

Geosyntec Consulting  
Suite 2, Aztec Centre  
Aztec West  
Almondsbury  
Bristol  
United Kingdom  
BS32 4TD



4225



**Attention :** Andrew Morgan  
**Date :** 18th June, 2025  
**Your reference :** AF/PFAS Analysis  
**Our reference :** Test Report 25/4618 Batch 2  
**Location :** Angus Fire Bentham  
**Date samples received :** 28th March, 2025  
**Status :** Final report  
**Issue :** 202504080847

One sample was received for analysis on 28th March, 2025 and was 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 - 4.199 kg of CO2

Scope 1&2&3 emissions - 9.924 kg of CO2

**Authorised By:**



**Simon Gomery BSc**

Senior Technical Account Manager

Please include all sections of this report if it is reproduced

# Element Materials Technology

**Client Name:** Geosyntec Consulting  
**Reference:** AF/PFAS Analysis  
**Location:** Angus Fire Bentham  
**Contact:** Andrew Morgan  
**EMT Job No:** 25/4618

**Report :** Liquid

**Liquids/products:** V=40ml vial, G=glass bottle, P=plastic bottle  
 H=H<sub>2</sub>SO<sub>4</sub>, Z=ZnAc, N=NaOH, HN=HNO<sub>3</sub>

EMT Sample No.	6											
Sample ID	M-1BC-270325											
Depth												
COC No / misc												
Containers	PF											
Sample Date	27/03/2025 09:54											
Sample Type	Surface Water											
Batch Number	2											
Date of Receipt	28/03/2025											
		LOD/LOR	Units	Method No.								
Dissolved Arsenic #	<0.9	<0.9	ug/l	TM170/PM14								
Dissolved Boron #	19	<12	ug/l	TM170/PM14								
Dissolved Cadmium #	0.04	<0.03	ug/l	TM170/PM14								
Dissolved Copper #	5	<1	ug/l	TM170/PM14								
Dissolved Lead #	1.9	<0.4	ug/l	TM170/PM14								
Dissolved Mercury #	<0.5	<0.5	ug/l	TM170/PM14								
Dissolved Nickel #	2.2	<0.2	ug/l	TM170/PM14								
Dissolved Vanadium #	<0.6	<0.6	ug/l	TM170/PM14								
Dissolved Zinc #	129	<3	ug/l	TM170/PM14								
Sulphate as SO4 #	16.2	<0.5	mg/l	TM38/PM0								
Hexavalent Chromium	<2	<2	ug/l	TM38/PM0								

Please see attached notes for all abbreviations and acronyms

Client Name: Geosyntec Consulting  
Reference: AF/PFAS Analysis  
Location: Angus Fire Bentham  
Contact: Andrew Morgan  
EMT Job No: 25/4618

VOC Report : Liquid

EMT Sample No.	6									Please see attached notes for all abbreviations and acronyms			
Sample ID	M-1BC-270325												
Depth													
COC No / misc													
Containers	PF												
Sample Date	27/03/2025 09:54												
Sample Type	Surface Water												
Batch Number	2												
Date of Receipt	28/03/2025												
VOC MS										LOD/LOR	Units	Method No.	
Dichloromethane (DCM) #	52									<3	ug/l	TM15/PM10	
Benzene #	<0.5									<0.5	ug/l	TM15/PM10	
Toluene #	<5									<5	ug/l	TM15/PM10	
Naphthalene	<2									<2	ug/l	TM15/PM10	
Surrogate Recovery 4-Bromofluorobenzene	101									<0	%	TM15/PM10	

# NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 25/4618

## 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 overestimate 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.

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

**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-quantitatively, 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

## 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: 25/4618

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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.	Yes			
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	Yes			
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: 2013!	PM0	No preparation is required.	Yes			
TM135	Analysis of PFAS compounds in Water and Soil by LC-MS/MS	PM121	Preparation of PFAS liquid samples - As received samples are centrifuged and the supernatant is used for PFAS analysis.				
TM135	Analysis of PFAS compounds in Water and Soil by LC-MS/MS	PM122	SPE Preparation of Water Samples for PFAS analysis by LC-MS/MS				
TM135	Analysis of PFAS compounds in Water and Soil by LC-MS/MS	PM122	SPE Preparation of Water Samples for PFAS analysis by LC-MS/MS	Yes			
TM170	Determination of Trace Metals by ICP-MS (Inductively Coupled Plasma-Mass Spectrometry); Modified USEPA Method 200.8, Rev. 5.4, 1994; Modified EPA Method 6020A, Rev.1, Feb 2007; Modified BS EN ISO 17294-2:2016	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	Yes			