ATKINS
Member of the SNC-Lavalin Group

Technical Note

Project:	Bradwell B Nuclear Power Plant - Load Investigation		
Subject:	Discharge Consent Application – Technical Addendum to Risk Assessment		
Author:	[redacted]	Checked:	[redacted]
Reviewed:	[redacted]	Authorised:	[redacted]
Date:	17/02/2020	Project No.:	5193653
Distribution:	National Permitting Service [redacted]	Representing:	Environment Agency BRB GenCo Ltd

Updated Specific Substances Risk Assessment

Methodology

A surface water pollution risk assessment has been completed in-line with Environment Agency guidance on how to carry out a risk assessment in support of a bespoke permit application [1] [2].

For the purpose of this risk assessment, it is considered, in the absence of any site-specific information on groundwater quality, that due to the degree of existing groundwater baseflow index to the Ordinary Watercourse (0.52 [3]), the quality of surface water therein is largely representative of background groundwater quality conditions.

Accordingly, in order to understand whether the proposed discharge potentially includes hazardous pollutants, surface water samples have been collected by Wood Plc [4] [5] from three selected locations on the Ordinary Watercourse and Weymarks River:

- **Sample Point 1** is located on the Ordinary Watercourse located due east of the proposed Load Test Area. The drainage ditch flows in a southerly direction before converging with the Weymarks River located south/south-east of the Load Test Area.
- **Sample Point 2** is located to the south-east of the proposed Load Test Area, at a location immediately downstream of the Ordinary Watercourse converges with the Weymarks River.
- **Sample Point 3** is located to the south east of the proposed Load Test Area, at a location upstream of the point at which the Ordinary Watercourse converges with Weymarks River.

The original risk assessment [6], included two rounds of surface water quality testing from 19 December 2019 [4] and 8 January 2020 [5]. This risk is assessment has been updated to include two additional rounds sampled on the 15 January 2020 [7] and 21 January 2020 [8]. Samples were submitted to a United Kingdom Accreditation Service (UKAS) accredited laboratory for chemical analysis. The results of analysis are provided in Appendix A.

The analysis has enabled identification of potential hazardous pollutants that may be present in the discharge to the Ordinary Watercourse.

Screening Tests

In order to understand whether discharge of the hazardous pollutants identified present a potential risk to the environment, the Environment Agency guidance [2] require four tiers of screening tests to be completed, :

1. Check whether the concentration of the pollutant in the discharge is more than 10% of the EQS;
2. Check whether the process contribution (PC) of your pollutant is more than 4% of the EQS;
3. Check whether your discharge increases the concentration of the pollutant in the river downstream of the discharge by more than 10% of the pollutant's EQS value; and,
4. Check whether the PEC is higher than the EQS.

Identification of pollutants

In order to identify any potential specific pollutants, the results of chemical analysis (Appendix A) have been compared to Environment Agency tables for "*fresh waters specific pollutants and operations Environmental Quality Standards*" and "*freshwaters priority hazardous substances, priority substances and other pollutants*" [2].

Substances recorded above limits of detection are summarised in Table 1.

Table 1 – Surface water quality detections and exceedances

Determinand	Units	LOD	AA-EQS	MAC-EQS	Round 1			Round 2			Round 3			Round 4		
					SW1	SW2	SW3	SW1	SW2	SW3	SW1	SW2	SW3	SW1	SW2	SW3
Ammoniacal Nitrogen as N**	mg/l	<0.2	0.2	-	<0.2	0.659	0.37	0.252	<0.2	0.426	<0.2	1.82	0.655	<0.2	0.409	0.314
Anthracene (aq)	mg/l	<0.000005	0.0001	0.0001	<0.000005	<0.000005	<0.000005	0.000006	<0.000005	0.000017	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Arsenic (diss.filt)	mg/l	<0.0005	0.05	-	0.00132	0.00146	0.00147	0.00175	0.00157	0.00144	0.00157	0.00183	0.00165	0.00103	0.00123	0.0011
Benzo(a)anthracene (aq)	mg/l	<0.000005	-	0.00027	<0.000005	<0.000005	<0.000005	0.000012	0.000006	0.000145	<0.000005	<0.000005	0.000027	<0.000005	<0.000005	<0.000005
Benzo(a)pyrene (aq)	mg/l	<0.000002	0.00000017		<0.000002	<0.000002	0.000008	0.000044	0.000034	0.00026	0.00002	0.000014	0.000045	<0.000002	<0.000002	0.000009
Benzo(b)fluoranthene (aq)	mg/l	<0.000005	-	0.000017	<0.000005	<0.000005	0.000012	0.000067	0.000071	0.000383	0.000026	0.000025	0.000043	<0.000005	<0.000005	0.000012
Benzo(g,h,i)perylene (aq)	mg/l	<0.000005	-	0.0000082	<0.000005	0.000005	0.000012	0.000031	0.000022	0.000212	0.000026	0.000019	0.000019	<0.000005	<0.000005	<0.000005
Benzo(k)fluoranthene (aq)	mg/l	<0.000005	-	0.000017	<0.000005	<0.000005	<0.000005	0.000028	0.000065	0.000184	0.000013	0.00001	0.000039	<0.000005	<0.000005	0.000006
Boron (diss.filt)	mg/l	<0.01	2	-	0.0629	0.0757	0.0787	0.058	0.0804	0.0972	0.0773	0.0925	0.0903	0.074	0.0785	0.0926
Chloride	mg/l	<2	250	-	81.1	95.6	95	56.9	82.7	90.3	72.1	74.8	73.1	82.4	94.6	94.8
Chromium (diss.filt)	mg/l	<0.001	0.0034	0.032	<0.001	<0.001	<0.001	0.00772	<0.001	0.00636	<0.001	0.00104	<0.001	<0.001	<0.001	<0.001
Copper (diss.filt)	mg/l	<0.0003	#0.027	-	0.00306	0.00256	0.00242	0.00591	0.00362	0.00311	0.00338	0.00315	0.00258	0.0028	0.00223	0.00207
Fluoranthene (aq)	mg/l	<0.000005	0.0000063	0.00012	0.000005	0.000006	0.000015	0.000056	0.000043	0.000466	0.000017	0.000018	0.000048	<0.000005	0.000005	0.000015
Indeno(1,2,3-cd)pyrene (aq)	mg/l	<0.000005	-	-	<0.000005	<0.000005	0.000006	0.000034	0.000028	0.00019	0.000015	<0.000005	0.000037	<0.000005	<0.000005	0.000006
Nickel (diss.filt)	mg/l	<0.0004	#0.020	0.034	0.00371	0.00296	0.00233	0.00317	0.00284	0.0026	0.00271	0.00268	0.00175	0.0032	0.00257	0.00208

Note:
All concentrations in mg/l
** denotes addition of Ammoniacal Nitrogen as N in place of Ammonia (unionised)
# denotes m-BAT adjusted AA-EQS
Blue shading denotes exceedance of AA-EQS or MAC-EQS (whichever is the lower)

Test 1 – concentrations above 10% of EQS

PAH compounds

The presence of PAH compounds (anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene and fluoranthene), are not considered to be representative of background groundwater conditions, as there is no credible source of these within the study area [9] and these compounds are highly recalcitrant and effectively immobile in groundwater systems. PAH compounds in surface waters are likely associated with direct inputs to surface water via run-off, upstream of the proposed discharge activity rather than groundwater baseflow. Accordingly, it is considered that these hazardous substances will be absent from abstracted water and hence, the proposed discharge. **It is considered that PAHs will be absent from, or at low levels below the EQS in the discharge.**

Other substances

With the exception of arsenic and boron, maximum concentrations of all remaining substances listed in Table 4 are in excess of 10% of the EQS.

Test 2 – process contribution above 4% of EQS

Assuming an Effluent Flow Rate (EFR) of 15 l/s and a background River Flow Rate (RFR) of approximately 5 l/s [3], it is calculated that all substances listed in Table 4 (with exception of PAHs which are excluded) will be in excess of 4% of the EQS.

Test 3 – predicted environmental concentrations

The assumption made is that the release concentration (RC) in the proposed discharge is equal to the background concentration (BC) in surface water. Therefore, the calculated process contribution (PC) and subsequently, the predicted environmental concentration (PEC), are all the same.

There will be no net impact to the Ordinary Watercourse; there will be no difference between the PEC and BC.

Total Suspended Solids

In order to mitigate the potential impact of any sediment load, picked up via surface water run-off within the Load Test Area, the combined discharge will be routed via a Settlement/ Attenuation Pond, discharging into the Ordinary Watercourse.

A limit of 120 mg/l total suspended solids is proposed at the point of discharge. This is based on reasonably achievable physical settlement methods (such as attenuation ponds and laminar plate settlement tanks) without the need for the addition of chemical flocculants.

Summary of risks

Surface Water - Ordinary Watercourse

The net flow impact on flow in the Ordinary Watercourse is likely to be slightly positive, due to the proposed discharge activity, which will include both rainfall incident to the lined drainage across the site and input of groundwater from the London Clay that may not otherwise form part of current baseflow to the receiving watercourse.

There will be no net impact on the quality of the Ordinary Watercourse as the discharged water quality will be representative of background water quality with no additions. Further, all abstracted groundwater from the Load Test Pit excavation will be subject to dilution with surface water run-off from the Surcharge Test, Soil Bund and Peripheral Areas. It is considered that this dilution will sufficiently mitigate any potential impacts to the quality of water discharged to the Ordinary Watercourse.

Whilst concentrations of PAHs have been recorded above their respective EQS in surface water, it is considered that these concentrations are likely to be associated with direct inputs to surface water via run-off rather than groundwater baseflow. It is considered that these substances will be absent from, or at low levels below EQS in abstracted groundwater and the subsequent discharge to the Ordinary Watercourse.

Surface Water – Weymarks River and Downstream Abstractions

Net flow impact to Weymarks River is considered to be marginally positive, due to the slight increase in flow to the Ordinary Watercourse at its confluence with Weymarks River at NGR TM 01645 08067. There will be no net impact on the quality of Weymarks River or any of the identified downstream surface water abstractions.

References

[1] E. Agency, “Risk assessments for your environmetnal permit,” [Online]. Available: https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit#risk-assessments-for-bespoke-permits. [Accessed 30 January 2020].

[2] Environment Agency, “Surface water pollution risk assessment for your environmental permit,” [Online]. Available: https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit#when-you-do-not-need-to-carry-out-screening-tests. [Accessed 29 January 2020].

[3] C. B. G. Ltd, “Bradwell B Marine Studies, Weymarks Stream Low Flows Report TR56,” 2019.

[4] W. PLC, “Bradwell B Ground Investigation Planning Support - Surface Water Sampling (Round 1),” 2020.

[5] W. PLC, “Bradwell B Ground Investigation Planning Support - Surface Water Sampling (Round 2),” 2020.

[6] Atkins, “Discharge Consent Application – Surface water pollution risk assessment,” 2020.

[7] W. PLC, “Bradwell B Ground Investigation Planning Support - Surface Water Sampling (Round 3),” 2020.

[8] W. PLC, “Bradwell B Ground Investigation Planning Support - Surface Water Sampling (Round 4),” 2020.

[9] A. F. W. E. &. I. Limited, “Bradwell B Preliminary Ground Investigation, Phase 1 Contaminated Land Study,” 2017.

Appendix A. – Chemical Analyses

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

Wood Environment & Infrastructure Solutions UK Limited
Northumbria House
Regent Centre
Gosforth
Newcastle Upon Tyne
Tyne and Wear
NE3 3PX

Attention: Sarah Pi kington

CERTIFICATE OF ANALYSIS

Date of report Generation:	06 January 2020
Customer:	Wood Environment & Infrastructure Solutions UK Limited
Sample Delivery Group (SDG):	191219-89
Your Reference:	41843
Location:	Bradwell
Report No:	536359

We received 3 samples on Thursday December 19, 2019 and 3 of these samples were scheduled for analysis which was completed on Monday January 06, 2020. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21407978	SW1			17/12/2019
21407979	SW2			17/12/2019
21407980	SW3			17/12/2019

Maximum Sample/Coolbox Temperature (°C) : **6.2**

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:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**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)										21407978							21407979				21407980
Customer Sample Reference										SW1							SW2				SW3
AGS Reference																					
Depth (m)																					
Container										0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass
Sample Type										SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 3									X								X								X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 3											X									X						
Anions by Kone (w)	All	NDPs: 0 Tests: 3									X								X								X	
Chromium III	All	NDPs: 0 Tests: 3												X									X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 3									X								X								X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3												X									X					
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 3	X															X								X		
Dissolved Oxygen by Titration	All	NDPs: 0 Tests: 3				X															X							X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X															X								X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X															X								X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 3								X							X								X			
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 3									X								X								X	
Low Level Cyanide (W)	All	NDPs: 0 Tests: 3							X							X									X			
Mercury Dissolved	All	NDPs: 0 Tests: 3												X									X					
Mercury Unfiltered	All	NDPs: 0 Tests: 3						X																X				

21407980	SW3			Vial (ALE297)	SW																					x									
				NaOH (ALE245)	SW																									x					
				HNO3 Unfiltered (ALE204)	SW																														x
				HNO3 Filtered (ALE204)	SW								x				x															x			
				H2SO4 (ALE244)	SW				x																										

Validated

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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)									21407978									21407979			21407980		
Customer Sample Reference									SW1									SW2			SW3		
AGS Reference																							
Depth (m)																							
Container									0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass
Sample Type									SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Nitrite by Kone (w)	All	NDPs: 0 Tests: 3													X								X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 3								X								X								X	
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 3								X								X								X	
pH Value	All	NDPs: 0 Tests: 3									X								X								X
Phosphate by Kone (w)	All	NDPs: 0 Tests: 3									X								X								X
Redox Potential	All	NDPs: 0 Tests: 3								X								X								X	
Suspended Solids	All	NDPs: 0 Tests: 3									X								X								X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 3								X								X								X	
Total Metals by ICP-MS	All	NDPs: 0 Tests: 5									X								X								X
Total Nitrogen	All	NDPs: 0 Tests: 3									X								X								X
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 3										X									X						
TPH CWG (W)	All	NDPs: 0 Tests: 3								X								X								X	
VOC MS (W)	All	NDPs: 0 Tests: 3														X								X			

21407980	SW3			Vial (ALE297)	SW																										x
				NaOH (ALE245)	SW		x																								
				HNO3 Unfiltered (ALE204)	SW																						x				
				HNO3 Filtered (ALE204)	SW																										
				H2SO4 (ALE244)	SW																											x				

Validated

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	17/12/2019	17/12/2019	17/12/2019			
			Sample Time	.	.	.			
			Date Received	19/12/2019	19/12/2019	19/12/2019			
			SDG Ref	191219-89	191219-89	191219-89			
			Lab Sample No.(s)	21407978	21407979	21407980			
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		10 5 #	6.9 #	30.1 #			
Alkalinity, Total as CaCO3	<2 mg/l	TM043		210 #	215 #	245 #			
Carbon, Organic (diss.filt)	<3 mg/l	TM090		12 3	12.6	11 9			
Organic Carbon, Total	<3 mg/l	TM090		11.6 #	13 #	13.8 #			
Ammoniacal Nitrogen as N	<0 2 mg/l	TM099		0 252 #	<0.2 #	0.426 #			
Ammoniacal Nitrogen as NH4	<0 3 mg/l	TM099		0 324 #	<0.3 #	0 548 #			
Redox potential	mV	TM110		162	171	164			
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.686 #	0 93 #	1.08 #			
Chromium, Trivalent	<0.03 mg/l	TM152		<0.03	<0.03	<0.03			
Arsenic (diss.filt)	<0.0005 mg/l	TM152		0.00175 #	0.00157 #	0.00144 #			
Arsenic (tot unfilt)	<0.002 mg/l	TM152		0.00214 #	<0.002 #	0.0116 #			
Boron (diss.filt)	<0.01 mg/l	TM152		0.058 #	0.0804 #	0.0972 #			
Boron (tot.unfilt)	<0.02 mg/l	TM152		0.0676 #	0.0933 #	0.154 #			
Cadmium (diss. ilt)	<0.00008 mg/l	TM152		<0.00008 #	<0.00008 #	<0.00008 #			
Cadmium (tot.unfilt)	<0.0005 mg/l	TM152		<0.0005 #	<0.0005 #	<0.0005 #			
Chromium (tot.unfilt)	<0.003 mg/l	TM152		0.00789 #	<0.003 #	0.0296 #			
Chromium (diss. ilt)	<0.001 mg/l	TM152		0.00772 #	<0.001 #	0.00636 #			
Copper (tot.unfilt)	<0.001 mg/l	TM152		0.0073 #	0.00556 #	0.0269 #			
Lead (tot.unfilt)	<0.001 mg/l	TM152		<0.001 #	0.00125 #	0.0213 #			
Copper (diss.filt)	<0.0003 mg/l	TM152		0.00591 #	0.00362 #	0.00311 #			
Manganese (tot un ilt)	<0.001 mg/l	TM152		0.0281 #	0.0443 #	0 214 #			
Lead (diss.filt)	<0.0002 mg/l	TM152		<0.0002 #	<0.0002 #	<0.0002 #			
Nickel (tot.unfilt)	<0.001 mg/l	TM152		0.00408 #	0.00435 #	0.0212 #			
Manganese (diss.filt)	<0.003 mg/l	TM152		0.00766 #	0.0214 #	0.0479 #			
Phosphorus (tot.unfilt)	<0.02 mg/l	TM152		0.819 #	0.504 #	1.82 #			
Selenium (tot un ilt)	<0.001 mg/l	TM152		0.00186 #	0.00148 #	0.00301 #			
Nickel (diss.filt)	<0.0004 mg/l	TM152		0.00317 #	0.00284 #	0.0026 #			
Phosphorus (diss.filt)	<0.01 mg/l	TM152		0.678 #	0.434 #	0.198 #			
Selenium (diss.filt)	<0.001 mg/l	TM152		0.00184 #	0.00157 #	0.00178 #			
Zinc (tot.unfilt)	<0.005 mg/l	TM152		0.0142 #	0.00879 #	0 528 #			
Zinc (diss.filt)	<0.001 mg/l	TM152		0.00393 #	0.00351 #	0.00199 #			
Sodium (Dis.Filt)	<0.076 mg/l	TM152		30.6 #	46.3 #	53 2 #			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		14 2 #	20.9 #	26.4 #			

12:53:01 06/01/2020

Validated

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Results Legend	
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**	% 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
1-3+[@]	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	17/12/2019	17/12/2019	17/12/2019			
			Sample Time	.	.	.			
			Date Received	19/12/2019	19/12/2019	19/12/2019			
			SDG Ref	191219-89	191219-89	191219-89			
			Lab Sample No.(s)	21407978	21407979	21407980			
			AGS Reference						
Potassium (Dis.Filt)	<0 2 mg/l	TM152		25.6 #	17.3 #	11.8 #			
Calcium (Dis.Filt)	<0 2 mg/l	TM152		111 #	147 #	189 #			
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0413 #	0.0239 #	0.0302 #			
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152		15 #	21.9 #	30.7 #			
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152		0.38 #	0.468 #	19.7 #			
Mercury (diss.filt)	<0.00001 mg/l	TM183		<0.00001	<0.00001	<0.00001			
Mercury (tot.unfilt)	<0.00002 mg/l	TM183		<0.00002	<0.00002	0.000036			
Nitrite as NO2	<0.05 mg/l	TM184		0 272 #	0.335 #	0 309 #			
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		2.09 #	1 26 #	0.27 #			
Sulphate	<2 mg/l	TM184		87 9 #	165 #	255 #			
Chloride	<2 mg/l	TM184		56 9 #	82.7 #	90 3 #			
Total Oxidised Nitrogen as NO3	<0 3 mg/l	TM184		73.4 #	114 #	153 #			
Nitrate as NO3	<0 3 mg/l	TM184		73.1	114	153			
Oxygen, dissolved	<0 3 mg/l	TM187		6.22 @	7.19 @	7.47 @			
PCB congener 28	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 52	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 101	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 118	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 138	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 153	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 180	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
Sum of detected EC7 PCB's	<0.000105 mg/l	TM197		<0.000105	<0.000105	<0.000105			
PCB congener 77	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 81	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 105	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 114	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 123	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 126	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 156	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 157	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 167	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 169	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			

Validated

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	17/12/2019	17/12/2019	17/12/2019			
			Sample Time	.	.	.			
			Date Received	19/12/2019	19/12/2019	19/12/2019			
			SDG Ref	191219-89	191219-89	191219-89			
			Lab Sample No.(s)	21407978	21407979	21407980			
			AGS Reference						
PCB congener 189	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
Nitrogen, Total	<1 mg/l	TM212		19 5 #	27.1 #	37.1 #			
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03			
pH	<1 pH Units	TM256		7.98 #	7 99 #	7.74 #			
Cyanide, Free (low level)	<0.0025 mg/l	TM279		<0.0025 #	<0.0025 #	<0.0025 #			

Validated

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

PAH Spec MS - Aqueous (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	17/12/2019	17/12/2019	17/12/2019			
			Sample Time	.	.	.			
			Date Received	19/12/2019	19/12/2019	19/12/2019			
			SDG Ref	191219-89	191219-89	191219-89			
			Lab Sample No.(s)	21407978	21407979	21407980			
			AGS Reference						
Naphthalene (aq)	<0.00001 mg/l	TM178		<0.00001 @#	<0.00001 @#	<0.00001 @#			
Acenaphthene (aq)	<0.000005 mg/l	TM178		<0.000005 @#	<0.000005 @#	0.000009 @#			
Acenaphthylene (aq)	<0.000005 mg/l	TM178		<0.000005 @#	<0.000005 @#	<0.000005 @#			
Fluoranthene (aq)	<0.000005 mg/l	TM178		0.000056 @#	0.000043 @#	0.000466 @#			
Anthracene (aq)	<0.000005 mg/l	TM178		0.000006 @#	<0.000005 @#	0.000017 @#			
Phenanthrene (aq)	<0.000005 mg/l	TM178		0.000014 @#	<0.000005 @#	0.000123 @#			
Fluorene (aq)	<0.000005 mg/l	TM178		<0.000005 @#	<0.000005 @#	0.000006 @#			
Chrysene (aq)	<0.000005 mg/l	TM178		0.000033 @#	0.000023 @#	0.000201 @#			
Pyrene (aq)	<0.000005 mg/l	TM178		0.000052 @#	0.000039 @#	0.000404 @#			
Benzo(a)anthracene (aq)	<0.000005 mg/l	TM178		0.000012 @#	0.000006 @#	0.000145 @#			
Benzo(b)fluoranthene (aq)	<0.000005 mg/l	TM178		0.000067 @#	0.000071 @#	0.000383 @#			
Benzo(k)fluoranthene (aq)	<0.000005 mg/l	TM178		0.000028 @#	0.000065 @#	0.000184 @#			
Benzo(a)pyrene (aq)	<0.000002 mg/l	TM178		0.000044 @#	0.000034 @#	0.00026 @#			
Dibenzo(a,h)anthracene (aq)	<0.000005 mg/l	TM178		0.00001 @#	<0.000005 @#	0.000042 @#			
Benzo(g,h,i)perylene (aq)	<0.000005 mg/l	TM178		0.000031 @#	0.000022 @#	0.000212 @#			
Indeno(1,2,3-cd)pyrene (aq)	<0.000005 mg/l	TM178		0.000034 @#	0.000028 @#	0.00019 @#			
PAH, Total Detected USEPA 16 (aq)	<0.000082 mg/l	TM178		0.000388 @#	0.000331 @#	0.00264 @#			

Validated

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	17/12/2019	17/12/2019	17/12/2019			
			Sample Time	.	.	.			
			Date Received	19/12/2019	19/12/2019	19/12/2019			
			SDG Ref	191219-89	191219-89	191219-89			
			Lab Sample No.(s)	21407978	21407979	21407980			
			AGS Reference						
1,2,4-Trichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
1,2-Dichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
1,3-Dichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
1,4-Dichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2,4,5-Trichlorophenol (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2,4,6-Trichlorophenol (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2,4-Dichlorophenol (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2,4-Dimethylphenol (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2,4-Dinitrotoluene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2,6-Dinitrotoluene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2-Chloronaphthalene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2-Chlorophenol (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2-Methylnaphthalene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2-Methylphenol (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2-Nitroaniline (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
2-Nitrophenol (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
3-Nitroaniline (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
4-Bromophenylphenylether (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
4-Chloro-3-methylphenol (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
4-Chloroaniline (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.002			
4-Chlorophenylphenylether (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
4-Methylphenol (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
4-Nitroaniline (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
4-Nitrophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.002			
Azobenzene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Acenaphthylene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Acenaphthene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Anthracene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
bis(2-Chloroethyl)ether (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
bis(2-Chloroethoxy)methane (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
bis(2-Ethylhexyl) phthalate (aq)	<0.002 mg/l	TM176		<0.002 @#	<0.002 @#	<0.004 @#			
Butylbenzyl phthalate (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Benzo(a)anthracene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			

Validated

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+[@]	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	17/12/2019	17/12/2019	17/12/2019			
			Sample Time	.	.	.			
			Date Received	19/12/2019	19/12/2019	19/12/2019			
			SDG Ref	191219-89	191219-89	191219-89			
			Lab Sample No.(s)	21407978	21407979	21407980			
			AGS Reference						
Benzo(b)fluoranthene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Benzo(k)fluoranthene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Benzo(a)pyrene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Benzo(g,h,i)perylene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Carbazole (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Chrysene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Dibenzofuran (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
n-Dibutyl phthalate (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Diethyl phthalate (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Dibenzo(a,h)anthracene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Dimethyl phthalate (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
n-Dioctyl phthalate (aq)	<0.005 mg/l	TM176		<0.005 @#	<0.005 @#	<0.01 @#			
Fluoranthene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Fluorene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Hexachlorobenzene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Hexachlorobutadiene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Pentachlorophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.002			
Phenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.002			
n-Nitroso-n-dipropylamine (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Hexachloroethane (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Nitrobenzene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Naphthalene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Isophorone (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Hexachlorocyclopentadiene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.002			
Phenanthrene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Indeno(1,2,3-cd)pyrene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			
Pyrene (aq)	<0.001 mg/l	TM176		<0.001 @#	<0.001 @#	<0.002 @#			

Validated

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	17/12/2019	17/12/2019	17/12/2019			
			Sample Time	.	.	.			
			Date Received	19/12/2019	19/12/2019	19/12/2019			
			SDG Ref	191219-89	191219-89	191219-89			
			Lab Sample No.(s)	21407978	21407979	21407980			
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		110	106	109			
GRO >C5-C12	<0.05 mg/l	TM245		<0.05 #	<0.05 #	<0.05 #			
Methyl tertiary butyl ether (MTBE)	<0.003 mg/l	TM245		<0.003 #	<0.003 #	<0.003 #			
Benzene	<0.007 mg/l	TM245		<0.007 #	<0.007 #	<0.007 #			
Toluene	<0.004 mg/l	TM245		<0.004 #	<0.004 #	<0.004 #			
Ethylbenzene	<0.005 mg/l	TM245		<0.005 #	<0.005 #	<0.005 #			
m,p-Xylene	<0.008 mg/l	TM245		<0.008 #	<0.008 #	<0.008 #			
o-Xylene	<0.003 mg/l	TM245		<0.003 #	<0.003 #	<0.003 #			
Sum of detected Xylenes	<0.011 mg/l	TM245		<0.011	<0.011	<0.011			
Sum of detected BTEX	<0.028 mg/l	TM245		<0.028	<0.028	<0.028			
Aliphatics >C5-C6	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C6-C8	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C8-C10	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C10-C12	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C12-C16 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C16-C21 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C21-C35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aliphatics >C12-C35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC5-EC7	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC7-EC8	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC8-EC10	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC10-EC12	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC12-EC16 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC16-EC21 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC21-EC35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aromatics >EC12-EC35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aliphatics & Aromatics >C5-35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C16-C35 Aqueous	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			

Validated

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			SW1	.	Surface Water (SW)	17/12/2019	.	19/12/2019	191219-89	21407978	
			SW2	.	Surface Water (SW)	17/12/2019	.	19/12/2019	191219-89	21407979	
			SW3	.	Surface Water (SW)	17/12/2019	.	19/12/2019	191219-89	21407980	
Dibromofluoromethane**	%	TM208	108								
			113								
			108								
Toluene-d8**	%	TM208	99 9								
			101								
			100								
4-Bromofluorobenzene**	%	TM208	101								
			102								
			100								
Dichlorodifluoromethane	<0.001 mg/l	TM208	<0.001								
			<0.001								
			<0.001								
Chloromethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Vinyl chloride	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Bromomethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Chloroethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Trichlorofluoromethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
1,1-Dichloroethene	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Carbon disulphide	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Dichloromethane	<0.003 mg/l	TM208	<0.003 #								
			<0.003 #								
			<0.003 #								
Methyl tertiary butyl ether (MTBE)	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
trans-1,2-Dichloroethene	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
1,1-Dichloroethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
cis-1,2-Dichloroethene	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
2,2-Dichloropropane	<0.001 mg/l	TM208	<0.001								
			<0.001								
			<0.001								
Bromochloromethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Chloroform	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
1,1,1-Trichloroethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
1,1-Dichloropropene	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Carbontetrachloride	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
1,2-Dichloroethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Benzene	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Trichloroethene	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
1,2-Dichloropropane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Dibromomethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Bromodichloromethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
cis-1,3-Dichloropropene	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
Toluene	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
trans-1,3-Dichloropropene	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
1,1,2-Trichloroethane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								
1,3-Dichloropropane	<0.001 mg/l	TM208	<0.001 #								
			<0.001 #								
			<0.001 #								

12:53:01 06/01/2020

Validated

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	17/12/2019	17/12/2019	17/12/2019			
			Sample Time	.	.	.			
			Date Received	19/12/2019	19/12/2019	19/12/2019			
			SDG Ref	191219-89	191219-89	191219-89			
			Lab Sample No.(s)	21407978	21407979	21407980			
			AGS Reference						
Tetrachloroethene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Dibromochloromethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2-Dibromoethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Chlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,1,1,2-Tetrachloroethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Ethylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
m,p-Xylene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
o-Xylene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Styrene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Bromoform	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Isopropylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,1,2,2-Tetrachloroethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2,3-Trichloropropane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Bromobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Propylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
2-Chlorotoluene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,3,5-Trimethylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
4-Chlorotoluene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
tert-Butylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2,4-Trimethylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
sec-Butylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
4-iso-Propyltoluene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,3-Dichlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,4-Dichlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
n-Butylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2-Dichlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2-Dibromo-3-chloropropane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2,4-Trichlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Hexachlorobutadiene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
tert-Amyl methyl ether (TAME)	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Naphthalene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2,3-Trichlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			

Validated

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	17/12/2019	17/12/2019	17/12/2019			
			Sample Time	.	.	.			
			Date Received	19/12/2019	19/12/2019	19/12/2019			
			SDG Ref	191219-89	191219-89	191219-89			
			Lab Sample No.(s)	21407978	21407979	21407980			
			AGS Reference						
1,3,5-Trichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
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
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM110	BS 1377: Part 3 1990	Redox Potential
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
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
TM187	Winkler, L.W, Ber Deutsch. Chem. Ges, 21,2843,1888."	Dissolved Oxygen in Natural and Waste Waters HMSO 1979 ISBN 011 751442
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
TM212	SO/TR 11905-2: 1997. Water quality – Determination of nitrogen –Part 2:Determination of bound nitrogen, after combustion and oxidation to nitrogen dioxide, chemiluminescence detection.	Determination of Total Nitrogen by High Temperature Catalytic Oxidation followed by Chemiluminescence Detection
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	By GC-F D	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
TM279		Determination of Low Level Easily Liberatable (Free) Cyanides and Total Cyanides in Waters using the Skalar SANS+ System Segmented Flow Analyser

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).

CERTIFICATE OF ANALYSIS

SDG:	191219-89	**Client Reference:**	41843	**Report Number:**	536359
Location:	Bradwell	**Order Number:**	322478	**Superseded Report**	

Test Completion Dates

Lab Sample No(s)	21407978	21407979	21407980
Customer Sample Ref.	SW1	SW2	SW3
AGS Ref.			
Depth			
Type	Surface Water	Surface Water	Surface Water
Alkalinity as CaCO3	31-Dec-2019	31-Dec-2019	31-Dec-2019
Ammoniacal Nitrogen	28-Dec-2019	28-Dec-2019	28-Dec-2019
Anions by Kone (w)	31-Dec-2019	31-Dec-2019	31-Dec-2019
Chromium III	30-Dec-2019	30-Dec-2019	30-Dec-2019
Conductivity (at 20 deg.C)	30-Dec-2019	30-Dec-2019	30-Dec-2019
Dissolved Metals by ICP-MS	30-Dec-2019	30-Dec-2019	30-Dec-2019
Dissolved Organic/Inorganic Carbon	28-Dec-2019	28-Dec-2019	28-Dec-2019
Dissolved Oxygen by Titration	30-Dec-2019	30-Dec-2019	30-Dec-2019
EPH CWG (Aliphatic) Aqueous GC (W)	04-Jan-2020	04-Jan-2020	04-Jan-2020
EPH CWG (Aromatic) Aqueous GC (W)	04-Jan-2020	04-Jan-2020	04-Jan-2020
GRO by GC-FID (W)	30-Dec-2019	30-Dec-2019	30-Dec-2019
Hexavalent Chromium (w)	24-Dec-2019	24-Dec-2019	24-Dec-2019
Low Level Cyanide (W)	23-Dec-2019	23-Dec-2019	23-Dec-2019
Mercury Dissolved	31-Dec-2019	31-Dec-2019	31-Dec-2019
Mercury Unfiltered	28-Dec-2019	30-Dec-2019	30-Dec-2019
Nitrite by Kone (w)	23-Dec-2019	23-Dec-2019	23-Dec-2019
PAH Spec MS - Aqueous (W)	03-Jan-2020	03-Jan-2020	03-Jan-2020
PCB Congeners - Aqueous (W)	03-Jan-2020	03-Jan-2020	03-Jan-2020
pH Value	30-Dec-2019	30-Dec-2019	30-Dec-2019
Phosphate by Kone (w)	24-Dec-2019	24-Dec-2019	24-Dec-2019
Redox Potential	23-Dec-2019	23-Dec-2019	23-Dec-2019
Suspended Solids	30-Dec-2019	30-Dec-2019	30-Dec-2019
SVOC MS (W) - Aqueous	03-Jan-2020	03-Jan-2020	03-Jan-2020
Total Metals by ICP-MS	03-Jan-2020	04-Jan-2020	06-Jan-2020
Total Nitrogen	23-Dec-2019	23-Dec-2019	23-Dec-2019
Total Organic and Inorganic Carbon	27-Dec-2019	27-Dec-2019	27-Dec-2019
TPH CWG (W)	04-Jan-2020	04-Jan-2020	04-Jan-2020
VOC MS (W)	30-Dec-2019	30-Dec-2019	30-Dec-2019

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. 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.

3. 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.

4. 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.

5. 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.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **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%. 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.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. 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.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. 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.

15. 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. t 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.

16. 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.

17. **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.

18. **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**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

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

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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

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

Wood Environment & Infrastructure Solutions UK Limited
Northumbria House
Regent Centre
Gosforth
Newcastle Upon Tyne
Tyne and Wear
NE3 3PX

Attention: Sarah Pilkington

CERTIFICATE OF ANALYSIS

Date of report Generation:	18 January 2020
Customer:	Wood Environment & Infrastructure Solutions UK Limited
Sample Delivery Group (SDG):	200110-7
Your Reference:	41843
Location:	Bradwell
Report No:	537694

This report has been revised and directly supersedes 537575 in its entirety.

We received 5 samples on Friday January 10, 2020 and 3 of these samples were scheduled for analysis which was completed on Friday January 17, 2020. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.

Approved By:

Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21467099	SW1			08/01/2020
21467101	SW2			08/01/2020
21467100	SW3			08/01/2020
21467102	SW2 DISREGARD			08/01/2020
21467104	SW3 DISREGARD			08/01/2020

Maximum Sample/Coolbox Temperature (°C) : **7.8**

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:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

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)									21467099								21467101			21467100
Customer Sample Reference									SW1								SW2			SW3
AGS Reference																				
Depth (m)																				
Container			0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass
Sample Type			SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 3		X								X								X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 3				X								X							
Anions by Kone (w)	All	NDPs: 0 Tests: 3		X								X								X	
Chromium III	All	NDPs: 0 Tests: 3					X								X						
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 3		X								X								X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3					X								X						
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 3	X								X								X		
Dissolved Oxygen by Titration	All	NDPs: 0 Tests: 3			X								X								X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X								X								X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X								X								X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 3								X								X			
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 3		X								X								X	
Low Level Cyanide (W)	All	NDPs: 0 Tests: 3							X								X				
Mercury Dissolved	All	NDPs: 0 Tests: 3					X								X						
Mercury Unfiltered	All	NDPs: 0 Tests: 3						X								X					

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21467100	SW3			Vial (ALE297)	SW																					X									
				NaOH (ALE245)	SW																									X					
				HNO3 Unfiltered (ALE204)	SW																														X
				HNO3 Filtered (ALE204)	SW								X				X																X		
				H2SO4 (ALE244)	SW				X																										

Validated

CERTIFICATE OF ANALYSIS

SDG:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

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)										21467099							21467101				21467100	
Customer Sample Reference										SW1							SW2				SW3	
AGS Reference																						
Depth (m)																						
Container										0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass
Sample Type										SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Nitrite by Kone (w)	All	NDPs: 0 Tests: 3														X									X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 3								X								X								X			
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 3								X								X								X			
pH Value	All	NDPs: 0 Tests: 3									X								X								X		
Phosphate by Kone (w)	All	NDPs: 0 Tests: 3									X								X								X		
Redox Potential	All	NDPs: 0 Tests: 3								X								X								X			
Suspended Solids	All	NDPs: 0 Tests: 3									X								X								X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 3								X								X								X			
Total Metals by ICP-MS	All	NDPs: 0 Tests: 3													X									X					
Total Nitrogen	All	NDPs: 0 Tests: 3									X								X								X		
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 3					X															X							
TPH CWG (W)	All	NDPs: 0 Tests: 3								X								X								X			
VOC MS (W)	All	NDPs: 0 Tests: 3															X								X				

21467100	SW3			Vial (ALE297)	SW																										X
				NaOH (ALE245)	SW		X																								
				HNO3 Unfiltered (ALE204)	SW																		X								
				HNO3 Filtered (ALE204)	SW																										
				H2SO4 (ALE244)	SW																						X				

CERTIFICATE OF ANALYSIS

SDG:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			SW1	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467099	
			SW2	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467101	
			SW3	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467100	
Suspended solids, Total	<2 mg/l	TM022	6.95								
Alkalinity, Total as CaCO3	<2 mg/l	TM043	270								
Carbon, Organic (diss.filt)	<3 mg/l	TM090	9.78								
Organic Carbon, Total	<3 mg/l	TM090	8.97								
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2								
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099	<0.3								
Redox potential	mV	TM110	163								
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	1.04								
Chromium, Trivalent	<0.03 mg/l	TM152	<0.03								
Arsenic (diss.filt)	<0.0005 mg/l	TM152	0.00132								
Arsenic (tot.unfilt)	<0.002 mg/l	TM152	<0.002								
Boron (diss.filt)	<0.01 mg/l	TM152	0.0629								
Boron (tot.unfilt)	<0.02 mg/l	TM152	0.0782								
Cadmium (diss.filt)	<0.00008 mg/l	TM152	<0.00008								
Cadmium (tot.unfilt)	<0.0005 mg/l	TM152	<0.0005								
Chromium (tot.unfilt)	<0.003 mg/l	TM152	0.0297								
Chromium (diss.filt)	<0.001 mg/l	TM152	<0.001								
Copper (tot.unfilt)	<0.001 mg/l	TM152	0.00382								
Lead (tot.unfilt)	<0.001 mg/l	TM152	<0.001								
Copper (diss.filt)	<0.0003 mg/l	TM152	0.00306								
Manganese (tot.unfilt)	<0.001 mg/l	TM152	0.00715								
Lead (diss.filt)	<0.0002 mg/l	TM152	<0.0002								
Nickel (tot.unfilt)	<0.001 mg/l	TM152	0.0141								
Manganese (diss.filt)	<0.003 mg/l	TM152	<0.003								
Phosphorus (tot.unfilt)	<0.02 mg/l	TM152	0.229								
Selenium (tot.unfilt)	<0.001 mg/l	TM152	0.00176								
Nickel (diss.filt)	<0.0004 mg/l	TM152	0.00371								
Phosphorus (diss.filt)	<0.01 mg/l	TM152	0.203								
Selenium (diss.filt)	<0.001 mg/l	TM152	0.00206								
Zinc (tot.unfilt)	<0.005 mg/l	TM152	0.00513								
Zinc (diss.filt)	<0.001 mg/l	TM152	0.00126								
Sodium (Dis.Filt)	<0.076 mg/l	TM152	40.3								
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	21.5								

CERTIFICATE OF ANALYSIS

SDG:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	08/01/2020	08/01/2020	08/01/2020			
			Sample Time	.	.	.			
			Date Received	10/01/2020	10/01/2020	10/01/2020			
			SDG Ref	200110-7	200110-7	200110-7			
			Lab Sample No.(s)	21467099	21467101	21467100			
			AGS Reference						
Potassium (Dis.Filt)	<0.2 mg/l	TM152		22	14.5	9.76			
Calcium (Dis.Filt)	<0.2 mg/l	TM152		171	175	178			
Iron (Dis.Filt)	<0.019 mg/l	TM152		<0.019	<0.019	<0.019			
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152		22.6	24.7	25.6			
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152		0.195	0.284	0.273			
Mercury (diss.filt)	<0.00001 mg/l	TM183		<0.00001	<0.00001	<0.00001			
Mercury (tot.unfilt)	<0.00002 mg/l	TM183		<0.00002	<0.00002	<0.00002			
Nitrite as NO2	<0.05 mg/l	TM184		0.213	1	0.716			
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		0.631	1.09	0.797			
Sulphate	<2 mg/l	TM184		114	157	180			
Chloride	<2 mg/l	TM184		81.1	95.6	95			
Total Oxidised Nitrogen as NO3	<0.3 mg/l	TM184		171	147	141			
Nitrate as NO3	<0.3 mg/l	TM184		170	145	140			
Oxygen, dissolved	<0.3 mg/l	TM187		6.9	5.62	5.69			
PCB congener 28	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 52	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 101	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 118	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 138	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 153	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 180	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
Sum of detected EC7 PCB's	<0.000105 mg/l	TM197		<0.000105	<0.000105	<0.000105			
PCB congener 77	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 81	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 105	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 114	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 123	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 126	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 156	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 157	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 167	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 169	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 189	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	08/01/2020	08/01/2020	08/01/2020			
			Sample Time	.	.	.			
			Date Received	10/01/2020	10/01/2020	10/01/2020			
			SDG Ref	200110-7	200110-7	200110-7			
			Lab Sample No.(s)	21467099	21467101	21467100			
			AGS Reference						
Nitrogen, Total	<1 mg/l	TM212		37.1	34.2	30.9			
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03			
pH	<1 pH Units	TM256		7.74	7.69	7.71			
Cyanide, Free (low level)	<0.0025 mg/l	TM279		<0.0025	<0.0025	<0.0025			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

PAH Spec MS - Aqueous (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			SW1	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467099	
			SW2	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467101	
			SW3	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467100	
Naphthalene (aq)	<0.00001 mg/l	TM178	<0.00001								
Acenaphthene (aq)	<0.000005 mg/l	TM178	<0.000005								
Acenaphthylene (aq)	<0.000005 mg/l	TM178	<0.000005								
Fluoranthene (aq)	<0.000005 mg/l	TM178	0.000005								
Anthracene (aq)	<0.000005 mg/l	TM178	<0.000005								
Phenanthrene (aq)	<0.000005 mg/l	TM178	<0.000005								
Fluorene (aq)	<0.000005 mg/l	TM178	<0.000005								
Chrysene (aq)	<0.000005 mg/l	TM178	<0.000005								
Pyrene (aq)	<0.000005 mg/l	TM178	<0.000005								
Benzo(a)anthracene (aq)	<0.000005 mg/l	TM178	<0.000005								
Benzo(b)fluoranthene (aq)	<0.000005 mg/l	TM178	<0.000005								
Benzo(k)fluoranthene (aq)	<0.000005 mg/l	TM178	<0.000005								
Benzo(a)pyrene (aq)	<0.000002 mg/l	TM178	<0.000002								
Dibenzo(a,h)anthracene (aq)	<0.000005 mg/l	TM178	<0.000005								
Benzo(g,h,i)perylene (aq)	<0.000005 mg/l	TM178	<0.000005								
Indeno(1,2,3-cd)pyrene (aq)	<0.000005 mg/l	TM178	<0.000005								
PAH, Total Detected USEPA 16 (aq)	<0.000082 mg/l	TM178	<0.000082								

Validated

CERTIFICATE OF ANALYSIS

SDG: 200110-7 | Client Reference: 41843 | Report Number: 537694
Location: Bradwell | Order Number: 322478 | Superseded Report: 537575

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			SW1	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467099	
			SW2	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467101	
			SW3	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467100	
1,2,4-Trichlorobenzene (aq)	<0.001 mg/l	TM176	<0.001								
1,2-Dichlorobenzene (aq)	<0.001 mg/l	TM176	<0.001								
1,3-Dichlorobenzene (aq)	<0.001 mg/l	TM176	<0.001								
1,4-Dichlorobenzene (aq)	<0.001 mg/l	TM176	<0.001								
2,4,5-Trichlorophenol (aq)	<0.001 mg/l	TM176	<0.001								
2,4,6-Trichlorophenol (aq)	<0.001 mg/l	TM176	<0.001								
2,4-Dichlorophenol (aq)	<0.001 mg/l	TM176	<0.001								
2,4-Dimethylphenol (aq)	<0.001 mg/l	TM176	<0.001								
2,4-Dinitrotoluene (aq)	<0.001 mg/l	TM176	<0.001								
2,6-Dinitrotoluene (aq)	<0.001 mg/l	TM176	<0.001								
2-Chloronaphthalene (aq)	<0.001 mg/l	TM176	<0.001								
2-Chlorophenol (aq)	<0.001 mg/l	TM176	<0.001								
2-Methylnaphthalene (aq)	<0.001 mg/l	TM176	<0.001								
2-Methylphenol (aq)	<0.001 mg/l	TM176	<0.001								
2-Nitroaniline (aq)	<0.001 mg/l	TM176	<0.001								
2-Nitrophenol (aq)	<0.001 mg/l	TM176	<0.001								
3-Nitroaniline (aq)	<0.001 mg/l	TM176	<0.001								
4-Bromophenylphenylether (aq)	<0.001 mg/l	TM176	<0.001								
4-Chloro-3-methylphenol (aq)	<0.001 mg/l	TM176	<0.001								
4-Chloroaniline (aq)	<0.001 mg/l	TM176	<0.001								
4-Chlorophenylphenylether (aq)	<0.001 mg/l	TM176	<0.001								
4-Methylphenol (aq)	<0.001 mg/l	TM176	<0.001								
4-Nitroaniline (aq)	<0.001 mg/l	TM176	<0.001								
4-Nitrophenol (aq)	<0.001 mg/l	TM176	<0.001								
Azobenzene (aq)	<0.001 mg/l	TM176	<0.001								
Acenaphthylene (aq)	<0.001 mg/l	TM176	<0.001								
Acenaphthene (aq)	<0.001 mg/l	TM176	<0.001								
Anthracene (aq)	<0.001 mg/l	TM176	<0.001								
bis(2-Chloroethyl)ether (aq)	<0.001 mg/l	TM176	<0.001								
bis(2-Chloroethoxy)methane (aq)	<0.001 mg/l	TM176	<0.001								
bis(2-Ethylhexyl) phthalate (aq)	<0.002 mg/l	TM176	<0.002								
Butylbenzyl phthalate (aq)	<0.001 mg/l	TM176	<0.001								
Benzo(a)anthracene (aq)	<0.001 mg/l	TM176	<0.001								

Validated

CERTIFICATE OF ANALYSIS

SDG:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	08/01/2020	08/01/2020	08/01/2020			
			Sample Time	.	.	.			
			Date Received	10/01/2020	10/01/2020	10/01/2020			
			SDG Ref	200110-7	200110-7	200110-7			
			Lab Sample No.(s)	21467099	21467101	21467100			
			AGS Reference						
Benzo(b)fluoranthene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Benzo(k)fluoranthene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Benzo(a)pyrene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Benzo(g,h,i)perylene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Carbazole (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Chrysene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Dibenzofuran (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
n-Dibutyl phthalate (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Diethyl phthalate (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Dibenzo(a,h)anthracene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Dimethyl phthalate (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
n-Dioctyl phthalate (aq)	<0.005 mg/l	TM176		<0.005	<0.005	<0.005			
Fluoranthene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Fluorene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Hexachlorobenzene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Hexachlorobutadiene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Pentachlorophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Phenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
n-Nitroso-n-dipropylamine (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Hexachloroethane (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Nitrobenzene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Naphthalene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Isophorone (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Hexachlorocyclopentadiene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Phenanthrene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Indeno(1,2,3-cd)pyrene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Pyrene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	08/01/2020	08/01/2020	08/01/2020			
			Sample Time	.	.	.			
			Date Received	10/01/2020	10/01/2020	10/01/2020			
			SDG Ref	200110-7	200110-7	200110-7			
			Lab Sample No.(s)	21467099	21467101	21467100			
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		95	98	92			
GRO >C5-C12	<0.05 mg/l	TM245		<0.05	<0.05	<0.05			
Methyl tertiary butyl ether (MTBE)	<0.003 mg/l	TM245		<0.003	<0.003	<0.003			
Benzene	<0.007 mg/l	TM245		<0.007	<0.007	<0.007			
Toluene	<0.004 mg/l	TM245		<0.004	<0.004	<0.004			
Ethylbenzene	<0.005 mg/l	TM245		<0.005	<0.005	<0.005			
m,p-Xylene	<0.008 mg/l	TM245		<0.008	<0.008	<0.008			
o-Xylene	<0.003 mg/l	TM245		<0.003	<0.003	<0.003			
Sum of detected Xylenes	<0.011 mg/l	TM245		<0.011	<0.011	<0.011			
Sum of detected BTEX	<0.028 mg/l	TM245		<0.028	<0.028	<0.028			
Aliphatics >C5-C6	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C6-C8	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C8-C10	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C10-C12	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C12-C16 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C16-C21 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C21-C35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aliphatics >C12-C35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC5-EC7	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC7-EC8	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC8-EC10	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC10-EC12	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC12-EC16 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC16-EC21 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC21-EC35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aromatics >EC12-EC35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aliphatics & Aromatics >C5-35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C16-C35 Aqueous	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			

Validated

CERTIFICATE OF ANALYSIS

SDG: 200110-7 | Client Reference: 41843 | Report Number: 537694
Location: Bradwell | Order Number: 322478 | Superseded Report: 537575

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			SW1	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467099	
			SW2	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467101	
			SW3	.	Surface Water (SW)	08/01/2020	.	10/01/2020	200110-7	21467100	
Dibromofluoromethane**	%	TM208	111								
Toluene-d8**	%	TM208	98.4								
4-Bromofluorobenzene**	%	TM208	100								
Dichlorodifluoromethane	<0.001 mg/l	TM208	<0.001								
Chloromethane	<0.001 mg/l	TM208	<0.001								
Vinyl chloride	<0.001 mg/l	TM208	<0.001								
Bromomethane	<0.001 mg/l	TM208	<0.001								
Chloroethane	<0.001 mg/l	TM208	<0.001								
Trichlorofluoromethane	<0.001 mg/l	TM208	<0.001								
1,1-Dichloroethene	<0.001 mg/l	TM208	<0.001								
Carbon disulphide	<0.001 mg/l	TM208	<0.001								
Dichloromethane	<0.003 mg/l	TM208	<0.003								
Methyl tertiary butyl ether (MTBE)	<0.001 mg/l	TM208	<0.001								
trans-1,2-Dichloroethene	<0.001 mg/l	TM208	<0.001								
1,1-Dichloroethane	<0.001 mg/l	TM208	<0.001								
cis-1,2-Dichloroethene	<0.001 mg/l	TM208	<0.001								
2,2-Dichloropropane	<0.001 mg/l	TM208	<0.001								
Bromochloromethane	<0.001 mg/l	TM208	<0.001								
Chloroform	<0.001 mg/l	TM208	<0.001								
1,1,1-Trichloroethane	<0.001 mg/l	TM208	<0.001								
1,1-Dichloropropene	<0.001 mg/l	TM208	<0.001								
Carbontetrachloride	<0.001 mg/l	TM208	<0.001								
1,2-Dichloroethane	<0.001 mg/l	TM208	<0.001								
Benzene	<0.001 mg/l	TM208	<0.001								
Trichloroethene	<0.001 mg/l	TM208	<0.001								
1,2-Dichloropropane	<0.001 mg/l	TM208	<0.001								
Dibromomethane	<0.001 mg/l	TM208	<0.001								
Bromodichloromethane	<0.001 mg/l	TM208	<0.001								
cis-1,3-Dichloropropene	<0.001 mg/l	TM208	<0.001								
Toluene	<0.001 mg/l	TM208	<0.001								
trans-1,3-Dichloropropene	<0.001 mg/l	TM208	<0.001								
1,1,2-Trichloroethane	<0.001 mg/l	TM208	<0.001								
1,3-Dichloropropane	<0.001 mg/l	TM208	<0.001								

CERTIFICATE OF ANALYSIS

SDG: 200110-7 | Client Reference: 41843 | Report Number: 537694
Location: Bradwell | Order Number: 322478 | Superseded Report: 537575

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	08/01/2020	08/01/2020	08/01/2020			
			Sample Time	.	.	.			
			Date Received	10/01/2020	10/01/2020	10/01/2020			
			SDG Ref	200110-7	200110-7	200110-7			
			Lab Sample No.(s)	21467099	21467101	21467100			
			AGS Reference						
Tetrachloroethene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Dibromochloromethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2-Dibromoethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Chlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,1,1,2-Tetrachloroethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Ethylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
m,p-Xylene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
o-Xylene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Styrene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Bromoform	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Isopropylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,1,2,2-Tetrachloroethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2,3-Trichloropropane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Bromobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Propylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
2-Chlorotoluene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,3,5-Trimethylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
4-Chlorotoluene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
tert-Butylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2,4-Trimethylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
sec-Butylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
4-iso-Propyltoluene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,3-Dichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,4-Dichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
n-Butylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2-Dichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2-Dibromo-3-chloropropane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2,4-Trichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Hexachlorobutadiene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
tert-Amyl methyl ether (TAME)	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Naphthalene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2,3-Trichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,3,5-Trichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	08/01/2020	08/01/2020	08/01/2020			
			Sample Time	.	.	.			
			Date Received	10/01/2020	10/01/2020	10/01/2020			
			SDG Ref	200110-7	200110-7	200110-7			
			Lab Sample No.(s)	21467099	21467101	21467100			
			AGS Reference						
Sum of BTEX	<0.005 mg/l	TM208		<0.005	<0.005	<0.005			

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
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
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM110	BS 1377: Part 3 1990	Redox Potential
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
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
TM187	Winkler, L.W, Ber Deutsch. Chem. Ges, 21,2843,1888."	Dissolved Oxygen in Natural and Waste Waters HMSO 1979 ISBN 011 751442
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
TM212	SO/TR 11905-2: 1997. Water quality – Determination of nitrogen –Part 2:Determination of bound nitrogen, after combustion and oxidation to nitrogen dioxide, chemiluminescence detection.	Determination of Total Nitrogen by High Temperature Catalytic Oxidation followed by Chemiluminescence Detection
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
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
TM279		Determination of Low Level Easily Liberatable (Free) Cyanides and Total Cyanides in Waters using the Skalar SANS+ System Segmented Flow Analyser

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).

CERTIFICATE OF ANALYSIS

SDG:	200110-7	**Client Reference:**	41843	**Report Number:**	537694
Location:	Bradwell	**Order Number:**	322478	**Superseded Report:**	537575

Test Completion Dates

Lab Sample No(s)	21467099	21467101	21467100
Customer Sample Ref.	SW1	SW2	SW3
AGS Ref.			
Depth			
Type	Surface Water	Surface Water	Surface Water
Alkalinity as CaCO3	14-Jan-2020	15-Jan-2020	14-Jan-2020
Ammoniacal Nitrogen	13-Jan-2020	13-Jan-2020	13-Jan-2020
Anions by Kone (w)	13-Jan-2020	13-Jan-2020	13-Jan-2020
Chromium III	15-Jan-2020	15-Jan-2020	15-Jan-2020
Conductivity (at 20 deg.C)	15-Jan-2020	15-Jan-2020	15-Jan-2020
Dissolved Metals by ICP-MS	15-Jan-2020	15-Jan-2020	15-Jan-2020
Dissolved Organic/Inorganic Carbon	12-Jan-2020	12-Jan-2020	12-Jan-2020
Dissolved Oxygen by Titration	11-Jan-2020	11-Jan-2020	11-Jan-2020
EPH CWG (Aliphatic) Aqueous GC (W)	15-Jan-2020	15-Jan-2020	15-Jan-2020
EPH CWG (Aromatic) Aqueous GC (W)	15-Jan-2020	15-Jan-2020	15-Jan-2020
GRO by GC-FID (W)	14-Jan-2020	14-Jan-2020	14-Jan-2020
Hexavalent Chromium (w)	14-Jan-2020	14-Jan-2020	14-Jan-2020
Low Level Cyanide (W)	14-Jan-2020	14-Jan-2020	14-Jan-2020
Mercury Dissolved	13-Jan-2020	13-Jan-2020	13-Jan-2020
Mercury Unfiltered	13-Jan-2020	13-Jan-2020	13-Jan-2020
Nitrite by Kone (w)	13-Jan-2020	13-Jan-2020	13-Jan-2020
PAH Spec MS - Aqueous (W)	14-Jan-2020	14-Jan-2020	14-Jan-2020
PCB Congeners - Aqueous (W)	17-Jan-2020	17-Jan-2020	17-Jan-2020
pH Value	10-Jan-2020	10-Jan-2020	10-Jan-2020
Phosphate by Kone (w)	13-Jan-2020	13-Jan-2020	13-Jan-2020
Redox Potential	16-Jan-2020	16-Jan-2020	16-Jan-2020
Suspended Solids	14-Jan-2020	15-Jan-2020	14-Jan-2020
SVOC MS (W) - Aqueous	14-Jan-2020	14-Jan-2020	14-Jan-2020
Total Metals by ICP-MS	14-Jan-2020	14-Jan-2020	14-Jan-2020
Total Nitrogen	15-Jan-2020	14-Jan-2020	15-Jan-2020
Total Organic and Inorganic Carbon	11-Jan-2020	11-Jan-2020	11-Jan-2020
TPH CWG (W)	15-Jan-2020	15-Jan-2020	15-Jan-2020
VOC MS (W)	13-Jan-2020	13-Jan-2020	13-Jan-2020

ALS Environmental, Land	QF.7.5.1 Data Amendments Form (Issue No. 3)
	Date: 10/01/2020
	Issued and Authorised by Quality Manager

SDG	Sample Event	Sample ID	Date Amended	Amendment Reason	Previous Reference	New Reference	Supercedes Report
200110-7	21467100	S2	18/01/2020	Sample ID Change	S2	S3	537575
200110-7	21467101	S3	18/01/2020	Sample ID Change	S3	S2	537575

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. 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 hereof un il the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. 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.

4. 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.

5. 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.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **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%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remedia ion 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.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detec ion 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.

12. Mercury results quoted on soils will not include volatile mercury as he analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. 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.

15. 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 iden ify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive iden ification, volatiles by GCMS should be utilised.

16. 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.

17. **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 subjecte 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.

18. **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**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

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 he 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

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 me hod of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for iden ification 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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and wi h aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

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

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Tyne and Wear
NE3 3PX

Attention: Sarah Pi kington

PRELIMINARY/INTERIM REPORT

Date of report Generation:	23 January 2020
Customer:	Wood Environment & Infrastructure Solutions UK Limited
Sample Delivery Group (SDG):	200116-75
Your Reference:	41843
Location:	Bradwell
Report No:	538134

We received 3 samples on Thursday January 16, 2020 and 3 of these samples were scheduled for analysis which was completed on Thursday January 23, 2020. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.

This is a preliminary report which has not had final authorisation

Approved By:

PRELIMINARY/INTERIM REPORT

SDG:	200116-75	**Client Reference:**	41843	**Report Number:**	538134
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21497429	SW1			15/01/2020
21497431	SW2			15/01/2020
21497432	SW3			15/01/2020

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.

Preliminary

PRELIMINARY/INTERIM REPORT

SDG:	200116-75	**Client Reference:**	41843	**Report Number:**	538134
Location:	Bradwell	**Order Number:**	322988	**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)			21497429								21497431								21497432		
Customer Sample Reference			SW1								SW2								SW3		
AGS Reference																					
Depth (m)																					
Container			0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass
Sample Type			SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 3		X								X								X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 3				X								X							
Anions by Kone (w)	All	NDPs: 0 Tests: 3		X								X								X	
Chromium III	All	NDPs: 0 Tests: 3					X								X						
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 3		X								X								X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3					X								X						
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 3	X								X								X		
Dissolved Oxygen by Titration	All	NDPs: 0 Tests: 3			X								X								X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X								X								X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X								X								X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 3								X								X			
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 3		X								X								X	
Low Level Cyanide (W)	All	NDPs: 0 Tests: 3							X								X				
Mercury Dissolved	All	NDPs: 0 Tests: 3					X								X						
Mercury Unfiltered	All	NDPs: 0 Tests: 3						X								X					

16:56:50 23/01/2020

21497432	SW3			Vial (ALE297)	SW										X					
				NaOH (ALE245)	SW												X			
				HNO3 Unfiltered (ALE204)	SW															X
				HNO3 Filtered (ALE204)	SW				X		X								X	
				H2SO4 (ALE244)	SW		X													

Preliminary

PRELIMINARY/INTERIM REPORT

SDG: 200116-75 **Client Reference:** 41843 **Report Number:** 538134
Location: Bradwell **Order Number:** 322988 **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)			21497429								21497431								21497432			
Customer Sample Reference			SW1								SW2								SW3			
AGS Reference																						
Depth (m)																						
Container			0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	
Sample Type			SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 3							X								X					
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 3	X								X								X			
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 3	X								X								X			
pH Value	All	NDPs: 0 Tests: 3		X								X								X		
Phosphate by Kone (w)	All	NDPs: 0 Tests: 3		X								X								X		
Redox Potential	All	NDPs: 0 Tests: 3	X								X								X			
Suspended Solids	All	NDPs: 0 Tests: 3		X								X								X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 3	X								X								X			
Total Metals by ICP-MS	All	NDPs: 0 Tests: 3						X								X						
Total Nitrogen	All	NDPs: 0 Tests: 3		X								X								X		
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 3				X								X								
TPH CWG (W)	All	NDPs: 0 Tests: 3	X								X								X			
VOC MS (W)	All	NDPs: 0 Tests: 3								X								X				

					21497432
					SW3
H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	
SW	SW	SW	SW	SW	
			X		
		X			
X					
				X	

Preliminary

PRELIMINARY/INTERIM REPORT

SDG: 200116-75 **Client Reference:** 41843 **Report Number:** 538134
Location: Bradwell **Order Number:** 322988 **Superseded Report**

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	15/01/2020	15/01/2020	15/01/2020			
			Sample Time	.	.	.			
			Date Received	16/01/2020	16/01/2020	16/01/2020			
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		7.4 #	15.8 #	29.8 #			
Alkalinity, Total as CaCO3	<2 mg/l	TM043		245 #	240 #	220 #			
Carbon, Organic (diss.filt)	<3 mg/l	TM090		9.58	11.1	9.61			
Organic Carbon, Total	<3 mg/l	TM090		9.14 #	10.9 #	8.76 #			
Ammoniacal Nitrogen as N	<0 2 mg/l	TM099		<0 2 #	1.82 #	0.655 #			
Ammoniacal Nitrogen as NH4	<0 3 mg/l	TM099		<0 3 #	2 34 #	0.842 #			
Redox potential	mV	TM110		170	157	165			
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0 936 #	0.948 #	0.857 #			
Chromium, Trivalent	<0.03 mg/l	TM152		<0.03	<0.03	<0.03			
Arsenic (diss.filt)	<0.0005 mg/l	TM152		0.00157 #	0.00183 #	0.00165 #			
Arsenic (tot.unfilt)	<0.002 mg/l	TM152		<0.002 #	0.00221 #	0.00258 #			
Boron (diss. ilt)	<0.01 mg/l	TM152		0.0773 #	0.0925 #	0.0903 #			
Boron (tot.unfilt)	<0.02 mg/l	TM152		0.0849 #	0.0962 #	0.103 #			
Cadmium (diss.filt)	<0.00008 mg/l	TM152		<0.00008 #	<0.00008 #	<0.00008 #			
Cadmium (tot.unfilt)	<0.0005 mg/l	TM152		<0.0005 #	<0.0005 #	<0.0005 #			
Chromium (tot.unfilt)	<0.003 mg/l	TM152		<0.003 #	<0.003 #	<0.003 #			
Chromium (diss.filt)	<0.001 mg/l	TM152		<0.001 #	0.00104 #	<0.001 #			
Copper (tot unfilt)	<0.001 mg/l	TM152		0.00379 #	0.00377 #	0.00415 #			
Lead (tot unfilt)	<0.001 mg/l	TM152		<0.001 #	0.00143 #	0.00296 #			
Copper (diss.filt)	<0.0003 mg/l	TM152		0.00338 #	0.00315 #	0.00258 #			
Manganese (tot unfilt)	<0.001 mg/l	TM152		0.0117 #	0.0354 #	0.0274 #			
Lead (diss.filt)	<0.0002 mg/l	TM152		<0.0002 #	0.000252 #	<0.0002 #			
Nickel (tot unfilt)	<0.001 mg/l	TM152		0.00375 #	0.00373 #	0.00348 #			
Manganese (diss.filt)	<0.003 mg/l	TM152		0.00326 #	0.0276 #	0.0115 #			
Phosphorus (tot un ilt)	<0.02 mg/l	TM152		0 316 #	0.75 #	0.426 #			
Selenium (tot unfilt)	<0.001 mg/l	TM152		0.00141 #	0.00129 #	<0.001 #			
Nickel (diss.filt)	<0.0004 mg/l	TM152		0.00271 #	0.00268 #	0.00175 #			
Phosphorus (diss.filt)	<0.01 mg/l	TM152		0 281 #	0.685 #	0 315 #			
Selenium (diss.filt)	<0.001 mg/l	TM152		0.0017 #	0.00158 #	<0.001 #			
Zinc (tot unfilt)	<0.005 mg/l	TM152		incomplete #	incomplete #	incomplete #			
Zinc (diss.filt)	<0.001 mg/l	TM152		0.00321 #	0.00419 #	0.00385 #			
Sodium (Dis.Filt)	<0.076 mg/l	TM152		39.1 #	44.5 #	42 9 #			

PRELIMINARY/INTERIM REPORT

SDG: 200116-75 **Client Reference:** 41843 **Report Number:** 538134
Location: Bradwell **Order Number:** 322988 **Superseded Report**

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	15/01/2020	15/01/2020	15/01/2020			
			Sample Time	.	.	.			
			Date Received	16/01/2020	16/01/2020	16/01/2020			
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		20 2 #	19.9 #	20 5 #			
Potassium (Dis Filt)	<0 2 mg/l	TM152		24.1 #	17.2 #	9.43 #			
Calcium (Dis Filt)	<0 2 mg/l	TM152		140 #	129 #	134 #			
Iron (Dis Filt)	<0.019 mg/l	TM152		<0.019 #	0.0428 #	0.0284 #			
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152		20 3 #	18.8 #	20 3 #			
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152		0 323 #	0.802 #	1.43 #			
Mercury (diss.filt)	<0.00001 mg/l	TM183		incomplete	incomplete	incomplete			
Mercury (tot un ilt)	<0.00002 mg/l	TM183		incomplete	incomplete	incomplete			
Nitrite as NO2	<0.05 mg/l	TM184		0.174 #	0.734 #	0 554 #			
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		0.859 #	2.13 #	1.01 #			
Sulphate	<2 mg/l	TM184		102 #	103 #	133 #			
Chloride	<2 mg/l	TM184		72.1 #	74.8 #	73.1 #			
Total Oxidised Nitrogen as NO3	<0 3 mg/l	TM184		142 #	107 #	110 #			
Nitrate as NO3	<0 3 mg/l	TM184		141	107	109			
Oxygen, dissolved	<0 3 mg/l	TM187		6.61	5.61	7.3			
PCB congener 28	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 52	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 101	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 118	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 138	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 153	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 180	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
Sum of detected EC7 PCB's	<0.000105 mg/l	TM197		<0.000105	<0.000105	<0.000105			
PCB congener 77	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 81	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 105	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 114	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 123	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 126	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 156	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 157	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 167	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			

Preliminary

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			Date Sampled	15/01/2020	15/01/2020	15/01/2020			
			Sample Time	.	.	.			
			Date Received	16/01/2020	16/01/2020	16/01/2020			
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
PCB congener 169	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 189	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
Nitrogen, Total	<1 mg/l	TM212		29 3 #	23.9 #	22 2 #			
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03			
pH	<1 pH Units	TM256		7.84 #	7.73 #	7.77 #			
Cyanide, Free (low level)	<0.0025 mg/l	TM279		<0.0025 #	<0.0025 #	<0.0025 #			

Preliminary

PRELIMINARY/INTERIM REPORT

SDG:	200116-75	**Client Reference:**	41843	**Report Number:**	538134
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	15/01/2020	15/01/2020	15/01/2020			
			Sample Time	.	.	.			
			Date Received	16/01/2020	16/01/2020	16/01/2020			
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
Naphthalene (aq)	<0.00001 mg/l	TM178		<0.00001 #	<0.00001 #	<0.00001 #			
Acenaphthene (aq)	<0.000005 mg/l	TM178		<0.000005 #	<0.000005 #	<0.000005 #			
Acenaphthylene (aq)	<0.000005 mg/l	TM178		<0.000005 #	<0.000005 #	<0.000005 #			
Fluoranthene (aq)	<0.000005 mg/l	TM178		0.000017 #	0.000018 #	0.000048 #			
Anthracene (aq)	<0.000005 mg/l	TM178		<0.000005 #	<0.000005 #	<0.000005 #			
Phenanthrene (aq)	<0.000005 mg/l	TM178		<0.000005 #	0.000011 #	0.000013 #			
Fluorene (aq)	<0.000005 mg/l	TM178		<0.000005 #	<0.000005 #	<0.000005 #			
Chrysene (aq)	<0.000005 mg/l	TM178		<0.000005 #	<0.000005 #	0.000035 #			
Pyrene (aq)	<0.000005 mg/l	TM178		0.000016 #	<0.000005 #	0.000045 #			
Benzo(a)anthracene (aq)	<0.000005 mg/l	TM178		<0.000005 #	<0.000005 #	0.000027 #			
Benzo(b)fluoranthene (aq)	<0.000005 mg/l	TM178		0.000026 #	0.000025 #	0.000043 #			
Benzo(k)fluoranthene (aq)	<0.000005 mg/l	TM178		0.000013 #	0.00001 #	0.000039 #			
Benzo(a)pyrene (aq)	<0.000002 mg/l	TM178		0.00002 #	0.000014 #	0.000045 #			
Dibenzo(a,h)anthracene (aq)	<0.000005 mg/l	TM178		<0.000005 #	<0.000005 #	<0.000005 #			
Benzo(g,h,i)perylene (aq)	<0.000005 mg/l	TM178		0.000026 #	0.000019 #	0.000019 #			
Indeno(1,2,3-cd)pyrene (aq)	<0.000005 mg/l	TM178		0.000015 #	<0.000005 #	0.000037 #			
PAH, Total Detected USEPA 16 (aq)	<0.000082 mg/l	TM178		0.000133 #	0.000095 #	0.00035 #			

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PRELIMINARY/INTERIM REPORT

SDG: 200116-75 **Client Reference:** 41843 **Report Number:** 538134
Location: Bradwell **Order Number:** 322988 **Superseded Report**

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	15/01/2020	15/01/2020	15/01/2020			
			Sample Time	.	.	.			
			Date Received	16/01/2020	16/01/2020	16/01/2020			
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
1,2,4-Trichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
1,2-Dichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
1,3-Dichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
1,4-Dichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2,4,5-Trichlorophenol (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2,4,6-Trichlorophenol (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2,4-Dichlorophenol (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2,4-Dimethylphenol (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2,4-Dinitrotoluene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2,6-Dinitrotoluene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2-Chloronaphthalene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2-Chlorophenol (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2-Methylnaphthalene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2-Methylphenol (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2-Nitroaniline (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
2-Nitrophenol (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
3-Nitroaniline (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
4-Bromophenylphenylether (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
4-Chloro-3-methylphenol (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
4-Chloroaniline (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
4-Chlorophenylphenylether (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
4-Methylphenol (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
4-Nitroaniline (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
4-Nitrophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Azobenzene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Acenaphthylene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Acenaphthene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Anthracene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
bis(2-Chloroethyl)ether (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
bis(2-Chloroethoxy)methane (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
bis(2-Ethylhexyl) phthalate (aq)	<0.002 mg/l	TM176		<0.002 #	<0.002 #	<0.002 #			
Butylbenzyl phthalate (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			

Preliminary

PRELIMINARY/INTERIM REPORT

SDG: 200116-75 **Client Reference:** 41843 **Report Number:** 538134
Location: Bradwell **Order Number:** 322988 **Superseded Report**

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	15/01/2020	15/01/2020	15/01/2020			
			Sample Time	.	.	.			
			Date Received	16/01/2020	16/01/2020	16/01/2020			
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
Benzo(a)anthracene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Benzo(b)fluoranthene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Benzo(k)fluoranthene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Benzo(a)pyrene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Benzo(g,h,i)perylene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Carbazole (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Chrysene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Dibenzofuran (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
n-Dibutyl phthalate (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Diethyl phthalate (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Dibenzo(a,h)anthracene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Dimethyl phthalate (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
n-Dioctyl phthalate (aq)	<0.005 mg/l	TM176		<0.005 #	<0.005 #	<0.005 #			
Fluoranthene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Fluorene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Hexachlorobenzene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Hexachlorobutadiene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Pentachlorophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Phenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
n-Nitroso-n-dipropylamine (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Hexachloroethane (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Nitrobenzene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Naphthalene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Isophorone (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Hexachlorocyclopentadiene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Phenanthrene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Indeno(1,2,3-cd)pyrene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			
Pyrene (aq)	<0.001 mg/l	TM176		<0.001 #	<0.001 #	<0.001 #			

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Preliminary

PRELIMINARY/INTERIM REPORT

SDG: 200116-75 **Client Reference:** 41843 **Report Number:** 538134
Location: Bradwell **Order Number:** 322988 **Superseded Report**

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	15/01/2020	15/01/2020	15/01/2020			
			Sample Time	.	.	.			
			Date Received	16/01/2020	16/01/2020	16/01/2020			
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		96	71	99			
GRO >C5-C12	<0.05 mg/l	TM245		<0.05 #	<0.05 #	<0.05 #			
Methyl tertiary butyl ether (MTBE)	<0.003 mg/l	TM245		<0.003 #	<0.003 #	<0.003 #			
Benzene	<0.007 mg/l	TM245		<0.007 #	<0.007 #	<0.007 #			
Toluene	<0.004 mg/l	TM245		<0.004 #	<0.004 #	<0.004 #			
Ethylbenzene	<0.005 mg/l	TM245		<0.005 #	<0.005 #	<0.005 #			
m,p-Xylene	<0.008 mg/l	TM245		<0.008 #	<0.008 #	<0.008 #			
o-Xylene	<0.003 mg/l	TM245		<0.003 #	<0.003 #	<0.003 #			
Sum of detected Xylenes	<0.011 mg/l	TM245		<0.011	<0.011	<0.011			
Sum of detected BTEX	<0.028 mg/l	TM245		<0.028	<0.028	<0.028			
Aliphatics >C5-C6	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C6-C8	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C8-C10	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C10-C12	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C12-C16 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C16-C21 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C21-C35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aliphatics >C12-C35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC5-EC7	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC7-EC8	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC8-EC10	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC10-EC12	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC12-EC16 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC16-EC21 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC21-EC35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aromatics >EC12-EC35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aliphatics & Aromatics >C5-35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C16-C35 Aqueous	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			

Preliminary

PRELIMINARY/INTERIM REPORT

SDG: 200116-75 **Client Reference:** 41843 **Report Number:** 538134
Location: Bradwell **Order Number:** 322988 **Superseded Report**

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	15/01/2020	15/01/2020	15/01/2020			
			Sample Time	.	.	.			
			Date Received	16/01/2020	16/01/2020	16/01/2020			
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
Dibromofluoromethane**	%	TM208		108	108	108			
Toluene-d8**	%	TM208		103	103	103			
4-Bromofluorobenzene**	%	TM208		101	101	99 3			
Dichlorodifluoromethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Chloromethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Vinyl chloride	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Bromomethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Chloroethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Trichlorofluoromethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,1-Dichloroethene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Carbon disulphide	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Dichloromethane	<0.003 mg/l	TM208		<0.003 #	<0.003 #	<0.003 #			
Methyl tertiary butyl ether (MTBE)	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
trans-1,2-Dichloroethene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,1-Dichloroethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
cis-1,2-Dichloroethene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
2,2-Dichloropropane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Bromochloromethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Chloroform	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,1,1-Trichloroethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,1-Dichloropropene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Carbontetrachloride	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2-Dichloroethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Benzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Trichloroethene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2-Dichloropropane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Dibromomethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Bromodichloromethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
cis-1,3-Dichloropropene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Toluene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
trans-1,3-Dichloropropene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,1,2-Trichloroethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			

PRELIMINARY/INTERIM REPORT

SDG: 200116-75 **Client Reference:** 41843 **Report Number:** 538134
Location: Bradwell **Order Number:** 322988 **Superseded Report**

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	15/01/2020	15/01/2020	15/01/2020			
			Sample Time	.	.	.			
			Date Received	16/01/2020	16/01/2020	16/01/2020			
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
1,3-Dichloropropane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Tetrachloroethene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Dibromochloromethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2-Dibromoethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Chlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,1,1,2-Tetrachloroethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Ethylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
m,p-Xylene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
o-Xylene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Styrene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Bromoform	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Isopropylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,1,2,2-Tetrachloroethane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2,3-Trichloropropane	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Bromobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Propylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
2-Chlorotoluene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,3,5-Trimethylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
4-Chlorotoluene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
tert-Butylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2,4-Trimethylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
sec-Butylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
4-iso-Propyltoluene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,3-Dichlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,4-Dichlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
n-Butylbenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2-Dichlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,2-Dibromo-3-chloropropane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2,4-Trichlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Hexachlorobutadiene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
tert-Amyl methyl ether (TAME)	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
Naphthalene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			

Preliminary

PRELIMINARY/INTERIM REPORT

SDG: 200116-75 **Client Reference:** 41843 **Report Number:** 538134
Location: Bradwell **Order Number:** 322988 **Superseded Report**

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)			
			Date Sampled	15/01/2020	15/01/2020	15/01/2020			
			Sample Time	.	.	.			
			Date Received	16/01/2020	16/01/2020	16/01/2020			
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
1,2,3-Trichlorobenzene	<0.001 mg/l	TM208		<0.001 #	<0.001 #	<0.001 #			
1,3,5-Trichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			

16:56:50 23/01/2020

PRELIMINARY/INTERIM REPORT

SDG:	200116-75	**Client Reference:**	41843	**Report Number:**	538134
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	

PRELIMINARY/INTERIM REPORT

SDG:	200116-75	**Client Reference:**	41843	**Report Number:**	538134
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	

PRELIMINARY/INTERIM REPORT

SDG:	200116-75	**Client Reference:**	41843	**Report Number:**	538134
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	

PRELIMINARY/INTERIM REPORT

SDG:	200116-75	**Client Reference:**	41843	**Report Number:**	538134
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	

PRELIMINARY/INTERIM REPORT

SDG:	200116-75	**Client Reference:**	41843	**Report Number:**	538134
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	

PRELIMINARY/INTERIM REPORT

SDG:	200116-75	**Client Reference:**	41843	**Report Number:**	538134
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
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
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM110	BS 1377: Part 3 1990	Redox Potential
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity 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
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
TM187	Winkler, L.W, Ber Deutsch. Chem. Ges, 21,2843,1888."	Dissolved Oxygen in Natural and Waste Waters HMSO 1979 ISBN 011 751442
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
TM212	SO/TR 11905-2: 1997. Water quality – Determination of nitrogen –Part 2:Determination of bound nitrogen, after combustion and oxidation to nitrogen dioxide, chemiluminescence detection.	Determination of Total Nitrogen by High Temperature Catalytic Oxidation followed by Chemiluminescence Detection
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	By GC-F D	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
TM279		Determination of Low Level Easily Liberatable (Free) Cyanides and Total Cyanides in Waters using the Skalar SANS+ System Segmented Flow Analyser

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).

PRELIMINARY/INTERIM REPORT

SDG:	200116-75	**Client Reference:**	41843	**Report Number:**	538134
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	

Test Completion Dates

Lab Sample No(s)	21497429	21497431	21497432
Customer Sample Ref.	SW1	SW2	SW3
AGS Ref.			
Depth			
Type	Surface Water	Surface Water	Surface Water
Alkalinity as CaCO3	20-Jan-2020	20-Jan-2020	20-Jan-2020
Ammoniacal Nitrogen	17-Jan-2020	17-Jan-2020	17-Jan-2020
Anions by Kone (w)	20-Jan-2020	20-Jan-2020	20-Jan-2020
Chromium III	22-Jan-2020	22-Jan-2020	22-Jan-2020
Conductivity (at 20 deg.C)	17-Jan-2020	23-Jan-2020	17-Jan-2020
Dissolved Metals by ICP-MS	22-Jan-2020	22-Jan-2020	22-Jan-2020
Dissolved Organic/Inorganic Carbon	18-Jan-2020	18-Jan-2020	18-Jan-2020
Dissolved Oxygen by Titration	19-Jan-2020	19-Jan-2020	19-Jan-2020
EPH CWG (Aliphatic) Aqueous GC (W)	22-Jan-2020	22-Jan-2020	22-Jan-2020
EPH CWG (Aromatic) Aqueous GC (W)	22-Jan-2020	22-Jan-2020	22-Jan-2020
GRO by GC-FID (W)	20-Jan-2020	20-Jan-2020	20-Jan-2020
Hexavalent Chromium (w)	21-Jan-2020	21-Jan-2020	17-Jan-2020
Low Level Cyanide (W)	21-Jan-2020	22-Jan-2020	21-Jan-2020
Nitrite by Kone (w)	18-Jan-2020	18-Jan-2020	18-Jan-2020
PAH Spec MS - Aqueous (W)	21-Jan-2020	21-Jan-2020	21-Jan-2020
PCB Congeners - Aqueous (W)	21-Jan-2020	21-Jan-2020	21-Jan-2020
pH Value	17-Jan-2020	17-Jan-2020	17-Jan-2020
Phosphate by Kone (w)	21-Jan-2020	21-Jan-2020	21-Jan-2020
Redox Potential	22-Jan-2020	22-Jan-2020	22-Jan-2020
Suspended Solids	19-Jan-2020	19-Jan-2020	19-Jan-2020
SVOC MS (W) - Aqueous	23-Jan-2020	23-Jan-2020	23-Jan-2020
Total Metals by ICP-MS	21-Jan-2020	21-Jan-2020	21-Jan-2020
Total Nitrogen	21-Jan-2020	21-Jan-2020	21-Jan-2020
Total Organic and Inorganic Carbon	19-Jan-2020	19-Jan-2020	19-Jan-2020
TPH CWG (W)	22-Jan-2020	22-Jan-2020	22-Jan-2020
VOC MS (W)	17-Jan-2020	17-Jan-2020	17-Jan-2020

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. 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.

3. 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.

4. 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.

5. 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.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **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%. 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.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. 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.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. 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.

15. 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. t 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.

16. 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.

17. **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.

18. **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**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

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

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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

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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Wood Environment & Infrastructure Solutions UK Limited
Northumbria House
Regent Centre
Gosforth
Newcastle Upon Tyne
Tyne and Wear
NE3 3PX

Attention: Sarah Pi kington

CERTIFICATE OF ANALYSIS

Date of report Generation:	01 February 2020
Customer:	Wood Environment & Infrastructure Solutions UK Limited
Sample Delivery Group (SDG):	200122-14
Your Reference:	41843
Location:	Bradwell
Report No:	539389

This report has been revised and directly supersedes 539334 in its entirety.

We received 3 samples on Wednesday January 22, 2020 and 3 of these samples were scheduled for analysis which was completed on Friday January 31, 2020. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21526665	SW1			21/01/2020
21526666	SW2			21/01/2020
21526667	SW3			21/01/2020

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:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

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)											21526665								21526666					21526667		
Customer Sample Reference											SW1								SW2					SW3		
AGS Reference																										
Depth (m)																										
Container											0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	DO KIT + DO 250 ml glass
Sample Type											UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL
Alkalinity as CaCO3	All	NDPs: 0 Tests: 3										X								X								X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 3												X									X						
Anions by Kone (w)	All	NDPs: 0 Tests: 3										X								X								X	
Chromium III	All	NDPs: 0 Tests: 3					X																	X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 3										X								X								X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3					X																	X					
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 3	X								X								X								X		
Dissolved Oxygen by Titration	All	NDPs: 0 Tests: 3			X								X								X								X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X								X								X								X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X								X								X								X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 3								X								X								X			
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 3		X								X								X								X	
Low Level Cyanide (W)	All	NDPs: 0 Tests: 3							X																	X			
Mercury Dissolved	All	NDPs: 0 Tests: 3					X																	X					
Mercury Unfiltered	All	NDPs: 0 Tests: 3						X																	X				

21526667	SW3			Vial (ALE297)	UNL																						X								
				NaOH (ALE245)	UNL																										X				
				HNO3 Unfiltered (ALE204)	UNL																														X
				HNO3 Filtered (ALE204)	UNL								X				X																X		
				H2SO4 (ALE244)	UNL				X																										

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

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)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			21526665	SW1			0.5l glass bottle (ALE227)	UNL
							500ml Plastic (ALE208)	UNL
							DO KIT + DO 250 ml glass	UNL
							H2SO4 (ALE244)	UNL
							HNO3 Filtered (ALE204)	UNL
							HNO3 Unfiltered (ALE204)	UNL
							NaOH (ALE245)	UNL
							Vial (ALE297)	UNL
			21526666	SW2			0.5l glass bottle (ALE227)	UNL
							500ml Plastic (ALE208)	UNL
							DO KIT + DO 250 ml glass	UNL
							H2SO4 (ALE244)	UNL
							HNO3 Filtered (ALE204)	UNL
							HNO3 Unfiltered (ALE204)	UNL
							NaOH (ALE245)	UNL
							Vial (ALE297)	UNL
			21526667	SW3			0.5l glass bottle (ALE227)	UNL
							500ml Plastic (ALE208)	UNL
							DO KIT + DO 250 ml glass	UNL
Nitrite by Kone (w)	All	NDPs: 0 Tests: 3						
							X	
								X
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 3						
			X					
							X	
								X
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 3						
			X					
							X	
								X
pH Value	All	NDPs: 0 Tests: 3						
				X				
							X	
								X
Phosphate by Kone (w)	All	NDPs: 0 Tests: 3						
				X				
							X	
								X
Redox Potential	All	NDPs: 0 Tests: 3						
			X					
							X	
								X
Suspended Solids	All	NDPs: 0 Tests: 3						
				X				
							X	
								X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 3						
			X					
							X	
								X
Total Metals by ICP-MS	All	NDPs: 0 Tests: 3						
							X	
								X
Total Nitrogen	All	NDPs: 0 Tests: 3						
				X				
							X	
								X
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 3						
					X			
							X	
TPH CWG (W)	All	NDPs: 0 Tests: 3						
			X					
							X	
								X
VOC MS (W)	All	NDPs: 0 Tests: 3						
							X	
								X

21526667	SW3			Vial (ALE297)	UNL																										x
				NaOH (ALE245)	UNL		x																								
				HNO3 Unfiltered (ALE204)	UNL																		x								
				HNO3 Filtered (ALE204)	UNL																										
				H2SO4 (ALE244)	UNL																						x				

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)			
			Date Sampled	21/01/2020	21/01/2020	21/01/2020			
			Sample Time	.	.	.			
			Date Received	22/01/2020	22/01/2020	22/01/2020			
			SDG Ref	200122-14	200122-14	200122-14			
			Lab Sample No.(s)	21526665	21526666	21526667			
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		2.4	4.75	10.6			
Alkalinity, Total as CaCO3	<2 mg/l	TM043		275	275	265			
Carbon, Organic (diss.filt)	<3 mg/l	TM090		9.93	8.85	8.08			
Organic Carbon, Total	<3 mg/l	TM090		7.59	9 97	9.18			
Ammoniacal Nitrogen as N	<0 2 mg/l	TM099		<0 2	0.409	0 314			
Ammoniacal Nitrogen as NH4	<0 3 mg/l	TM099		<0 3	0.526	0.404			
Redox potential	mV	TM110		209	188	185			
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		1.09	1.16	1.14			
Chromium, Trivalent	<0.03 mg/l	TM152		<0.03	<0.03	<0.03			
Arsenic (diss.filt)	<0.0005 mg/l	TM152		0.00103	0.00123	0.0011			
Arsenic (tot unfilt)	<0.002 mg/l	TM152		<0.002	<0.002	<0.002			
Boron (diss.filt)	<0.01 mg/l	TM152		0.074	0.0785	0.0926			
Boron (tot.unfilt)	<0.02 mg/l	TM152		0.0785	0.0991	0.119			
Cadmium (diss. ilt)	<0.00008 mg/l	TM152		<0.00008	<0.00008	<0.00008			
Cadmium (tot.unfilt)	<0.0005 mg/l	TM152		<0.0005	<0.0005	<0.0005			
Chromium (tot.unfilt)	<0.003 mg/l	TM152		<0.003	<0.003	<0.003			
Chromium (diss. ilt)	<0.001 mg/l	TM152		<0.001	<0.001	<0.001			
Copper (tot.unfilt)	<0.001 mg/l	TM152		0.003	0.00295	0.00287			
Lead (tot.unfilt)	<0.001 mg/l	TM152		<0.001	<0.001	<0.001			
Copper (diss.filt)	<0.0003 mg/l	TM152		0.0028	0.00223	0.00207			
Manganese (tot un ilt)	<0.001 mg/l	TM152		0.00341	0.0374	0.0305			
Lead (diss.filt)	<0.0002 mg/l	TM152		<0.0002	<0.0002	0.000203			
Nickel (tot.unfilt)	<0.001 mg/l	TM152		0.00311	0.00303	0.00239			
Manganese (diss.filt)	<0.003 mg/l	TM152		0.00398	0.0132	0.00892			
Phosphorus (tot.unfilt)	<0.02 mg/l	TM152		0.185	0 29	0 397			
Selenium (tot un ilt)	<0.001 mg/l	TM152		0.00193	0.00184	0.00176			
Nickel (diss.filt)	<0.0004 mg/l	TM152		0.0032	0.00257	0.00208			
Phosphorus (diss.filt)	<0.01 mg/l	TM152		0.176	0.233	0.188			
Selenium (diss.filt)	<0.001 mg/l	TM152		0.00238	0.00201	0.00176			
Zinc (tot.unfilt)	<0.005 mg/l	TM152		0.00868	0.00606	0.00598			
Zinc (diss.filt)	<0.001 mg/l	TM152		0.00187	0.00187	0.00227			
Sodium (Dis.Filt)	<0.076 mg/l	TM152		46.1	54.2	56 3			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		24	26	28 5			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)			
			Date Sampled	21/01/2020	21/01/2020	21/01/2020			
			Sample Time	.	.	.			
			Date Received	22/01/2020	22/01/2020	22/01/2020			
			SDG Ref	200122-14	200122-14	200122-14			
			Lab Sample No.(a)	21526665	21526666	21526667			
			AGS Reference						
Potassium (Dis.Filt)	<0 2 mg/l	TM152		18	12.1	8.44			
Calcium (Dis.Filt)	<0 2 mg/l	TM152		175	177	180			
Iron (Dis.Filt)	<0.019 mg/l	TM152		<0.019	<0.019	<0.019			
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152		23 3	27.7	28.8			
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152		0.0628	0.184	0 257			
Mercury (diss.filt)	<0.00001 mg/l	TM183		<0.00001	<0.00001	<0.00001			
Mercury (tot.unfilt)	<0.00002 mg/l	TM183		<0.00002	<0.00002	<0.00002			
Nitrite as NO2	<0.05 mg/l	TM184		0.119	0.487	0 352			
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		0.487	0.708	0.673			
Sulphate	<2 mg/l	TM184		108	173	195			
Chloride	<2 mg/l	TM184		82.4	94.6	94.8			
Total Oxidised Nitrogen as NO3	<0 3 mg/l	TM184		191	169	153			
Nitrate as NO3	<0 3 mg/l	TM184		191	169	152			
Oxygen, dissolved	<0 3 mg/l	TM187		8.74	9.16	9.87			
PCB congener 28	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 52	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 101	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 118	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 138	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 153	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 180	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
Sum of detected EC7 PCB's	<0.000105 mg/l	TM197		<0.000105	<0.000105	<0.000105			
PCB congener 77	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 81	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 105	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 114	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 123	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 126	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 156	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 157	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 167	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
PCB congener 169	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)			
			Date Sampled	21/01/2020	21/01/2020	21/01/2020			
			Sample Time	.	.	.			
			Date Received	22/01/2020	22/01/2020	22/01/2020			
			SDG Ref	200122-14	200122-14	200122-14			
			Lab Sample No.(s)	21526665	21526666	21526667			
			AGS Reference						
PCB congener 189	<0.000015 mg/l	TM197		<0.000015	<0.000015	<0.000015			
Nitrogen, Total	<1 mg/l	TM212		44.8	39	35.7			
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03			
pH	<1 pH Units	TM256		8.04	8.06	7.98			
Cyanide, Free (low level)	<0.0025 mg/l	TM279		<0.0025	<0.0025	<0.0025			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

PAH Spec MS - Aqueous (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)			
			Date Sampled	21/01/2020	21/01/2020	21/01/2020			
			Sample Time	.	.	.			
			Date Received	22/01/2020	22/01/2020	22/01/2020			
			SDG Ref	200122-14	200122-14	200122-14			
			Lab Sample No.(s)	21526665	21526666	21526667			
			AGS Reference						
Naphthalene (aq)	<0.00001 mg/l	TM178		<0.00001	0.000011	0.000011			
Acenaphthene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	<0.000005			
Acenaphthylene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	<0.000005			
Fluoranthene (aq)	<0.000005 mg/l	TM178		<0.000005	0.000005	0.000015			
Anthracene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	<0.000005			
Phenanthrene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	0.000006			
Fluorene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	<0.000005			
Chrysene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	<0.000005			
Pyrene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	0.000015			
Benzo(a)anthracene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	<0.000005			
Benzo(b)fluoranthene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	0.000012			
Benzo(k)fluoranthene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	0.000006			
Benzo(a)pyrene (aq)	<0.000002 mg/l	TM178		<0.000002	<0.000002	0.000009			
Dibenzo(a,h)anthracene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	<0.000005			
Benzo(g,h,i)perylene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	<0.000005			
Indeno(1,2,3-cd)pyrene (aq)	<0.000005 mg/l	TM178		<0.000005	<0.000005	0.000006			
PAH, Total Detected USEPA 16 (aq)	<0.000082 mg/l	TM178		<0.000082	<0.000082	<0.000082			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)			
			Date Sampled	21/01/2020	21/01/2020	21/01/2020			
			Sample Time	.	.	.			
			Date Received	22/01/2020	22/01/2020	22/01/2020			
			SDG Ref	200122-14	200122-14	200122-14			
			Lab Sample No.(s)	21526665	21526666	21526667			
			AGS Reference						
1,2,4-Trichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
1,2-Dichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
1,3-Dichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
1,4-Dichlorobenzene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2,4,5-Trichlorophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2,4,6-Trichlorophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2,4-Dichlorophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2,4-Dimethylphenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2,4-Dinitrotoluene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2,6-Dinitrotoluene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2-Chloronaphthalene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2-Chlorophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2-Methylnaphthalene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2-Methylphenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2-Nitroaniline (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
2-Nitrophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
3-Nitroaniline (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
4-Bromophenylphenylether (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
4-Chloro-3-methylphenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
4-Chloroaniline (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
4-Chlorophenylphenylether (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
4-Methylphenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
4-Nitroaniline (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
4-Nitrophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Azobenzene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Acenaphthylene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Acenaphthene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Anthracene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
bis(2-Chloroethyl)ether (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
bis(2-Chloroethoxy)methane (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
bis(2-Ethylhexyl) phthalate (aq)	<0.002 mg/l	TM176		<0.002	<0.002	<0.002			
Butylbenzyl phthalate (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Benzo(a)anthracene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)			
			Date Sampled	21/01/2020	21/01/2020	21/01/2020			
			Sample Time	.	.	.			
			Date Received	22/01/2020	22/01/2020	22/01/2020			
			SDG Ref	200122-14	200122-14	200122-14			
			Lab Sample No.(s)	21526665	21526666	21526667			
			AGS Reference						
Benzo(b)fluoranthene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Benzo(k)fluoranthene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Benzo(a)pyrene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Benzo(g,h,i)perylene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Carbazole (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Chrysene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Dibenzofuran (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
n-Dibutyl phthalate (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Diethyl phthalate (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Dibenzo(a,h)anthracene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Dimethyl phthalate (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
n-Dioctyl phthalate (aq)	<0.005 mg/l	TM176		<0.005	<0.005	<0.005			
Fluoranthene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Fluorene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Hexachlorobenzene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Hexachlorobutadiene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Pentachlorophenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Phenol (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
n-Nitroso-n-dipropylamine (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Hexachloroethane (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Nitrobenzene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Naphthalene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Isophorone (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Hexachlorocyclopentadiene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Phenanthrene (aq)	<0.001 mg/l	TM176		<0.001	0.00164	<0.001			
Indeno(1,2,3-cd)pyrene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			
Pyrene (aq)	<0.001 mg/l	TM176		<0.001	<0.001	<0.001			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)			
			Date Sampled	21/01/2020	21/01/2020	21/01/2020			
			Sample Time	.	.	.			
			Date Received	22/01/2020	22/01/2020	22/01/2020			
			SDG Ref	200122-14	200122-14	200122-14			
			Lab Sample No.(s)	21526665	21526666	21526667			
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		101	100	109			
GRO >C5-C12	<0.05 mg/l	TM245		<0.05	<0.05	<0.05			
Methyl tertiary butyl ether (MTBE)	<0.003 mg/l	TM245		<0.003	<0.003	<0.003			
Benzene	<0.007 mg/l	TM245		<0.007	<0.007	<0.007			
Toluene	<0.004 mg/l	TM245		<0.004	<0.004	<0.004			
Ethylbenzene	<0.005 mg/l	TM245		<0.005	<0.005	<0.005			
m,p-Xylene	<0.008 mg/l	TM245		<0.008	<0.008	<0.008			
o-Xylene	<0.003 mg/l	TM245		<0.003	<0.003	<0.003			
Sum of detected Xylenes	<0.011 mg/l	TM245		<0.011	<0.011	<0.011			
Sum of detected BTEX	<0.028 mg/l	TM245		<0.028	<0.028	<0.028			
Aliphatics >C5-C6	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C6-C8	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C8-C10	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C10-C12	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aliphatics >C12-C16 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C16-C21 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C21-C35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aliphatics >C12-C35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC5-EC7	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC7-EC8	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC8-EC10	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC10-EC12	<0.01 mg/l	TM245		<0.01	<0.01	<0.01			
Aromatics >EC12-EC16 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC16-EC21 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aromatics >EC21-EC35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aromatics >EC12-EC35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Total Aliphatics & Aromatics >C5-35 (aq)	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			
Aliphatics >C16-C35 Aqueous	<0.01 mg/l	TM174		<0.01	<0.01	<0.01			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)			
			Date Sampled	21/01/2020	21/01/2020	21/01/2020			
			Sample Time	.	.	.			
			Date Received	22/01/2020	22/01/2020	22/01/2020			
			SDG Ref	200122-14	200122-14	200122-14			
			Lab Sample No.(s)	21526665	21526666	21526667			
			AGS Reference						
Dibromofluoromethane**	%	TM208		111	109	115			
Toluene-d8**	%	TM208		97 9	97.9	98.4			
4-Bromofluorobenzene**	%	TM208		97 5	96.6	96			
Dichlorodifluoromethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Chloromethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Vinyl chloride	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Bromomethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Chloroethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Trichlorofluoromethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,1-Dichloroethene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Carbon disulphide	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Dichloromethane	<0.003 mg/l	TM208		<0.003	<0.003	<0.003			
Methyl tertiary butyl ether (MTBE)	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
trans-1,2-Dichloroethene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,1-Dichloroethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
cis-1,2-Dichloroethene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
2,2-Dichloropropane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Bromochloromethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Chloroform	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,1,1-Trichloroethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,1-Dichloropropene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Carbontetrachloride	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2-Dichloroethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Benzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Trichloroethene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2-Dichloropropane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Dibromomethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Bromodichloromethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
cis-1,3-Dichloropropene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Toluene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
trans-1,3-Dichloropropene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,1,2-Trichloroethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,3-Dichloropropane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	-	-	-			
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)			
			Date Sampled	21/01/2020	21/01/2020	21/01/2020			
			Sample Time	-	-	-			
			Date Received	22/01/2020	22/01/2020	22/01/2020			
			SDG Ref	200122-14	200122-14	200122-14			
			Lab Sample No.(s)	21526665	21526666	21526667			
			AGS Reference						
Tetrachloroethene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Dibromochloromethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2-Dibromoethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Chlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,1,1,2-Tetrachloroethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Ethylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
m,p-Xylene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
o-Xylene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Styrene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Bromoform	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Isopropylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,1,2,2-Tetrachloroethane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2,3-Trichloropropane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Bromobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Propylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
2-Chlorotoluene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,3,5-Trimethylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
4-Chlorotoluene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
tert-Butylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2,4-Trimethylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
sec-Butylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
4-iso-Propyltoluene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,3-Dichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,4-Dichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
n-Butylbenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2-Dichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2-Dibromo-3-chloropropane	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2,4-Trichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Hexachlorobutadiene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
tert-Amyl methyl ether (TAME)	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
Naphthalene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			
1,2,3-Trichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% 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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW1	SW2	SW3			
			Depth (m)	.	.	.			
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)			
			Date Sampled	21/01/2020	21/01/2020	21/01/2020			
			Sample Time	.	.	.			
			Date Received	22/01/2020	22/01/2020	22/01/2020			
			SDG Ref	200122-14	200122-14	200122-14			
			Lab Sample No.(s)	21526665	21526666	21526667			
			AGS Reference						
1,3,5-Trichlorobenzene	<0.001 mg/l	TM208		<0.001	<0.001	<0.001			

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
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
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM110	BS 1377: Part 3 1990	Redox Potential
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
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
TM187	Winkler, L.W, Ber Deutsch. Chem. Ges, 21,2843,1888."	Dissolved Oxygen in Natural and Waste Waters HMSO 1979 ISBN 011 751442
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
TM212	SO/TR 11905-2: 1997. Water quality – Determination of nitrogen –Part 2:Determination of bound nitrogen, after combustion and oxidation to nitrogen dioxide, chemiluminescence detection.	Determination of Total Nitrogen by High Temperature Catalytic Oxidation followed by Chemiluminescence Detection
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	By GC-F D	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
TM279		Determination of Low Level Easily Liberatable (Free) Cyanides and Total Cyanides in Waters using the Skalar SANS+ System Segmented Flow Analyser

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).

CERTIFICATE OF ANALYSIS

SDG:	200122-14	**Client Reference:**	41843	**Report Number:**	539389
Location:	Bradwell	**Order Number:**	322988	**Superseded Report**	539334

Test Completion Dates

Lab Sample No(s)	21526665	21526666	21526667
Customer Sample Ref.	SW1	SW2	SW3
AGS Ref.			
Depth			
Type	Unspecified Liq	Unspecified Liq	Unspecified Liq
Alkalinity as CaCO3	24-Jan-2020	24-Jan-2020	24-Jan-2020
Ammoniacal Nitrogen	24-Jan-2020	24-Jan-2020	24-Jan-2020
Anions by Kone (w)	24-Jan-2020	27-Jan-2020	27-Jan-2020
Chromium III	27-Jan-2020	27-Jan-2020	29-Jan-2020
Conductivity (at 20 deg.C)	24-Jan-2020	24-Jan-2020	24-Jan-2020
Dissolved Metals by ICP-MS	27-Jan-2020	27-Jan-2020	30-Jan-2020
Dissolved Organic/Inorganic Carbon	24-Jan-2020	24-Jan-2020	24-Jan-2020
Dissolved Oxygen by Titration	24-Jan-2020	24-Jan-2020	24-Jan-2020
EPH CWG (Aliphatic) Aqueous GC (W)	29-Jan-2020	30-Jan-2020	29-Jan-2020
EPH CWG (Aromatic) Aqueous GC (W)	29-Jan-2020	30-Jan-2020	29-Jan-2020
GRO by GC-FID (W)	23-Jan-2020	24-Jan-2020	24-Jan-2020
Hexavalent Chromium (w)	24-Jan-2020	24-Jan-2020	24-Jan-2020
Low Level Cyanide (W)	24-Jan-2020	28-Jan-2020	28-Jan-2020
Mercury Dissolved	31-Jan-2020	30-Jan-2020	31-Jan-2020
Mercury Unfiltered	31-Jan-2020	31-Jan-2020	31-Jan-2020
Nitrite by Kone (w)	23-Jan-2020	25-Jan-2020	25-Jan-2020
PAH Spec MS - Aqueous (W)	29-Jan-2020	29-Jan-2020	29-Jan-2020
PCB Congeners - Aqueous (W)	29-Jan-2020	29-Jan-2020	29-Jan-2020
pH Value	27-Jan-2020	24-Jan-2020	24-Jan-2020
Phosphate by Kone (w)	28-Jan-2020	28-Jan-2020	28-Jan-2020
Redox Potential	28-Jan-2020	28-Jan-2020	28-Jan-2020
Suspended Solids	27-Jan-2020	27-Jan-2020	27-Jan-2020
SVOC MS (W) - Aqueous	29-Jan-2020	28-Jan-2020	29-Jan-2020
Total Metals by ICP-MS	30-Jan-2020	28-Jan-2020	28-Jan-2020
Total Nitrogen	24-Jan-2020	27-Jan-2020	27-Jan-2020
Total Organic and Inorganic Carbon	24-Jan-2020	24-Jan-2020	24-Jan-2020
TPH CWG (W)	29-Jan-2020	30-Jan-2020	29-Jan-2020
VOC MS (W)	24-Jan-2020	24-Jan-2020	24-Jan-2020

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. 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.

3. 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.

4. 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.

5. 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.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **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%. 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.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. 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.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. 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.

15. 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. t 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.

16. 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.

17. **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.

18. **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**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

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

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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

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.