-10/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
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WS-RPS-24/EW/1	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-01/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-03/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-04/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-05/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	3.2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-06/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	2.93	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-07/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
BH-RPS-09/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	0.094	<LoD	<LoD	<LoD
BH-RPS-10/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	1.05	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
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WS-RPS-09/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-10/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-19/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-20/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD
WS-RPS-24/EW/2	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD

Glacial Till
Made Ground
Lime Waste
Mercia Mudstone

Appendix 3

Geotechnical laboratory data

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Apex Testing Solutions Limited
Sturmi Way
Village Farm Industrial Estate
Pyle
Bridgend
CF33 6BZ

Attention: Andrew Grogan

CERTIFICATE OF ANALYSIS

Date:	10 April 2018
Customer:	H_APEXTEST_BRG
Sample Delivery Group (SDG):	180324-54
Your Reference:	D8086-18
Location:	Lostock EFW - Sisk
Report No:	451089

This report has been revised and directly supersedes 450429 in its entirety.

We received 12 samples on Friday March 23, 2018 and 12 of these samples were scheduled for analysis which was completed on Tuesday April 10, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager

ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180324-54	**Client Reference:**	D8086-18	**Report Number:**	451089
Location:	Lostock EFW - Sisk	**Order Number:**		**Superseded Report:**	450429

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17265840	CP-RPS-01	D	3.00 - 3.45	22/03/2018
17265842	CP-RPS-01	D	6.50 - 6.50	22/03/2018
17265843	CP-RPS-02	D	3.00 - 4.00	22/03/2018
17265844	CP-RPS-02	D	7.20 - 8.70	22/03/2018
17265845	CP-RPS-03	D	3.00 - 3.00	22/03/2018
17265848	CP-RPS-03	D	9.00 - 9.00	22/03/2018
17265849	CP-RPS-04	D	0.20 - 0.50	22/03/2018
17265850	CP-RPS-06	D	0.10 - 0.70	22/03/2018
17265852	CP-RPS-06	D	1.20 - 2.00	22/03/2018
17265853	CP-RPS-06	D	5.40 - 5.60	22/03/2018
17265854	TP-RPS-45	D	1.30 - 1.30	22/03/2018
17265856	TP-RPS-51	D	0.60	22/03/2018

Maximum Sample/Coolbox Temperature (°C) : **6.8**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180324-54	**Client Reference:**	D8086-18	**Report Number:**	451089
Location:	Lostock EFW - Sisk	**Order Number:**		**Superseded Report:**	450429

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	17265840	17265842	17265843	17265844	17265845	17265848	17265849	17265850	17265852	17265853	17265854	17265856
Customer Sample Reference	CP-RPS-01	CP-RPS-01	CP-RPS-02	CP-RPS-02	CP-RPS-03	CP-RPS-03	CP-RPS-04	CP-RPS-06	CP-RPS-06	CP-RPS-06	TP-RPS-45	TP-RPS-51
AGS Reference	D	D	D	D	D	D	D	D	D	D	D	D
Depth (m)	3.00 - 3.45	6.50 - 6.50	3.00 - 4.00	7.20 - 8.70	3.00 - 3.00	9.00 - 9.00	0.20 - 0.50	0.10 - 0.70	1.20 - 2.00	5.40 - 5.60	1.30 - 1.30	0.60
Container	400g Tub (ALE214)	400g Tub (ALE214)	400g Tub (ALE214)	400g Tub (ALE214)	400g Tub (ALE214)	400g Tub (ALE214)	400g Tub (ALE214)	400g Tub (ALE214)	400g Tub (ALE214)	400g Tub (ALE214)	400g Tub (ALE214)	400g Tub (ALE214)
Sample Type	S	S	S	S	S	S	S	S	S	S	S	S

Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 12	X	X	X	X	X	X	X	X	X	X	X	X
Anions by Kone (soil)	All	NDPs: 0 Tests: 12	X	X	X	X	X	X	X	X	X	X	X	X
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1											X	
Magnesium (BRE)	All	NDPs: 0 Tests: 12	X	X	X	X	X	X	X	X	X	X	X	X
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 12	X	X	X	X	X	X	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 12	X	X	X	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 12	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 12	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 12	X	X	X	X	X	X	X	X	X	X	X	X

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Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17265840	CP-RPS-01	3.00 - 3.45	White	N/A	Stones	None
17265842	CP-RPS-01	6.50 - 6.50	Dark Brown	Sandy Loam	Stones	Vegetation
17265843	CP-RPS-02	3.00 - 4.00	Black	Sand	Stones	None
17265844	CP-RPS-02	7.20 - 8.70	Light Brown	Sandy Clay Loam	Stones	Vegetation
17265845	CP-RPS-03	3.00 - 3.00	Dark Brown	Sandy Clay Loam	None	Stones
17265848	CP-RPS-03	9.00 - 9.00	Dark Brown	Silty Clay Loam	Stones	Vegetation
17265849	CP-RPS-04	0.20 - 0.50	Dark Brown	Sand	Stones	Vegetation
17265850	CP-RPS-06	0.10 - 0.70	Grey	Sand	Stones	None
17265852	CP-RPS-06	1.20 - 2.00	Dark Brown	Loamy Sand	Stones	Vegetation
17265853	CP-RPS-06	5.40 - 5.60	Dark Brown	Sandy Clay	Stones	None
17265854	TP-RPS-45	1.30 - 1.30	Dark Brown	Sand	Stones	Brick
17265856	TP-RPS-51	0.60	Black	Sand	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180324-54	**Client Reference:**	D8086-18	**Report Number:**	451089
Location:	Lostock EFW - Sisk	**Order Number:**		**Superseded Report:**	450429

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			CP-RPS-01	CP-RPS-01	CP-RPS-02	CP-RPS-02	CP-RPS-03	CP-RPS-03
Depth (m)			3.00 - 3.45	6.50 - 6.50	3.00 - 4.00	7.20 - 8.70	3.00 - 3.00	9.00 - 9.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			22/03/2018	22/03/2018	22/03/2018	22/03/2018	22/03/2018	22/03/2018
Sample Time			.	.	.	.	.	.
Date Received			23/03/2018	23/03/2018	23/03/2018	23/03/2018	23/03/2018	23/03/2018
SDG Ref			180324-54	180324-54	180324-54	180324-54	180324-54	180324-54
Lab Sample No.(s)			17265840	17265842	17265843	17265844	17265845	17265848
AGS Reference			D	D	D	D	D	D
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	44	17	22	37	13	16
Sulphur, Total	<0.02 %	TM132	1.26	0.415	0.178	0.285	0.0212	1.35
pH	1 pH Units	TM133	12.8	11.1 M	9.27 M	12.8 M	9.01 M	7.95 M
Sulphate, acid soluble (total)	<0.02 %	TM221	3.97	1.17	0.0775	1.1	0.0386	3.95
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243	0.0191	0.701 M	0.143 M	0.005 M	0.121 M	1.82 M
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243	0.024	0.0378 M	0.0351 M	0.238 M	0.191 M	0.198 M
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243	0.00256	0.0228	0.0178	0.114	0.102	0.00188
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248	0.00341	0.00349	0.00904	0.0382	0.0295	0.0034
Magnesium (BRE)	<0.008 g/l	TM282	<0.008	<0.008	<0.008	<0.008	<0.008	0.054

Validated

CERTIFICATE OF ANALYSIS

SDG:	180324-54	**Client Reference:**	D8086-18	**Report Number:**	451089
Location:	Lostock EFW - Sisk	**Order Number:**		**Superseded Report:**	450429

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.			CP-RPS-04	CP-RPS-06	CP-RPS-06	CP-RPS-06	TP-RPS-45	TP-RPS-51
Depth (m)			0.20 - 0.50	0.10 - 0.70	1.20 - 2.00	5.40 - 5.60	1.30 - 1.30	0.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			22/03/2018	22/03/2018	22/03/2018	22/03/2018	22/03/2018	22/03/2018
Sample Time			.	.	.	.	.	.
Date Received			23/03/2018	23/03/2018	23/03/2018	23/03/2018	23/03/2018	23/03/2018
SDG Ref			180324-54	180324-54	180324-54	180324-54	180324-54	180324-54
Lab Sample No.(s)			17265849	17265850	17265852	17265853	17265854	17265856
AGS Reference			D	D	D	D	D	D
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	8.9	19	20	18	20	21
Sulphur, Total	<0.02 %	TM132	0.156	0.181	0.443	0.0244	0.311	0.306
pH	1 pH Units	TM133	8.75 M	8.66 M	7.73 M	8.76 M	8.51 M	8.44 M
Sulphate, acid soluble (total)	<0.02 %	TM221	0.064	0.0724	0.102	0.0586	0.526	0.149
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243	0.0465 M	0.0479 M	0.241 M	0.209 M	0.0901 M	0.477 M
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243	0.273 M	0.205 M	0.126 M	2.73 M	0.016 M	0.0671 M
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243	0.00441	0.00741	0.0011	0.00539	0.0168	0.00519
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248	0.00252	0.0109	0.00535	0.0033	0.00318	0.00292
Magnesium (BRE)	<0.008 g/l	TM282	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008

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Validated

CERTIFICATE OF ANALYSIS

SDG:	180324-54	**Client Reference:**	D8086-18	**Report Number:**	451089
Location:	Lostock EFW - Sisk	**Order Number:**		**Superseded Report:**	450429

Asbestos Identification - Solid Samples

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP-RPS-45 D 1.30 - 1.30 SOLID 22/03/2018 00:00:00 05/04/2018 18:31:32 180324-54 17265854 TM048	10/04/2018	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM282		Extraction of Magnesium by BRE Method

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	180324-54	**Client Reference:**	D8086-18	**Report Number:**	451089
Location:	Lostock EFW - Sisk	**Order Number:**		**Superseded Report:**	450429

Test Completion Dates

Lab Sample No(s)	17265840	17265842	17265843	17265844	17265845	17265848	17265849	17265850	17265852	17265853
Customer Sample Ref.	CP-RPS-01	CP-RPS-01	CP-RPS-02	CP-RPS-02	CP-RPS-03	CP-RPS-03	CP-RPS-04	CP-RPS-06	CP-RPS-06	CP-RPS-06
AGS Ref.	D	D	D	D	D	D	D	D	D	D
Depth	3.00 - 3.45	6.50 - 6.50	3.00 - 4.00	7.20 - 8.70	3.00 - 3.00	9.00 - 9.00	0.20 - 0.50	0.10 - 0.70	1.20 - 2.00	5.40 - 5.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	29-Mar-2018	29-Mar-2018	29-Mar-2018	29-Mar-2018	29-Mar-2018	29-Mar-2018	29-Mar-2018	29-Mar-2018	29-Mar-2018	29-Mar-2018
Anions by Kone (soil)	29-Mar-2018	04-Apr-2018	29-Mar-2018	29-Mar-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018
Magnesium (BRE)	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018
NO3, NO2 and TON by KONE (s)	29-Mar-2018	04-Apr-2018	29-Mar-2018	29-Mar-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018
pH	28-Mar-2018	29-Mar-2018	28-Mar-2018	28-Mar-2018	29-Mar-2018	29-Mar-2018	03-Apr-2018	29-Mar-2018	29-Mar-2018	29-Mar-2018
Sample description	27-Mar-2018	28-Mar-2018	27-Mar-2018	27-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018
Total Sulphate	04-Apr-2018	03-Apr-2018	03-Apr-2018	04-Apr-2018	03-Apr-2018	04-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018
Total Sulphur	29-Mar-2018	04-Apr-2018	29-Mar-2018	29-Mar-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018

Lab Sample No(s)	17265854	17265856
Customer Sample Ref.	TP-RPS-45	TP-RPS-51
AGS Ref.	D	D
Depth	1.30 - 1.30	0.60
Type	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	29-Mar-2018	29-Mar-2018
Anions by Kone (soil)	04-Apr-2018	04-Apr-2018
Asbestos ID in Solid Samples	10-Apr-2018	
Magnesium (BRE)	04-Apr-2018	04-Apr-2018
NO3, NO2 and TON by KONE (s)	04-Apr-2018	04-Apr-2018
pH	03-Apr-2018	29-Mar-2018
Sample description	28-Mar-2018	28-Mar-2018
Total Sulphate	03-Apr-2018	03-Apr-2018
Total Sulphur	04-Apr-2018	04-Apr-2018

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15957		

Site Ref / Hole ID:	CP-RPS-01	**Depth (m):**	1.20 - 2.00
Sample No:	1	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty very sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	22 March 2018

Test Results

Moisture Content (%)	15

Remarks:

QA Ref.					
BS1377-2 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan	Date 04/04/2018	Fig **MC 1**
			A Grogan, Laboratory Manager		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS 1377:Part 2:1990: Clause 9.2 / 9.4

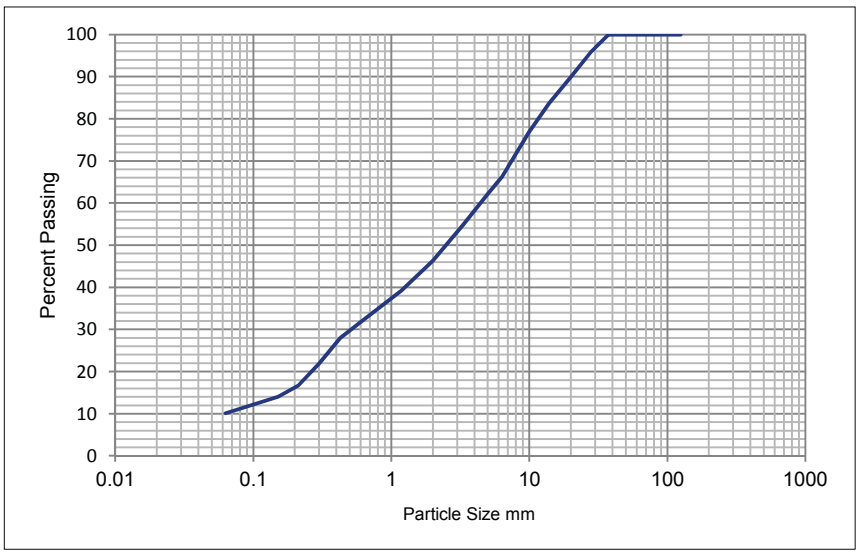
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15957		

Site Ref / Hole ID:	CP-RPS-01	**Depth (m):**	1.20 - 2.00
Sample No:	1	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty very sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	28 March 2018

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	96
20	90
14	84
10	77
6.3	66
5.0	62
3.35	55
2.00	46
1.18	39
0.600	32
0.425	28
0.300	22
0.212	17
0.150	14
0.063	10

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sedimentation	
Particle Size mm	% Passing
0.0201	
0.0060	
0.0020	

Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	0	N/A	D_{60} / D_{10}
Gravel	54		
Sand	36	**Dry mas of sample, kg**	
Silt / Clay	10	3.2	N/A

Remarks: Sample all used - Insufficient material was supplied to provide a representative sample.
[Initial sample mass did not conform with BS1377: 1990: Part 2, Table 3]

QA Ref.					
BS1377 - 2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver Andrew Grogan A.Grogan, Laboratory Manager	Date 04/04/2018	Fig **PSD**

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15958		

Site Ref / Hole ID:	CP-RPS-01	**Depth (m):**	3.00 - 3.45
Sample No:	5	**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	White slightly sandy very gravelly SILT
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	22 March 2018

Test Results

Moisture Content (%)	101

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	04/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

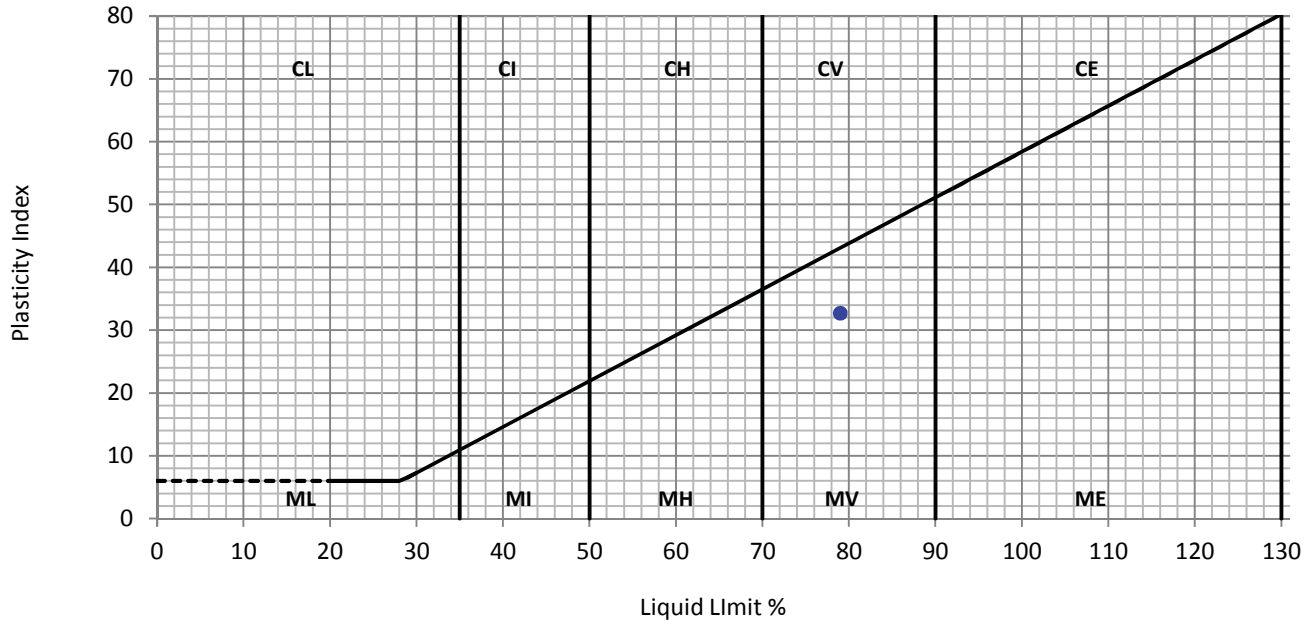
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15958		

Site Ref / Hole ID:	CP-RPS-01	**Depth (m):**	3.00 - 3.45
Sample No:	5	**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	White slightly sandy very gravelly SILT
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	04 April 2018

Test Results

Liquid Limit	79	%
Plastic Limit	46	%
Plasticity Index	33	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	22	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan A.Grogan, Laboratory Manager	Date 04/04/2018	Fig. **ATT 1**

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15959		

Site Ref / Hole ID:	CP-RPS-01	**Depth (m):**	5.00 - 5.45
Sample No:	8	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light grey slightly silty slightly sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	27 March 2018

Test Results

Moisture Content (%)	51

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	04/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

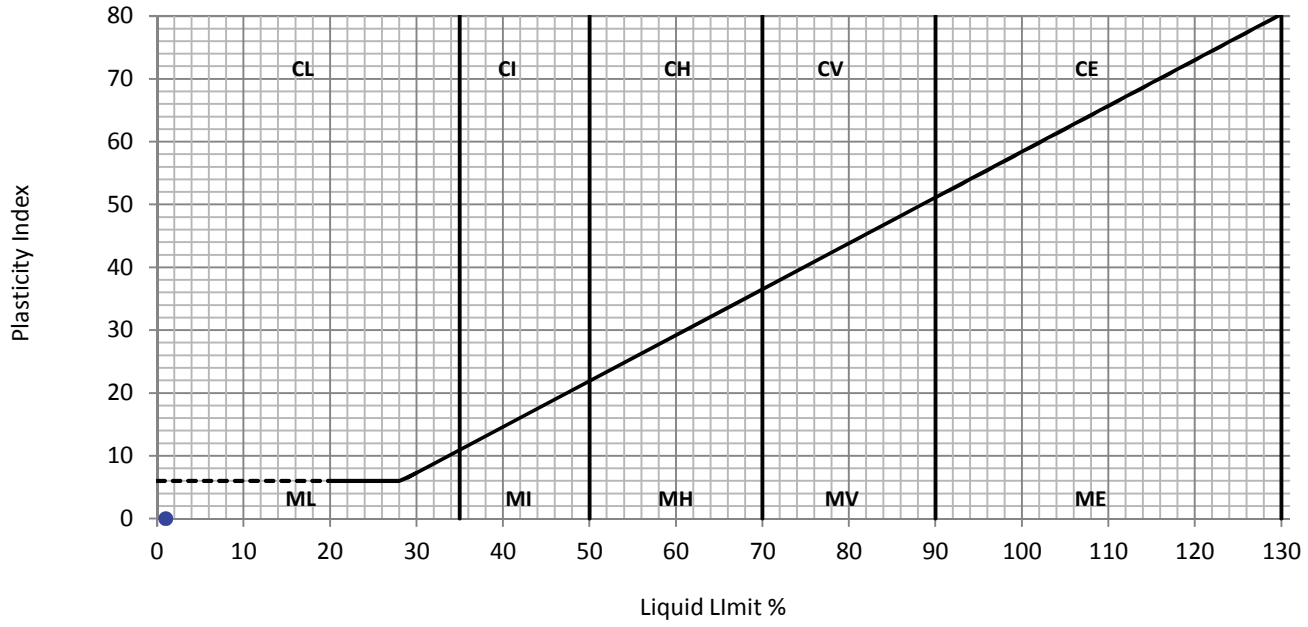
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15959		

Site Ref / Hole ID:	CP-RPS-01	**Depth (m):**	5.00 - 5.45
Sample No:	8	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light grey slightly silty slightly sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	04 April 2018

Test Results

Liquid Limit	N/A	%
Plastic Limit	39	%
Plasticity Index	N/A	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	127	%



Remarks: Not enough fine material to perform liquid limit test. Only plastic limit test performed.

QA Ref.	Apex Testing Solutions	Approver	Date	Fig.
BS1377-2 Rev 3.0	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096 UKAS Testing 7771	Andrew Grogan A.Grogan, Laboratory Manager	04/04/2018	ATT 1

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15960		

Site Ref / Hole ID:	CP-RPS-02	**Depth (m):**	0.20 - 1.20
Sample No:	1	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty sandy GRAVEL with few cobbles
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	26 March 2018

Test Results

Moisture Content (%)	10

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	04/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS 1377:Part 2:1990: Clause 9.2 / 9.4

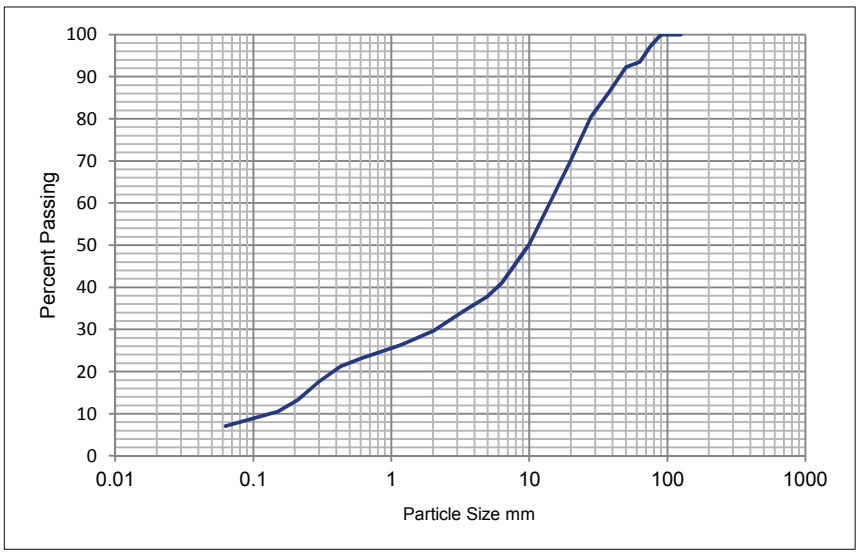
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15960		

Site Ref / Hole ID:	CP-RPS-02	**Depth (m):**	0.20 - 1.20
Sample No:	1	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty sandy GRAVEL with few cobbles
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	27 March 2018

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	97
63	93
50	92
37.5	86
28	80
20	70
14	60
10	50
6.3	41
5.0	38
3.35	34
2.00	30
1.18	26
0.600	23
0.425	21
0.300	18
0.212	13
0.150	10
0.063	7

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sedimentation	
Particle Size mm	% Passing
0.0201	
0.0060	
0.0020	

Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	7	N/A	D_{60} / D_{10}
Gravel	64		
Sand	23	**Dry mas of sample, kg**	
Silt / Clay	7	13.5	N/A

Remarks: Sample all used - Insufficient material was supplied to provide a representative sample.
[Initial sample mass did not conform with BS1377: 1990: Part 2, Table 3]

QA Ref.			Approver	Date	Fig
BS1377 - 2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Andrew Grogan	04/04/2018	**PSD**
			A.Grogan, Laboratory Manager		

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15960		

Site Ref / Hole ID:	CP-RPS-02	**Depth (m):**	4.50 - 6.00
Sample No:	10	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	27 March 2018

Test Results

Moisture Content (%)	32

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	03/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS 1377:Part 2:1990: Clause 9.2 / 9.4

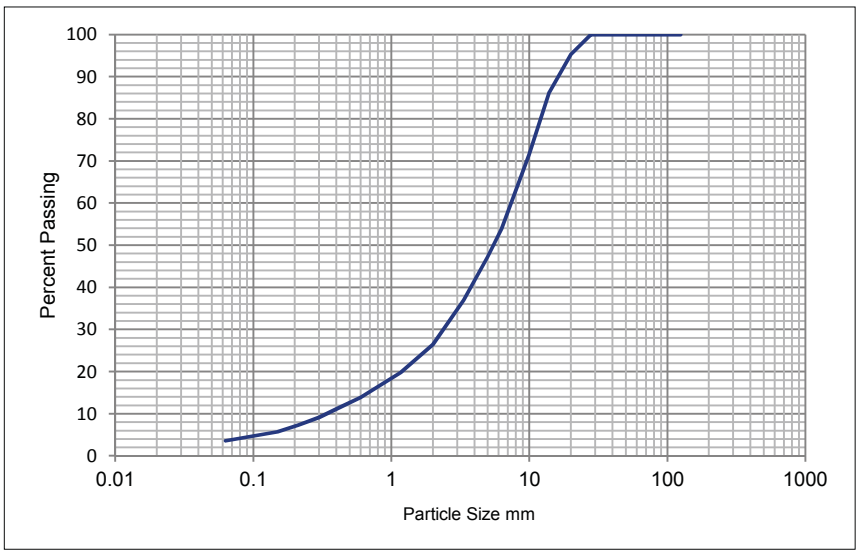
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15960		

Site Ref / Hole ID:	CP-RPS-02	**Depth (m):**	4.50 - 6.00
Sample No:	10	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	27 March 2018

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	95
14	86
10	71
6.3	54
5.0	47
3.35	37
2.00	26
1.18	20
0.600	14
0.425	11
0.300	9
0.212	7
0.150	6
0.063	4

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sedimentation	
Particle Size mm	% Passing
0.0201	
0.0060	
0.0020	

Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	0	N/A	D_{60} / D_{10}
Gravel	74		
Sand	23	**Dry mas of sample, kg**	
Silt / Clay	4	3.7	N/A

Remarks: Sample all used - Insufficient material was supplied to provide a representative sample.
[Initial sample mass did not conform with BS1377: 1990: Part 2, Table 3]

QA Ref.	Apex Testing Solutions	Approver	Date	Fig
BS1377 - 2 Rev 3.0	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096 UKAS TESTING 7771	Andrew Grogan A.Grogan, Laboratory Manager	04/04/2018	PSD

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15961		

Site Ref / Hole ID:	CP-RPS-02	**Depth (m):**	6.00 - 7.20
Sample No:	13	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light grey gravelly sandy SILT
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	26 March 2018

Test Results

Moisture Content (%)	92

Remarks:

QA Ref.					
BS1377-2 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan	Date 04/04/2018	Fig **MC 1**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

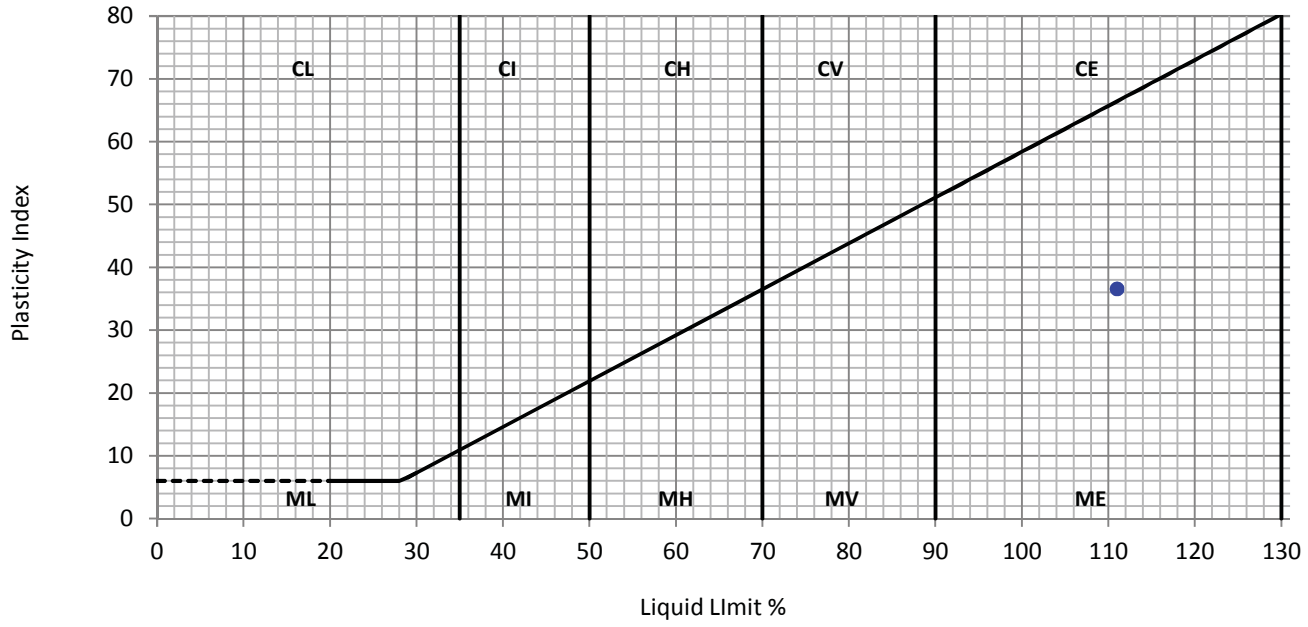
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15961		

Site Ref / Hole ID:	CP-RPS-02	**Depth (m):**	6.00 - 7.20
Sample No:	13	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light grey gravelly sandy SILT
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	04 April 2018

Test Results

Liquid Limit	111	%
Plastic Limit	74	%
Plasticity Index	37	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	57	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver Andrew Grogan	Date 04/04/2018	Fig. **ATT 1**
			A.Grogan, Laboratory Manager		

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15962		

Site Ref / Hole ID:	CP-RPS-02	**Depth (m):**	8.70 - 9.50
Sample No:	17	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark Brown sandy gravelly CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	22 March 2018

Test Results

Moisture Content (%)	30

Remarks:

QA Ref.					
BS1377-2 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan	Date 04/04/2018	Fig **MC 1**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

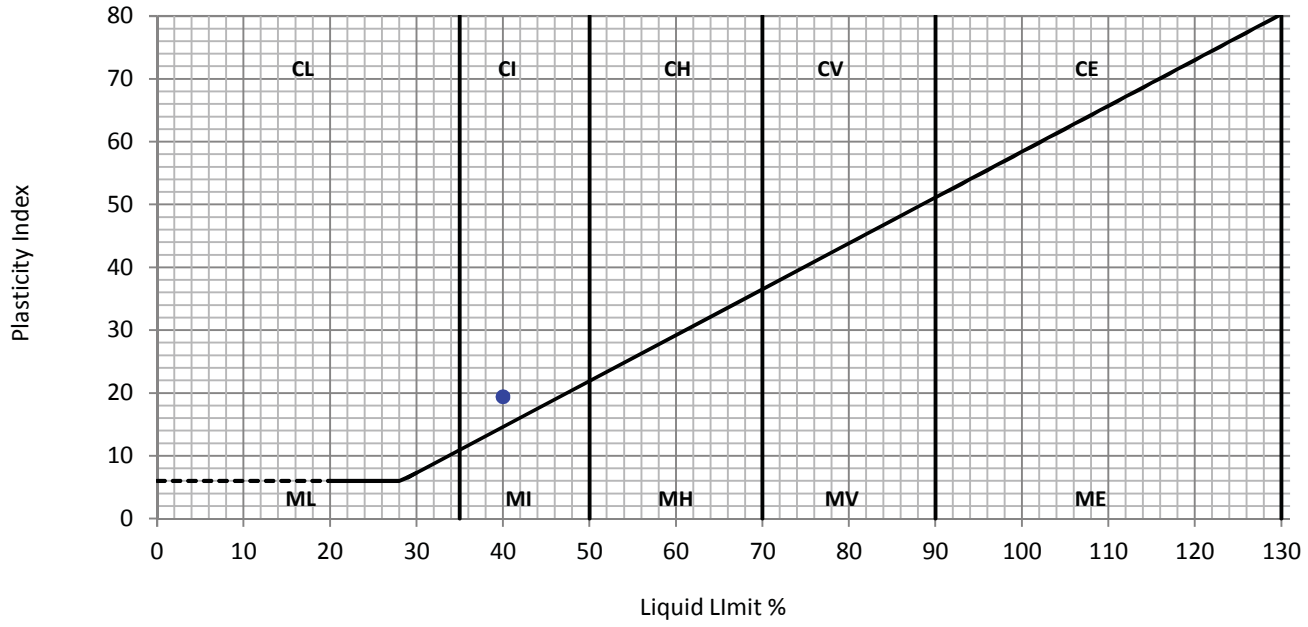
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15962		

Site Ref / Hole ID:	CP-RPS-02	**Depth (m):**	8.70 - 9.50
Sample No:	17	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark Brown sandy gravelly CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	04 April 2018

Test Results

Liquid Limit	40	%
Plastic Limit	21	%
Plasticity Index	19	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	16	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver Andrew Grogan	Date 04/04/2018	Fig. **ATT 1**
			A.Grogan, Laboratory Manager		

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15963		

Site Ref / Hole ID:	CP-RPS-02	**Depth (m):**	9.50 - 10.50
Sample No:	19	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Greyish brown slightly gravelly silty CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	23 March 2018

Test Results

Moisture Content (%)	41

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	03/04/2018	**MC 1**
		A Grogan, Laboratory Supervisor		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

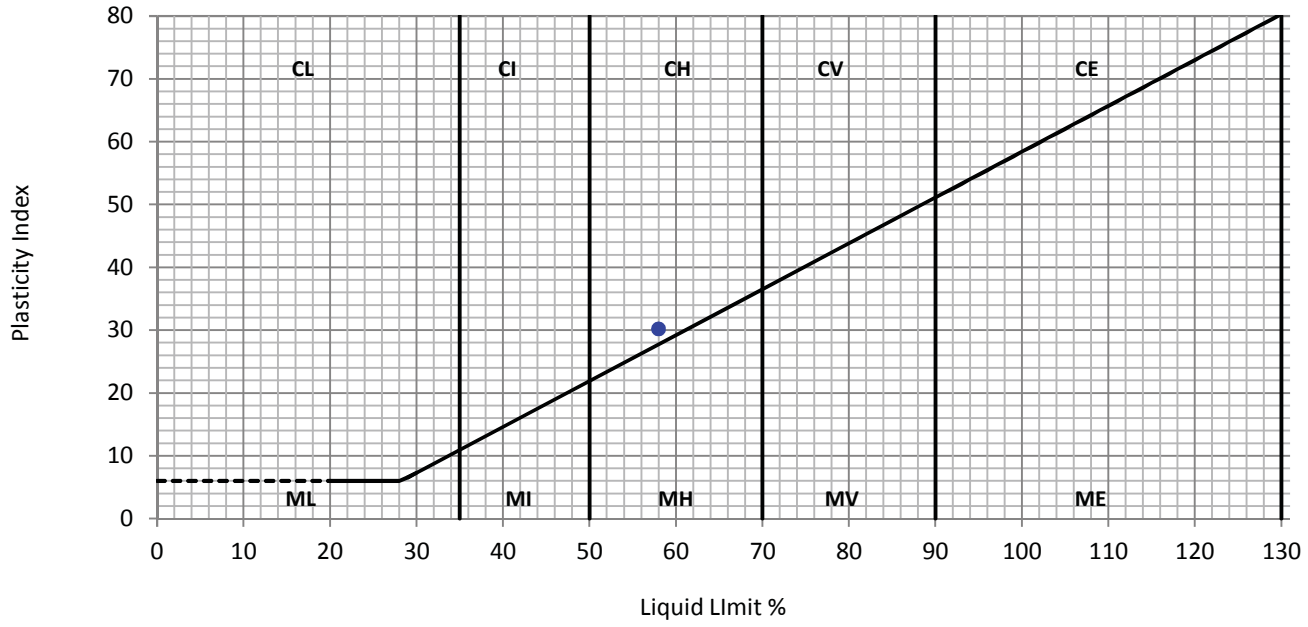
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15963		

Site Ref / Hole ID:	CP-RPS-02	**Depth (m):**	9.50 - 10.50
Sample No:	19	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Greyish brown slightly gravelly silty CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	03 April 2018

Test Results

Liquid Limit	58	%
Plastic Limit	28	%
Plasticity Index	30	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	37	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver Andrew Grogan	Date 03/04/2018	Fig. **ATT 1**
			A.Grogan, Laboratory Manager		

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15964		

Site Ref / Hole ID:	CP-RPS-03	**Depth (m):**	3.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Orange Brown clayey sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	26 March 2018

Test Results

Moisture Content (%)	16

Remarks:

QA Ref.					
BS1377-2 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan	Date 03/04/2018	Fig **MC 1**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

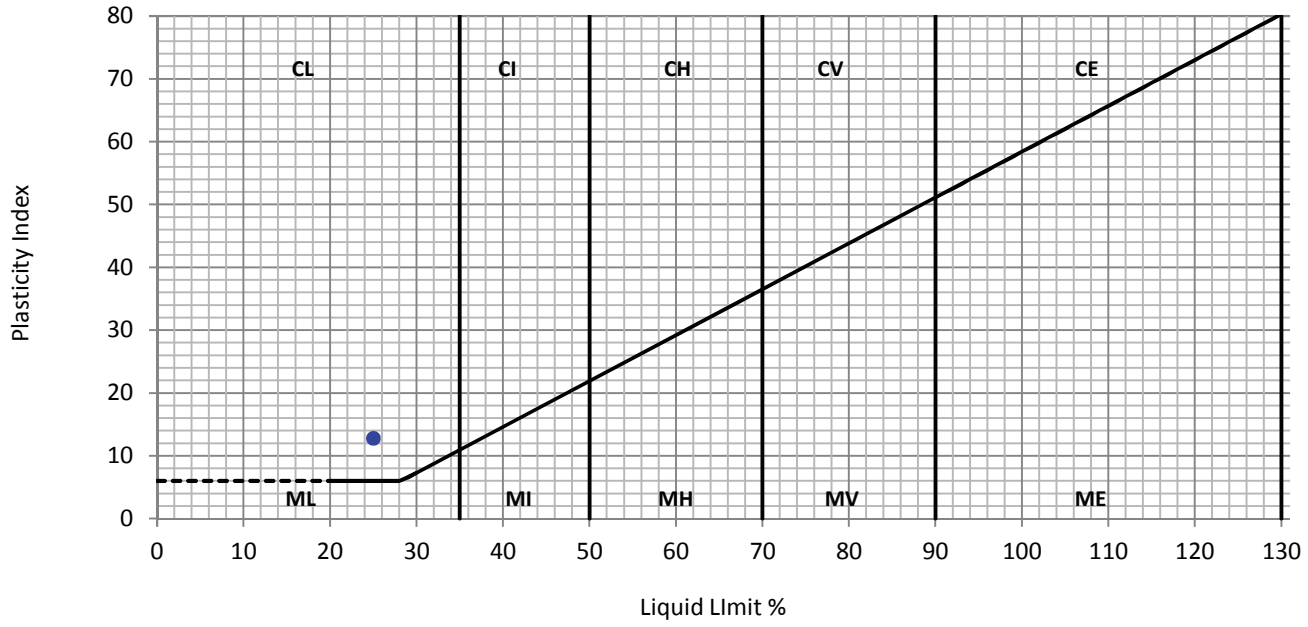
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15964		

Site Ref / Hole ID:	CP-RPS-03	**Depth (m):**	3.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Orange Brown clayey sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	03 April 2018

Test Results

Liquid Limit	25	%
Plastic Limit	12	%
Plasticity Index	13	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	19	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver Andrew Grogan A.Grogan, Laboratory Manager	Date 03/04/2018	Fig. **ATT 1**

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS 1377:Part 2:1990: Clause 9.2 / 9.4

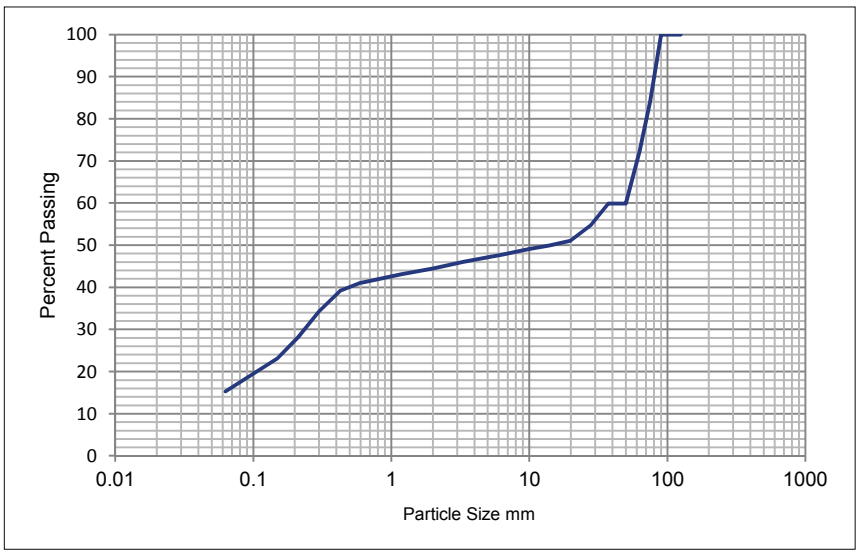
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15964		

Site Ref / Hole ID:	CP-RPS-03	**Depth (m):**	3.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Orange Brown clayey sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	27 March 2018

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	84
63	72
50	60
37.5	60
28	55
20	51
14	50
10	49
6.3	48
5.0	47
3.35	46
2.00	44
1.18	43
0.600	41
0.425	39
0.300	34
0.212	28
0.150	23
0.063	15

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sedimentation	
Particle Size mm	% Passing
0.0201	
0.0060	
0.0020	

Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	28	N/A	D_{60} / D_{10}
Gravel	28		
Sand	29	**Dry mas of sample, kg**	
Silt / Clay	15	3.8	N/A

Remarks: Sample all used - Insufficient material was supplied to provide a representative sample.
[Initial sample mass did not conform with BS1377: 1990: Part 2, Table 3]

QA Ref.					
BS1377 - 2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver Andrew Grogan L Maiden, Laboratory Supervisor	Date 04/04/2018	Fig **PSD**

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15965		

Site Ref / Hole ID:	CP-RPS-03	**Depth (m):**	6.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown slightly gravelly sandy CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	27 March 2018

Test Results

Moisture Content (%)	24

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	04/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

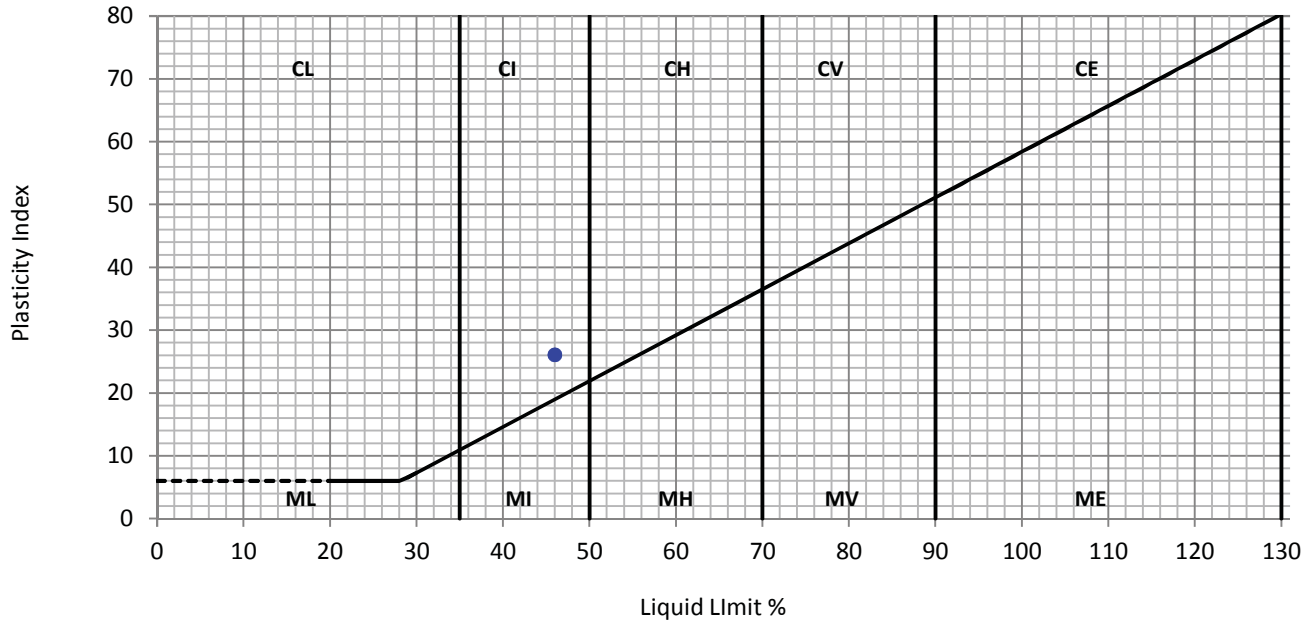
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15965		

Site Ref / Hole ID:	CP-RPS-03	**Depth (m):**	6.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown slightly gravelly sandy CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	04 April 2018

Test Results

Liquid Limit	46	%
Plastic Limit	20	%
Plasticity Index	26	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	5	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver Andrew Gragan	Date 14/10/2015	Fig. **ATT 1**
			L Maiden, Laboratory Supervisor		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS 1377:Part 2:1990: Clause 9.2 / 9.4

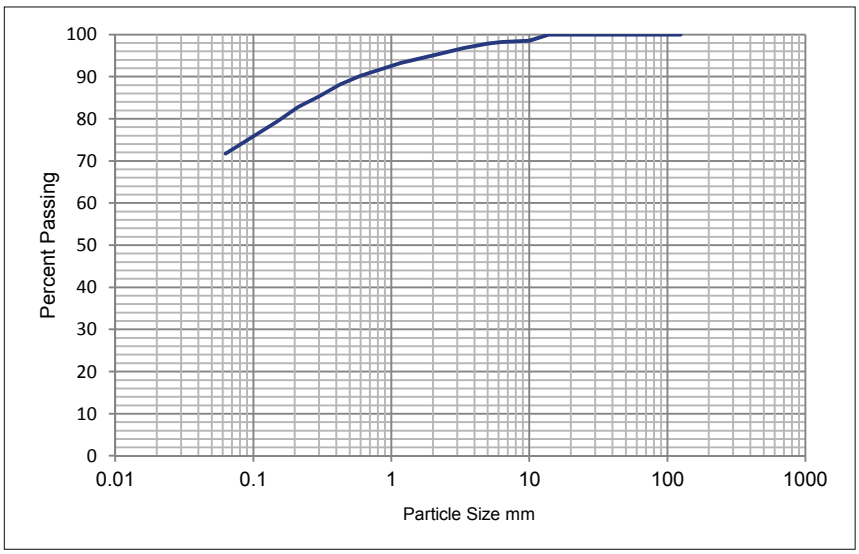
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15965		

Site Ref / Hole ID:	CP-RPS-03	**Depth (m):**	6.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown slightly gravelly sandy CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	27 March 2018

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	99
6.3	98
5.0	98
3.35	97
2.00	95
1.18	93
0.600	90
0.425	88
0.300	85
0.212	83
0.150	79
0.063	72

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sedimentation	
Particle Size mm	% Passing
0.0201	
0.0060	
0.0020	

Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	0	N/A	D_{60} / D_{10}
Gravel	5		
Sand	23	**Dry mas of sample, kg**	
Silt / Clay	72	0.2	N/A

Remarks: Sample all used - Insufficient material was supplied to provide a representative sample.
[Initial sample mass did not conform with BS1377: 1990: Part 2, Table 3]

QA Ref.					
BS1377 - 2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver Andrew Grogan A.Grogan, Laboratory Manager	Date 04/04/2018	Fig **PSD**

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15966		

Site Ref / Hole ID:	CP-RPS-04	**Depth (m):**	0.20 - 0.50
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty very sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	27 March 2018

Test Results

Moisture Content (%)	12

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	04/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS 1377:Part 2:1990: Clause 9.2 / 9.4

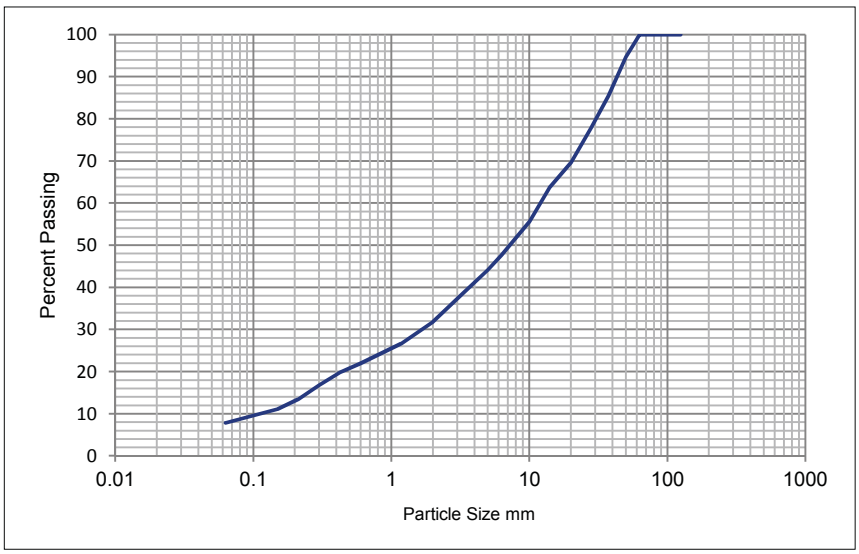
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15966		

Site Ref / Hole ID:	CP-RPS-04	**Depth (m):**	0.20 - 0.50
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty very sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	28 March 2018

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	95
37.5	85
28	78
20	69
14	64
10	55
6.3	48
5.0	44
3.35	39
2.00	32
1.18	27
0.600	22
0.425	20
0.300	17
0.212	13
0.150	11
0.063	8

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sedimentation	
Particle Size mm	% Passing
0.0201	
0.0060	
0.0020	

Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	0	N/A	D_{60} / D_{10}
Gravel	68		
Sand	24	**Dry mas of sample, kg**	
Silt / Clay	8	4.9	N/A

Remarks: Sample all used - Insufficient material was supplied to provide a representative sample.
[Initial sample mass did not conform with BS1377: 1990: Part 2, Table 3]

QA Ref.	Apex Testing Solutions	Approver	Date	Fig
BS1377 - 2 Rev 3.0	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096 UKAS TESTING 7771	A Grogan A Grogan, Laboratory Manager	04/04/2018	PSD

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:			

Site Ref / Hole ID:	CP-RPS-05	**Depth (m):**	1.20 - 2.00
Sample No:	3	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey slightly silty sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	22 March 2018

Test Results

Moisture Content (%)	12

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	04/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS 1377:Part 2:1990: Clause 9.2 / 9.4

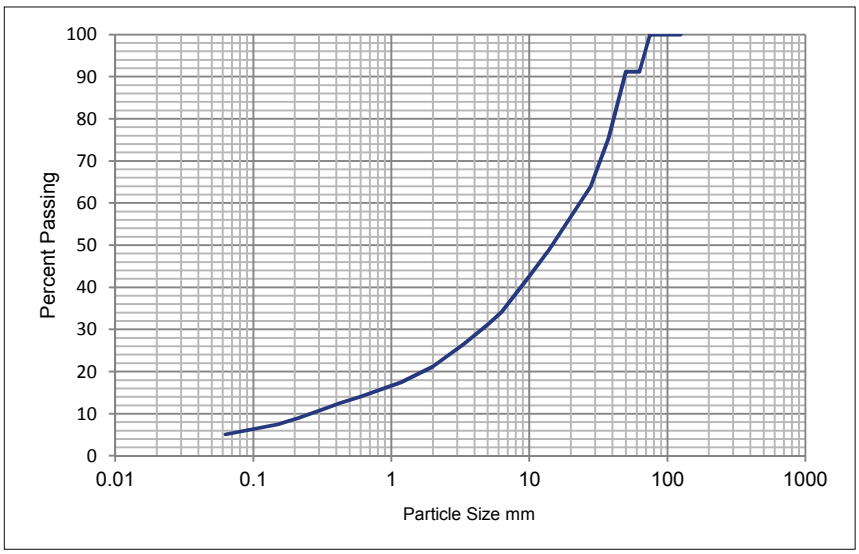
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:			

Site Ref / Hole ID:	CP-RPS-05	**Depth (m):**	1.20 - 2.00
Sample No:	3	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey slightly silty sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	26 March 2018

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	91
50	91
37.5	75
28	64
20	57
14	49
10	43
6.3	34
5.0	31
3.35	26
2.00	21
1.18	17
0.600	14
0.425	13
0.300	11
0.212	9
0.150	7
0.063	5

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sedimentation	
Particle Size mm	% Passing
0.0201	
0.0060	
0.0020	

Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	9	N/A	D_{60} / D_{10}
Gravel	70		
Sand	16	**Dry mas of sample, kg**	
Silt / Clay	5	3.4	N/A

Remarks: Sample all used - Insufficient material was supplied to provide a representative sample.
[Initial sample mass did not conform with BS1377: 1990: Part 2, Table 3]

QA Ref.	Apex Testing Solutions	Approver	Date	Fig
BS1377 - 2 Rev 3.0	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096 UKAS TESTING 7771	A Grogan A.Grogan, Laboratory Manager	04/04/2018	PSD

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15970		

Site Ref / Hole ID:	CP-RPS-05	**Depth (m):**	3.00 - 4.00
Sample No:	7	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light brown slightly gravelly slightly sandy CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	22 March 2018

Test Results

Moisture Content (%)	26

Remarks:

QA Ref.					
BS1377-2 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan	Date 04/04/2018	Fig **MC 1**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

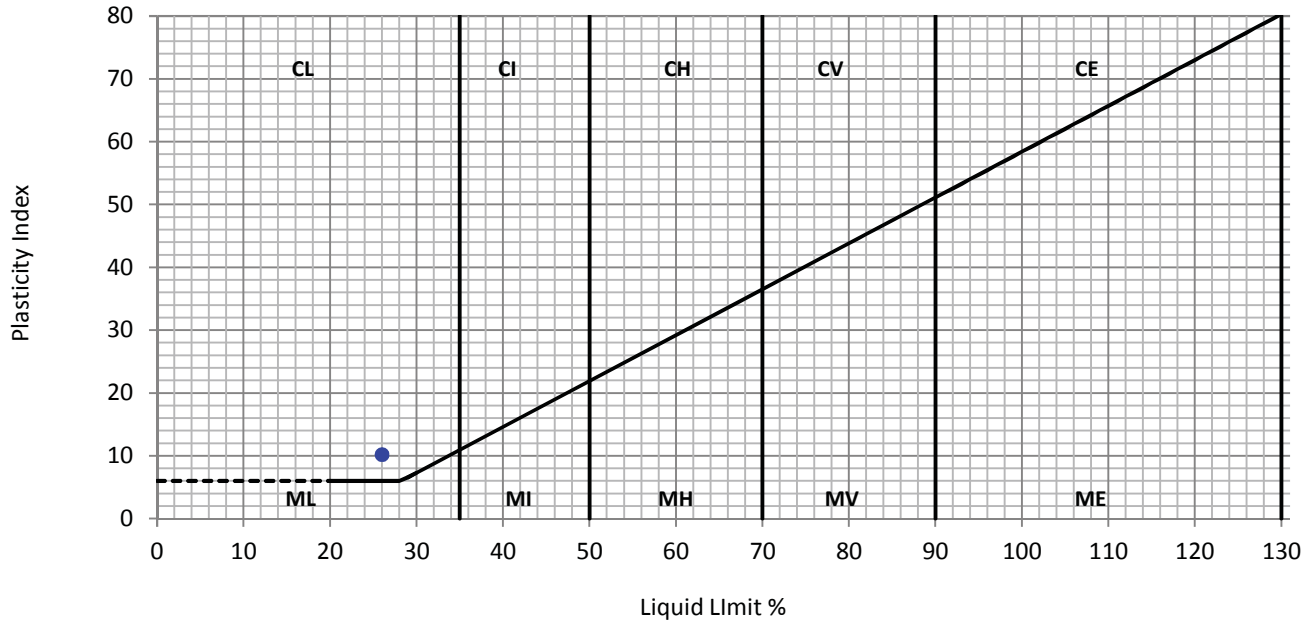
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15970		

Site Ref / Hole ID:	CP-RPS-05	**Depth (m):**	3.00 - 4.00
Sample No:	7	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light brown slightly gravelly slightly sandy CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	04 April 2018

Test Results

Liquid Limit	26	%
Plastic Limit	16	%
Plasticity Index	10	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	15	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan	Date 04/04/2018	Fig. **ATT 1**
			A.Grogan, Laboratory Manager		

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15971		

Site Ref / Hole ID:	CP-RPS-05	**Depth (m):**	4.80
Sample No:	9	**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	Dark brown CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	22 March 2018

Test Results

Moisture Content (%)	20

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	03/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

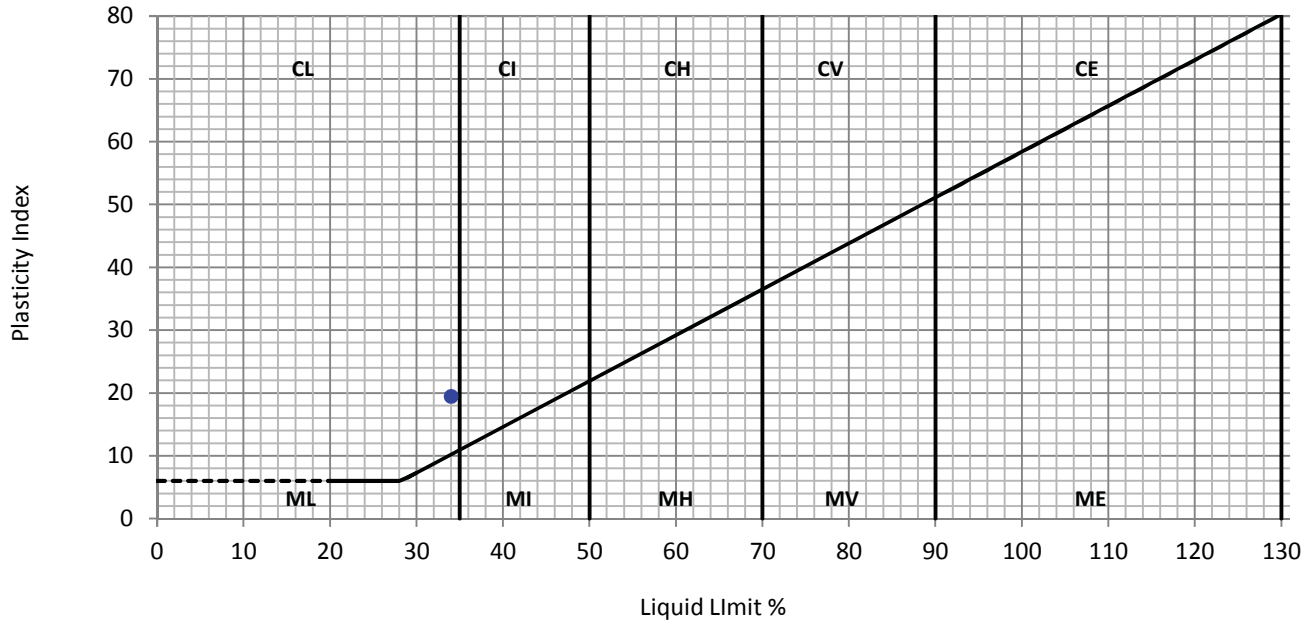
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15971		

Site Ref / Hole ID:	CP-RPS-05	**Depth (m):**	4.80
Sample No:	9	**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	Dark brown CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	03 April 2018

Test Results

Liquid Limit	34	%
Plastic Limit	15	%
Plasticity Index	19	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	10	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan A.Grogan, Laboratory Manager	Date 03/04/2018	Fig. **ATT 1**

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15972		

Site Ref / Hole ID:	CP-RPS-06	**Depth (m):**	0.70 - 1.20
Sample No:	2	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	23 March 2018

Test Results

Moisture Content (%)	36

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	03/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

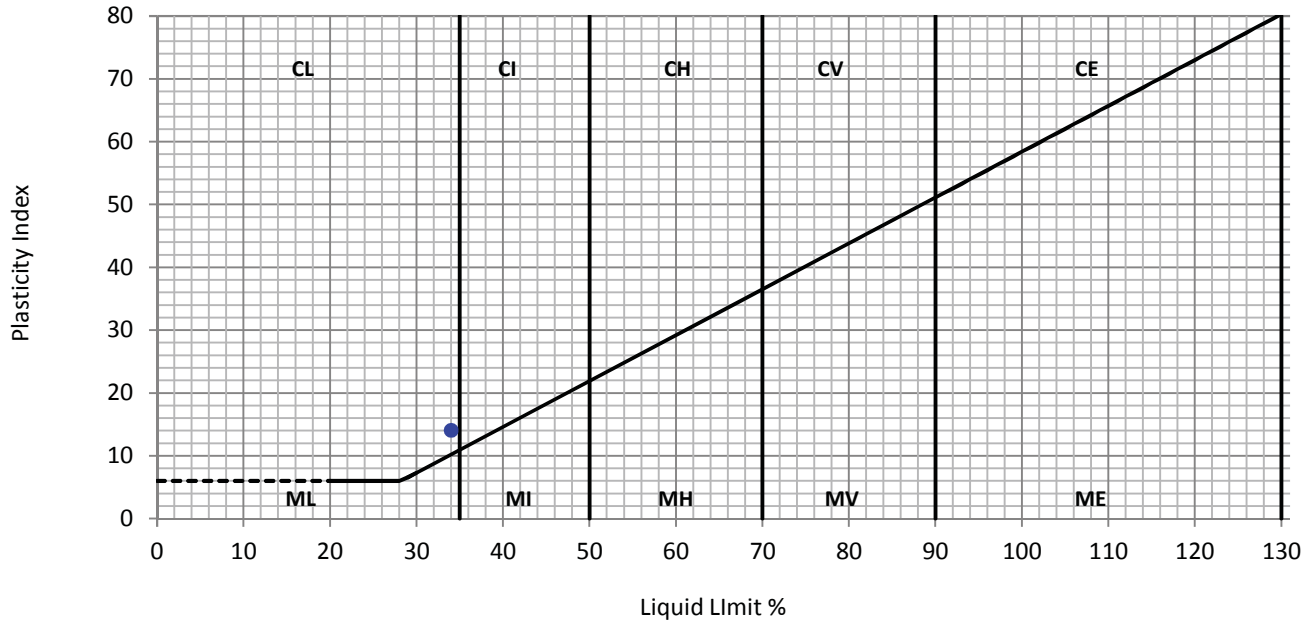
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15972		

Site Ref / Hole ID:	CP-RPS-06	**Depth (m):**	0.70 - 1.20
Sample No:	2	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	03 April 2018

Test Results

Liquid Limit	34	%
Plastic Limit	20	%
Plasticity Index	14	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	22	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan A.Grogan, Laboratory Manager	Date 04/04/2018	Fig. **ATT 1**

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15973		

Site Ref / Hole ID:	CP-RPS-06	**Depth (m):**	2.00 - 4.00
Sample No:	6	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Greyish brown gravelly CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	22 March 2018

Test Results

Moisture Content (%)	17

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	04/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

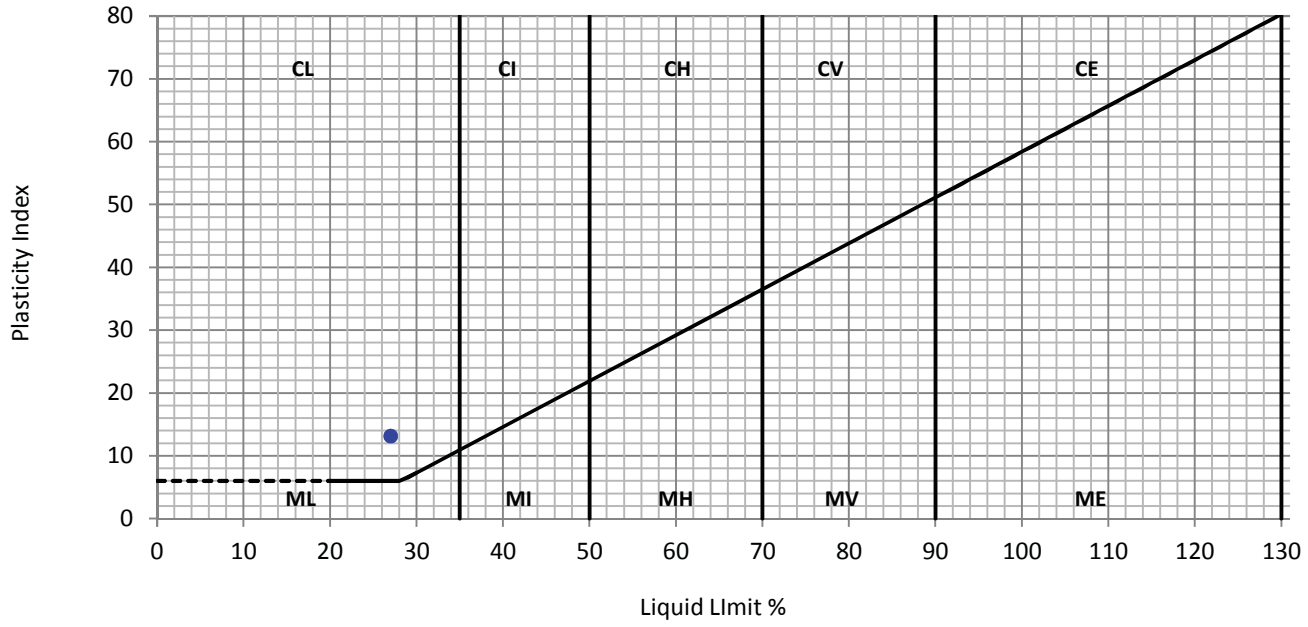
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15973		

Site Ref / Hole ID:	CP-RPS-06	**Depth (m):**	2.00 - 4.00
Sample No:	6	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Greyish brown gravelly CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	04 April 2018

Test Results

Liquid Limit	27	%
Plastic Limit	14	%
Plasticity Index	13	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	19	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan A.Grogan, Laboratory Manager	Date 14/10/2015	Fig. **ATT 1**

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15974		

Site Ref / Hole ID:	CP-RPS-06	**Depth (m):**	5.40 - 5.60
Sample No:	10	**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	Reddish brown CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	23 March 2018

Test Results

Moisture Content (%)	24

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	03/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

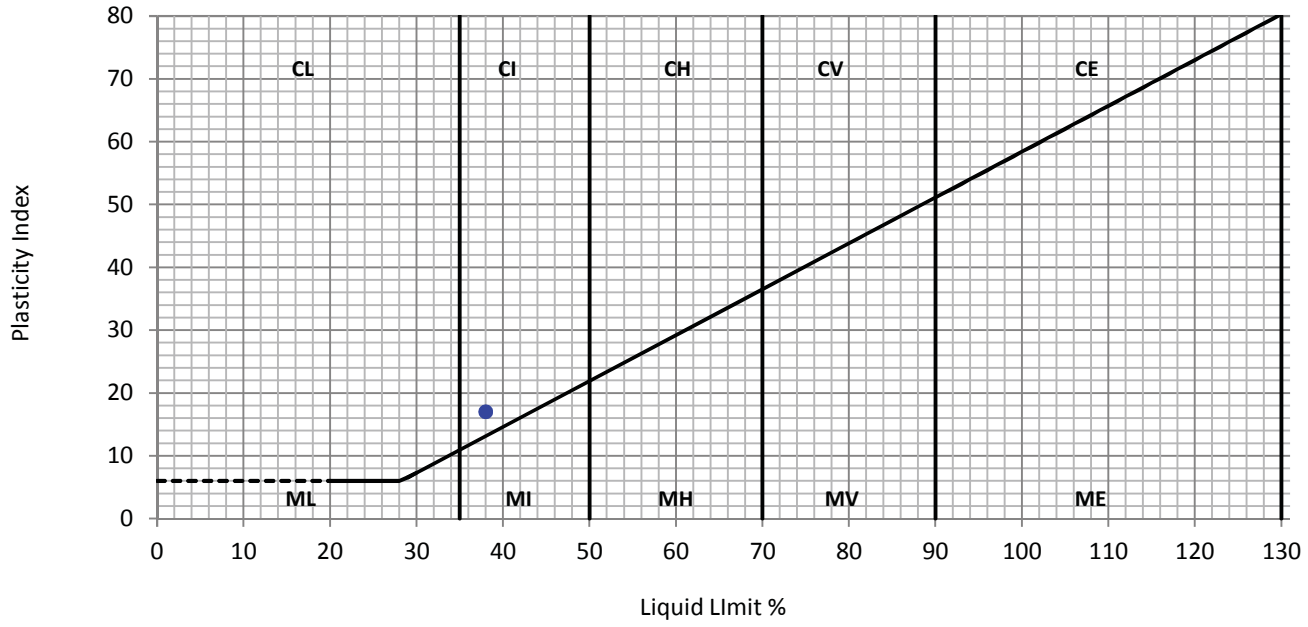
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15974		

Site Ref / Hole ID:	CP-RPS-06	**Depth (m):**	5.40 - 5.60
Sample No:	10	**Sample Type:**	Disturbed
Sampling Certificate Received:	No	**Material Description:**	Reddish brown CLAY
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	03 April 2018

Test Results

Liquid Limit	38	%
Plastic Limit	21	%
Plasticity Index	17	%

Preparation:	4.2.3 Natural Specimen	
Proportion retained on 425µm sieve:	0	%



Remarks:

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan	Date 03/04/2018	Fig. **ATT 1**
			A.Grogan, Laboratory Manager		

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15975		

Site Ref / Hole ID:	TP-RPS-45	**Depth (m):**	0.50
Sample No:	2	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty sandy GRAVEL with few cobbles
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	03 April 2018

Test Results

Moisture Content (%)	14

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	04/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS 1377:Part 2:1990: Clause 9.2 / 9.4

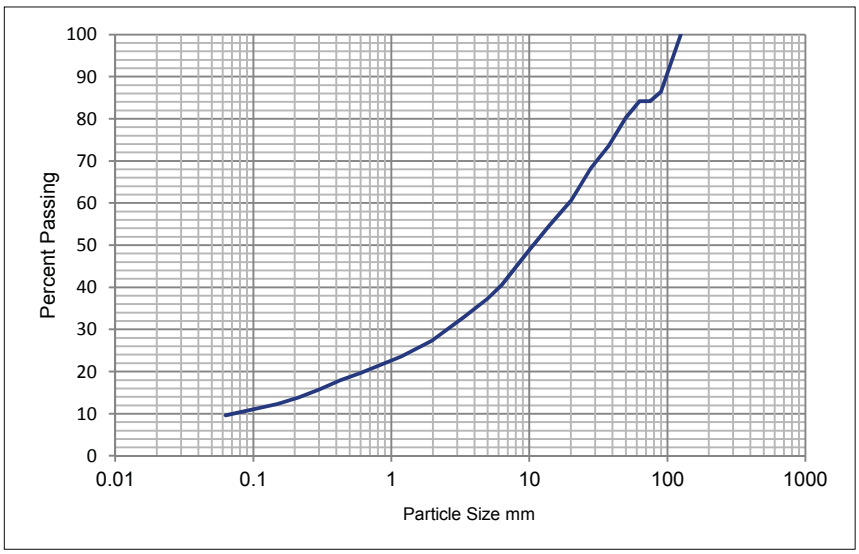
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15975		

Site Ref / Hole ID:	TP-RPS-45	**Depth (m):**	0.50
Sample No:	2	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty sandy GRAVEL with few cobbles
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	03 April 2018

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	86
75	84
63	84
50	80
37.5	74
28	68
20	60
14	55
10	49
6.3	40
5.0	37
3.35	33
2.00	27
1.18	24
0.600	20
0.425	18
0.300	16
0.212	14
0.150	12
0.063	10

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sedimentation	
Particle Size mm	% Passing
0.0201	
0.0060	
0.0020	

Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	16	N/A	D_{60} / D_{10}
Gravel	57		
Sand	18	**Dry mas of sample, kg**	
Silt / Clay	10	16.2	N/A

Remarks: Sample all used - Insufficient material was supplied to provide a representative sample.
[Initial sample mass did not conform with BS1377: 1990: Part 2, Table 3]

QA Ref.	Apex Testing Solutions	Approver	Date	Fig
BS1377 - 2 Rev 3.0	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096 UKAS TESTING 7771	A Grogan A.Grogan, Laboratory Manager	04/04/2018	PSD

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15976		

Site Ref / Hole ID:	TP-RPS-45	**Depth (m):**	2.00
Sample No:	6	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light grey very sandy very gravelly SILT
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	22 March 2018

Test Results

Moisture Content (%)	14

Remarks:

QA Ref.					
BS1377-2 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan	Date 04/04/2018	Fig **MC 1**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990: Clause 4.3/5.3/5.4

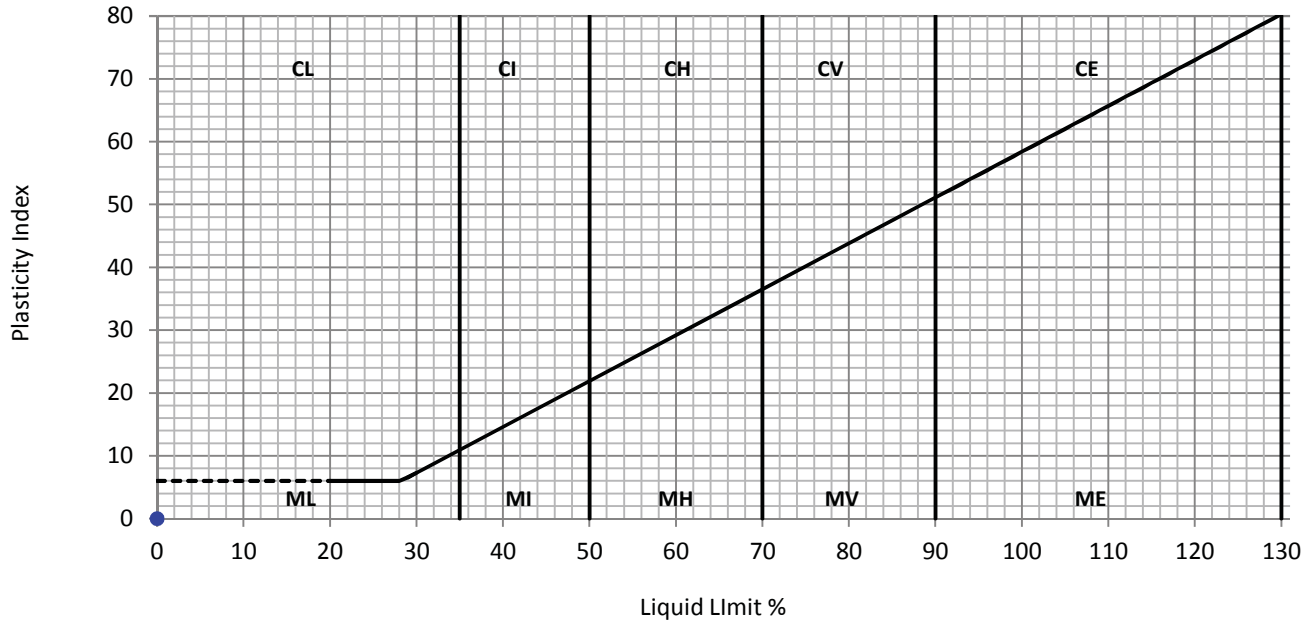
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15976		

Site Ref / Hole ID:	TP-RPS-45	**Depth (m):**	2.00
Sample No:	6	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light grey very sandy very gravelly SILT
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	

Test Results

Liquid Limit	0	%
Plastic Limit		%
Plasticity Index	#VALUE!	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	25	%



Remarks: Sample is non - plastic

QA Ref.					
BS1377-2 Rev 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver A Grogan	Date 04/04/2018	Fig. **ATT 1**
			A.Grogan, Laboratory Manager		

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15979		

Site Ref / Hole ID:	TP-RPS-50	**Depth (m):**	0.50
Sample No:	2	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty very sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	23 March 2018

Test Results

Moisture Content (%)	20

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	04/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS 1377:Part 2:1990: Clause 9.2 / 9.4

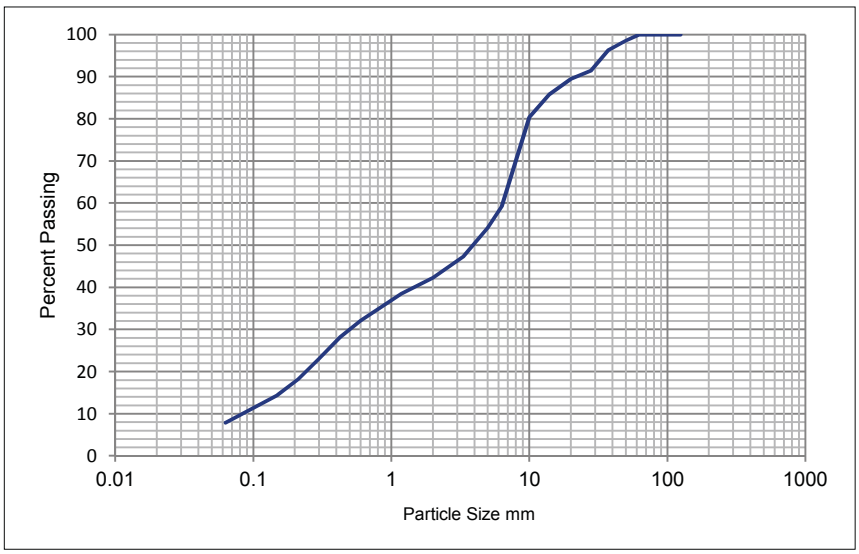
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15979		

Site Ref / Hole ID:	TP-RPS-50	**Depth (m):**	0.50
Sample No:	2	**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty very sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	27 March 2018

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	99
37.5	96
28	91
20	89
14	86
10	80
6.3	59
5.0	54
3.35	47
2.00	42
1.18	38
0.600	32
0.425	28
0.300	23
0.212	18
0.150	14
0.063	8

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sedimentation	
Particle Size mm	% Passing
0.0201	
0.0060	
0.0020	

Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	0	N/A	D_{60} / D_{10}
Gravel	58		
Sand	34	**Dry mas of sample, kg**	
Silt / Clay	8	8.0	N/A

Remarks: Sample all used - Insufficient material was supplied to provide a representative sample.
[Initial sample mass did not conform with BS1377: 1990: Part 2, Table 3]

QA Ref.	Apex Testing Solutions	Approver	Date	Fig
BS1377 - 2 Rev 3.0	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096 7771	A Grogan A.Grogan, Laboratory Manager	04/04/2018	**PSD**

TEST REPORT
MOISTURE CONTENT
BS1377: Part 2: 1990 : Clause 3.2

Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15980		

Site Ref / Hole ID:	TP-RPS-51	**Depth (m):**	0.60
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	22 March 2018

Test Results

Moisture Content (%)	29

Remarks:

QA Ref.	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	Approver	Date	Fig
BS1377-2 Rev. 2.0	7771	A Grogan	04/04/2018	**MC 1**
		A Grogan, Laboratory Manager		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS 1377:Part 2:1990: Clause 9.2 / 9.4

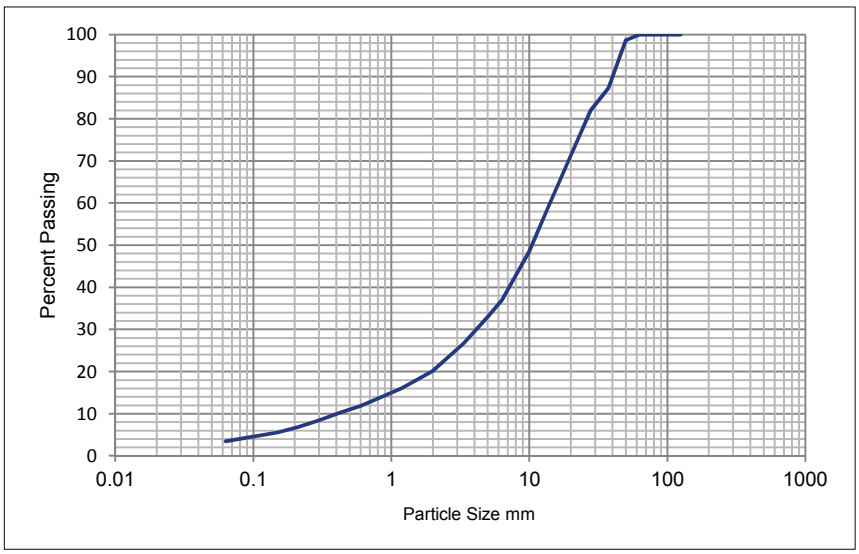
Project No:	D8086-18	**Client:**	RPS Group
Project Name:	Lostock EfW - Sisk	**Address:**	260 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
ATS Sample No:	15980		

Site Ref / Hole ID:	TP-RPS-51	**Depth (m):**	0.60
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark grey silty sandy GRAVEL
Location in Works:	Unknown	**Material Source:**	N/A
Date Sampled:	Unknown	**Material Supplier:**	N/A
Sampled By:	Unknown	**Specification:**	BS1377
Date Received:	21 March 2018	**Date Tested:**	28 March 2018

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	99
37.5	87
28	82
20	71
14	60
10	48
6.3	37
5.0	33
3.35	27
2.00	20
1.18	16
0.600	12
0.425	10
0.300	8
0.212	7
0.150	6
0.063	3

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sedimentation	
Particle Size mm	% Passing
0.0201	
0.0060	
0.0020	

Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	0	N/A	D_{60} / D_{10}
Gravel	80		
Sand	17	**Dry mas of sample, kg**	
Silt / Clay	3	5.9	N/A

Remarks: Sample all used - Insufficient material was supplied to provide a representative sample.
[Initial sample mass did not conform with BS1377: 1990: Part 2, Table 3]

QA Ref.	Apex Testing Solutions	Approver	Date	Fig
BS1377 - 2 Rev 3.0	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096 7771	A Grogan A.Grogan, Laboratory Manager	04/04/2018	**PSD**

Laboratory Report

2788

GEO Site & Testing Services Ltd

Contract Number: 38670

Client Ref: **1068**
Client PO: **1068**

Report Date: **30-03-2018**

Client **Apex Drilling Services Limited**
Sturmi Way
Village Farm Industrial Estate, Pyle
Bridgend
CF33 6BZ

Contract Title: **Lostock**
For the attention of: **Andrew Grogan**

Date Received: **22-03-2018**
Date Commenced: **22-03-2018**
Date Completed: **30-03-2018**

Test Description	Qty
One-dimensional Consolidation 75mm or 50mm diameter specimens (5 days) 1377 : 1990 Part 5 : 3 - * UKAS	1
Quick Undrained Triaxial Compression test - single specimen at one confining pressure (100mm or 38mm diameter) 1377 : 1990 Part 7 : 8 - * UKAS	1
Disposal of Samples on Project	1

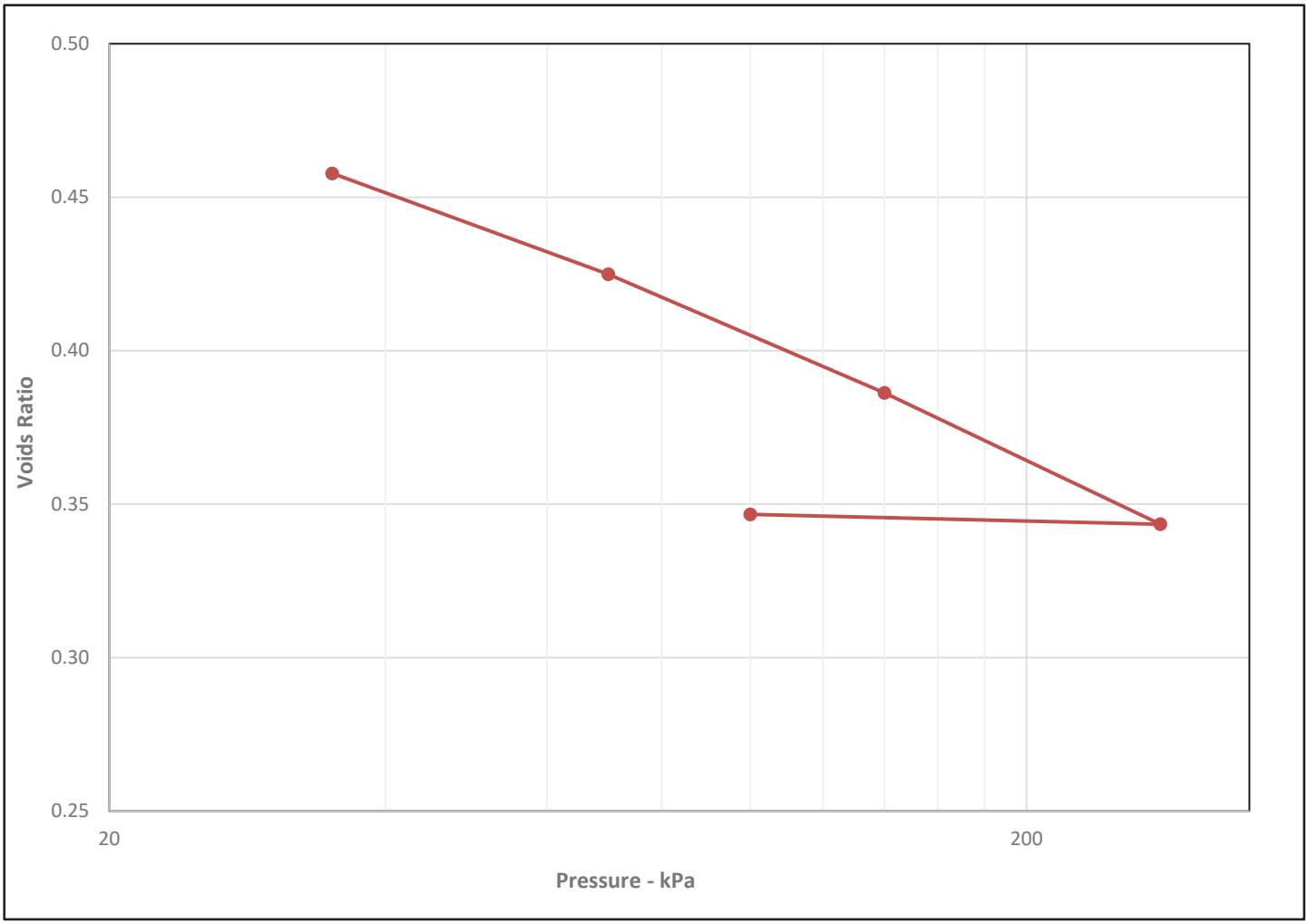
Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
 # - denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories:
Alex Wynn (Associate Director) - Ben Sharp (Contracts Manager) - Emma Sharp (Office Manager)
Paul Evans (Quality/Technical Manager) - Richard John (Advanced Testing Manager) - Sean Penn (Administrative/Quality Assistant)
Wayne Honey (Administrative/Quality Assistant)

GEO Site & Testing Services Ltd
Unit 3-4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

GSTL	ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3	Contract Number	38670
		Borehole/Trialpit No.	CP-RPS-06
Site Name	Lostock	Sample No.	
Soil Description	Brown silty CLAY	Depth Top (m)	5.00
		Depth Base (m)	5.45
Lab Temperature	20°c	Sample Location	Middle
Remarks	Cv Calculated Using T90	Sample Type	U

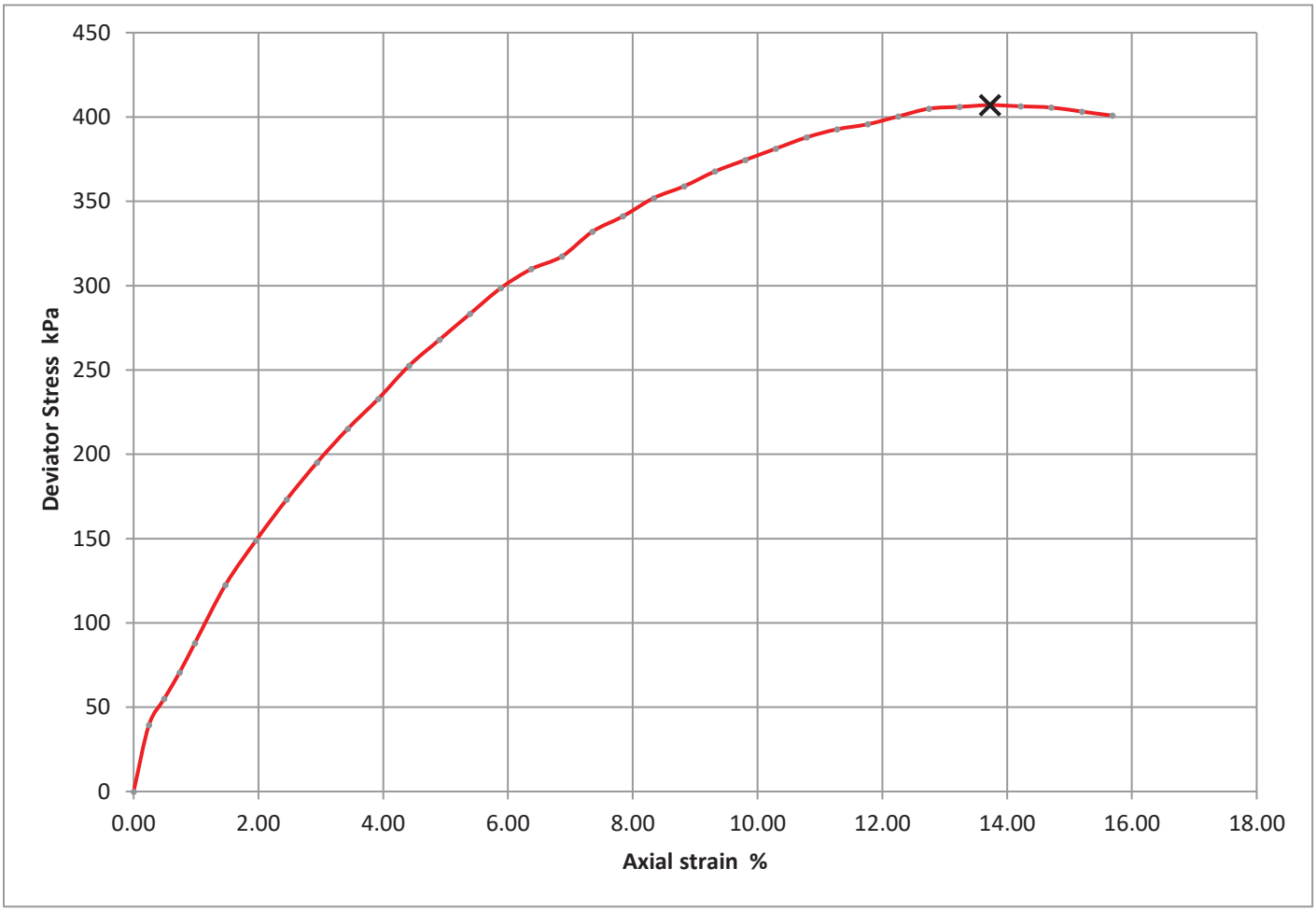


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	13	0	-	35	1.2	5.6		-			
Bulk Density (Mg/m3)	1.96	35	-	70	0.65	11		-			
Dry Density (Mg/m3)	1.74	70	-	140	0.39	14		-			
Voids Ratio	0.5203	140	-	280	0.2	13		-			
Degree of saturation	63.8	280	-	100	0.013	11		-			
Height (mm)	18.84		-					-			
Diameter (mm)	74.85		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators	Checked	29/03/2018	Wayne Honey	W. Honey
LG	Approved	30/03/2018	Ben Sharp	

UKAS TESTING 2788

GSTL	Single Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 8	Contract Number	38670
		Borehole/Pit No.	CP-RPS-06
Site Name	Lostock	Sample No.	
Soil Description	Brown silty CLAY	Depth Top (m)	5.00
		Depth Base (m)	5.45
		Sample Type	U



Moisture Content (%)	13
Bulk Density (Mg/m^3)	2.26
Dry Density (Mg/m^3)	2.00
Specimen Length (mm)	204
Specimen Diameter (mm)	102
Cell Pressure (kPa)	100
Deviator Stress (kPa)	407
Undrained Shear Strength (kPa)	204
Failure Strain (%)	13.73
Mode Of Failure	Plastic
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	3.00

Specimen Post Test

Sample Split

Checked	29/03/2018	Wayne Honey	W. Honey
Approved	30/03/2018	Ben Sharp	

UKAS TESTING 2788

Appendix 4

Gas and Groundwater monitoring data

Gas Monitoring Record

Project Number:	JER 1100
Project Name:	Lostock Efw
Date / visit:	6th to 8th March 2018
Equipment:	LMSXI / Mini rae
Logger	GC

LMSXi take additonal stabilised reading following pump stopping

*mbcl - Meters below cover Level

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-01	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.73	9.97	Flush	Cool, breeze, sunny. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	Bung blocked on arrival
Date / Time	08/03/2018 10:07	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	991	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0	O2 (%)	23.2	22.4	22.1	21.9	21.7	21.6	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.4	21.5	21.5	21.4	20.6						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	1.5	CO (ppm)	0	0	0	0	0	0	0	0	0	0	1.4	1.5	1.6	1.8	2	0	0	0						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-02a	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Dry	0.82	Flush	Sunny, breeze.Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	No bung on arrival, placed at 9am
Date / Time	08/03/2018 12:05	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	993	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0.21 / 0	O2 (%)	21.6	21.5	21.5	21.5	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.3	20.6						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	1.7	1.6	1.6	1.8	2.1	2	2	2.1	2.1	2.4	2	1.9	1.8	1.3	1	0	0	0						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-03	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1.95	8.36	0.25	Cool, dry. Approx 8 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	Bung found to be blocked when checked after monitoring, unblocked for next visit.
Date / Time	07/03/2018 07:00	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Atmospheric Pressure (mbar)	989	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Flow Rate (l/hr) (Peak / stabilised)	0	O2 (%)	21.3	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.3	-						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	0 ppm	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-04	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.54	7.24	0.25	Cool. Overcast. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	No bung present on arrival on 7th, installed at 06:45am. Rush of air on removal of gas meter
Date / Time	08/03/2018 08:05	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	985	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	4.51 / 0.51	O2 (%)	21.2	21.3	21.3	21.3	21.3	21.4	21.4	21.3	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.3	20.7						
Borehole Pressure (Pa) (Peak / stabilised)	1	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0 ppm	CO (ppm)	1.4	1.6	1.7	1.8	1.8	1.8	1.8	2	2	1.8	1.9	1.5	1	0	0	0	0	0						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-05	CH4 (%)	0	0.2	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.97	7.5	Flush	Overcast, dry. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	06/03/2018 17:07	LEL (%)	0	0	3	2.8	1	0.1	0.6	0.4	0.6	0.4	0.1	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	986	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0.31 / 0.01	O2 (%)	16.9	16.8	16.9	17.3	17.9	18.2	18	18.2	18.1	18.2	18.3	18.4	18.4	18.7	18.6	19.1	19.8	19.2						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	4.1	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.6	1.6						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-06	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0.86	5.85	Flush	Rain, overcast. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	Final reading not collected as gas box taking on water. Bung open on arrival, closed and gas allowed to build for 15 minutes.
Date / Time	06/03/2018 10:15	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						
Atmospheric Pressure (mbar)	982	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						
Flow Rate (l/hr) (Peak / stabilised)	-0.61 / 0.11	O2 (%)	16.8	15.3	15.2	15.1	15.1	15.1	15.1	15.1	15	15	15	15	15	15	15	15	-	-						
Borehole Pressure (Pa) (Peak / stabilised)	-1 / 0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						
Peak VOC (ppm)	1	CO (ppm)	3	3	3.4	3.6	3.7	3.9	4	3.8	3.8	3.4	3	2.1	1.8	1.5	1.1	0	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-07	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.14	6.37	0.07	Warm, dry, breeze, sunny. Approx 8 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	07/03/2018 12:45	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	991	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	-0.61 / 0	O2 (%)	21.3	21.3	21.3	21.2	21.2	21.2	21.2	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	20.3						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.1	2.3						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-09	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.12	6	Flush	Cool, dry, breeze, sunny. Approx 8 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	07/03/2018 10:35	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	991	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0.81 / 0.71	O2 (%)	19.1	18.9	19.6	19.8	20	20.1	20.2	20.2	20.2	20.2	20.3	20.4	20.4	20.4	20.4	20.5	20.5	19.8						
Borehole Pressure (Pa) (Peak / stabilised)	2 / 1	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	1.3	CO (ppm)	11.2	14.3	13.8	12.3	11.5	10.8	10.2	9.6	8.7	7.5	6.5	5.4	4.3	3.4	2.4	1.4	1.7	1.8						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-10	CH4 (%)	1.2	1.6	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1	0.9	0.8	0.7	0.7	1.55	6.45	0.16	Cool, dry, sunny. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	08/03/2018 14:30	LEL (%)	34	31.2	29.7	28.1	25.9	24.9	24.9	24.7	24.9	24	22.5	21.8	20.2	18.6	18.4	16.6	15	13.1						
Atmospheric Pressure (mbar)	993	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	5.81 / 1.81	O2 (%)	19.2	19.1	19.1	19.2	19.3	19.3	19.3	19.4	19.4	19.4	19.5	19.6	19.6	19.6	19.6	19.8	20	19.4						
Borehole Pressure (Pa) (Peak / stabilised)	6 / 4	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	4	4.8	5.2	4.6	4	3.2	2.7	2.2	1.9	1.5	0	0	0	0	0	0	1.8	2.2						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-23A	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.01	4.75	Flush	Rain, cool. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	No bung present on arrival on 7th, installed at 06:45am
Date / Time	08/03/2018 08:30	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	986	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0	O2 (%)	21.4	21.2	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	20.4						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	1	1.1	1.4	1.6	1.8	1.9	0	0						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-24	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.75	3.78	Flush	Rain, cool. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	No bung present on arrival on 7th, installed at 06:45am
Date / Time	08/03/2018 08:20	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	986	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0	O2 (%)	21.6	21.5	21.4	21.4	21.3	21.4	21.4	21.4	21.4	21.4	21.3	21.3	21.3	21.3	21.3	21.3	21.2	20.9						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	1.2						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	CP-RPS-03	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.93	6	Flush	Sunny, dry. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	08/03/2018 13:42	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	993	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	- >> limit / -25.1	O2 (%)	20.1	19.5	19.8	20	20.1	20.2	20.4	20.5	20.5	20.6	20.6	20.7	20.7	20.7	20.8	20.9	20.9	20.2						
Borehole Pressure (Pa) (Peak / stabilised)	- >> limit / -5	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	1.2	1.5	1.6	1.6	1.6	1.8	1.9	0	0						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	CP-RPS-04A	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.03	6.38	Flush	Dry, sunny. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	08/03/2018 12:15	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	993	CO2 (%)	0.2	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2						
Flow Rate (l/hr) (Peak / stabilised)	-1.11 / 0	O2 (%)	19.9	17.6	17.4	17.4	17.3	17.3	17.4	17.5	17.5	17.6	17.6	17.5	17.5	17.6	17.6	17.6	18.2	18						
Borehole Pressure (Pa) (Peak / stabilised)	-1 / 0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0.3	CO (ppm)	15	39	44	48.2	50	51.7	51.9	51.3	50.8	50.1	49.5	49.4	49.5	49.5	49.5	48.6	47.3	47.3						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-09	CH4 (%)	0	0	0	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.97	3.89	0.26	Cool, dry. Approx 8 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	No bung initially. Installed and gas allowed to build for 2 hours
Date / Time	07/03/2018 09:30	LEL (%)	0	0	0	8.3	9.5	8.9	8.5	8.3	8.3	8.4	8.5	8.5	7.9	8	8	7.8	6.4	6.2						
Atmospheric Pressure (mbar)	991	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0	O2 (%)	21.4	21.4	20.6	20.2	20	20	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	20	20	20	19.3						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	4 ppm	CO (ppm)	0	0	2.3	4.6	8.3	9.8	10.1	10.5	10.7	11.1	10.7	10.2	9.9	9.1	8.6	6.2	2.9	2.8						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-10	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.95	3.73	0.28	Overcast, dry. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	Bung blocked on arrival.
Date / Time	06/03/2018 16:30	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	986	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0	O2 (%)	20.8	21.2	21.3	21.3	21.3	21.3	21.2	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.2	20.6						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.2	2	2						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-12	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	0.73	Flush	Cool, dry, sunny, breeze. Approx 8 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	07/03/2018 11:50	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	991	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0	O2 (%)	21.4	21.2	21	21	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.8	20.8	20.8	20.1						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	1.6	1.9	2	2.2	2.2	2.7	2.7	2.7	2.7	2.7	2.7	2.4	2.2	1.8	0	0	0	0						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-13	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Dry	0.9	Flush	Warm, dry, sunny. Approx 8 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	07/03/2018 12:26	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	991	CO2 (%)	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1						
Flow Rate (l/hr) (Peak / stabilised)	-0.21/ 0	O2 (%)	20.9	20.4	20.1	20	20	20	20	20	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.8	19.1						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.7	2.7						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-15	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8	2.56	0.3	Cool, dry, breeze. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	No bung present on arrival on 7th, installed at 09:00am
Date / Time	08/03/2018 10:30	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	991	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0	O2 (%)	21.5	21.2	20.9	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.7	20						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-17	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Dry	1.12	0.28	Cool, dry, breeze, sunny. Approx 8 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	07/03/2018 11:12	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	991	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	-0.21 / 0	O2 (%)	21.5	21.4	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.1	21.1	21.1	21.1	21.1	20.3						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	3.3	2.6	2.4	2.6	2.6	2.9	3	3.3	3.2	3.2	2.8	2.6	1.8	1.5	0	0	0	0						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-19	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.63	3.94	Flush	Cool, dry, sunny. Approx 8 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	07/03/2018 09:45	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	991	CO2 (%)	0.1	0.4	0.7	1.3	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	0.8	0.7						
Flow Rate (l/hr) (Peak / stabilised)	-0.71 / 0	O2 (%)	19	17.3	15.9	13.1	12.4	12.3	12.4	12.6	12.7	12.6	12.5	12.9	13.3	13.4	13.2	13.3	15.9	15.4						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.6	1.4						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-20	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	1.46	4.35	0.33	Cool, dry. Approx 8 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	Final reading not taken as gas meter started to take on water. Filter changed after.
Date / Time	07/03/2018 07:11	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						
Atmospheric Pressure (mbar)	989	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						
Flow Rate (l/hr) (Peak / stabilised)	1.71 / 0	O2 (%)	21.6	21.2	21.1	21	20.7	20.9	21	21	21	21	21	21	20.9	20.9	20.9	20.9	-	-						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						
Peak VOC (ppm)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-21	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.98	1.3	0.3	Cool, breeze, sunny. Approx 8 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	07/03/2018 16:31	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	991	CO2 (%)	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0						
Flow Rate (l/hr) (Peak / stabilised)	0	O2 (%)	21.5	20.6	20.3	21.4	20.1	20	20	20	20	20	20	19.9	19.9	19.9	19.9	19.9	19.9	19.2						
Borehole Pressure (Pa) (Peak / stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.7	1.9						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-24	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.68	3.86	Flush	Snow, rain, cold. Approx 6 degrees	4th mar 989mb 5th mar 987mb 6th mar 985mb 7th mar 993mb 9th mar 995mb 9th mar 1000mb (Falling prior to visit then rising)	-
Date / Time	08/03/2018 09:20	LEL (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Atmospheric Pressure (mbar)	989	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Flow Rate (l/hr) (Peak / stabilised)	-1.51	O2 (%)	21.5	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.2	21.2	20.5						
Borehole Pressure (Pa) (Peak / stabilised)	-3	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Peak VOC (ppm)	0.6	CO (ppm)	0	0	0	0	0	1	1	1.1	1.2	1.3	1.5	1.6	1.7	1.8	1.8	1.8	0	0						

Gas Monitoring Record

Project Number:	JER 1100
Project Name:	Lostock Efw
Date / visit:	Visit 2 26th / 28th / 29th Mar 2018
Equipment:	GA5000
Logger	GC

LMSXi take additonal stabilised reading following pump stopping

28 6
29 7

*mbcl - Meters below cover Level

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-01	CH4 (%)	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-	1.68	9.97	Flush	Cool, dry, sunny. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	29/03/2018 08:50	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	999	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	21.2	21	21.1	21.1	21.2	21.3	21.4	21.5	21.5	21.5	21.5	21.5	21.6	21.7	21.7	21.8	22	-						
Borehole Pressure (Pa) (Relative stabilised)	-5.85	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	6	7	7	6	5	4	4	4	3	3	3	3	3	3	3	3	2	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-02a	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	Dry	0.82	Flush	Cool, dry, sunny. Approx 7 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	29/03/2018 11:12	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	999	CO2 (%)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	21.7	21.9	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22.1	-						
Borehole Pressure (Pa) (Relative stabilised)	9.88	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-03	CH4 (%)	0.3	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	-	2.36	8.36	0.25	Cool, dry, sunny. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 15:44	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	20.9	21.3	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.5	-						
Borehole Pressure (Pa) (Relative stabilised)	-2.27	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-04	CH4 (%)	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.59	7.24	0.25	Cool, dry, sunny. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 16:06	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	20.5	22	22	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	-						
Borehole Pressure (Pa) (Relative stabilised)	0.3	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-05	CH4 (%)	0.7	1.2	1.1	0.9	0.8	0.9	1.2	1.2	1.2	1.1	1.1	1	1	0.9	0.9	0.8	0.7	-	1	7.5	Flush	Cool, dry, sunny Approx 7 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	Rush of air audible on removing gas tubing after sampling
Date / Time	29/03/2018 08:34	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	999	CO2 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	21.1	19.5	19.6	20.3	20.4	20.5	19.9	19.8	19.8	19.9	20	20.1	20.1	20.3	20.4	20.4	20.7	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.09	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	10	17	13	9	8	9	13	13	12	12	11	11	10	9	8	8	6	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-06	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	-	0.85	5.85	Flush	Cool, dry, sunny. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	Reading stopped at 200 seconds as box started to take on water
Date / Time	28/03/2018 15:00	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-						
Flow Rate (l/hr) (Stabilised)	0.51	O2 (%)	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	-	-						
Borehole Pressure (Pa) (Relative stabilised)	3.97	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						
Peak VOC (ppm)	NR	CO (ppm)	4	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-07	CH4 (%)	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.14	6.37	0.07	Cool, dry, sunny. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 13:27	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	1	0.8	0.7	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	21.2	21.2	21.2	21.2	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.2	21.2	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.29	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-09	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	1.07	6	Flush	Cool, dry, sunny, breeze. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 14:06	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0.1	O2 (%)	20	19	18.2	18.7	19	19.2	19.4	19.6	19.7	19.8	19.9	20	20.1	20.1	20.1	20.2	20.5	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.21	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	365	350	350	276	209	170	142	120	110	108	94	90	84	80	77	70	47	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-10	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	1.45	6.45	0.16	Cool, dry, sunny. Approx 7 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	29/03/2018 11:37	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	999	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	22.3	22.1	22.3	22.4	22.4	22.4	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	-						
Borehole Pressure (Pa) (Relative stabilised)	0.15	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	1	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-23A	CH4 (%)	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	1	4.75	Flush	Cool, dry, sunny. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 16:19	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	21.2	21.2	21.4	21.6	21.8	21.9	22	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.2	-						
Borehole Pressure (Pa) (Relative stabilised)	12.05	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	3	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-24	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.83	3.78	Flush	Cool, dry, sunny. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 16:31	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0.1	O2 (%)	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.3	22.3	22.3	22.3	22.3	22.3	22.3	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.17	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	11	21	14	12	10	9	9	8	8	8	8	8	8	8	8	8	7	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	CP-RPS-03	CH4 (%)	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.92	6	Flush	Cool, dry, sunny. Approx 7 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	29/03/2018 10:40	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	999	CO2 (%)	0.1	2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	21.2	20.9	20.9	21	21	21.1	21.1	21.1	21.1	21.1	21.2	21.2	21.3	21.3	21.3	21.3	21.5	-						
Borehole Pressure (Pa) (Relative stabilised)	-6.02	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	CP-RPS-04A	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	1.91	6.38	Flush	Cool, dry, sunny. Approx 7 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	29/03/2018 11:00	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	999	CO2 (%)	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	16	13	0.8	0.6	0.4	0.2	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	17.9	17.9	17.8	17.8	17.8	17.8	17.8	17.8	17.9	18	18.9	18.9	19	20.1	20.5	21	21.5	-						
Borehole Pressure (Pa) (Relative stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-09	CH4 (%)	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.94	3.89	0.26	Cool, dry, sunny, wind. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 15:23	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	22	22	22.1	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.4	22.4	22.4	22.4	22.4	22.4	-						
Borehole Pressure (Pa) (Relative stabilised)	-2.15	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	4	3	1	1	0	0	1	1	1	1	1	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-10	CH4 (%)	14.4	14.4	14.4	14.4	14.4	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3.73	0.28	Cool, dry, sunny. Approx 10 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	Reading stoppped at 50 seconds as box started to take on water
Date / Time	26/03/2018 15:10	LEL (%)	NR	NR	NR	NR	NR	-	-	-	-	-	-	-	-	-	-	-	-	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-						
Flow Rate (l/hr) (Stabilised)	-	O2 (%)	14	13	13	12.9	12.8	-	-	-	-	-	-	-	-	-	-	-	-	-						
Borehole Pressure (Pa) (Relative stabilised)	15.76	H2S (ppm)	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-						
Peak VOC (ppm)	NR	CO (ppm)	260	265	266	267	268	-	-	-	-	-	-	-	-	-	-	-	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-12	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.52	0.73	Flush	Cool, dry, sunny, breeze. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 14:22	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	-						
Flow Rate (l/hr) (Stabilised)	0.1	O2 (%)	20.6	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.4	-						
Borehole Pressure (Pa) (Relative stabilised)	13.2	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-13	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.88	0.9	Flush	Cool, dry, sunny, breeze. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 14:45	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	20.8	20.9	21	21	21	21	21	21	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.02	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-15	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	1.85	2.56	0.3	Cool, dry, overcast, breeze. Approx 7 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	29/03/2018 11:50	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	999	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	22.5	22.5	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	-						
Borehole Pressure (Pa) (Relative stabilised)	0.09	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-17	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	Dry	1.12	0.28	Cool, dry, sunny, breeze. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 13:57	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	16.3	19.1	20.4	20.7	20.7	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.9	20.9	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.29	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-19	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	2.45	3.94	Flush	Cool, dry, sunny Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	28/03/2018 13:43	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1007	CO2 (%)	2.1	2.9	2.4	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.7	1.7	1.7	1.7	-						
Flow Rate (l/hr) (Stabilised)	0.5	O2 (%)	20.4	15.8	15	14.8	14.6	14.6	14.6	14.6	14.7	14.8	14.8	15.1	15.6	16	16.2	16.2	16.1	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.38	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-20	CH4 (%)	0.3	0.2	0.1	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.45	4.35	0.33	Cool, dry, sunny. Approx 6 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	Reading stopped at 50 seconds as box taking on water
Date / Time	28/03/2018 16:00	LEL (%)	NR	NR	NR	NR	NR	-	-	-	-	-	-	-	-	-	-	-	-	-						
Atmospheric Pressure (mbar)	1003	CO2 (%)	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-						
Flow Rate (l/hr) (Stabilised)	-	O2 (%)	21.1	21.8	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-						
Borehole Pressure (Pa) (Relative stabilised)	-2.12	H2S (ppm)	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-						
Peak VOC (ppm)	NR	CO (ppm)	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-21	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.98	1.3	0.3	Cool, dry, overcast. Approx 7 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	29/03/2018 12:02	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	999	CO2 (%)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	20.4	20	19.6	19.5	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.5	19.5	-						
Borehole Pressure (Pa) (Relative stabilised)	0.02	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-24	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	1.46	3.86	Flush	Cool, dry, overcast. Approx 7 degrees	25th 1013mb 26th 1015mb 27th 1004mb 28th 1002mb 29th 999mb 30th 997mb (Rising, then falling during visit)	-
Date / Time	29/03/2018 11:23	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	999	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (Stabilised)	0	O2 (%)	22.2	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	-						
Borehole Pressure (Pa) (Relative stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

Gas Monitoring Record

Project Number:	JER 1100
Project Name:	Lostock Efw
Date / visit:	Visit 3 4th and 5th April 2018
Equipment:	GA5000
Logger	GC

LMSXi take additonal stabilised reading following pump stopping

*mbcl - Meters below cover Level

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-01	CH4 (%)	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.65	9.95	Flush	Drizzle, warm. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 13:05	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	988	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.1	21.9	21.9	22	22	22	22	22	22	22	22	22	22	22	22	22	22	-						
Borehole Pressure (Pa) (Relative stabilised)	5.52	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	2	4	4	2	1	1	1	1	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-02a	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	Dry	0.77	Flush	Drizzle, warm.Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 12:03	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	989	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	20.3	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.3	21.3	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.07	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-03	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	2.15	8.31	0.3	Overcast, cold, breeze. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 19:31	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	991	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	22.7	22.1	22	22.1	22.2	22.3	22.3	22.4	22.4	22.4	22.5	22.5	22.5	22.6	22.6	22.6	22.7	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.63	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-04	CH4 (%)	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.47	7.14	0.24	Sunny, warm. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	05/03/2018 09:55	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1013	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-5	O2 (%)	21.8	21.6	21.6	21.6	21.7	21.7	21.7	21.7	21.7	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	-						
Borehole Pressure (Pa) (Relative stabilised)	3.57	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	2	4	3	3	2	2	2	1	1	0	0	0	0	0	0	0	1	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-05	CH4 (%)	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	0.93	7.5	Flush	Overcast, cold, wind. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 18:42	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	991	CO2 (%)	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.5	20.5	20.7	20.4	20.2	20.4	20.5	21	21.7	21.9	21.9	21.9	21.9	22	22	22.1	22.3	-						
Borehole Pressure (Pa) (Relative stabilised)	-1.93	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	9	17	14	11	9	7	6	5	5	4	4	4	3	3	3	3	2	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-06	CH4 (%)	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-	-	0.68	5.02	Flush	Overcast, warm. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 08:54	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-						
Atmospheric Pressure (mbar)	989	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-						
Flow Rate (l/hr) (stabilised)	0.1	O2 (%)	21.8	21.1	20.9	20.9	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	-	-						
Borehole Pressure (Pa) (Relative stabilised)	8.55	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						
Peak VOC (ppm)	NR	CO (ppm)	3	9	10	10	9	9	9	9	9	9	9	9	9	9	8	8	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-07	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.1	6.38	0.07	Rain, cold. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 07:32	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	989	CO2 (%)	0.8	0.7	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.8	21.6	21.6	21.6	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.8	-						
Borehole Pressure (Pa) (Relative stabilised)	0.1	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-09	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1	6.03	Flush	Overcast, cold, wind. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 18:29	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	991	CO2 (%)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.6	18	18.3	18.9	19.3	19.5	19.8	20	20.2	20.3	20.5	20.6	20.7	20.7	20.7	20.9	21.4	-						
Borehole Pressure (Pa) (Relative stabilised)	0.72	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	13	33	28	21	18	16	13	12	10	9	8	8	7	7	7	6	4	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-10	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.34	5.5	0.14	Overcast, warm. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 13:20	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	988	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.03	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-23A	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	-	0.77	4.78	Flush	Cool, sunny. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	05/03/2018 09:35	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1013	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	-						
Borehole Pressure (Pa) (Relative stabilised)	1.32	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-24	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	0.48	3.82	Flush	Cool, sunny. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	Reading stopped at 180 seconds as box indicated blockage
Date / Time	05/03/2018 09:45	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-						
Atmospheric Pressure (mbar)	1013	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-						
Flow Rate (l/hr) (stabilised)	-2.4	O2 (%)	20.3	20.5	21	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.5	21.5	-	-						
Borehole Pressure (Pa) (Relative stabilised)	0.55	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						
Peak VOC (ppm)	NR	CO (ppm)	3	4	4	4	3	3	2	2	2	2	2	1	1	1	1	0	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	CP-RPS-03	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	0.87	8.73	Flush	Overcast, warm, breeze. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 11:40	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	988	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.6	21.2	21.3	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.3	-						
Borehole Pressure (Pa) (Relative stabilised)	0.02	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	CP-RPS-04A	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	1.79	6.2	0.15	Drizzle, warm. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 011:50:00	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	988	CO2 (%)	1.1	1.1	1	0.9	0.8	0.7	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	20.9	19.8	19.7	19.9	20.1	20.3	20.5	20.6	20.7	20.8	20.9	20.9	21	21	21	21.1	21.2	-						
Borehole Pressure (Pa) (Relative stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-09	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	-	-	-	-	-	-	-	0.77	3.88	0.38	Cold, wind, overcast. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	Reading stopped at 100 seconds as box taking on water
Date / Time	04/03/2018 19:05	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-	-	-	-	-	-	-						
Atmospheric Pressure (mbar)	991	CO2 (%)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-	-						
Flow Rate (l/hr) (stabilised)	0.1	O2 (%)	22.7	22.7	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.7	-	-	-	-	-	-	-	-						
Borehole Pressure (Pa) (Relative stabilised)	-1.06	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-						
Peak VOC (ppm)	NR	CO (ppm)	5	2	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-10	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	-	-	-	-	-	-	-	-	0.85	3.67	0.22	Overcast, cold, wind. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	Reading stopped at 90 seconds as box started to take on water. Reinstatement works may have raised ground level surrounding upstand
Date / Time	04/03/2018 18:55	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-	-	-	-	-	-	-	-						
Atmospheric Pressure (mbar)	991	CO2 (%)	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-	-	-						
Flow Rate (l/hr) (stabilised)	-	O2 (%)	22.4	22.6	22.7	22.7	22.7	22.7	22.7	22.7	22.6	-	-	-	-	-	-	-	-	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.03	H2S (ppm)	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-						
Peak VOC (ppm)	NR	CO (ppm)	1	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-12	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	Dry	0.72	Flush	Rian, cold. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 07:45	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	989	CO2 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.8	21.5	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.5	21.5	21.5	21.6	21.7	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.02	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-13	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	Dry	0.88	Flush	Overcast, cool. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 08:00	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	989	CO2 (%)	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-						
Flow Rate (l/hr) (stabilised)	0.1	O2 (%)	21.5	19.2	18	17.7	17.6	17.6	17.6	17.6	17.7	17.7	17.7	17.7	17.7	17.7	17.8	17.9	18.7	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.05	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-15	CH4 (%)	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.23	2.6	0.27	Overcast, cool. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 13:32	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	998	CO2 (%)	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	22	21.8	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	-						
Borehole Pressure (Pa) (Relative stabilised)	1.97	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-17	CH4 (%)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	1.12	1.13	0.27	Overcast, cold, wind. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 18:20	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	991	CO2 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	19.2	19.5	21.4	21.6	21.7	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.9	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.1	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-19	CH4 (%)	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	2.25	3.94	Flush	Overcast, cold. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 18:08	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	991	CO2 (%)	2.9	2.9	2.6	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.7	1.7	1.7	1.7	1.4	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	20	6.3	4.4	7.2	9.5	9.7	9.7	9.6	9.7	9.8	10.2	10.9	11.1	10.9	10.8	11.2	12.9	-						
Borehole Pressure (Pa) (Relative stabilised)	3.95	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-20	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.3	4.36	0.32	Overcast, cold, breeze. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 19:20	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	991	CO2 (%)	0.2	0.2.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	22.7	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.03	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-21	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1	1.29	0.28	Rain. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 13:45	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	998	CO2 (%)	0.3	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.8	20.4	19.9	19.7	19.7	19.7	19.7	19.7	19.8	19.8	19.8	19.8	19.9	19.9	19.9	20	20.2	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.07	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Fianl (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-24	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	1.38	3.88	Flush	Drizzle, warm. Approx 10 degrees	3rd 988mb 4th 989 5th 1012 (rising)	-
Date / Time	04/03/2018 12:17	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	988	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.4	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.6	-						
Borehole Pressure (Pa) (Relative stabilised)	-0.05	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

Gas Monitoring Record

Project Number:	JER 1100
Project Name:	Lostock Efw
Date / visit:	Visit 4
Equipment:	GA5000
Logger	GC

LMSXi take additonal stabilised reading following pump stopping

*mbcl - Meters below cover Level

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-01	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.59	9.95	Flush	Overcast, mild, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 16:11	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0.1	O2 (%)	21.8	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	-						
Borehole Pressure (Mb) (Relative stabilised)	1.61	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	2	4	3	2	2	1	1	1	1	1	1	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-02a	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	Dry	0.71	Flush	Overcast, mild, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 14:00	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.7	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.8	21.8	-						
Borehole Pressure (Mb) (Relative stabilised)	1.26	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-03	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	2.15	8.29	0.33	Rain, cool. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	12/04/2018 06:50	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1006	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	21.1	21.1	21.3	21.4	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.6	21.6	21.6	-						
Borehole Pressure (Mb) (Relative stabilised)	1.32	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-04	CH4 (%)	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.25	7.09	0.25	Overcast, cold, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 17:51	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-2.4	O2 (%)	22.3	22.1	22.1	22.1	22.1	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.3	-						
Borehole Pressure (Mb) (Relative stabilised)	3.5	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	3	5	3	2	2	2	2	1	1	1	1	1	1	1	1	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-05	CH4 (%)	0.3	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	-	0.95	7.5	Flush	Rain, cool. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	12/04/2018 07:25	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1006	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	21.3	20.2	20.2	20.2	20.4	20.6	20.8	20.9	21.1	21.2	21.2	21.3	21.4	21.4	21.5	21.6	22	-						
Borehole Pressure (Mb) (Relative stabilised)	0.41	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	5	15	14	13	11	10	9	8	7	6	6	6	5	5	5	4	2	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-06	CH4 (%)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-	-	0.79	5.04	Flush	Overcast, cool. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	Reading stopped as gas box started to take on water
Date / Time	12/04/2018 07:37	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-						
Atmospheric Pressure (mbar)	1006	CO2 (%)	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	22	21.5	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.5	21.4	21.4	21.4	21.5	-	-						
Borehole Pressure (Mb) (Relative stabilised)	4.09	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-						
Peak VOC (ppm)	NR	CO (ppm)	10	16	16	16	15	15	15	15	15	15	14	13	14	14	14	13	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-07	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.11	6.41	0.07	Overcast, cool, dry, breeze. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 12:36	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1009	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	-						
Borehole Pressure (Mb) (Relative stabilised)	0.15	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-09	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.96	6	Flush	Overcast, mild, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 18:40	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.4	17.7	17.5	18.4	19	19.2	19.4	19.6	19.7	19.7	19.9	20	20	20.1	20.2	20.3	20.9	-						
Borehole Pressure (Mb) (Relative stabilised)	1.66	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	10	29	26	21	17	15	14	13	12	12	11	10	10	9	9	8	5	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-10	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.4	5.48	0.14	Overcast, cool, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 16:02	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1006	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	22	22	225	22	22	22	22	22	22	22	21.9	21.9	21.9	21.9	21.9	21.9	21.9	-						
Borehole Pressure (Mb) (Relative stabilised)	1.28	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-23A	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.82	4.79	Flush	Overcast, cool, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 17:30	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1006	CO2 (%)	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-2.5	O2 (%)	21.8	21.8	21.8	21.8	21.9	21.9	21.9	22	22	22	22	22	22	22	22	22	22	-						
Borehole Pressure (Mb) (Relative stabilised)	-0.5	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-24	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.52	3.8	Flush	Overcast, cool, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 17:40	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1005	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	21.1	22.1	22.1	22.1	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	-						
Borehole Pressure (Mb) (Relative stabilised)	1.09	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	CP-RPS-03	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	0.9	5.73	Flush	Overcast, cool, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 13:34	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1000	CO2 (%)	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	22	21.6	21.6	21.8	21.9	21.9	21.9	22	22	22	22	22	22	22	22	22	21.9	-						
Borehole Pressure (Mb) (Relative stabilised)	1.35	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	CP-RPS-04A	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.81	6.24	0.26	Overcast, dry, mild. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	Rush of air audible from BH on release of tubing
Date / Time	11/04/2018 13:46	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	1.4	1.4	1.4	1.3	1.3	1.2	1.1	1	1	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.4	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.8	20.8	20.6	20.6	20.7	20.8	20.9	20.9	21	21	21.1	21.2	21.2	21.3	21.3	21.3	21.6	-						
Borehole Pressure (Mb) (Relative stabilised)	1.23	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-09	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	0.87	3.89	0.41	Rain, cool. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	12/04/2018 07:11	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1006	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.4	22.4	22.4	22.4	22.4	22.4	22.6	22.6	-						
Borehole Pressure (Mb) (Relative stabilised)	-5.25	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	1	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-10	CH4 (%)	0.2	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.87	3.66	0.23	Overcast, cool, dry	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	Reading stopped as gas box took on water
Date / Time	12/04/2018 07:48	LEL (%)	NR	NR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Atmospheric Pressure (mbar)	1006	CO2 (%)	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	22.6	22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Borehole Pressure (Mb) (Relative stabilised)	-0.02	H2S (ppm)	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-12	CH4 (%)	0.1	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.42	0.76	Flush	Overcast, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	Reading stopped as gas box took on water
Date / Time	11/04/2018 17:10	LEL (%)	NR	NR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.2	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	20.2	20.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Borehole Pressure (Mb) (Relative stabilised)	0.41	H2S (ppm)	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Peak VOC (ppm)	NR	CO (ppm)	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-13	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.87	0.88	Flush	Overcast, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 16:57	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	20	20.2	20.2	20	19.8	19.7	19.7	19.7	19.7	19.7	19.7	19.8	19.8	19.8	19.8	19.8	19.9	-						
Borehole Pressure (Mb) (Relative stabilised)	0	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-15	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.82	2.58	0.29	Overcast, mild. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 16:24	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.7	21.3	21	20.9	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	-						
Borehole Pressure (Mb) (Relative stabilised)	1.08	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-17	CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	Dry	1.1	0.27	Overcast, cold, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 18:30	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.6	21.8	21.8	21.8	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	-						
Borehole Pressure (Mb) (Relative stabilised)	1.73	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-19	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	2.2	3	Flush	Overcast, cold, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 18:20	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	1.4	1.5	1.5	1.7	1.9	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	1.9	1.7	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	19.2	9.4	6.9	5.8	5.2	4.4	4.2	4.1	4.1	4.2	4.2	4.3	4.5	4.7	4.8	5.3	7.1	-						
Borehole Pressure (Mb) (Relative stabilised)	1.04	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-20	CH4 (%)	0.2	0.2	0.2	0.2	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	1.28	4.35	0.34	Rain, cool. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	Reading stopped as box started to take on water
Date / Time	12/04/2018 07:00	LEL (%)	NR	NR	NR	NR	NR	-	-	-	-	-	-	-	-	-	-	-	-	-						
Atmospheric Pressure (mbar)	1006	CO2 (%)	0.1	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	21.8	21.8	21.8	21.8	21.8	-	-	-	-	-	-	-	-	-	-	-	-	-						
Borehole Pressure (Mb) (Relative stabilised)	4.22	H2S (ppm)	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-						
Peak VOC (ppm)	NR	CO (ppm)	4	5	6	6	6	-	-	-	-	-	-	-	-	-	-	-	-	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-21	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	-	0.95	1.31	0.34	Overcast, cool, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 16:41	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	-						
Flow Rate (l/hr) (stabilised)	0	O2 (%)	20.8	20.5	19.7	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.6	19.7	19.9	-						
Borehole Pressure (Mb) (Relative stabilised)	1.9	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	WS-RPS-24	CH4 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.61	3.9	Flush	Overcast, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	-
Date / Time	11/04/2018 15:17	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.6	21.6	21.6	21.6	21.6	21.6	21.6	-						
Borehole Pressure (Mb) (Relative stabilised)	1.33	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-16a	CH4 (%)	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	5.4	8	0.11	Overcast, dry. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	BH base possibly silted up and reading shallower than install as no GW sampling
Date / Time	11/04/2018 14:17	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	21.8	21.9	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	-						
Borehole Pressure (Mb) (Relative stabilised)	1.33	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

		Time (sec)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	300	Final (If applicable)	Groundwater Level (mbcl*)	Borehole Base (mbcl*)	Cover height (m)	Weather	Pressure info	Comments
Borehole ID	BH-RPS-24a	CH4 (%)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.88	10.87	0.18	Overcast, dry, cold. Approx 8 degrees	9th 1009mb 10th 1004mb 11th 1009mb 12th 1006mb 13th 1004mb (Variable before visit, falling during and after)	BH base possibly silted up and reading shallower than install as no GW sampling
Date / Time	11/04/2018 18:02	LEL (%)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-						
Atmospheric Pressure (mbar)	1008	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-						
Flow Rate (l/hr) (stabilised)	-0.1	O2 (%)	21.3	22.3	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	-						
Borehole Pressure (Mb) (Relative stabilised)	1.33	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-						
Peak VOC (ppm)	NR	CO (ppm)	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-						

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-01	**Date:**	8 Mar 2018
Sampler:	GC	**Time:**	11:00

Depth to Water (mBCL):	1.73	**Correction to GL (m):**	Flush Cover
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	9.97	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		8.24m = approx. 16.4 litres	
Calculated Three Well Volumes (v x 3):		Approx. 49.2 Litres	

Stabilised groundwater quality readings			
Temperature (°C):	9.67	**Conductivity (µS/cm^{-1}): ACT**	19,549
Tds:	17.75	**Conductivity (µS/cm^{-1}): SP**	27,553
pH:	12.83	**Dissolved O2: %**	3.95mg/l / 30.02%
Salinity:	16.74	**ORP (mV):**	-

Observations:	Colour – Reddish brown Odour – Slightly saline Sheen - None Sediment – Light, then heavy near base. Some well installation debris (plastic).		
Volume Purged:	32 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Initially good, then slowed. Full sample collected from 25-32 litre purge water.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	BH-RPS-02a	**Date:**	08 Mar 2018
Sampler:	GC	**Time:**	12:05

Depth to Water (mBCL):	Dry	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	0.82	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations:	Insufficient groundwater to sample (Borehole dry)		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-03	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	08:10

Depth to Water (mBCL):	1.95	**Correction to GL (m):**	
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	8.36	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		6.41m = Approx. 12.8 litres	
Calculated Three Well Volumes (v x 3):		Approx 38.4 litres	

Stabilised groundwater quality readings			
Temperature (°C):	10.76	**Conductivity (µS/cm^{-1}): ACT**	7,551
Tds:	6.74	**Conductivity (µS/cm^{-1}): SP**	10,372
pH:	11.78	**Dissolved O2: %**	3.92 mg/l / 37.13%
Salinity:	5.79	**ORP (mV):**	-132.3

Observations:	Colour – Reddish brown Odour – Slight saline Sheen - None Sediment – High, quickly settled		
Volume Purged:	20 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Poor recovery, full sample recovered from 15 - 20 litre purge water		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-04	**Date:**	Mar 2018
Sampler:	GC	**Time:**	15:30

Depth to Water (mBCL):	1.63	**Correction to GL (m):**	
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	7.67	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		6.04m = Approx 12 litres	
Calculated Three Well Volumes (v x 3):		Approx 36 litres	

Stabilised groundwater quality readings			
Temperature (°C):	10.62	**Conductivity (µS/cm^{-1}): ACT**	27,663
Tds:	24.86	**Conductivity (µS/cm^{-1}): SP**	38,274
pH:	7.06	**Dissolved O2: %**	3.84 mg/l / 40.90%
Salinity:	24.01	**ORP (mV):**	-12.9

Observations:	Colour – Dark brown Odour - None Sheen - None Sediment – High (sand), slow to settle		
Volume Purged:	26 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Good initially, then poor. Full sample recovered from 20 – 25 litre purge water.		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-05	**Date:**	06 Mar 2018
Sampler:	GC	**Time:**	17:45

Depth to Water (mBCL):	0.97	**Correction to GL (m):**	Flush cover
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	7.50	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		6.53m = approx. 13 litres	
Calculated Three Well Volumes (v x 3):		Approx 39 litres	

Stabilised groundwater quality readings			
Temperature (°C):	10.50	**Conductivity (µS/cm^{-1}): ACT**	26,335
Tds:	23.65	**Conductivity (µS/cm^{-1}): SP**	36,447
pH:	7.68	**Dissolved O2: %**	3.37mg/l / 36.04%
Salinity:	22.80	**ORP (mV):**	-46.6

Observations:	Colour – Dark reddish brown Odour – Slight saline Sheen –Localised “rainbow” / hydrocarbon sheen Sediment – High, some well install debris (plastic)		
Volume Purged:	20 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Poor. Full sample collected from 15-20 litre purge water.		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-06	**Date:**	06 Mar 2018
Sampler:	GC	**Time:**	15:42

Depth to Water (mBCL):	0.86	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	5.05	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		4.19m = Approx 8.4 litres	
Calculated Three Well Volumes (v x 3):		Approx 25.2 litres	

Stabilised groundwater quality readings			
Temperature (°C):	7.79	**Conductivity (µS/cm^{-1}): ACT**	4060
Tds:	3.93	**Conductivity (µS/cm^{-1}): SP**	6050
pH:	8.50	**Dissolved O2: %**	1.55mg/l / 13.23%
Salinity:	3.26	**ORP (mV):**	-175.4

Observations:	Colour – Reddish brown Odour – Possible organic or slight hydrocarbon Sheen - None Sediment - High		
Volume Purged:	25 litres	**End Water Level (mBGL) / (mBCL):**	0.90
Recovery Rate Comments:	Good recovery		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-07	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	12:54

Depth to Water (mBCL):	1.13	**Correction to GL (m):**	1.06 (Cover height 0.07m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	6.47	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		5.34m = Approx 10.6 litres	
Calculated Three Well Volumes (v x 3):		Approx 31.8 litres	

Stabilised groundwater quality readings			
Temperature (°C):	10.37	**Conductivity (µS/cm^{-1}): ACT**	4,827
Tds:	4.34	**Conductivity (µS/cm^{-1}): SP**	6,699
pH:	7.47	**Dissolved O2: %**	4.78 mb/l / 44.70%
Salinity:	3.66	**ORP (mV):**	+9.7

Observations:	Colour – Dark reddish brown Odour – Slight saline Sheen - None Sediment – High, slow to settle. Some well installation debris (plastic)		
Volume Purged:	25 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Moderate recharge rate. Full sample collected from 20-25 litre purge water		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-09	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	10:44

Depth to Water (mBCL):	1.12	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	6.00	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		4.88m = Approx 9.6 litres	
Calculated Three Well Volumes (v x 3):		Approx 28.8 litres	

Stabilised groundwater quality readings			
Temperature (°C):	10.94	**Conductivity (µS/cm^{-1}): ACT**	72,474
Tds:	64.74	**Conductivity (µS/cm^{-1}): SP**	100,046
pH:	7.86	**Dissolved O2: %**	3.27 mg/l / 47.33%
Salinity:	71.02	**ORP (mV):**	+16.7

Observations:	Colour – Reddish brown Odour - None Sheen - None Sediment – Heavy (sand). Sample slow to settle. Some well installation debris (plastic).		
Volume Purged:	20 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Poor. Full sample collected from 10-20 litre purge water		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-10	**Date:**	08 Mar 2018
Sampler:	GC	**Time:**	

Depth to Water (mBCL):	1.55	**Correction to GL (m):**	1.39 (Cover 0.16m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	6.95	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		5.40m = Approx 10.8 litres	
Calculated Three Well Volumes (v x 3):		Approx 32.4 litres	

Stabilised groundwater quality readings			
Temperature (°C):	10.33	**Conductivity (µS/cm^{-1}): ACT**	16,627
Tds:	15.06	**Conductivity (µS/cm^{-1}): SP**	23,205
pH:	11.25	**Dissolved O2: %**	4.07mg/l / 40.03%
Salinity:	13.91	**ORP (mV):**	-153.4

Observations:	Colour – Reddish brown Odour – Slight saline Sheen - None Sediment - High		
Volume Purged:	19 Litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Poor. Full sample recovered from 15-19 litre purge water.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	BH-RPS-23a	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	14:15
Depth to Water (mBCL):	1.02	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	4.65	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		3.63m = 1.03 litres	
Calculated Three Well Volumes (v x 3):		3.09 Litres	

Time Pump Started:	14:15	**Depth of tubing (mBGL)**	Base of borehole
Peristaltic Pump Speed:	Moderate - Fast	**Peristaltic Pump Duration:**	10 mins to 14:25

Stabilised groundwater quality readings			
Temperature (°C):	10.16	**Conductivity (µS/cm^{-1}): ACT**	21,077
Tds:	19.14	**Conductivity (µS/cm^{-1}): SP**	29,443
pH:	7.27	**Dissolved O2: %**	2.97mg/l / 30.35%
Salinity:	18.03	**ORP (mV):**	+32.4
Observations:	Colour –Reddish brown initially, then very light reddish brown Odour - None Sheen - None Sediment – Slight (silt)		
Volume Purged:	5 litres (extended purge)	**End Water Level (mBGL) / (mBCL):**	1.56
Recovery Rate Comments:	Good. Full sample collected.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	BH-RPS-24	**Date:**	07 Mar 2018 / 08 Mar 2018
Sampler:	GC	**Time:**	14:15 / 14:40

Depth to Water (mBCL):	0.70 (7th) / 0.75 (8th)	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	3.14 (7th) / 3.78 (8th)	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		3.03m = 0.85 litres	
Calculated Three Well Volumes (v x 3):		2.55 litres	
Time Pump Started:	08:20	**Depth of tubing (mBGL) / (mBCL):**	Base of borehole
Peristaltic Pump Speed:		**Peristaltic Pump Duration:**	10 minutes to 08:30
Stabilised groundwater quality readings			
Temperature (°C):	4.64	**Conductivity (µS/cm^{-1}): ACT**	9,330
Tds:	9.95	**Conductivity (µS/cm^{-1}): SP**	15,350
pH:	13.01	**Dissolved O2: %**	8.47 mg/l / 71.09%
Salinity:	8.67	**ORP (mV):**	-85.9
Observations:	Colour – Reddish brown Odour - None Sheen – Localised “rainbow” / hydrocarbon sheen Sediment – High, slow to settle		
Volume Purged:	1 litre	**End Water Level (mBGL) /**	Dry
Recovery Rate Comments:	Initially purged on 7th, very slow purge rate as whole BH and tubing full of silt / sand with ittle water recovery. ON 8th, ran dry after 1 litre, partial sample recovered.		

Groundwater Monitoring using bailers

Borehole ID:	CP-RPS-03	**Date:**	08 Mar 2018
Sampler:	GC	**Time:**	13:50

Depth to Water (mBCL):	0.93	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	6.00	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		5.07 litres = Approx 10.14 litres	
Calculated Three Well Volumes (v x 3):		Approx 30.42 Litres	

Stabilised groundwater quality readings			
Temperature (°C):	8.22	**Conductivity (µS/cm^{-1}): ACT**	1,714
Tds:	1.64	**Conductivity (µS/cm^{-1}): SP**	3,523
pH:	8.17	**Dissolved O2: %**	5.06mg/l / 43.76%
Salinity:	1.29	**ORP (mV):**	-74.6

Observations:	Colour – Reddish brown Odour - None Sheen – Very slight localised possible “rainbow” / hydrocarbon sheen Sediment -High		
Volume Purged:	30 litres	**End Water Level (mBGL) / (mBCL):**	1.50
Recovery Rate Comments:	Very good near base of borehole. Full sample collected		

Groundwater Monitoring using bailers

Borehole ID:	CP-RPS-04a	**Date:**	08 Mar 2018
Sampler:	GC	**Time:**	12:30

Depth to Water (mBCL):	2.03	**Correction to GL (m):**	1.80 (Cover height 0.23m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	6.38	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		4.35m = Approx 7.7 litres	
Calculated Three Well Volumes (v x 3):		Approx 23 litres	

Stabilised groundwater quality readings			
Temperature (°C):	10.75	**Conductivity (µS/cm^{-1}): ACT**	4,254
Tds:	3.77	**Conductivity (µS/cm^{-1}): SP**	5,776
pH:	8.19	**Dissolved O2: %**	5.28 mg/l / 50.18%
Salinity:	3.16	**ORP (mV):**	+18.3

Observations:	Colour – Reddish brown Odour - None Sheen - None Sediment – High. Some well installation debris (Plastic)		
Volume Purged:	15 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Poor. Full sample collected from 10 – 15 litre purge water.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-09	**Date:**	Mar 2018
Sampler:	GC	**Time:**	06:45

Depth to Water (mBCL):	0.97	**Correction to GL (m):**	0.71 (Cover height 0.28m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	3.89	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		2.92m = 0.82 litres	
Calculated Three Well Volumes (v x 3):		2.46 litres	

Time Pump Started:	06:50	**Depth of tubing (mBGL)**	Base of borehole
Peristaltic Pump Speed:	Moderate	**Peristaltic Pump Duration:**	37 mins to 07:27

Stabilised groundwater quality readings			
Temperature (°C):	11.28	**Conductivity (µS/cm^{-1}): ACT**	7,718
Tds:	6.90	**Conductivity (µS/cm^{-1}): SP**	10,461
pH:	12.86	**Dissolved O2: %**	4.2 mg/l / 39.92 %
Salinity:	5.90	**ORP (mV):**	-205.2
Observations:	Colour – Clear, then reddish brown Odour - None Sheen – Slight foam Sediment – High, quickly settled		
Volume Purged:	17 litres (50mm purge calc used by mistake)	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Good initially, ran dry when pump speed accelerated to fill bottles for sample. Full sample collected.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-10	**Date:**	06 Mar 2018
Sampler:	GC	**Time:**	16:45
Depth to Water (mBCL):	0.95	**Correction to GL (m):**	0.67 (0.28m cover)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	3.73	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		2.78m = 0.79 litres	
Calculated Three Well Volumes (v x 3):		2.37 litres	

Time Pump Started:	16:54	**Depth of tubing (mBGL) /**	Approx 0.50m from base
Peristaltic Pump Speed:	Moderate	**Peristaltic Pump Duration:**	30 mins to 17:24

Groundwater quality - Stabilised groundwater quality readings			
Temperature (°C):	8.79	**Conductivity (µS/cm^{-1}): ACT**	7,243
Tds:	6.84	**Conductivity (µS/cm^{-1}): SP**	10,514
pH:	12.87	**Dissolved O2: %**	3.78mg/l / 34.19%
Salinity:	5.89	**ORP (mV):**	-233.8
Observations:	Colour - Clear Odour - None Sheen - None Sediment - None		
Volume Purged:	17 litres (50mm calc used by mistake)	**End Water Level (mBGL)**	-
Recovery Rate Comments:	Good recovery. Full sample collected.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-12	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	11:50

Depth to Water (mBCL):	0.70	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	0.73	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations:	Insufficient groundwater to sample.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-13	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	12:26

Depth to Water (mBCL):	Dry	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	0.90	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations:	Insufficient groundwater to sample (Borehole dry)		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-15	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	16:20

Depth to Water (mBCL):	1.95	**Correction to GL (m):**	1.69 (Cover 0.26m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	2.48	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations:	Insufficient groundwater to sample. Borehole full of grey silt		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-17	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	11:12

Depth to Water (mBCL):	Dry	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	1.12	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations:	Insufficient groundwater to sample (Borehole dry)		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-19	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	09:54

Depth to Water (mBCL):	2.63	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	3.94	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		1.31m = 0.37 litres	
Calculated Three Well Volumes (v x 3):		1.11 litres	

Time Pump Started:	10:07	**Depth of tubing:**	0.20m from base
Peristaltic Pump Speed:	Moderate	**Peristaltic Pump Duration:**	8 mins to 10:15

Stabilised groundwater quality readings			
Temperature (°C):	9.16	**Conductivity (µS/cm^{-1}): ACT**	3,849
Tds:	3.59	**Conductivity (µS/cm^{-1}): SP**	5,531
pH:	7.40	**Dissolved O2: %**	4.21 mg/l / 38.36%
Salinity:	2.97	**ORP (mV):**	-101
Observations:	Colour – Greyish brown Odour - None Sheen - None Sediment – High, settled quickly		
Volume Purged:	2.5 litres (extended purge)	**End Water Level (mBGL)**	Dry
Recovery Rate Comments:	Poor, ran dry. Sample from purged waters		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-20	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	08:00

Depth to Water (mBCL):	1.46	**Correction to GL (m):**	1.23 (Cover height 0.23m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	4.35	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		2.89m = 0.82 litres	
Calculated Three Well Volumes (v x 3):		2.66 litres	

Time Pump Started:	08:08	**Depth of tubing**	Approx 0.30m from base
Peristaltic Pump Speed:	Moderate	**Peristaltic Pump Duration:**	40 mins to 08:48

Stabilised groundwater quality readings			
Temperature (°C):	9.05	**Conductivity (µS/cm^{-1}): ACT**	5,011
Tds:	4.68	**Conductivity (µS/cm^{-1}): SP**	7,210
pH:	12.70	**Dissolved O2: %**	3.64mg/l / 32.40%
Salinity:	3.93	**ORP (mV):**	-190.4
Observations:	Colour – Clear / light grey Odour - Saline Sheen – Very fine grey silt, almost clear Sediment - None		
Volume Purged:	17 litres (50mm calc used by mistake)	**End Water Level (mBGL) / (mBCL):**	1.43 / 1.20
Recovery Rate Comments:	Good recovery. Full sample collected.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-21	**Date:**	07 Mar 2018
Sampler:	GC	**Time:**	16:31
Depth to Water (mBCL):	0.98	**Correction to GL (m):**	0.68
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	1.30	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations	Insufficient groundwater to sample		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-24	**Date:**	08 Mar 2018
Sampler:	GC	**Time:**	
Depth to Water (mBCL):	1.68	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	3.85	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		2.27m = 0.65 litres	
Calculated Three Well Volumes (v x 3):		1.95 litres	
Time Pump Started:	09:25	**Depth of tubing**	Base
Peristaltic Pump Speed:	Fast to clear sand, then slow	**Peristaltic Pump Duration:**	20 mins to 09:45
Stabilised groundwater quality readings			
Temperature (°C):	7.34	**Conductivity (µS/cm^{-1}): ACT**	819
Tds:	0.81	**Conductivity (µS/cm^{-1}): SP**	1,227
pH:	9.07	**Dissolved O2: %**	3.85 mg/l / 33.40%
Salinity:	0.61	**ORP (mV):**	+8.6
Observations:	Colour - Yellow Odour - None Sheen - None Sediment – High, then light BH initially filled with yellow sand, tubing blocked, sediment removed several times manually from tubing. Once cleared, borehole purged and sampled ok.		
Volume Purged:	3 litres (extended purge)	**End Water Level (mBGL) / (mBCL):**	1.47m
Recovery Rate Comments:	Good recovery once cleared of debris. Full sample collected.		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-01	**Date:**	27/3/18
Sampler:	GC	**Time:**	09:15

Depth to Water (mBCL):	1.62	**Correction to GL (m):**	Flush Cover
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	9.92	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		8.30m = Approx 16.6 litres	
Calculated Three Well Volumes (v x 3):		Approx 49.8 litres	

Stabilised groundwater quality readings			
Temperature (°C):	11.24	**Conductivity (µS/cm^{-1}): ACT**	13,588
Tds:	11.98	**Conductivity (µS/cm^{-1}): SP**	18,347
pH:	Error on probe	**Dissolved O2: mg/l / %**	7.94 / 78.75
Salinity:	10.86	**ORP (mV):**	-210

Observations:	Colour – Reddish Brown Odour – Saline Sheen – Slight scum when settled Sediment – Heavy near base, initially clear. Rare black flecks (sand?)		
Volume Purged:	45 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Good, nearly full purge. Full sample collected from 40-45 litre purge		

Groundwater Monitoring using peristaltic pump

Borehole ID:	BH-RPS-02a	**Date:**	29/3/18
Sampler:	GC	**Time:**	11:12

Depth to Water (mBCL):	Dry	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	0.77	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations:	Insufficient groundwater to sample		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-03	**Date:**	26/3/15
17:30	GC	**Time:**	

Depth to Water (mBCL):	2.36	**Correction to GL (m):**	2.06 (Cover 0.30m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	8.30	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		5.94 litres = Approx 12 litres	
Calculated Three Well Volumes (v x 3):		Approc 36 litres	

Stabilised groundwater quality readings			
Temperature (°C):	11.47	**Conductivity (µS/cm^{-1}): ACT**	6,284
Tds:	5.52	**Conductivity (µS/cm^{-1}): SP**	8,473
pH:	Error	**Dissolved O2: mg/l / %**	5.90 / 55.60
Salinity:	4.75	**ORP (mV):**	-27.5

Observations:	Colour – Reddish brown Odour – Saline Sheen - None Sediment – Heavy (sand)		
Volume Purged:	15 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Poor. Full sample from 15-18 litre purge		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-04	**Date:**	26/3/18
Sampler:	GC	**Time:**	15:45

Depth to Water (mBCL):	1.64	**Correction to GL (m):**	1.39 (Cover 0.25m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	7.20	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		5.56m = 11.12 litres Approx	
Calculated Three Well Volumes (v x 3):		33.36 litre approx	

Stabilised groundwater quality readings			
Temperature (°C):	11.88	**Conductivity (µS/cm^{-1}): ACT**	28,958
Tds:	25.09	**Conductivity (µS/cm^{-1}): SP**	38,671
pH:	10.12	**Dissolved O2: mg/l / %**	2.76 / 29.42
Salinity:	24.44	**ORP (mV):**	-88.8

Observations:	Colour – Grey / reddish brown Odour – Saline Sheen - None Sediment – Heavy (Sand)		
Volume Purged:	22 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Poor. Full sample recovered from 20-22 litre purge		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-05	**Date:**	26/3/18
Sampler:	GC	**Time:**	08:45

Depth to Water (mBCL):	1.14	**Correction to GL (m):**	Flush cover
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	7.47	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		6.34m = Approx 12.68 litres	
Calculated Three Well Volumes (v x 3):		Approx 38.1 litres	

Stabilised groundwater quality readings			
Temperature (°C):	9.91	**Conductivity (µS/cm^{-1}): ACT**	24,139
Tds:	22.09	**Conductivity (µS/cm^{-1}): SP**	33,983
pH:	9.88	**Dissolved O2: mg/l / %**	4.52 / 46.13
Salinity:	20.97	**ORP (mV):**	-111.5

Observations:	Colour – Reddish brown Odour – None Sheen – Very slight iridescence Sediment – High (sand) Some well install debris		
Volume Purged:	22 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Poor. Full Sample recovered from 20-22 litre purge		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-06	**Date:**	26/3/18
Sampler:	GC	**Time:**	07:15

Depth to Water (mBCL):	0.87	**Correction to GL (m):**	Flush Cover
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	5.03	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		4.16m = Approx 8.32 litres	
Calculated Three Well Volumes (v x 3):		Approx 25 litres	

Stabilised groundwater quality readings			
Temperature (°C):	5.59	**Conductivity (µS/cm^{-1}): ACT**	3,884
Tds:	4.01	**Conductivity (µS/cm^{-1}): SP**	6,173
pH:	7.37	**Dissolved O2: mg/l / %**	3.92 / 31.56
Salinity:	3.28	**ORP (mV):**	-170

Observations:	Colour – Greyish brown Odour – Strong organic Sheen - None Sediment – Moderate		
Volume Purged:	25 litres	**End Water Level (mBGL) / (mBCL):**	0.90
Recovery Rate Comments:	Good recovery. Full sample collected		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-07	**Date:**	26/3/18
Sampler:	GC	**Time:**	13:00

Depth to Water (mBCL):	1.25	**Correction to GL (m):**	1.18m (Cover 0.07m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	6.47	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		5.22m = Approx 10.44 litres	
Calculated Three Well Volumes (v x 3):		Approx 31.32 litres	

Stabilised groundwater quality readings			
Temperature (°C):	10.82	**Conductivity (µS/cm^{-1}): ACT**	4,720
Tds:	4.19	**Conductivity (µS/cm^{-1}): SP**	6,468
pH:	10.52	**Dissolved O2: mg/l / %**	5.77 / 53.33
Salinity:	3.52	**ORP (mV):**	-38

Observations:	Colour – Reddish brown Odour – None Sheen - None Sediment – Heavy (sand), some well install debris		
Volume Purged:	18 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Poor. Full sample collected from 15-18 litre purge		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-09	**Date:**	26/3/18
Sampler:	GC	**Time:**	18:41

Depth to Water (mBCL):	1.10	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	6.00	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		4.90m = Approx 9.8 litres	
Calculated Three Well Volumes (v x 3):		Approx 29.4 litres	

Stabilised groundwater quality readings			
Temperature (°C):	11.00	**Conductivity (µS/cm^{-1}): ACT**	76,944
Tds:	68.22	**Conductivity (µS/cm^{-1}): SP**	104,597
pH:	10.74	**Dissolved O2: mg/l / %**	3.36 / 49.10
Salinity:	75.41	**ORP (mV):**	+52.6

Observations:	Colour – Reddish brown Odour – Saline Sheen – Slight localised iridescence Sediment – Heavy (sand)		
Volume Purged:	30 litres	**End Water Level (mBGL) / (mBCL):**	2.79
Recovery Rate Comments:	Good. Full sample recovered		

Groundwater Monitoring using bailers

Borehole ID:	BH-RPS-10	**Date:**	-
Sampler:	GC	**Time:**	-

Depth to Water (mBCL):	1.60	**Correction to GL (m):**	1.45 (0.15m cover)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	5.89	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		4.29 Litres = approx. 8.58 litres	
Calculated Three Well Volumes (v x 3):		Approx 25.74 litres	

Stabilised groundwater quality readings			
Temperature (°C):	10.95	**Conductivity (µS/cm^{-1}): ACT**	11,623
Tds:	10.31	**Conductivity (µS/cm^{-1}): SP**	15,882
pH:	Error on probe	**Dissolved O2: mg/l / %**	1.26 / 12.29
Salinity:	9.24	**ORP (mV):**	-284.5

Observations:	Colour – Reddish brown Odour – Saline Sheen - None Sediment – Heavy (sand)		
Volume Purged:	12 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Very poor, Bh appears to have silt / sediment build up. Full sample collected from 11-12 litre purge.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	BH-RPS-23a	**Date:**	26/3/18
Sampler:	GC	**Time:**	15:00
Depth to Water (mBCL):	2.00	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	4.80	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		2.80m = 0.8 Litres	
Calculated Three Well Volumes (v x 3):		2.4 litres	

Time Pump Started:	15:06	**Depth of tubing (mBGL)**	Base
Peristaltic Pump Speed:	Moderate	**Peristaltic Pump Duration:**	15:17 (11 mins)

Stabilised groundwater quality readings			
Temperature (°C):	11.48	**Conductivity (µS/cm^{-1}): ACT**	22,882
Tds:	20.08	**Conductivity (µS/cm^{-1}): SP**	30,894
pH:	9.38	**Dissolved O2: mg/l / %**	2.26 / 23.10
Salinity:	19.10	**ORP (mV):**	+80.7
Observations:	Colour – Light reddish brown Odour - None Sheen - None Sediment – Light		
Volume Purged:	5 litres (extended purge)	**End Water Level (mBGL) / (mBCL):**	1.73
Recovery Rate Comments:	Good. Full sample collected. Water recovered to above original level.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	BH-RPS-24	**Date:**	26/3/18
Sampler:	GC	**Time:**	15:10
Depth to Water (mBCL):	0.84	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	3.80	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		2.96m = 0.81 Litres	
Calculated Three Well Volumes (v x 3):		2.43 Litres	

Time Pump Started:	15:29	**Depth of tubing (mBGL)**	Base
Peristaltic Pump Speed:	Moderate	**Peristaltic Pump Duration:**	15:35 (6 mins)

Stabilised groundwater quality readings			
Temperature (°C):	10.00	**Conductivity (µS/cm^{-1}): ACT**	8,812
Tds:	8.06	**Conductivity (µS/cm^{-1}): SP**	12,433
pH:	Error on probe	**Dissolved O2: mg/l / %**	6.70 / 61.54
Salinity:	7.03	**ORP (mV):**	-59.00

Observations:	Colour – Reddish brown Odour - Saline Sheen - None Sediment – Heavy (sand), some black well debris		
Volume Purged:	1.5 litres recovered	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	None, sampled from purge water, partial sample		

Groundwater Monitoring using bailers

Borehole ID:	CP-RPS-03	**Date:**	27/3/18
Sampler:	GC	**Time:**	-

Depth to Water (mBCL):	1.03	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	5.84	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		5.81m = Approx 11.62 litres	
Calculated Three Well Volumes (v x 3):		Approx 34.86 litres	

Stabilised groundwater quality readings			
Temperature (°C):	9.12	**Conductivity (µS/cm^{-1}): ACT**	1,142
Tds:	1.06	**Conductivity (µS/cm^{-1}): SP**	1,636
pH:	13.46 (possible probe error)	**Dissolved O2: mg/l / %**	4.23 / 27.24
Salinity:	0.82	**ORP (mV):**	+38.00

Observations:	Colour – Reddish brown Odour - None Sheen – Very slight iridescence Sediment – Heavy (sand)		
Volume Purged:	35 litres	**End Water Level (mBGL) / (mBCL):**	1.05
Recovery Rate Comments:	Good. Full sample collected.		

Groundwater Monitoring using bailers

Borehole ID:	CP-RPS-04a	**Date:**	-
Sampler:	GC	**Time:**	11:46
Depth to Water (mBCL):	1.86	**Correction to GL (m):**	1.69 (Cover 0.17m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	6.18	**Borehole Radius (m):**	50mm installation = 0.025m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		4.32m = Approx 8.64m	
Calculated Three Well Volumes (v x 3):		Approx 25.92 litres	

Stabilised groundwater quality readings			
Temperature (°C):	13.20	**Conductivity (µS/cm^{-1}): ACT**	5,217
Tds:	4.37	**Conductivity (µS/cm^{-1}): SP**	6,734
pH:	13.23 (Possible probe error)	**Dissolved O2: mg/l / %**	4.89 / 48.41
Salinity:	3.7	**ORP (mV):**	+ 47.4

Observations:	Colour – Reddish brown Odour - None Sheen - None Sediment – Heavy (Sand)		
Volume Purged:	16 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Poor. Full sample collected from 11-16 litre purge.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-09	**Date:**	26/3/18
Sampler:	GC	**Time:**	16:50

Depth to Water (mBCL):	1.08	**Correction to GL (m):**	0.70 (Cover = 0.38m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	3.90	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		2.82m = 0.80 litres	
Calculated Three Well Volumes (v x 3):		2.4 litres	

Time Pump Started:	16:56	**Depth of tubing (mBGL)**	Base
Peristaltic Pump Speed:	Moderate	**Peristaltic Pump Duration:**	17:07 (11 mins)

Stabilised groundwater quality readings			
Temperature (°C):	10.12	**Conductivity (µS/cm^{-1}): ACT**	5,106
Tds:	6.84	**Conductivity (µS/cm^{-1}): SP**	7,079
pH:	Error	**Dissolved O2: mg/l / %**	2.04 / 18.90
Salinity:	5.92	**ORP (mV):**	-269.6
Observations:	Colour – Reddish brown Odour - Saline Sheen – Slight scum Sediment – Moderate (sand)		
Volume Purged:	5 litres (extended purge)	**End Water Level (mBGL) / (mBCL):**	1.02 / 1.40
Recovery Rate Comments:	Good. Full sample collected		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-10	**Date:**	26/3/18
Sampler:	GC	**Time:**	08:00
Depth to Water (mBCL):	1.05	**Correction to GL (m):**	0.78m (Cover = 0.27m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	3.67	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		2.62m = 0.75 litres	
Calculated Three Well Volumes (v x 3):		2.25 litres	

Time Pump Started:	08:00	**Depth of tubing (mBGL)**	Base
Peristaltic Pump Speed:	Moderate	**Peristaltic Pump Duration:**	-

Stabilised groundwater quality readings			
Temperature (°C):	7.35	**Conductivity (µS/cm^{-1}): ACT**	6,013
Tds:	5.69	**Conductivity (µS/cm^{-1}): SP**	9,069
pH:	Error	**Dissolved O2: mg/l / %**	4.90 / 42.18
Salinity:	4.99	**ORP (mV):**	-221.6
Observations:	Colour – Light grey Odour - None Sheen - None Sediment – Light		
Volume Purged:	5 itres (extended)	**End Water Level (mBGL) / (mBCL):**	1.07 / 1.34
Recovery Rate Comments:	Good/ Full sample collected		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-12	**Date:**	28/3/18
Sampler:	GC	**Time:**	14:22

Depth to Water (mBCL):	0.52	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	0.72	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations:	Insufficient groundwater to sample.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-13	**Date:**	28/3/18
Sampler:	GC	**Time:**	14:45

Depth to Water (mBCL):	0.88	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	0.88	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations:	Insufficient groundwater to sample		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-15	**Date:**	29/3/18
Sampler:	GC	**Time:**	11:50

Depth to Water (mBCL):	1.83	**Correction to GL (m):**	1.56m (Cover 0.27m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	2.60	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations:	Insufficient groundwater to sample.		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-17	**Date:**	28/3/18
Sampler:	GC	**Time:**	13:57

Depth to Water (mBCL):	Dry	**Correction to GL (m):**	Dry
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	1.13	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations:	Insufficient groundwater to sample		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-19	**Date:**	26/3/18
Sampler:	GC	**Time:**	18:15

Depth to Water (mBCL):	2.52	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	3.93	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		1.41m = 0.40 litres	
Calculated Three Well Volumes (v x 3):		1.2 litres	

Time Pump Started:	18:20	**Depth of tubing (mBGL)**	Base
Peristaltic Pump Speed:	Slow / moderate	**Peristaltic Pump Duration:**	-

Stabilised groundwater quality readings			
Temperature (°C):	11.27	**Conductivity (µS/cm^{-1}): ACT**	4,981
Tds:	4.39	**Conductivity (µS/cm^{-1}): SP**	6,740
pH:	13.13 (Possible probe error)	**Dissolved O2: mg/l / %**	2.27 / 21.13
Salinity:	3.69	**ORP (mV):**	-197.5
Observations:	Colour – Greenish grey Odour - Organic Sheen - None Sediment – Moderate		
Volume Purged:	2.5 litres	**End Water Level (mBGL) / (mBCL):**	Dry
Recovery Rate Comments:	Ok due to slow pump. Full sample collected but BH dry at end		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-20	**Date:**	26/3/18
Sampler:	GC	**Time:**	17:21

Depth to Water (mBCL):	1.36	**Correction to GL (m):**	1.05m (Cover 0.31m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	4.34	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		2.98m = 0.84 litres	
Calculated Three Well Volumes (v x 3):		2.52m	

Time Pump Started:	17:25	**Depth of tubing**	Base
Peristaltic Pump Speed:	Moderate	**Peristaltic Pump Duration:**	17:37 (12 mins)

Stabilised groundwater quality readings			
Temperature (°C):	10.45	**Conductivity (µS/cm^{-1}): ACT**	5,769
Tds:	5.21	**Conductivity (µS/cm^{-1}): SP**	7,996
pH:	Error	**Dissolved O2: mg/l / %**	3.24 / 29.59
Salinity:	4.43	**ORP (mV):**	-178.4
Observations:	Colour – Mostly clear, light greyish brown near base Odour - None Sheen - None Sediment – None mostly, light near base		
Volume Purged:	5 litres (extended)	**End Water Level (mBGL) / (mBCL):**	1.13 / 1.44
Recovery Rate Comments:	Good. Full sample collected		

Groundwater Monitoring using peristaltic pump

Borehole ID:	WS-RPS-21	**Date:**	29/3/18
Sampler:	GC	**Time:**	12:02
Depth to Water (mBCL):	0.98	**Correction to GL (m):**	0.70 (Cover 0.28m)
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	1.29	**Borehole Radius (m):**	19mm installation = 0.0095m
Observations	Insufficient groundwater to sample		

Groundwater Monitoring using peristaltic pump

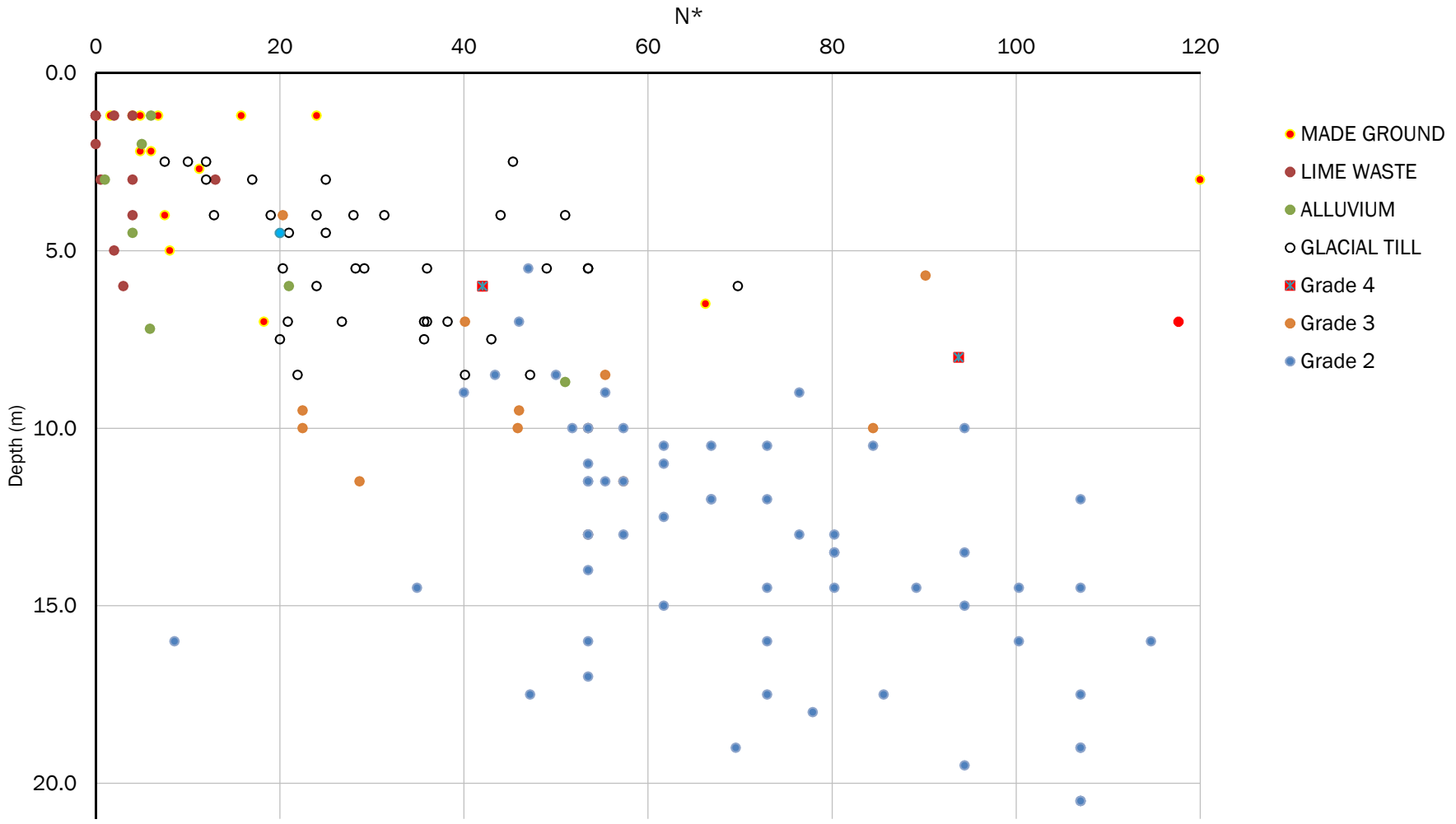
Borehole ID:	WS-RPS-24	**Date:**	27/3/18
Sampler:	GC	**Time:**	11:05
Depth to Water (mBCL):	1.46	**Correction to GL (m):**	Flush
Depth to Product (mBCL):	N/A	**Thickness of Product (m):**	N/A
Depth to Base (mBCL):	3.87	**Borehole Radius (m):**	19mm installation = 0.0095m
Volume of Water in borehole prior to purge (h x π x r2 x 1000):		2.41m = 0.68 litres	
Calculated Three Well Volumes (v x 3):		2.04 litres	

Time Pump Started:	11:12	**Depth of tubing**	Base
Peristaltic Pump Speed:	Fast to clear, then moderate	**Peristaltic Pump Duration:**	-

Stabilised groundwater quality readings			
Temperature (°C):	9.87	**Conductivity (µS/cm^{-1}): ACT**	896
Tds:	0.81	**Conductivity (µS/cm^{-1}): SP**	1,257
pH:	Error	**Dissolved O2: mg/l / %**	4.18 / 36.91
Salinity:	0.62	**ORP (mV):**	-18.00
Observations:	Colour – Yellowish grey Odour - None Sheen - None Sediment – Low		
Volume Purged:	2.5 litres (extended)	**End Water Level (mBGL) / (mBCL):**	-
Recovery Rate Comments:	Good recovery. Full sample collected.		

Appendix 5

SPT Plots


N*
0
20
40
60
80
100
120
0.0
5.0
10.0
15.0
20.0
Depth (m)
MADE GROUND
LIME WASTE
ALLUVIUM
GLACIAL TILL
Grade 4
Grade 3
Grade 2

BH	Depth (m)	Elevation	S/C	Seating blows		Seating Penetration		Test drive				Pentration				Description			SPT	Extrapolated	Design
				75mm	75mm	75mm	75mm	75mm	75mm	75mm	75mm	75mm	75mm	75mm	75mm	Geology	SOIL	Unit	N-value	N-value*	N-value*
BH-RPS-11	1.2	#N/A	S	0	0	75	75	1	1	1	0	75	75	75	75	MADE GROUND	Sand		3		7
BH-RPS-11	3	#N/A	S	7	13	75	75	19	31			75	50			MADE GROUND	Sand		> 50	120	120
BH-RPS-14	1.2		C	25		30		50				20				MADE GROUND			> 50	750	401
BH-RPS-14	2.5		C	25		1		50				1				MADE GROUND			> 50	15000	8026
BH-RPS-14	5.5		S	4	7	75	75	9	10	8	9	75	75	75	75	GLACIAL TILL			36		36
BH-RPS-14	7		S	6	6	75	75	7	9	10	10	75	75	75	75	GLACIAL TILL			36		36
BH-RPS-14	8.5		C	5	9	75	75	8	10	11	11	75	75	75	75	NO RECOVERY			40		21
BH-RPS-14	10		C	9	15	75	75	19	22	9		75	75	25		MERCIA MUDSTONE GROUP	MST	Grade 3	> 50	86	46
BH-RPS-14	11.5		C	6	15	75	75	23	27			75	65			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	107	57
BH-RPS-14	13		C	19	6	75	75	29	21			75	25			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	150	80
BH-RPS-14	14.5		C	21	4	75	0	25	25			75	25			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	150	80
BH-RPS-14	16		C	25		75		43	7			75	5			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	188	100
BH-RPS-14	17.5		C	25		70		41	9			75	0			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	200	107
BH-RPS-14	19		C	20	5	75	1	44	6			75	0			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	200	107
BH-RPS-14	20.5		C	25		75		50				75				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	200	107
BH-RPS-14a	7		C	11	14	35	75	21	25	4	75	75	0			NO RECOVERY			125	500	268
BH-RPS-15	1.2		S	0	0	75	75	1	1	0	0	75	75	75	75	LIME WASTE			2		2
BH-RPS-15	3		S	0	0	75	75	1	0	0	0	75	75	75	75	ALLUVIUM			1		1
BH-RPS-15	4.5		S	1	1	75	75	1	1	1	1	75	75	75	75	ALLUVIUM			4		4
BH-RPS-15	6		S	6	5	75	75	5	5	5	6	75	75	75	75	ALLUVIUM			21		21
BH-RPS-15	7.5		S	5	5	75	75	6	6	5	3	75	75	75	75	GLACIAL TILL			20		20
BH-RPS-15	9		S	10	11	75	75	12	28			75	35			MERCIA MUDSTONE GROUP	MST	Grade 2	40		40
BH-RPS-15	10.5		C	17	7	75	75	21	29			75	55			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	115	62
BH-RPS-15	12		C	16	9	75	60	34	16			75	35			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	136	73
BH-RPS-15	13.5		C	25		60		41	9			75	10			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	176	94
BH-RPS-15	15		C	25		45		50				40				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	375	201
BH-RPS-15	16.5		C	25		35		50				25				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	600	321
BH-RPS-15	18		C	25		75		50				25				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	600	321
BH-RPS-15	19.5		C	25		70		50				55				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	273	146
BH-RPS-15	20.5		C	25		65		50				45				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	333	178
BH-RPS-16	1.2		S	1	0	75	75	0	0	0	0	75	75	75	75	LIME WASTE			0		0
BH-RPS-16	7		S	2	3	75	75	3	6	7	7	75	75	75	75	MADE GROUND	Sand		23		18
BH-RPS-16	8.5		C	9	15	75	75	16	34			75	70			MERCIA MUDSTONE GROUP	Clay	Grade 3	> 50	103	55
BH-RPS-16	10		C	11	14	75	55	23	27			75	75			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	100	54
BH-RPS-16	11.5		C	10	15	75	70	28	22			75	65			MERCIA MUDSTONE GROUP	MST	Grade 3	> 50	107	57
BH-RPS-16	13		C	10	14	75	75	21	26	3		75	75	0		MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	100	54
BH-RPS-16	14.5		C	14	11	75	25	33	17			75	35			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	136	73
BH-RPS-16	16		C	6	6	75	75		6	6	4	75	75	75	75	MERCIA MUDSTONE GROUP	MST	Grade 2	16		9
BH-RPS-16	17.5		C	10	15	75	55	26	24	75	35	75	75	75	75	MERCIA MUDSTONE GROUP	MST	Grade 2	160	160	86
BH-RPS-16	19		C	18	7	75	15	36	14	75	5	75	75	75	75	MERCIA MUDSTONE GROUP	MST	Grade 2	130	130	70
BH-RPS-16	20.5		C	21	4	75	0	41	9			75	0			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	200	107
BH-RPS-19	1.2		S	1	0	75	75	0	0	0	4	75	75	75	75	LIME WASTE			4		4
BH-RPS-19	2.5		S	1	1	75	75	1	2	3	4	75	75	75	75	GLACIAL TILL			10		10
BH-RPS-19	4		S	2	3	75	75	5	5	6	8	75	75	75	75	GLACIAL TILL			24		24
BH-RPS-19	5.5		S	5	9	75	75	9	11	14	15	75	75	75	75	GLACIAL TILL			49		49
BH-RPS-19	7		C	4	6	75	75	7	10	15	18	75	75	75	75	GLACIAL TILL			> 50	50	27
BH-RPS-19	8.5		C	6	6	75	75	8	10	10	13	75	75	75	75	GLACIAL TILL			41		22
BH-RPS-19	10		C	11	12	75	75	22	27	1		75	75	0		MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	100	54
BH-RPS-19	11.5		C	4	12	75	75	23	27			75	75			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	100	54
BH-RPS-19	13		C	20	5	75	75	28	22			75	75			MERCIA MUDSTONE GROUP	MST	Grade 3	> 50	100	54
BH-RPS-19	14.5		C	19	6	75	75	37	13			75	5			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	188	100
BH-RPS-19	16		C	15	10	75	35	23	27			75	35			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	136	73
BH-RPS-19	17.5		C	17	8	75	5	26	24			75	35			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	136	73
BH-RPS-19	19		C	21	4	75	0	45	5			75	0			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	200	107
BH-RPS-19	20.5		C	25		70		50				50				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	300	161
BH-RPS-19a	5.5		C	6	10	75	75	11	15	14	10	75	75	75	50	GLACIAL TILL			> 50	55	29

BH-RPS-20	1.2	S	1		75										LIME WASTE			0		0
BH-RPS-20	3	S	2	3	75	75	3	4	5	5	75	75	75	75	GLACIAL TILL			17		17
BH-RPS-20	4.5	S	2	2	75	75	4	5	7	9	75	75	75	75	GLACIAL TILL			25		25
BH-RPS-20	6	S	3	3	75	75	5	5	5	9	75	75	75	75	GLACIAL TILL			24		24
BH-RPS-20	7.5	S	4	6	75	75	7	8	9	19	75	75	75	75	GLACIAL TILL			43		43
BH-RPS-20	9	C	16	9	75	40	26	24			75	70			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	103	55
BH-RPS-20	10.5	C	13	12	75	65	34	16			75	35			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	136	73
BH-RPS-20	12	C	18	7	75	10	39	11			75	45			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	125	67
BH-RPS-20	13.5	C	25		75	55	38	12			75	25			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	150	80
BH-RPS-20	15	C	19	6	75	10	32	18			75	55			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	115	62
BH-RPS-20	16.5	C	24	1	75	0	50				45				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	333	178
BH-RPS-20	18	C	25		50		50				65				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	231	123
BH-RPS-20	19.5	C	25		35		39	11			75	10			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	176	94
BH-RPS-20	20.5	C	25		20		50				75				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	200	107
BH-RPS-21	3	S	6	4	75	75	1	4	3	5	75	75	75	75	LIME WASTE			13		13
BH-RPS-21	4.5	S	6	4	75	75	2	4	6	8	75	75	75	75	MERCIA MUDSTONE GROUP	Clay	Grade 4	20		20
BH-RPS-21	6	S	5	7	75	75	8	10	11	13	75	75	75	75	MERCIA MUDSTONE GROUP	Clay	Grade 4	42		42
BH-RPS-21	7	S	11	14	75	75	13	25	12	50	75	75	75	30	MERCIA MUDSTONE GROUP	Clay	Grade 4	100	118	118
BH-RPS-21	8	S	10	13	75	75	16	29	5		75	75	10		MERCIA MUDSTONE GROUP	Clay	Grade 4	> 50	94	94
BH-RPS-21	9.5	S	17	7	75	75	10	10	13	13	75	75	75	75	MERCIA MUDSTONE GROUP	Clay	Grade 3	46		46
BH-RPS-21	10.5	C	19	6	75	10	34	16			75	20			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	158	84
BH-RPS-21	12	C	25		65		31	19			75	45			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	125	67
BH-RPS-21	13.5	C	25		40		39	11			75	25			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	150	80
BH-RPS-21	15	C	25		50		41	9			75	10			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	176	94
BH-RPS-21	18	C	25		41		38	12			75	28			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	146	78
BH-RPS-21	19.5	C	25		30		50				65				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	231	123
BH-RPS-21	20.5	C	25		35		50				60	0			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	250	134
BH-RPS-21a	4	C	2	4	75	75	6	9	11	12	75	75	75	75	MERCIA MUDSTONE GROUP	Clay	Grade 3	38		20
BH-RPS-22	1.2	S	1	0	75	75	1	0	1	2	75	75	75	75	MADE GROUND			4		4
BH-RPS-22	2.5	S	2	3	75	75	2	3	4	3	75	75	75	75	GLACIAL TILL			12		12
BH-RPS-22	4	S	3	3	75	75	3	5	9	11	75	75	75	75	GLACIAL TILL			28		28
BH-RPS-22	5.5	S	5	8	75	75	9	10	12	16	75	75	75	75	MERCIA MUDSTONE GROUP	MST	Grade 2	47		47
BH-RPS-22	7	S	4	7	75	75	7	10	12	17	75	75	75	75	MERCIA MUDSTONE GROUP	MST	Grade 2	46		46
BH-RPS-22	8.5	S	6	7	75	75	9	11	11	19	75	75	75	75	MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	50	50
BH-RPS-22	10	C	9	16	75	75	29	21			75	65			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	107	57
BH-RPS-22	11	C	11	14	75	75	30	20			75	75			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	100	54
BH-RPS-22	12.5	C	17	8	75	75	22	28			75	55			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	115	62
BH-RPS-22	14	C	17	8	75	75	27	23			75	75			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	100	54
BH-RPS-22	17	C	25		75		33	17			75	75			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	100	54
BH-RPS-22	20	C	25		60		50				15				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	1000	535
BH-RPS-23a	3	S	1	1	75	75	1	1	1	1	75	75	75	75	NO RECOVERY			4		4
BH-RPS-23a	4.5	S	3	3	75	75	5	5	5	6	75	75	75	75	GLACIAL TILL			21		21
BH-RPS-23a	6	S	11	13	75	75	14	17	19		75	75	65		GLACIAL TILL			> 50	70	70
BH-RPS-23a	7.5	C	9	12	75	75	15	17	17	1	75	75	75	0	GLACIAL TILL			> 50	67	36
BH-RPS-23a	9	C	19	6	75	10	34	16			75	30			MERCIA MUDSTONE GROUP	Clay	Grade 2	> 50	143	76
BH-RPS-23a	10	C	18	7	75	10	39	11			75	10			MERCIA MUDSTONE GROUP	Clay	Grade 2	> 50	176	94
BH-RPS-23a	11	C	19	6	75	10	28	22			75	55			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	115	62
BH-RPS-23a	12	C	25		40		46	4			75	0			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	200	107
BH-RPS-23a	13	C	21	4	75	5	50				65				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	231	123
BH-RPS-23a	14.5	C	25		75		49	1			75	0			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	200	107
BH-RPS-23a	16	C	25		65		50				70				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	214	115
BH-RPS-23a	17.5	C	25		55		50				60				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	250	134
BH-RPS-23a	19	C	25		50		50				45				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	333	178
BH-RPS-23a	20	C	25		45		50				45				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	333	178
BH-RPS-24	1.2	S	1	6	75	75	6	7	7	4	75	75	75	75	LIME WASTE			24		24
BH-RPS-24	2.5	S	1	0	75	75	2	48			75	75			NO RECOVERY			> 50	100	100
BH-RPS-24	4	S	4	4	75	75	6	7	14	17	75	75	75	75	GLACIAL TILL			44		44
BH-RPS-24	5.5	C	11	12	75	75	19	27	4		75	75	0		GLACIAL TILL			> 50	100	54
BH-RPS-24	7	C	8	10	75	75	12	14	24		75	75	75		GLACIAL TILL			> 50	67	36
BH-RPS-24	8.5	C	9	12	75	75	15	21	14		75	75	20		GLACIAL TILL			> 50	88	47
BH-RPS-24	10	C	7	10	75	75	11	11	10	10	75	75	75	75	MERCIA MUDSTONE GROUP	Clay	Grade 3	42		22
BH-RPS-24	11.5	C	6	8	75	75	12	14	14	10	75	75	75	55	MERCIA MUDSTONE GROUP	Clay	Grade 3	> 50	54	29
BH-RPS-24	13	C	17	8	75	5	22	25	3		75	75	0		MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	100	54
BH-RPS-24a	5.5	C	6	10	75	75	14	11	16	10	75	75	75	65	GLACIAL TILL			51	53	28

BH-RPS-24a	7	C	5	5	75	75	11	17	22		75	75	60		GLACIAL TILL			> 50	71	**38**
BH-RPS-24a	8.5	C	7	14	75	75	16	19	15		75	75	75		NO RECOVERY			> 50	67	**36**
BH-RPS-24a	10	C	9	11	75	75	20	27	3		75	75	0		MERCIA MUDSTONE GROUP	Clay	Grade 3	> 50	100	**54**
BH-RPS-24a	11.5	C	15	10	75	25	26	24			75	70			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	103	**55**
BH-RPS-24a	13	C	11	14	75	45	23	27			75	65			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	107	**57**
BH-RPS-24a	14.5	C	9	12	75	75	14	15	17	4	75	75	75	5	MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	65	**35**
BH-RPS-24a	16	C	16	9	75	45	21	29			75	75			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	100	**54**
BH-RPS-24a	17.5	C	7	11	75	75	16	22	12		75	75	20		MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	88	**47**
BH-RPS-24a	19	C	9	9	75	75	15	21	14	75	75	50			MERCIA MUDSTONE GROUP	MST	Grade 2	125	300	**161**
BH-RPS-24a	20.5	C	25		70		50				40				MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	375	**201**
CP-RPS-01	1.2	S	2	3	75	75	1	1	2	3	75	75	75	75	MADE GROUND	Sand		7		**16**
CP-RPS-01	2.2	S	1	1	75	75	2	1	1	2	75	75	75	75	MADE GROUND			6		**6**
CP-RPS-01	3	S	1	1	75	75	1	1	1	1	75	75	75	75	LIME WASTE			4		**4**
CP-RPS-01	4	S	1	0	75	75	1	1	1	1	75	75	75	75	LIME WASTE			4		**4**
CP-RPS-01	5	S	1	0	75	75	0	0	1	1	75	75	75	75	LIME WASTE			2		**2**
CP-RPS-01	6.5	S	1	2	75	75	3	4	24	22	75	75	75	15	MADE GROUND			53	66	**66**
CP-RPS-02	1.2	C	2	1	75	75									LIME WASTE			0		**0**
CP-RPS-02	2	S	1		75										LIME WASTE			0		**0**
CP-RPS-02	3	C	1	0	75	75	0	0	1	0	75	75	75	75	LIME WASTE			1		**1**
CP-RPS-02	4	C	3	2	75	75	3	4	4	3	75	75	75	75	MADE GROUND			14		**7**
CP-RPS-02	5	C	2	3	75	75	4	4	3	4	75	75	75	75	MADE GROUND			15		**8**
CP-RPS-02	6	S	1		75			1		2		75		75	LIME WASTE			3		**3**
CP-RPS-02	7.2	C	2	2	75	75	3	2	3	3	75	75	75	75	ALLUVIUM			11		**6**
CP-RPS-02	8.7	S	3	11	75	75	8	11	14	18	75	75	75	75	ALLUVIUM			51	51	**51**
CP-RPS-02	9.5	C	4	10	75	75	11	11	10	10	75	75	75	75	MERCIA MUDSTONE GROUP	Clay	Grade 3	42		**22**
CP-RPS-02	10.5	C	10	15	75	75	20	30			75	45			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	125	**67**
CP-RPS-03	2.5	C	2	2	75	75	4	5	9	11	75	75	75	75	GLACIAL TILL	Sand		29		**45**
CP-RPS-03	4	S	7	8	75	75	12	14	11	14	75	75	75	75	GLACIAL TILL			51	51	**51**
CP-RPS-03	5.5	C	10	14	75	75	22	26	2		75	75	0		GLACIAL TILL			> 50	100	**54**
CP-RPS-03	7	C	5	8	75	75	11	18	21		75	75	50		MERCIA MUDSTONE GROUP	Clay	Grade 3	> 50	75	**40**
CP-RPS-03	8.5	C	6	12	75	75	14	18	18		75	75	35		MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	81	**43**
CP-RPS-03	10	C	9	12	75	75	17	24	9		75	75	5		MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	97	**52**
CP-RPS-03	11.5	C	11	14	75	75	21	26	3		75	75	0		MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	100	**54**
CP-RPS-03	13	C	11	14	75	50	28	22			75	30			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	143	**76**
CP-RPS-03	14.5	C	14	11	75	45	31	19			75	15			MERCIA MUDSTONE GROUP	MST	Grade 2	> 50	167	**89**
CP-RPS-03a	1.2	S	25		35		50				45				MADE GROUND			> 50	333	**333**
CP-RPS-04	1.2	C	25		35		50				1				LIME WASTE			> 50	15000	**8026**
CP-RPS-04a	2.5	C	2	1	75	75	3	3	4	4	75	75	75	75	GLACIAL TILL			14		**7**
CP-RPS-04a	4	C	4	5	75	75	6	6	6	6	75	75	75	75	GLACIAL TILL			24		**13**
CP-RPS-04a	5.5	C	4	6	75	75	7	9	10	12	75	75	75	75	GLACIAL TILL			38		**20**
CP-RPS-04a	7	C	6	7	75	75	8	10	10	11	75	75	75	75	GLACIAL TILL			39		**21**
CP-RPS-04a	8.5	C	5	9	75	75	12	14	24		75	75	50		GLACIAL TILL			> 50	75	**40**
CP-RPS-04a	10	C	12	13	75	25	30	20			75	20			MERCIA MUDSTONE GROUP	Clay	Grade 3	> 50	158	**84**
CP-RPS-05	1.2	C	4	3	75	75	1	1	1	0	75	75	75	75	MADE GROUND			3		**2**
CP-RPS-05	2.2	C	1	1	75	75	2	2	2	3	75	75	75	75	MADE GROUND			9		**5**
CP-RPS-05	3	S	3	3	75	75	3	4	8	10	75	75	75	75	GLACIAL TILL			25		**25**
CP-RPS-05	4	C	4	6	75	75	10	15	15	10	75	75	75	31	GLACIAL TILL			> 50	59	**31**
CP-RPS-05	5	C	10	15	75	75	50				55				GLACIAL TILL			> 50	273	**146**
CP-RPS-05	5.3	C	25		10		50				1				GLACIAL TILL			> 50	15000	**8026**
CP-RPS-06	1.2	S	3	2	75	75	1	1	2	2	75	75	75	75	ALLUVIUM			6		**6**
CP-RPS-06	2	S	1	0	75	75	1	1	1	2	75	75	75	75	ALLUVIUM			5		**5**
CP-RPS-06	3	S	1	2	75	75	1	3	3	5	75	75	75	75	GLACIAL TILL			12		**12**
CP-RPS-06	4	S	3	3	75	75	3	5	5	6	75	75	75	75	GLACIAL TILL			19		**19**
CP-RPS-06	5.7	C	9	10	75	75	32	18			75	14			MERCIA MUDSTONE GROUP	Clay	Grade 3	> 50	169	**90**
CP-RPS-06	5.8	C	25		31		50				1				MERCIA MUDSTONE GROUP			> 50	15000	**8026**
WS-RPS-29a	1.2	C	4	3	75	75	3	3	2	1	75	75	75	75	MADE GROUND			9		**5**
WS-RPS-29a	2.7	C	1	2	75	75	3	3	6	9	75	75	75	75	MADE GROUND			21		**11**

Hammer Energy Ratio [1]

1. Energy ratio from Apex.
2. Correction taken from EN ISO 22476-3:2005 (sands only).
3. Correction factor from EN ISO 22476-3:2005 Table A.1, Annex A (sands only).
4. Correction factor from EN ISO 22476-3:2005 (sands only). Value at 1.2m depth limited to 1.5.

EN ISO 22476-3:2005

Table A.2, Annex A

Consolidation State	Density Index I_D (%)
Normally Consol	40-60 60-80
Over Consol	n/a

σ'_v = vertical overburden stress at test depth

OR, for NC sand:

CN = $\sqrt{(98/\sigma'_v)}$

Appendix 6

SPT Calibration Certificates

SPT Calibration Report

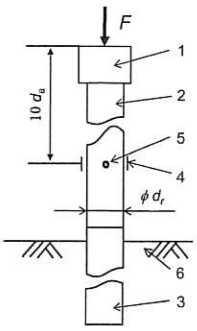
www.equipegroup.com

Hammer Energy Measurement Report

Type of Hammer	SPT HAMMER
Client	APEX DRILLING
Test No	EQU1790
Test Depth (m)	8.40
Mass of the hamn	m = 63.5kg
Falling height	h = 0.76m
E_{theor} =	$m \times g \times h$ = 473J

Characteristics of the instrumented rod

Diameter	d_r = 0.052 m
Length of instrumented rod	0.558 m
Area	A = 11.61 cm^2
Modulus	E_a = 206843 MPa



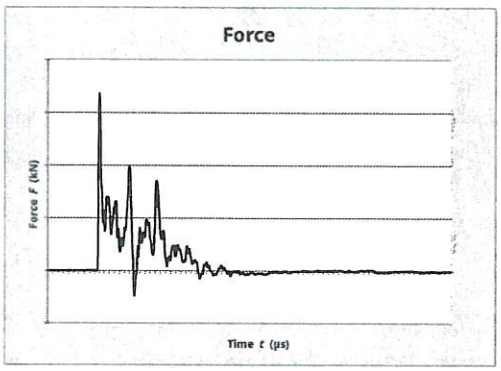
Key

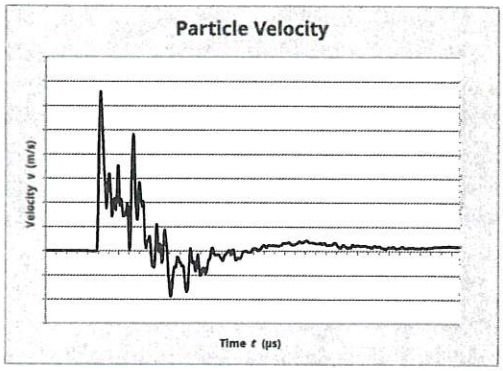
1 Anvil
2 Part of instrumented rod
3 Drive Rod
4 Strain Gauge
5 Accelerometer
6 Ground

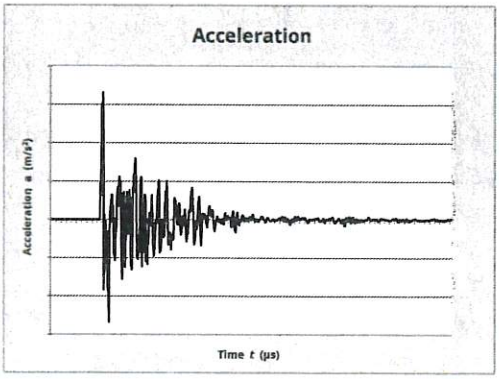
F Force
d_r Diameter of rod

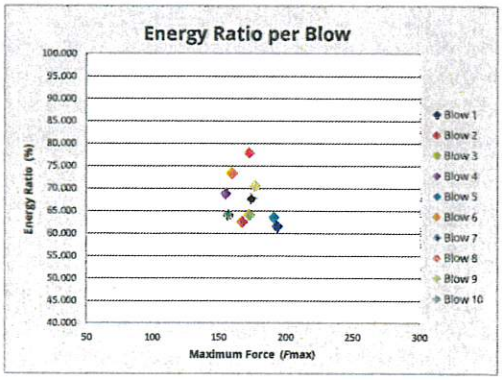
Fig. B.1 and B.2
BS EN ISO 22476-3 : 2005 + A1 : 2011

DATE OF TEST	VALID UNTIL	HAMMER ID
07 April 2017	07 April 2018	AX3









Observations:
1.

E_{meas} =	**0.317** kN-m	**Energy Ratio = (E_r)** $\frac{E_{meas}}{E_{theor}}$	**67.11%**
E_{theor} =	**0.473** kN-m		

Equipe SPT Analyzer Operators: CS

Prepared by:		**Checked by:**		**Date:**	11/04/2017

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SPT Calibration Report

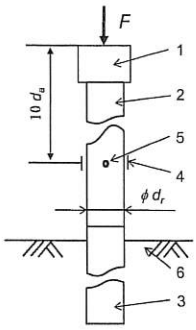
www.equipegroup.com

Hammer Energy Measurement Report

Type of Hammer	SPT HAMMER
Client	APEX DRILLING
Test No	EQU1797
Test Depth (m)	8.40
Mass of the hamn	m = 63.5kg
Falling height	h = 0.76m
E_{theor} =	$m \times g \times h$ = 473J

Characteristics of the instrumented rod

Diameter	d_r = 0.052 m
Length of instrumented rod	0.558 m
Area	A = 11.61 cm^2
Modulus	E_a = 206843 MPa



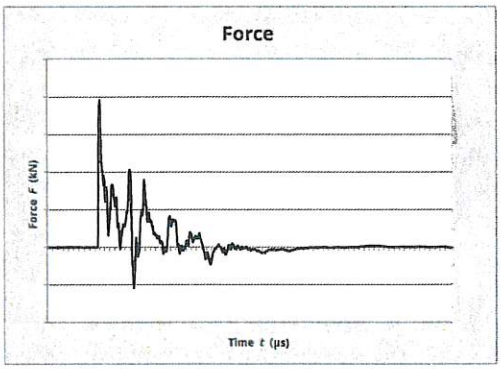
Key

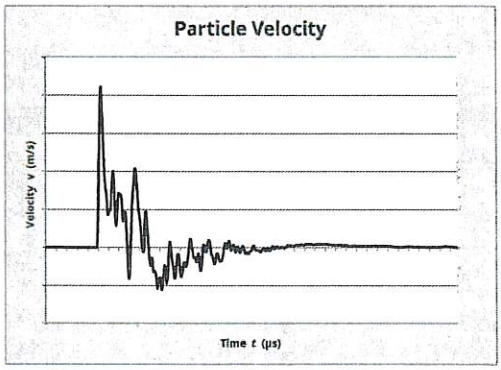
1 Anvil
2 Part of instrumented rod
3 Drive Rod
4 Strain Gauge
5 Accelerometer
6 Ground

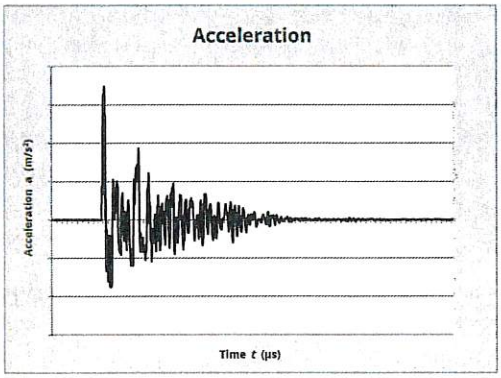
F Force
d_r Diameter of rod

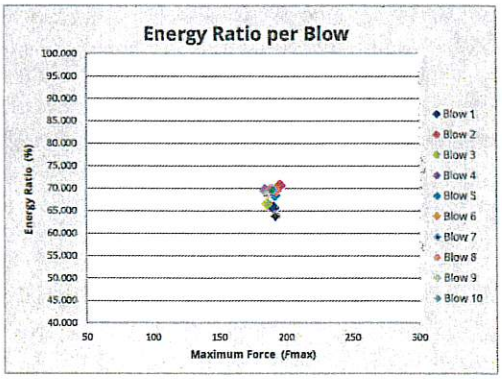
Fig. B.1 and B.2
BS EN ISO 22476-3 : 2005 + A1 : 2011

DATE OF TEST	VALID UNTIL	HAMMER ID
07 April 2017	07 April 2018	AX7









Observations:
1.

E_{meas} =	**0.321** kN-m	**Energy Ratio = $\frac{E_{meas}}{E_{theor}}$ (E_r)**	**67.90%**
E_{theor} =	**0.473** kN-m		

Equipe SPT Analyzer Operators: CS

Prepared by:		**Checked by:**		**Date:**	**11/04/2017**

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SPT Calibration Report

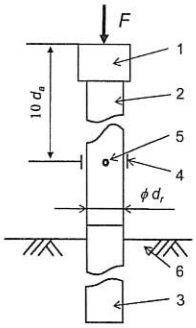
www.equipegroup.com

Hammer Energy Measurement Report

Type of Hammer	SPT HAMMER
Client	APEX DRILLING
Test No	EQU1796
Test Depth (m)	8.40
Mass of the hamn	m = 63.5kg
Falling height	h = 0.76m
E_{theor} =	$m \times g \times h$ = 473J

Characteristics of the instrumented rod

Diameter	d_r = 0.052 m
Length of instrumented rod	0.558 m
Area	A = 11.61 cm^2
Modulus	E_a = 206843 MPa



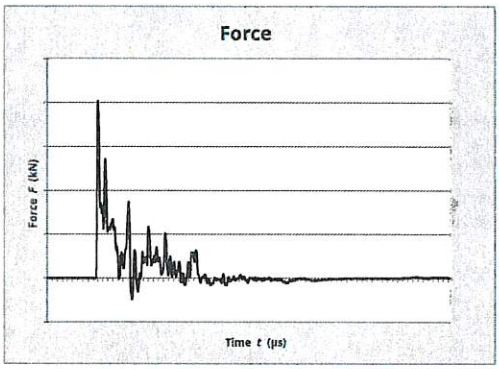
Key

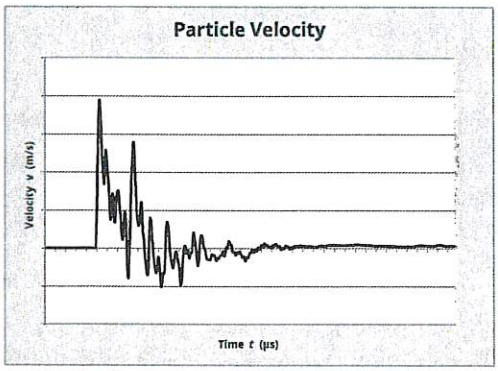
1 Anvil
2 Part of instrumented rod
3 Drive Rod
4 Strain Gauge
5 Accelerometer
6 Ground

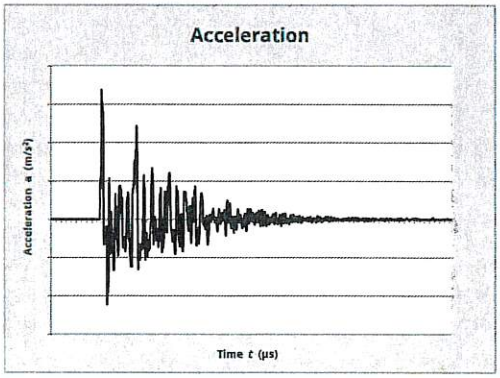
F Force
d_r Diameter of rod

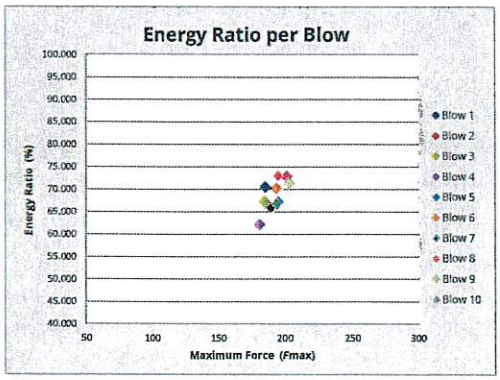
Fig. B.1 and B.2
BS EN ISO 22476-3 : 2005 + A1 : 2011

DATE OF TEST	VALID UNTIL	HAMMER ID
07 April 2017	07 April 2018	AX9









Observations:
1.

E_{meas} =	**0.323** kN-m	**Energy Ratio = (E_r)** $\frac{E_{meas}}{E_{theor}}$	**68.38%**
E_{theor} =	**0.473** kN-m		

Equipe SPT Analyzer Operators: CS

Prepared by:		**Checked by:**		**Date:**	**11/04/2017**

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