H1 Assessment for Water Emissions

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For: Ringway Infrastructure Services Ltd

Site: Newport Pagnall

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Appendices

1. Introduction

Ringway Infrastructure Services Ltd (the Client) operates a maintenance contract on behalf of National Highways covering sections of the M1, A5, A1M & A421 in the vicinity of Newport Pagnall services (MK16 8DS). Maintenance includes clearing drains and gullies along this stretch of motorway and roadsweeping, including responding to incidents such as flooding or spills.

The waste operation will involve use of a storage bay for storage of the incoming waste. The storage bay drains to foul sewer. This drainage allows for the physical separation of the water fraction of the waste from solids. The site will effectively be used as a temporary storage depot / transfer station. This allows the Operator to maintain working capacity on their contract outside of operating hours of other facilities which would receive the waste, thus enhancing their capacity. As a result, the waste will be stored for short durations only, typically overnight and removed from Site within a week.

The facility will be operated from a purpose-built, concrete storage bay within the National Highways Newport Pagnall depot, next to Newport Pagnall Services at Junction 14/15 M1, Newport Pagnell MK16 8DS (the 'Site').

Waste will arrive to site in roadsweeping vehicles, tankers or similar and deposited within the purpose-built, concrete storage bay. Water will be allowed to separate from the solids and passively drain to foul sewer via a silt trap and hydrocarbon interceptor. The water discharge to foul sewer will be authorised by a separate consent to the local wastewater authority. It is estimated that the deposited waste may comprise up to 80% water.

Although there will be no treatment of waste onsite, as water is being allowed to separate from solids and passively drain to sewer via a silt trap and interceptor there is the intention to dewater the waste. This is considered to be a treatment process by the Environment Agency (EA) and therefore, it has been determined that the site will undertake a waste treatment operation and will be regulated by the EA as such.

Environment Agency Risk Assessment guidance https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit provides guidance on when a risk assessment is required to be prepared. The consideration of trade effluent discharge to foul sewer is not expressly addressed in this guidance.

Some worst-case sampling data is available for the gully waste. Arthian have used this data to undertake a quantitative risk assessment for the proposed discharge to sewer from the site. The methodology identified by the EA and the Department for Environment, Food and Rural Affairs for Environmental Permit applications: Surface water pollution risk assessment for your environmental permit - GOV.UK have been conservatively adopted.

2. Background Information

2.1 Sampling Activities

The Client has undertaken an indicative sampling suite which is considered to be representative of the substances/elements which may be contained in the facility's discharge to sewer. This data has been used to undertake the quantitative risk assessment. As can be seen in Table 2.1, the results of the majority of substances/elements were observed at the Limit of Detection (LOD) and as such, it is likely that negligible quantities of these parameters will be contained within the site's discharge to sewer.

Analysis was undertaken by a UKAS accredited laboratory, using personnel and equipment certified to meet the requirements of MCERTS standards.

Due to the number of substances/elements analysed, the table below provides a summary of site sample data for which EQS data is available and Appendix A of this report provides the sample analysis data.

The waste to be discharged to sewer will comprise the water fraction only, from gully waste returned to site. This water will have passed through a silt trap and a Class 1 hydrocarbon interceptor. As the activity is not yet in operation, a true representative sample could not be obtained. The sample analysis represents a sample taken from the gully waste tanker, without solids removal and without being passed through a hydrocarbon interceptor – and therefore represent a 'worst-case' representation of the waste quality.

Therefore, it has been determined that these results are suitable to be used as maximum results. To provide a conservative estimate with the data available, these results have also been used as average results.

Benzo(a)pyrene is typically found in effluent discharge in particle/sediment form. As the facility will utilise a silt trap, it has been estimated that 80% of benzo(a)pyrene s will be removed from the effluent prior to discharge, this is a typical removal rate for a silt trap. This removal rate has been applied to the results seen in Appendix A and Table 2.1 below.

Please note, some substances/elements have been analysed for which EQS data is not available and consequently they but have not been summarised in the tables below.

Table 2.1 – Analysed Substances/Elements (for which EQS Data is Available)

Substance/Element	No. of Results Available	Average/Maximum Result	Unit
Dissolved Arsenic	1	20*	µg/l
Dissolved Cadmium	1	0.5*	µg/l
Dissolved Copper	1	7*	µg/l
Dissolved Lead	1	5*	µg/l
Dissolved Mercury	1	1*	µg/l
Dissolved Nickel	1	2*	µg/l
Dissolved Zinc	1	12	µg/l
Benzene	1	0.5*	µg/l
Toluene	1	5*	µg/l
Xylene**	1	3*	µg/l
Hexavalent Chromium	1	6*	µg/l
Total Dissolved Chromium (III)	1	6*	µg/l
Dissolved Boron	1	74	µg/l
Naphthalene	1	0.1	µg/l
Benzo(a)pyrene	1	0.0342****	µg/l
Benzo(g,h,i)-perylene	1	0.066	µg/l
Benzo(b)-fluor-anthene	1	0.133	µg/l
Benzo(k)-fluor-anthene	1	0.052	µg/l
2-Chlorophenol	1	1*	µg/l
2,4-Dichlorophenol	1	0.5*	µg/l
4-Chloro-3-methylphenol	1	0.5*	µg/l
Phenol	1	1*	µg/l
Benzylbutyl phthalate	1	1*	µg/l
Dibutyl phthalate	1	1.5*	µg/l

Substance/Element	No. of Results Available	Average/Maximum Result	Unit
Dioctyl phthalate	1	1*	µg/l
Diethyl phthalate	1	1*	µg/l
Dimethyl phthalate	1	1*	µg/l
Dichlorobenzene***	1	3*	µg/l
Trichloro-benzenes	1	1*	µg/l
Hexachlorobenzene	1	1*	µg/l
Hexachlorobutadiene	1	1*	µg/l

*Result at Limit of Detection (LOD)

**Multiple isomers of xylene sampled for; result given is sum of all xylene analysis

***Multiple dichlorobenzenes sampled for; result given is sum of all dichlorobenzene analysis

****80% removal rate applied.

2.2 Quantitative Risk Assessment

The following methodology assesses the risk of any potentially hazardous chemicals and elements which could be released into surface water. This is carried out through a variety of screening tests. Where the screening tests identify environmental risk, a more detailed assessment, typically requiring the completion of detailed discharge modelling, may be required.

Screening tests are typically carried out in 3 stages:

1. Identify the possible pollutants released;
2. Gather data on these pollutants;
3. Carry out screening tests

The potential pollutants considered are identified in Table 2.1 and Appendix A.

The third phase of screening then involves comparison between the monitored data and any relevant EQS for each substance/element. To ensure that the risk assessment is suitably robust, both the annual average (AA) EQS and maximum allowable concentration (MAC) EQS have been utilised (where available) for the screening of each substance/element. However, due to data only being available for one sampling activity, both the average and maximum result are identical for each substance/parameter as justified in Section 2.1. Table 2.3 below details the available EQS data for each parameter included in Table 2.1.

Table 2.3 – All Available EQS Data for Analysed Substances/Elements

Substance/Element	AA EQS (µg/l)	MAC EQS (µg/l)
Arsenic	50	Not Applicable
Cadmium	≤0.08	≤0.45
Dissolved Copper	1 (bioavailable)	Not Applicable
Dissolved Lead	1.2	14
Dissolved Mercury	Not Applicable	0.07
Dissolved Nickel	4 (bioavailable)	34
Dissolved Zinc	10.9 (bioavailable)	Not Applicable
Benzene	10	50
Toluene	74	380 (95th Percentile)
Xylene	30	Not Applicable
Hexavalent Chromium	3.4	Not Applicable
Total Dissolved Chromium (III)	4.7	32 (95th Percentile)
Boron	2,000	Not Applicable
Naphthalene	2	130
Benzo(a)pyrene	Not Applicable	0.27
Benzo(g,h,i)-perylene	Not Applicable	0.0082
Benzo(b)-fluor-anthene	Not Applicable	0.017
Benzo(k)-fluor-anthene	Not Applicable	0.017
2-Chlorophenol	50	Not Applicable
2,4-Dichlorophenol	4.2	140 (95th Percentile)
4-Chloro-3-methylphenol	40	Not Applicable
Phenol	7.7	46 (95th Percentile)
Benzylbutyl phthalate	7.5	51 (95th Percentile)
Dibutyl phthalate	8	40
Dioctyl phthalate	20	40

Substance/Element	AA EQS (µg/l)	MAC EQS (µg/l)
Diethyl phthalate	200	1,000
Dimethyl phthalate	800	4,000
Dichlorobenzene	20	200
Trichloro-benzenes	0.4	Not Applicable
Hexachlorobenzene	Not Applicable	0.05
Hexachlorobutadiene	Not Applicable	0.6
Polyaromatic hydrocarbons (PAH)*	0.00017	Not Applicable

*Benzo(a)pyrene can be considered as a marker for the other polyaromatic hydrocarbons, hence only benzo(a)pyrene needs to be monitored for comparison with the biota EQS or the corresponding AA-EQS in water.

As noted in Table 2.3 above, some EQS data is for the bioavailable fraction of the substance. To provide a conservative assessment, however, it has been assumed that the applicable results seen in Table 2.1 are entirely bioavailable.

Depending on the type of treatment used, sewerage treatment works will remove a proportion of pollutants before they are discharged into a receiving surface water feature. The amount of pollutant removal is known as the Sewerage Treatment Reduction Factor and must be accounted for when calculating final discharge concentrations.

As the Client are not yet discharging to sewer and are currently in the process of applying for a trade effluent discharge consent to do so, the exact treatment facility for which the site's discharge to sewer will be routed to is unknown at this time. However, through careful review of the site's location and of nearby treatment works, it is assumed that discharge will be sent to Anglian Water's Cotton Valley Sewage Treatment Works (STW) located to the east of Milton Keynes. This STW employs activated sludge treatment and so the following table displays the relevant sewerage reduction factors and final discharge concentrations for this treatment technology.

Please note that the sewerage reduction factors are generic and do not reflect the actual performance of the Cotton Valley STW, which may be superior to the abatement suggested by the factors utilised in this assessment.

Table 2.4 – Sewerage Treatment Reduction Factors for Each Relevant Analysed Substance/Element

Substance/Element	Sewage Treatment Reduction Factor	Average/Maximum Discharge	Units
Arsenic*	0.89	17.8	µg/l
Cadmium*	0.37	0.185	µg/l
Dissolved Copper	0.58	4.06	µg/l
Dissolved Lead	0.67	3.35	µg/l
Dissolved Mercury	1.00	1	µg/l
Dissolved Nickel	1.00	2	µg/l
Dissolved Zinc	1.00	12	µg/l
Benzene	0.00	0	µg/l
Toluene	0.00	0	µg/l
Xylene	0.00	0	µg/l
Hexavalent Chromium	0.16	0.96	µg/l
Total Dissolved Chromium (III)	0.16	0.96	µg/l
Boron*	1.00	74	µg/l
Naphthalene	0.98	0.098	µg/l
Benzo(a)pyrene	1.00	0.0228	µg/l
Benzo(g,h,i)-perylene	0.61	0.04026	µg/l
Benzo(b)-fluor-anthene	1.00	0.133	µg/l
Benzo(k)-fluor-anthene	1.00	0.052	µg/l
2-Chlorophenol	0.17	0.17	µg/l
2,4-Dichlorophenol	0.17	0.085	µg/l
4-Chloro-3-methylphenol	0.17	0.085	µg/l
Phenol	0.17	0.17	µg/l
Benzylbutyl phthalate	0.04	0.04	µg/l
Dibutyl phthalate	0.002	0.003	µg/l
Dioctyl phthalate	1.00	1	µg/l

Substance/Element	Sewage Treatment Reduction Factor	Average/Maximum Discharge	Units
Diethyl phthalate	1.00	1	µg/l
Dimethyl phthalate	1.00	1	µg/l
Dichlorobenzene	1.00	3	µg/l
Trichloro-benzenes	0.00	0	µg/l
Hexachlorobenzene	0.03	0.03	µg/l
Hexachlorobutadiene	0.00	0	µg/l
PAH	0.2	0.00456	µg/l

*Analysis reports the dissolved portion of these substances. The sewerage reduction factor for the total has been used to match EQS data. For this assessment it is assumed that the quantity of the dissolved substances in the wastewater is the same as the quantity of the total substance.

To determine the relevant screening tests which are to be carried out for a risk assessment, it must be identified whether the receiving surface water feature is freshwater, an estuary, or a coastal body. The exact discharge location of effluent from the Cotton Valley STW is unknown at this time, it is assumed that effluent is either discharged into the River Ouzel (a freshwater river which flows directly adjacent to the STW) or the River Great Ouse (a freshwater river which flows to the north of the STW). In either scenario, the relevant screening tests for the risk assessment for the site are as follows:

1. Comparison with relevant EQS;
2. Comparison with relevant EQS, introducing dilution;
3. Comparison with relevant EQS, introducing background concentration data;
4. Comparison of the predicted environmental concentration with the relevant EQS.

The tests are sequential, with each screening test building on the result of the previous test.

3. Screening Test Results

The sequential screening tests described previously involve the comparison of discharge concentrations to EQS. When a pollutant is screened out by a test (i.e., there is acceptable environmental risk) it is not included in further tests.

For conciseness, only pollutants for which EQS have been defined (as provided in Table 2.1) have been detailed in these screening tests.

3.1 Screening Test 1

Screening Test 1 involves a direct comparison between discharge concentrations and the relevant EQS. If the discharge concentration is below 10% of the EQS, the pollutant is screened out and there is acceptable environmental risk. The results of this screening test are displayed below in Table 3.1.

Table 3.1 – Quantitative Risk Assessment: Screening Test 1 Results

Substance/Element	Average/Maximum Discharge (µg/l)	AA EQS (µg/l)	% of AA EQS	MAC EQS (µg/l)	% of MAC EQS
Arsenic	17.8	50	35.6%	Not Applicable	Not Applicable
Cadmium	0.185	≤0.08	231.3%	≤0.45	41.1%
Dissolved Copper	4.06	1 (bioavailable)	406.0%	Not Applicable	Not Applicable
Dissolved Lead	3.35	1.2	279.2%	14	23.9%
Dissolved Mercury	1	Not Applicable	Not Applicable	0.07	1428.6%
Dissolved Nickel	2	4 (bioavailable)	50.0%	34	5.88%
Dissolved Zinc	12	10.9 (bioavailable)	110.1%	Not Applicable	Not Applicable
Benzene	0	10	0.00%	50	0.00%
Toluene	0	74	0.00%	380 (95th Percentile)	0.00%
Xylene	0	30	0.00%	Not Applicable	Not Applicable
Hexavalent Chromium	0.96	3.4	28.2%	Not Applicable	Not Applicable
Total Dissolved Chromium (III)	0.96	4.7	20.4%	32 (95th Percentile)	3.00%
Boron	74	2,000	3.70%	Not Applicable	Not Applicable
Naphthalene	0.098	2	4.90%	130	0.08%
Benzo(a)pyrene	0.0228	Not Applicable	Not Applicable	0.27	8.44%
Benzo(g,h,i)-perylene	0.04026	Not Applicable	Not Applicable	0.0082	491.0%

Substance/Element	Average/Maximum Discharge (µg/l)	AA EQS (µg/l)	% of AA EQS	MAC EQS (µg/l)	% of MAC EQS
Benzo(b)-fluor-anthene	0.133	Not Applicable	Not Applicable	0.017	782.4%
Benzo(k)-fluor-anthene	0.052	Not Applicable	Not Applicable	0.017	305.9%
2-Chlorophenol	0.17	50	0.34%	Not Applicable	Not Applicable
2,4-Dichlorophenol	0.085	4.2	2.02%	140 (95th Percentile)	0.06%
4-Chloro-3-methylphenol	0.085	40	0.21%	Not Applicable	Not Applicable
Phenol	0.17	7.7	2.21%	46 (95th Percentile)	0.37%
Benzylbutyl phthalate	0.04	7.5	0.53%	51 (95th Percentile)	0.08%
Dibutyl phthalate	0.003	8	0.04%	40	0.01%
Dioctyl phthalate	1	20	5.00%	40	2.50%
Diethyl phthalate	1	200	0.50%	1,000	0.10%
Dimethyl phthalate	1	800	0.13%	4,000	0.03%
Dichlorobenzene	3	20	15.0%	200	1.50%
Trichloro-benzenes	0	0.4	0.00%	Not Applicable	Not Applicable
Hexachlorobenzene	0.03	Not Applicable	Not Applicable	0.05	60.0%
Hexachlorobutadiene	0	Not Applicable	Not Applicable	0.6	0.00%
PAH	0.00456	0.00017	2682.4%	Not Applicable	Not Applicable

As can be seen from the table above, the following substances/elements for which a defined EQS is available screen out:

- Benzene;
- Toluene;
- Xylene;
- Boron;
- Naphthalene;
- Benzo(a)pyrene;
- 2-Chlorophenol;
- 2,4-Dichlorophenol;
- 4-Chloro-3-methylphenol;
- Phenol;
- Benzylbutyl phthalate;
- Dibutyl phthalate;
- Dioctyl phthalate;
- Diethyl phthalate;
- Dimethyl phthalate;
- Trichloro-benzenes; and
- Hexachlorobutadiene

Therefore, these substances/elements have not been considered in further screening tests.

Only substances/elements for which the discharge concentration is less than both the AA EQS and MAC EQS are considered to screen out.

3.2 Screening Test 2

This test introduces the dilution available in the receiving water. As mentioned in Section 2.2, it cannot be determined at this time exactly where effluent from the Cotton Valley STW is discharged to. In order to provide a conservative assessment, the lowest potential river flow for which data is available (obtained from the National River Flow Archive[1]) has been used, this provides a river flow rate of 239 l/s.

This river flow rate is the 95% exceedance (Q95) value for the Bedford Ouse at Thornborough Mill peak flow monitoring station (Station No. 33005). This is the closest monitoring station located upstream of the potential discharge point of the Cotton Valley STW to the River Great Ouse. This monitoring station is a large distance away from the potential discharge point and it is likely that the river flow closer to the discharge point is greater than the flow rate provided above due to the ingress of additional water courses. However, the use of this river flow rate once again provides a conservative assessment.

It is anticipated that the site will discharge up to 3 tanker's worth of liquid (30,000 litres) over a 24-hour period, this equates to a discharge flow rate of 0.3472 l/s assuming a gravity-based 150mm pipework system is used.

The process contributions (PC) for the average/maximum discharge of all substances/elements which did not screen out during Screening Test 1 were calculated. For the purposes of Screening Test 2, if a

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[1] https://nrfa.ceh.ac.uk/data/station/info/33005

substance/element’s PC is below 4% of the relevant EQS, it is screened out and it is deemed that there is no environmental risk.

The following steps were used to calculate each pollutant’s PC:

1. Multiply the expected discharge flow rate by the discharge concentration of each substance/element.
2. Add the discharge flow rate to the river flow rate.
3. Divide the result of step 1 by the result of step 2.

The results of this screening test are displayed in Table 3.2.

Substance/Element	Average/Maximum Discharge (µg/l)	Average/Maximum Mass Flow (µg/s)	Average/Maximum PC (µg/l)	AA EQS (µg/l)	% of AA EQS	MAC EQS (µg/l)	% of MAC EQS
Arsenic	17.8	2.06	0.0086	50	0.02%	Not Applicable	Not Applicable
Cadmium	0.185	0.02	8.95x10^{-5}	≤0.08	0.11%	≤0.45	0.02%
Dissolved Copper	4.06	0.47	0.0020	1 (bioavailable)	0.20%	Not Applicable	Not Applicable
Dissolved Lead	3.35	0.39	0.0016	1.2	0.14%	14	0.01%
Dissolved Mercury	1	0.12	0.0005	Not Applicable	Not Applicable	0.07	0.69%
Dissolved Nickel	2	0.23	0.0010	4 (bioavailable)	0.02%	34	0.00%
Dissolved Zinc	12	1.39	0.0058	10.9 (bioavailable)	0.05%	Not Applicable	Not Applicable
Hexavalent Chromium	0.96	0.11	0.0005	3.4	0.01%	Not Applicable	Not Applicable
Total Dissolved Chromium (III)	0.96	0.11	0.0005	4.7	0.01%	32 (95th Percentile)	0.00%
Benzo(g,h,i)-perylene	0.04026	0.005	1.95x10^{-5}	Not Applicable	Not Applicable	0.0082	0.24%
Benzo(b)-fluoranthene	0.133	0.02	6.44x10^{-5}	Not Applicable	Not Applicable	0.017	0.38%
Benzo(k)-fluoranthene	0.052	0.006	2.52x10^{-5}	Not Applicable	Not Applicable	0.017	0.15%
Dichlorobenzene	3	0.35	0.0015	20	0.01%	200	0.00%
Hexachlorobenzene	0.03	0.003	1.45x10^{-5}	Not Applicable	Not Applicable	0.05	0.03%
PAH	0.00456	0.002	6.61x10^{-6}	0.00017	3.89%	Not Applicable	Not Applicable

As can be seen from the table above, all substances/elements for which EQS have been defined screen out from this test and the discharge of these substances/elements from the site can, therefore, initially be deemed as an acceptable environmental risk. As all substances/elements have been screened out following the completion of Screening Test 2, Screening Tests 3 and 4 are not necessary and have not been carried out.

3.3 Quantitative Risk Assessment Conclusions

The Client has undertaken a sampling suite of untreated wastewater which is currently transported off-site for disposal via tankering. Once permitted to do so, the Client will look to discharge effluent treated via silt trap and hydrocarbon interceptor to foul sewer. It is anticipated that this discharge will be directed to the Cotton Valley STW, treated, and finally discharged to a local waterbody (the exact waterbody cannot be confirmed at this time).

The sampling suite undertaken by the Client is thought to be representative of all substances/elements which may be contained in the facility's discharge to sewer. All substances/elements which were included in the sampling suite and for which EQS data is available have been included within this quantitative risk assessment.

All substances/elements which were included within this quantitative risk assessment and will be potentially discharged to foul sewer from the site screened out during either Screening Test 1 or Screening Test 2 and so, no adverse environmental impact is expected due to the discharge of these substances/elements from the site. The quantitative risk assessment undertaken utilised worst-case conditions to provide a conservative assessment.

Appendix A: Analysis Results

Element Materials Technology
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Arthian Ltd
39 Bo'ness Road
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Attention : Kate Brady

Date : 22nd April, 2025

Your reference : 319027

Our reference : Test Report 25/5536 Batch 1

Location : Newport Pagnall

Date samples received : 5th April, 2025

Status : Final Report

Issue : 202504221215

Two samples were received for analysis on 5th April, 2025 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 3.982 kg of CO2

Scope 1&2&3 emissions - 9.411 kg of CO2

Authorised By:

Bruce Leslie
Project Manager

Client Name: Arthian Ltd
Reference: 319027
Location: Newport Pagnall
Contact: Kate Brady
EMT Job No: 25/5536

Report : **Liquid**

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-5	6-12											
Sample ID	BULK SAMPLE	SETTLED SAMPLE											
Depth													
COC No / misc													
Containers	V HNUF P G	V HNUF P BOD G											
Sample Date	03/04/2025 12:40	03/04/2025 16:30											
Sample Type	Leachate	Leachate											
Batch Number	1	1											
Date of Receipt	05/04/2025	05/04/2025									LOD/LOR	Units	Method No.
Dissolved Aluminium	<20	<20									<20	ug/l	TM30/PM14
Dissolved Arsenic	<2.5	<2.5									<2.5	ug/l	TM30/PM14
Dissolved Barium	818	647									<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5									<0.5	ug/l	TM30/PM14
Dissolved Boron	74	56									<12	ug/l	TM30/PM14
Dissolved Cadmium	<0.5	<0.5									<0.5	ug/l	TM30/PM14
Total Dissolved Chromium	<1.5	<1.5									<1.5	ug/l	TM30/PM14
Dissolved Copper	<7	<7									<7	ug/l	TM30/PM14
Dissolved Lead	<5	<5									<5	ug/l	TM30/PM14
Dissolved Mercury	<1	<1									<1	ug/l	TM30/PM14
Dissolved Nickel	<2	<2									<2	ug/l	TM30/PM14
Dissolved Selenium	<3	<3									<3	ug/l	TM30/PM14
Dissolved Vanadium	<1.5	<1.5									<1.5	ug/l	TM30/PM14
Dissolved Zinc	<3	12									<3	ug/l	TM30/PM14
PAH MS													
Naphthalene	-	0.1									<0.1	ug/l	TM4/PM30
Acenaphthylene	-	0.011									<0.005	ug/l	TM4/PM30
Acenaphthene	-	0.056									<0.005	ug/l	TM4/PM30
Fluorene	-	0.082									<0.005	ug/l	TM4/PM30
Phenanthrene	-	0.270									<0.005	ug/l	TM4/PM30
Anthracene	-	0.046									<0.005	ug/l	TM4/PM30
Fluoranthene	-	0.395									<0.005	ug/l	TM4/PM30
Pyrene	-	0.339									<0.005	ug/l	TM4/PM30
Benzo(a)anthracene	-	0.105									<0.005	ug/l	TM4/PM30
Chrysene	-	0.132									<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene	-	0.185									<0.008	ug/l	TM4/PM30
Benzo(a)pyrene	-	0.114									<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene	-	0.075									<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene	-	<0.005									<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene	-	0.066									<0.005	ug/l	TM4/PM30
PAH 16 Total	-	1.976									<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	-	0.133									<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	-	0.052									<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	-	79									<0	%	TM4/PM30
Methyl Tertiary Butyl Ether	-	<0.1									<0.1	ug/l	TM15/PM10
Benzene	-	<0.5									<0.5	ug/l	TM15/PM10
Toluene	-	<5									<5	ug/l	TM15/PM10
Ethylbenzene	-	<1									<1	ug/l	TM15/PM10
m/p-Xylene	-	<2									<2	ug/l	TM15/PM10
o-Xylene	-	<1									<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	-	96									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	102									<0	%	TM15/PM10

Client Name: Arthian Ltd
Reference: 319027
Location: Newport Pagnall
Contact: Kate Brady
EMT Job No: 25/5536

Report : **Liquid**

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-5	6-12			
Sample ID	BULK SAMPLE	SETTLED SAMPLE			
Depth					
COC No / misc					
Containers	V HNUF P G	V HNUF P BOD G			
Sample Date	03/04/2025 12:40	03/04/2025 16:30			
Sample Type	Leachate	Leachate			
Batch Number	1	1	LOD/LOR	Units	Method No.
Date of Receipt	05/04/2025	05/04/2025			
MTBE	<5	-	<5	ug/l	TM36/PM12
Benzene	<5	-	<5	ug/l	TM36/PM12
Toluene	<5	-	<5	ug/l	TM36/PM12
Ethylbenzene	<5	-	<5	ug/l	TM36/PM12
m/p-Xylene	<5	-	<5	ug/l	TM36/PM12
o-Xylene	<5	-	<5	ug/l	TM36/PM12
TPH CWG					
Aliphatics					
>C5-C6 (HS_1D_AL)	<10	<10	<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL)	16	<10	<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL)	<10	<10	<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL)	$<5^{SV}$	<5	<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL)	$<10^{SV}$	<10	<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL)	$<10^{SV}$	<10	<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL)	$<10^{SV}$	<10	<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 (EH_CU+HS_1D_AL)	16^{SV}	<10	<10	ug/l	TM5/TM36/PM12/PM16/PM30
Aromatics					
>C5-EC7 (HS_1D_AR)	<10	<10	<10	ug/l	TM36/PM12
>EC7-EC8 (HS_1D_AR)	<10	<10	<10	ug/l	TM36/PM12
>EC8-EC10 (HS_1D_AR)	<10	<10	<10	ug/l	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR)	<5	<5	<5	ug/l	TM5/PM16/PM30
>EC12-EC16 (EH_CU_1D_AR)	<10	<10	<10	ug/l	TM5/PM16/PM30
>EC16-EC21 (EH_CU_1D_AR)	<10	<10	<10	ug/l	TM5/PM16/PM30
>EC21-EC35 (EH_CU_1D_AR)	<10	<10	<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 (EH_CU+HS_1D_AR)	<10	<10	<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) (EH_CU+HS_1D_Total)	16	<10	<10	ug/l	TM5/TM36/PM12/PM16/PM30
Hexavalent Chromium	<6	<6	<6	ug/l	TM38/PM0
Total Dissolved Chromium III	<6	<6	<6	ug/l	TM0/PM0
BOD (Settled)	-	$<30_{AB}$	<1	mg/l	TM58/PM0
COD (Settled)	-	264_{AA}	<7	mg/l	TM57/PM0
Dissolved Oxygen	-	4	<1	mg/l	TM58/PM0
Electrical Conductivity @25C	-	17201	<2	uS/cm	TM76/PM0
pH	-	7.55	<0.01	pH units	TM73/PM0
Total Suspended Solids	299	133	<10	mg/l	TM37/PM0

Client Name:	Arthian Ltd	**SVOC Report :**	**Liquid**
Reference:	319027		
Location:	Newport Pagnall		
Contact:	Kate Brady		
EMT Job No:	25/5536		

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	6-12										LOD/LOR	Units	Method No.
Sample ID	SETTLED SAMPLE												
Depth													
COC No / misc													
Containers	V HNUF P BOD G												
Sample Date	03/04/2025 16:30												
Sample Type	Leachate												
Batch Number	1												
Date of Receipt	05/04/2025												
SVOC MS													
Phenols													
2-Chlorophenol	<1										<1	ug/l	TM16/PM30
2-Methylphenol	<0.5										<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5										<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol	<0.5										<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1										<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol	<0.5										<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1										<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol	<0.5										<0.5	ug/l	TM16/PM30
4-Methylphenol	<1										<1	ug/l	TM16/PM30
4-Nitrophenol	<10										<10	ug/l	TM16/PM30
Pentachlorophenol	<1										<1	ug/l	TM16/PM30
Phenol	<1										<1	ug/l	TM16/PM30
PAHs													
2-Chloronaphthalene	<1										<1	ug/l	TM16/PM30
2-Methylnaphthalene	<1										<1	ug/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	12										<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1										<1	ug/l	TM16/PM30
Di-n-butyl phthalate	<1.5										<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1										<1	ug/l	TM16/PM30
Diethyl phthalate	<1										<1	ug/l	TM16/PM30
Dimethyl phthalate	<1										<1	ug/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene	<1										<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene	<1										<1	ug/l	TM16/PM30
1,3-Dichlorobenzene	<1										<1	ug/l	TM16/PM30
1,4-Dichlorobenzene	<1										<1	ug/l	TM16/PM30
2-Nitroaniline	<1										<1	ug/l	TM16/PM30
2,4-Dinitrotoluene	<0.5										<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1										<1	ug/l	TM16/PM30
3-Nitroaniline	<1										<1	ug/l	TM16/PM30
4-Bromophenylphenylether	<1										<1	ug/l	TM16/PM30
4-Chloroaniline	<1										<1	ug/l	TM16/PM30
4-Chlorophenylphenylether	<1										<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5										<0.5	ug/l	TM16/PM30
Azobenzene	<0.5										<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane	<0.5										<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether	<1										<1	ug/l	TM16/PM30
Carbazole	<0.5										<0.5	ug/l	TM16/PM30
Dibenzofuran	<0.5										<0.5	ug/l	TM16/PM30
Hexachlorobenzene	<1										<1	ug/l	TM16/PM30
Hexachlorobutadiene	<1										<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1										<1	ug/l	TM16/PM30
Hexachloroethane	<1										<1	ug/l	TM16/PM30
Isophorone	<0.5										<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine	<0.5										<0.5	ug/l	TM16/PM30
Nitrobenzene	<1										<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	80										<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	90										<0	%	TM16/PM30

Client Name: Arthian Ltd
Reference: 319027
Location: Newport Pagnall
Contact: Kate Brady
EMT Job No: 25/5536

VOC Report : **Liquid**

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	6-12												
Sample ID	SETTLED SAMPLE												
Depth													
COC No / misc													
Containers	V HNUF P BOD G												
Sample Date	03/04/2025 16:30												
Sample Type	Leachate												
Batch Number	1											LOD/LOR	Units	Method No.
Date of Receipt	05/04/2025												
VOC MS													
Dichlorodifluoromethane	<2										<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether	<0.1										<0.1	ug/l	TM15/PM10
Chloromethane	<3										<3	ug/l	TM15/PM10
Vinyl Chloride	<0.1										<0.1	ug/l	TM15/PM10
Bromomethane	<1										<1	ug/l	TM15/PM10
Chloroethane	<3										<3	ug/l	TM15/PM10
Trichlorofluoromethane	<3										<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE)	<3										<3	ug/l	TM15/PM10
Dichloromethane (DCM)	<3										<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene	<3										<3	ug/l	TM15/PM10
1,1-Dichloroethane	<3										<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene	<3										<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1										<1	ug/l	TM15/PM10
Bromochloromethane	<2										<2	ug/l	TM15/PM10
Chloroform	<2										<2	ug/l	TM15/PM10
1,1,1-Trichloroethane	<2										<2	ug/l	TM15/PM10
1,1-Dichloropropene	<3										<3	ug/l	TM15/PM10
Carbon tetrachloride	<2										<2	ug/l	TM15/PM10
1,2-Dichloroethane	<2										<2	ug/l	TM15/PM10
Benzene	<0.5										<0.5	ug/l	TM15/PM10
Trichloroethene (TCE)	<3										<3	ug/l	TM15/PM10
1,2-Dichloropropane	<2										<2	ug/l	TM15/PM10
Dibromomethane	<3										<3	ug/l	TM15/PM10
Bromodichloromethane	<2										<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2										<2	ug/l	TM15/PM10
Toluene	<5										<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2										<2	ug/l	TM15/PM10
1,1,2-Trichloroethane	<2										<2	ug/l	TM15/PM10
Tetrachloroethene (PCE)	<3										<3	ug/l	TM15/PM10
1,3-Dichloropropane	<2										<2	ug/l	TM15/PM10
Dibromochloromethane	<2										<2	ug/l	TM15/PM10
1,2-Dibromoethane	<2										<2	ug/l	TM15/PM10
Chlorobenzene	<2										<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane	<2										<2	ug/l	TM15/PM10
Ethylbenzene	<1										<1	ug/l	TM15/PM10
m/p-Xylene	<2										<2	ug/l	TM15/PM10
o-Xylene	<1										<1	ug/l	TM15/PM10
Styrene	<2										<2	ug/l	TM15/PM10
Bromoform	<2										<2	ug/l	TM15/PM10
Isopropylbenzene	<3										<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4										<4	ug/l	TM15/PM10
Bromobenzene	<2										<2	ug/l	TM15/PM10
1,2,3-Trichloropropane	<3										<3	ug/l	TM15/PM10
Propylbenzene	<3										<3	ug/l	TM15/PM10
2-Chlorotoluene	<3										<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene	<3										<3	ug/l	TM15/PM10
4-Chlorotoluene	<3										<3	ug/l	TM15/PM10
tert-Butylbenzene	<3										<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene	<3										<3	ug/l	TM15/PM10
sec-Butylbenzene	<3										<3	ug/l	TM15/PM10
4-Isopropyltoluene	<3										<3	ug/l	TM15/PM10
1,3-Dichlorobenzene	<3										<3	ug/l	TM15/PM10
1,4-Dichlorobenzene	<3										<3	ug/l	TM15/PM10
n-Butylbenzene	<3										<3	ug/l	TM15/PM10
1,2-Dichlorobenzene	<3										<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2										<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3										<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3										<3	ug/l	TM15/PM10
Naphthalene	<2										<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3										<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	96										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102										<0	%	TM15/PM10

Client Name: Arthian Ltd
Reference: 319027
Location: Newport Pagnall
Contact: Kate Brady

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 25/5536						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).
Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitively, with a matrix specific limit of detection. Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution
AB	x30 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 25/5536

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM0	Not available	PM0	No preparation is required.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM37	Modified methods - TSS: USEPA 160.2 (1983), EN872:2005 and APHA SMEWW 2540D:1999 22nd Edition; VSS: USEPA 1684 (Jan 2001), USEPA 160.4 (1971) and SMEWW 2540E:1999 22nd Edition. Gravimetric determination of Total Suspended Solids (TSS) and Volatile Suspended Solids (VSS). Sample is filtered through a 1.5um pore size glass fibre filter and the resulting residue is dried and weighed at 105°C for TSS and 550°C for VSS	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.				

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Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM57	Modified US EPA Method 410.4. (Rev. 2.0 1993) Comparable with ISO 15705:2002. Chemical Oxygen Demand is determined by hot digestion with Potassium Dichromate and measured spectrophotometerically.	PM0	No preparation is required.				
TM58	APHA SMEWW 5210B:1999 22nd Edition. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as am	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.				