KEADBY
NEXT GENERATION
POWER STATION
Hydrogen-enabled flexible power

A collaboration between SSE Thermal and Equinor

# The Keadby Next Generation Power Station Project

**Document Ref: 6.2**

**Planning Inspectorate Ref: EN0110001**

**The Keadby Next Generation Power Station Development Consent Order [year]**

# Appendix 13A: Phase 1 Desk Based Assessment Addendum

# Annex 6 – ERM (2025)Groundwater Sampling at Keadby 2

**The Planning Act 2008**

**The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017**

**Applicant: Keadby Next Generation Limited**

**Date: August 2025**

**Version: V0**

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# Document History

| | |
|---|---|
| **Document Ref** | 6.3.19 / Appendix 13A – Annex 6 |
| **Version** | V0 |
| **Document Owner** | Arup |

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Jonathan Smith - SSE
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DATE
31 March 2025

SUBJECT
Groundwater Sampling at Keadby 2

REFERENCE
0774282

Dear Jonathan

ERM is pleased to present our findings to SSE (the "Client"), on the assessment of groundwater quality in an area around above ground oil tanks on the Keadby 2 site near Scunthorpe in North Lincolnshire.

## 1. INTRODUCTION

ERM was commissioned by SSE to assess the groundwater quality in an area around above ground oil tanks on the Keadby 2 site, to verify whether there is still the potential for hydrocarbon contamination close to the former oil storage tanks. This is an initial phase of work to assess the serviceability of the existing groundwater wells and gather groundwater chemical data.

## 2. BACKGROUND

URS were commissioned by SSE in 2010 to undertake an Environmental Site Investigation at the Keadby site. It was understood that a historical oil spill had occurred in the area adjacent to the fuel oil storage tanks in the west of the Site. The aim of the investigation was to assess the potential for contamination and risks to the identified receptors; principally the shallow groundwater (secondary aquifer), the River Trent, the nearby drainage ditch, the Kelsey Drain and current / future on site workers.

URS drilled five boreholes (BH101 to BH105) to a maximum of 3.0 m bgl and these were installed with groundwater monitoring wells. A groundwater dip round reported levels that indicated a groundwater flow direction towards the east.

TPH and ethyl benzene were detected in the shallow soil and groundwater associated with the historical oil spill, particularly long chained hydrocarbons at BH102 which were likely to have low leaching potential. When compared to site-specific screening criteria, URS considered that the reported contamination was unlikely to pose a significant harm to human health, and the risk associated to groundwater was also considered to be low based on a commercial end use, given the inherent conservatism of the assessment and absence of downgradient contamination.

Reported soil TPH and ethyl benzene concentrations were generally within two orders of magnitude of the Stage 2 screening criteria. Although the results of the Stage 2 screen did

indicate exceedances, URS considered that it was unlikely that the detected soil and groundwater concentrations posed a significant potential of significant harm to the identified human health and controlled waters receptors.

## 3. ERM SCOPE COMPLETED

ERM has completed the following limited scope in order to determine the potential impact on controlled waters for the same area as described above:

- A site-specific Health and Safety Plan (HASP) was prepared by ERM prior to commencing the work. All work on site was carried out by an experienced ERM consultant who undertook the relevant inductions prior to arrival on site.
- ERM undertook fieldwork at the Site on the 7th March 2025, which consisted of recording groundwater levels, purging monitoring wells prior to sampling and groundwater sampling, at five (5 No.) existing monitoring wells (BH101, BH102, BH103, BH104 and BH105).
- Field readings were taken using an oil-water interface probe to record the depth to base of each well, resting groundwater levels and depth to NAPL (if present). pH, DO, EC and redox were also recorded using a multiprobe during low-flow sampling.
- Five groundwater samples were recovered from groundwater monitoring locations BH101 – BH105 located around the former oil storage tanks. Samples were sent to Element Deeside Environmental Testing, a UKAS MCERTS registered laboratory for chemical analysis.
- All five groundwater samples were analysed for a limited suite of Volatile Organic Compounds (VOCs), Total Petroleum Hydrocarbons (TPHs) and pH.
- A report of the groundwater chemical results as well as a preliminary quantitative assessment of risk to controlled waters and recommendations of next steps is included below.

## 4. GROUNDWATER LEVEL MONITORING AND SAMPLING

The existing monitoring wells, BH101 to BH105, are located around the former oil storage tanks and are presented in Figure 1 (Appendix A).

Depth to groundwater and the well base (from the ground surface) was measured using an interface probe prior to the collection of representative groundwater samples. Each location was purged of three well volumes prior to sampling in order to remove stagnant water.

Samples were obtained using a peristaltic pump and disposable polyethylene and silicone tubing, at flow rates of approximately 0.1 litres per minute. Field parameters including pH, oxygen reduction potential, temperature, electrical conductivity and dissolved oxygen were recorded using a multi parameter probe whilst sampling in order to ensure that representative water samples were collected.

## 5. GROUNDWATER LEVELS

Resting groundwater levels were recorded, using an interface probe, prior to purging of the wells. The depth to water (m) was recorded from ground level at all locations. Non-aqueous

phase liquid (NAPL) was not encountered during the 2025 groundwater level monitoring round. Groundwater is recorded as relatively shallow and indicates a groundwater flow direction to the east. This is consistent with the flow direction reported in URS 2010 report.

A summary of the groundwater levels recorded on 7th March 2025 is presented in Table 3.1.

TABLE 3.1 RECORDED GROUNDWATER LEVELS IN MONITORING WELL INSTALLATIONS – 7TH MARCH 2025

| Monitoring Well | Ground Level | Depth to Product | Depth to Water | | Depth to Base | |
|---|---|---|---|---|---|---|
| | (m ASD) | (m bgl) | (m bgl) | (m ASD) | (m bgl) | (m ASD) |
| BH101 | 8.58 | NPD | 0.97 | 7.61 | 2.76 | 5.82 |
| BH102 | 8.63 | NPD | 0.95 | 7.68 | 2.8 | 5.83 |
| BH103 | 8.50 | NPD | 0.83 | 7.67 | 2.75 | 5.75 |
| BH104 | 8.84 | NPD | 1.29 | 7.55 | 3.01 | 5.83 |
| BH105 | 8.59 | NPD | 0.85 | 7.74 | 2.62 | 5.97 |

Notes:
m bgl = meters below ground level
m asd = meters above arbitrary site datum
NPD = no product detected

Note: an arbitrary site datum (m asd) was set in the 2010 URS report in order to compare relative site levels. The 2025 groundwater level data shown above has been referenced against the 2010 site datum so that groundwater levels can be compared between 2010 and 2025.

Groundwater levels appear to have risen between 2010 and 2025 monitoring rounds, as shown in Table 3.2 below. It is noted that extensive construction works related to the installation of Keadby 2, including major excavations and dewatering, have taken place between 2020 and 2024 and this could have influenced groundwater levels in the area.

TABLE 3.2 RECORDED GROUNDWATER LEVELS IN MONITORING WELL INSTALLATIONS – 7TH MARCH 2025 COMPARED TO URS 2010 RECORDED GROUNDWATER LEVELS

| Monitoring Well | Ground Level | Depth to Water | | Depth to Base | | Notes |
|---|---|---|---|---|---|---|
| | (m ASD) | 2025 (m ASD) | 2010 (m ASD) | 2025 (m ASD) | 2010 (m ASD) | |
| BH101 | 8.58 | 7.61 | 7.148 | 5.82 | 5.58 | Possible silting of well |
| BH102 | 8.63 | 7.68 | 6.878 | 5.83 | 5.63 | Possible silting of well |
| BH103 | 8.50 | 7.67 | 7.093 | 5.75 | 5.50 | Possible silting of well |
| BH104 | 8.84 | 7.55 | 7.343 | 5.83 | 5.84 | |
| BH105 | 8.59 | 7.74 | 7.590 | 5.97 | 5.59 | Possible silting of well |

It is noted that BH101, BH102, BH103 and BH105 appear to be silting up, since the depth to the base appears to have reduced by between 20 cm (BH102) and 38 cm (BH105) since the wells were first installed and measured in 2010. Despite this, ERM considers all five wells to be fully serviceable. The use of a steel bailer to remove any potential silt build-up should be considered prior to any future works to ensure the serviceability of the wells is retained.

## 6. VISUAL AND OLFACTORY OBSERVATIONS OF IMPACT

There was no visual / olfactory evidence of contamination noted in any of the wells sampled.

## 7. ANALYTICAL LABORATORY RESULTS

Summarised below are the analytical laboratory results with respect to the quality of groundwater in the area around the above ground oil tanks on the Keadby 2 site. A full set of analytical results is included within Table B1 in Appendix B.

All five groundwater samples were analysed for a limited suite of Volatile Organic Compounds (VOCs), Total Petroleum Hydrocarbons (TPHs) and pH.

There were no detections above the laboratory method limits of detection for any of the VOC or TPH compounds analysed. pH results in all monitoring wells are reported within the range considered to be 'normal' (i.e. between pH 7.4 and 8).

Given that no detections of any contaminants of concern are reported, a comparison against assessment screening criteria was not required and the assessment taken no further.

A full set of analytical the laboratory certificates is included within Appendix C.

## 8. SUMMARY

ERM undertook a limited scope of groundwater monitoring on 7th March 2025 to assess the groundwater quality in an area around the existing above ground oil tanks on the Keadby 2 site and determine the potential impact on controlled waters. This is an initial phase of work to assess the serviceability of the existing groundwater wells (BH101 to BH105) and complete a groundwater monitoring exercise.

Groundwater was recorded in all five monitoring wells between 0.83 m and 1.29 m below ground level. No NAPL was recorded during the groundwater level monitoring. Groundwater levels indicate a flow direction to the east which is consistent with the flow direction assessed in 2010 by URS, following installation of the monitoring wells.

There was no visual / olfactory evidence of contamination noted in any of the wells sampled.

Laboratory analysis of groundwater samples reported no detections above the method limits of detection for any VOC or TPH compounds analysed. pH results in all monitoring wells are reported within the range considered to be 'normal' (i.e. between pH 6 and 9).

The URS 2010 analytical results reported soil and groundwater contamination of predominantly long chained hydrocarbon, particularly in the soil and groundwater of BH102. There was no evidence of this contamination during the groundwater sampling event on 7th March 2025.

# 9. CONCLUSION

Given the lack of any contaminants of concern (VOCs or TPHs) reported above laboratory method detection limits, ERM concludes that the historic oil spill in 2010 is unlikely to have any last impact on the groundwater around the above ground oil storage tanks. As such, a comparison against assessment screening criteria was not required and the assessment taken no further.

ERM concludes that all five wells are fully serviceable but notes that use of a steel bailer could be used in future to remove any potential silt build-up and ensure the serviceability of the wells is retained.

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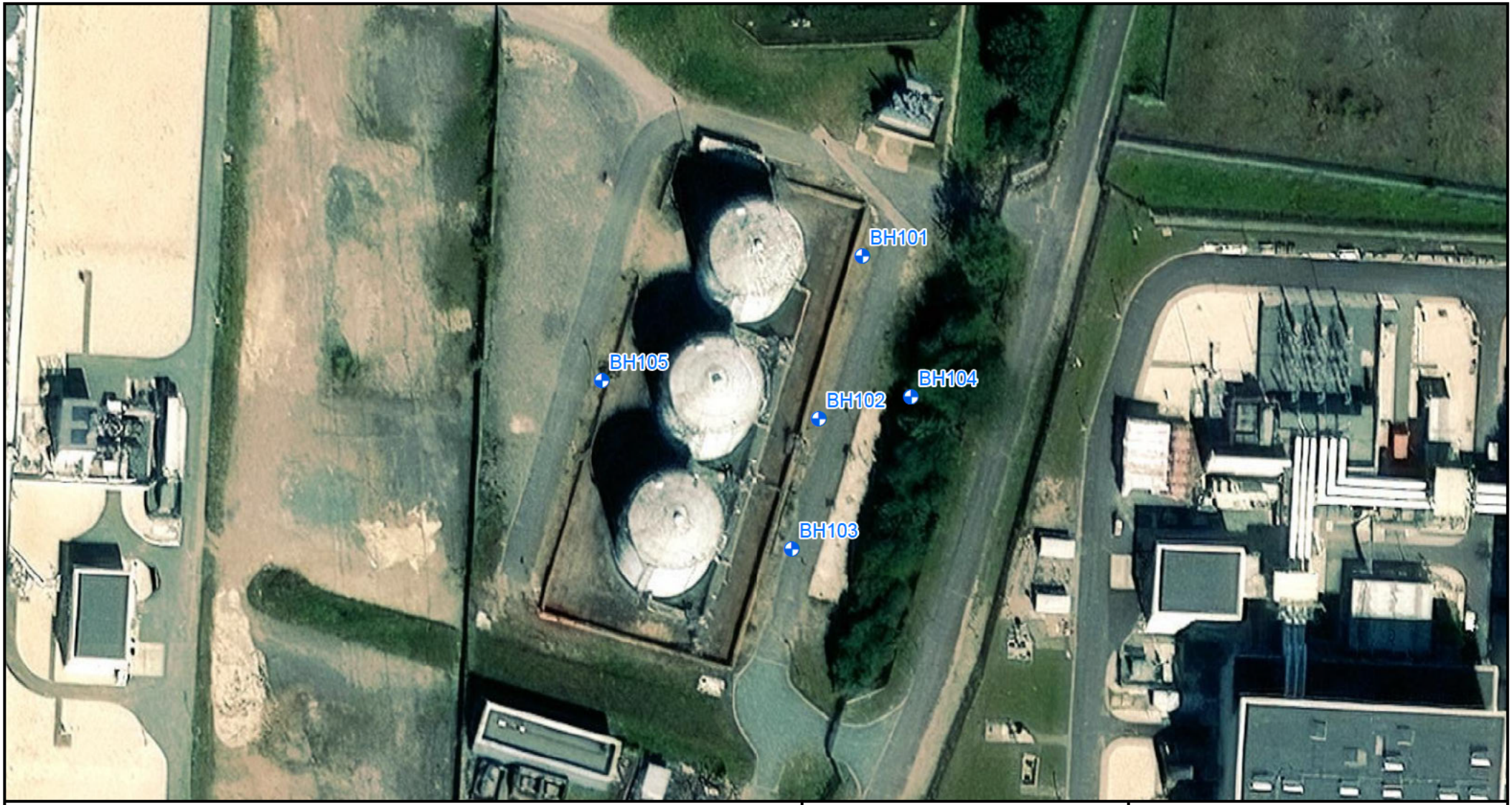
# APPENDIX A

Figure 1 – Groundwater Monitoring Location Plan




Borehole Location

0 5 10 15 20 25
Metres

N

**Borehole Locations**

| | |
|---|---|
| SCALE: See Scale Bar | VERSION: A01 |
| SIZE: A4 | DRAWN: MC |
| PROJECT: 0774282 | CHECKED: PTB |
| DATE: 20/03/2025 | APPROVED: |

PROJECTION: British National Grid



Path: \\uksprdgisfs01\Data\London\Projects\0774282 - Keadby 2 - 2025 GW Monitoring\Maps\0774282 - Keadby 2 - 2025 GW Monitoring.aprx\0774282 - Borehole Locations - A01

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# APPENDIX B

Table B1 – Analytical Laboratory Results

**Table B1**
**Groundwater Analytical Data Summary**
**Keadby 2 Power Station**
**Scunthorpe**

| | | Location | BH101 | BH102 | BH103 | BH104 | BH105 |
|---|---|---|---|---|---|---|---|
| | | Sample Date | 07/03/2025 | 07/03/2025 | 07/03/2025 | 07/03/2025 | 07/03/2025 |
| | | Sample Type | N | N | N | N | N |
| **Analyte** | **Unit** | **FRESHWATER EQS - 2021.2** | | | | | |
| **Individual Analytes** | | | | | | | |
| pH (Lab) | pH units | NS | **7.79** | **7.73** | **7.7** | **7.49** | **7.97** |
| **Total Petroleum Hydrocarbons-TM36** | | | | | | | |
| C5-C6 Aliphatics (EC=5.5) | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C6-C8 Aliphatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C8-C10 Aliphatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C5-EC7 Aromatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C7-C8 Aromatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C8-C10 Aromatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C5-C8 Aliphatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| **Total Petroleum Hydrocarbons-TM5** | | | | | | | |
| >C10-C12 Aliphatics | ug/l | NS | < 5 | < 5 | < 5 | < 5 | < 5 |
| >C12-C16 Aliphatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C16-C21 Aliphatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C10-C12 Aromatics | ug/l | NS | < 5 | < 5 | < 5 | < 5 | < 5 |
| >C12-C16 Aromatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C16-C21 Aromatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C21-C35 Aromatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C21-C35 Aliphatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C16-C35 Aliphatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >EC10-EC16 Aromatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >EC16-EC35 Aromatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| **Total Petroleum Hydrocarbons-TM5/TM36** | | | | | | | |
| Aliphatics/Aromatics C5-C35 (TPH) | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| >C8-C16 Aliphatics | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| Total Aliphatics C5-C35 | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| Total Aromatics C5-C35 | ug/l | NS | < 10 | < 10 | < 10 | < 10 | < 10 |
| **Volatile Organic Compounds-TM15** | | | | | | | |
| Carbontetrachloride | ug/l | 12 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chloroform | ug/l | 2.5 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Dichloromethane | ug/l | 20 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Chloromethane | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Bromoform | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| Dibromomethane | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Bromomethane | ug/l | NS | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1,2-Tetrachloroethane | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| 1,1,2,2-Tetrachloroethane | ug/l | NS | < 4 | < 4 | < 4 | < 4 | < 4 |
| 1,1,1-Trichloroethane | ug/l | 0.5 | < 2 | < 2 | < 2 | < 2 | < 2 |
| 1,1,2-Trichloroethane | ug/l | 0.5 | < 2 | < 2 | < 2 | < 2 | < 2 |
| 1,1-Dichloroethane | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Chloroethane | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Tetrachloroethene | ug/l | 10 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Trichloroethene | ug/l | 10 | < 3 | < 3 | < 3 | < 3 | < 3 |
| cis-1,2-Dichloroethene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| trans-1,2-Dichloroethene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| 1,1-Dichloroethene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Vinyl chloride | ug/l | NS | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,2,3-Trichlorobenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| 1,2,4-Trichlorobenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| 1,2-Dichlorobenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| 1,3-Dichlorobenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| 1,4-Dichlorobenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Chlorobenzene | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| Bromobenzene | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| 1,2-Diboromo-3-chloropropane | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| 1,2-Dichloropropane | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| 1,3-Dichloropropane | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| 2,2-Dichloropropane | ug/l | NS | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,2,3-Trichloropropane | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| 1,2-Dibromoethane | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| 1,2-Dichloroethane | ug/l | 10 | < 2 | < 2 | < 2 | < 2 | < 2 |
| 2-Chlorotoluene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| 4-Chlorotoluene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| 1,1-Dichloropropene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| cis-1,3-Dichloropropene | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| trans-1,3-Dichloropropene | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| Bromochloromethane | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| Bromodichloromethane | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| Dibromochloromethane | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| Dichlorodifluoromethane | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trichlorofluoromethane | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Hexachloro-1,3-butadiene | ug/l | 0.6 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Benzene | ug/l | 10 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | ug/l | 74 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Ethylbenzene | ug/l | NS | < 1 | < 1 | < 1 | < 1 | < 1 |
| p/m-Xylene | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| o-Xylene | ug/l | NS | < 1 | < 1 | < 1 | < 1 | < 1 |
| Methyl-tert-butylether | ug/l | NS | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Total Xylenes | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Styrene | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| 1,2,4-Trimethylbenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| 1,3,5-Trimethylbenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Propylbenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Isopropylbenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| n-Butylbenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| sec-Butylbenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| tert-Butylbenzene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| 4-Isopropyltoluene | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |
| Naphthalene | ug/l | 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| VOC Target List Total | ug/l | NS | < 100 | < 100 | < 100 | < 100 | < 100 |
| **Volatile Organic Compounds-TM15_MTBEBTEX** | | | | | | | |
| Benzene | ug/l | 10 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | ug/l | 74 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Ethylbenzene | ug/l | NS | < 1 | < 1 | < 1 | < 1 | < 1 |
| p/m-Xylene | ug/l | NS | < 2 | < 2 | < 2 | < 2 | < 2 |
| o-Xylene | ug/l | NS | < 1 | < 1 | < 1 | < 1 | < 1 |
| Methyl-tert-butylether | ug/l | NS | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Total Xylenes | ug/l | NS | < 3 | < 3 | < 3 | < 3 | < 3 |

Notes:
< = Compound not detected at concentrations above the laboratory reporting detection limit. The laboratory reporting detection limit is shown.
Empty cells = Not analyzed
NS = No Standard
N = Normal Environmental Sample
percent = percent
mg/kg = milligrams per kilogram
All analyses performed by Element Materials Technology.

FRESHWATER EQS - 2021.2 = ERM Freshwater Environmental Quality Standards

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# APPENDIX C

Laboratory Result Certificates

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[redacted]

W: www.element.com

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4th Floor
One New York Street
Manchester
United Kingdom
M1 4HD

4225

| | |
|---|---|
| **Attention :** | Peter Bray |
| **Date :** | 14th March, 2025 |
| **Your reference :** | Keadby |
| **Our reference :** | Test Report 25/3749 Batch 1 |
| **Location :** | Keadby |
| **Date samples received :** | 8th March, 2025 |
| **Status :** | Final Report |
| **Issue :** | 202503140854 |

Five samples were received for analysis on 8th March, 2025 of which five 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 - 5.43 kg of CO2

Scope 1&2&3 emissions - 12.833 kg of CO2

**Authorised By:**

[redacted]

**Paul Boden BSc**
**Senior Technical Account Manager**

## Element Materials Technology

**Client Name:** ERM
**Reference:** Keadby
**Location:** Keadby
**Contact:** Peter Bray
**EMT Job No:** 25/3749

**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. | 1-6 | 7-12 | 13-18 | 19-24 | 25-30 | | | | | | LOD/LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | BH101-GW-20250307 | BH102-GW-20250307 | BH103-GW-20250307 | BH104-GW-20250307 | BH105-GW-20250307 | | | | | | | | |
| Depth | | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V P G | V P G | V P G | V P G | V P G | | | | | | | | |
| Sample Date | 07/03/2025 | 07/03/2025 | 07/03/2025 | 07/03/2025 | 07/03/2025 | | | | | | | | |
| Sample Type | Ground Water | Ground Water | Ground Water | Ground Water | Ground Water | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | | | | | | | | |
| Date of Receipt | 08/03/2025 | 08/03/2025 | 08/03/2025 | 08/03/2025 | 08/03/2025 | | | | | | | | |
| TPH CWG | | | | | | | | | | | | | |
| **Aliphatics** | | | | | | | | | | | | | |
| >C5-C6 (HS_1D_AL)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM36/PM12 |
| >C6-C8 (HS_1D_AL)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM36/PM12 |
| >C8-C10 (HS_1D_AL)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM36/PM12 |
| >C10-C12 (EH_CU_1D_AL)# | <5 | <5 | <5 | <5 | <5 | | | | | | <5 | ug/l | TM5/PM16/PM30 |
| >C12-C16 (EH_CU_1D_AL)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/PM16/PM30 |
| >C16-C21 (EH_CU_1D_AL)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/PM16/PM30 |
| >C21-C35 (EH_CU_1D_AL)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/PM16/PM30 |
| Total aliphatics C5-35 (EH_CU+HS_1D_AL)* | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/TM36/PM12/PM16/PM30 |
| >C5-C8 (HS_1D_AL)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM36/PM12 |
| >C8-C16 (EH_CU_1D_AL)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/TM36/PM12/PM16/PM30 |
| >C16-C35 (EH_CU_1D_AL)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/PM16/PM30 |
| **Aromatics** | | | | | | | | | | | | | |
| >C5-EC7 (HS_1D_AR)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM36/PM12 |
| >EC7-EC8 (HS_1D_AR)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM36/PM12 |
| >EC8-EC10 (HS_1D_AR)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM36/PM12 |
| >EC10-EC12 (EH_CU_1D_AR)# | <5 | <5 | <5 | <5 | <5 | | | | | | <5 | ug/l | TM5/PM16/PM30 |
| >EC12-EC16 (EH_CU_1D_AR)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/PM16/PM30 |
| >EC16-EC21 (EH_CU_1D_AR)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/PM16/PM30 |
| >EC21-EC35 (EH_CU_1D_AR)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/PM16/PM30 |
| Total aromatics C5-35 (EH_CU+HS_1D_AR)* | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/TM36/PM12/PM16/PM30 |
| >EC10-EC16 (EH_CU_1D_AR)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/PM16/PM30 |
| >EC16-EC35 (EH_CU_1D_AR)# | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/PM16/PM30 |
| Total aliphatics and aromatics(C5-35) (EH_CU+HS_1D_Total)* | <10 | <10 | <10 | <10 | <10 | | | | | | <10 | ug/l | TM5/TM36/PM12/PM16/PM30 |
| BTEX / MTBE | | | | | | | | | | | | | |
| Benzene# | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | | | | <0.5 | ug/l | TM15/PM10 |
| Toluene# | <5 | <5 | <5 | <5 | <5 | | | | | | <5 | ug/l | TM15/PM10 |
| Ethylbenzene# | <1 | <1 | <1 | <1 | <1 | | | | | | <1 | ug/l | TM15/PM10 |
| Xylenes (sum of isomers)# | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| m/p-Xylene# | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| o-Xylene# | <1 | <1 | <1 | <1 | <1 | | | | | | <1 | ug/l | TM15/PM10 |
| Methyl Tertiary Butyl Ether# | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | | | | | <0.1 | ug/l | TM15/PM10 |
| Surrogate Recovery Toluene D8 | 107 | 105 | 109 | 110 | 113 | | | | | | <0 | % | TM15/PM10 |
| Surrogate Recovery 4-Bromofluorobenzene | 105 | 103 | 102 | 104 | 111 | | | | | | <0 | % | TM15/PM10 |
| VOC Target List Total | <100 | <100 | <100 | <100 | <100 | | | | | | <100 | ug/l | TM15/PM10 |
| pH# | 7.79 | 7.73 | 7.70 | 7.49 | 7.97 | | | | | | <0.01 | pH units | TM73/PM0 |




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

**Client Name:** ERM
**Reference:** Keadby
**Location:** Keadby
**Contact:** Peter Bray
**EMT Job No:** 25/3749

**VOC Report :** Liquid

| EMT Sample No. | 1-6 | 7-12 | 13-18 | 19-24 | 25-30 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | BH101-GW-20250307 | BH102-GW-20250307 | BH103-GW-20250307 | BH104-GW-20250307 | BH105-GW-20250307 | | | | | | | |
| Depth | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | |
| Containers | V P G | V P G | V P G | V P G | V P G | | | | | | | |
| Sample Date | 07/03/2025 | 07/03/2025 | 07/03/2025 | 07/03/2025 | 07/03/2025 | | | | | | | |
| Sample Type | Ground Water | Ground Water | Ground Water | Ground Water | Ground Water | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | | | | | | | |
| Date of Receipt | 08/03/2025 | 08/03/2025 | 08/03/2025 | 08/03/2025 | 08/03/2025 | | | | | | | |
| VOC MS | | | | | | | | | | | | |
| **BTEX** | | | | | | | | | | | | |
| Benzene # | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | | | | <0.5 | ug/l | TM15/PM10 |
| Toluene # | <5 | <5 | <5 | <5 | <5 | | | | | | <5 | ug/l | TM15/PM10 |
| Ethylbenzene # | <1 | <1 | <1 | <1 | <1 | | | | | | <1 | ug/l | TM15/PM10 |
| Xylenes (sum of isomers) # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| m/p-Xylene # | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| o-Xylene # | <1 | <1 | <1 | <1 | <1 | | | | | | <1 | ug/l | TM15/PM10 |
| **Chloroethenes** | | | | | | | | | | | | |
| Tetrachloroethene (PCE) # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| Trichloroethene (TCE) # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| 1,1-Dichloroethene (1,1 DCE) # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| cis-1-2-Dichloroethene # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| trans-1-2-Dichloroethene # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| Vinyl Chloride # | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | | | | | <0.1 | ug/l | TM15/PM10 |
| **Chloroethanes** | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane # | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| 1,1,2,2-Tetrachloroethane | <4 | <4 | <4 | <4 | <4 | | | | | | <4 | ug/l | TM15/PM10 |
| 1,1,1-Trichloroethane # | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| 1,1,2-Trichloroethane # | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| 1,1-Dichloroethane # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| 1,2-Dichloroethane # | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| Chloroethane # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| **Chlorobenzenes** | | | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| 1,2,4-Trichlorobenzene | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| 1,2-Dichlorobenzene # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| 1,3-Dichlorobenzene # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| 1,4-Dichlorobenzene # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| Chlorobenzene # | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| **Chloromethanes** | | | | | | | | | | | | |
| Carbon tetrachloride # | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| Chloroform # | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| Dichloromethane (DCM) # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| Chloromethane # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| **Chloropropanes** | | | | | | | | | | | | |
| 1,2,3-Trichloropropane # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| 1,2-Dichloropropane # | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| 2,2-Dichloropropane | <1 | <1 | <1 | <1 | <1 | | | | | | <1 | ug/l | TM15/PM10 |
| 1,3-Dichloropropane # | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| **Chloropropenes** | | | | | | | | | | | | |
| 1,1-Dichloropropene # | <3 | <3 | <3 | <3 | <3 | | | | | | <3 | ug/l | TM15/PM10 |
| cis-1-3-Dichloropropene | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |
| trans-1-3-Dichloropropene | <2 | <2 | <2 | <2 | <2 | | | | | | <2 | ug/l | TM15/PM10 |

Please see attached notes for all abbreviations and acronyms

**Client Name:** ERM
**Reference:** Keadby
**Location:** Keadby
**Contact:** Peter Bray
**EMT Job No:** 25/3749

**VOC Report :** Liquid

| EMT Sample No. | 1-6 | 7-12 | 13-18 | 19-24 | 25-30 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | BH101-GW-20250307 | BH102-GW-20250307 | BH103-GW-20250307 | BH104-GW-20250307 | BH105-GW-20250307 | | | | | | | |
| Depth | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | |
| Containers | V P G | V P G | V P G | V P G | V P G | | | | | | | |
| Sample Date | 07/03/2025 | 07/03/2025 | 07/03/2025 | 07/03/2025 | 07/03/2025 | | | | | | | |
| Sample Type | Ground Water | Ground Water | Ground Water | Ground Water | Ground Water | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | | | | | | | |
| Date of Receipt | 08/03/2025 | 08/03/2025 | 08/03/2025 | 08/03/2025 | 08/03/2025 | | | | | | | |
| VOC MS | | | | | | | | | | | | |
| **Other VOCs** | | | | | | | | | | | | |
| Bromobenzene # | <2 | <2 | <2 | <2 | <2 | | | | | | | |
| Bromochloromethane # | <2 | <2 | <2 | <2 | <2 | | | | | | | |
| Bromodichloromethane # | <2 | <2 | <2 | <2 | <2 | | | | | | | |
| Bromoform # | <2+ | <2+ | <2+ | <2+ | <2+ | | | | | | | |
| Bromomethane | <1 | <1 | <1 | <1 | <1 | | | | | | | |
| n-Butylbenzene # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| sec-Butylbenzene # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| tert-Butylbenzene # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| 2-Chlorotoluene # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| 4-Chlorotoluene # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| Isopropylbenzene # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| 1,2-Dibromo-3-chloropropane | <2 | <2 | <2 | <2 | <2 | | | | | | | |
| Dibromochloromethane # | <2 | <2 | <2 | <2 | <2 | | | | | | | |
| 1,2-Dibromoethane # | <2 | <2 | <2 | <2 | <2 | | | | | | | |
| Dibromomethane # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| Dichlorodifluoromethane | <2 | <2 | <2 | <2 | <2 | | | | | | | |
| 4-Isopropyltoluene # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| Propylbenzene # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| Styrene | <2 | <2 | <2 | <2 | <2 | | | | | | | |
| Trichlorofluoromethane # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| 1,2,4-Trimethylbenzene # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| 1,3,5-Trimethylbenzene # | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| Methyl Tertiary Butyl Ether # | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | | | | | | |
| Hexachlorobutadiene | <3 | <3 | <3 | <3 | <3 | | | | | | | |
| Naphthalene | <2 | <2 | <2 | <2 | <2 | | | | | | | |
| Surrogate Recovery Toluene D8 | 107 | 105 | 109 | 110 | 113 | | | | | | | |
| Surrogate Recovery 4-Bromofluorobenzene | 105 | 103 | 102 | 104 | 111 | | | | | | | |

Please see attached notes for all abbreviations and acronyms

| LOD/LOR | Units | Method No. |
|---|---|---|
| | | |
| | | |
| <2 | ug/l | TM15/PM10 |
| <2 | ug/l | TM15/PM10 |
| <2 | ug/l | TM15/PM10 |
| <2 | ug/l | TM15/PM10 |
| <1 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <2 | ug/l | TM15/PM10 |
| <2 | ug/l | TM15/PM10 |
| <2 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <2 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <2 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <0.1 | ug/l | TM15/PM10 |
| <3 | ug/l | TM15/PM10 |
| <2 | ug/l | TM15/PM10 |
| <0 | % | TM15/PM10 |
| <0 | % | TM15/PM10 |

**Client Name:** ERM
**Reference:** Keadby
**Location:** Keadby
**Contact:** Peter Bray

| EMT Job No. | Batch | Sample ID | Depth | EMT Sample No. | Analysis | Reason |
|---|---|---|---|---|---|---|
| No deviating sample report results for job 25/3749 | | | | | | |

**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.**

# NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

***EMT Job No.:*** 25/3749

**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 |
| | |

**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:** 25/3749

| 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 |
|---|---|---|---|---|---|---|---|
| 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. | Yes | | | |
| TM5/TM36 | please refer to TM5 and TM36 for method details | PM12/PM16/PM30 | please refer to PM16/PM30 and PM12 for method details | Yes | | | |
| 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. | | | | |
| 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 | | | |
| 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. | Yes | | | |
| 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. | Yes | | | |
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