LAND WEST OF WARRENBY, TEESWORKS, REDCAR

Contaminated Land Generic Quantitative Risk Assessment, Data Gap Areas

South Tees Development Corporation

REPORT NO: 10035117-AUK-XX-XX-RP-ZZ-623-01-Data Gap Areas GQRA

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ADDITIONAL DATA GAP AREAS, TEESWORKS, REDCAR

Generic Quantitative Risk Assessment

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This report dated February 2023 has been prepared for South Tees Site Company (the "Client") in accordance with the terms and conditions of appointment dated 20 April 2020 (the "Appointment") between the Client and **Arcadis (UK) Limited** ("Arcadis") for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

Executive Summary

Background	Arcadis Consulting (UK) Limited (Arcadis) was commissioned by South Tees Development Corporation to undertake a Generic Quantitative Risk Assessment (GQRA) for three additional areas (the data gap areas (DGA)) within the plot of land known as Land West of Warrenby ("the Site"), situated at the Teesworks, located within the industrial area generally known as 'South Tees'. The assessment was required by Condition 4 of Planning Decision R/2021/1048/FFM to be implemented following demolition/clearance works in areas previously not accessible: • The Blast Furnace Stockhouse • The Blast Furnace Workshop/stores • The residual former Redcar works Activities were historically undertaken at the Site to support the production of steel, albeit operations ceased in 2015. It is understood that the consortium Net Zero Teeside are the prospective tenant for the Site and intended to redevelop the Site into a carbon capture, utilisation and storage facility. A number of potentially contaminative historical land uses have occurred across the entire Site. These include, but are not limited to, the steel plant, pellet plant, sinter plant, sinter and pellet stocking areas, slag, tar and macadam works, above ground storage tanks, transformers, substations, iron ponds, disposal area, blast furnace stock house, workshop, stores, railway lines. Following the Detailed Quantitative Risk Assessment (DQRA) undertaken in 2022, data from the three additional data gap areas has been collected and a generic (G)QRA has been undertaken to confirm if the Remediation Strategy developed for the wider site requires updating for the data gap areas.
Previous Environmental Works	A number of phases of intrusive investigation have been undertaken which included portions of the Site with the primary investigations undertaken in 2004 and 2017 / 2018 and 2021 / 2022. The bulk of the 2021 / 2022 investigations were commissioned independently by the prospective tenant and was focused solely on the Site and land to the north. Works undertaken have comprised desk study, trial pitting, advancement of boreholes, collection of soil and groundwater samples, geotechnical testing, environmental testing of soil, soil leachate and groundwater, geophysical investigation, hydrogeological investigation and quantitative risk assessment.
Scope and Objectives	The objective of this GQRA was to assess the potential risks to the identified receptors associated with contaminants of concern (CoC) measured in the subsurface and to determine if the CoCs beneath these additional areas are in line with the current site-wide conceptual site model (CSM). The specific objectives of this GQRA comprised: To further characterise pollutant linkages at the data gap areas using site-specific information. • To evaluate the significance of the identified impacts across the data gap areas within the existing legislative framework.
Site Setting	**Geology** Made Ground up to 7.75m bgl (metres below ground level) is present in all three areas, comprising mainly slag dominated material (granular in nature) or granular Made Ground. Made Ground is underlain by superficial deposits of Tidal Flat Deposits (typically comprising silty gravelly sands), beneath which is Glacial Till (sandy gravelly clay). Beneath the superficial deposits is bedrock of the Redcar Mudstone Formation and the Mercia Mudstone

	Group (within the area of the former Redcar works). Blown Sands are indicated as being present across the wider site. **Hydrogeology** Though only one monitoring well is present across all three areas (with groundwater in this well resting between 4.9 to 6.1m bgl), groundwater across the wider site is typically resting within the Made Ground. Groundwater in the Made Ground is likely to be in hydraulic continuity with groundwater in the underlying moderately permeable Tidal Flat Deposits and flowing in a northerly direction towards the North Sea. The more cohesive superficial deposits were considered to potentially act as an aquitard between the overlying granular superficial deposits and bedrock. Groundwater within the low permeability Redcar Mudstone Formation was indicated to be flowing towards the north / northeast. The Tidal Flat Deposits are designated as Secondary A Aquifers, while the Glacial Till is Secondary Undifferentiated and Glaciolacustrine Deposits are as Unproductive Strata. The Redcar Mudstone Formation is designated as a Secondary Undifferentiated Aquifer while the Penarth Group and Mercia Mudstone Group (in the northwestern tip of the Site) are designated as Secondary B Aquifers. The Site is not located within a Source Protection Zone (SPZ). **Hydrology** The nearest surface water feature is a pond, which is located approximately 20m to the north of the Site, albeit this is unlikely to be in hydraulic continuity with groundwater beneath the Site. The North Sea is located approximately 450m to the north, with the land immediately to the north designated a Ramsar site, Site of Special Scientific Interest (SSSI) and a Special Protection Area (SPA).
Sources	Potential sources of contamination exist on-Site, associated with the Made Ground and historical use of the site. Previous review of the contaminant distribution across the entire site identified a single primary source comprising **Made Ground**. Made Ground (including slag) was considered to represent a single diffuse soil source across the entirety of the Site footprint. It is the purpose of this GQRA to determine if this conclusion holds true within the three additional data gap areas. Diffuse groundwater contaminants found throughout the Site associated with Made Ground included metals, hydrocarbons including PAH and TPH, inorganics including cyanide, thiocyanate, ammoniacal nitrogen and sulphate.
Pathways	The following fate and transport pathways are potentially active: • Lateral migration of potentially impacted groundwater towards the identified water resource receptors. • Dilution in an overlying air space. • Dermal contact with soils • Soil and dust ingestion and inhalation
Receptors	The primary water resource receptor associated with the DGA and the wider site was considered to be the North Sea, which is additionally noted to be designated as a Ramsar site, SPA and a SSSI. Groundwater associated with the designated aquifers underlying the DGA and the wider site (primarily the Tidal Flat Deposits and Blown Sands) were also considered a potential receptor, albeit it is considered likely to be of low resource potential based on the industrial history of the Site and its surroundings, the brackish nature of groundwater identified in the north of the Site, the absence of potable groundwater abstractions in the vicinity of the Site and that it would be unlikely that future potable abstraction would be viable.

Executive Summary

Generic Quantitative Risk Assessment	A GQRA was undertaken to determine if the site-wide CSM still stands given the additional data collected from the DGA. The GQRA found a number of exceedances of both the human health and water resources Generic Assessment Criteria (GAC) in soil, soil leachate and groundwater. The CoC identified beneath the DGA were in type and magnitude broadly in line with CoCs identified across the wider site, with similar and often lower concentrations.
Conclusions	Based on the findings of the assessment undertaken, the CSM established for the wider site is considered valid when the additional DGA data is included. The CoC measured do not imply any significant separate sources are present below any of the additional areas, and that Made Ground is likely to be the single diffuse soil source across the entire site. To address the identified active Human Health pollutant linkages at the DGA it is considered appropriate to apply the Remediation Strategy developed for the wider site which does not need to be updated to account for the additional data. The additional data from the DGA is not considered to change of outcome of the DQRA that remediation to protect Controlled Waters is not required, and therefore the Remediation Strategy developed for the wider site does not need to be updated to account for controlled waters or the additional data.

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Introduction

Arcadis (UK) Limited (Arcadis) was commissioned by South Tees Development Corporation (STDC) to undertake a Generic Quantitative Risk Assessment (GQRA) of Data Gap Areas ("the DGA") within the development plot known as Land west of Warrenby, Teesside (the "Site"). The Site is a land parcel situated within the wider Teesworks area located across the Redcar, Lackenby, Grangetown and South Bank conurbations of the Borough of Redcar & Cleveland, set in the industrial area generally known as 'South Tees'. Activities historically undertaken on-Site included the production of steel, alongside ancillary activities associated with steelworks.

Under the instruction of STDC the Phase 1 Contaminated Land Desk Study has been documented as technically adequate under the National Quality Mark Scheme (NQMS) to provide visible identification that the Remediation Strategy has been checked for quality by a Suitably Qualified and experienced Person (SQP). In this instance the SQP is Ian Evans. The NQMS Declaration Reference is 0822-H0102, a copy of the declaration is contained as Appendix A.

The site is under consideration as a potential location for the Teesside Net Zero carbon capture and storage facility, this facility is to be constructed by a third party under a Development Consent Order (DCO). Although some documentation pertinent to the DCO has been used to produce this report the two projects are not formerly linked and should be assessed separately and in isolation within their respective planning frameworks.

The work was carried out in accordance with the proposal "Teesworks, Net Zero Teeside Plot – Planning and design technical Support" dated 20th October 2020. All works have been carried out in reference to English legislation and regulatory guidance for the assessment of land contamination.

A Site location plan is presented as Figure 1, while the current location of the DGA within the current Site layout showing presented on Figure 2. The proposed layout, as presented by the prospective tenant / STDC, is presented as Figure 3 (Figures in Appendix B).

1.1 South Tees Regeneration Masterplan

The South Tees Regeneration Masterplan has been developed detailing the industrial-led regeneration of the former Redcar Teesworks site into a world class employment-generating zone and economic growth enabler for the Tees Valley. The Masterplan has identified the Site as being located within the North Industrial Zone. The Site is a priority development area.

1.2 Regulatory Context

Outline planning for remediation of the site has been granted under Planning Decision R/2021/1048/FFM. This document is intended to support the discharge of Planning Condition 4 associated with remediation of the DGA at the plot, as defined under Outline Planning Approval. The planning redline is shown on drawing TSWK-STDC-NZT-ZZ-DR-C-0005 Net Zero Teesside – Remediation Zones – Rev D, contained within Appendix C alongside the Decision Notice detailing Condition 4, redlines on all other drawings should be considered indicative.

Planning guidance relating to the development of land potentially affected by contamination is detailed in the National Planning Policy Framework (NPPF), updated July 2021 and constitutes guidance for Local Planning Authorities (LPA). In this case the LPA is Redcar and Cleveland Borough Council (RCBC). RCBC within their planning portal/guidance strongly recommend Developers to use the The Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG) guidance documents which they have adopted, to prevent any delays (Contaminated land | Redcar and Cleveland (redcar-cleveland.gov.uk)). As such the report has been documented as technically adequate under the NQMS.

The NPPF sets out the Government's planning policies for England and how these should be applied. Under the NPPF the planning process aims to ensure that land is suitable for its proposed future use, in particular:

'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.'

The NPPF also states that:

- Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or 'brownfield' land.
- Give substantial weight to the value of using suitable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land.

Therefore, planning policies and decision should ensure that:

- A site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation).
- After remediation, as a minimum, land should be capable of not being determined as contaminated land under Part IIA of the Environmental Protection Act 1990.
- Adequate site investigation information, prepared by a competent person, is available to inform these assessments.
- The planning system should contribute to and enhance the natural and local environment by:
- preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

The statutory definition of contaminated land is given under Part 2A of the Environmental Protection Act (EPA) 1990 (Part 2A). This does not include land that is already regulated through other means, such as Waste Management Legislation or the Environmental Permitting Regulations 2010.

1.3 Background

Early historical maps indicate that the Site comprised tidal mudflats and sand, with reclamation activities occurring from around the 1930s to 1970s to facilitate the construction of Site features. Reclamation is thought to have included tipping of slag and the placement of hydraulic fill dredged from the River Tees. The Site was operated until 2015 as a steel works, which included ancillary activities and plants over the course of its operation, including pellet production, sinter and pellet stocking areas, sinter plant and slag, tar and macadam plant.

A number of geo-environmental investigations were undertaken across the Site and wider area to characterise the subsurface (see Section 1.4 for further details on related reports). The investigation phases included trial pitting, the advancement of boreholes, installation of monitoring wells, geo-environmental analytical testing (including soils, soil leachate and groundwater) and collection of parameters to allow the assessment of hydrogeological conditions beneath the Site. Following the investigation phases a Remediation Strategy was developed for the Site based on the output of both GQRA and Detailed Quantitative Risk Assessment (DQRA). These documents have been accepted under Planning Decision Planning Decision R/2021/1048/FFM for the remediation of the Site.

However, it was recognised at the time of the grant of Planning that insufficient information was available to undertake an appropriate GQRA/DQRA and define a Remediation Strategy for three areas of the site (the DGA)

due to the presence of structures undergoing demolition which precluded access for ground investigation, namely:

- The Blast Furnace Stockhouse
- The Blast Furnace Workshop and Stores Area
- The residual former Redcar works

Following completion of demolition activities additional ground investigation has now been completed in the DGA. This GQRA report reviews the additional information for the DGA in the context of the current site-wide Conceptual Site Model (CSM) to identify if changes to the Remedial Strategy adopted for the wider Site are required for the DGA or if the current strategy can be adopted for these additional areas.

1.4 Previous Reports

Arcadis have prepared or overseen the preparation of following reports for or to include the Site:

- Phase 1 Environmental Contaminated Land Desk Study, Land west of Warrenby, Teesworks, 10035117-AUK-XX-XX-RP-ZZ-0520-04-Land West of Warrenby Redcar Preliminary Risk Assessment, prepared by Arcadis and dated August 2022 [Arcadis 2022a].
- *The Former SSI Steelworks, Redcar: Priority Areas within SSI Landholdings Contract 1 and 2A: Site Condition Report*, Redcar Steelworks-AUK-XX-XX-RP-GE-0001-02-SSI1_SSI2A_GI_SCR, prepared by Arcadis and dated August 2018 [Arcadis 2018a], based on factual data within:
  - *4153 & 4154 Area A Former Steelworks Redcar Contract 1 & 2 (Area A) (Final report)*, prepared by Allied Exploration and Geotechnics Limited (AEG) for South Tees Site Company Ltd, dated June 2018 [AEG 2018].
- *Contaminated Land Generic Quantitative Risk Assessment and Detailed Quantitative Risk Assessment, Land West of Warrenby*, Teesworks, Redcar, 10035117-AUK-XX-XX-RP-ZZ-0428-04-LWoW_DQRA, prepared by Arcadis and dated August 2022 [Arcadis 2022b]. Supersedes:
  - *The Former SSI Steelworks, Redcar: Priority Areas within SSI Landholdings Contract 1 and 2A: Environmental Risk Assessment*, Redcar Steelworks-AUK-XX-XX-RP-GE-0001-P1-SSI1_SSI2A_GI_ERA, prepared by Arcadis and dated August 2018 [Arcadis 2018b].
- *The Former SSI Steelworks, Redcar: Priority Areas within SSI Landholdings Contract 1 and 2A: Geotechnical Risk Assessment Report*, Redcar Steelworks-AUK-UK-XX-XX-RP-GE-0001-P1-SSI1_SSI2A_GI_GRA, prepared by Arcadis and dated November 2018 [Arcadis 2018c].
- *Enabling Earthworks and Remediation Strategy Report*, Land West of Warrenby, Teesworks, Redcar, 10035117-AUK-XX-XX-RP-ZZ-0417-06-Rem_Strat_LWoW, prepared by Arcadis and dated August 2022 [Arcadis 2022c]. Supersedes:
  - *The Former SSI Steelworks, Redcar: Priority Areas within SSI Landholdings Contract 1 and 2A: Ground Remediation Options Appraisal Report*, Redcar Steelworks-AUK UK-XX-XX-RP-GE-0001-01-SSI1_SSI2A_GI_ROA, prepared by Arcadis and dated December 2018 [Arcadis 2018d].
- Earthworks Specification, Land West of Warrenby, Teesworks, Redcar, 10035117-AUK-XX-XX-RP-ZZ-0420-05-LWoW_Earthworks, prepared by Arcadis and dated May 2022 [Arcadis 2022d].

In addition STDC have provided the following reports for or pertinent to the Site:

- *Soil and Groundwater Baseline Characterisation Study, Teesside Works*, prepared by Enviros for Corus UK Ltd [Enviros 2004], comprising:
  - Volume 1 – Factual Report, Ref. Rlp250604corusteessidefactual.Doc dated 25th June 2004 and marked Final;
  - Volume 2 – Interpretive Report Ref. Mwicorusdraftinterpretivemmdv#2.Doc dated 25th June 2004 and marked Final; and,

  - Volume 3 – Summary Report dated June 2004
- SSI1 Redcar Works – Phase 1 Geo-Environmental Desk Study, 678079_SSI1_001 prepared by CH2M, dated August 2017 [CH2M 2017a]
- SSI2 Redcar Works – Phase 1 Geo-Environmental Desk Study, 678079_SSI2_001 prepared by CH2M, dated August 2017 [CH2M 2017b]
- *Factual Report – Initial Trial Pitting* - SSI Redcar – SSI1, prepared by CH2M and dated November 2017 [CH2M 2017c];
- *Factual Report – Initial Trial Pitting* - SSI Redcar – SSI2, prepared by CH2M and dated November 2017 [CH2M 2017d];
- *Former Steelworks Land, South Tees Outline Remedial Strategy*, Prepared for South Tees Development Corporation by Wood, ref 41825-wood-XX-XX-RP-OC-0001_S0_P01 dated 25th June 2019 [Wood 2019].

In addition, Arcadis have been provided with the following reports by BP.

- Net Zero Teesside – Environmental Statement Volume III – Appendices, EN010103-001064-NZT DCO 6.4.11 ES Vol III Appendix 9C WFD Assessment, Prepared by AECOM for BP [AECOM 2021a].
- Preliminary Onshore Ground Investigation for Net Zero Teesside (NZT) – South Tees Development Corporation (STDC) 'Main Site' and Onshore CO2 Export Pipeline Corridor Final Factual Report, prepared by AEG for AECOM and dated January 2022 [AEG 2022].
- Net Zero Teesside – Long Term Groundwater Monitoring First Interim Report, prepared by AECOM for BP and dated July 2022 [AECOM 2022]
- Ground Investigation Factual Report, Net Zero Teesside Onshore Ground Investigation – Front End Engineering Design (FEED), prepared for BP by AECOM and dated 19th January 2023 [AECOM 2023].

This GQRA should be read in conjunction with the aforementioned reports, in particular, the DQRA, which form the basis for the conceptual understanding of the Site.

1.5 Objectives

The objective of this GQRA was (for the DGA only) to assess the potential risks to the identified receptors associated with Contaminants of Concern (CoC) measured in the subsurface and to determine if the CoCs beneath these additional areas are in line with the current site-wide conceptual site model (CSM). The specific objectives of this GQRA comprised:

- To further characterise pollutant linkages within the DGA using site-specific information.
- To evaluate the significance of the identified impacts across the DGA within the existing legislative framework.

1.6 Scope of Works

The scope of works was developed with reference to the Environment Agency's (EA) Land Contamination Risk Management (LCRM) guidance, published October 2020 and last updated in April 2021.

1.7 Reliability of Information / Limitations

The scenarios overleaf are not considered in the derivation of site-specific assessment criteria (SSAC):

- Risks to Construction Workers – any redevelopment and construction work should be conducted in full recognition of HS(G)66 (no longer current but has not been updated and is cited in The Building Regulations, 2010) and with reference to CIRIA Report 132 [1]; and,
- Nuisance health effects – the Statutory Nuisance Act considers olfactory impacts from odours and allows comparison of enclosed space air concentrations with odour threshold concentrations.

Arcadis' liability, pursuant to the terms of the appointment of Arcadis by STDC, is strictly limited to the work undertaken and the matters contained and specifically referred to in this report.

A copy of Arcadis' Study Limitations is presented in Appendix D.

1.8 Reliance

It is understood that the current report has been prepared for the use of STDC in their planning process. The contents of this report may not be used or relied upon by any person other than this party without the express written consent and authorisation of Arcadis.

[1] Construction Industry Research and Information Association, 1996. CIRIA report 132 – A Guide for Safe Working on Contaminated Sites

2 Environmental Investigations and Site Setting

2.1 Ground Investigation Works

A number of investigations have been undertaken for the overall Site, including desk study, trial pitting, advancement of boreholes, collection of soil and groundwater samples, geotechnical testing, environmental testing of soil, soil leachate and groundwater, geophysical investigation, hydrogeological investigation (comprising collection of data pertaining to tidal conditions, hydraulic continuity of underlying geological units and aquifer permeability testing), alongside quantitative risk assessment.

The following additional works have been completed as part of the assessment of the DGA and are considered sufficient to robustly assess the sub surface conditions within each area:

- 10 trial pits
- 11 BH
- Collection of 89 soil, 35 leachate and 5 groundwater samples

The site data referenced in this report is summarised below and key information has also been compiled in Appendix E, which includes trial pit and borehole logs, soil and groundwater analysis and monitoring summary.

The information gathered from these investigations has been used to develop the environmental Site setting, as reported within. A plan showing the intrusive investigation and monitoring well locations within the data gap areas is presented as Figure 4.

2.2 Description of Data Gap Areas

The wider Land West of Warrenby (LWoW) Site including the DGA comprises reclaimed land, with reclamation activities commencing in the 19th century, albeit the majority of reclamation in the north of the Site where the DGA are located occurred in the 1930s. The reclamation is thought to have included end tipping of slag from railway sidings and the placement of hydraulic fill dredged from the River Tees. The DGA are all located in the north western quarter of the site adjacent to the western boundary, at the time of writing all major structures have all been demolished to ground level 7-8m AOD (above ordnance datum). Prior to demolition the DGA comprised:

- Blast Furnace Stockhouse – Comprised a series of large above ground bunkers containing raw materials (including coal and ore) for the Blast Furnace, linked to the surrounding complex by overhead conveyors. A substation was associated with the facility. Located immediately south of the former Redcar Workshops and Stores and immediately north of Red Main site road and a utility corridor which includes the coke over gas main and heavy fuel oil lines. Underground diesel storage tanks are located on the northern border.
- Redcar Workshops and Stores – A series of offices, stores and workshops for maintenance of equipment and infrastructure.
- Residual Former Redcar Works – Located in the northwest of the site adjacent to the Blast Furnace ancillary buildings. This is an area of the former Redcar Works demolished in the 1970 to clear the site for the construction of the most recent plant.

2.3 Geology

The focus of this section is on geology as identified beneath the DGA, although additionally considers geology within the wider area, where pertinent.

2.3.1 Published Geology – Site wide

Review of the British Geological Survey (BGS) online map viewer and BGS map for the area (Guisborough, 1:50,000 Solid and Drift Edition, Sheet 34) indicates that the Site is directly underlain by worked ground. Worked ground is indicated to be underlain by superficial deposits comprising primarily Tidal Flat Deposits of sand and silt, albeit within the northeastern portion of the Site Blown Sand are recorded. Blown Sand, and subsequently Beach and Tidal Flat Deposits are noted to the north of the Site, between the Site and the coast, with Glaciolacustrine Deposits and Glacial Till noted in the general area, and potentially present at depth beneath the Tidal Flat Deposits and Blown Sand.

Bedrock beneath the majority of the entire Site comprises the Redcar Mudstone Formation, up to 250m thick. The Redcar Mudstone Formation is described as mudstones and siltstones with subordinate thin beds of shelly limestone in the lower part and argillaceous limestone concretions throughout. The Penarth Group outcrops in the northwestern most portion of the Site and is described as mudstones with subordinate limestones and sandstones (from 0 to >12m thickness). The Mercia Mudstone Group, described as mudstones and subordinate siltstones (greater than 1,350m thick) is indicated to be present beneath the northwestern most tip of the Site.

2.3.2 On Site: Site Specific Geology

The information presented in this section is based on a review of readily available investigation data collected during ground investigation by AECOM (AECOM 2023).

Two main types of Made Ground have been noted across the Site:

- **Slag-dominant material (SMG >50% slag):** Generally ranging from gravel to boulder size fragments and intermixed with other types of manmade fragments including brick, concrete, coal, sandstone, and clinker. The slag material generally ranged from light grey to dark grey/black in colour, but a wide range of other colours were also noted including grey brown, red brown and orange brown. Discolouration of the slag surface was also noted with white crystallisation/discolouration often noted on the outer surface.
- **Granular Made Ground (GMG <50% slag):** Generally described as a sandy gravel with varying amounts of clay, cobbles and gravel. Gravel and cobbles include brick, concrete and other demolition materials, slag was not the dominant constituent although often still present within the soil matrix.

In addition to the above, cohesive Made Ground, Hydraulic Fill material, and sinter have been encountered beneath the wider Site, albeit to a far lesser extent. A summary of the geology identified in the DGA is provided in the table below.

2.3.2.1 Blast Furnace Stockhouse

Unit	Description	Maximum Depth
Made ground: SMG	Silty slightly sandy subangular to angular fine to coarse slag GRAVEL with medium cobble content of slag cobble.	5.20 bgl (F-BH125)
GMG	Silty very gravelly fine to coarse SAND with medium cobble content. Gravel is subangular to angular slag, brick, clinker, and metal. Cobbles are slag and brick.	

Unit	Description	Maximum Depth
Superficial: Tidal Flat Deposits	Slightly gravelly fine to medium SAND. Gravel is slag and flint (potentially reworked ground). AND Medium dense slightly to very gravelly fine to coarse organic SAND with shell fragments. Gravel is subrounded to angular fine to coarse chert, limestone, sandstone, and mudstone. AND Soft silty gravelly sandy CLAY.	14.70m bgl (F-BH128)
Devensian Till	Stiff to very stiff sandy gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse limestone, mudstone, and sandstone.	19.50m bgl (F-BH119)
Bedrock: Redcar Mudstone Formation	Extremely weak to locally very weak fractured thinly to thickly laminated MUDSTONE.	34.00m bgl (F-BH124)

2.3.2.2 Workshop/Stores

Unit	Description	Maximum Depth
Made ground: SMG	Sandy angular to subrounded fine to coarse slag GRAVEL with low to medium cobble content of slag cobbles.	5.30m bgl (F-BH114)
GMG	Very gravelly fine to coarse SAND with low to high cobble content. Gravel is brick and slag with metal fragments. Cobbles are slag.	
Superficial: Tidal Flat Deposits	Very loose to locally dense gravelly fine to coarse organic SAND with shell fragments. Soft silty sandy very organic CLAY.	15.50m bgl (F-BH116)
Devensian Till	Firm gravelly sandy CLAY	21.2m bgl (F-BH115)
Bedrock: Redcar Mudstone Formation	Weak friable thinly laminated MUDSTONE	31.50m bgl (F-BH115)

2.3.2.3 Residual Former Redcar Works

Unit	Description	Maximum Depth
Made ground: SMG	Subrounded to subangular medium to coarse slag GRAVEL with high cobble content of slag cobbles.	7.75m bgl (F-BH102)
GMG	Slightly gravelly fine to coarse SAND. Gravel is subrounded to angular slag. AND Silty gravelly fine to coarse SAND with fragments of plastic, metal, and textiles. Gravel is subangular to angular fine to coarse chert, concrete, brick and sandstone.	
Superficial: Tidal Flat Deposits	Dense fine to coarse SAND with shell fragments AND Dense to very dense slightly gravelly fine to coarse SAND with shell and coal fragments. Gravel is rounded to subrounded fine to medium mudstone and sandstone.	16.00m bgl (F-BH102)
Devensian Till	Stiff silty slightly sandy slightly gravelly CLAY. Gravel is rounded to angular fine to medium coal, mudstone, and sandstone.	23.20m bgl (F-BH102)
Bedrock: Redcar Mudstone Formation	Extremely weak fractured thinly laminated grey MUDSTONE	32.00m bgl (F-BH104)
Mercia Mudstone Group	Extremely weak and fractured thinly laminated reddish brown MUDSTONE	39.00m bgl (F-BH102)

2.4 Hydrogeology

The Site was reclaimed from the Tees Estuary on low lying areas immediately above high water by the placement of biproducts from the steel making process. As discussed, a significant thickness of Made Ground has been identified across the DAG and the wider Site, in addition to off-Site between the Site and coast. The following describes the hydrogeological regime beneath the additional data gap areas.

2.4.1 Groundwater Elevation

Only 1no. monitoring well is located within the additional areas, F-BH102.

Groundwater in F-BH102 was found to be resting within the slag made ground (SMG) at a depth of between 6.32m bgl to 8.775m bgl (0.313m AOD to 3.018m AOD) (Appendix F).

No further location specific hydrogeological information is available. In line with the remediation strategy, monthly monitoring will be conducted throughout the remediation earthworks on the Site. The September to December 2022 monthly monitoring data aligns broadly with what can be seen across the wider site (Arcadis 2022b), the general site-wide conditions are as follows:

The vertical hydrogeological regime beneath the Site is complex, with evidence for upward head between units in some instances, and downward head on other instances, even within the same dual well installation. Groundwater within the Made Ground is likely to be in continuity with groundwater within the underlying Tidal Flat Deposits based on the small head difference typically observed. It is considered that the cohesive superficial deposits (primarily the Glacial Till, which was identified in all 38 wells monitored across the wider site), may be in part acting as an aquitard in relation to the overlying superficial and underlying bedrock aquifers.

Review of groundwater elevation data collected from the Made Ground indicates a northerly/north-easterly flow direction towards the coast. However, a north to south flow direction was inferred off-Site on the basis of the findings of groundwater elevations in LF\BH02, which were consistently higher than the closest on-Site monitoring well monitored.

Review of the groundwater elevation data collected from the Redcar Mudstone Formation aquifer indicates a flow direction towards the north / northeast.

Tidal monitoring across the Site indicated no tidal influence is present. The absence of any notable cyclical tidal variation is likely due to the presence of cohesive deposits and provides evidence that the horizontal migration pathway between the Site and the North Sea may be limited by their presence. Groundwater underlying the Site may be brackish, which may be either attributable to saline intrusion from the North Sea, or due to the fact that the land is reclaimed from the sea and therefore likely to have residual salts within the underlying ground.

2.4.2 Aquifer Classification

The Tidal Flat Deposits beneath the Site are designated as a Secondary A Aquifer by the EA, although within the local area are noted to be designated as a Secondary Undifferentiated Aquifer. The Glacial Till is designated as a Secondary Undifferentiated Aquifer, while the underlying Redcar Mudstone Formation is also designated as a Secondary Undifferentiated Aquifer.

2.4.3 Source Protection Zones

The Site is not located within a groundwater Source Protection Zone (SPZ).

2.5 Hydrology

An ornamental pond is located approximately 120m west of the Redcar Workshops and Stores (beyond the Site boundary), this is understood to be lined and is not considered a receptor.

The North Sea is present approximately 450m to the north of the wider Site boundary, considering the mean high-water mark as the boundary. The River Tees which flows into the North Sea at the Tees Estuary, is located approximately 1500m to the west of the Site at its closest point. Another river, the River Fleet, is located approximately 150m to the southeast of the Site (and 740m from the DGA) at its nearest point.

In addition, a number of ponds (closest within 20m of the Site) were formerly present between the Site and coastline within an area of off-Site Made Ground associated with the South Gare and Coatham Dunes. It is thought that these ponds may have been fed by surface runoff from operation of the Redcar Blast Furnace (to the west of the Site), and have reduced significantly in size since termination of operations at the steelworks. During a Site walkover undertaken by an Arcadis representative on 8 November 2021, only a single pond was observed to be present (located 20m north of the Site boundary and named 'Pond 14'). Pond 14 has been found unlikely to be in continuity with groundwater beneath the Site, and as such, is not considered as a potential receptor in relation to the Site, further discussion can be found in Arcadis (2022b). On this basis, the primary surface water feature in relation to the Site is the North Sea (located approximately 450m to the north).

2.6 Ecologically Protected Sites

Review of DEFRA's magic map website (accessed 23 November 2021) indicates that the land immediately to the north of the Site has ecologically protected status, as detailed in Arcadis (2022b) and summarised below.

- Site of Special Scientific Interest (SSSI) associated with the Teesmouth and Cleveland Coast;
- Special Protection Area (SPA) associated with the Teesmouth and Cleveland Coast; and
- Ramsar Site associated with the Teesmouth and Cleveland Coast.

2.7 Soil and Groundwater Quality

The collection of soil and groundwater samples for laboratory analysis, which included leachate testing, has been undertaken at the Site to assess the quality of the soil, soil leachate and groundwater. Where noted during the site works, visual and olfactory evidence of impacts were recorded. The former uses of the DGA and as such potential contaminants of concern associated with the DGA, informed the laboratory analysis undertaken on collected samples. No evidence of non-aqueous phase liquids (NAPL) or tar was observed during the investigation. Observations made can be found on the borehole and trial pit logs in Appendix E Pertinent observations are summarised below:

Location	Geological Unit	Description
Workshop/Stores		
F-BH116	SMG	Elevated PID readings up to 26.6ppm
Blast Furnace Stockhouse		
F-BH119	GMG	Elevated PID readings up 9.4ppm
F-BH124	GMG	Sulphurous odour @0-0.5m bgl

Location	Geological Unit	Description
Workshop/Stores		
F-BH125	GMG	Elevated PID readings up to 15.8ppm
F-BH128	TFD	Elevated PID readings up to 10.4ppm
Residual Former Redcar Works		
F-BH102	SMG	Sulphur and iron-stained cobbles with sulphurous odour @ 1.00-3.00m bgl Sulphurous odour @4.20-4.50m bgl
F-BH104	SMG	Elevated PID readings up to 65.4ppm
F-TP121	GMG	Slightly sulphurous odour @1.50-2.50m bgl

2.7.1 Laboratory Deviations

The reported laboratory deviations are presented in Appendix G. The majority of deviations relate to holding times being exceeded. Where holding times are recorded as being exceeded by 365 days, this is due to the sample date not being supplied to the laboratory. The reported laboratory deviations have been reviewed and are not considered to have a material impact on the quality of data reported.

3 Conceptual Site Model

3.1 Sources

A number of potential sources associated with the historical use of the Site have been identified both on-Site and off-Site in the Phase 1 Environmental Assessment (Arcadis 2022a). In brief, these include Made Ground both on and off-site which often comprises slag, on and off-site historical industrial land uses associated with iron and steel making and railways, including the workshops and stores which have been investigated as part of the DGAs. Analytical testing of soils, soil leachate and groundwater has incorporated the following CoC based on the identified sources: total petroleum hydrocarbons (TPH), polyaromatic hydrocarbons (PAH), volatile organic compounds (VOC), semi volatile organic compounds (SVOC), metals and inorganics, polychlorinated biphenyls (PCBs) and asbestos (soil only).

3.2 Receptors

3.2.1 Human Health

On the basis of the proposed redevelopment of the DGA along with the rest of the Site for commercial / industrial use, the primary human health receptors are considered to comprise future on-Site industrial workers. There are no neighbouring residents in the vicinity of the Site and it is considered unlikely that residential properties would be constructed hydraulically down-gradient of the Site within the ecologically protected area. As such, neighbouring residents have not been considered a receptor. Consideration of the risk to on-Site industrial workers is considered to provide protection to off-Site commercial/industrial workers, provided that any remedial measures, if undertaken, are based on source reduction or pathway management which also cuts the pathway for off-Site commercial/industrial workers.

3.2.2 Controlled Waters

The primary water resource receptor is considered to be surface water associated with the North Sea, located approximately 450m to the north of the Site. It is noted that the North Sea also has ecologically protected status and is therefore also considered a receptor in relation to ecological receptors.

In addition to surface water, groundwater within the underlying superficial deposits (primarily Tidal Flat Deposits, and additionally the Blown Sands which are present immediately north of the Site and with the same designation) is also considered a potential receptor. Groundwater within bedrock beneath the Site is considered a potential receptor given their designations as a Secondary Undifferentiated Aquifer (Redcar Mudstone Formation) and Secondary B Aquifers (Penarth Group and Mercia Mudstone Formation), albeit the cohesive Glacial Till (and where present, Glaciolacustrine Deposits) are considered to offer a degree of protection to this aquifer.

3.3 Pathways

The following fate and transport pathways are potentially active:

- Lateral migration of potentially impacted groundwater towards the identified water resource receptors.
- Dilution in an overlying air space.
- Dermal contact with soils.
- Soil and dust ingestion and inhalation.

In addition to the above, the Phase 1 Environmental Assessment (Arcadis 2022a) identified the potential for shallow tunnels to be present and also the potential for relic pile foundations. These features, if present, may represent preferential pathways and may require further assessment.

3.4 Potentially Active Pollutant Linkages

As such, the following linkages have been identified which require further consideration:

- Dermal contact, soil and dust ingestion and inhalation of dusts (indoor and outdoor) in relation to future on-Site industrial workers derived from shallow on-Site Made Ground;
- Inhalation of contaminants in vapours in a future indoor or outdoor air space associated with an on-Site unsaturated soil or groundwater source in relation to future on-Site industrial workers;
- Lateral migration off contaminants in groundwater associated with potential off-Site sources (Made Ground and historical industrial land uses) on to Site and subsequent inhalation of vapours in an outdoor or indoor air space in relation to on-Site industrial workers;
- Leaching of contaminants from on-Site Made Ground into groundwater, and subsequent lateral migration towards the identified surface water resource receptors (e.g., North Sea);
- Leaching of contaminants from on-Site Made Ground into groundwater, and subsequent lateral migration towards the identified water resource receptors (Secondary Aquifers);
- Leaching of contaminants from on-Site Made Ground into groundwater, and subsequent lateral migration towards the identified ecologically protected receptors associated with the North Sea; and
- Lateral migration of contaminated groundwater associated with off-Site sources such as Made Ground across the wider Teesworks site, on to Site in relation to the identified water resource receptors.

In addition to the above, the following linkages are also noted to exist across the Site and are considered to apply to the DGA, but have not been assessed further in this report:

- The potential presence of permanent ground gas and human health or built receptors. No unacceptable risk to human health or built receptors from the accumulation of ground gas was identified based on the findings of Arcadis 2018b. However, as the ground investigation was not designed with a particular redevelopment scenario in mind, the gas data monitoring was limited and may not be representative of the entire extent of the Site under a particular redevelopment.
- Pipe permeation in relation to new water supply pipes, if installed within the Made Ground, primarily in relation to organic contaminants;

Arcadis understand from STDC that it is expected that any risks associated with the above linkages and any subsequent mitigation measures required (e.g. building controls) would be the responsibility of the developer. As such, these linkages have not been considered further.

A risk to construction workers may be present in relation to potential contaminants in the subsurface during the redevelopment phase. However, these risks can be mitigated through best practice and employment of suitable mitigation measures which would be considered standard practice in brownfield site redevelopment.

A preferential pathway could be created if piled foundations are included within the design which penetrate through the Glacial Till and Glaciolacustrine Deposits; a piling risk assessment may be required to inform pile design, this would be the responsibility of the developer.

4 Generic Quantitative Risk Assessment

In order to assess the CoCs beneath the additional data gap areas a GQRA was undertaken. The GQRA comprised comparison of measured concentrations of contaminants of concern, in the various media tested, against Generic Assessment Criteria (GAC) for commercial / industrial end use. The GAC have been derived using conservative assumptions to enable potential pollutant pathways that do not pose unacceptable risks to be identified and discounted. Exceedance of a GAC does not imply that an unacceptable risk is necessarily present, rather that further assessment may be required to assess the potential risk. The GAC have not been developed to assess potential preferential pathways.

The GAC have been developed assuming that the Site will be redeveloped as a typical commercial/industrial development, represented by office buildings, hardstanding and some areas of soft landscaping. Given the planned industrial development, this conceptualisation is likely a conservative assumption.

4.1 Datasets included in the Comparison

The data included in the comparison comprised:

- Soil and soil leachate data collected by AEG on behalf of AECOM/BP during ground investigation works in 2022 (AEG 2022);
- Soil and soil leachate data collected by AECOM on behalf of BP during ground investigation works in 2022 (AECOM 2023);
- Groundwater data collected by AECOM on behalf of BP during ground investigation works in 2022 (AECOM 2022);
- Additional soil and soil leachate data collected by Arcadis during trial pit investigation works in 2022 (Appendix E); and
- Additional groundwater data collected by Arcadis during 2022 (Appendix E);

It is noted that a GQRA was undertaken previously by Arcadis (Arcadis 2018b superseded by 2022b) to assess the Site **and** wider area. This GQRA will focus on the data collected from the additional data gap areas only.

4.2 Human Health GQRA

4.2.1 Selection of Soil Generic Assessment Criteria

Potentially active pollutant linkages and CoC in relation to human health risks requiring further assessment have been identified as follows, based on the discussion in Section 3:

A. Dust inhalation from Made Ground from Site (potential CoC include primarily asbestos and heavy metals)

B. Vapour inhalation of indoor or outdoor air from volatile contaminants in soil (potential CoC include primarily VOCs and SVOCs)

C. Vapour inhalation of indoor or outdoor air from contaminated groundwater (potential CoC include primarily VOCs and SVOCs)

D. Direct contact and ingestion of contaminated soil (potential CoC include primarily heavy metals, organic/inorganic compounds)

The DGA are to be re-developed for commercial / industrial end use, and as such, on-Site industrial workers are the primary receptor of concern for any contamination risk. The risk would be influenced by the duration and

location of the staff work regimes. For the basis of this assessment, it is assumed that Site workers will be on-Site for a “standard” 8 hour working day.

Industry best-practice for commercial/industrial end-use is to develop GAC assuming a pre-1970s commercial property is present at the Site, with some open areas uncovered by hardstanding.

To assess the identified potential linkages GAC have been adopted based on the proposed industrial end use.:

The GAC comprise (in order of priority):

- Land Quality Management / Chartered Institute of Environmental Health (LQM / CIEH) Suitable for Use Levels (S4UL) (LQM / CIEH, 2015),
- DEFRA Category 4 Screening Levels (C4SL) (DEFRA, 2014),
- Arcadis derived generic assessment criteria, using CLEA v1.07, and adopting the model set up for the S4ULs,
- USEPA Regional Screening Levels (RSLs) (US EPA, November 2021)

Wood derived GAC using CLEA v1.07, which were presented in Wood 2019 [2], for benzo(a)pyrene and naphthalene. It is understood that these values were acceptable to the regulator for the wider area (which included the Site) and as such they have been retained here.

In the absence of suitable GAC, Arcadis derived site specific assessment criteria for free cyanide for the Prairie site [3] (part of the wider area). It is understood that these values were acceptable to the regulator for the Prairie site and as such they have been retained here as the underlying conceptual model used in their development is consistent with the conceptual site model for this Site.

Soil organic matter (SOM) for the Made Ground for the Site ranged from 0.1 to 14% (average of 1.5%) although the upper values are considered to be influenced by hydrocarbons in the sample. As such, the S4UL selected as GAC are those for a commercial end use assuming a SOM content of 1% (the lowest, and most conservative, value).

The selected human health GAC for soil and maximum recorded concentrations in soil in Made Ground, superficial deposits and bedrock for all contaminants are listed in Appendix H.

4.2.2 Soil Screen

Contaminant concentrations in soil samples collected from the Site have been compared with the soil GAC in Appendix H. Contaminants which exceed the GAC are summarised below.

Compound	Sample	Sample depth (Unit screened)	GAC (mg/kg)	Exceedances (mg/kg)
Lead	F-TP113	3.3m bgl (GMG)	2,300	3,900
Dibenz(a,h)anthracene	F-BH102	1.0m bgl (SMG)	3.5	4.2

The risks associated with lead and dibenzo(a,h)anthracene are driven by the direct contact pathways, i.e. assuming that the soils at these locations remain uncovered by hardstanding, buildings or another suitable cover

[2] Former Steelworks Land, South Tees Outline Remedial Strategy, Prepared for South Tees Development Corporation by Wood, ref 41825-wood-XX-XX-RP-OC-0001_S0_P01 dated 25th June 2019
[3] Grangetown Prairie Area, Former Steelworks, Redcar, Detailed Conceptual Site Model Review and Risk Assessment, prepared by Arcadis, report reference 10035117-AUK-XX-XX-RP-ZZ-0062-01-Prairie_ESA and dated July 2020

system. The depth at which the lead and PAH exceedances were identified are such that direct contact exposure is unlikely. The Remediation Strategy agreed for the wider site area (Arcadis 2022c), includes capping incorporated into the development which would address the above exceedances by breaking the direct contact pathways (including dust).

4.2.3 Compounds for which no GAC are readily available

In addition to the above, a number of compounds were detected for which no GAC criteria were readily available. These included a limited number of metals (aluminium, iron, manganese, magnesium and silicon), inorganics (sulphur species, total / complex cyanide and nitrate), asbestos and a limited number of VOC and SVOC (including 1,1-dichloropropene, 1,2,4-trimethylbenzene, n-butylbenzene, p-isopropyltoluene, 4-nitrophenol, 4-chlorophenyl phenyl ether and 2-methylnaphthalene). These are discussed further below.

Metals and Inorganics

The metals and inorganics detected are all elements present naturally in soil at relatively high concentrations (with the exception of total / complex cyanide), with some noted to be biologically required nutrients. They may be elevated above natural levels where slag and other steelmaking wastes are incorporated into soil due to the Site's former use, particularly manganese and iron. These substances are typically considered to be those with low known toxicity, and none of the compounds that have been reviewed are expected to pose a significant human health risk under an industrial redevelopment scenario. Other effects, such as phytotoxicity, are not assessed as the Made Ground is likely to be unsuitable as a growing medium and some form of capping is likely to be incorporated into the development if any areas remain uncovered by hardstanding or buildings.

The potential risks associated with total and complex cyanide were assessed based on the detections of free cyanide, which is of higher toxicity and of a similar composition, with none of the measured concentrations of free cyanide in soil in excess of the GAC.

Volatile Organic Compounds and Semi Volatile Organic Compounds

The VOC / SVOC 1,2,4-trimethylbenzene, n-butylbenzene, p-isopropyltoluene were typically measured in a limited number of samples and marginally above the laboratory method detection limit (MDL) (concentrations typically less than 0.03mg/kg). On this basis, the risk from these compounds is not considered significant. Similarly, the SVOC 4-chlorophenyl phenyl ether was detected in only 1 of 83 samples analysed, marginally above the MDL of 0.1mg/kg at a concentration of 0.2mg/kg, and therefore is not considered to represent a significant risk.

The SVOC 2-methylnaphthalene was detected in 10 of 83 samples analysed and was measured at a maximum concentration of 1.2mg/kg. The SVOC 2-methylnaphthalene is a type of PAH, with detections of this compound corresponding with samples in which the remaining PAH analysed were also measured. The remaining PAH are considered to represent suitable indicator compounds for the assessment of risk from 2-methylnaphthalene in soil.

The VOC 1,1-dichloropropene was detected in 17 of the 85 samples analysed, albeit the maximum measured concentration was the laboratory MDL of 0.01mg/kg. While a GAC was not readily available for the assessment of 1,1-dichlropropene, it is noted that the US EPA presents a value of 8.2mg/kg for 1,3-dichloropropene (used in pesticides), which is likely to behave in a similar way in the environment and be of similar toxicity. On the basis that the maximum measured concentrations of 1,1-dichloropropene were two orders of magnitude lower than this value, further consideration of the risk to human health from measured concentrations of 1,1dichloropropene are not considered warranted.

The SVOC 4-nitrophenol was detected in 3 of 83 samples analysed at a maximum concentration of 2mg/kg. Based on its chemical properties, 4-nitrophenol is unlikely to represent a risk via the vapour inhalation pathways. Two of the three samples in which 4-nitrophenol was detected were at depth, with concentrations of 4nitrophenol

in shallower soil samples collected from the same locations below the laboratory MDL, indicating the direct contact pathways in these locations is unlikely to be significant. The third location in which 4-nitrophenol was detected was at a depth of 1 – 1.2m bgl (MS\BH17), at a concentration of 0.2mg/kg (in the same order of magnitude as the laboratory MDL), with no shallower soil sample collected. Given the relatively low concentration of 4-nitrophenol detected at shallow depths and a review of compounds with similar chemical composition, the measured concentration of 4-nitrophenol is not considered to represent a risk to human health via the direct contact pathways.

Asbestos

A total of 50 samples were analysed for the presence of asbestos (DGA only), with asbestos identified in 6No. of the samples analysed (approximately 10% of samples).

Sample depths where asbestos was detected ranged from 0.3m to 2.3m bgl, with maximum asbestos quantification total being 0.003%.

Asbestos quantification was carried out on 4No. samples by gravimetric methods. 4No. samples recorded asbestos between 0.002 and 0.003% m/m primarily as fibre bundles (mostly amosite and chrysotile), albeit the highest concentration was identified in a sample containing loose fibrous asbestos debris. The Remediation Strategy agreed for the wider site area (Arcadis 2022c), includes capping incorporated into the development which would address the presence of asbestos fibres by breaking the inhalation pathways..

4.3 Risks to Controlled Waters and Ecological Receptors

3.3.1 Selection of GAC

Potentially active pollutant linkages in relation to Controlled Waters have been identified in the initial CSM as:

E. Leaching of contaminants from on-Site Made Ground into groundwater, and subsequent lateral migration towards the identified surface water resource receptors (e.g., North Sea);

F. Leaching of contaminants from on-Site Made Ground into groundwater, and subsequent lateral migration towards the identified water resource receptors (Secondary Aquifers);

G. Leaching of contaminants from on-Site Made Ground into groundwater, and subsequent lateral migration towards the identified ecologically protected receptors associated with the North Sea;

H. Lateral migration of contaminated groundwater associated with off-Site sources such as Made Ground across the wider Teeswork site, on to Site in relation to the identified water resource receptors.

An assessment of the potential for contaminants in the Made Ground on the Site to impact the Controlled Waters receptors identified in the CSM has been undertaken.

Concentrations of CoC in groundwater and leachate samples collected from F-BH102, screening the Tidal Flat Deposits and the Mercia Mudstone Group have been compared to Water Quality Standards (WQS). The WQS chosen are UK Drinking Water Standards (DWS) protective of aquifer water resources, and Environmental Quality Standards (EQS) considered protective of surface waterbody quality. The EQS are for saline waters protective of the North Sea receptor.

While the Tidal Flat Deposits / Blowing Sands are a Secondary A Aquifer in the vicinity of the site, they are regarded as having low resource value given the site setting, relatively low permeability, and the brackish nature of groundwater. Therefore, screening against DWS is regarded as a very conservative approach but will provide a context for the assessment.

4.3.1 Soil Leachate

The results of 36 soil leachate tests (from on-Site soils within the DGA) were compared to WQS as shown in Appendix I Contaminant concentrations that exceeded the WQS are shown in the table below. The majority of the samples subject to leachate testing comprised Made Ground. Samples were taken across the site from depths ranging from -14.17 m AOD to 7.84m AOD. 4no. samples are below the remediation dig level of 4.80m AOD (Arcadis 2022c), all of which have exceedances.

Compound	No. exceedances	GAC (mg/kg)		Maximum exceedance (µg/L)
		EQS	DWS	
Aluminium	15 x DWS	-	200	1,275
Arsenic	1 x EQS 2 x DWS	25	10	53
Chromium (hexavalent)	7 x EQS	0.6	-	101
Copper	13 x EQS	3.76	2,000	19
Iron	1 x DWS	1000	200	350
Lead	13 x EQS 4 x DWS	1.3	10	25
Mercury	8 x EQS	0.07	1	0.22
Molybdenum	1 x DWS	-	70	310
Selenium	1 x DWS	-	10	14
Vanadium	2 x EQS	100	-	239
Zinc	1 x EQS	7.9	3000	9.5
Ammoniacal Nitrogen as N	21 x EQS	0.021	-	0.24
Cyanide Total	6 x EQS	1	50	5.9
Fluoride	1 x DWS	-	1500	1500
Nitrite (as NO2-)	2 x DWS	-	0.5	2
Thiocyanate (as SCN)	13 x EQS	9	-	280
Fluoranthene	24 x EQS	0.0063	-	1.3
Anthracene	2 x EQS	0.1	-	0.66
Benzo(b)fluoranthene	5 x DWS	-	0.025	0.11

Compound	No. exceedances	GAC (mg/kg)		Maximum exceedance (µg/L)
		EQS	DWS	
Benzo(k)fluoranthene	7 x DWS	-	0.025	0.295
Benzo(a)pyrene	11 x DWS 11 x EQS	0.00017	0.01	0.488
Benzo(g,h,i)perylene	6 x DWS	-	0.025	0.295
Indeno(1,2,3-c,d)pyrene	6 x DWS	-	0.025	0.346
>C6-C8 Aliphatics	1 x EQS	4.55	-	20
TPH >C5-C35 Aliphatics/Aromatics	2 x DWS	-	10	21

4.3.2 Groundwater

The maximum measured concentrations of CoC measured in groundwater samples collected from F-BH102 during monthly visits in September, November, and December 2022 by Arcadis were compared to WQS as shown in Appendix J

Contaminant concentrations that exceeded the WQS which may require further consideration are summarised below.

Compound	No. exceedances	WQS (mg/kg)		Maximum exceedance (µg/L)
		EQS	DWS	
Chromium (Filtered)	4 x EQS	0.6	50	12.2
Copper (Filtered)	2 x EQS	3.76	2,000	57.2
Lead (Filtered)	1 x EQS	1.3	10	7.1
Mercury (Filtered)	4 x EQS 2 x DWS	0.07	1	187
Molybdenum (Filtered)	3 x DWS	-	70	248
Selenium (Filtered)	2 x DWS	-	10	7640
Ammoniacal Nitrogen as N	7 x EQS	0.021	-	424,000
Nitrate (as NO2-)	2 x DWS	-	0.5	75
Chloride	1 x DWS	-	250	982,000

Compound	No. exceedances	WQS (mg/kg)		Maximum exceedance (µg/L)
		EQS	DWS	
Cyanide Total	3 x EQS 1 x DWS	1	50	114
Sodium (Filtered)	3 x DWS	-	200	903,900
Sulphate	3 x DWS	-	250	633.7
Thiocyanate (as SCN)	5 x EQS	9	-	140
Fluoranthene	7 x EQS	0.0063	-	0.209
Anthracene	2 x EQS	0.0063	-	0.076
Benzo(b)fluoranthene	3 x DWS	-	0.025	0.185
Benzo(k)fluoranthene	1 x DWS	-	0.025	0.233
Benzo(a)pyrene	1 x EQS 1 x DWS	0.00017	0.01	0.041
Benzo(g,h,i)perylene	1 x DWS	-	0.025	0.213
Indeno(1,2,3-c,d)pyrene	1 x DWS	-	0.025	3.642
>C5-C6 Aliphatics	7 x EQS	4.55	-	98
>C6-C8 Aliphatics	7 x EQS	4.55	-	564
>C8-C10 Aliphatics	5 x EQS	4.55	-	989
>EC8-EC10 Aromatics	4 x EQS	4.55	-	68
TPH >C5-C35 Aliphatics/Aromatics	5 x DWS	-	10	1344
TPH Aliphatics & Aromatics >C5-44	2 x DWS	-	10	1321

A number of compounds have been measured in excess of either the DWS, EQS or both. In addition, a number of compounds were detected for which no GAC criteria were readily available. Exceedances are spread generally equally over the shallow and deep wells.

5 Review of Conceptual Site Model

5.1 Environmental Site Setting

The environmental setting of the site including the DGA is summarised on Figure 5. ThisI identifies potentially sensitive land uses in the vicinity of the Site, alongside identified water resource and ecological receptors. Figure 6 includes a simplified profile of the geological conditions, alongside a conceptual cross-section identifying potentially active pollutant linkages.

5.2 Sources

5.2.1 On-Site Sources

A number of potential sources were identified, these included Made Ground, localised sources and background conditions, as detailed below.

Made Ground – Site Wide

The DGA and the wider site is reclaimed land from the River Tees Estuary. The Made Ground used for the land reclamation is primarily composed of by-products from surrounding industrial processes, including slag. The Made Ground has therefore been considered as a single diffuse source of CoC beneath the entire site.

Contaminants primarily associated with Made Ground are found dispersed throughout the site in varying concentrations. Diffuse contaminants found throughout the site associated with Made Ground include metals, hydrocarbons including PAH, inorganics including cyanide, ammonia and sulphate, asbestos and limited amounts of other organic compounds.

GAC exceedances for the three additional areas indicate that contaminants beneath these locations is broadly in line with that of the rest of the site.

Other Potential On-Site Sources – Localised

The other potential sources, identified in addition to Made Ground, represent more localised potential sources of historical contamination with the additional areas, and included with respect to the DGA:

- Blast Furnace Stockhouse;
  - Raw materials storage
  - Transformers
  - Storage tanks
- Redcar Workshop and Stores;
- Residual Former Redcar works – extends onto the wider Site
  - Storage tanks
  - Transformers

Other sources on the wider site and previously investigated (Arcadis 2022b) but outside the DGA include:

- Additional above ground storage tanks (various – central eastern portion of the Site and additionally southern portion of the site);
- Transformers and substations (central portion of the site);
- Diesel storage tanks – (adjacent to Redcar Worksop's and Stores
- Iron ponds & disposal area (northeast of the site);
- Workshop and stores (eastern portion of the site);

- D Jones Haulage and Construction (vehicle storage and maintenance – located in the eastern portion of the site) with Tube city IMS [former on-site service provider] occupying this area prior to this;
- Railway lines (and potential for spills associated with transport of materials – primarily in the northern portion of the site);
- Pellet Plant (southeastern portion of the site);
- Sinter Plant and sinter stocking area (southern portion of the site) – the sinter stocking area was formerly used for pellets; and,
- Slag, Tar and Macadam works (northern portion of the site).

Contaminants associated with the above include asbestos, metals, hydrocarbons, PAH, inorganics including cyanide, ammonia and sulphate, polychlorinated biphenyls (PCB), and VOC and SVOC.

Other Potential On-Site Sources – Background

In addition to the above, it is important to note that certain CoC are naturally occurring in the environment as well as potentially present as a result of anthropogenic sources. This includes metals, PAH (which could be present as a result of the underlying geology) and certain inorganics (e.g. sulphate, which is a major ion in seawater).

5.2.2 Off-Site Sources

In addition, a number of off-site sources were historically present associated with the wider Teesworks area. These included the following. Those in ***bold italics*** are considered to be hydraulically up-gradient of the Site:

- ***Tar lagoons*** (southwest of the Site),
- Blended ore stocks (west of the Site),
- ***Coal stocks area*** (southwest of the Site),
- ***Blended coal stocks*** (southwest of the Site),
- Coke crushing / blending (west of the Site),
- Blast furnace (west of the Site)
- Steel Works (west of the Site)
- ***Water treatments works*** (south of the Site),
- ***Landfills*** (south and east of the Site),
- ***Reclaimed land*** (wider area)
- Power station (west of the Site)
- Fuel storage (west of the Site).

Associated contaminants with the potential to affect groundwater quality include metals, hydrocarbons, PAH, inorganics including cyanide, ammonia and sulphate and other VOC and SVOC. Contaminants identified in 5.5.1 are in line with the those expected from these sources.

5.3 Contaminant Distribution

The CoC distribution discussed in the sections below is based on the recent site. The focus is on those compounds found to exceed the GACs during screening undertaken in Section 4.2 and 4.3.

5.3.1 Soil & Soil Leachate

Metals and Inorganics

Lead is found to exceed in soil in only one area, within the area of the Blast Furnace Stockhouse. Further metals (copper, iron, lead, manganese, vanadium, zinc) and inorganic species (including cyanide species) are found

throughout the three areas in soil leachate. In general, the distribution of metals and inorganics is relatively well dispersed, but metals are generally less abundant in the area of the old workshop/stores.

The presence of metals and inorganics is likely in part due to the Made Ground which includes slag from which the DGA areas are formed. Levels are of similar magnitude if not slightly lower than found across the wider site. As such within the DGA, the presence of metals and inorganics in soils is generally considered to be associated with a diffuse source associated with Made Ground, this conclusion is in line with that for the wider site (Arcadis 2022b)

Organic Compounds

The levels of PAH and TPH are generally of similar magnitude across the three DGA, however only Dibenzo(a,h)anthracene is shown to exceed the GAC.

In soil, maximum sum PAH and TPH concentrations were measured at 1.00m bgl in F-BH102 within the former Redcar works area. Sum PAH and TPH across the rest of the DGA is one to two orders of magnitude lower than this, potentially indicating the presence of a point source in F-BH102 with more diffuse source within the Made Ground elsewhere. A similar distribution is noted for PAH in soil leachate, sum TPH was only measured above MDL in two locations, in the area of the workshops/stores.

As such the distribution of organic compounds within the DGA is considered in line with the site-wide CSM (Arcadis 2022b), namely the presence of PAH and TPH in soil is considered to predominately be a diffuse source associated with Made Ground, although isolated and localised areas of higher concentrations associated with historical land uses are present.

5.3.2 Groundwater

As only one groundwater well is located within the DGA contaminant distribution cannot be discussed in any detail, instead, contaminants will be discussed more generally.

Contaminants in excess of the appropriate WQS are found in both the shallow (Tidal Flat Deposits) and deep (Mercia Mudstone) wells and include selected metals (chromium, copper, lead, mercury, molybdenum, and selenium), PAH, TPH, and inorganic ions (including ammoniacal nitrogen, cyanide, sulphate, and thiocyanate). The contaminants identified above WQS in F-BH102 are in line with, and of similar magnitude to those observed for the wider site (Arcadis 2022b).

6 Conclusions

Additional ground investigation work has been conducted in the three DGA previously not accessible at the Site. The additional investigation in terms of the site coverage and CoC considered is appropriate given the PAOC identified within the DGA by the Desk Study (Arcadis 2022a). Soil, soil leachate and groundwater samples have been collected for laboratory analysis and screened against appropriate GAC as part of a GQRA to confirm if the CSM for the DGA is in line with that for the wider site.

6.1 Human Health

The results of the human health GQRA indicate that the CoC present beneath the three DGA are broadly in line with those measured across the wider site, and the CSM for the wider site stands when the additional data is included. The CoC measured do not imply any significant separate sources in terms of contaminant type or levels are present below any of the additional areas, and that Made Ground is likely to be the single diffuse soil source across the entire site.

As such to address the identified active Human Health pollutant linkages at the DGA it is considered appropriate to apply to the DGA the Remediation Strategy developed for the wider site which **does not** need to be updated to account for the additional data.

6.2 Controlled Waters

The results of the controlled waters GQRA indicate that the CoC present beneath the three DGA are broadly in line with those measured across the wider site, data does not imply any separate sources in terms of contaminant type or levels are present below the DGA.

The additional data collected as part of the DGA has been assessed to GQRA level within this report, whereas for the wider site a DQRA has been completed (Arcadis 2022b). Based on the findings in Section 5.3.2 the DQRA methodology and conclusions are considered appropriate to retrospectively assess the additional data collected without further modelling. As such the additional data **is not considered to change the outcome of the DQRA** that remediation to protect Controlled Waters is not required.

In conclusion, the Remediation Strategy (Arcadis 2022c) developed for the wider site to address Human Health risk only **does not** need to be updated to account for controlled waters or the additional data.

7 References

Department for Environment, Food and Rural Affairs (DEFRA), 2012. Contaminated Land Statutory Guidance, which came into force on 6th April 2012.

Environment Agency (EA), 2020. Land Contamination Risk Management (LCRM). Last updated 19th April 2021

Appendix A

NQMS Declaration Reference

Appendix B

Figures

Legend

Land West of Warrenby

Red Line

0 750 1500 m

Notes:

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CONTACT ARCADIS IN CASE OF ANY QUERIES.

N

Title: Land West of Warrenby - Site Location Plan

Site:
Teesworks - Land West of Warrenby

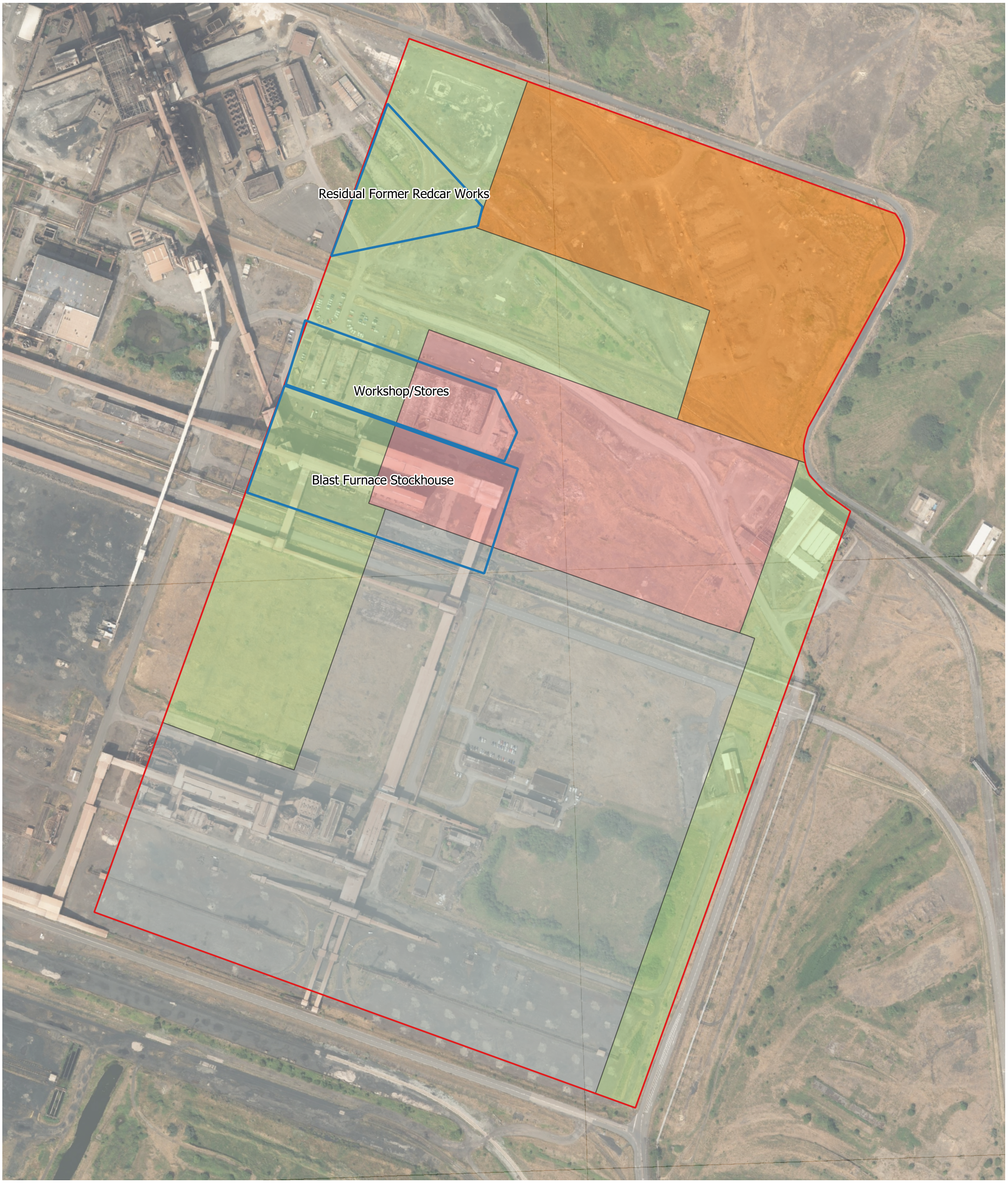
Client:
South Tees Development Corporation

Project:
10035117

Figure 1

Date: 12/04/2022
Drawn By: DW
DRG No: 10035117-AUK-XX-XX-DR-ZZ-0514-01-Land West Warrenby SLP

ARCADIS Design & Consultancy for natural and built assets



Legend

PAOC

Merged

Area subject to condition

Drawings

BP Defined Layout_Construction_Areas

- Green Areas – Remediation to 2.5m below FGL
- Grey Area - Construction Laydown Only
- Pink Area - Remediation to 3.5m below FGL
- Orange Area - Capping at FGL

Bing

Red Line

N

Notes:

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Title: Net Zero Data Gaps

Site: Teesworks - Potential Net Zero Site

Client:
South Tees Developement Corporation

Project:
37774100

Date: 31/03/2022
Drawn By: JALM
DRG No: 10035117-AUK-XX-XX-DR-ZZ-0508-01-Net_Zero_Plot_Data_Gaps

ARCADIS Design & Consultancy for natural and built assets

DO NOT SCALE

Millimetres 100 0 10

SITE AREA	PLOT REF	PLAN AREA (m2)	PLATFORM LEVEL (M AOD)	REMEDIATION DIG LEVEL (M AOD)	CUT FROM EXISTING GROUND TO REMEDIATION DIG LEVEL (M3)	FILL FROM EXISTING GROUND REMEDIATION DIG LEVEL (M3)	FILL FROM REMEDIATION DIG LEVEL TO PLATFORM LEVEL (M3)	NET (M3)	SURPLUS CUT/DEFICIT FILL	TOTAL (M3)
NZT OPTION 1 FGL 7.3M AOD	NET NZT GREEN	195,697	7.3	4.8	535,157	0	489,034	46,123	SURPLUS CUT	13,335
	NZT ORANGE	110,979	7.3	4.8	215,895	2,458	278,250	-64,813	DEFICIT FILL	
	NET NZT PINK	92,296	7.3	3.8	355,060	0	323,035	32,025	SURPLUS CUT	
				NET TOTALS	1,106,112	2,458	1,090,319			
	VOID FILL ALLOWANCE	398,972	-	-	0	0	36,536	-36,536	DEFICIT FILL	-36,536
	NZT GREY	263,254	0.2m CUT FILL	0.2	52,651	0	52,651	0	BALANCED	0
				TOTALS	1,158,763	2,458	1,179,506	OVERALL TOTAL	DEFICIT FILL	-23,201

TOTAL CUT VOLUMES INCLUDES 7% (GREEN AREA) AND 15% (PINK AREA) BRICK AND CONCRETE ARISINGS FOR SITE WON RE-USE

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THIS DRAWING HAS BEEN PRODUCED WITH REFERENCE TO THIRD PARTY RECORDS, EVERY EFFORT HAS BEEN MADE TO PRESENT THE INFORMATION ACCURATELY. HOWEVER BEFORE GROUND BREAKING, APPROPRIATE MEASURES MUST BE TAKEN TO ENSURE THE LOCATIONS OF THE BURIED SERVICES.

NOTES

1. DO NOT SCALE FROM THIS DRAWING
2. IN ALL AREAS, PARTICULARLY THE GREEN AND PINK SHADED AREAS, THERE IS A FIRM LIKELIHOOD THAT EXCAVATION WILL NEED TO BE ADVANCED TO GREATER DEPTHS LOCALLY TO REMOVE CERTAIN BURIED STRUCTURES/FEATURES AND/OR TO ADDRESS THE REMOVAL OF CONTAMINATED SOILS

KEY

NZT SITE DEVELOPMENT BOUNDARY, INCLUSIVE OF TEMPORARY CONSTRUCTION LAYDOWN AREA.

THIS FORMS THE ENVELOPE OF THE REMEDIATION WORKS CONTRACT, EXCLUSIVE OF NOMINAL OVER DIG AT ONE OR MORE OF THE BOUNDARIES AND AREAS EXTERNAL TO THIS SITE THAT MAY BE ASSIGNED FOR MATERIALS PROCESSING

THE PROPOSED FINISHED GROUND LEVEL FOR THE REMEDIATION WORKS IS 7.3 AOD

REQUIRED MINIMUM EXCAVATION DEPTH IS 2.5m BELOW THE PROPOSED FINISHED REMEDIATION WORKS LEVEL, i.e., 4.8m AOD

REQUIRED MINIMUM EXCAVATION DEPTH IS 3.5m BELOW THE PROPOSED FINISHED REMEDIATION WORKS LEVEL, i.e., 3.8m AOD

REQUIRED GROUND REMEDIATION WORKS WILL TYPICALLY INVOLVE A LIMITED PROGRAMME OF EXCAVATION AND FILLING (TO SHALLOWER DEPTHS THAN THE AREAS SHADED GREEN AND PINK), WITH THE NEED TO REMOVE BURIED RELIC FOUNDATIONS AND SIMILAR BEING MORE SELECTIVE.

WORKS TO THIS AREA MAY ALSO INCLUDE FILLING UTILISING RESIDUAL MATERIALS FROM THE GREEN, PINK AND GREY SHADED AREAS.

THIS IS THE PROPOSED CONSTRUCTION LAYDOWN AREA FOR THE FOLLOW-ON NZT PROJECT, THAT WILL BE ACCESSED, IN PART, POTENTIALLY FROM JULY 2023, WITH OCCUPANCY INCREASING TO THE END OF 2023.

THE REQUIRED GROUND REMEDIATION WORKS WILL LARGELY BE CONTAINED TO SITE CLEARANCE, A SURFACE SCRAPE, AND A GENERAL, RELATIVELY MINOR CUT/FILL LEVELING OF THE AREA, FOLLOWING WHICH, THE AREA MAY BE CAPPED WITH GRANULAR FINISHING LAYER.

FOR INFORMATION

Rev.	Date	Description	By	Chk'd	App'd
D	03.08.22	VOLUMES UPDATED & BOUNDARIES	KW	LCD	JMC
C	29.04.22	VOLUMES UPDATED	LCD	LCD	JMC
B	21.02.22	VOLUMES UPDATED	LCD	LCD	JMC
A	15.02.22	FIRST ISSUE	KW	LCD	JMC

STDC
Teesside Management Offices,
Redcar, TS10 5QW
www.southteesdc.com

South Tees Development Corporation

Project Title:

TEESWORKS
The UK's largest industrial zone

Drawing Name:

NET ZERO TEESSIDE OUTPUT FOR REMEDIATION STRATEGY/MMP

Drawn by: KW	Date: FEB 2022
Checked by: LCD	Date: FEB 2022
Approved by: JMc	Date: FEB 2022

Drawing Number:	Revision:
TSWK-STDC-NZT-ZZ-DR-C-0005	D

Drawing Scale:	Page Size:
1:2000	A1

LEGEND

- SITE BOUNDARY
- TRIAL PIT LOCATION
- BOREHOLE LOCATION
- MONITORING WELL LOCATION

NOTES

0 5 10 20 30 40 50 Metres

N

TITLE: **ADDITIONAL DATA GAP AREAS AND INTRUSIVE INVESTIGATION AND MONITORING WELL LOCATIONS**

SITE : **LAND WEST OF WARRENBY**

CLIENT : **SOUTH TEES DEVELOPMENT CORPORATION**

PROJECT :	10035117	FIGURE 1	
DATE :	20/02/23	DRAWN BY :	AP
DRG No. :	10035117-AUK-XX-XX-DR-ZZ-0458-P1 GIS		
SCALE :	1:2,500	PRINT :	A3

ARCADIS

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LEGEND

- SITE BOUNDARY-PROVIDED BY STDC/BP
- 50m
- 100m
- 300m
- 600m
- 1000m
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES

SYMBOLS FOR BOREHOLES, TRIAL PITS AND OTHER SPECIFIC FEATURES ARE REPRESENTATIONS OF LOCATION ONLY AND UNLESS OTHERWISE SPECIFIED, DO NOT REPRESENT THE TRUE SIZE OF THE FEATURE.

N

0 50 100 200 300 400 500 Metres

TITLE:
SITE LOCATION AND ENVIRONMENTAL SITE SETTING

SITE :
LAND WEST OF WARRENBY

CLIENT :
SOUTH TEES DEVELOPMENT CORPORATION

PROJECT :	**10035117**	**FIGURE 1**	
DATE :	10/02/23	DRAWN BY :	AP
DRG No. :	10035117-AUK-XX-XX-DR-ZZ-0454-P1 GIS		
SCALE :	**1:13,000**	PRINT :	**A3**

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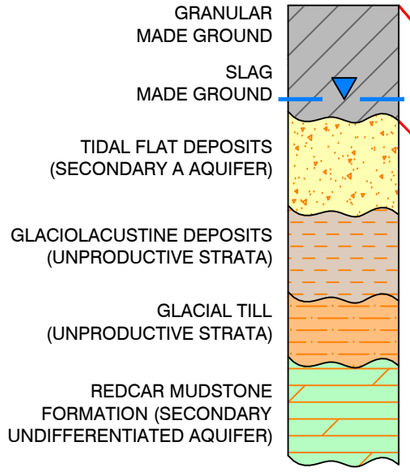
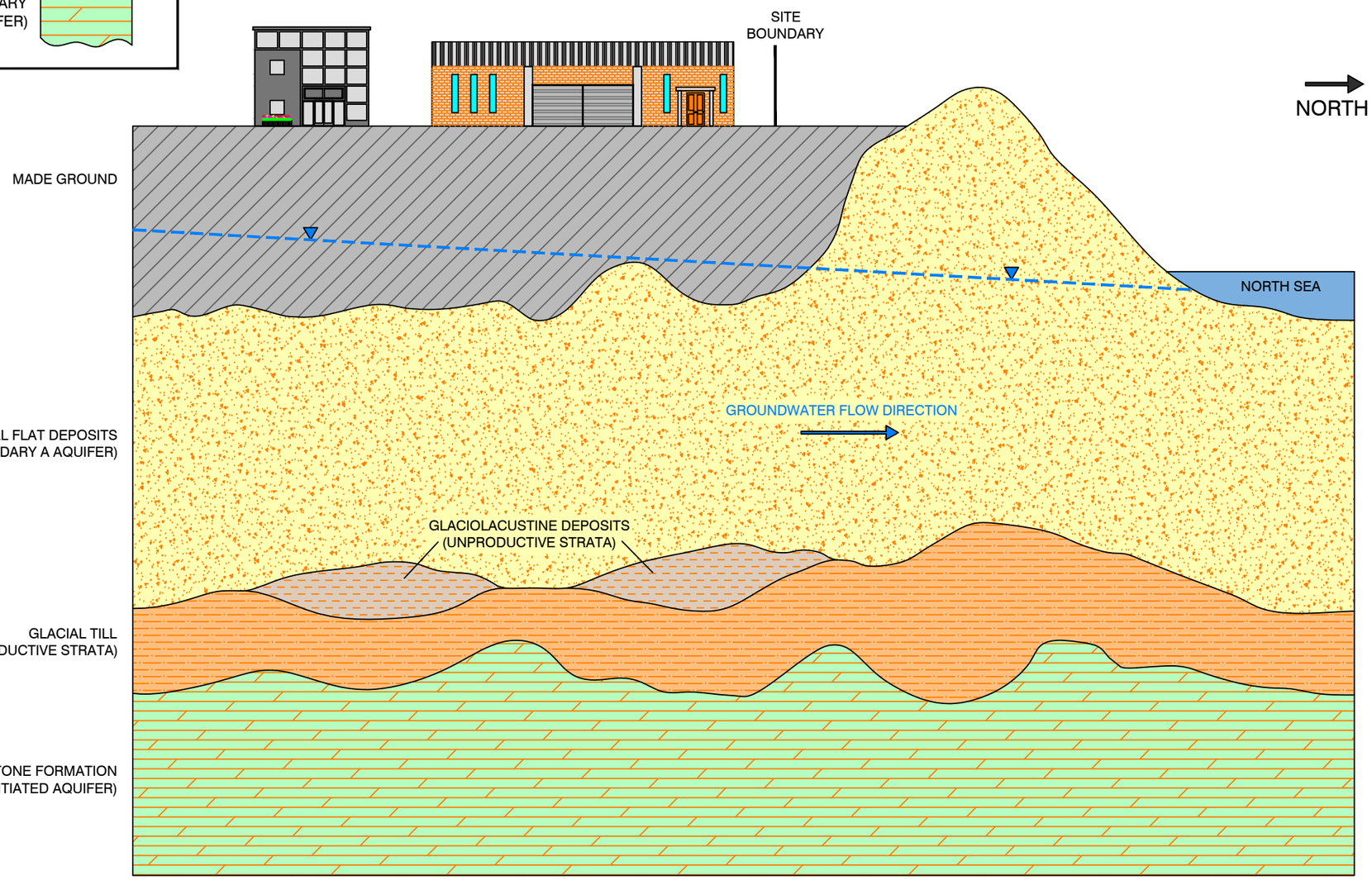
COMMERCIAL / INDUSTRIAL END USE CSM



CONCEPTUAL ZONE	PHYSICAL CHARACTERISTICS	JUSTIFICATION
SOURCE ZONE	MADE GROUND	REPRESENTATIVE OF DEPOSITS WITHIN WHICH THE MAJORITY OF IMPACTS ARE LOCATED
AQUIFER	SLIGHTLY SILTY SLIGHTLY GRAVELLY CLAY	REPRESENTATIVE OF THE DEPOSITS ENCOUNTERED BENEATH THE SITE, THROUGH WHICH OFF-SITE MIGRATION OF GROUNDWATER IS ANTICIPATED TO TAKE PLACE



KEY

GROUNDWATER ELEVATION

NOTES

INDICATIVE - NOT TO SCALE

MADE GROUND IS CONSIDERED A SOURCE OF DIFFUSE CONTAMINANTS - NOT DEPICTED FOR SIMPLICITY.

REV	DATE	COMMENT	CAD

TITLE: CONCEPTUAL SITE MODEL CROSS SECTION

SITE: LAND WEST OF WARRENBY

CLIENT: SOUTH TEES DEVELOPMENT CORPORATION

PROJECT: 10035117 | FIGURE 9

DATE: 07/01/22 | DRAWN: BNB | REV: -

DRG.No.: 10035117-AUK-XX-XX-DR-ZZ-0461-P1 | PRINT: A3

ARCADIS Design & Consultancy for natural and built assets

Appendix C

Decision Notice

TOWN AND COUNTRY PLANNING ACT 1990

NOTICE OF PLANNING PERMISSION

Applicant / Agent Name And Address

LICHFIELDS
MR ADRIAN ARMSTRONG
ST NICHOLAS BUILDING
ST NICHOLAS STREET
NEWCASTLE UPON TYNE
NE1 1RF

Reference No: R/2021/1048/FFM

The Council as the Local Planning Authority **HEREBY GRANT PLANNING PERMISSION** for the development proposed by you in your application valid on: 7 December 2021

Details: **ENGINEERING OPERATIONS ASSOCIATED WITH GROUND REMEDIATION AND PREPARATION OF THE SITE**

Location: **FORMER REDCAR STEELWORKS (TEESWORKS) LAND TO WEST OF WARRENBY REDCAR**

Applicant: **SOUTH TEES DEVELOPMENT CORPORATION**

Subject to the following condition(s):

1. **The development shall not be begun later than the expiration of THREE YEARS from the date of this permission.**

   REASON: Required to be imposed pursuant to Section 91 of the Town and Country Planning Act 1990.

2. **The development hereby permitted shall be carried out in accordance with the following approved plans:**

   Location Plan (Dwg No. SD-00.01) received by the Local Planning Authority on 07/12/21
   Dig Depths Plan (Dwg No. 10035117-AUK-XX-XX-DR-ZZ-0422-02-Net_Zero_Rem_Ex) received by the Local Planning Authority on 07/12/21
   Data Survey Plan (Dwg No. 10035117-AUK-XX-XX-DR-ZZ-0508-01-Net_Zero_Plot_Data_Gaps) received by the Local Planning Authority on 12/05/22

   REASON: To accord with the terms of the planning application.

3. No phase of development shall take place until a Construction Environmental Management Plan (CEMP) for that phase of the development has been submitted to and approved in writing by the Local Planning Authority. The approved CEMP shall be adhered to throughout the construction period of that phase. The CEMP shall include details of any phasing of the approved works across the site and shall demonstrate how the mitigation measures set out in the Ecological Impact Assessment, INCA, dated November 2021 have been incorporated in the construction methods. The CEMP shall also include the following details:

- **i The method to be used to control the emission of dust, noise and vibration from construction works, including any details of any mitigation measures required;**
- **ii Measures to control the deposit of mud and debris on adjoining public highways**
- **iii Site fencing and security**
- **iv Temporary contractors' buildings, plant, storage of materials, lighting and parking for site operatives**
- **v The use of temporary generators**
- **vi The arrangement or turning of vehicles within the site so that they may enter and leave in forward gear**
- **vii A risk assessment of construction activities with potentially damaging effects on local ecological receptors including any measures to protect those receptors during construction**
- **viii Roles and responsibilities for the implementation of the CEMP requirements and measures.**
- **ix Measures to control invasive plant species**
- **x Measures to control surface water and other water generated as part of the works**

REASON: In the interest of neighbour amenity, highways safety and protection of sites of ecological value in accordance with policies SD4 and N4 of the Redcar and Cleveland Local Plan.

REASON FOR PRE-COMMENCEMENT: The information is required prior to any works commencing on site as it relates to construction details which are often the first works on site and relate to site preparation.

4. No development hereby approved shall commence within the areas outlined in blue on the submitted 'Net Zero Data Gaps' plan (Plan Ref. No. 10035117-AUK-XX-XX-DR-ZZ[1]0508-01- Net_Zero_Plot_Data_Gaps) until a report of findings arising from Phase II intrusive site investigations including a risk assessment (generic or detailed quantitative assessment as required), and if required by the risk assessment an updated Remediation Strategy (any updated Remediation Strategy shall be subject to independent review through the National Quality Mark Scheme) has been submitted to and approved in writing by the Local Planning Authority (the submitted information shall consider the areas within the blue lines shown on the aforementioned plan only). The Assessment shall include measures and timescales for Remediation, Monitoring and Verification Reports include mitigation measures.

REASON: To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with the Local Plan and the National Planning Policy Framework.

5. **Where required, the remediation and monitoring measures approved under Condition 4 shall be implemented in accordance with the timescales approved and in full accordance with the approved details.**

   REASON: To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers and other offsite receptors, in accordance with the Local Plan and the National Planning Policy Framework.

6. **The development within the application boundary (with the exception of the areas outlined in Blue on the submitted 'Net Zero Data Gaps' plan - Plan Ref. No. 10035117-AUK[1]XX-XX-DR-ZZ-0508-01- Net_Zero_Plot_Data_Gaps) shall be implemented in accordance with the measures set out in the submitted Enabling Earthworks and Remediation Strategy Report (Report Ref: 10035117-AUK-XX-XXRP-ZZ-0417-03). That Remediation Strategy Report shall be subject to independent review through the National Quality Mark Scheme. Should that review result in amendments being necessary, a revised Strategy Report shall be submitted and approved by the Local Planning Authority and development carried out in accordance with it.**

   REASON: To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers and other offsite receptors, in accordance with the Local Plan and the National Planning Policy Framework.

7. **Following completion of the approved remediation and monitoring measures, a verification report that demonstrates the effectiveness of the remediation carried shall be submitted to and approved in writing by the Local Planning Authority.**

   REASON: To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with policies of the Local Plan and the National Planning Policy Framework.

8. **In the event that contamination is found at any time when carrying out the approved development that was not previously identified it must be reported in writing immediately to the Local Planning Authority. prior to implementation of any amendments to the agreed strategy. An investigation and risk assessment must be undertaken, and where remediation is necessary a remediation scheme must be prepared which is subject to the approval in writing of the Local Planning Authority. The development shall then be carried out in accordance with the approved scheme.**

   REASON: To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors.

9. **A scheme for managing and/or decommissioning any borehole installed for the investigation of soils, groundwater or geotechnical purposes shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall provide details of how redundant boreholes are to be decommissioned and how any boreholes that need to be retained, post-development, for monitoring purposes will be secured, protected and inspected. The scheme as approved shall be implemented prior to the occupation of any part of the permitted development.**

   REASON: To ensure that redundant boreholes are safe and secure, and do not cause groundwater pollution or loss of water supplies in line with paragraph 174 of the NPPF and 'The Environment Agency's approach to groundwater protection'.

10. **There shall be no site vegetation clearance between March to the end of August unless the project ecologist has first undertaken a checking survey immediately prior to the clearance and confirms in writing to the Local Planning Authority that no active nests are present.**

    REASON: To conserve protected species and their habitat in accordance with policy N4 of the Local Plan.

    Statement of Co-operative Working: The Local Planning Authority considers that the application as originally submitted is a satisfactory scheme and therefore no negotiations have been necessary.

Signed:

Andrew Carter
Assistant Director Economic Growth

Date: **11 August 2022**

DECFFG

YOUR ATTENTION IS DRAWN TO INFORMATIVE NOTES BELOW:

INFORMATIVE NOTE:

The conditions above should be read carefully and it is your (or any subsequent developers) responsibility to ensure that the terms of all conditions are met in full at the appropriate time (as outlined in the specific condition).

Please note that in order to discharge any conditions, a fee is payable in respect to this.

Failure on the part of the developer to fully meet the terms of any conditions which require the submission of details prior to the commencement of development may result in the development being considered unlawful and may render you liable to formal enforcement action.

Failure on the part of the developer to observe the requirements of any other conditions could result in the Council pursuing formal action in the form of a Breach of Condition notice.

APPROVAL INFORMATIVE:

This permission refers only to that required under the Town and Country Planning Acts and does not include any consent or approval under any other enactment, byelaw, order or regulation.

Consent under the current Building Regulations may also be required for the development before work can commence.

CATS Pipeline

In addition to the statutory consultees, applicants should also consider what other stakeholders should be consulted. For example, in the case of any development taking place that may affect High Pressure Gas Pipelines, operated by CATS North Sea Limited on behalf of the owners of the pipeline, please consult with CATS North Sea Limited at CATSpipeline@woodplc.com 01642 546404 CATS Terminal, Seal Sands Road, Seal Sands, Teesside TS2 1UB.

County of Cleveland Act, 1987 – Facilities for Fire Fighting

Section 5 of this Act requires that, where building regulation plans for the erection or extension of a building are deposited with the Council, the Council must reject the plans if it is not satisfied:

- That there will be adequate means of access for the Fire Brigade
- That the building or extension will not make means of access for the Fire Brigade to any neighbouring building inadequate
- If the building could be used for commercial or industrial purposes, that there is provision for installation of fire hydrants or other provision for an adequate supply of water for firefighting purposes.

Appeals to the Secretary of State

If you are aggrieved by the decision of your local planning authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under Section 78 of the Town and Country Planning Act 1990.

If you want to appeal, then you must do so within the timeframes stated below:

- **12 weeks** of the date of this notice for a householder application/minor commercial application;

- **six months** of the date of this notice for other planning applications
- **8 weeks** in the case of any advertisement

using a form which you can get from the Secretary of State at **Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6PN, (Tel: 0303 444 5000)** or online at **https://www.gov.uk/planning-inspectorate**. The Secretary of State can allow a longer period for giving notice of an appeal, but will not normally be prepared to use this power unless there are special circumstances, which excuse the delay in giving notice of appeal.

The Secretary of State need not consider an appeal if it seems to them that the local planning authority could not have granted planning permission for the proposed development or could not have it granted without the conditions it imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order. In practice, the Planning Inspectorate does not refuse to consider appeals solely because the local planning authority based its decision on a direction given by them.

Purchase Notices

If either the Local Planning Authority or the Secretary of State refuses permission to develop land or grants it subject to conditions, the owner may claim that they can neither put the land to a reasonably beneficial use in its existing state nor can they render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted.

In the circumstances, the owner may serve a purchase notice on the Council (District Council, London Borough Council or Common Council of the City of London) in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of part VI of the Town and Country Planning Act 1990.

Compensation

In certain circumstances compensation may be claimed from the local planning authority if permission is refused or granted subject to conditions by the Planning Inspectorate on appeal or on reference of the application to them. These circumstances are set out in Section 114 and related provisions of the Town & Country Planning Act 1990.

The Highways Act 1980 (Sections 131, 133 and 171)

Prior to commencing work on any development which entails interference with an adopted Highway a developer/contractor is required to obtain the consent of the Engineering (Highways Team). Such consent will not unreasonably be withheld but will be conditional upon obtaining a “Road Opening And Reinstatement” Consent and signing an “Undertaking To Pay For Works”.

The Building Act 1984 (Section 80)

Prior to commencing work on any development which entails the demolition of part, or all of a building a developer or contractor is required to obtain the consent of the Engineering Team. Consent will be conditional on the Local Authority receiving the appropriate forms. Forms can be obtained direct from the Engineering Team.

Appendix D

Study Limitations

IMPORTANT. This appendix should be read before reliance is placed on any of the information, opinions, advice, recommendations or conclusions contained in this report.

1 This report has been prepared by Arcadis (UK) Limited ('Arcadis'), with all reasonable skill, care and diligence within the terms of the Appointment and with the resources and manpower agreed with South Tees Development Corporation (UK) Limited (the 'Client'). Arcadis does not accept responsibility for any matters outside the agreed scope.

2 This report has been prepared for the sole benefit of the Client unless agreed otherwise in writing. otherwise in writing. The contents of this report may not be used or relied upon by any person other than this party without the express written consent and authorisation of Arcadis.

3 Unless stated otherwise, no consultations with authorities or funders or other interested third parties have been carried out. Arcadis is unable to give categorical assurance that the findings will be accepted by these third parties as such bodies may have unpublished, more stringent objectives. Further work may be required by these parties.

4 All work carried out in preparing this report has used, and is based on, Arcadis' professional knowledge and understanding of current relevant legislation. Changes in legislation or regulatory guidance may cause the opinion or advice contained in this report to become inappropriate or incorrect. In giving opinions and advice, pending changes in legislation, of which Arcadis is aware, have been considered. Following delivery of the report, Arcadis has no obligation to advise the Client or any other party of such changes or their repercussions.

5 This report is only valid when used in its entirety. Any information or advice included in the report should not be relied upon until considered in the context of the whole report.

6 Whilst this report and the opinions made are correct to the best of Arcadis' belief, Arcadis cannot guarantee the accuracy or completeness of any information provided by third parties. provided by third parties. Arcadis has taken reasonable steps to ensure that the information sources used for this assessment provided accurate information, and has therefore assumed this to be the case.

7 This report has been prepared based on the information reasonably available during the project programme. All information relevant to the scope may not have been received.

8 This report refers, within the limitations stated, to the condition of the site at the time of the inspection. No warranty is given as to the possibility of changes in the condition of the site since the time of the investigation.

9 The content of this report represents the professional opinion of experienced environmental consultants. Arcadis does not provide specialist legal or other professional advice. The advice of other professionals may be required.

10 Where intrusive investigation techniques have been employed they have been designed to provide a reasonable level of assurance on the conditions. Given the discrete nature of sampling, no investigation technique is capable of identifying all conditions present in all areas. In some cases the investigation is further limited by site operations, underground obstructions and above ground structures. Unless otherwise stated, areas beyond the boundary of the site have not been investigated.

11 If below ground intrusive investigations have been conducted as part of the scope, safe location of exploratory holes has been carried out with reference to the Arcadis ground disturbances procedure. No guarantee can be given that all services have been identified. Additional services, structures or other below ground obstructions, not indicated on the drawing, may be present on site.

12 Unless otherwise stated the report provides no comment on the nature of building materials, operational integrity of the facility or on any regulatory compliance issues.

13 Unless otherwise stated, an inspection of the site has not been undertaken and there may be conditions present at the site which have not been identified within the scope of this assessment.

14 Unless otherwise stated, samples from the site (soil, groundwater, building fabric or other samples) have not been obtained.

15 Arcadis has relied upon the accuracy of documents, oral information and other material and information provided by the Client and others, and Arcadis assumes no liability for the accuracy of such data, although in the event of apparent conflicts in information, Arcadis would highlight this and seek to resolve.

16 Unless otherwise stated, the scope of works has not included an environmental compliance review, health and safety compliance review, hazardous building materials assessment, interviews or contacting Local Authority, requests for information to the petroleum officer, sampling or analyses of soil, ground water, surface water, air or hazardous building materials or a chain of title review.

17 Unless otherwise stated, this assessment has considered the ongoing use of the site and has not been prepared for the purposes of redevelopment which may act as a trigger for site investigation and remediation works not needed for ongoing use

Appendix E

Summary of Previous Site Investigation Data

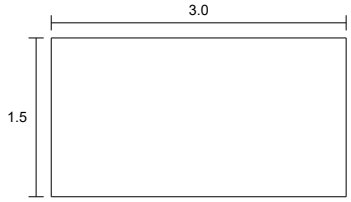
ARCADIS Trial Pit Log

LWW-TP01

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Teesworks - LWW Site	**10047374**	**7.43**	**05/12/2022**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
STDC	**456879.33**	**525664.87**	**05/12/2022**	**Sheet 1 of 1**

SAMPLES	TESTS	STRATA		Depth (Thickness)	Level	Install/ Backfill
Depth - Type	Type - Depth - Result	Description	Legend			
		MADE GROUND: Soft light brown sandy very gravelly CLAY with grass and rootlets.		(0.20)		
		MADE GROUND: Loose to medium dense grey slightly sandy gravel of angular slag. Slag Rich Made Ground		0.20	7.23	
(ESLWW-TP01-S1) 1.00	PID(1) 1.00m <1ppm			(0.90)		
		MADE GROUND: Loose to medium dense brownish grey very sandy very cobbly angular gravel of SLAG. Slag Rich Made Ground		1.10	6.33	
(ESLWW-TP01-S2) 2.00	PID(2) 2.00m <1ppm					
				(3.30)		
(ESLWW-TP01-S3) 3.00	PID(3) 3.00m <1ppm					
(ESLWW-TP01-S4) 4.00	PID(4) 4.00m <1ppm					
				4.40	3.03	

PLAN DETAILS



Shoring / Support:

Stability: Very Stable

Long Axis Orientation:

WATER OBSERVATIONS

Date/Time	Strike	Rest	Mins	Remarks
				No groundwater encountered

INSTRUMENTS

Name	Type	m AGL

REMARKS

Cable extending diagonally across corner of TP, was not picked up with CAT/GENNY and not on utility plans.
Remediation Dig Depth to 2.633m AOD.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
75 tonne excavator	**4.40m**	**OG**	**JM**

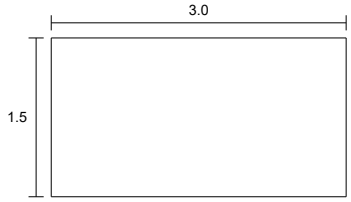
ARCADIS Trial Pit Log

LWW-TP02

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Teesworks - LWW Site	**10047374**	**7.90**	**05/12/2022**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
STDC	**457063.06**	**525509.16**	**05/12/2022**	**Sheet 1 of 1**

SAMPLES	TESTS	STRATA		Depth (Thickness)	Level	Install/ Backfill
Depth - Type	Type - Depth - Result	Description	Legend			
		MADE GROUND: Soft brown clayey sand with roots and fine to medium sub-rounded to sub-angular gravel of bituminous surfacing.		(0.15)		
		MADE GROUND: Black bituminous fine to medium GRAVEL.		0.15 (0.15)	7.75	
		MADE GROUND: Beige fine to medium SAND (Utility Backfill)		0.30 (0.25)	7.60	
		MADE GROUND: Dark grey very sandy cobbly coarse angular Gravel of Slag with beige refractory brick (whole and fragments) Slag Rich Made Ground		0.55	7.35	
(ESLWW-TP02-S1) 1.00	PID(1) 1.00m <1ppm			(1.55)		
(ESLWW-TP02-S2) 2.00	PID(2) 2.00m <1ppm					
		MADE GROUND: Reddish brown and black very gravelly SAND with occasional cobbles of slag, ash and crushed brick. Granular Made Ground		2.10	5.80	
(ESLWW-TP02-S3) 3.00	PID(3) 3.00m <1ppm			(2.40)		
(ESLWW-TP02-S4) 4.00	PID(4) 4.00m <1ppm					
				4.50	3.40	

PLAN DETAILS



Shoring / Support:
Stability: Unstable, sides undercut due to collapse.

Long Axis Orientation:

WATER OBSERVATIONS

Date/Time	Strike	Rest	Mins	Remarks
				No groundwater encountered

INSTRUMENTS

Name	Type	m AGL

REMARKS

Remediation Dig Depth to 3.103m AOD.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
75 tonne excavator	**4.50m**	**OG**	**JM**

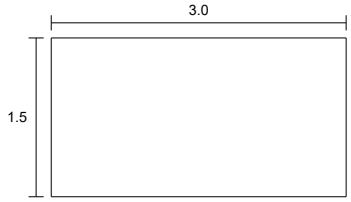
ARCADIS Trial Pit Log

LWW-TP03

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Teesworks - LWW Site	**10047374**	**7.25**	**05/12/2022**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
STDC	**456884.57**	**525505.87**	**05/12/2022**	**Sheet 1 of 1**

SAMPLES	TESTS	STRATA		Depth (Thickness)	Level	Install/ Backfill
Depth - Type	Type - Depth - Result	Description	Legend			
		MADE GROUND: Grey/black fractured bituminous surfacing.		(0.10)		
		MADE GROUND: Light grey angular GRAVEL.		0.10 (0.10)	7.15	
		MADE GROUND: Greyish brown medium dense very sandy GRAVEL with occasional angular cobbles of slag. Slag Rich Made Ground		0.20	7.05	
(ESLWW-TP03-S1) 1.00	PID(1) 1.00m <1ppm					
				(2.00)		
(ESLWW-TP03-S2) 2.00	PID(2) 2.00m <1ppm					
		MADE GROUND: Dark grey occasionally black very sandy GRAVEL with angular cobbles of slag. Slag Rich Made Ground		2.20	5.05	
(ESLWW-TP03-S3) 3.00	PID(3) 3.00m <1ppm					
				(2.60)		
(ESLWW-TP03-S4) 4.00	PID(4) 4.00m <1ppm					
				4.80	2.45	

PLAN DETAILS



Shoring / Support:
Stability: Very stable

Long Axis Orientation:

WATER OBSERVATIONS

Date/Time	Strike	Rest	Mins	Remarks
05/12/2022 00:00	4.80			Groundwater encountered

INSTRUMENTS

Name	Type	m AGL

REMARKS

Remediation Dig Depth to 2.457m AOD.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
75 tonne excavator	**4.80m**	**OG**	**JM**

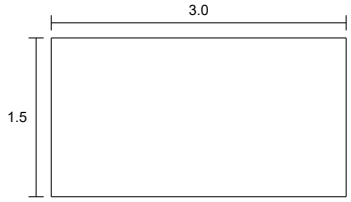
ARCADIS Trial Pit Log

LWW-TP04

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Teesworks - LWW Site	**10047374**	**7.06**	**06/12/2022**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
STDC	**457027.03**	**525409.95**	**06/12/2022**	**Sheet 1 of 1**

SAMPLES	TESTS	STRATA				
Depth - Type	Type - Depth - Result	Description	Legend	Depth (Thickness)	Level	Install/ Backfill
		MADE GROUND: Dark brown loose very sandy GRAVEL with occasional cobbles of brick and slag.		(0.50)		
		MADE GROUND: Brownish orange loose GRAVEL of fragmented, crushed and powdered brick.		0.50 (0.30)	6.56	
		MADE GROUND: Black loose occasionally light grey ashy slightly sandy GRAVEL. Granular Made Ground		0.80 (0.20)	6.26	
(ESLWW-TP04-S1) 1.00	PID(1) 1.00m <1ppm	MADE GROUND: Brown loose fine to coarse SAND and beige sub-rounded to sub-angular GRAVEL with cobbles of refractory brick. Granular Made Ground		1.00 (0.80)	6.06	
(ESLWW-TP04-S2) 2.00	PID(2) 2.00m <1ppm	MADE GROUND: Reddish brown loose very sandy fine to coarse angular GRAVEL with cobbles of brick and slag. Granular Made Ground		1.80	5.26	
(ESLWW-TP04-S3) 3.00	PID(3) 3.00m <1ppm			(2.90)		
(ESLWW-TP04-S4) 4.00	PID(4) 4.00m <1ppm					
				4.70	2.36	

PLAN DETAILS



Shoring / Support:
Stability: Stable

Long Axis Orientation:

WATER OBSERVATIONS

Date/Time	Strike	Rest	Mins	Remarks
				No groundwater encountered

INSTRUMENTS

Name	Type	m AGL

REMARKS

Remediation Dig Depth to 3.264m AOD.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
75 tonne excavator	**4.70m**	**OG**	**JM**

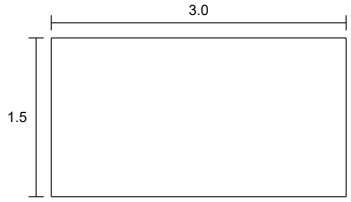
ARCADIS Trial Pit Log

LWW-TP05

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Teesworks - LWW Site	**10047374**	**7.51**	**06/12/2022**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
STDC	**456931.49**	**525309.61**	**06/12/2022**	**Sheet 1 of 1**

SAMPLES	TESTS	STRATA				
Depth - Type	Type - Depth - Result	Description	Legend	Depth (Thickness)	Level	Install/ Backfill
		MADE GROUND: Reddish to purplish grey dense grey fine to coarse very sandy, fine to coarse gravel.		(0.15) 0.15	7.36	
		MADE GROUND: Beige and grey medium dense slightly sandy medium to coarse sub-rounded to angular gravel with frequent cobbles of sub-rounded to angular slag.		(0.65) 0.80	6.71	
(ESLWW-TP05-S1) 1.00	PID(1) 1.00m <1ppm	MADE GROUND: Brown medium dense to coarse slightly sandy medium to coarse GRAVEL with frequent angular cobbles of slag. Slag Rich Made Ground		(1.00) 1.80	5.71	
(ESLWW-TP05-S2) 2.00	PID(2) 2.00m <1ppm	MADE GROUND: Brownish dark grey loose very sandy GRAVEL with cobbles of slag. Granular Made Ground				
(ESLWW-TP05-S3) 3.00	PID(3) 3.00m <1ppm			(2.50)		
(ESLWW-TP05-S4) 4.00	PID(4) 4.00m <1ppm	Dig Depth to 1.035m AOD		4.30	3.21	

PLAN DETAILS



Shoring / Support:
Stability: Very stable

Long Axis Orientation:

WATER OBSERVATIONS

Date/Time	Strike	Rest	Mins	Remarks
				No groundwater encountered

INSTRUMENTS

Name	Type	m AGL

REMARKS

Remediation Dig Depth to 3.717m AOD.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
75 tonne excavator	**4.30m**	**OG**	**JM**

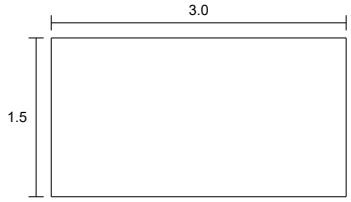
ARCADIS Trial Pit Log

LWW-TP06

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Teesworks - LWW Site	**10047374**	**7.30**	**06/12/2022**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
STDC	**457115.41**	**525261.83**	**06/12/2022**	**Sheet 1 of 1**

SAMPLES	TESTS	STRATA		Depth (Thickness)	Level	Install/ Backfill
Depth - Type	Type - Depth - Result	Description	Legend			
		MADE GROUND: Greyish brown loose very sandy GRAVEL of slag with frequent cobbles of slag and whole bricks. Rare Boulders and metal fragments. Granular Made Ground		(1.80)		
(ESLWW-TP06-S1) 1.00	PID(1) 1.00m <1ppm					
		MADE GROUND: Light creamish grey loose very sandy sub-rounded to sub-angular fine to coarse gravel of ash and slag. Granular Made Ground		1.80 (0.20)	5.50	
(ESLWW-TP06-S2) 2.00	PID(2) 2.00m <1ppm	MADE GROUND: Grey loose sandy angular GRAVEL of slag with frequent sub-rounded to sub-angular cobbles of slag. Slag Rich Made Ground		2.00	5.30	
(ESLWW-TP06-S3) 3.00	PID(3) 3.00m <1ppm			(2.30)		
(ESLWW-TP06-S4) 4.00	PID(4) 4.00m <1ppm					
				4.30	3.00	

PLAN DETAILS



Shoring / Support:
Stability: Unstable, sides undercut due to collapse.

Long Axis Orientation:

WATER OBSERVATIONS

Date/Time	Strike	Rest	Mins	Remarks
				No groundwater encountered

INSTRUMENTS

Name	Type	m AGL

REMARKS

Remediation Dig Depth to 3.509m AOD.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
75 tonne excavator	**4.30m**	**OG**	**JM**

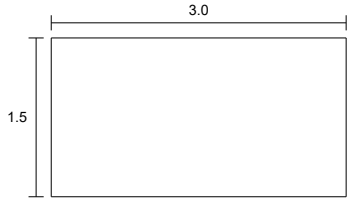
ARCADIS Trial Pit Log

LWW-TP07

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Teesworks - LWW Site	**10047374**	**7.04**	**06/12/2022**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
STDC	**457225.76**	**525179.07**	**06/12/2022**	**Sheet 1 of 1**

SAMPLES	TESTS	STRATA		Depth (Thickness)	Level	Install/ Backfill
Depth - Type	Type - Depth - Result	Description	Legend			
(ESLWW-TP07-S1) 1.00	PID(1) 1.00m <1ppm	MADE GROUND: Greyish brown loose very sandy sub-rounded to sub-angular GRAVEL of slag with frequent cobbles and boulders of slag and whole bricks. Slag Rich Made Ground		(2.10)		
(ESLWW-TP07-S2) 2.00	PID(2) 2.00m <1ppm			2.10	4.94	
		MADE GROUND: Dark grey very sandy sub-rounded to sub-angular GRAVEL with occasional cobbles of slag. Granular Made Ground		(0.90)		
(ESLWW-TP07-S3) 3.00	PID(3) 3.00m <1ppm	Beige rounded slightly gravelly fine to medium SAND with occasional broken shell fragments. Gavel is rounded medium to coarse. Tidal Flat Deposits		3.00	4.04	
(ESLWW-TP07-S4) 4.00	PID(4) 4.00m <1ppm			(1.50)		
				4.50	2.54	

PLAN DETAILS



Shoring / Support:
Stability: Very unstable, collapsing in.

Long Axis Orientation:

WATER OBSERVATIONS

Date/Time	Strike	Rest	Mins	Remarks
				No groundwater encountered

INSTRUMENTS

Name	Type	m AGL

REMARKS

Remediation Dig Depth to 2.242m AOD.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
75 tonne excavator	**4.50m**	**OG**	**JM**

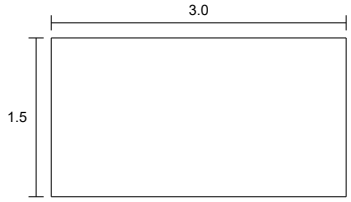
ARCADIS Trial Pit Log

LWW-TP08

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Teesworks - LWW Site	**10047374**	**5.83**	**07/12/2022**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
STDC	**456676.95**	**525212.62**	**07/12/2022**	**Sheet 1 of 1**

SAMPLES	TESTS	STRATA				
Depth - Type	Type - Depth - Result	Description	Legend	Depth (Thickness)	Level	Install/ Backfill
		MADE GROUND: Grass over purplish red fine powdered sub-rounded to sub-angular GRAVEL of Coke.		(0.10)		
		MADE GROUND: Grey slightly sandy sub-rounded to sub-angular GRAVEL of Coke.		0.10 (0.10)	5.73	
(ESLWW-TP08-S5) 0.20	PID(5) 0.20m <1ppm	MADE GROUND: Brownish grey loose very sandy sub-rounded to sub-angular GRAVEL with angular cobbles of slag. Slag Rich Made Ground		0.20	5.63	
(ESLWW-TP08-S6) 0.50						
(ESLWW-TP08-S1) 1.00	PID(1) 1.00m <1ppm					
				(2.90)		
(ESLWW-TP08-S2) 2.00	PID(2) 2.00m <1ppm					
(ESLWW-TP08-S3) 3.00	PID(3) 3.00m <1ppm					
		MADE GROUND: Loose greyish beige brown hydraulic fill of silts and fine sands from dredged material. Tidal Flat Deposits		3.10	2.73	
				(1.00)		
(ESLWW-TP8-S4) 4.00	PID(4) 4.00m <1ppm			4.10	1.73	

PLAN DETAILS



Shoring / Support:
Stability: Unstable, water entering from side causing collapse.

Long Axis Orientation:

WATER OBSERVATIONS

Date/Time	Strike	Rest	Mins	Remarks
06/12/2022 00:00	3.90			Groundwater encountered from side at base of MG and above TFD.

INSTRUMENTS

Name	Type	m AGL

REMARKS

Remediation Dig Depth to 1.035m AOD.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
75 tonne excavator	**4.10m**	**OG**	**JM**

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AGS REGISTERED USER 2022

Trial Pit No. F-TP120

Sheet: 1 of 1

Equipment & Methods: Tracked 14T 360 Excavator

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456881.428
N: 525669.406

Ground Level (m): 7.590 AOD

Date Started: 06/10/2022

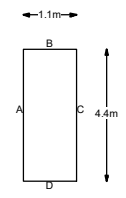
Date Completed: 06/10/2022

Samples and In situ Testing			Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	Sample Ref & Type	Test Type and Result					
0.00	ES			MADE GROUND: Grass over: Dark and light brown slightly gravelly silty fine to coarse SAND with abundant rootlets and frequent fragments of plastic and metal. Gravel is angular to subangular fine to coarse of chert, concrete, brick and sandstone **(MADE GROUND)**	7.31		(0.28) 0.28
0.20	D	PID = 0.1ppm					
0.50	ES	PID = 0.0ppm		MADE GROUND: Dark grey very gravelly fine to coarse SAND with abundant fragments of metal, wood and textile. Gravel is angular to subangular fine to coarse of slag, concrete and asphalt **(MADE GROUND)**			
1.00		PID = 0.0ppm		From 0.28m bgl: Bricks and mortar present in northern half of the trial pit. At 0.72m bgl: Metal rope present.			
1.50	ES	PID = 0.0ppm					(3.72)
2.30	ES	PID = 0.0ppm					
3.00	ES	PID = 0.0ppm					
3.50		PID = 0.0ppm					
4.00		PID = 0.0ppm		At 4.00m bgl: Two pipes, 3cm diameter. One broken, one intact. Orientated north east to south west. **End of Trial Pit 4.00 m** (Thickness of basal layer not proven)	3.59		4.00

Groundwater Observations

Strike Depth	Post Mins	Post Depth	Flow

Plan View



Remarks

1. Trial Pit located in the Main Site area of Teesworks, Redcar. Located in the west of Remediation Zone PR2A, to the north of the haul road. The trial pit was re-orientated north-south due to presence of buried brickwork.
2. Trial Pit terminated at 4.00m bgl due to the presence of two pipes.
3. Topography: Level Ground.
4. Groundwater not encountered during excavation.
5. Slag and refractory material encountered in material recovered from ground level to 4.00m bgl. No olfactory evidence of contamination.
6. Trial Pit backfilled with arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25 | Logged By: NS | Checked By: JW

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Trial Pit No. F-TP121

Sheet: 1 of 1

Equipment & Methods: Tracked 14T 360 Excavator

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456855.393
N: 525639.131

Ground Level (m): 8.340 AOD

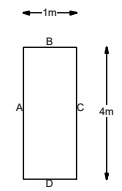
Date Started: 06/10/2022

Date Completed: 06/10/2022

Samples and In situ Testing			Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	Sample Ref & Type	Test Type and Result					
0.00	ES	PID = 0.1ppm		MADE GROUND: Grass over: Dark brown mottled black slightly gravelly silty fine to coarse SAND with abundant roots and rootlets and occasional fragments of plastic and textile. Gravel is angular to subrounded fine to coarse of chert, brick, limestone and sandstone **(MADE GROUND)**	8.11		(0.23)
0.10	D	PID = 0.3ppm					0.23
0.23- 0.72	0.72 B						
0.30	D						
0.50	ES	PID = 0.3ppm		MADE GROUND: Brown mottled dark grey slightly gravelly clayey fine to coarse SAND with occasional fragments of plastic, metal and textile. Gravel is angular to subangular fine to coarse of chert, sandstone, limestone and brick **(MADE GROUND)**	7.62		(0.49)
0.72- 1.20	1.2 B						0.72
0.80	D						
	ES						(0.48)
1.20	D	PID = 0.4ppm		MADE GROUND: Light brown mottled dark brown gravelly clayey fine to coarse SAND with frequent pockets of soft dark grey clay. Gravel is angular to subrounded fine to coarse of chalk, concrete and limestone **(MADE GROUND)**	7.14		1.20
1.20- 1.50	1.5 B						(0.30)
1.50- 1.80	1.8 B			MADE GROUND: Light grey matrix supported CONCRETE with 10mm rebar. Aggregate is subangular to subrounded fine to medium of limestone **(MADE GROUND)**	6.84		1.50
1.80	D	PID = 0.8ppm					
	ES						
2.00- 2.50	2.5 B			MADE GROUND: Black very gravelly fine to coarse SAND with medium cobble content, abundant ash and occasional fragments of metal and textile. Cobbles are angular of brick. Gravel is angular to subangular fine to coarse of slag, brick, clinker and concrete **(MADE GROUND)**			
2.50	D	PID = 1.0ppm		From 1.50m to 2.50m bgl: Slight sulphurous odour noted.			
2.80	ES						
3.00	D	PID = 0.1ppm					(3.00)
3.00- 3.50	3.5 B						
3.50	D	PID = 0.1ppm					
3.80	ES						
4.00	D	PID = 0.7ppm					
4.00- 4.50	4.5 B						
4.50	D	PID = 0.1ppm			3.84		4.50
				End of Trial Pit 4.50 m (Thickness of basal layer not proven)			

Groundwater Observations			
Strike Depth	Post Mins	Post Depth	Flow

Plan View



Remarks

1. Trial Pit located in the Main Site area of Teesworks, Redcar. Located in the west of Remediation Zone PR2A, to the north of the haul road.
2. Trial Pit advanced to 4.50m bgl.
3. Topography: Gently sloping to the south.
4. Groundwater not encountered during excavation.
5. Slag and refractory material encountered in material recovered from 1.50m to 4.50m bgl. Sulphurous odour noted in material fom 1.50m to 2.50m bgl.
6. Trial Pit backfilled with arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30 | Logged By: NS | Checked By: JW

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Trial Pit No. F-TP115

Sheet: 1 of 1

Equipment & Methods: Tracked 22T 360 Excavator

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456823.795
N: 525461.784

Ground Level (m): 7.268 AOD

Date Started: 27/09/2022

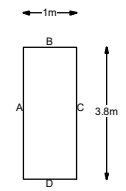
Date Completed: 27/09/2022

Samples and In situ Testing			Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	Sample Ref & Type	Test Type and Result					
				MADE GROUND: Dark grey and black ASPHALT **(MADE GROUND)**	7.17		(0.10) 0.10
0.20- 0.50	B			MADE GROUND: Greenish grey mottled grey sandy angular to subangular fine to coarse GRAVEL of sandstone, brick and slag **(MADE GROUND)**	7.07		(0.10) 0.20
0.30	D ES	PID = 0.8ppm					
0.50- 1.00	B			MADE GROUND: Dark brown and dark grey silty gravelly coarse SAND with low cobble content. Cobbles are angular of slag. Gravel is angular to subangular fine to coarse of slag and brick. Sand is coarse **(MADE GROUND)**			(1.30)
0.80	D	PID = 1.1ppm					
1.30	D	PID = 0.9ppm					
1.50- 2.00	B				5.77		1.50
1.50	ES			MADE GROUND: Brown very sandy angular to subangular fine to coarse GRAVEL of slag, brick, metal and clinker with low cobble content. Cobbles are angular of slag and brick. Assessed as very dense **(MADE GROUND)**			
1.80	D	PID = 1.6ppm					
2.00- 2.50	B						(1.00)
2.30	D ES	PID = 1.5ppm					
					4.77		2.50
				End of Trial Pit 2.50 m (Thickness of basal layer not proven)			

Groundwater Observations

Strike Depth	Post Mins	Post Depth	Flow

Plan View



Remarks

1. Trial Pit located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR2B.
2. Trial Pit refused at 2.50m bgl, on hard stratum.
3. Topography: Level Ground.
4. Groundwater not encountered during excavation.
5. Slag and refractory material encountered in material recovered from ground level to 2.50m bgl. No olfactory evidence of contamination.
6. Trial Pit backfilled with arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25 | Logged By: RM | Checked By: JW

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Trial Pit No. F-TP116

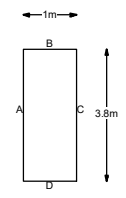
Sheet: 1 of 1

Equipment & Methods: Tracked 22T 360 Excavator	Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED) Project Location: Redcar, North Yorkshire Client: BP	Job No: 60678042
Co-ordinates: E: 456905.451 N: 525436.703	Ground Level (m): 7.476 AOD	Date Started: 06/10/2022 Date Completed: 07/10/2022

Samples and In situ Testing: Depth (m)	Sample Ref & Type	Test Type and Result	Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
0.20- 0.50	B	PID = 1.2ppm		MADE GROUND: Pale yellow matrix supported CONCRETE with 10mm rebar. Aggregate is angular to subangular fine to medium of sandstone and igneous rock **(MADE GROUND)**	7.28		(0.20) 0.20
0.20	ES						
0.30	D						(0.30)
				MADE GROUND: Greyish brown gravelly medium to coarse SAND. Gravel is subangular to subrounded fine to coarse of brick and slag **(MADE GROUND)**	6.98		0.50
0.80	D ES	PID = 1.6ppm		N.B. Beneath the concrete is a thin black plastic liner.			(0.70)
				MADE GROUND: Dark brown gravelly fine to coarse SAND with medium cobble content. Cobbles are subrounded of slag. Gravel is subangular to subrounded fine to coarse of slag **(MADE GROUND)**	6.28		1.20
				MADE GROUND: Light grey subrounded to subangular medium to coarse GRAVEL of slag with high cobble content. Cobbles are subrounded of slag **(MADE GROUND)**	6.08		(0.20) 1.40
1.50	ES	PID = 0.9ppm		MADE GROUND: Dark brown gravelly fine to coarse SAND with medium cobble content. Cobbles subrounded of slag. Gravel is subangular to subrounded fine to coarse of slag **(MADE GROUND)**			
2.50	ES	PID = 0.7ppm					(3.10)
3.10	ES	PID = 0.5ppm					
4.10	ES	PID = 4.4ppm					
4.50	ES	PID = 0.1ppm			2.98		4.50
				End of Trial Pit 4.50 m (Thickness of basal layer not proven)			

Groundwater Observations: Strike Depth	Post Mins	Post Depth	Flow

Plan View



Remarks

1. Trial Pit located in the Main Site area of Teesworks, Redcar. Located in the centre of Remediation Zone PR1B.
2. Trial Pit advanced to 4.50m bgl.
3. Topography: Level Ground.
4. Groundwater not encountered during excavation.
5. Slag and refractory material encountered in material recovered from 0.20m to 4.50m bgl. No olfactory evidence of contamination.
6. Trial Pit backfilled with arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30 | Logged By: HR | Checked By: JW

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Trial Pit No. F-TP117

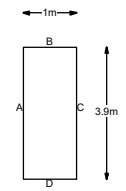
Sheet: 1 of 1

Equipment & Methods: Tracked 22T 360 Excavator	Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED) Project Location: Redcar, North Yorkshire Client: BP	Job No: 60678042
Co-ordinates: E: 456931.072 N: 525387.013	Ground Level (m): 7.204 AOD	Date Started: 27/09/2022 Date Completed: 27/09/2022

Samples and In situ Testing: Depth (m)	Sample Ref & Type	Test Type and Result	Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
				MADE GROUND: Dark grey and black ASPHALT **(MADE GROUND)**	7.10		(0.10) 0.10
0.20 0.30- 0.80	D ES B			MADE GROUND: Grey slightly sandy angular to subangular fine to coarse GRAVEL of slag and concrete. Sand is coarse **(MADE GROUND)**	6.90		(0.20) 0.30
0.50	D ES			MADE GROUND: Dark grey mottled dark brown silty very gravelly coarse SAND with medium cobble content. Cobbles are angular of slag and brick. Gravel is angular to subangular fine to coarse of slag, brick, clinker and metal **(MADE GROUND)**			(1.10)
1.00- 1.50 1.00	B D						
					5.80		1.40
1.50	D ES			MADE GROUND: Grey and brown slightly sandy angular to subangular fine to coarse GRAVEL of slag, brick and clinker with high cobble content and occasional fragments of metal. Cobbles are angular of brick, slag and conrete. Sand is coarse **(MADE GROUND)**			
2.00- 2.50 2.00	B D						(1.45)
2.50	D ES						
					4.35		2.85
				End of Trial Pit 2.85 m (Thickness of basal layer not proven)			

Groundwater Observations			
Strike Depth	Post Mins	Post Depth	Flow

Plan View



Remarks

1. Trial Pit located in the Main Site area of Teesworks, Redcar. Located in the centre of Remediation Zone PR1B.
2. Trial Pit terminated at 2.85m bgl due to unstable pit sidewalls.
3. Topography: Level Ground.
4. Groundwater not encountered during excavation.
5. Slag and refractory material encountered in material recovered from ground level to 2.85m bgl. No olfactory evidence of contamination.
6. Trial Pit backfilled with arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25 | Logged By: HR | Checked By: JW

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Trial Pit No. F-TP112

Sheet: 1 of 1

Equipment & Methods: Tracked 22T 360 Excavator

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456905.844
N: 525356.093

Ground Level (m): 7.861 AOD

Date Started: 26/09/2022

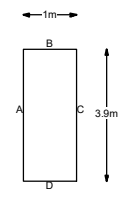
Date Completed: 26/09/2022

Samples and In situ Testing			Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	Sample Ref & Type	Test Type and Result					
0.10- 0.50	B			MADE GROUND: Dark grey mottled black silty very gravelly fine to coarse SAND with medium cobble content. Cobbles are angular of slag and brick. Gravel is angular to subangular fine to coarse of slag, brick, clinker and metal fragments **(MADE GROUND)**	7.81		(0.05) 0.05
0.30	D ES	PID = 0.5ppm					
0.50- 1.00	B			MADE GROUND: Grey mottled dark grey slightly sandy angular to subangular fine to coarse GRAVEL of slag and brick with medium cobble content. Cobbles of angular slag and brick. Sand is coarse **(MADE GROUND)**			(2.35)
0.60	D	PID = 0.8ppm					
1.00	D ES	PID = 1.2ppm					
1.20- 1.70	B						
1.50	D	PID = 1.8ppm					
2.00- 2.50	B	PID = 1.1ppm					
2.00	D ES						
2.50	D	PID = 1.1ppm		Light brown mottled brown slightly gravelly fine to medium slightly silty SAND. Gravel is angular to subrounded of slag and flint N.B. Slag inclusion is from possibly reworked ground or cross-contamination from pit collapse. **(TIDAL FLAT DEPOSITS)**	5.46		2.40
3.00- 3.50	B	PID = 0.8ppm					
3.00	D ES						
3.30	ES						
3.50- 4.00	B						(2.12)
3.70	D ES	PID = 1.5ppm					
4.00- 4.50	B						
4.00	ES						
4.20- 4.50	B			From 4.00m bgl: Becomes very gravelly.			
4.30	D	PID = 1.0ppm					
					3.34		4.52
				End of Trial Pit 4.52 m (Thickness of basal layer not proven)			

Groundwater Observations

Strike Depth	Post Mins	Post Depth	Flow

Plan View



Remarks

1. Trial Pit located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR1B.
2. Trial Pit advanced to 4.52m bgl.
3. Topography: Level Ground.
4. Groundwater not encountered during excavation.
5. Slag and refractory material encountered in material recovered from ground level to 4.52m bgl. No olfactory evidence of contamination.
6. Trial Pit backfilled with arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30 | Logged By: JP | Checked By: JW

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Trial Pit No. F-TP113

Sheet: 1 of 1

Equipment & Methods: Tracked 22T 360 Excavator

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456931.524
N: 525332.271

Ground Level (m): 7.282 AOD

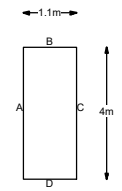
Date Started: 23/09/2022

Date Completed: 23/09/2022

Samples and In situ Testing			Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	Sample Ref & Type	Test Type and Result					
				MADE GROUND: Dark grey mottled black ASPHALT **(MADE GROUND)**	7.23		(0.05) 0.05
0.20	D	PID = 0.2ppm					(0.25)
0.30- 0.70	ES B			MADE GROUND: Greenish grey mottled grey sandy angular to subangular fine to coarse GRAVEL of sandstone, brick and slag **(MADE GROUND)**	6.98		0.30
0.50	D ES	PID = 0.4ppm		MADE GROUND: Grey mottled dark grey slightly sandy angular to subangular fine to coarse GRAVEL of slag with medium cobble content. Cobbles are angular of slag. Sand is coarse **(MADE GROUND)**			
0.70- 1.20	B						
1.00	D	PID = 1.6ppm					(2.10)
1.50- 2.00	B	PID = 0.6ppm					
1.50	D						
2.00	D	PID = 0.6ppm			4.88		2.40
2.50- 3.00	B	PID = 0.7ppm		MADE GROUND: Brown very sandy angular to subangular fine to coarse GRAVEL of slag, brick, metal and clinker with low cobble content. Cobbles are angular of slag and brick **(MADE GROUND)**			
2.50	D ES						(1.00)
3.00	D	PID = 1.2ppm					
3.30	ES				3.88		3.40
3.50- 4.00	B	PID = 0.8ppm		Light brown mottled brown slightly gravelly fine to medium SAND. Gravel is angular to subrounded of slag and flint N.B. Slag inclusion is from possibly reworked ground or cross-contamination from pit collapse. **(TIDAL FLAT DEPOSITS)**			
3.50	D ES						(0.80)
4.00	D ES	PID = 1.1ppm					
4.20- 4.50	B				3.08		4.20
				Light brown fine to medium SAND **(TIDAL FLAT DEPOSITS)**			(0.35)
4.50	D ES	PID = 1.5ppm			2.73		4.55
				End of Trial Pit 4.55 m (Thickness of basal layer not proven)			

Groundwater Observations			
Strike Depth	Post Mins	Post Depth	Flow

Plan View



Remarks

1. Trial Pit located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR1B.
2. Trial Pit advanced to 4.55m bgl.
3. Topography: Level Ground.
4. Groundwater not encountered during excavation.
5. Slag and refractory material encountered in material recovered from ground level to 4.20m bgl. No olfactory evidence of contamination.
6. Trial Pit backfilled with arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30 | Logged By: RM | Checked By: JW

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Trial Pit No. F-TP114

Sheet: 1 of 1

Equipment & Methods: Tracked 22T 360 Excavator

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456958.658
N: 525296.290

Ground Level (m): 7.668 AOD

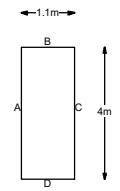
Date Started: 22/09/2022

Date Completed: 22/09/2022

Samples and In situ Testing			Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	Sample Ref & Type	Test Type and Result					
0.10- 0.40	B			MADE GROUND: Dark brown mottled reddish brown gravelly coarse SAND with medium cobble content. Cobbles are angular to subangular of slag and brick. Gravel is angular to subangular fine to coarse of slag. Sand is coarse. Assessed as dense **(MADE GROUND)**	7.27		(0.40)
0.30	D ES	PID = 0.2ppm					0.40
0.60	D	PID = 0.5ppm		MADE GROUND: Greenish grey and grey sandy angular to subangular fine to coarse GRAVEL of slag, brick and clinker **(MADE GROUND)**	7.02		(0.25) 0.65
0.70- 1.00	B						
1.00- 1.50	B			MADE GROUND: Grey mottled dark grey slightly sandy angular to subangular fine to coarse GRAVEL of slag with medium cobble content. Cobbles are angular of slag. Sand is coarse **(MADE GROUND)**			
1.00	ES						
1.30	D	PID = 0.1ppm					(1.85)
1.80	D	PID = 0.3ppm					
2.00	ES						
2.30	D	PID = 0.4ppm					
2.50- 3.00	B				5.17		2.50
2.80	D	PID = 0.6ppm		MADE GROUND: Brown very sandy angular to subangular fine to coarse GRAVEL of slag, brick, metal and clinker with low cobble content. Cobbles are angular of slag and brick **(MADE GROUND)**			
3.00- 3.50	B						
3.00	ES						
3.30	D ES	PID = 0.5ppm					(1.60)
3.80	D	PID = 1.9ppm					
4.00	ES						
4.10- 4.50	B				3.57		4.10
4.30	D ES	PID = 1.3ppm		Light brown very gravelly fine to medium SAND. Gravel is angular to subrounded fine to coarse of sandstone and mudstone **(TIDAL FLAT DEPOSITS)**			(0.43)
					3.14		4.53
				End of Trial Pit 4.53 m (Thickness of basal layer not proven)			

Groundwater Observations			
Strike Depth	Post Mins	Post Depth	Flow

Plan View



Remarks

1. Trial Pit located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR1A.
2. Trial Pit advanced to 4.53m bgl.
3. Topography: Level Ground.
4. Groundwater not encountered during excavation.
5. Slag and refractory material encountered in material recovered from ground level to 4.10m bgl. No olfactory evidence of contamination.
6. Trial Pit backfilled with arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30 | Logged By: RM | Checked By: JW

Report ID: STANDARD TRIAL PIT LOG || Project: V11.0 NZT GI.GPJ || Library: NZT AGS 4_0 LIBRARY V1.3.GLB || Date: 29 November 2022

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Borehole No. F-BH128

Sheet: 1 of 6

Equipment & Methods:
0.00 - 0.25 Insulated Hand Tools
0.15 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 30.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456963.129
N: 525288.281

Ground Level (m): 7.523 AOD

Date Started: 27/07/2022
Date Completed: 02/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						MADE GROUND: Brown mottled light brown very gravelly fine to coarse SAND with occasional fragments of pottery and metal. Gravel is angular to rounded fine to coarse of slag, chert, sandstone, brick and asphalt **(MADE GROUND)**			(0.56)	
							6.96		0.56	
						MADE GROUND: Black very sandy angular to subrounded fine to coarse GRAVEL of slag, sandstone and chert. Sand is fine to coarse **(MADE GROUND)**			(0.94)	
							6.02		1.50	
						MADE GROUND: Black slightly sandy angular to subangular fine to coarse GRAVEL of slag with occasional metal fragments. Sand is fine to coarse **(MADE GROUND)** From 1.50m to 3.00m bgl: Slight sulphurous odour.			(1.93)	
							4.09		3.43	
						MADE GROUND: Yellowish brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of slag, sandstone and mudstone **(MADE GROUND)**			(0.33)	
3.76- 4.01	D						3.76		3.76	
3.90	ES					NOTE: Proposed remediation level 3.8m AOD.			(0.25)	
4.00		PID = 1.4ppm					3.51		4.01	
4.01- 4.50	B	SPT(C) N=21 3,3/ 5,5,6,5				MADE GROUND: Black slightly sandy angular to subangular fine to coarse GRAVEL of slag. Sand is fine to coarse **(MADE GROUND)**				
4.50- 4.60	D	SPT(S) N=29				Medium dense yellowish brown slightly gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse of sandstone and mudstone **(TIDAL FLAT DEPOSITS)**				
4.50	SS	3,7/ 6,6,8,9								
4.60- 5.20	B									
4.90	ES									
5.00		PID = 1.0ppm							(2.35)	
5.20- 5.30	D									
5.30- 6.00	B					From 5.24m bgl: Becomes mottled grey with frequent carbonaceous material and occasional shell fragments. From 5.30m bgl: Becomes very gravelly.				

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
		Insp. Pit	0.25	27-07-2022	09:40	0.25		
				27-07-2022	12:00	1.50	1.50	

Remarks
1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR1A.
2. Buried Service Inspection Pit terminated at 0.25m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 30.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag and refractory material encountered in material recovered from ground level to 4.01m bgl. Slight sulphurous odour noted from 1.50m to 3.00m bgl.
7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30

Logged By: NS

Checked By: JW

Report ID: STANDARD COREHOLE LOG || Project: V11.1 NZT GI.GPJ || Library: NZT AGS 4_0 LIBRARY V1.3.GLB || Date: 29 November 2022

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Borehole No. F-BH128

Equipment & Methods:
0.00 - 0.25 Insulated Hand Tools
0.15 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 30.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456963.129
N: 525288.281

Ground Level (m): 7.523 AOD

Date Started: 27/07/2022
Date Completed: 02/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
6.00- 6.36	B	PID = 10.4ppm								
		SPT(S) N=13 3,6/ 5,6,2,0								
6.36- 7.27	B						1.16		6.36	
6.50- 6.60	D					Soft brown mottled grey slightly sandy silty CLAY with occasional carbonaceous material. Sand is fine to coarse **(TIDAL FLAT DEPOSITS)**			(0.91)	
6.90	ES									
7.00		PID = 1.6ppm								
7.27- 7.50	B						0.25		7.27	
7.50- 8.20	B	SPT(S) N=25				Medium dense brown mottled grey and black slightly gravelly clayey fine to coarse SAND with abundant carbonaceous material and occasional shell fragments. Gravel is angular to subrounded fine to coarse of sandstone and mudstone **(TIDAL FLAT DEPOSITS)**				
7.50	SS	4,5/ 5,7,7,6								
8.00		PID = 1.5ppm								
8.20- 8.30	D									
8.30- 9.00	B									
8.50	ES									
9.00- 9.70	B	PID = 1.3ppm								
9.00	SS	SPT(S) N=21 4,6/ 8,7,3,3							(4.14)	
						From 9.41m to 9.57m bgl: Becomes gravelly.				
9.70- 9.80	D									
9.80- 10.40	B									
10.00		PID = 1.0ppm				From 9.81m bgl: No longer clayey and becomes gravelly.				
10.40- 10.50	D									
10.50- 11.41	B	SPT(S) N=44								
10.50	SS	2,3/ 7,13,10,14				From 10.50m bgl: Becomes locally dense and very gravelly.				
10.70- 10.80	D									
11.00	ES	PID = 1.1ppm								
11.41- 12.00	B						-3.89		11.41	
						Soft locally firm brown mottled grey and black slightly gravelly sandy CLAY with abundant carbonaceous material. Gravel is angular to subrounded fine to coarse of mudstone and sandstone. Sand is fine to coarse **(TIDAL FLAT DEPOSITS)**				

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

Remarks
1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR1A.
2. Buried Service Inspection Pit terminated at 0.25m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 30.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag and refractory material encountered in material recovered from ground level to 4.01m bgl. Slight sulphurous odour noted from 1.50m to 3.00m bgl.
7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30

Logged By: NS

Checked By: JW

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Borehole No. F-BH128

Sheet: 3 of 6

Equipment & Methods:

0.00 - 0.25 Insulated Hand Tools
0.15 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 30.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456963.129
N: 525288.281

Ground Level (m): 7.523 AOD

Date Started: 27/07/2022
Date Completed: 02/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
12.00- 12.70	B	PID = 0.8ppm								
12.00- 12.50	UT100	100 % recovery								
12.70- 12.80	D									
12.80- 13.40	B									
13.00		PID = 0.8ppm							(3.33)	
13.40- 13.50	D									
13.50- 14.20	B									
13.50	ES	100 % recovery								
13.50- 14.00	UT100									
14.00		PID = 0.6ppm								
14.20- 14.30	D									
14.30- 14.90	B					From 14.12m bgl: Becomes stiff locally firm and slightly sandy.				
							-7.22		14.74	
14.90- 15.00	D					Stiff locally very stiff reddish brown mottled grey slightly gravelly slightly sandy silty CLAY with occasional carbonaceous material. Gravel is angular to subrounded fine to coarse of mudstone. Sand is fine to coarse **(TILL: DEVENSIAN)**				
15.00		PID = 0.8ppm			15.00- 16.50					
			100 0 0							
16.03- 16.39	C									
				CLAY	16.50- 18.00				(3.55)	
16.84- 17.15	C									
			94 0 0			From 17.60m to 17.83m bgl: Becomes sandy.				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
		194	15.00	28-07-2022	15:00	18.00	18.00		1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR1A. 2. Buried Service Inspection Pit terminated at 0.25m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 30.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 4.01m bgl. Slight sulphurous odour noted from 1.50m to 3.00m bgl. 7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30

Logged By: NS

Checked By: JW

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Borehole No. F-BH128

Sheet: 4 of 6

Equipment & Methods:

0.00 - 0.25 Insulated Hand Tools
0.15 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 30.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456963.129
N: 525288.281

Ground Level (m): 7.523 AOD

Date Started: 27/07/2022
Date Completed: 02/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
					18.00-19.50		-10.77		18.29	
			100 75 75	3		Very weak locally weak fractured thinly laminated dark grey MUDSTONE. Fracture set 1: Very closely to medium spaced, sub horizontal to 10°, planar rough, closed to partly open, infilled with dark grey silt. Fracture set 2: Medium to closely spaced, sub vertical, closed to tight, infilled with dark grey silt and clay **(REDCAR MUDSTONE FORMATION)**				
				NI						
				CLAY	19.50-21.00					
19.99	C		100 97 89	3		From 19.47m to 19.50m bgl: Horizon of soft grey slightly gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to medium of mudstone. Sand is fine to coarse.				
						From 20.57m bgl: Occasional shell fragments present.				
				NI						
21.13	C		100 91 79	6	21.00-22.50					
				NI						
				0						
				NI						
				CLAY	22.50-24.00					
				13						
				CLAY		From 22.61m to 22.66m bgl: Horizon of soft grey slightly gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to medium of mudstone. Sand is fine to coarse.				
				7						
			98 90 85	CLAY		From 23.19m to 23.23m bgl: Horizon of soft grey slightly gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to medium of mudstone. Sand is fine to coarse.				
				0						
				CLAY		From 23.68m to 23.71m bgl: Horizon of soft grey slightly gravelly slightly sandy CLAY. Gravel is angular to				
				1						

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
				29-07-2022	12:10	24.00	24.00	

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR1A.
2. Buried Service Inspection Pit terminated at 0.25m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 30.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag and refractory material encountered in material recovered from ground level to 4.01m bgl. Slight sulphurous odour noted from 1.50m to 3.00m bgl.
7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30

Logged By: NS

Checked By: JW

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Borehole No. F-BH128

Sheet: 5 of 6

Equipment & Methods:

0.00 - 0.25 Insulated Hand Tools
0.15 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 30.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456963.129
N: 525288.281

Ground Level (m): 7.523 AOD

Date Started: 27/07/2022
Date Completed: 02/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
24.00- 24.21	C		100 86 75	CLAY 4 CLAY 4 CLAY	24.00- 25.50	subrounded fine to medium of mudstone. Sand is fine to coarse. From 24.13m to 24.22m bgl: Firm grey slightly gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to medium of mudstone. Sand is fine to coarse. From 24.71m to 24.77m bgl: Firm grey slightly gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to medium of mudstone. Sand is fine to coarse.			(11.71)	
25.57	C		100 98 92	2 CLAY 5	25.50- 27.00	From 25.32m to 25.38m bgl: Firm grey slightly gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to medium of mudstone. Sand is fine to coarse. From 26.34m to 26.37m bgl: Firm grey slightly gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to medium of mudstone. Sand is fine to coarse.				
27.66- 27.82	C		100 100 95	3	27.00- 28.50					
28.59	C		98 61 61	2 NI	28.50- 30.00		-22.48		30.00	

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR1A. 2. Buried Service Inspection Pit terminated at 0.25m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 30.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 4.01m bgl. Slight sulphurous odour noted from 1.50m to 3.00m bgl. 7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.
		146	30.00	01-08-2022	14:30	30.00	30.00		

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30

Logged By: NS

Checked By: JW

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Borehole No. F-BH128

Sheet: 6 of 6

Equipment & Methods:

0.00 - 0.25 Insulated Hand Tools
0.15 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 30.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456963.129
N: 525288.281

Ground Level (m): 7.523 AOD

Date Started: 27/07/2022

Date Completed: 02/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
				NR		**End of Borehole 30.00 m** (Thickness of basal layer not proven)				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR1A. 2. Buried Service Inspection Pit terminated at 0.25m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 30.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 4.01m bgl. Slight sulphurous odour noted from 1.50m to 3.00m bgl. 7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:30

Logged By: NS

Checked By: JW

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Borehole No. F-BH124

Sheet: 1 of 7

Equipment & Methods:
0.00 - 0.19 Insulated Hand Tools
0.19 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 34.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456858.122
N: 525316.104

Ground Level (m): 7.457 AOD

Date Started: 28/07/2022
Date Completed: 04/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						MADE GROUND: Black and grey angular to subrounded fine to coarse GRAVEL of slag and chert N.B. Sulphurous odour present **(MADE GROUND)**			(0.63)	
0.50		PID = 3.4ppm					6.83		0.63	
						MADE GROUND: Dark brown mottled black gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse of slag **(MADE GROUND)**			(0.35)	
1.00		PID = 2.6ppm					6.48		0.98	
						MADE GROUND: Dark reddish brown mottled black very sandy angular to rounded fine to coarse GRAVEL of slag, chert and sandstone. Sand is fine to coarse **(MADE GROUND)**			(0.52)	
1.50		PID = 2.8ppm					5.96		1.50	
						MADE GROUND: Black and grey angular to subrounded fine to coarse GRAVEL of slag **(MADE GROUND)** From 1.50m to 3.00m bgl: Sulphurous odour present.				
2.00		PID = 1.7ppm								
2.50		PID = 1.1ppm							(2.29)	
3.00		PID = 1.6ppm								
3.50		PID = 0.7ppm								
3.60 - 3.79	D					At 3.60m bgl: Remediation top depth. Sampling to commence beneath this depth.	3.67		3.79	
3.79 - 3.90	D									
3.80	ES									
3.90 - 4.50	B	SPT(C) N=49 12,12/ 15,12,10,12				MADE GROUND: Black mottled grey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of slag, chert, sandstone, mudstone, coal and igneous rock **(MADE GROUND)**				
4.00										
4.10 - 4.20	D	PID = 1.1ppm				From 4.09m to 4.84m bgl: Becomes very gravelly.			(1.17)	
4.50 - 4.96	B	PID = 1.8ppm SPT(C) N=40 8,14/ 13,12,9,6				From 4.50m to 4.96m bgl: Frequent organic material.				
4.96 - 5.40	B					From 4.84m to 4.96m bgl: Becomes clayey.	2.50		4.96	

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south west of Remediation Zone PR1B. 2. Buried Service Inspection Pit terminated at 0.19m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and progressed via Rotary Coring to 34.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 4.96m bgl. Sulphurous odour noted within Made Ground to 3.00m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
		Insp. Pit	0.19	28-07-2022	15:30	0.19			
				29-07-2022	12:00	4.35	3.00	2.70	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH124

Sheet: 2 of 7

Equipment & Methods:

0.00 - 0.19 Insulated Hand Tools
0.19 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 34.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456858.122
N: 525316.104

Ground Level (m): 7.457 AOD

Date Started: 28/07/2022
Date Completed: 04/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
5.00		PID = 1.2ppm				Yellowish brown mottled grey slightly gravelly silty fine to coarse SAND with occasional organic material. Gravel is angular to subrounded fine to coarse of sandstone, mudstone and coal **(TIDAL FLAT DEPOSITS)**				
5.10	ES									
5.40- 5.50	D									
5.50- 6.00	B	PID = 1.0ppm				From 4.96m to 5.21m bgl: Mottled black with occasional relict rootlets.			(1.04)	
5.80	ES									
6.00- 6.10	D	PID = 1.1ppm					1.46		6.00	
6.10- 6.70	B	SPT(S) N=0 0,0/ 0,0,0,0				Soft locally very soft brown mottled grey slightly gravelly sandy CLAY **(TIDAL FLAT DEPOSITS)**				
6.50		PID = 0.8ppm							(1.29)	
6.70- 6.80	D									
6.80- 7.29	B									
6.80	ES									
7.00		PID = 0.5ppm				From 7.10m bgl: Becomes firm.				
7.29- 7.50	D					Medium dense locally dense yellowish brown mottled grey slightly gravelly silty fine to coarse SAND with occasional organic material and shell fragments. Gravel is angular to subrounded fine to coarse of sandstone and mudstone **(TIDAL FLAT DEPOSITS)**	0.17		7.29	
7.50- 7.60	D	PID = 1.0ppm								
7.50	SS	SPT(S) N=23								
7.60- 8.10	B	3,3/ 4,5,6,8								
7.80	ES									
8.00		PID = 0.4ppm								
8.10- 8.20	D									
8.20- 9.00	B					From 8.57m bgl: Occasional pockets of firm brown mottled grey clay.			(3.21)	
9.00- 9.10	D	PID = 0.2ppm								
9.00	SS	SPT(S) N>50								
9.10- 9.80	B	2,4 / 5,8,16,21 for 70mm								
9.80- 9.90	D									
9.80	ES									
9.90- 10.50	B									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south west of Remediation Zone PR1B. 2. Buried Service Inspection Pit terminated at 0.19m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and progressed via Rotary Coring to 34.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 4.96m bgl. Sulphurous odour noted within Made Ground to 3.00m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

Report ID: STANDARD COREHOLE LOG || Project: V11.1 NZT GI.GPJ || Library: NZT AGS 4_0 LIBRARY V1.3.GLB || Date: 29 November 2022

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Borehole No. F-BH124

Equipment & Methods:

0.00 - 0.19 Insulated Hand Tools
0.19 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 34.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456858.122
N: 525316.104

Ground Level (m): 7.457 AOD

Date Started: 28/07/2022
Date Completed: 04/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
10.00		PID = 0.5ppm								
10.50- 10.60	D	SPT(S) N=12					-3.04		10.50	
10.60- 11.10	B	2,4/ 6,3,1,2				Firm locally soft brown mottled black slightly gravelly slightly sandy silty CLAY with abundant organic material. Gravel is subangular to subrounded fine to coarse of mudstone and sandstone. Sand is fine to coarse **(TIDAL FLAT DEPOSITS)**				
10.80	ES									
11.00		PID = 0.5ppm								
11.10- 11.20	D									
11.20- 12.00	B									
12.00- 12.10	D	PID = 1.4ppm								
12.00	UT100	90 % recovery								
12.10- 13.50	B								(3.33)	
13.00		PID = 1.2ppm								
13.50- 13.83	D									
13.50	UT100	100 % recovery								
13.83- 14.20	B						-6.37		13.83	
14.00		PID = 0.6ppm				Stiff locally very stiff reddish brown mottled grey slightly gravelly slightly sandy silty CLAY. Gravel is subangular to subrounded fine to coarse of mudstone, sandstone, chert and chalk. Sand is fine to coarse **(TILL: DEVENSIAN)**				
14.20- 14.30	D									
14.30- 14.90	B									
14.50	ES									
14.90- 15.00	D									

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
				01-08-2022	17:00	13.50	13.50	1.10

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south west of Remediation Zone PR1B.
2. Buried Service Inspection Pit terminated at 0.19m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and progressed via Rotary Coring to 34.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from ground level to 4.96m bgl. Sulphurous odour noted within Made Ground to 3.00m bgl.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH124

Sheet: 4 of 7

Equipment & Methods:

0.00 - 0.19 Insulated Hand Tools
0.19 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 34.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456858.122
N: 525316.104

Ground Level (m): 7.457 AOD

Date Started: 28/07/2022
Date Completed: 04/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
15.00		PID = 1.0ppm	100 0 0		15.00-16.50				(4.97)	
				CLAY	16.50-18.00	From 16.45m to 16.97m bgl: Becomes stiff locally firm.				
17.47- 17.77	C		100 0 0							
					18.00-19.50					
18.80- 19.00	ES		100 41 41	10		Very weak locally weak fractured thinly to thickly laminated dark bluish grey MUDSTONE with occasional shell fragments. Fracture set 1: Wide to closely spaced, sub horizontal to 20°, undulating to planar rough, partly open to closed, infilled with grey gravelly silt. Gravel is subangular to subrounded fine to medium of mudstone **(REDCAR MUDSTONE FORMATION)**	-11.34		18.80	
19.01- 19.29	C			NI						
				2	19.50-21.00	From 19.63m bgl: Fracture set 2 present: Medium spaced, sub vertical to 65°, planar smooth to rough, tight to closed, infilled with grey silt.				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south west of Remediation Zone PR1B. 2. Buried Service Inspection Pit terminated at 0.19m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and progressed via Rotary Coring to 34.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 4.96m bgl. Sulphurous odour noted within Made Ground to 3.00m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
		178	16.50						

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH124

Sheet: 5 of 7

Equipment & Methods:

0.00 - 0.19 Insulated Hand Tools
0.19 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 34.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456858.122
N: 525316.104

Ground Level (m): 7.457 AOD

Date Started: 28/07/2022

Date Completed: 04/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			100 84 84	CLAY		From 20.10m to 20.25m bgl: Stiff grey slightly sandy CLAY. Sand is fine to coarse.				
20.54	C			3						
				CLAY						
				6	21.00-22.50	From 20.91m to 21.00m bgl: Stiff grey slightly sandy CLAY. Sand is fine to coarse.				
21.22	C			CLAY						
			99 95 84	3		From 21.33m to 21.39m bgl: Stiff grey slightly sandy CLAY. Sand is fine to coarse.				
				NR	22.50-24.00					
				4		From 22.71m to 22.78m bgl: Abundant shell fragments.				
			100 89 89	CLAY						
				0		From 23.25m to 23.29m bgl: Firm grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY						
				0		From 23.33m to 23.43m bgl: Abundant shell fragments.				
				CLAY						
				4		From 23.43m to 23.45m bgl: Firm grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY	24.00-25.50	From 23.63m to 23.73m bgl: Stiff grey slightly sandy CLAY. Sand is fine to coarse.				
				8		From 24.00m to 24.05m bgl: Horizon of stiff grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY						
				7						
				NI		From 24.43m to 24.45m bgl: Horizon of stiff grey slightly sandy CLAY. Sand is fine to coarse.				
			100 87 75							

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south west of Remediation Zone PR1B. 2. Buried Service Inspection Pit terminated at 0.19m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and progressed via Rotary Coring to 34.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 4.96m bgl. Sulphurous odour noted within Made Ground to 3.00m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
				02-08-2022	17:20	24.00	24.00	2.10	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH124

Sheet: 6 of 7

Equipment & Methods:

0.00 - 0.19 Insulated Hand Tools
0.19 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 34.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456858.122
N: 525316.104

Ground Level (m): 7.457 AOD

Date Started: 28/07/2022
Date Completed: 04/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
				5						
25.42	C									
				NI	25.50-27.00					
				3						
26.20- 26.30	ES		100 93 88			From 26.29m to 26.40m bgl: Abundant shell fragments present.			(15.20)	
26.65	C			CLAY						
				6		From 26.64m to 26.68m bgl: Horizon of stiff grey slightly sandy CLAY. Sand is fine to coarse.				
					27.00-28.50					
				6						
			100 93 87	CLAY						
				6		From 27.67m to 27.70m bgl: Horizon of firm grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY						
				3		From 28.05m to 28.13m bgl: Horizon of firm grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY	28.50-30.00					
28.59	C			7		From 28.50m to 28.55m bgl: Horizon of soft grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY						
				0		From 28.70m to 28.75m bgl: Horizon of firm grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY						
				14		From 28.84m to 28.88m bgl: Horizon of firm grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY						
			100 84 63	11		From 29.02m to 29.04m bgl: Horizon of soft grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY						
				11		From 29.32m to 29.36m bgl: Horizon of soft grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY						
				0		From 29.73m to 29.77m bgl: Horizon of firm grey slightly sandy CLAY. Sand is fine to coarse.				

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south west of Remediation Zone PR1B.
2. Buried Service Inspection Pit terminated at 0.19m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and progressed via Rotary Coring to 34.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from ground level to 4.96m bgl. Sulphurous odour noted within Made Ground to 3.00m bgl.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

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Borehole No. F-BH124

Sheet: 7 of 7

Equipment & Methods:

0.00 - 0.19 Insulated Hand Tools
0.19 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 34.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456858.122
N: 525316.104

Ground Level (m): 7.457 AOD

Date Started: 28/07/2022

Date Completed: 04/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			100 91 91	0 CLAY NI 0 CLAY NI 4	30.00-31.50	From 30.18m to 30.24m bgl: Horizon of soft grey slightly sandy CLAY. Sand is fine to coarse. From 30.41m to 30.43m bgl: Horizon of soft grey slightly sandy CLAY. Sand is fine to coarse.				
31.20	C									
			100 69 54	8 CLAY 0 CLAY 0 NI 0 NI CLAY 0 NI 9 CLAY NI CLAY 7	31.50-33.00	From 31.63m to 31.65m bgl: Horizon of firm grey slightly sandy CLAY. Sand is fine to coarse. From 31.71m to 31.75m bgl: Horizon of soft grey slightly sandy CLAY. Sand is fine to coarse. From 32.09m to 32.14m bgl: Horizon of firm grey slightly sandy CLAY. Sand is fine to coarse. From 32.39m to 32.46m bgl: Horizon of firm grey slightly sandy CLAY. Sand is fine to coarse. From 32.52m to 32.57m bgl: Horizon of soft grey slightly sandy CLAY. Sand is fine to coarse.				
			100 83 83	0 NI 5 NI 0 CLAY CLAY 11	33.00-34.00	From 33.69m to 33.73m bgl: Horizon of firm grey slightly sandy CLAY. Sand is fine to coarse.				
							-26.54		34.00	
						End of Borehole 34.00 m (Thickness of basal layer not proven)				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south west of Remediation Zone PR1B. 2. Buried Service Inspection Pit terminated at 0.19m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and progressed via Rotary Coring to 34.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 4.96m bgl. Sulphurous odour noted within Made Ground to 3.00m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
		146	34.00	03-08-2022	17:00	34.00	34.00	1.20	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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AGS REGISTERED USER 2022

Borehole No. F-BH125

Sheet: 1 of 6

Equipment & Methods:
0.00 - 0.05 Insulated Hand Tools
0.05 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.20 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456936.515
N: 525314.209

Ground Level (m): 7.311 AOD

Date Started: 04/08/2022
Date Completed: 10/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						MADE GROUND: Dark grey mottled brown slightly sandy silty angular to subangular medium to coarse GRAVEL of slag, brick and concrete with a high cobble content. Cobbles are angular to subrounded of brick and slag. Sand is fine to coarse **(MADE GROUND)**	6.85		(0.46)	
0.50		PID = 1.2ppm				MADE GROUND: Black and dark grey sandy angular to subrounded fine to coarse GRAVEL of slag, brick, mortar, concrete and limestone with medium cobble content. Cobbles are angular to subangular of brick and slag. Sand is fine to coarse **(MADE GROUND)**	6.48		0.46 (0.37) 0.83	
1.00		PID = 3.2ppm				MADE GROUND: Black gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse of slag, brick, conrete and limestone. **(MADE GROUND)**				
1.50		PID = 3.0ppm							(1.47)	
2.00		PID = 2.9ppm								
						MADE GROUND: Yellowish brown and dark brown mottled gravelly fine to coarse SAND. Gravel is angular to subrounded medium to coarse of slag **(MADE GROUND)**	5.01		2.30 (0.70)	
2.50		PID = 4.0ppm								
3.00		PID = 5.1ppm								
						MADE GROUND: Dark grey angular to subrounded medium to coarse GRAVEL of slag with high cobble content. Cobbles are subangular of slag **(MADE GROUND)**	4.31		3.00 (0.34)	
3.20							3.97		3.34	
						MADE GROUND: Yellowish brown and dark brown mottled gravelly fine to coarse SAND. Gravel is angular to subrounded medium to coarse of slag **(MADE GROUND)** NOTE: Proposed remediation level 3.8m AOD.				
3.80- 4.00	D	PID = 8.4ppm								
3.80	ES									
3.90		SPT(C) N>50 8116/24,26 for 50mm								
4.00- 4.50	B								(1.86)	
4.50- 4.80	D	SPT(C) N>50 4,11/28,22 for 65mm								
4.80- 5.00	B	PID = 15.8ppm								
4.80	ES									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR1B. 2. Buried Service Inspection Pit terminated at 0.05m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 29.20m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 5.02m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
		Insp. Pit	0.05	04-08-2022	10:00	0.05			

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH125

Sheet: 2 of 6

Equipment & Methods:
0.00 - 0.05 Insulated Hand Tools
0.05 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.20 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456936.515
N: 525314.209

Ground Level (m): 7.311 AOD

Date Started: 04/08/2022
Date Completed: 10/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
5.10- 5.30	D									
							2.11		5.20	
5.30	ES	PID = 6.9ppm				Dense yellowish brown mottled dark grey fine to medium SAND with occasional shell fragments **(TIDAL FLAT DEPOSITS)**				
5.50- 6.00	B								(0.80)	
6.00	SS	SPT(S) N=3 1,1/ 1,0,1,1					1.31		6.00	
6.30- 6.50	D	PID = 3.8ppm				Very soft dark brown mottled black sandy silty organic CLAY with some pockets of carbonaceous material **(TIDAL FLAT DEPOSITS)**				
6.30	ES									
6.50- 6.90	B								(0.94)	
							0.37		6.94	
7.00- 7.10	D					Dense yellowish brown slightly gravelly fine to coarse silty SAND with occasional shell fragments. Gravel is subangular to subrounded fine to coarse of chert, mudstone and sandstone **(TIDAL FLAT DEPOSITS)**				
7.10- 7.50	B	PID = 5.1ppm								
7.10	ES									
7.50- 7.60	D	SPT(S) N=46 2,3/ 8,11,12,15								
7.50	SS									
7.60- 8.10	B								(2.06)	
8.20- 8.40	D	PID = 4.1ppm								
8.20	ES									
8.40- 9.00	B									
							-1.69		9.00	
9.00- 9.10	D	PID = 2.6ppm				Firm brown slightly sandy clayey SILT. Sand is fine to coarse **(TIDAL FLAT DEPOSITS)**				
9.00	SS	SPT(S) N=17 1,1/ 2,5,5,5								
9.10- 9.70	B								(0.89)	
9.70- 9.80	D									
9.80- 10.50	B									
							-2.58		9.89	
						Dense yellowish brown slightly gravelly fine to coarse silty				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR1B. 2. Buried Service Inspection Pit terminated at 0.05m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 29.20m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 5.02m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH125

Sheet: 3 of 6

Equipment & Methods:

0.00 - 0.05 Insulated Hand Tools
0.05 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.20 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456936.515
N: 525314.209

Ground Level (m): 7.311 AOD

Date Started: 04/08/2022
Date Completed: 10/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
10.00		PID = 2.1ppm				SAND with occasional shell fragments. Gravel is subangular-subrounded fine-coarse of chert, mudstone and sandstone **(TIDAL FLAT DEPOSITS)**				
10.50- 10.60	D	SPT(S) N=16								
10.50	SS	1,2/								
10.60- 11.46	B	3,4,4,5							(1.57)	
11.00		PID = 2.5ppm								
						From 11.21m to 11.46m bgl: Becomes clayey.				
11.46- 11.90	B						-4.15		11.46	
						Soft locally very soft brown mottled black slightly sandy silty CLAY. Sand is fine-coarse **(TIDAL FLAT DEPOSITS)**				
11.80	ES									
11.90- 12.00	D									
12.00- 12.10	D	PID = 1.2ppm								
12.00- 12.45	UT100	100 % recovery								
12.10- 13.40	B								(2.65)	
13.00		PID = 1.6ppm								
13.40- 13.50	D									
13.50- 13.60	D									
13.50- 13.95	UT100	90 % recovery								
13.60- 14.11	B					From 13.50m bgl: Becomes firm locally stiff.				
14.00		PID = 1.1ppm								
14.11- 14.90	B						-6.80		14.11	
						Stiff locally very stiff reddish brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of mudstone, sandstone, chert and limestone. Sand is fine to coarse **(TILL: DEVENSIAN)**				
14.80	ES									
14.90- 15.00	D									

Water Strikes

Strike Depth	Flow Remarks

Hole Diameter

Hole Dia (mm)	Depth of Hole (m)
178	15.00

Progress

Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
04-08-2022	17:00	13.50	13.00	2.90
05-08-2022	12:30	15.00	15.00	2.70

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR1B.
2. Buried Service Inspection Pit terminated at 0.05m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 29.20m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from ground level to 5.02m bgl. No olfactory evidence of contamination.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

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Borehole No. F-BH125

Equipment & Methods:

0.00 - 0.05 Insulated Hand Tools
0.05 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.20 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456936.515
N: 525314.209

Ground Level (m): 7.311 AOD

Date Started: 04/08/2022
Date Completed: 10/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
15.00		PID = 0.8ppm								
						Pressuremeter test (HPD) completed at 16.30m bgl. Test pocket drilled using T2-101 core barrel.			(3.83)	
16.56- 16.64	C									
17.57- 17.63	C									
18.00- 18.10	ES			NI	18.00-19.50	Very weak locally weak fractured thinly to thickly laminated dark bluish grey MUDSTONE. Fracture set 1: Wide to closely spaced, sub horizontal to 20°, planar rough, partly open to closed, infilled with grey gravelly silt. Gravel is subangular to subrounded fine to medium of mudstone **(REDCAR MUDSTONE FORMATION)**	-10.63		17.94	
				0						
				CLAY						
			100 89 89	3		From 18.34m to 18.41m bgl: Horizon of stiff dark grey slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium of mudstone. Sand is fine to coarse. Fracture set 2 present: Medium to close spaced, sub vertical to 70°, planar rough to smooth, tight to closed, infilled with grey silt.				
19.20	C									
				CLAY						
				0		From 19.33m to 19.40m bgl: Horizon of stiff dark grey slightly sandy CLAY. Sand is fine to coarse.				
19.55	C				19.50-21.00	From 19.40m bgl: Occasional shells and shell fragments present.				

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
				08-08-2022	16:30	19.50	15.00	3.18

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR1B.
2. Buried Service Inspection Pit terminated at 0.05m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 29.20m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from ground level to 5.02m bgl. No olfactory evidence of contamination.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH125

Sheet: 5 of 6

Equipment & Methods:

0.00 - 0.05 Insulated Hand Tools
0.05 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.20 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456936.515
N: 525314.209

Ground Level (m): 7.311 AOD

Date Started: 04/08/2022
Date Completed: 10/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			83 83 58	5 NR		Pressuremeter test (HPD) completed at 20.40m bgl. Test pocket drilled using T2-101 core barrel.				
				NI 11 CLAY	21.00-22.50					
21.84	C		95 92 82	4		From 21.16m to 21.20m bgl: Horizon of firm dark grey slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium of mudstone. Sand is fine to coarse.				
22.50	C			NR 0 CLAY	22.50-24.00					
			100 55 30	9 NI 8 CLAY 0 CLAY 0 CLAY 0		From 22.56m to 22.63m bgl: Horizon of firm dark grey slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium of mudstone. Sand is fine to coarse. From 22.75m to 22.83m bgl: Abundant shells and shell fragments. Pressuremeter test (HPD) completed at 23.30m bgl. Test pocket drilled using T2-101 core barrel. From 23.30m to 23.35m bgl: Horizon of soft dark grey slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium of mudstone. Sand is fine to coarse.			(11.26)	
			97 97 77	8	24.00-25.50	From 23.39m to 23.48m bgl: Horizon of soft dark grey slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium of mudstone. Sand is fine to coarse. From 23.62m to 23.87m bgl: Horizon of stiff dark grey slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium of mudstone. Sand is fine to coarse. From 24.09m to 24.16m bgl: Abundant shells and shell fragments.				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR1B. 2. Buried Service Inspection Pit terminated at 0.05m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 29.20m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 5.02m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
				09-08-2022	17:00	24.00	22.50	2.90	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH125

Sheet: 6 of 6

Equipment & Methods:

0.00 - 0.05 Insulated Hand Tools
0.05 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.20 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456936.515
N: 525314.209

Ground Level (m): 7.311 AOD

Date Started: 04/08/2022
Date Completed: 10/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
				NR 0						
			97 97 75	7	25.50-27.00					
				NR						
27.27	C		100 100 100	3	27.00-27.60					
			100 83 16	0 CLAY 5 CLAY 8 CLAY 7 CLAY 6 CLAY 8	27.60-29.20	From 27.63m to 27.66m bgl: Horizon of firm dark grey slightly sandy CLAY. Sand is fine to coarse. From 27.86m to 27.91m bgl: Horizon of firm dark grey slightly sandy CLAY. Sand is fine to coarse. From 28.04m to 28.09m bgl: Horizon of firm dark grey slightly sandy CLAY. Sand is fine to coarse. From 28.50m to 28.56m bgl: Horizon of firm dark grey slightly sandy CLAY. Sand is fine to coarse. From 28.74m to 28.82m bgl: Horizon of firm dark grey slightly sandy CLAY. Sand is fine to coarse. Pressuremeter test (HPD) completed at 28.80m bgl. Test pocket drilled using T2-101 core barrel.	-21.89		29.20	

End of Borehole 29.20 m
(Thickness of basal layer not proven)

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR1B. 2. Buried Service Inspection Pit terminated at 0.05m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 29.20m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 5.02m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
		146 131	27.60 29.20	10-08-2022	17:00	29.20	27.60	2.70	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH119

Sheet: 1 of 6

Equipment & Methods:
0.00 - 0.20 Insulated Hand Tools
0.25 - 13.50 Sonic Drilling (Hammer ID: GS10)
13.50 - 28.50 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456754.822
N: 525399.922

Ground Level (m): 7.378 AOD

Date Started: 09/08/2022
Date Completed: 12/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						MADE GROUND: Black mottled dark reddish brown sandy silty angular to subrounded fine to coarse GRAVEL of slag, chert and sandstone with medium cobble content. Cobbles are subangular of slag. Sand is fine to coarse **(MADE GROUND)**			(0.91)	
0.50		PID = 5.7ppm					6.47		0.91	
1.00		PID = 9.4ppm				MADE GROUND: Brown mottled black very gravelly fine to coarse SAND with occasional organic material. Gravel is angular to subrounded fine to coarse of slag, chert, coal and sandstone **(MADE GROUND)**				
1.50		PID = 2.9ppm				From 0.91m to 1.08m bgl: Frequent fragments of wood and textile encountered. Organic odour noted.			(1.72)	
2.00		PID = 3.0ppm								
2.50		PID = 2.9ppm								
						NOTE: Proposed remediation level 4.8m AOD.	4.75		2.63	
2.70 - 3.00	D					MADE GROUND: Dark grey mottled brown and black slightly sandy angular to subrounded fine to coarse GRAVEL of slag, coal, chert and mudstone with low cobble content. Cobbles are subangular of slag. Sand is fine to coarse **(MADE GROUND)**				
2.90	ES									
3.00 - 3.10	D	PID = 3.4ppm								
3.10 - 3.93	B	SPT(C) N=29 4,10/ 6,9,7,7				From 3.00m to 3.93m bgl: Becomes sandy.			(1.30)	
3.50		PID = 0.9ppm								
3.93 - 4.40	B						3.45		3.93	
4.00		PID = 2.1ppm				Medium dense yellowish brown mottled black slightly gravelly fine to coarse slightly organic SAND with occasional shell fragments and rare pockets of soft brown and grey clay. Gravel is angular to subrounded fine to coarse of sandstone, chert, limestone and mudstone **(TIDAL FLAT DEPOSITS)**				
4.30	ES									
4.40 - 4.50	D									
4.50 - 4.60	D	PID = 1.3ppm								
4.50	SS	SPT(S) N=23								
4.60 - 5.10	B	1,1/ 3,5,6,9				From 4.60m bgl: Gravel becomes absent.				

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
		Insp. Pit	0.20	09-08-2022	10:00	0.20		

Remarks
1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR2B.
2. Buried Service Inspection Pit terminated at 0.20m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 13.50m bgl, and completed via Rotary Coring to 28.50m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from ground level to 3.93m bgl. Organic odour noted from 0.91m to 1.08m bgl.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH119

Equipment & Methods:

0.00 - 0.20 Insulated Hand Tools
0.25 - 13.50 Sonic Drilling (Hammer ID: GS10)
13.50 - 28.50 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456754.822
N: 525399.922

Ground Level (m): 7.378 AOD

Date Started: 09/08/2022
Date Completed: 12/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
5.00		PID = 0.4ppm								
5.10- 5.20	D									
5.20- 6.00	B									
6.00		PID = 0.5ppm								
6.10- 6.20	D	SPT(S) N=27 1,0/ 4,7,7,9								
6.20- 6.80	B									
6.50	ES					From 6.36m bgl: Becomes brownish grey mottled black.				
6.80- 6.90	D									
6.90- 7.50	B									
7.00		PID = 1.0ppm							(6.70)	
7.50- 7.60	D	SPT(S) N=39 5,5/ 9,10,10,10								
7.50	SS									
7.60- 8.10	B					From 7.50m bgl: Becomes dense.				
8.00		PID = 1.8ppm								
8.10- 8.20	D									
8.20- 9.00	B									
9.00- 9.10	D	PID = 0.5ppm								
9.10- 9.70	B	SPT(S) N>50 10,15 for 55mm/23,17,10 for 40mm				From 9.00m bgl: Becomes very dense.				
9.70- 9.80	D									
9.80- 10.50	B									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR2B. 2. Buried Service Inspection Pit terminated at 0.20m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 13.50m bgl, and completed via Rotary Coring to 28.50m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 3.93m bgl. Organic odour noted from 0.91m to 1.08m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH119

Sheet: 3 of 6

Equipment & Methods:

0.00 - 0.20 Insulated Hand Tools
0.25 - 13.50 Sonic Drilling (Hammer ID: GS10)
13.50 - 28.50 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456754.822
N: 525399.922

Ground Level (m): 7.378 AOD

Date Started: 09/08/2022
Date Completed: 12/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
10.00		PID = 0.8ppm								
10.50- 10.63	D	SPT(S) N=13 4,6/								
10.63- 11.10	B	4,4,3,2					-3.25		10.63	
						Soft locally very soft brown mottled black slightly gravelly sandy silty organic CLAY. Gravel is subangular to subrounded fine to coarse of sandstone, limestone and mudstone. Sand is fine to coarse **(TIDAL FLAT DEPOSITS)**				
10.80	ES									
11.00		PID = 6.1ppm								
11.10- 11.20	D									
11.20- 12.00	B									
									(2.16)	
12.00- 12.10	D	PID = 6.3ppm								
12.00- 12.45	UT100	100 % recovery								
12.10- 12.79	B					From 12.00m bgl: Becomes very sandy.				
12.79- 13.40	B						-5.41		12.79	
						Stiff locally very stiff reddish brown mottled grey slightly gravelly slightly sandy silty CLAY. Gravel is subangular to subrounded fine to coarse of mudstone, sandstone and limestone. Sand is fine to coarse **(TILL: DEVENSIAN)**				
12.90	ES									
13.00		PID = 10.5ppm								
13.40- 13.50	D									
			100 0 0		13.50- 15.00					
14.82- 15.00	C									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR2B. 2. Buried Service Inspection Pit terminated at 0.20m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 13.50m bgl, and completed via Rotary Coring to 28.50m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 3.93m bgl. Organic odour noted from 0.91m to 1.08m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
		194	13.50	09-08-2022	17:00	12.00	12.00	1.60	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

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Borehole No. F-BH119

Sheet: 4 of 6

Equipment & Methods:

0.00 - 0.20 Insulated Hand Tools
0.25 - 13.50 Sonic Drilling (Hammer ID: GS10)
13.50 - 28.50 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456754.822
N: 525399.922

Ground Level (m): 7.378 AOD

Date Started: 09/08/2022
Date Completed: 12/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			100 0 0		15.00-16.50				(6.73)	
				CLAY	16.50-18.00					
17.66- 18.00	C		100 0 0							
			100 0 0		18.00-19.50					
					19.50-21.00	Extremely weak locally very weak fractured thinly to thickly laminated dark bluish grey MUDSTONE. Fracture set 1: Wide to closely spaced, sub horizontal to 20°, planar rough, partly open to closed, infilled with grey gravelly silt. Gravel is subangular to subrounded fine to medium of mudstone **(REDCAR MUDSTONE FORMATION)**	-12.14		19.52	
19.80	C			0						

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR2B. 2. Buried Service Inspection Pit terminated at 0.20m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 13.50m bgl, and completed via Rotary Coring to 28.50m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 3.93m bgl. Organic odour noted from 0.91m to 1.08m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

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Borehole No. F-BH119

Equipment & Methods:

0.00 - 0.20 Insulated Hand Tools
0.25 - 13.50 Sonic Drilling (Hammer ID: GS10)
13.50 - 28.50 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456754.822
N: 525399.922

Ground Level (m): 7.378 AOD

Date Started: 09/08/2022
Date Completed: 12/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			100 95 91	CLAY 3		From 19.97m to 20.03m bgl: Horizon of firm dark grey slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium of mudstone. Sand is fine to coarse.				
			100 93 49	8	21.00-22.50	From 21.31m bgl: Fracture set 2 present: Medium to closely spaced, sub vertical to 70°, planar rough to smooth, tight to closed, infilled with grey silt.				
				CLAY 11		From 22.12m to 22.22m bgl: Horizon of stiff dark grey slightly sandy CLAY. Sand is fine to coarse.				
			100 97 82	8	22.50-24.00					
23.57	C			NI 3					(8.98)	
			100 82 73	NI 4 NI	24.00-25.50					

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR2B. 2. Buried Service Inspection Pit terminated at 0.20m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 13.50m bgl, and completed via Rotary Coring to 28.50m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 3.93m bgl. Organic odour noted from 0.91m to 1.08m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

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Borehole No. F-BH119

Sheet: 6 of 6

Equipment & Methods:

0.00 - 0.20 Insulated Hand Tools
0.25 - 13.50 Sonic Drilling (Hammer ID: GS10)
13.50 - 28.50 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456754.822
N: 525399.922

Ground Level (m): 7.378 AOD

Date Started: 09/08/2022
Date Completed: 12/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
				4						
				3	25.50-27.00					
25.84	C		100 83 58	NI						
				0						
				NI						
				17						
				CLAY						
				4		From 26.65m to 26.72m bgl: Horizon of stiff dark grey slightly sandy CLAY. Sand is fine to coarse.				
				CLAY	27.00-28.50	From 27.00m to 27.04m bgl: Horizon of stiff dark grey slightly sandy CLAY. Sand is fine to coarse.				
				2						
			96 94 77	NI						
				7						
				CLAY		From 28.48m to 28.50m bgl: Horizon of stiff dark grey slightly sandy CLAY. Sand is fine to coarse.	-21.12		28.50	
						End of Borehole 28.50 m (Thickness of basal layer not proven)				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south of Remediation Zone PR2B. 2. Buried Service Inspection Pit terminated at 0.20m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 13.50m bgl, and completed via Rotary Coring to 28.50m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 3.93m bgl. Organic odour noted from 0.91m to 1.08m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
		146	28.50	10-08-2022 11-08-2022	17:00 09:45	25.50 28.50	25.50 28.50	3.00	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

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Borehole No. F-BH116

Sheet: 1 of 7

Equipment & Methods:

0.00 - 0.21 XCalibre Neptune Coring Rig
0.21 - 0.60 Insulated Hand Tools
0.60 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 31.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP
Job No: 60678042

Co-ordinates: E: 456947.093 N: 525418.285
Ground Level (m): 7.466 AOD
Date Started: 16/08/2022
Date Completed: 07/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						MADE GROUND: Dark grey angular to subrounded fine to coarse GRAVEL of slag and concrete with low cobble content. Cobbles are angular of slag **(MADE GROUND)**			(0.96)	
0.60		PID = 0.0ppm					6.51		0.96	
1.00		PID = 0.1ppm				MADE GROUND: Dark brown sandy angular to subrounded fine to coarse GRAVEL of slag and brick. Sand is fine to coarse **(MADE GROUND)**				
1.50		PID = 0.9ppm							(1.55)	
2.00		PID = 1.7ppm				At 1.94m bgl: Occasional scrap metal present.				
2.50		PID = 26.6ppm					4.96		2.51	
						MADE GROUND: Dark brown gravelly fine to coarse SAND with low cobble content. Cobbles are angular to subangular of brick. Gravel is subangular to subrounded fine to coarse of slag and brick **(MADE GROUND)**			(0.49)	
3.00		PID = 4.2ppm					4.47		3.00	
						MADE GROUND: Dark brown sandy angular to subrounded fine to coarse GRAVEL of slag. Sand is fine to coarse **(MADE GROUND)**				
						From 3.52m bgl becomes very sandy.				
						NOTE: Proposed remediation level 3.8m AOD.				
3.90- 4.50	B								(1.93)	
4.00		SPT(C) N>50 16,9 for 15mm/37,13 for 5mm								
4.45- 4.50	D									
4.50- 4.93	B	SPT(C) N=19 10,11/ 7,5,3,4				At 4.45m bgl: Pale fine grained sandstone fragments present.				
4.90	ES						2.54		4.93	
4.93- 5.10	D									

Water Strikes

Strike Depth	Flow Remarks

Hole Diameter

Hole Dia (mm)	Depth of Hole (m)
300	0.21
Insp. Pit	0.60

Progress

Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
16-08-2022	14:15	0.21		
01-09-2022	16:15	0.60		
01-09-2022	17:30	1.50	1.50	

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north of Remediation Zone PR1B.
2. Concrete core completed to 0.21m bgl. Buried Service Inspection Pit terminated at 0.60m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 31.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag and refractory material encountered in material recovered from ground level to 4.93m bgl. No olfactory evidence of contamination.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH116

Sheet: 2 of 7

Equipment & Methods:

0.00 - 0.21 XCalibre Neptune Coring Rig
0.21 - 0.60 Insulated Hand Tools
0.60 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 31.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP
Job No: 60678042

Co-ordinates: E: 456947.093 N: 525418.285
Ground Level (m): 7.466 AOD
Date Started: 16/08/2022
Date Completed: 07/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
5.00		PID = 1.9ppm								
5.10- 6.00	B					Medium dense light brown fine to coarse silty SAND with occasional shell fragments **(TIDAL FLAT DEPOSITS)** From 4.93m to 5.10m bgl: Sand is mottled black with frequent rootlets.				
5.90	ES									
6.00- 6.70	B	PID = 1.3ppm SPT(S) N=12 3,2/ 3,3,3,3				From 6.00m to 6.62m bgl: Becomes dark brown mottled black.				
6.75	D									
6.80- 7.50	B									
7.00		PID = 1.1ppm								
7.50- 8.20	B	SPT(S) N=25 3,4/ 5,5,6,9							(5.99)	
8.00		PID = 0.7ppm								
8.25	D									
8.30- 9.00	B									
9.00- 9.70	B	PID = 0.7ppm SPT(S) N=23 2,4/ 3,5,7,8				From 9.09m to 10.03m bgl: Frequent sand sized coal.				
9.75	D									
9.80- 10.50	B									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north of Remediation Zone PR1B. 2. Concrete core completed to 0.21m bgl. Buried Service Inspection Pit terminated at 0.60m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 31.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 4.93m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH116

Sheet: 3 of 7

Equipment & Methods:

0.00 - 0.21 XCalibre Neptune Coring Rig
0.21 - 0.60 Insulated Hand Tools
0.60 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 31.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456947.093
N: 525418.285

Ground Level (m): 7.466 AOD

Date Started: 16/08/2022
Date Completed: 07/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
10.00		PID = 0.3ppm								
10.50- 10.92	B	SPT(S) N=14 3,3/ 4,5,3,2								
10.92- 11.02	D						-3.45		10.92	
11.00						Soft locally firm greyish brown sandy silty CLAY. Sand is fine to coarse				
11.02- 11.83	B	PID = 0.0ppm				N.B. Material is graded, slightly sandy at top to sandy at base **(TIDAL FLAT DEPOSITS)**			(0.91)	
11.50	ES									
11.83- 12.00	D						-4.36		11.83	
12.00- 12.53	B	PID = 0.2ppm				Medium dense dark brown mottled light brown locally clayey fine to coarse SAND with occasional shell fragments **(TIDAL FLAT DEPOSITS)**			(0.70)	
12.00	SS	SPT(S) N=18 2,3/ 4,4,5,5				From 12.17m to 12.53m bgl: Very clayey.				
12.53- 12.88	D						-5.06		12.53	
12.88- 13.50	B					Dark brown mottled light brown fine to coarse silty SAND with occasional shell fragments **(TIDAL FLAT DEPOSITS)**			(1.47)	
13.00	ES					From 12.89m bgl: Becomes mottled black.				
13.50- 14.00	UT100	100 % recovery								
14.00- 14.45	B	PID = 0.1ppm					-6.53		14.00	
14.00	ES					Soft locally firm greyish brown mottled black CLAY with frequent organic specs **(TIDAL FLAT DEPOSITS)**			(1.50)	
14.50	D									
14.55- 15.00	B									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
				02-09-2022	12:00	10.50	10.50	4.80	

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north of Remediation Zone PR1B.
2. Concrete core completed to 0.21m bgl. Buried Service Inspection Pit terminated at 0.60m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 31.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag and refractory material encountered in material recovered from ground level to 4.93m bgl. No olfactory evidence of contamination.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

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Borehole No. F-BH116

Sheet: 4 of 7

Equipment & Methods:

0.00 - 0.21 XCalibre Neptune Coring Rig
0.21 - 0.60 Insulated Hand Tools
0.60 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 31.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456947.093
N: 525418.285

Ground Level (m): 7.466 AOD

Date Started: 16/08/2022

Date Completed: 07/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
15.00- 15.50	UT100	PID = 0.0ppm 100 % recovery				At 14.95m bgl: Black very organic layer present.				
15.50- 15.95	B					Firm locally stiff reddish brown mottled grey slightly gravelly slightly sandy silty CLAY. Gravel is subrounded to subangular fine to coarse of sandstone chert and mudstone. Sand is fine to coarse **(TILL: DEVENSIAN)**	-8.03		15.50	
16.00 16.05- 16.50	D ES B									
					16.50- 17.50	From 16.57m bgl: Becomes firm to stiff.				
17.10- 17.40	C		100 0 0							
					17.50- 19.00				(4.81)	
			100 0 0	CLAY						
					19.00- 20.50					
			30 0 0							

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
		194	16.50	05-09-2022	14:45	16.50	16.50		1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north of Remediation Zone PR1B. 2. Concrete core completed to 0.21m bgl. Buried Service Inspection Pit terminated at 0.60m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 31.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 4.93m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH116

Sheet: 5 of 7

Equipment & Methods:

0.00 - 0.21 XCalibre Neptune Coring Rig
0.21 - 0.60 Insulated Hand Tools
0.60 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 31.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456947.093
N: 525418.285

Ground Level (m): 7.466 AOD

Date Started: 16/08/2022

Date Completed: 07/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
20.12- 20.30	C						-12.84		20.31	
20.55	ES			NI	20.50- 22.00	Weak locally very weak thinly laminated dark bluish grey MUDSTONE. Locally recovered as soft to firm friable very gravelly CLAY. Gravel is angular to subangular of mudstone **(REDCAR MUDSTONE FORMATION)**				
			100 0 0	0						
				NI						
				0						
22.00	C				22.00- 23.50	From 22.00m to 23.71m bgl: Recovered as firm grey clay.				
			100 0 0	CLAY						
					23.50- 25.00					
				0						
				CLAY		From 23.91m to 23.99m bgl: Recovered as firm grey clay.				
				0						
			100 26 23	CLAY		From 24.14m to 24.23m bgl: Recovered as stiff grey clay.				
				0		From 24.27m to 25.00m bgl: Recovered as stiff grey clay.				
				CLAY						

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
				06-09-2022	12:45	25.00	25.00	

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north of Remediation Zone PR1B.
2. Concrete core completed to 0.21m bgl. Buried Service Inspection Pit terminated at 0.60m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 31.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag and refractory material encountered in material recovered from ground level to 4.93m bgl. No olfactory evidence of contamination.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

Report ID: STANDARD COREHOLE LOG || Project: V11.1 NZT GI.GPJ || Library: NZT AGS 4_0 LIBRARY V1.3.GLB || Date: 29 November 2022

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Borehole No. F-BH116

Sheet: 6 of 7

Equipment & Methods:

0.00 - 0.21 XCalibre Neptune Coring Rig
0.21 - 0.60 Insulated Hand Tools
0.60 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 31.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456947.093
N: 525418.285

Ground Level (m): 7.466 AOD

Date Started: 16/08/2022
Date Completed: 07/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			100 95 95	0 CLAY 3 NI	25.00-26.50	From 25.00m bgl: Becomes very weak with frequent shell fossils. From 25.28m to 25.30m bgl: Recovered as stiff grey clay. From 25.30m bgl: Fracture set 1 present: Closely spaced, horizontal, undulating rough, partly open to open, clean or infilled with soft grey clay.			(10.69)	
26.20	C			1						
			100 51 45	CLAY 0 CLAY 0 NI	26.50-28.00	From 27.06m to 27.11m bgl: Recovered as stiff grey clay. From 27.23m to 27.84m bgl: Recovered as stiff grey clay.				
			100 61 58	0 CLAY 2 NI 5	28.00-29.50	From 28.20m to 28.42m bgl: Recovered as stiff grey clay.				
28.94	C			NI	29.50-31.00					

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north of Remediation Zone PR1B. 2. Concrete core completed to 0.21m bgl. Buried Service Inspection Pit terminated at 0.60m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 31.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 4.93m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH116

Sheet: 7 of 7

Equipment & Methods:

0.00 -	0.21	XCalibre Neptune Coring Rig
0.21 -	0.60	Insulated Hand Tools
0.60 -	16.50	Sonic Drilling (Hammer ID: GS08)
16.50 -	31.00	Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456947.093
N: 525418.285

Ground Level (m): 7.466 AOD

Date Started: 16/08/2022

Date Completed: 07/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			100 95 89	3		From 30.54m bgl: Fracture set 2 present: Medium to closely spaced, horizontal, stepped rough, partly open, clean or infilled with soft grey clay.	-23.53		31.00	
						End of Borehole 31.00 m (Thickness of basal layer not proven)				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north of Remediation Zone PR1B. 2. Concrete core completed to 0.21m bgl. Buried Service Inspection Pit terminated at 0.60m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 31.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 4.93m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
		146	31.00	07-09-2022	14:30	31.00	31.00		

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

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Borehole No. F-BH115

Sheet: 1 of 7

Equipment & Methods:

0.00 - 0.18 XCalibre Neptune Coring Rig
0.18 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 31.50 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456870.692
N: 525451.755

Ground Level (m): 7.530 AOD

Date Started: 16/08/2022
Date Completed: 01/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						MADE GROUND: Grey CONCRETE **(MADE GROUND)**	7.35		(0.18) 0.18	
0.50		PID = 0.6ppm				MADE GROUND: Brownish grey sandy angular to subrounded fine to coarse GRAVEL of slag with low to medium cobble content. Cobbles are angular to subangular of slag. Sand is fine to coarse **(MADE GROUND)**				
1.00		PID = 1.7ppm				From 1.03m to 1.50m bgl: Becomes SAND and GRAVEL.				
1.50		PID = 0.3ppm							(2.82)	
2.00		PID = 0.6ppm								
2.50		PID = 0.7ppm				From 2.51m bgl: Becomes black mottled grey. NOTE: Proposed remediation level 4.8m AOD.				
3.00- 4.26 3.00	B ES	PID = 1.0ppm SPT(C) N>50 25 for 45mm/50 for 20mm				MADE GROUND: Black mottled grey and yellow angular to subrounded fine to coarse GRAVEL of brick and slag with high cobble content. Cobbles are angular to subrounded of slag **(MADE GROUND)**	4.53		3.00	
3.50		PID = 0.0ppm							(1.26)	
3.75	D									
4.00		PID = 0.0ppm								
4.26- 4.50 4.30	B D ES					MADE GROUND: Dark brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of slag and brick **(MADE GROUND)**	3.27		4.26 (0.24)	
4.50- 5.20	B	PID = 0.6ppm SPT(C) N=50 7,8/ 10,13,12,15				Dense locally very dense light brown fine to coarse SAND with occasional black organic specs and shell fragments **(TIDAL FLAT DEPOSITS)**	3.03		4.50	

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
		300	0.18	16-08-2022	14:00	0.18		
		Insp. pit	0.30	25-08-2022	10:30	0.30		

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the east of Remediation Zone PR2B.
2. Concrete core completed to 0.18m bgl. Buried Service Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 31.50m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag material encountered in material recovered from ground level to 4.50m bgl. No olfactory evidence of contamination.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

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Borehole No. F-BH115

Sheet: 2 of 7

Equipment & Methods:

0.00 - 0.18 XCalibre Neptune Coring Rig
0.18 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 31.50 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456870.692
N: 525451.755

Ground Level (m): 7.530 AOD

Date Started: 16/08/2022
Date Completed: 01/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
5.00	ES	PID = 0.2ppm								
5.25	D									
5.30- 6.00	B									
5.50		PID = 0.2ppm								
6.00- 6.75	B	PID = 0.2ppm								
6.00	SS	SPT(S) N=24 3,3/ 4,5,7,8				From 6.00m bgl: Becomes mottled grey.				
6.75- 7.50	B									
7.00		PID = 0.2ppm								
7.15	D					From 7.10m to 7.21m bgl: Gravelly band. Gravel is subangular to subrounded fine to coarse of quartzite and mudstone.				
7.50- 8.20	B	SPT(S) N=43 1,3/ 5,9,13,16								
7.50	SS									
8.00		PID = 0.0ppm								
8.25	D								(7.56)	
8.30- 9.00	B									
9.00- 9.70	B	PID = 0.0ppm SPT(S) N>50 4,6/14,16,20 for 70mm								
9.75	D									
9.80- 10.50	B									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the east of Remediation Zone PR2B. 2. Concrete core completed to 0.18m bgl. Buried Service Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 31.50m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag material encountered in material recovered from ground level to 4.50m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH115

Sheet: 3 of 7

Equipment & Methods:

0.00 - 0.18 XCalibre Neptune Coring Rig
0.18 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 31.50 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456870.692
N: 525451.755

Ground Level (m): 7.530 AOD

Date Started: 16/08/2022
Date Completed: 01/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
10.00		PID = 0.0ppm								
10.50 - 12.00	B	SPT(S) N>50								
10.50	SS	5,5/9,14,27 for 60mm				From 10.50m to 12.00m bgl: 30% recovery.				
11.00		PID = 0.0ppm								
11.30	D									
12.00 - 12.06	D	PID = 0.0ppm								
12.06 - 12.70	B	SPT(S) N=0					-4.53		12.06	
12.10		0,0/ 0,0,0,0 PID = 0.0ppm				Very soft greyish brown mottled black sandy CLAY. Sand is fine to coarse **(TIDAL FLAT DEPOSITS)**				
12.50	ES									
12.75	D									
12.80 - 13.50	B									
13.00		PID = 0.0ppm								
13.50 - 14.00	UT100	100 % recovery				From 13.30m bgl: Sand is absent.			(2.94)	
14.00 - 14.37	B	PID = 0.0ppm								
14.37 - 14.52	D									
14.52 - 15.00	B					From 14.37m to 14.50m bgl: Band of very sandy clay. From 14.53m bgl: Becomes firm.	-7.47		15.00	

Water Strikes

Strike Depth	Flow Remarks

Hole Diameter

Hole Dia (mm)	Depth of Hole (m)
194	15.00

Progress

Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
25-08-2022	17:15	12.00	12.00	2.60
26-08-2022	09:30	15.00	15.00	5.90

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the east of Remediation Zone PR2B.
2. Concrete core completed to 0.18m bgl. Buried Service Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 31.50m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag material encountered in material recovered from ground level to 4.50m bgl. No olfactory evidence of contamination.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

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Borehole No. F-BH115

Sheet: 4 of 7

Equipment & Methods:

0.00 - 0.18 XCalibre Neptune Coring Rig
0.18 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 31.50 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456870.692
N: 525451.755

Ground Level (m): 7.530 AOD

Date Started: 16/08/2022

Date Completed: 01/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
15.00		PID = 0.0ppm	86 0 0		15.00-16.50	Firm reddish brown mottled grey slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium of sandstone and mudstone and quartzite **(TILL: DEVENSIAN)**				
						Pressuremeter test (HPD) completed at 16.00m bgl. Test pocket drilled using T2-101 core barrel.				
			100 0 0		16.50-18.00					
17.69- 18.00	C									
			100 0 0	CLAY	18.00-19.50	From 18.77m to 19.50m bgl: Gravel is absent.			(6.16)	
					19.50-21.00	From 19.50m bgl: Becomes stiff slightly sandy gravelly. Gravel is fine to coarse.				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the east of Remediation Zone PR2B. 2. Concrete core completed to 0.18m bgl. Buried Service Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 31.50m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag material encountered in material recovered from ground level to 4.50m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

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Borehole No. F-BH115

Sheet: 5 of 7

Equipment & Methods:

0.00 - 0.18 XCalibre Neptune Coring Rig
0.18 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 31.50 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456870.692
N: 525451.755

Ground Level (m): 7.530 AOD

Date Started: 16/08/2022
Date Completed: 01/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			95 0 0							
20.77- 21.00	C									
					21.00- 22.50		-13.63		21.16	
21.50	ES		100 0 0	NI		Very weak locally weak thinly laminated bluish grey MUDSTONE locally recovered as gravel and clay **(REDCAR MUDSTONE FORMATION)**				
						At 22.26m bgl: White calcareous deposits.				
				0	22.50- 24.00					
				NI		From 22.67m bgl: Laminations at ~20°.				
23.25	C		60 11 8	0						
				NI		Pressuremeter test (HPD) completed at 23.50m bgl. Test pocket drilled using T2-101 core barrel.				
				0	24.00- 25.50					
			100 21 15	NI						

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the east of Remediation Zone PR2B. 2. Concrete core completed to 0.18m bgl. Buried Service Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 31.50m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag material encountered in material recovered from ground level to 4.50m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
				30-08-2022	15:30	24.00	24.00		

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH115

Sheet: 6 of 7

Equipment & Methods:

0.00 - 0.18 XCalibre Neptune Coring Rig
0.18 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 31.50 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456870.692
N: 525451.755

Ground Level (m): 7.530 AOD

Date Started: 16/08/2022

Date Completed: 01/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
				0						
			100 0 0	NI	25.50-27.00				(10.34)	
26.63	C					Pressuremeter test (HPD) completed at 26.50m bgl. Test pocket drilled using T2-101 core barrel.				
			100 100 91	2	27.00-28.50					
					28.50-30.00					
			100 52 52	NI						
				0						
29.77	C									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
		146	30.00	31-08-2022	17:30	30.00	30.00		1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the east of Remediation Zone PR2B. 2. Concrete core completed to 0.18m bgl. Buried Service Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 31.50m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag material encountered in material recovered from ground level to 4.50m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

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Borehole No. F-BH115

Sheet: 7 of 7

Equipment & Methods:

0.00 - 0.18 XCalibre Neptune Coring Rig
0.18 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS08)
15.00 - 31.50 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456870.692
N: 525451.755

Ground Level (m): 7.530 AOD

Date Started: 16/08/2022

Date Completed: 01/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
				NI	30.00-31.50					
				0						
			100 5 0	NI		Pressuremeter test (HPD) completed at 31.00m bgl. Test pocket drilled using T2-101 core barrel.	-23.97		31.50	
						End of Borehole 31.50 m (Thickness of basal layer not proven)				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
		131	31.50	01-09-2022	09:15	31.50	31.50		1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the east of Remediation Zone PR2B. 2. Concrete core completed to 0.18m bgl. Buried Service Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 31.50m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag material encountered in material recovered from ground level to 4.50m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

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Borehole No. F-BH114

Sheet: 1 of 6

Equipment & Methods:

0.00 - 0.20 XCalibre Neptune Coring Rig
0.20 - 0.55 Insulated Hand Tools
0.55 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456803.946
N: 525469.587

Ground Level (m): 7.471 AOD

Date Started: 16/09/2022
Date Completed: 21/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						MADE GROUND: Grey CONCRETE. From 0.20m bgl: Recovered as subrounded cobbles of concrete and some fine to medium sand **(MADE GROUND)**			(0.55)	
0.50	ES						6.92		0.55	
0.55- 0.60	D	PID = 0.5ppm				MADE GROUND: Dark brown and grey very gravelly fine to coarse SAND with high cobble content. Cobbles are subangular of slag. Gravel is angular to subrounded fine to coarse of slag and brick **(MADE GROUND)**				
0.60- 1.20	B									
0.80	ES									
1.00		PID = 0.7ppm								
1.20- 1.50	D									
1.50- 2.20	B	PID = 1.5ppm SPT(C) N<50 22,3 for 4mm/50 for 48mm							(1.88)	
1.80	ES									
2.00		PID = 1.8ppm								
2.20- 2.43	D									
2.43- 2.90	B						5.04		2.43	
2.50		PID = 1.9ppm				MADE GROUND: Brown and light brown gravelly fine to medium SAND with medium cobble content. Cobbles are subangular of slag. Gravel is subrounded fine to medium of mudstone and sandstone **(MADE GROUND)**				
2.80	ES									
2.90- 3.00	D					NOTE: Proposed remediation level 4.8m AOD.				
3.00- 3.70	B	PID = 1.2ppm								
3.00	SS	SPT(S) N=18 2,4/ 4,5,5,4								
3.50		PID = 2.5ppm								
3.70- 3.79	D									
3.79- 4.50	B									
3.80	ES								(2.87)	
4.00		PID = 0.7ppm				From 3.79m bgl: Becomes light brownish grey and very gravelly.				
4.50- 5.30	B	PID = 0.6ppm SPT(C) N<50 19,6 for 18mm/23,19,8 for 44mm								
4.80	ES									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the centre of Remediation Zone PR2B. 2. Concrete core completed to 0.20m bgl. Buried Service Inspection Pit terminated at 0.55m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 23.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from 0.55m to 5.30m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
		300	0.20	15-09-2022	14:30	0.20			
		Insp. Pit	0.55	16-09-2022	11:00	0.55			

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

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Borehole No. F-BH114

Sheet: 2 of 6

Equipment & Methods:

0.00 - 0.20 XCalibre Neptune Coring Rig
0.20 - 0.55 Insulated Hand Tools
0.55 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456803.946
N: 525469.587

Ground Level (m): 7.471 AOD

Date Started: 16/09/2022
Date Completed: 21/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
5.00		PID = 0.6ppm								
5.30- 5.40	D						2.17		5.30	
5.40- 6.00	B					Very loose light brown mottled black slightly gravelly fine to coarse organic SAND with occasional shell fragments. Gravel is subangular fine to medium of sandstone and mudstone **(TIDAL FLAT DEPOSITS)**				
5.50		PID = 1.0ppm								
5.80	ES									
6.00- 6.90	B	PID = 0.7ppm SPT(S) N=0 0,0/ 0,0,0,0								
6.26- 6.57	D					From 6.26m bgl: Becomes mottled grey.				
6.50		PID = 0.8ppm				From 6.26m to 6.57m bgl: Becomes gravelly. Gravel is medium to coarse of mudstone.				
6.90- 7.50	B					From 6.57m bgl: Gravel no longer present.				
7.50- 8.20	B	PID = 0.8ppm SPT(S) N=39 2,3/ 5,8,11,15				From 7.50m bgl: Becomes dense locally very dense.				
8.25	D									
8.30- 9.00	B									
8.50		PID = 0.9ppm								
9.00- 9.70	B	SPT(S) N<50 1,2/4,9,21,16 for 34mm							(7.63)	
9.50		PID = 0.9ppm								
9.75	D									
9.80- 10.50	B									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
				16-09-2022	17:30	9.00	9.00	4.49	

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the centre of Remediation Zone PR2B.
2. Concrete core completed to 0.20m bgl. Buried Service Inspection Pit terminated at 0.55m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 23.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag and refractory material encountered in material recovered from 0.55m to 5.30m bgl. No olfactory evidence of contamination.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

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Borehole No. F-BH114

Sheet: 3 of 6

Equipment & Methods:

0.00 - 0.20 XCalibre Neptune Coring Rig
0.20 - 0.55 Insulated Hand Tools
0.55 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456803.946
N: 525469.587

Ground Level (m): 7.471 AOD

Date Started: 16/09/2022
Date Completed: 21/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						From 10.12m bgl: Occasional bands of coarse sand sized coal present.				
10.50- 11.40	B	PID = 1.3ppm SPT(S) N=7 1,0/				From 10.50m bgl: Becomes loose.				
10.69- 10.96	D	1,1,1,4								
10.80	ES					From 10.69m to 10.96m bgl: Band of very clayey sand.				
11.40- 12.00	B									
11.50		PID = 1.1ppm								
12.00- 12.70	B	SPT(S) N=37 1,1/ 4,8,11,14				From 12.00m bgl: Becomes dense.				
12.50		PID = 0.9ppm								
12.70- 12.93	D									
12.93- 13.45	B					Soft dark greyish brown mottled black slightly sandy silty very organic CLAY **(TIDAL FLAT DEPOSITS)**	-5.46		12.93	
13.20	ES								(0.52)	
13.40		PID = 0.9ppm					-5.98		13.45	
13.45- 13.50	D								(0.05)	
13.50- 14.20	B	SPT(S) N=13 1,0/				Light brown mottled grey fine to coarse SAND with occasional shell fragments **(TIDAL FLAT DEPOSITS)**	-6.03		13.50	
13.50	SS	2,2,4,5				Firm brown mottled reddish brown slightly gravelly slightly sandy silty CLAY. Gravel is subangular to subrounded fine to medium of sandstone and mudstone. Sand is fine to medium **(TILL: DEVENSIAN)**				
14.20	ES									
14.25	D									
14.30- 15.00	B									
14.50		PID = 1.9ppm								

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
		194	15.00						1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the centre of Remediation Zone PR2B. 2. Concrete core completed to 0.20m bgl. Buried Service Inspection Pit terminated at 0.55m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 23.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from 0.55m to 5.30m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH114

Sheet: 4 of 6

Equipment & Methods:

0.00 - 0.20 XCalibre Neptune Coring Rig
0.20 - 0.55 Insulated Hand Tools
0.55 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP
Job No: 60678042

Co-ordinates:
E: 456803.946
N: 525469.587

Ground Level (m): 7.471 AOD

Date Started: 16/09/2022
Date Completed: 21/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
15.27- 15.50	C		100 0 0		15.00- 15.50	From 15.00m bgl: Becomes locally stiff.				
			100 0 0		15.50- 17.00				(6.73)	
			100 0 0	CLAY	17.00- 18.50	From 17.19m bgl: Gravel becomes fine to coarse. Occasional coal present. From 18.24m to 18.27m bgl: Becomes very gravelly.				
18.87- 19.28	C		100 0 0		18.50- 20.00	From 18.50m bgl: Sand is absent.				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the centre of Remediation Zone PR2B. 2. Concrete core completed to 0.20m bgl. Buried Service Inspection Pit terminated at 0.55m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 23.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from 0.55m to 5.30m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

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Borehole No. F-BH114

Sheet: 5 of 6

Equipment & Methods:

0.00 - 0.20 XCalibre Neptune Coring Rig
0.20 - 0.55 Insulated Hand Tools
0.55 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456803.946
N: 525469.587

Ground Level (m): 7.471 AOD

Date Started: 16/09/2022
Date Completed: 21/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
					20.00-21.50		-12.76		20.23	
20.30	ES		100 0 0	CLAY		Weak friable thinly laminated blueish grey MUDSTONE. Locally recovered as very stiff gravelly clay. Gravel is angular fine to medium of mudstone **(REDCAR MUDSTONE FORMATION)**				
					21.50-23.00					
21.97- 22.20	C		100 5 0	14		From 22.68m bgl: Locally medium strong with shell fossils. Fracture set 1 present: Closely spaced, horizontal, undulating rough, open, clean or infilled with soft grey clay.				
				CLAY	23.00-24.50					
				0						
			100 43 39	CLAY						
				0						
				CLAY						
					24.50-26.00	From 24.50m to 25.03m bgl: Frequent shell fossils.			(8.77)	

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the centre of Remediation Zone PR2B. 2. Concrete core completed to 0.20m bgl. Buried Service Inspection Pit terminated at 0.55m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 23.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from 0.55m to 5.30m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
				20-09-2022	16:30	23.00	23.00	1.23	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH114

Sheet: 6 of 6

Equipment & Methods:

0.00 - 0.20 XCalibre Neptune Coring Rig
0.20 - 0.55 Insulated Hand Tools
0.55 - 15.00 Sonic Drilling (Hammer ID: GS002)
15.00 - 29.00 Rotary Coring (Hammer ID: GS002)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456803.946
N: 525469.587

Ground Level (m): 7.471 AOD

Date Started: 16/09/2022

Date Completed: 21/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			100 100 94	4						
25.77- 26.00	C				26.00- 27.50					
				CLAY		From 26.15m bgl: Fracture set 2 present: Closely spaced, 20-35°, planar rough, open, clean or infilled with soft grey clay.				
				0						
				CLAY						
			100 71 49	0						
				CLAY						
				8						
				CLAY						
					27.50- 29.00					
			100 97 94	4						
28.66- 29.00	C			NI						
				0						
							-21.53		29.00	
						End of Borehole 29.00 m (Thickness of basal layer not proven)				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the centre of Remediation Zone PR2B. 2. Concrete core completed to 0.20m bgl. Buried Service Inspection Pit terminated at 0.55m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 23.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from 0.55m to 5.30m bgl. No olfactory evidence of contamination. 7. Borehole backfilled with bentonite pellets and arisings upon completion.
		146	29.00	21-09-2022	14:15	29.00	29.00		

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH120

Sheet: 1 of 8

Equipment & Methods:
0.00 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS10)
15.00 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456867.388
N: 525400.960

Ground Level (m): 7.185 AOD

Date Started: 02/08/2022
Date Completed: 09/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						MADE GROUND: Black ASPHALT **(MADE GROUND)**	6.94		(0.25)	
						MADE GROUND: Brown and black sandy angular to subrounded fine to coarse GRAVEL of slag, brick, concrete and chert. Sand is fine to coarse **(MADE GROUND)**	6.92		(0.02) 0.27 (0.15)	
0.50		PID = 0.7ppm				MADE GROUND: Grey CONCRETE **(MADE GROUND)**	6.77		0.42	
1.00		PID = 1.1ppm				MADE GROUND: Brown mottled black very sandy angular to rounded fine to coarse GRAVEL of slag, concrete and chert. Sand is fine to coarse **(MADE GROUND)**				
1.50		PID = 0.9ppm							(2.58)	
2.00		PID = 1.2ppm				From 1.90m bgl: Occasional organic material present.				
2.50		PID = 1.0ppm								
3.00		PID = 1.1ppm				MADE GROUND: Light grey mottled brown sandy angular to rounded fine to coarse GRAVEL of slag. Sand is fine to coarse **(MADE GROUND)**	4.19		3.00	
3.30- 3.74	B					NOTE: Proposed remediation level 3.8m AOD.			(0.74)	
3.50	ES	PID = 0.8ppm								
3.60		SPT(C) N=19 2,4/ 3,3,5,8								
3.74- 4.10	B					MADE GROUND: Brown mottled grey and yellow gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of slag, sandstone, mudstone and chert **(MADE GROUND)**	3.45		3.74	
4.00		PID = 0.5ppm							(0.36)	
4.10- 4.50	B					MADE GROUND: Light grey mottled brown sandy angular to rounded fine to coarse GRAVEL of slag. Sand is fine to coarse **(MADE GROUND)**	3.09		4.10	
4.50- 4.83	D	PID = 1.0ppm							(0.73)	
4.50	ES	SPT(C) N>50 13,12 for 35mm / 20,12,11,7 for 50mm								
4.83- 5.20	B					Medium dense yellowish brown mottled dark grey slightly gravelly silty fine to coarse SAND with occasional organic	2.36		4.83	

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the west of Remediation Zone PR1B. 2. Buried Services Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 39.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from 0.25m to 0.27m bgl and 0.42m and 4.83m bgl. No olfactory evidence of contamination. 7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.
		Insp. Pit	0.30	02-08-2022	12:00	0.30			

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH120

Equipment & Methods:

0.00 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS10)
15.00 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456867.388
N: 525400.960

Ground Level (m): 7.185 AOD

Date Started: 02/08/2022
Date Completed: 09/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
5.00		PID = 1.2ppm				material and shell fragments. Gravel is subangular to subrounded fine to coarse of mudstone and sandstone **(TIDAL FLAT DEPOSITS)**				
5.20- 5.30	D									
5.30- 6.00	B									
5.50	ES									
						From 5.65m bgl: Becomes mottled dark grey and clayey with abundant organic material.				
6.00- 6.10	D	PID = 1.5ppm								
6.00	SS	SPT(S) N=29								
6.10- 6.80	B	5,5/ 5,6,8,10								
6.80- 6.90	D									
6.90- 7.50	B									
7.00		PID = 1.6ppm								
7.50- 7.60	D	SPT(S) N>50								
7.50	SS	3,12 / 22,28 for 75mm								
7.60- 9.00	B					From 7.50m bgl: Becomes very dense.				
8.00		PID = 0.4ppm							(7.33)	
8.80	ES									
9.00- 9.10	D	PID = 1.1ppm								
9.00	SS									
9.10- 9.60	B									
9.60- 9.70	D					From 9.51m to 9.95m bgl: Becomes clayey.				
9.70- 10.50	B									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
				02-08-2022	17:15	9.00	9.00	1.60	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the west of Remediation Zone PR1B. 2. Buried Services Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 39.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from 0.25m to 0.27m bgl and 0.42m and 4.83m bgl. No olfactory evidence of contamination. 7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH120

Sheet: 3 of 8

Equipment & Methods:

0.00 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS10)
15.00 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456867.388
N: 525400.960

Ground Level (m): 7.185 AOD

Date Started: 02/08/2022
Date Completed: 09/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
10.00		PID = 1.1ppm								
10.50- 10.60	D	SPT(S) N>50								
10.50	SS	4,10 /				From 10.47m to 10.78m bgl: Becomes clayey.				
10.60- 11.10	B	12,15,11,12 for 65mm								
11.00		PID = 0.5ppm								
11.10- 11.20	D									
11.20- 12.00	B									
						From 11.74m bgl: Becomes clayey.				
12.00- 12.16	B	PID = 2.8ppm								
12.00	SS	SPT(S) N=17								
12.16- 12.40	B	0,3/ 4,4,4,5					-4.98		12.16	
12.30	ES					Soft locally firm brown mottled black slightly gravelly slightly sandy silty CLAY with abundant organic material. Gravel is angular to subrounded fine to coarse of mudstone, sandstone, limestone and chert **(TIDAL FLAT DEPOSITS)**				
12.40- 12.50	D									
12.50- 12.60	D									
12.50- 13.00	UT100	75 % recovery								
12.60	B									
13.00		PID = 2.1ppm							(1.66)	
13.40- 13.50	D									
13.50- 13.60	D									
13.50- 14.00	UT100	100 % recovery								
13.60- 13.82	B									
							-6.64		13.82	
13.90- 14.00	D					Stiff to very stiff reddish brown mottled grey slightly gravelly slightly sandy silty CLAY. Gravel is subangular to subrounded fine to coarse of mudstone, sandstone, chert, limestone and coal. Sand is fine to coarse **(TILL: DEVENSIAN)**				
14.00- 15.00	B	PID = 1.2ppm								
14.80	ES									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
		194	15.00						1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the west of Remediation Zone PR1B. 2. Buried Services Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 39.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from 0.25m to 0.27m bgl and 0.42m and 4.83m bgl. No olfactory evidence of contamination. 7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH120

Sheet: 4 of 8

Equipment & Methods:

0.00 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS10)
15.00 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456867.388
N: 525400.960

Ground Level (m): 7.185 AOD

Date Started: 02/08/2022
Date Completed: 09/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
15.00		PID = 0.8ppm	93 0 0		15.00-16.50					
16.50- 16.80	C		95 0 0		16.50-18.00				(6.02)	
			97 0 0	CLAY	18.00-19.50	From 17.31m to 17.58m bgl: Becomes firm and mottled brown. From 18.85m bgl: Becomes gravelly.				
					19.50-21.00					
19.80- 20.10	C					Very stiff dark grey slightly sandy gravelly CLAY with occasional shell fragments. Gravel is angular to subrounded	-12.66		19.84	

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the west of Remediation Zone PR1B.
2. Buried Services Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 39.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from 0.25m to 0.27m bgl and 0.42m and 4.83m bgl. No olfactory evidence of contamination.
7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH120

Sheet: 5 of 8

Equipment & Methods:

0.00 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS10)
15.00 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456867.388
N: 525400.960

Ground Level (m): 7.185 AOD

Date Started: 02/08/2022
Date Completed: 09/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
20.00- 20.10	ES		100 0 0			fine to coarse of mudstone. Sand is fine to coarse **(REDCAR MUDSTONE FORMATION)**			(1.50)	
					21.00-22.50		-14.16		21.34	
				0		Very weak locally weak fractured thinly to thickly laminated dark bluish grey MUDSTONE. Fracture set 1: Wide to closely spaced, sub horizontal to 20°, planar rough, partly open to closed, infilled with grey gravelly silt. Gravel is subangular to subrounded fine to medium of mudstone. Fracture set 2: Medium to closely spaced, subvertical to 70°, planar rough to smooth, tight to closed, infilled with grey silt **(REDCAR MUDSTONE FORMATION)**				
				NI						
				8						
			100 64 64	CLAY						
21.93	C					From 21.72m to 21.84m bgl: Stiff dark grey sandy CLAY. Sand is fine to coarse				
				5						
				NI	22.50-24.00					
				2						
				NI						
23.18	C		100 89 89	4						
				CLAY						
				9		From 23.71 to 23.78m bgl: Stiff dark grey sandy CLAY. Sand is fine to coarse.				
					24.00-25.50					
			98 98 95	4						

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
				03-08-2022	17:15	22.50	15.00	1.00

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the west of Remediation Zone PR1B.
2. Buried Services Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 39.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from 0.25m to 0.27m bgl and 0.42m and 4.83m bgl. No olfactory evidence of contamination.
7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH120

Sheet: 6 of 8

Equipment & Methods:

0.00 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS10)
15.00 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456867.388
N: 525400.960

Ground Level (m): 7.185 AOD

Date Started: 02/08/2022
Date Completed: 09/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
				CLAY	25.50-27.00					
				7						
				CLAY						
			100 97 92	2		From 25.80 to 25.84m bgl: Firm dark grey sandy CLAY. Sand is fine to coarse.				
				4	27.00-28.50					
				CLAY						
			100 94 84	0		From 27.56 to 27.60m bgl: Stiff dark grey sandy CLAY. Sand is fine to coarse.				
				CLAY						
				5		From 27.74 to 27.79m bgl: Stiff dark grey sandy CLAY. Sand is fine to coarse.				
28.38	C									
				CLAY	28.50-30.00					
				12		From 28.61 to 28.76m bgl: Firm dark grey gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to coarse of mudstone. Sand is fine to coarse.				
				CLAY						
			98 84 74	3		From 28.93 to 28.99m bgl: Firm dark grey gravelly slightly sandy CLAY. Gravel is angular-subrounded fine to coarse of mudstone. Sand is fine to coarse.				
				CLAY						
				2						

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the west of Remediation Zone PR1B.
2. Buried Services Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 39.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from 0.25m to 0.27m bgl and 0.42m and 4.83m bgl. No olfactory evidence of contamination.
7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH120

Equipment & Methods:

0.00 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS10)
15.00 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456867.388
N: 525400.960

Ground Level (m): 7.185 AOD

Date Started: 02/08/2022
Date Completed: 09/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
30.00- 31.50	C			CLAY 4 CLAY 0 CLAY	30.00-31.50	From 30.05 to 30.10m bgl: Stiff dark grey sandy CLAY. Sand is fine to coarse.			(17.66)	
30.41	C		100 84 81	0 NI 10		From 30.37 to 30.41m bgl: Stiff dark grey sandy CLAY. Sand is fine to coarse. From 30.63 to 30.72m bgl: Firm dark grey gravelly slighlty sandy CLAY. Gravel is angular to subrounded fine to coarse of mudstone. Sand is fine to coarse.				
				CLAY 0 CLAY 0 CLAY 0	31.50-33.00	From 31.57 to 31.59m bgl: Firm dark grey sandy CLAY. Sand is fine to coarse. From 31.73 to 31.76m bgl: Firm dark grey sandy CLAY. Sand is fine to coarse.				
			100 77 62	NI 11 NI 2		From 31.88 to 32.00m bgl: Firm dark grey gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to coarse of mudstone. Sand is fine to coarse.				
33.72	C		96 84 69	0 CLAY 4 CLAY 0 CLAY 5 CLAY 0 CLAY 0 CLAY	33.00-34.50	From 33.36 to 33.39m bgl: Stiff dark grey sandy CLAY. Sand is fine to coarse. From 33.87 to 33.91m bgl: dark grey sandy CLAY. Sand is fine to coarse. From 33.98 to 34.04m bgl: Stiff dark grey sandy CLAY. Sand is fine to coarse. From 34.23 to 34.28m bgl: Stiff dark grey sandy CLAY. Sand is fine to coarse.				
				CLAY 0 CLAY 7 CLAY	34.50-36.00					

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
				04-08-2022	17:00	34.50	34.50	1.20

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the west of Remediation Zone PR1B.
2. Buried Services Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 39.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from 0.25m to 0.27m bgl and 0.42m and 4.83m bgl. No olfactory evidence of contamination.
7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH120

Sheet: 8 of 8

Equipment & Methods:

0.00 - 0.30 Insulated Hand Tools
0.30 - 15.00 Sonic Drilling (Hammer ID: GS10)
15.00 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456867.388
N: 525400.960

Ground Level (m): 7.185 AOD

Date Started: 02/08/2022
Date Completed: 09/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
35.00	C		98 83 79	8 CLAY 9 CLAY 11						
				CLAY 3 NI 12 CLAY 0	36.00-37.50					
			97 84 53	NI 5 CLAY 3 CLAY 0		From 36.62m to 36.65m bgl: Firm dark grey sandy CLAY. Sand is fine to coarse. From 36.96m to 37.03m bgl: Firm dark grey sandy CLAY. Sand is fine to coarse. From 37.34m to 37.37m bgl: Stiff dark grey sandy CLAY. Sand is fine to coarse.				
37.70	C		98 83 71	NI 6 CLAY 2 NI	37.50-39.00	From 37.85m to 38.01m bgl: Abundant shells and shell fragments present. From 38.59m to 38.96m bgl: Abundant shells and shell fragments present.	-31.82		39.00	
						End of Borehole 39.00 m (Thickness of basal layer not proven)				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the west of Remediation Zone PR1B. 2. Buried Services Inspection Pit terminated at 0.30m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 15.00m bgl, and completed via Rotary Coring to 39.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from 0.25m to 0.27m bgl and 0.42m and 4.83m bgl. No olfactory evidence of contamination. 7. Borehole installed with an 80mm internal diameter standpipe to 30.00m bgl upon completion, to allow Vertical Seismic Profiling.
		146	39.00	05-08-2022	12:30	39.00	39.00	1.20	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: NS

Checked By: JW

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Borehole No. F-BH102

Sheet: 1 of 8

Equipment & Methods:

0.00 - 0.90 Sonic Drilling (Hammer ID: GS10)
0.90 - 1.00 Insulated Hand Tools
1.00 - 16.50 Sonic Drilling (Hammer ID: GS10)
16.50 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456886.025
N: 525746.644

Ground Level (m): 9.088 AOD

Date Started: 08/09/2022
Date Completed: 20/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						MADE GROUND: Dark grey ASPHALT **(MADE GROUND)**			(0.30)	
							8.79		0.30	
						MADE GROUND: Grey CONCRETE **(MADE GROUND)**			(0.50)	
							8.29		0.80	
1.00	ES					MADE GROUND: Grey subrounded to subangular medium to coarse GRAVEL of slag with high cobble content. Cobbles are subrounded of slag N.B. Sulphur and iron stained cobbles with sulphurous odour noted. **(MADE GROUND)**				
1.50	ES									
2.50	ES								(3.35)	
3.00- 3.30	B					From 3.00m bgl: Material too coarse for environmental sampling.				
4.20	ES	PID = 0.9ppm				MADE GROUND: Blueish grey sandy silty angular to subangular fine to coarse GRAVEL of slag. Sand is medium to coarse	4.94		4.15	
									(0.35)	
4.50- 6.00	B	SPT(C) N>50 22,3 for 5mm/50 for 40mm				N.B: Sulphurous odour noted. **(MADE GROUND)** NOTE: Proposed remediation level 4.8m AOD.	4.59		4.50	
						MADE GROUND: Grey subrounded to subangular medium to coarse GRAVEL of slag with high cobble content. Cobbles				

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
		Insp. Pit	1.00	08-09-2022	16:15	0.90	0.90	

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north west of Remediation Zone PR2A.
2. Buried Service Inspection Pit terminated at 1.00m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 39.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag and refractory material encountered in material recovered from ground level to 6.51m bgl. Sulphurous odour noted 0.80-4.50m and 6.51-7.15m bgl.
7. Installed with 35mm ID HPDE standpipe to 11.50 (slotted 8.50-11.50m) and 50mm ID HDPE standpipe to 31.00m bgl (slotted 28.00-31.00m bgl). Datalogger installed in 35mm standpipe at 11.00m and in 50mm standpipe at 30.50m bgl.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH102

Sheet: 2 of 8

Equipment & Methods:

0.00 - 0.90 Sonic Drilling (Hammer ID: GS10)
0.90 - 1.00 Insulated Hand Tools
1.00 - 16.50 Sonic Drilling (Hammer ID: GS10)
16.50 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456886.025
N: 525746.644

Ground Level (m): 9.088 AOD

Date Started: 08/09/2022
Date Completed: 20/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
5.00		PID = 0.0ppm				are subrounded of slag N.B. Material too coarse for environmental sampling. **(MADE GROUND)**			(2.01)	
6.00		PID = 0.2ppm								
6.10- 6.30	D	SPT(C) N>50 8,11/10,16,24 for 45mm				From 6.07m bgl: Gravel becomes fine to coarse.				
							2.58		6.51	
6.60	ES					MADE GROUND: Blueish grey sandy silty angular to subangular fine to coarse GRAVEL of slag. Sand is medium to coarse			(0.22)	
6.75- 7.15	B						2.36		6.73	
						N.B. Sulphurous odour noted. **(MADE GROUND)**			(0.42)	
7.00		PID = 0.3ppm				MADE GROUND: Blueish grey sandy angular to subangular fine to coarse GRAVEL of slag. Sand is fine to coarse	1.94		7.15	
7.37	ES					N.B. Sulphurous odour noted. **(MADE GROUND)**				
7.50- 7.75	D	SPT(S) N=14				MADE GROUND: Brown mottled black slightly gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of slag **(MADE GROUND)**			(0.60)	
7.50- 7.95	SS	2,1/ 1,2,3,8								
7.75- 8.15	B					From 7.27m bgl: Gravel is absent.	1.34		7.75	
						Dense black mottled brown fine to medium SAND **(TIDAL FLAT DEPOSITS)**				
8.20	ES	PID = 0.4ppm								
8.27- 9.00	B					From 8.15m to 8.27m bgl: Fossil band present. From 8.27m bgl: Becomes brown mottled black.			(1.82)	
9.00- 9.50	B	PID = 0.2ppm								
9.00	ES	SPT(S) N=37 7,11/ 10,9,8,10								
							-0.48		9.57	
9.60- 9.70	D					Light brown fine to coarse SAND with frequent shell and coal fragments **(TIDAL FLAT DEPOSITS)**			(0.43)	
9.80- 10.50	B					At 9.68m bgl: Layer of rounded to subrounded medium to				
							-0.91		10.00	

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north west of Remediation Zone PR2A. 2. Buried Service Inspection Pit terminated at 1.00m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 39.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 6.51m bgl. Sulphurous odour noted 0.80-4.50m and 6.51-7.15m bgl. 7. Installed with 35mm ID HPDE standpipe to 11.50 (slotted 8.50-11.50m) and 50mm ID HDPE standpipe to 31.00m bgl (slotted 28.00-31.00m bgl). Datalogger installed in 35mm standpipe at 11.00m and in 50mm standpipe at 30.50m bgl.
				09-09-2022	11:30	9.00	9.00	5.10	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH102

Sheet: 3 of 8

Equipment & Methods:

0.00 - 0.90 Sonic Drilling (Hammer ID: GS10)
0.90 - 1.00 Insulated Hand Tools
1.00 - 16.50 Sonic Drilling (Hammer ID: GS10)
16.50 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456886.025
N: 525746.644

Ground Level (m): 9.088 AOD

Date Started: 08/09/2022
Date Completed: 20/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
10.00	ES	PID = 0.3ppm				coarse gravel of sandstone.				
						Dense light brown slightly gravelly fine to coarse SAND with shell and coal fragments. Gravel is rounded to subrounded fine to medium of mudstone and sandstone **(TIDAL FLAT DEPOSITS)**				
10.50- 11.22	B	SPT(S) N=35 2,2/ 8,7,10,10								
11.00		PID = 0.3ppm								
11.22- 11.44	D									
11.44- 12.00	B					At 11.43m bgl: Shell fragments become more abundant.			(3.37)	
12.00- 12.66	B	SPT(S) N>50 5,7/9,22,19 for 35mm				From 11.98m bgl: Coal fragments become abundant. From 11.98m to 12.09m bgl: Gravel becomes fine to coarse. From 12.00m bgl: Becomes very dense.				
12.66- 12.94	D									
13.00	ES	PID = 1.3ppm								
13.08- 13.38	B									
13.38- 13.50	D						-4.28		13.37	
13.50- 14.02	B	SPT(S) N>50 2,9/12,23,15 for 30mm				Very dense light brown slightly gravelly fine to medium silty SAND with rare shell fragments. Gravel is well rounded fine to medium of sandstone and mudstone **(TIDAL FLAT DEPOSITS)**			(0.87)	
						From 14.02m bgl: Becomes gravelly.				
14.25- 15.00	B						-5.15		14.24	
14.50	ES	PID = 0.5ppm				Very dense dark brown very gravelly fine to coarse SAND with frequent shell fragments. Gravel is rounded to subrounded fine to coarse of sandstone and mudstone **(TIDAL FLAT DEPOSITS)**				
14.57- 14.76	D					From 14.57m to 14.76m bgl: Gravel is absent.				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north west of Remediation Zone PR2A. 2. Buried Service Inspection Pit terminated at 1.00m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 39.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 6.51m bgl. Sulphurous odour noted 0.80-4.50m and 6.51-7.15m bgl. 7. Installed with 35mm ID HPDE standpipe to 11.50 (slotted 8.50-11.50m) and 50mm ID HDPE standpipe to 31.00m bgl (slotted 28.00-31.00m bgl). Datalogger installed in 35mm standpipe at 11.00m and in 50mm standpipe at 30.50m bgl.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH102

Sheet: 4 of 8

Equipment & Methods:

0.00 - 0.90 Sonic Drilling (Hammer ID: GS10)
0.90 - 1.00 Insulated Hand Tools
1.00 - 16.50 Sonic Drilling (Hammer ID: GS10)
16.50 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456886.025
N: 525746.644

Ground Level (m): 9.088 AOD

Date Started: 08/09/2022
Date Completed: 20/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
15.00- 15.31	D	SPT(S) N>50								
15.00- 15.45	SS	5,9/17,18,15 for 40mm							(1.76)	
15.31- 16.00	B					From 15.31m bgl: Becomes gravelly with low cobble content. Cobbles are rounded to subrounded of sandstone.				
15.50		PID = 1.2ppm								
16.00- 16.50	B						-6.91		16.00	
16.34	ES	PID = 1.1ppm				Stiff locally firm reddish brown slightly gravelly slightly sandy silty CLAY with occasional light bluish grey silty fissures. Gravel is rounded to angular fine to medium of coal, mudstone and sandstone. Sand is fine to coarse **(TILL: DEVENSIAN)**				
16.50- 16.73	C		100 0 0		16.50- 18.00	From 16.77m to 17.80m bgl: Becomes greyish brown.				
			100 0 0		18.00- 19.50				(5.68)	
				CLAY	19.50- 21.00					

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north west of Remediation Zone PR2A. 2. Buried Service Inspection Pit terminated at 1.00m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 39.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 6.51m bgl. Sulphurous odour noted 0.80-4.50m and 6.51-7.15m bgl. 7. Installed with 35mm ID HPDE standpipe to 11.50 (slotted 8.50-11.50m) and 50mm ID HDPE standpipe to 31.00m bgl (slotted 28.00-31.00m bgl). Datalogger installed in 35mm standpipe at 11.00m and in 50mm standpipe at 30.50m bgl.
		194	16.50	12-09-2022	17:00	16.50	16.50	6.20	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH102

Sheet: 5 of 8

Equipment & Methods:

0.00 - 0.90 Sonic Drilling (Hammer ID: GS10)
0.90 - 1.00 Insulated Hand Tools
1.00 - 16.50 Sonic Drilling (Hammer ID: GS10)
16.50 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456886.025
N: 525746.644

Ground Level (m): 9.088 AOD

Date Started: 08/09/2022
Date Completed: 20/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			100 0 0							
21.00- 21.39	C				21.00- 22.50					
			100 0 0			Stiff reddish brown mottled grey gravelly CLAY. Gravel is angular fine to medium of mudstone **(TILL: DEVENSIAN)**	-12.59		21.68	
					22.50- 24.00				(1.55)	
			100 100 84	17		Extremely weak fractured thinly laminated reddish brown MUDSTONE with occasional bluish grey fissures. Locally recovered as gravel and firm clay. Fracture set 1: Very close to closely spaced, 45-70°, planar rough, open, infilled with firm grey clay and subangular fine to coarse gravel of mudstone **(MERCIA MUDSTONE GROUP)**	-14.14		23.23	
				5						
				NI	24.00- 25.50					
				14						
				NI						
				CLAY		From 24.37m to 24.63m bgl: Recovered as firm grey clay.				
24.75	C		100 17 0			From 24.63m to 25.16m bgl: Recovered as fine to coarse angular gravel of mudstone.				
24.86	C									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north west of Remediation Zone PR2A. 2. Buried Service Inspection Pit terminated at 1.00m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 39.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 6.51m bgl. Sulphurous odour noted 0.80-4.50m and 6.51-7.15m bgl. 7. Installed with 35mm ID HPDE standpipe to 11.50 (slotted 8.50-11.50m) and 50mm ID HDPE standpipe to 31.00m bgl (slotted 28.00-31.00m bgl). Datalogger installed in 35mm standpipe at 11.00m and in 50mm standpipe at 30.50m bgl.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH102

Sheet: 6 of 8

Equipment & Methods:

0.00 - 0.90 Sonic Drilling (Hammer ID: GS10)
0.90 - 1.00 Insulated Hand Tools
1.00 - 16.50 Sonic Drilling (Hammer ID: GS10)
16.50 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456886.025
N: 525746.644

Ground Level (m): 9.088 AOD

Date Started: 08/09/2022
Date Completed: 20/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
				NI						
				CLAY	25.50-27.00	From 25.32m bgl: Fracture set 2 present: Wide spaced, horizontal to 10°, undulating smooth, open, infilled with firm grey clay and angular fine to coarse gravel of mudstone.				
				NI						
				11		From 25.50m to 25.59m bgl: Recoved as firm grey clay.				
				NI						
			100 85 13	CLAY		From 25.90m to 27.00m bgl: Recovered as stiff grey clay.				
					27.00-28.50	From 27.00m bgl: Fracture set 1 no longer present.				
			100 100 94	2						
				NI						
				0						
				NI	28.50-30.00					
				9						
			100 63 63							
				4						
29.72	C									
29.91	C									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
				13-09-2022	17:00	27.00	27.00	1.60	

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north west of Remediation Zone PR2A.
2. Buried Service Inspection Pit terminated at 1.00m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 39.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag and refractory material encountered in material recovered from ground level to 6.51m bgl. Sulphurous odour noted 0.80-4.50m and 6.51-7.15m bgl.
7. Installed with 35mm ID HPDE standpipe to 11.50 (slotted 8.50-11.50m) and 50mm ID HDPE standpipe to 31.00m bgl (slotted 28.00-31.00m bgl). Datalogger installed in 35mm standpipe at 11.00m and in 50mm standpipe at 30.50m bgl.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

Report ID: STANDARD COREHOLE LOG || Project: V11.1 NZT GI.GPJ || Library: NZT AGS 4_0 LIBRARY V1.3.GLB || Date: 29 November 2022

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Borehole No. F-BH102

Sheet: 7 of 8

Equipment & Methods:

0.00 - 0.90 Sonic Drilling (Hammer ID: GS10)
0.90 - 1.00 Insulated Hand Tools
1.00 - 16.50 Sonic Drilling (Hammer ID: GS10)
16.50 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456886.025
N: 525746.644

Ground Level (m): 9.088 AOD

Date Started: 08/09/2022
Date Completed: 20/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
				5	30.00-31.50					
				NI						
				CLAY		From 30.30m to 30.46m bgl: Recovered as stiff grey clay.				
				NI						
				0		From 31.20m bgl: Fracture set 3 present: Wide spaced, >70°, planar rough, open, infilled with firm grey clay and angular fine to coarse gravel of mudstone.				
			100 80 66	CLAY		From 30.63m to 31.05m bgl: Recovered as stiff grey clay.				
				3					(15.77)	
				NI		From 30.46m to 30.63m bgl: Band of medium strong grey thinly laminated siltstone with dispersed fine sand sized grains of calcite. Secondary calcite present on fracture planes.				
				0						
				CLAY	31.50-33.00					
				0		From 31.50m to 31.59m bgl: Recovered as stiff grey clay.				
				CLAY		From 31.69m to 31.74m bgl: Recovered as stiff grey clay.				
				5						
				CLAY						
			100 100 62	3		From 32.12m to 32.21m bgl: Recovered as stiff grey clay.				
				CLAY		From 32.56m to 33.00m bgl: Recovered as stiff grey clay.				
					33.00-34.50					
				NI						
				NI						
				0						
			100 100 87	4 CLAY		From 33.64m to 34.02m bgl: Recovered as stiff grey clay.				
33.96	C									
				2						
				0	34.50-36.00					
				CLAY		From 34.65m to 35.01m bgl: Recovered as stiff grey clay.				

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north west of Remediation Zone PR2A.
2. Buried Service Inspection Pit terminated at 1.00m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 39.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag and refractory material encountered in material recovered from ground level to 6.51m bgl. Sulphurous odour noted 0.80-4.50m and 6.51-7.15m bgl.
7. Installed with 35mm ID HPDE standpipe to 11.50 (slotted 8.50-11.50m) and 50mm ID HDPE standpipe to 31.00m bgl (slotted 28.00-31.00m bgl). Datalogger installed in 35mm standpipe at 11.00m and in 50mm standpipe at 30.50m bgl.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH102

Sheet: 8 of 8

Equipment & Methods:

0.00 - 0.90 Sonic Drilling (Hammer ID: GS10)
0.90 - 1.00 Insulated Hand Tools
1.00 - 16.50 Sonic Drilling (Hammer ID: GS10)
16.50 - 39.00 Rotary Coring (Hammer ID: GS10)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456886.025
N: 525746.644

Ground Level (m): 9.088 AOD

Date Started: 08/09/2022
Date Completed: 20/09/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
			100 82 72	NI 2 1 CLAY NI		From 35.46m to 35.55m bgl: Recovered as stiff grey clay.				
			100 41 29	NI 0 NI 0 NI 0 CLAY NI	36.00- 37.50	From 37.29m to 37.38m bgl: Recovered as stiff grey clay.				
37.85	C		100 78 44	10 2 NI 9 NI	37.50- 39.00	From 38.21m bgl: Fracture set 4 present: Unknown spacing, vertical, undulating rough, open, infilled with angular fine to coarse gravel of mudstone.	-29.91		39.00	
						End of Borehole 39.00 m (Thickness of basal layer not proven)				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the north west of Remediation Zone PR2A. 2. Buried Service Inspection Pit terminated at 1.00m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 39.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag and refractory material encountered in material recovered from ground level to 6.51m bgl. Sulphurous odour noted 0.80-4.50m and 6.51-7.15m bgl. 7. Installed with 35mm ID HPDE standpipe to 11.50 (slotted 8.50-11.50m) and 50mm ID HDPE standpipe to 31.00m bgl (slotted 28.00-31.00m bgl). Datalogger installed in 35mm standpipe at 11.00m and in 50mm standpipe at 30.50m bgl.
		146	39.00	14-09-2022 15-09-2022 20-09-2022	16:30 11:30 09:00	36.00 39.00 39.00	36.00 39.00 39.00	1.30	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

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Borehole No. F-BH104

Sheet: 1 of 7

Equipment & Methods:

0.00 - 0.18 Insulated Hand Tools
0.18 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 32.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456911.322
N: 525641.198

Ground Level (m): 7.635 AOD

Date Started: 16/08/2022
Date Completed: 19/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
						MADE GROUND: Dark brown very sandy subangular to subrounded fine to coarse GRAVEL of slag. Sand is fine to coarse **(MADE GROUND)**				
0.50		PID = 23.6ppm							(1.50)	
						From 0.73m bgl: Strong organic odour noted.				
1.00		PID = 65.4ppm				From 1.00m to 1.23m bgl: Becomes light brown.				
1.50		PID = 21.6ppm					6.14		1.50	
						MADE GROUND: Dark brown very gravelly silty fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of slag and refractory material **(MADE GROUND)**			(0.89)	
2.00		PID = 18.7ppm								
							5.25		2.39	
2.50		PID = 26.8ppm				MADE GROUND: Soft pale yellowish brown slightly gravelly CLAY. Gravel is subrounded of slag **(MADE GROUND)**			(0.37)	
							4.88		2.76	
3.00 - 3.20	ES	PID = 18.1ppm SPT(C) N=4 1,1/ 1,1,1,1				MADE GROUND: Dark brown very gravelly fine to coarse SAND with high cobble content. Cobbles are subrounded of slag. Gravel is subangular to subrounded fine to coarse of slag **(MADE GROUND)**			(0.45)	
3.21 - 3.50	B					NOTE: Proposed remediation level 4.8m AOD.	4.43		3.21	
						MADE GROUND: Soft pale yellowish brown slightly gravelly slightly sandy CLAY. Gravel is subrounded fine to coarse of slag. Sand is fine to coarse **(MADE GROUND)**			(0.29)	
3.50 - 4.50	B	PID = 22.7ppm					4.14		3.50	
3.75	D					MADE GROUND: Dark brown very sandy subangular to subrounded fine to coarse GRAVEL of slag with high cobble content. Cobbles are subrounded of slag. Sand is fine to coarse **(MADE GROUND)**				
4.00	ES	PID = 21.4ppm							(1.78)	
4.50 - 5.28	B	PID = 21.1ppm SPT(C) N>50 16,9 for 20mm/ 21,20,9 for 28mm								

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
		Insp. Pit	0.18	16-08-2022	17:00	0.18		

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR2A.
2. Buried Service Inspection Pit terminated at 0.18m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 32.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from ground level to 5.28m bgl. Organic odour noted in material recovered from 0.73m to 1.50m bgl.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH104

Sheet: 2 of 7

Equipment & Methods:
0.00 - 0.18 Insulated Hand Tools
0.18 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 32.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456911.322
N: 525641.198

Ground Level (m): 7.635 AOD

Date Started: 16/08/2022
Date Completed: 19/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
5.00	ES	PID = 16.1ppm								
							2.36		5.28	
5.30- 6.00	B					Medium dense light brown mottled grey slightly clayey slightly gravely fine to coarse SAND with occasional shell fragments. Gravel is fine to medium of mudstone **(TIDAL FLAT DEPOSITS)**				
5.30	D									
5.50		PID = 15.0ppm							(0.72)	
6.00- 6.70	B	PID = 14.6ppm					1.64		6.00	
6.00	ES	SPT(S) N=20				Medium dense light brown mottled grey fine to coarse SAND **(TIDAL FLAT DEPOSITS)**				
	SS	4,2/ 5,4,6,5				From 6.00m bgl: Gravel, clay and shell fragments no longer present.				
6.75	D									
6.80- 7.50	B									
7.00		PID = 11.7ppm								
7.50- 8.20	B	SPT(S) N=27 3,4/ 6,6,7,8				From 7.50m bgl: Abundant black organic specs and occasional shell fragments present.			(3.56)	
8.00		PID = 10.8ppm								
8.25	D									
8.30- 9.00	B									
9.00- 9.56	B	PID = 11.8ppm SPT(S) N=27 1,2/ 5,6,7,9								
9.25	D									
9.56- 9.95	B						-1.93		9.56	
9.60	ES					Very dense light brown mottled dark brown very gravelly fine to coarse SAND with abundant shell fragments. Gravel is subrounded to rounded fine to medium of quartzite mudstone and sandstone **(TIDAL FLAT DEPOSITS)**				
9.75	D									
9.95- 10.50	B									

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR2A. 2. Buried Service Inspection Pit terminated at 0.18m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 32.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 5.28m bgl. Organic odour noted in material recovered from 0.73m to 1.50m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

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Borehole No. F-BH104

Equipment & Methods:

0.00 - 0.18 Insulated Hand Tools
0.18 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 32.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456911.322
N: 525641.198

Ground Level (m): 7.635 AOD

Date Started: 16/08/2022
Date Completed: 19/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
10.00	ES	PID = 11.3ppm				From 9.95m bgl: Becomes slightly gravelly and shell fragments become occasional.				
10.25	D									
10.50- 11.20	B	SPT(S) N> 50 1,2/ 2,6,10,32 for 70mm								
11.00		PID = 10.5ppm								
11.25	D									
11.30- 12.00	B									
11.60	D					From 11.50m to 11.70m bgl: Becomes very gravelly with abundant shell fragments.				
12.00- 12.70	B	PID = 10.0ppm								
12.00	SS	SPT(S) N> 50 9,16 for 67mm/ 22,28 for 72mm							(5.44)	
						From 12.30m to 12.51m bgl: Becomes gravelly. Gravel is fine to coarse.				
12.75	D									
12.80- 13.50	B									
13.00		PID = 11.6ppm								
13.50- 14.20	B	SPT(S) N>50 11,14 for 60mm/ 27,23 for 65mm				From 13.59m bgl: Becomes very gravelly.				
14.00		PID = 11.8ppm								
14.25	D									
14.30- 15.00	B									
						From 14.48m to 14.58m bgl: Dark brown organic rich band.				
							-7.37		15.00	

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR2A. 2. Buried Service Inspection Pit terminated at 0.18m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 32.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 5.28m bgl. Organic odour noted in material recovered from 0.73m to 1.50m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH104

Sheet: 4 of 7

Equipment & Methods:

0.00 - 0.18 Insulated Hand Tools
0.18 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 32.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456911.322
N: 525641.198

Ground Level (m): 7.635 AOD

Date Started: 16/08/2022
Date Completed: 19/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
15.00- 15.50	B	PID = 10.6ppm SPT(S) N=29 3,4/ 4,7,8,10				Firm locally stiff greyish brown mottled light grey slightly gravelly slightly sandy silty CLAY. Gravel is rounded to subrounded fine to medium of sandstone and mudstone. Sand is fine to coarse **(TILL: DEVENSIAN)**				
15.50- 16.00	B									
15.50	D									
15.75	ES									
16.00- 16.50	B	PID = 9.8ppm								
					16.50-17.50					
16.80- 17.00	C		100 0 0							
					17.50-19.00	From 17.50m to 19.04m bgl: Becomes locally soft.				
17.83- 18.03	C		100 0 0	CLAY					(6.44)	
					19.00-20.50					
			100 0 0			From 19.62m bgl: Occasional coarse gravel present.				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
		194	16.50	17-08-2022	17:30	16.50	16.50	5.60	

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR2A.
2. Buried Service Inspection Pit terminated at 0.18m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 32.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from ground level to 5.28m bgl. Organic odour noted in material recovered from 0.73m to 1.50m bgl.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

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Borehole No. F-BH104

Equipment & Methods:

0.00 - 0.18 Insulated Hand Tools
0.18 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 32.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456911.322
N: 525641.198

Ground Level (m): 7.635 AOD

Date Started: 16/08/2022
Date Completed: 19/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
20.21- 20.46	C									
					20.50-22.00					
			100 0 0							
						Weak friable bluish grey thinly laminated MUDSTONE. Locally recovered as gravel or clay **(REDCAR MUDSTONE FORMATION)**	-13.81		21.44	
21.80	ES									
22.10	C				22.00-23.50					
				NI						
			100 11 11			At 22.51m bgl: 60mm pyrite rich band.				
				0		From 22.95m bgl: Becomes locally strong.				
				NI		At 23.22m bgl: 5cm pyrite rich band.				
					23.50-25.00					
				6						
				NI		From 23.78m bgl: Becomes pale grey.				
			100 49 38	0						
				NI						
				0						
				NI						
				0						
				NI						

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR2A.
2. Buried Service Inspection Pit terminated at 0.18m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 32.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from ground level to 5.28m bgl. Organic odour noted in material recovered from 0.73m to 1.50m bgl.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

Report ID: STANDARD COREHOLE LOG || Project: V11.1 NZT GI.GPJ || Library: NZT AGS 4_0 LIBRARY V1.3.GLB || Date: 29 November 2022

AECOM
5th Floor
2 City Walk
Leeds
LS11 9AR
Tel: 0113 391 6800
Fax: 0113 391 6899
www.aecom.com

AGS REGISTERED USER 2022

Borehole No. F-BH104

Equipment & Methods:

0.00 - 0.18 Insulated Hand Tools
0.18 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 32.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)
Project Location: Redcar, North Yorkshire
Client: BP

Job No: 60678042

Co-ordinates:
E: 456911.322
N: 525641.198

Ground Level (m): 7.635 AOD

Date Started: 16/08/2022
Date Completed: 19/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
				0	25.00-26.50					
25.52	C		100 4 0	NI						
					26.50-28.00				(10.56)	
				0						
				NI						
				0						
			100 57 43	NI						
				5						
				NI						
				0	28.00-29.50	From 28.00m bgl: Becomes bluish grey.				
				NI						
				0						
			100 13 7	NI		From 28.57m bgl: Becomes brown mottled grey.				
					29.50-31.00					
				CLAY		From 29.86m to 29.87m bgl: Soft brown gravelly sandy CLAY. Gravel is angular to subangular fine to medium of mudstone. Sand is medium to coarse.				

Water Strikes		Hole Diameter		Progress				
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
				18-08-2022	17:30	29.50	29.50	5.60

Remarks

1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR2A.
2. Buried Service Inspection Pit terminated at 0.18m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling.
3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 32.00m bgl.
4. Topography: Level Ground.
5. Groundwater strikes not observed during drilling due to addition of flush water.
6. Slag encountered in material recovered from ground level to 5.28m bgl. Organic odour noted in material recovered from 0.73m to 1.50m bgl.
7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

Report ID: STANDARD COREHOLE LOG || Project: V11.1 NZT GI.GPJ || Library: NZT AGS 4_0 LIBRARY V1.3.GLB || Date: 29 November 2022

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AGS REGISTERED USER 2022

Borehole No. F-BH104

Sheet: 7 of 7

Equipment & Methods:

0.00 - 0.18 Insulated Hand Tools
0.18 - 16.50 Sonic Drilling (Hammer ID: GS08)
16.50 - 32.00 Rotary Coring (Hammer ID: GS08)

Project Name: Net Zero Teesside Onshore Ground Investigation - Front End Engineering Design (FEED)

Project Location: Redcar, North Yorkshire

Client: BP

Job No: 60678042

Co-ordinates:
E: 456911.322
N: 525641.198

Ground Level (m): 7.635 AOD

Date Started: 16/08/2022

Date Completed: 19/08/2022

In Situ Testing			Coring Information			DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	Backfill/ Instrument
Depth (m)	Sample Ref & Type	Test Type and Result	TCR SCR RQD	FI	Core Run					
30.27	C		100 0 0	NI						
					31.00-32.00					
			100 0 0							
							-24.37		32.00	
						End of Borehole 32.00 m (Thickness of basal layer not proven)				

Water Strikes		Hole Diameter		Progress					Remarks
Strike Depth	Flow Remarks	Hole Dia (mm)	Depth of Hole (m)	Date	Time	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	
		146	32.00	19-08-2022	10:00	32.00	32.00		1. Sonic/Rotary Core (SO/RC) borehole located in the Main Site area of Teesworks, Redcar. Located in the south east of Remediation Zone PR2A. 2. Buried Service Inspection Pit terminated at 0.18m bgl on hard stratum. Permission granted to progress borehole via Sonic drilling. 3. SO/RC borehole advanced via Sonic drilling to 16.50m bgl, and completed via Rotary Coring to 32.00m bgl. 4. Topography: Level Ground. 5. Groundwater strikes not observed during drilling due to addition of flush water. 6. Slag encountered in material recovered from ground level to 5.28m bgl. Organic odour noted in material recovered from 0.73m to 1.50m bgl. 7. Borehole backfilled with bentonite pellets and arisings upon completion.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Scale: 1:25

Logged By: RB

Checked By: JW

Report ID: STANDARD COREHOLE LOG || Project: V11.1 NZT GI.GPJ || Library: NZT AGS 4_0 LIBRARY V1.3.GLB || Date: 29 November 2022

Certificate of Analysis

Certificate Number 22-14779 *Issued:* 09-Aug-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference 22-14779

Client Reference 60678042

Order No (not supplied)

Contract Title NZT FEED GI

Description 4 Soil samples, 1 Leachate sample.

Date Received 01-Aug-22

Date Started 01-Aug-22

Date Completed 09-Aug-22

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-14779
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2040423	2040424	2040425	2040426
			.Sample ID	F-BH128	F-BH128	F-BH128	F-BH128
			Depth	3.90	4.90	8.50	13.50
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	28/07/2022	28/07/2022	28/07/2022	29/07/2022
			Sampling Time	0900	0930	1000	0800
Test	**Method**	**LOD**	**Units**				
Preparation							
Moisture Content	DETSC 1004	0.1	%	5.2	19	21	23
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	7.3	6.5	6.2	18
Beryllium	DETSC 2301#	0.2	mg/kg	0.6	< 0.2	< 0.2	0.8
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.8	< 0.2	3.4	4.5
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	< 0.1	< 0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	870	3.8	4.4	41
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	30	3.6	5.4	17
Lead	DETSC 2301#	0.3	mg/kg	12	20	4.4	15
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	10	2.4	4.4	27
Selenium	DETSC 2301#	0.5	mg/kg	5.7	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	2400	12	13	72
Zinc	DETSC 2301#	1	mg/kg	48	16	22	63
Inorganics							
pH	DETSC 2008#		pH	11.7	9.6	8.9	9.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.3	0.3	0.3	0.3
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	4.3	7.3	< 0.6
Organic matter	DETSC 2002#	0.1	%	1.2	0.6	2.0	2.3
Nitrate as NO3	DETSC 2055	1	mg/kg	3.2	< 1.0	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	36	72	64	420
Sulphide	DETSC 2024*	10	mg/kg	690	79	55	210
Sulphur (free)	DETSC 3049#	0.75	mg/kg	8.5	< 0.75	< 0.75	30
Sulphur as S, Total	DETSC 2320	0.01	%	0.17	0.02	0.05	0.31
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.23	0.05	0.03	0.17
Petroleum Hydrocarbons							
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	1.86	2.41	3.77	2.62
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	2.07	3.01	5.40	3.32
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	1.99	3.79	2.28
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	12.72	15.82	21.62	17.07
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-14779
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2040423	2040424	2040425	2040426
			.Sample ID	F-BH128	F-BH128	F-BH128	F-BH128
			Depth	3.90	4.90	8.50	13.50
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	28/07/2022	28/07/2022	28/07/2022	29/07/2022
			Sampling Time	0900	0930	1000	0800
Test	**Method**	**LOD**	**Units**				
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	2.33	2.70	18.29	16.43
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00	23.66	21.91
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	19.51	23.73	45.28	38.98
PAHs							
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.04
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Subcontracted Analysis							
Benzene	$*	<2	ug/kg	<2			
Toluene	$*	<5	ug/kg	<5			
Ethylbenzene	$*	<2	ug/kg	<2			
p & m-xylene	$*	<2	ug/kg	<2			
o-xylene	$*	<2	ug/kg	<2			
MTBE	$*	<5	ug/kg	<5			
TAME	$*	< 5	ug/kg	<5			

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-14779
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2040427
.Sample ID	F-BH128
Depth	3.90
Other ID	
Sample Type	LEACHATE
Sampling Date	28/07/2022
Sampling Time	0900

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.76
Boron, Dissolved	DETSC 2306*	12	ug/l	15
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	3.4
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	4.0
Iron, Dissolved	DETSC 2306	5.5	ug/l	< 5.5
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.82
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.27
Nickel, Dissolved	DETSC 2306	0.5	ug/l	0.6
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.74
Zinc, Dissolved	DETSC 2306	1.3	ug/l	1.9
Inorganics				
pH	DETSC 2008		pH	11.0
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.4
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	42
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	172
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.03
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.029
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.024
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.93
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10
Sulphate as SO4	DETSC 2055	0.1	mg/l	6.3
Total Organic Carbon	DETSC 2085	1	mg/l	3.6
PAHs				
Acenaphthene	DETSC 3304	0.01	ug/l	0.02
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01

Key: * -not accredited.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-14779
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2040427
.Sample ID	F-BH128
Depth	3.90
Other ID	
Sample Type	LEACHATE
Sampling Date	28/07/2022
Sampling Time	0900

Test	Method	LOD	Units	
Fluorene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20

Key: * -not accredited.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-14779
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2040423	F-BH128 3.90	SOIL	NAD	none	Michael Kay

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-14779
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2040423	F-BH128 3.90 SOIL	28/07/22	GJ 250ml, GJ 60ml, PT 1L		
2040424	F-BH128 4.90 SOIL	28/07/22	GJ 250ml, GJ 60ml, PT 1L		
2040425	F-BH128 8.50 SOIL	28/07/22	GJ 250ml, GJ 60ml, PT 1L		
2040426	F-BH128 13.50 SOIL	29/07/22	GJ 250ml, GJ 60ml, PT 1L		
2040427	F-BH128 3.90 LEACHATE	28/07/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-15026	*Issued:*	12-Aug-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-15026
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	4 Soil samples, 1 Leachate sample.

Date Received	04-Aug-22
Date Started	04-Aug-22
Date Completed	12-Aug-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15026
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2041654	2041655	2041656	2041657
			.Sample ID	F-BH124	F-BH124	F-BH124	F-BH124
			Depth	3.80	5.10	7.80	10.80
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	01/08/2022	01/08/2022	01/08/2022	02/08/2022
			Sampling Time	0900	0930	1100	1100
Test	**Method**	**LOD**	**Units**				
QTSSubcon Prep	$	0		Y	Y		Y
Subcon to QTS	$	0		Y	Y		Y
Preparation							
Moisture Content	DETSC 1004	0.1	%	8.3	15	17	20
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	9.0	9.4	6.5	3.6
Beryllium	DETSC 2301#	0.2	mg/kg	1.9	< 0.2	< 0.2	< 0.2
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.1	0.4	0.6	0.8
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	410	4.1	4.9	2.7
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	130	3.7	3.2	2.9
Lead	DETSC 2301#	0.3	mg/kg	17	34	4.4	3.1
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	12	3.2	3.4	2.6
Selenium	DETSC 2301#	0.5	mg/kg	4.1	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	1300	14	19	9.1
Zinc	DETSC 2301#	1	mg/kg	38	32	20	13
Inorganics							
pH	DETSC 2008#		pH	11.6	8.9	9.2	8.7
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.4	< 0.1	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	0.7	0.8	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	< 0.1	0.3	0.2	0.4
Nitrate as NO3	DETSC 2055	1	mg/kg	2.2	5.8	5.1	6.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	140	240	47	130
Sulphide	DETSC 2024*	10	mg/kg	1400	140	28	16
Sulphur (free)	DETSC 3049#	0.75	mg/kg	17	11	< 0.75	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.26	0.05	0.02	0.02
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.86	0.13	0.04	0.04
Petroleum Hydrocarbons							
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	2.63	2.14	2.30	2.61
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	2.69	2.55	2.64	2.97
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	2.71	2.20	2.37	2.83
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	15.48	14.97	15.51	16.99

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15026
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2041654	2041655	2041656	2041657
			.Sample ID	F-BH124	F-BH124	F-BH124	F-BH124
			Depth	3.80	5.10	7.80	10.80
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	01/08/2022	01/08/2022	01/08/2022	02/08/2022
			Sampling Time	0900	0930	1100	1100
Test	**Method**	**LOD**	**Units**				
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	1.36	1.22	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	0.58	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	2.04	1.73	1.22	1.26
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00	< 10.00	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	22.53	21.85	21.80	23.56
PAHs							
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg	< 0.01			
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg	< 0.01			
p-cresol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01			
Subcontracted Analysis							
Benzene	$*	<2	ug/kg	<2	<2		<2

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15026
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2041654	2041655	2041656	2041657
			.Sample ID	F-BH124	F-BH124	F-BH124	F-BH124
			Depth	3.80	5.10	7.80	10.80
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	01/08/2022	01/08/2022	01/08/2022	02/08/2022
			Sampling Time	0900	0930	1100	1100
Test	**Method**	**LOD**	**Units**				
Toluene	$*	<5	ug/kg	<5	<5		<5
Ethylbenzene	$*	<2	ug/kg	<2	<2		<2
p & m-xylene	$*	<2	ug/kg	<2	<2		<2
o-xylene	$*	<2	ug/kg	<2	<2		<2
MTBE	$*	<5	ug/kg	<5	<5		<5
TAME	$*	<5	ug/kg	<5	<5		<5

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-15026
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2041658
.Sample ID	F-BH124
Depth	3.80
Other ID	
Sample Type	LEACHATE
Sampling Date	01/08/2022
Sampling Time	0900

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.91
Boron, Dissolved	DETSC 2306*	12	ug/l	< 12
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	2.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	5.4
Iron, Dissolved	DETSC 2306	5.5	ug/l	8.9
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.68
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.08
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.83
Zinc, Dissolved	DETSC 2306	1.3	ug/l	2.8
Inorganics				
pH	DETSC 2008		pH	10.7
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.4
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	< 20
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	109
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.26
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.24
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.20
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.36
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10
Sulphate as SO4	DETSC 2055	0.1	mg/l	12
Total Organic Carbon	DETSC 2085	1	mg/l	3.6
PAHs				
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01

Key: * -not accredited.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-15026
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2041658
.Sample ID	F-BH124
Depth	3.80
Other ID	
Sample Type	LEACHATE
Sampling Date	01/08/2022
Sampling Time	0900

Test	Method	LOD	Units	
Fluorene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05
Phenanthrene	DETSC 3304	0.01	ug/l	0.01
Pyrene	DETSC 3304	0.01	ug/l	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20

Key: * -not accredited.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-15026
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2041654	F-BH124 3.80	SOIL	NAD	none	Darryl Fletcher

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-15026
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2041654	F-BH124 3.80 SOIL	01/08/22	GJ 250ml, GJ 60ml, PT 1L		
2041655	F-BH124 5.10 SOIL	01/08/22	GJ 250ml, GJ 60ml, PT 1L		
2041656	F-BH124 7.80 SOIL	01/08/22	GJ 250ml, GJ 60ml, PT 1L		
2041657	F-BH124 10.80 SOIL	02/08/22	GJ 250ml, GJ 60ml, PT 1L		
2041658	F-BH124 3.80 LEACHATE	01/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-15290	*Issued:*	16-Aug-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-15290
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	3 Soil samples, 2 Leachate samples.

Date Received	08-Aug-22
Date Started	08-Aug-22
Date Completed	16-Aug-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15290
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2043031	2043033
			.Sample ID	F-BH120	F-BH120
			Depth	3.50	5.50
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/08/2022	02/08/2022
			Sampling Time	1400	1500
Test	**Method**	**LOD**	**Units**		
Preparation					
Moisture Content	DETSC 1004	0.1	%	12	18
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	4.7	4.7
Beryllium	DETSC 2301#	0.2	mg/kg	6.3	< 0.2
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.3	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	2.3	3.3
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	3.3	4.4
Lead	DETSC 2301#	0.3	mg/kg	2.6	22
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	< 1.0	3.1
Selenium	DETSC 2301#	0.5	mg/kg	0.7	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	12	10
Zinc	DETSC 2301#	1	mg/kg	7.1	16
Inorganics					
pH	DETSC 2008#		pH	10.2	9.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	1.9	1.2
Organic matter	DETSC 2002#	0.1	%	0.2	0.2
Nitrate as NO3	DETSC 2055	1	mg/kg	1.3	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	480	95
Sulphide	DETSC 2024*	10	mg/kg	1500	120
Sulphur (free)	DETSC 3049#	0.75	mg/kg	1.3	49
Sulphur as S, Total	DETSC 2320	0.01	%	0.22	0.05
Sulphate as SO4, Total	DETSC 2321#	0.01	%	1.7	0.10
Petroleum Hydrocarbons					
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	1.94
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	< 1.20	< 1.20
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	12.58	13.63
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15290
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2043031	2043033
			.Sample ID	F-BH120	F-BH120
			Depth	3.50	5.50
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/08/2022	02/08/2022
			Sampling Time	1400	1500
Test	**Method**	**LOD**	**Units**		
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	< 0.60	< 0.60
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	18.08	19.55
PAHs					
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10
PCBs					
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01	
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01	
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01	
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01	
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01	
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01	
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01	
PCB 77	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 81	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 105	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 114	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 118	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 123	DETSC 3401*	0.01	mg/kg	< 0.01	

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15290
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2043031	2043033
			.Sample ID	F-BH120	F-BH120
			Depth	3.50	5.50
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/08/2022	02/08/2022
			Sampling Time	1400	1500
Test	**Method**	**LOD**	**Units**		
PCB 126	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 156	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 157	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 167	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 169	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 189	DETSC 3401*	0.01	mg/kg	< 0.01	
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01	
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3
Subcontracted Analysis					
Benzene	$*	<2	ug/kg	<2	<2
Toluene	$*	<5	ug/kg	<5	<5
Ethylbenzene	$*	<2	ug/kg	<2	<2
p & m-xylene	$*	<2	ug/kg	<2	<2
o-xylene	$*	<2	ug/kg	<2	<2
MTBE	$*	<5	ug/kg	<5	<5
TAME	$*	< 5	ug/kg	< 5	< 5

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-15290
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2043034	2043035
			.Sample ID	F-BH120	F-BH120
			Depth	3.50	5.50
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/08/2022	02/08/2022
			Sampling Time	1400	1500
Test	**Method**	**LOD**	**Units**		
Preparation					
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y
Metals					
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.9	5.8
Boron, Dissolved	DETSC 2306*	12	ug/l	34	< 12
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0	< 1.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	6.2	4.6
Iron, Dissolved	DETSC 2306	5.5	ug/l	< 5.5	47
Lead, Dissolved	DETSC 2306	0.09	ug/l	1.3	3.8
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.04	0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	14	2.4
Zinc, Dissolved	DETSC 2306	1.3	ug/l	< 1.3	1.3
Inorganics					
pH	DETSC 2008		pH	10.1	8.9
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.8	0.6
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	160	230
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	99.3	32.7
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.94	0.11
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.88	0.10
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.73	0.084
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.18	0.16
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10	< 0.10
Sulphate as SO4	DETSC 2055	0.1	mg/l	52	11
Total Organic Carbon	DETSC 2085	1	mg/l	2.9	3.1
PAHs					
Acenaphthene	DETSC 3304	0.01	ug/l	0.01	0.07
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	0.01

Key: * -not accredited.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-15290
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2043034	2043035
			.Sample ID	F-BH120	F-BH120
			Depth	3.50	5.50
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/08/2022	02/08/2022
			Sampling Time	1400	1500
Test	**Method**	**LOD**	**Units**		
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	0.02
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Naphthalene	DETSC 3304	0.05	ug/l	0.08	0.12
Phenanthrene	DETSC 3304	0.01	ug/l	0.02	0.02
Pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20	0.26

Key: * -not accredited.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-15290
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2043031	F-BH120 3.50	SOIL	NAD	none	D Wilkinson
2043032	F-BH120 4.50	SOIL	NAD	none	D Wilkinson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-15290
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2043031	F-BH120 3.50 SOIL	02/08/22	GJ 250ml, GJ 60ml, PT 1L		
2043032	F-BH120 4.50 SOIL	02/08/22	GJ 250ml, GJ 60ml, PT 1L		
2043033	F-BH120 5.50 SOIL	02/08/22	GJ 250ml, GJ 60ml, PT 1L		
2043034	F-BH120 3.50 LEACHATE	02/08/22	GJ 250ml, GJ 60ml, PT 1L		
2043035	F-BH120 5.50 LEACHATE	02/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number 22-15291 *Issued:* 18-Aug-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference 22-15291

Client Reference 60678042

Order No (not supplied)

Contract Title NZT FEED GI

Description 2 Soil samples.

Date Received 08-Aug-22

Date Started 08-Aug-22

Date Completed 18-Aug-22

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-15291
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2043036	2043037
			.Sample ID	F-BH124	F-BH113
			Depth	18.80	24.66-24.88
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/08/2022	02/08/2022
			Sampling Time	1000	1200
Test	**Method**	**LOD**	**Units**		
Preparation					
Moisture Content	DETSC 1004	0.1	%	13	8.4
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	26	8.9
Beryllium	DETSC 2301#	0.2	mg/kg	0.6	0.4
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	2.0	6.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	18	15
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	18	9.9
Lead	DETSC 2301#	0.3	mg/kg	23	9.2
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	26	18
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	33	26
Zinc	DETSC 2301#	1	mg/kg	120	27
Inorganics					
pH	DETSC 2008#		pH	8.8	8.7
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.3	0.3
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	0.9
Organic matter	DETSC 2002#	0.1	%	3.1	2.0
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	160	250
Sulphide	DETSC 2024*	10	mg/kg	43	64
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	1.3	0.39
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.11	0.05
Petroleum Hydrocarbons					
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	1.67	< 1.50
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	3.44	< 1.20
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	3.02	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	11.17	12.04
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Summary of Chemical Analysis
Soil Samples

Our Ref 22-15291
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2043036	2043037
			.Sample ID	F-BH124	F-BH113
			Depth	18.80	24.66-24.88
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/08/2022	02/08/2022
			Sampling Time	1000	1200
Test	**Method**	**LOD**	**Units**		
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	< 0.60	< 0.60
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	11.21	17.32
PAHs					
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Information in Support of the Analytical Results

Our Ref 22-15291
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2043036	F-BH124 18.80 SOIL	02/08/22	GJ 250ml, GJ 60ml, PT 1L		
2043037	F-BH113 24.66-24.88 SOIL	02/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

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Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-15294	*Issued:*	18-Aug-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-15294
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	2 Soil samples.
Date Received	08-Aug-22
Date Started	08-Aug-22
Date Completed	18-Aug-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-15294
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2043042	2043043
			.Sample ID	F-BH120	F-BH120
			Depth	14.80	20.00
			Other ID		
			Sample Type	ES	ES
			Sampling Date	03/08/2022	03/08/2022
			Sampling Time	0900	0930
Test	**Method**	**LOD**	**Units**		
Preparation					
Moisture Content	DETSC 1004	0.1	%	15	9.1
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	6.5	24
Beryllium	DETSC 2301#	0.2	mg/kg	1.0	0.7
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	3.5	3.4
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	31	28
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	36	34
Lead	DETSC 2301#	0.3	mg/kg	18	13
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	33	30
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	0.6
Vanadium	DETSC 2301#	0.8	mg/kg	40	75
Zinc	DETSC 2301#	1	mg/kg	59	54
Inorganics					
pH	DETSC 2008#		pH	9.0	9.4
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	1.0	0.8
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	190	200
Sulphide	DETSC 2024*	10	mg/kg	28	32
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.03	0.62
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.08	0.23
Petroleum Hydrocarbons					
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	< 1.20	< 1.20
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	< 10.00	< 10.00
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Summary of Chemical Analysis
Soil Samples

Our Ref 22-15294
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2043042	2043043
			.Sample ID	F-BH120	F-BH120
			Depth	14.80	20.00
			Other ID		
			Sample Type	ES	ES
			Sampling Date	03/08/2022	03/08/2022
			Sampling Time	0900	0930
Test	**Method**	**LOD**	**Units**		
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	< 0.60	< 0.60
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	< 10.00	< 10.00
PAHs					
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Information in Support of the Analytical Results

Our Ref 22-15294
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2043042	F-BH120 14.80 SOIL	03/08/22	GJ 250ml, GJ 60ml, PT 1L		
2043043	F-BH120 20.00 SOIL	03/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-15615	*Issued:*	24-Aug-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-15615
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	9 Soil samples, 4 Leachate samples.
Date Received	11-Aug-22
Date Started	11-Aug-22
Date Completed	24-Aug-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

ilac-MRA UKAS TESTING 2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2044382	2044383	2044384	2044385	2044386	2044387
				.Sample ID	F-BH125	F-BH125	F-BH125	F-BH125	F-BH125	F-BH130
				Depth	3.80	4.80	5.30	6.30	11.80	4.25
				Other ID						
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sampling Date	04/08/2022	04/08/2022	04/08/2022	04/08/2022	05/08/2022	04/08/2022
				Sampling Time	1000	1030	1100	1130	1500	1300
Test	**Method**	**LOD**	**Units**							
Preparation										
Moisture Content	DETSC 1004	0.1	%		10	9.1	19	26	24	20
Metals										
Arsenic	DETSC 2301#	0.2	mg/kg		3.5	19	8.2	6.8	20	19
Beryllium	DETSC 2301#	0.2	mg/kg		5.9	0.3	0.4	0.5	0.5	2.0
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg		6.0	1.2	0.9	2.7	5.5	1.5
Cadmium	DETSC 2301#	0.1	mg/kg		< 0.1	0.2	< 0.1	0.2	< 0.1	0.3
Chromium III	DETSC 2301*	0.15	mg/kg		14	480	9.7	25	21	29
Chromium, Hexavalent	DETSC 2204*	1	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg		5.0	25	3.5	12	12	91
Lead	DETSC 2301#	0.3	mg/kg		1.4	14	20	16	12	61
Mercury	DETSC 2325#	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg		1.2	25	4.1	16	19	22
Selenium	DETSC 2301#	0.5	mg/kg		1.2	< 0.5	< 0.5	< 0.5	< 0.5	0.9
Vanadium	DETSC 2301#	0.8	mg/kg		43	2200	36	55	36	93
Zinc	DETSC 2301#	1	mg/kg		4.1	46	18	63	46	100
Inorganics										
pH	DETSC 2008#		pH		11.4	10.0	10.6	9.2	8.7	8.9
Cyanide, Total	DETSC 2130#	0.1	mg/kg		0.2	< 0.1	< 0.1	0.2	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg		< 0.6	< 0.6	0.7	< 0.6	1.0	1.5
Organic matter	DETSC 2002#	0.1	%		1.0	4.0	0.5	2.3	3.1	8.1
Nitrate as NO3	DETSC 2055	1	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l		610	620	280	110	640	1300
Sulphide	DETSC 2024*	10	mg/kg		3200	480	190	120	120	560
Sulphur (free)	DETSC 3049#	0.75	mg/kg		110	5.8	1.3	21	26	4.9
Sulphur as S, Total	DETSC 2320	0.01	%		0.37	0.28	0.06	0.10	0.45	0.42
Sulphate as SO4, Total	DETSC 2321#	0.01	%		1.6	0.27	0.16	0.10	0.17	1.2
Petroleum Hydrocarbons										
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg		< 1.50	< 1.50	2.01	< 1.50	< 1.50	< 1.50
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg		< 1.50	< 1.50	3.36	< 1.50	< 1.50	2.32
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg		< 3.40	< 3.40	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg		< 3.40	< 3.40	< 3.40	< 3.40	< 3.40	< 3.40
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg		< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg		1.58	1.33	1.07	1.57	1.10	1.09

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2044382	2044383	2044384	2044385	2044386	2044387
				.Sample ID	F-BH125	F-BH125	F-BH125	F-BH125	F-BH125	F-BH130
				Depth	3.80	4.80	5.30	6.30	11.80	4.25
				Other ID						
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sampling Date	04/08/2022	04/08/2022	04/08/2022	04/08/2022	05/08/2022	04/08/2022
				Sampling Time	1000	1030	1100	1130	1500	1300
Test	**Method**	**LOD**	**Units**							
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg		< 1.40	< 1.40	< 1.40	< 1.40	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg		< 1.40	< 1.40	< 1.40	< 1.40	< 1.40	< 1.40
PAHs										
Acenaphthene	DETSC 3303#	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg		0.05	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg		< 0.03	0.04	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg		0.03	0.04	< 0.03	< 0.03	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg		0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg		0.13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
PCBs										
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg			< 0.01				< 0.01
PCB 52	DETSC 3401#	0.01	mg/kg			< 0.01				< 0.01
PCB 101	DETSC 3401#	0.01	mg/kg			< 0.01				< 0.01
PCB 118	DETSC 3401#	0.01	mg/kg			< 0.01				< 0.01
PCB 153	DETSC 3401#	0.01	mg/kg			< 0.01				< 0.01
PCB 138	DETSC 3401#	0.01	mg/kg			< 0.01				< 0.01
PCB 180	DETSC 3401#	0.01	mg/kg			< 0.01				< 0.01
PCB 77	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 81	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 105	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 114	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 118	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 123	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 126	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 156	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 157	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 167	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 169	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 189	DETSC 3401*	0.01	mg/kg			< 0.01				< 0.01
PCB 7 Total	DETSC 3401#	0.01	mg/kg			< 0.01				< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2044382	2044383	2044384	2044385	2044386	2044387
				.Sample ID	F-BH125	F-BH125	F-BH125	F-BH125	F-BH125	F-BH130
				Depth	3.80	4.80	5.30	6.30	11.80	4.25
				Other ID						
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sampling Date	04/08/2022	04/08/2022	04/08/2022	04/08/2022	05/08/2022	04/08/2022
				Sampling Time	1000	1030	1100	1130	1500	1300
Test	**Method**	**LOD**	**Units**							
Phenols										
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg							< 0.01
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg							< 0.01
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg							< 0.01
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg							< 0.01
p-cresol	DETSC 3451*	0.01	mg/kg							< 0.01
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg							< 0.01
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg							< 0.01
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg							< 0.01
Benzene	$*	<2	ug/kg			8	<2		<2	<2
Toluene	$*	<5	ug/kg			10	<5		<5	<5
Ethylbenzene	$*	<2	ug/kg			6	<2		<2	<2
p & m-xylene	$*	<2	ug/kg			7	<2		<2	<2
o-xylene	$*	<2	ug/kg			4	<2		<2	<2
MTBE	$*	<5	ug/kg			<5	<5		<5	<5
TAME	$*	<5	ug/kg			<5	<5		<5	<5

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2044388	2044389	2044390
				.Sample ID	F-BH130	F-BH130	F-BH130
				Depth	4.95	6.60	9.00
				Other ID			
				Sample Type	SOIL	SOIL	SOIL
				Sampling Date	04/08/2022	04/08/2022	04/08/2022
				Sampling Time	1330	1400	1500
Test	**Method**	**LOD**	**Units**				
Preparation							
Moisture Content	DETSC 1004	0.1	%	17	21	24
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	8.4	5.9	19
Beryllium	DETSC 2301#	0.2	mg/kg	6.1	< 0.2	0.9
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.0	0.7	2.8
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	0.1
Chromium III	DETSC 2301*	0.15	mg/kg	11	3.9	15
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	16	4.5	9.2
Lead	DETSC 2301#	0.3	mg/kg	4.8	6.2	9.5
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	5.5	3.6	15
Selenium	DETSC 2301#	0.5	mg/kg	0.7	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	40	13	30
Zinc	DETSC 2301#	1	mg/kg	49	16	53
Inorganics							
pH	DETSC 2008#		pH	11.2	8.7	9.4
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	3.3	1.0	0.9
Organic matter	DETSC 2002#	0.1	%	1.4	1.2	2.9
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	450	180	340
Sulphide	DETSC 2024*	10	mg/kg	3200	160	190
Sulphur (free)	DETSC 3049#	0.75	mg/kg	5.5	19	1.8
Sulphur as S, Total	DETSC 2320	0.01	%	0.37	0.08	0.38
Sulphate as SO4, Total	DETSC 2321#	0.01	%	1.2	0.17	0.20
Petroleum Hydrocarbons							
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	2.03	< 1.50
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	3.08	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	1.21	0.87	1.06

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2044388	2044389	2044390
			.Sample ID	F-BH130	F-BH130	F-BH130
			Depth	4.95	6.60	9.00
			Other ID			
			Sample Type	SOIL	SOIL	SOIL
			Sampling Date	04/08/2022	04/08/2022	04/08/2022
			Sampling Time	1330	1400	1500
Test	**Method**	**LOD**	**Units**			
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40	< 1.40
PAHs						
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10	< 0.10
PCBs						
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg			
PCB 52	DETSC 3401#	0.01	mg/kg			
PCB 101	DETSC 3401#	0.01	mg/kg			
PCB 118	DETSC 3401#	0.01	mg/kg			
PCB 153	DETSC 3401#	0.01	mg/kg			
PCB 138	DETSC 3401#	0.01	mg/kg			
PCB 180	DETSC 3401#	0.01	mg/kg			
PCB 77	DETSC 3401*	0.01	mg/kg			
PCB 81	DETSC 3401*	0.01	mg/kg			
PCB 105	DETSC 3401*	0.01	mg/kg			
PCB 114	DETSC 3401*	0.01	mg/kg			
PCB 118	DETSC 3401*	0.01	mg/kg			
PCB 123	DETSC 3401*	0.01	mg/kg			
PCB 126	DETSC 3401*	0.01	mg/kg			
PCB 156	DETSC 3401*	0.01	mg/kg			
PCB 157	DETSC 3401*	0.01	mg/kg			
PCB 167	DETSC 3401*	0.01	mg/kg			
PCB 169	DETSC 3401*	0.01	mg/kg			
PCB 189	DETSC 3401*	0.01	mg/kg			
PCB 7 Total	DETSC 3401#	0.01	mg/kg			

Summary of Chemical Analysis
Soil Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2044388	2044389	2044390
			.Sample ID	F-BH130	F-BH130	F-BH130
			Depth	4.95	6.60	9.00
			Other ID			
			Sample Type	SOIL	SOIL	SOIL
			Sampling Date	04/08/2022	04/08/2022	04/08/2022
			Sampling Time	1330	1400	1500
Test	**Method**	**LOD**	**Units**			
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg			
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg			
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg			
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg			
p-cresol	DETSC 3451*	0.01	mg/kg			
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg			
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg			
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg			
Benzene	$*	<2	ug/kg	<2	<2	
Toluene	$*	<5	ug/kg	<5	<5	
Ethylbenzene	$*	<2	ug/kg	<2	<2	
p & m-xylene	$*	<2	ug/kg	<2	<2	
o-xylene	$*	<2	ug/kg	<2	<2	
MTBE	$*	<5	ug/kg	<5	<5	
TAME	$*	<5	ug/kg	<5	<5	

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2044383	2044387
			.Sample ID	F-BH125	F-BH130
			Depth	4.80	4.25
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	04/08/2022	04/08/2022
			Sampling Time	1030	1300
Test	**Method**	**LOD**	**Units**		
VOCs					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

Key: * -not accredited.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2044383	2044387
			.Sample ID	F-BH125	F-BH130
			Depth	4.80	4.25
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	04/08/2022	04/08/2022
			Sampling Time	1030	1300
Test	**Method**	**LOD**	**Units**		
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
SVOCs					
Phenol	DETSC 3433	0.1	mg/kg	< 0.1	
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1	
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1

Key: * -not accredited.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2044383	2044387
			.Sample ID	F-BH125	F-BH130
			Depth	4.80	4.25
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	04/08/2022	04/08/2022
			Sampling Time	1030	1300
Test	**Method**	**LOD**	**Units**		
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1

Key: * -not accredited.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2044391	2044392	2044393	2044394
			.Sample ID	F-BH125	F-BH125	F-BH130	F-BH130
			Depth	4.80	5.30	4.25	6.60
			Other ID				
			Sample Type	LEACHATE	LEACHATE	LEACHATE	LEACHATE
			Sampling Date	04/08/2022	04/08/2022	04/08/2022	04/08/2022
			Sampling Time	1030	1100	1300	1400
Test	**Method**	**LOD**	**Units**				
Preparation							
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y	Y	Y
Metals							
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	53	11	1.8	0.92
Boron, Dissolved	DETSC 2306*	12	ug/l	34	< 12	18	14
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	< 0.03	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007	< 0.007	< 0.007	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	5.0	2.1	1.4	1.2
Iron, Dissolved	DETSC 2306	5.5	ug/l	8.8	7.5	< 5.5	< 5.5
Lead, Dissolved	DETSC 2306	0.09	ug/l	4.6	1.6	2.1	2.2
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.22	0.07	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	2.5	1.4	< 0.5	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	8.9	7.7	2.1	0.34
Zinc, Dissolved	DETSC 2306	1.3	ug/l	2.2	< 1.3	5.9	2.8
Inorganics							
pH	DETSC 2008		pH	7.8	8.5	7.6	7.6
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	2.4	1.3	0.1	0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	160	35	34	33
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	17.9	72.8	503	136
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.14	0.23	0.29	14
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.13	0.22	0.27	13
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.11	0.18	0.23	11
Nitrate as NO3	DETSC 2055	0.1	mg/l	< 0.10	< 0.10	< 0.10	0.50
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10	0.11	< 0.10	0.11
Sulphate as SO4	DETSC 2055	0.1	mg/l	56	48	< 0.10	67
Total Organic Carbon	DETSC 2085	1	mg/l	3.2	2.2	1.1	1.8
PAHs							
Acenaphthene	DETSC 3304	0.01	ug/l	0.01	0.02	< 0.01	< 0.01
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.02	0.02	0.02	0.02
Fluorene	DETSC 3304	0.01	ug/l	0.01	0.02	0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01

Key: * -not accredited.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2044391	2044392	2044393	2044394
			.Sample ID	F-BH125	F-BH125	F-BH130	F-BH130
			Depth	4.80	5.30	4.25	6.60
			Other ID				
			Sample Type	LEACHATE	LEACHATE	LEACHATE	LEACHATE
			Sampling Date	04/08/2022	04/08/2022	04/08/2022	04/08/2022
			Sampling Time	1030	1100	1300	1400
Test	**Method**	**LOD**	**Units**				
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	DETSC 3304	0.01	ug/l	0.02	0.03	0.02	0.02
Pyrene	DETSC 3304	0.01	ug/l	0.02	0.01	0.02	0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20	< 0.20	< 0.20	< 0.20

Key: * -not accredited.

Summary of Asbestos Analysis
Soil Samples

Our Ref 22-15615
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2044382	F-BH125 3.80	SOIL	NAD	none	D Wilkinson
2044383	F-BH125 4.80	SOIL	NAD	none	D Wilkinson
2044387	F-BH130 4.25	SOIL	NAD	none	D Wilkinson
2044388	F-BH130 4.95	SOIL	NAD	none	D Wilkinson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-15615
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2044382	F-BH125 3.80 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044383	F-BH125 4.80 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044384	F-BH125 5.30 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044385	F-BH125 6.30 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044386	F-BH125 11.80 SOIL	05/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044387	F-BH130 4.25 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044388	F-BH130 4.95 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044389	F-BH130 6.60 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044390	F-BH130 9.00 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044391	F-BH125 4.80 LEACHATE	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044392	F-BH125 5.30 LEACHATE	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044393	F-BH130 4.25 LEACHATE	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044394	F-BH130 6.60 LEACHATE	04/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR

End of Report

Certificate of Analysis

Certificate Number	22-15617	*Issued:*	23-Aug-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-15617
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	2 Soil samples.
Date Received	11-Aug-22
Date Started	11-Aug-22
Date Completed	23-Aug-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-15617
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2044407	2044408
			.Sample ID	F-BH125	F-BH130
			Depth	14.80	22.00
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	05/08/2022	05/08/2022
			Sampling Time	1600	1500
Test	**Method**	**LOD**	**Units**		
Preparation					
Moisture Content	DETSC 1004	0.1	%	18	21
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	9.0	10
Beryllium	DETSC 2301#	0.2	mg/kg	1.3	0.7
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	3.5	3.6
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	39	25
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	27	19
Lead	DETSC 2301#	0.3	mg/kg	17	12
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	43	25
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	48	41
Zinc	DETSC 2301#	1	mg/kg	61	52
Inorganics					
pH	DETSC 2008#		pH	8.2	8.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	2.5	2.1
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	150	410
Sulphide	DETSC 2024*	10	mg/kg	59	75
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75	1.5
Sulphur as S, Total	DETSC 2320	0.01	%	0.04	0.23
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.09	0.14
Petroleum Hydrocarbons					
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	2.22
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	< 1.20	3.88
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	3.57
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	13.48	18.33
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Summary of Chemical Analysis
Soil Samples

Our Ref 22-15617
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2044407	2044408
			.Sample ID	F-BH125	F-BH130
			Depth	14.80	22.00
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	05/08/2022	05/08/2022
			Sampling Time	1600	1500
Test	**Method**	**LOD**	**Units**		
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	1.16	0.81
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	19.80	24.50
PAHs					
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Information in Support of the Analytical Results

Our Ref 22-15617
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2044407	F-BH125 14.80 SOIL	05/08/22	GJ 250ml, GJ 60ml, PT 1L		
2044408	F-BH130 22.00 SOIL	05/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-16049	*Issued:*	24-Aug-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-16049
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	5 Soil samples, 2 Leachate samples.

Date Received	17-Aug-22
Date Started	17-Aug-22
Date Completed	24-Aug-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis

Soil Samples

Our Ref 22-16049
Client Ref 60678042
Contract Title NZT FEED GI

	Lab No	2046862	2046863	2046864	2046865	2046866
	.Sample ID	F-BH119	F-BH119	F-BH133	F-BH133	F-BH133
	Depth	2.90	4.30	0.70	2.70	5.00
	Other ID					
	Sample Type	ES	ES	ES	ES	ES
	Sampling Date	09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
	Sampling Time	1000	1200	1400	1430	0930
Test	**Method**	**LOD**	**Units**			
Preparation						
Moisture Content	DETSC 1004	0.1	%	4.6	16	12	11	17
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	8.4	9.5	27	13	7.0
Beryllium	DETSC 2301#	0.2	mg/kg	0.5	< 0.2	0.7	2.8	< 0.2
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.2	< 0.2	2.2	1.7	0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	< 0.1	1.0	< 0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	720	4.7	430	89	6.5
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	63	4.0	110	15	4.7
Lead	DETSC 2301#	0.3	mg/kg	26	21	79	7.6	15
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	0.22	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	14	2.9	26	13	2.9
Selenium	DETSC 2301#	0.5	mg/kg	5.9	< 0.5	3.0	0.9	0.6
Vanadium	DETSC 2301#	0.8	mg/kg	1800	14	680	280	19
Zinc	DETSC 2301#	1	mg/kg	54	31	240	18	22
Inorganics						
pH	DETSC 2008#		pH	11.5	9.0	10.1	9.7	9.5
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	< 0.1	4.4	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	0.7	0.2	1.5	0.6	0.5
Nitrate as NO3	DETSC 2055	1	mg/kg	9.1	4.6	1.4	1.6	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	58	36	310	1200	21
Sulphide	DETSC 2024*	10	mg/kg	340	16	180	1300	140
Sulphur (free)	DETSC 3049#	0.75	mg/kg	1.1	< 0.75	4.3	34	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.15	0.02	0.13	0.18	0.02
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.15	0.04	0.45	0.50	0.05
Petroleum Hydrocarbons						
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	11.56	13.10	12.53	12.40	13.24
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-16049
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2046862	2046863	2046864	2046865	2046866
			.Sample ID	F-BH119	F-BH119	F-BH133	F-BH133	F-BH133
			Depth	2.90	4.30	0.70	2.70	5.00
			Other ID					
			Sample Type	ES	ES	ES	ES	ES
			Sampling Date	09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
			Sampling Time	1000	1200	1400	1430	0930
Test	**Method**	**LOD**	**Units**					
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	3.59	3.96	4.93	4.70	3.95
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40	4.80	< 1.40	5.18
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40	< 1.40	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00	12.94	< 10.00	12.53
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	19.59	22.08	25.47	21.85	25.77
PAHs								
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.04	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	0.07	0.12	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03	0.37	0.22	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.03	< 0.03	0.28	0.08	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.06	< 0.03	0.52	0.15	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.17	0.04	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.21	0.07	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.07	< 0.03	0.55	0.24	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.04	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.15	< 0.03	1.1	1.0	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.13	0.04	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.06	< 0.03	0.64	0.77	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.11	< 0.03	1.1	0.66	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.50	< 0.10	5.2	3.4	< 0.10
Phenols								
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Subcontracted Analysis								
Benzene	$*	<2	ug/kg			<2		<2
Toluene	$*	<5	ug/kg			<5		<5
Ethylbenzene	$*	<2	ug/kg			<2		<2
p & m-xylene	$*	<2	ug/kg			<2		<2
o-xylene	$*	<2	ug/kg			<2		<2
MTBE	$*	<5	ug/kg			<5		<5
TAME	$*	< 5	ug/kg			< 5		< 5

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-16049
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2046867	2046868
			.Sample ID	F-BH119	F-BH133
			Depth	2.90	0.70
			Other ID		
			Sample Type	ES	ES
			Sampling Date	09/08/2022	09/08/2022
			Sampling Time	1000	1400
Test	**Method**	**LOD**	**Units**		
Preparation					
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y
Metals					
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.65	2.7
Boron, Dissolved	DETSC 2306*	12	ug/l	< 12	27
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.06	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	6.6	1.8
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	15	4.2
Iron, Dissolved	DETSC 2306	5.5	ug/l	< 5.5	18
Lead, Dissolved	DETSC 2306	0.09	ug/l	15	1.9
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.04	0.07
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.92	0.50
Zinc, Dissolved	DETSC 2306	1.3	ug/l	7.3	1.7
Inorganics					
pH	DETSC 2008		pH	11.8	9.4
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.6	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	0.8	0.2
Thiocyanate	DETSC 2130	20	ug/l	26	39
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	288	73.4
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.03	0.02
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.030	0.017
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.025	< 0.015
Nitrate as NO3	DETSC 2055	0.1	mg/l	1.3	< 0.10
Nitrite as NO2	DETSC 2055	0.1	mg/l	0.37	0.11
Sulphate as SO4	DETSC 2055	0.1	mg/l	2.8	27
Total Organic Carbon	DETSC 2085	1	mg/l	5.6	3.8
PAHs					
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01	0.03
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	0.02	0.06
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.02	0.09
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.08
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	0.12
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	0.07
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	0.07
Chrysene	DETSC 3304	0.01	ug/l	0.03	0.13
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.05	0.31

Key: * -not accredited.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-16049
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2046867	2046868
			.Sample ID	F-BH119	F-BH133
			Depth	2.90	0.70
			Other ID		
			Sample Type	ES	ES
			Sampling Date	09/08/2022	09/08/2022
			Sampling Time	1000	1400
Test	**Method**	**LOD**	**Units**		
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.05
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05
Phenanthrene	DETSC 3304	0.01	ug/l	0.04	0.20
Pyrene	DETSC 3304	0.01	ug/l	0.05	0.28
PAH Total	DETSC 3304	0.2	ug/l	0.21	1.5

Key: * -not accredited.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-16049
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2046862	F-BH119 2.90	SOIL	NAD	none	Michael Kay
2046864	F-BH133 0.70	SOIL	NAD	none	Michael Kay
2046865	F-BH133 2.70	SOIL	NAD	none	Michael Kay

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-16049
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2046862	F-BH119 2.90 SOIL	09/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2046863	F-BH119 4.30 SOIL	09/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2046864	F-BH133 0.70 SOIL	09/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2046865	F-BH133 2.70 SOIL	09/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2046866	F-BH133 5.00 SOIL	09/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2046867	F-BH119 2.90 LEACHATE	09/08/22	GJ 250ml, GJ 60ml, PT 1L		
2046868	F-BH133 0.70 LEACHATE	09/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-16051	*Issued:*	24-Aug-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-16051
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	3 Soil samples, 1 Leachate sample.

Date Received	17-Aug-22
Date Started	17-Aug-22
Date Completed	24-Aug-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis

Soil Samples

Our Ref 22-16051
Client Ref 60678042
Contract Title NZT FEED GI

	Lab No	2046870	2046871	2046872
	.Sample ID	F-BH119	F-BH133	F-BH133
	Depth	12.90	14.00	19.50
	Other ID			
	Sample Type	ES	ES	ES
	Sampling Date	10/08/2022	10/08/2022	10/08/2022
	Sampling Time	1530	1615	0910

Test	Method	LOD	Units			
Preparation						
Moisture Content	DETSC 1004	0.1	%	19	23	11
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	6.0	13	13
Beryllium	DETSC 2301#	0.2	mg/kg	1.3	0.6	1.0
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	6.3	5.0	5.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	35	24	30
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	21	17	43
Lead	DETSC 2301#	0.3	mg/kg	18	14	11
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	35	23	45
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	44	38	50
Zinc	DETSC 2301#	1	mg/kg	63	60	60
Inorganics						
pH	DETSC 2008#		pH	7.9	7.9	8.0
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	0.7	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	2.2	2.7	2.3
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	480	640	500
Sulphide	DETSC 2024*	10	mg/kg	270	150	160
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75	< 0.75	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.05	0.45	0.93
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.10	0.18	0.18
Petroleum Hydrocarbons						
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50	< 1.50
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	< 1.20	< 1.20	< 1.20
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	13.54	14.32	12.46
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-16051
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2046870	2046871	2046872
			.Sample ID	F-BH119	F-BH133	F-BH133
			Depth	12.90	14.00	19.50
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	10/08/2022	10/08/2022	10/08/2022
			Sampling Time	1530	1615	0910
Test	**Method**	**LOD**	**Units**			
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	4.04	4.23	3.71
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	22.78	24.04	20.95
PAHs						
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10	< 0.10
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3
Subcontracted Analysis						
Benzene	$*	<2	ug/kg		<2	
Toluene	$*	<5	ug/kg		<5	
Ethylbenzene	$*	<2	ug/kg		<2	
p & m-xylene	$*	<2	ug/kg		<2	
o-xylene	$*	<2	ug/kg		<2	
MTBE	$*	<5	ug/kg		<5	
TAME	$*	< 5	ug/kg		< 5	

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-16051
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2046873
.Sample ID	F-BH133
Depth	19.50
Other ID	
Sample Type	ES
Sampling Date	10/08/2022
Sampling Time	0910

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.41
Boron, Dissolved	DETSC 2306*	12	ug/l	71
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.2
Iron, Dissolved	DETSC 2306	5.5	ug/l	31
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.51
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	3.9
Zinc, Dissolved	DETSC 2306	1.3	ug/l	1.4
Inorganics				
pH	DETSC 2008		pH	7.6
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.6
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	3.8
Thiocyanate	DETSC 2130	20	ug/l	< 20
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	45.6
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.04
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.040
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.033
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.12
Nitrite as NO2	DETSC 2055	0.1	mg/l	2.6
Sulphate as SO4	DETSC 2055	0.1	mg/l	93
Total Organic Carbon	DETSC 2085	1	mg/l	1.9
PAHs				
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01

Key: * -not accredited.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-16051
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2046873
.Sample ID	F-BH133
Depth	19.50
Other ID	
Sample Type	ES
Sampling Date	10/08/2022
Sampling Time	0910

Test	Method	LOD	Units	
Fluorene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20

Key: * -not accredited.

Information in Support of the Analytical Results

Our Ref 22-16051
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2046870	F-BH119 12.90 SOIL	10/08/22	GJ 250ml, GJ 60ml, PT 1L		
2046871	F-BH133 14.00 SOIL	10/08/22	GJ 250ml, GJ 60ml, PT 1L		
2046872	F-BH133 19.50 SOIL	10/08/22	GJ 250ml, GJ 60ml, PT 1L		
2046873	F-BH133 19.50 LEACHATE	10/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-17018	*Issued:*	08-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-17018
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	4 Soil samples, 1 Leachate sample.

Date Received	30-Aug-22
Date Started	30-Aug-22
Date Completed	08-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17018
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2051747	2051748	2051749	2051750
				.Sample ID	F-BH109	F-BH109	F-BH109	F-BH104
				Depth	2.20	3.20	5.20	21.80
				Other ID				
				Sample Type	ES	ES	ES	ES
				Sampling Date	18/08/2022	19/08/2022	19/08/2022	18/08/2022
				Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
Preparation								
Moisture Content	DETSC 1004	0.1	%	6.6	10	20	11
Metals								
Arsenic	DETSC 2301#	0.2	mg/kg	5.6	5.5	5.2	42
Beryllium	DETSC 2301#	0.2	mg/kg	6.1	5.3	< 0.2	0.9
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	3.9	4.8	0.7	5.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	1.6
Chromium III	DETSC 2301*	0.15	mg/kg	6.9	7.3	3.2	19
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	4.0	4.6	3.1	33
Lead	DETSC 2301#	0.3	mg/kg	0.8	3.6	25	26
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.07
Nickel	DETSC 2301#	1	mg/kg	2.3	1.6	3.1	33
Selenium	DETSC 2301#	0.5	mg/kg	1.4	1.1	0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	31	31	10	18
Zinc	DETSC 2301#	1	mg/kg	3.7	13	21	46
Inorganics								
pH	DETSC 2008#		pH	9.8	9.6	9.1	9.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.3	0.2	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	2.0	0.8	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	0.6	0.3	0.4	2.1
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0	2.4	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	1900	1800	290	970
Sulphide	DETSC 2024*	10	mg/kg	3700	3300	110	67
Sulphur (free)	DETSC 3049#	0.75	mg/kg	210	< 0.75	3.1	1.4
Sulphur as S, Total	DETSC 2320	0.01	%	0.95	0.71	0.05	2.1
Sulphate as SO4, Total	DETSC 2321#	0.01	%	2.5	3.0	0.11	0.27
Petroleum Hydrocarbons								
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	5.84	5.95	6.21	4.69
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	1.61	2.25	4.13	1.61
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50	2.17	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	16.37	17.46	21.00	15.66
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90	< 0.90	< 0.90

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17018
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2051747	2051748	2051749	2051750
			.Sample ID	F-BH109	F-BH109	F-BH109	F-BH104
			Depth	2.20	3.20	5.20	21.80
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	18/08/2022	19/08/2022	19/08/2022	18/08/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	4.31	4.78	5.05	4.53
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00	10.31	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	25.21	26.95	31.31	24.94
PAHs							
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.07	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	0.08	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.14	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.12	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	0.50	< 0.10	< 0.10
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.4	0.4	< 0.3	0.6
Subcontracted Analysis							
Benzene	$*	<2	ug/kg	<2		<2	
Toluene	$*	<5	ug/kg	<5		<5	
Ethylbenzene	$*	<2	ug/kg	<2		<2	
p & m-xylene	$*	<2	ug/kg	<2		<2	
o-xylene	$*	<2	ug/kg	<2		<2	
MTBE	$*	<5	ug/kg	<5		<5	
TAME	$*	< 5	ug/kg	< 5		< 5	

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-17018
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2051751
.Sample ID	F-BH109
Depth	2.20
Other ID	
Sample Type	ES
Sampling Date	18/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	< 0.16
Boron, Dissolved	DETSC 2306*	12	ug/l	< 12
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	< 0.4
Iron, Dissolved	DETSC 2306	5.5	ug/l	< 5.5
Lead, Dissolved	DETSC 2306	0.09	ug/l	< 0.09
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	< 1.3
Inorganics				
pH	DETSC 2008		pH	9.5
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	0.4
Thiocyanate	DETSC 2130	20	ug/l	270
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	< 0.10
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	< 0.02
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	< 0.015
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	< 0.015
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.66
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10
Sulphate as SO4	DETSC 2055	0.1	mg/l	730
Total Organic Carbon	DETSC 2085	1	mg/l	3.8
PAHs				
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-17018
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2051751
.Sample ID	F-BH109
Depth	2.20
Other ID	
Sample Type	ES
Sampling Date	18/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20

Key: * -not accredited. n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 22-17018
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2051747	F-BH109 2.20	SOIL	NAD	none	Darryl Fletcher
2051748	F-BH109 3.20	SOIL	NAD	none	Darryl Fletcher

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-17018
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2051747	F-BH109 2.20 SOIL	18/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2051748	F-BH109 3.20 SOIL	19/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2051749	F-BH109 5.20 SOIL	19/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2051750	F-BH104 21.80 SOIL	18/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2051751	F-BH109 2.20 LEACHATE	18/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-17019	*Issued:*	09-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-17019
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	5 Soil samples, 1 Leachate sample.

Date Received	30-Aug-22
Date Started	30-Aug-22
Date Completed	09-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-17019
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2051752	2051753	2051755	2051756
				.Sample ID	F-BH104	F-BH104	F-BH104	F-BH104
				Depth	3.00	4.00	6.00	15.75
				Other ID				
				Sample Type	ES	ES	ES	ES
				Sampling Date	17/08/2022	17/08/2022	17/08/2022	18/08/2022
				Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
Preparation								
Moisture Content	DETSC 1004	0.1	%	8.5	6.1	21	19
Metals								
Arsenic	DETSC 2301#	0.2	mg/kg	7.5	29	6.3	8.4
Beryllium	DETSC 2301#	0.2	mg/kg	0.3	0.9	< 0.2	1.3
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.3	0.7	0.3	6.4
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.2	< 0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	35	360	3.4	45
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	20	34	3.8	27
Lead	DETSC 2301#	0.3	mg/kg	13	21	6.2	18
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	10	17	2.5	40
Selenium	DETSC 2301#	0.5	mg/kg	1.0	13	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	130	1400	14	74
Zinc	DETSC 2301#	1	mg/kg	29	78	12	53
Inorganics							
pH	DETSC 2008#		pH	10.3	10.6	10.0	9.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	< 0.1	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	0.7	0.8	0.2	1.5
Nitrate as NO3	DETSC 2055	1	mg/kg	2.7	6.2	< 1.0	5.5
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	150	160	82	350
Sulphide	DETSC 2024*	10	mg/kg	70	650	51	110
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75	1.5	< 0.75	1.7
Sulphur as S, Total	DETSC 2320	0.01	%	0.13	0.21	0.03	0.08
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.28	0.24	0.09	0.15
Petroleum Hydrocarbons							
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	5.01	4.88	5.37	5.26
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	1.99	2.29	3.26	3.25
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50	1.95	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	16.11	16.04	19.24	18.85
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90	< 0.90	< 0.90

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17019
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2051752	2051753	2051755	2051756
			.Sample ID	F-BH104	F-BH104	F-BH104	F-BH104
			Depth	3.00	4.00	6.00	15.75
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	17/08/2022	17/08/2022	17/08/2022	18/08/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	0.97	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	52.62	4.56	4.93	4.85
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	414.5	3.63	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	124.3	< 1.40	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	593.4	11.20	10.29	10.09
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	609.5	27.24	29.52	28.94
PAHs							
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.03	0.07	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.04	0.05	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.05	0.11	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.17	0.13	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.06	0.19	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.04	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	0.04	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.03	0.13	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.12	0.17	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.51	1.0	< 0.10	< 0.10
PCBs							
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 77	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 81	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 105	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 114	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 118	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 123	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 126	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 156	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 157	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17019
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2051752	2051753	2051755	2051756
			.Sample ID	F-BH104	F-BH104	F-BH104	F-BH104
			Depth	3.00	4.00	6.00	15.75
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	17/08/2022	17/08/2022	17/08/2022	18/08/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
PCB 167	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 169	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 189	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	
p-cresol	DETSC 3451*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	
Subcontracted Analysis							
Benzene	$*	<2	ug/kg	<2		<2	<2
Toluene	$*	<5	ug/kg	<5		<5	<5
Ethylbenzene	$*	<2	ug/kg	<2		<2	<2
p & m-xylene	$*	<2	ug/kg	<2		<2	<2
o-xylene	$*	<2	ug/kg	<2		<2	<2
MTBE	$*	<5	ug/kg	<5		<5	<5
TAME	$*	< 5	ug/kg	< 5		< 5	< 5

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-17019
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2051753
.Sample ID	F-BH104
Depth	4.00
Other ID	
Sample Type	ES
Sampling Date	17/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
VOCs				
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-17019
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2051753
.Sample ID	F-BH104
Depth	4.00
Other ID	
Sample Type	ES
Sampling Date	17/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01
SVOCs				
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-17019
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2051753
.Sample ID	F-BH104
Depth	4.00
Other ID	
Sample Type	ES
Sampling Date	17/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-17019
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2051757
.Sample ID	F-BH104
Depth	4.00
Other ID	
Sample Type	ES
Sampling Date	17/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	< 0.16
Boron, Dissolved	DETSC 2306*	12	ug/l	< 12
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	< 0.4
Iron, Dissolved	DETSC 2306	5.5	ug/l	< 5.5
Lead, Dissolved	DETSC 2306	0.09	ug/l	< 0.09
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	< 1.3
Inorganics				
pH	DETSC 2008		pH	10.9
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	2.1
Thiocyanate	DETSC 2130	20	ug/l	< 20
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	< 0.10
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.03
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.029
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.024
Nitrate as NO3	DETSC 2055	0.1	mg/l	1.2
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10
Sulphate as SO4	DETSC 2055	0.1	mg/l	21
Total Organic Carbon	DETSC 2085	1	mg/l	6.8
PAHs				
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.02
Fluorene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-17019
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2051757
.Sample ID	F-BH104
Depth	4.00
Other ID	
Sample Type	ES
Sampling Date	17/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Naphthalene	DETSC 3304	0.05	ug/l	0.05
Phenanthrene	DETSC 3304	0.01	ug/l	0.01
Pyrene	DETSC 3304	0.01	ug/l	0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20

Key: * -not accredited. n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 22-17019
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2051752	F-BH104 3.00	SOIL	NAD	none	Darryl Fletcher
2051753	F-BH104 4.00	SOIL	NAD	none	Darryl Fletcher
2051754	F-BH104 5.00	SOIL	NAD	none	Darryl Fletcher

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-17019
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2051752	F-BH104 3.00 SOIL	17/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2051753	F-BH104 4.00 SOIL	17/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days), VOC (7 days)	
2051754	F-BH104 5.00 SOIL	17/08/22	GJ 250ml, GJ 60ml, PT 1L		
2051755	F-BH104 6.00 SOIL	17/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2051756	F-BH104 15.75 SOIL	18/08/22	GJ 250ml, GJ 60ml, PT 1L	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2051757	F-BH104 4.00 LEACHATE	17/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-17084,22-18502	*Issued:*	29-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-17084,22-18502
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	10 Soil samples, 4 Leachate samples.
Date Received	31-Aug-22
Date Started	31-Aug-22
Date Completed	29-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2052023	2052024	2052025	2052027	2052028	2052029	2052030
			.Sample ID	F-BH103	F-BH103	F-BH103	F-BH103	F-BH103	F-BH103	F-BH115
			Depth	0.20	2.20	3.20	6.20	7.50	15.70	4.30
			Other ID							
			Sample Type	ES	ES	ES	ES	ES	ES	ES
			Sampling Date	25/08/2022	25/08/2022	25/08/2022	25/08/2022	25/08/2022	26/08/2022	25/08/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**							
Asbestos Quantification	DETSC 1102	0.001	%		0.002	< 0.001				
QTSSubcon Prep	$	0			Y		Y	Y		
Subcon to QTS	$	0			Y		Y	Y		
Preparation										
Moisture Content	DETSC 1004	0.1	%	9.8	12		17	18	22	13
Metals										
Aluminium	DETSC 2301*	1	mg/kg							
Arsenic	DETSC 2301#	0.2	mg/kg	8.0	13		14	6.3	10	51
Beryllium	DETSC 2301#	0.2	mg/kg	< 0.2	0.4		0.5	< 0.2	0.6	2.5
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	5.2	3.2		3.3	1.0	6.1	1.1
Cadmium	DETSC 2301#	0.1	mg/kg	1.2	1.9		0.8	< 0.1	0.2	8.2
Chromium III	DETSC 2301*	0.15	mg/kg	570	700		57	31	23	180
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	71	120		18	5.9	15	100
Iron	DETSC 2301	25	mg/kg							
Lead	DETSC 2301#	0.3	mg/kg	74	110		220	36	16	1200
Manganese	DETSC 2301#	20	mg/kg							
Mercury	DETSC 2325#	0.05	mg/kg	0.14	0.24		2.7	< 0.05	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg							
Nickel	DETSC 2301#	1	mg/kg	19	30		11	3.6	22	37
Phosphorus	DETSC 2301*	1	mg/kg							
Selenium	DETSC 2301#	0.5	mg/kg	7.0	3.6		1.0	< 0.5	< 0.5	2.5
Tin	DETSC 2301	1	mg/kg							
Vanadium	DETSC 2301#	0.8	mg/kg	1500	1300		120	62	42	1300
Zinc	DETSC 2301#	1	mg/kg	330	370		560	82	64	8400
Inorganics										
pH	DETSC 2008#		pH	11.2	11.0		10.9	10.8	8.7	11.5
Cyanide, Total	DETSC 2130#	0.1	mg/kg	2.1	3.3		27	3.8	0.6	1.4
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6		< 0.6	< 0.6	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	0.9	1.4		0.8	0.6	1.7	2.2
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg							
Chloride	DETSC 2055	1	mg/kg							
Fluoride	DETSC 2055	1	mg/kg							
Nitrate as NO3	DETSC 2055	1	mg/kg	14	3.2		3.0	< 1.0	< 1.0	6.1
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg							
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	180	190		340	100	780	180
Sulphide	DETSC 2024*	10	mg/kg	190	170		430	140	110	230
Sulphur (free)	DETSC 3049#	0.75	mg/kg	2.7	1.5		1.3	< 0.75	3.9	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.52	0.14		0.09	0.03	0.33	0.35
Sulphate as SO4, Total	DETSC 2321#	0.01	%	1.8	0.46		0.37	0.10	0.17	0.27

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2052023	2052024	2052025	2052027	2052028	2052029	2052030
			.Sample ID	F-BH103	F-BH103	F-BH103	F-BH103	F-BH103	F-BH103	F-BH115
			Depth	0.20	2.20	3.20	6.20	7.50	15.70	4.30
			Other ID							
			Sample Type	ES	ES	ES	ES	ES	ES	ES
			Sampling Date	25/08/2022	25/08/2022	25/08/2022	25/08/2022	25/08/2022	26/08/2022	25/08/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**							
Petroleum Hydrocarbons										
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50		< 1.50	< 1.50	< 1.50	< 1.50
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	2.86	3.58		< 1.20	< 1.20	4.71	< 1.20
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	3.26	5.52		< 1.50	< 1.50	4.44	2.66
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	8.80	32.44		5.45	< 3.40	< 3.40	184.6
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	4.63		< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	20.38	47.91		14.64	13.41	19.77	193.3
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90		< 0.90	< 0.90	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	1.29	0.69		< 0.60	< 0.60	< 0.60	0.61
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	4.56	2.41		< 1.40	< 1.40	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40		< 1.40	< 1.40	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00		< 10.00	< 10.00	< 10.00	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	29.37	54.22		20.46	19.28	25.93	198.2
PAHs										
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	0.03	0.04		0.05	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.24	0.16		0.07	0.08	< 0.03	0.14
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.15	0.08		< 0.03	< 0.03	< 0.03	0.18
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.44	0.22		0.07	< 0.03	< 0.03	0.35
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.15	0.07		< 0.03	< 0.03	< 0.03	0.14
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.19	0.10		0.03	< 0.03	< 0.03	0.15
Chrysene	DETSC 3303	0.03	mg/kg	0.42	0.26		0.11	0.04	< 0.03	0.24
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03		< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.48	0.55		0.29	0.05	< 0.03	0.58
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03		< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.14	0.07		< 0.03	< 0.03	< 0.03	0.13
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.18	0.21		0.27	0.04	< 0.03	0.11
Pyrene	DETSC 3303#	0.03	mg/kg	0.67	0.42		0.27	0.05	< 0.03	0.42
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	3.1	2.2		1.1	0.26	< 0.10	2.4

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2052023	2052024	2052025	2052027	2052028	2052029	2052030
			.Sample ID	F-BH103	F-BH103	F-BH103	F-BH103	F-BH103	F-BH103	F-BH115
			Depth	0.20	2.20	3.20	6.20	7.50	15.70	4.30
			Other ID							
			Sample Type	ES	ES	ES	ES	ES	ES	ES
			Sampling Date	25/08/2022	25/08/2022	25/08/2022	25/08/2022	25/08/2022	26/08/2022	25/08/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**							
PCBs										
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg		< 0.01			< 0.01		
PCB 52	DETSC 3401#	0.01	mg/kg		< 0.01			< 0.01		
PCB 101	DETSC 3401#	0.01	mg/kg		< 0.01			< 0.01		
PCB 118	DETSC 3401#	0.01	mg/kg		< 0.01			< 0.01		
PCB 153	DETSC 3401#	0.01	mg/kg		< 0.01			< 0.01		
PCB 138	DETSC 3401#	0.01	mg/kg		< 0.01			< 0.01		
PCB 180	DETSC 3401#	0.01	mg/kg		< 0.01			< 0.01		
PCB 77	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 81	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 105	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 114	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 118	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 123	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 126	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 156	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 157	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 167	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 169	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 189	DETSC 3401*	0.01	mg/kg		< 0.01			< 0.01		
PCB 7 Total	DETSC 3401#	0.01	mg/kg		< 0.01			< 0.01		
Phenols										
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3		< 0.3	< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg		< 0.01			< 0.01		
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg		< 0.01			< 0.01		
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg		< 0.01			< 0.01		
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg		< 0.01			< 0.01		
p-cresol	DETSC 3451*	0.01	mg/kg		< 0.01			< 0.01		
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg		< 0.01			< 0.01		
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg		< 0.01			< 0.01		
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg		< 0.01			< 0.01		
Subcontracted Analysis										
Benzene	$*	<2	ug/kg		<2		<2	<2		
Toluene	$*	<5	ug/kg		<5		<5	<5		
Ethylbenzene	$*	<2	ug/kg		<2		<2	<2		
p & m-xylene	$*	<2	ug/kg		<2		<2	<2		
o-xylene	$*	<2	ug/kg		<2		<2	<2		
MTBE	$*	<5	ug/kg		<5		<5	<5		
TAME	$*	< 5	ug/kg		< 5		< 5	< 5		

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2052031	2059563
			.Sample ID	F-BH115	F-BH103
			Depth	5.00	0.20
			Other ID		
			Sample Type	ES	ES
			Sampling Date	25/08/2022	25/08/2022
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Asbestos Quantification	DETSC 1102	0.001	%		
QTSSubcon Prep	$	0		Y	
Subcon to QTS	$	0		Y	
Preparation					
Moisture Content	DETSC 1004	0.1	%	19	
Metals					
Aluminium	DETSC 2301*	1	mg/kg		12000
Arsenic	DETSC 2301#	0.2	mg/kg	7.3	
Beryllium	DETSC 2301#	0.2	mg/kg	< 0.2	
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.2	
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	
Chromium III	DETSC 2301*	0.15	mg/kg	2.2	
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	
Copper	DETSC 2301#	0.2	mg/kg	1.5	
Iron	DETSC 2301	25	mg/kg		150000
Lead	DETSC 2301#	0.3	mg/kg	14	
Manganese	DETSC 2301#	20	mg/kg		32000
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	
Molybdenum	DETSC 2301#	0.4	mg/kg		11
Nickel	DETSC 2301#	1	mg/kg	1.7	
Phosphorus	DETSC 2301*	1	mg/kg		3000
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	
Tin	DETSC 2301	1	mg/kg		10
Vanadium	DETSC 2301#	0.8	mg/kg	11	
Zinc	DETSC 2301#	1	mg/kg	17	
Inorganics					
pH	DETSC 2008#		pH	9.6	
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.8	
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	
Organic matter	DETSC 2002#	0.1	%	0.1	
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg		1.2
Chloride	DETSC 2055	1	mg/kg		49.1
Fluoride	DETSC 2055	1	mg/kg		7.4
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0	
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg		0.20
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	40	
Sulphide	DETSC 2024*	10	mg/kg	32	
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75	
Sulphur as S, Total	DETSC 2320	0.01	%	0.02	
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.06	

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2052031	2059563
			.Sample ID	F-BH115	F-BH103
			Depth	5.00	0.20
			Other ID		
			Sample Type	ES	ES
			Sampling Date	25/08/2022	25/08/2022
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Petroleum Hydrocarbons					
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	3.15	
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	2.97	
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	16.44	
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	< 0.60	
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	22.43	
PAHs					
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2052031	2059563
			.Sample ID	F-BH115	F-BH103
			Depth	5.00	0.20
			Other ID		
			Sample Type	ES	ES
			Sampling Date	25/08/2022	25/08/2022
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
PCBs					
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg		
PCB 52	DETSC 3401#	0.01	mg/kg		
PCB 101	DETSC 3401#	0.01	mg/kg		
PCB 118	DETSC 3401#	0.01	mg/kg		
PCB 153	DETSC 3401#	0.01	mg/kg		
PCB 138	DETSC 3401#	0.01	mg/kg		
PCB 180	DETSC 3401#	0.01	mg/kg		
PCB 77	DETSC 3401*	0.01	mg/kg		
PCB 81	DETSC 3401*	0.01	mg/kg		
PCB 105	DETSC 3401*	0.01	mg/kg		
PCB 114	DETSC 3401*	0.01	mg/kg		
PCB 118	DETSC 3401*	0.01	mg/kg		
PCB 123	DETSC 3401*	0.01	mg/kg		
PCB 126	DETSC 3401*	0.01	mg/kg		
PCB 156	DETSC 3401*	0.01	mg/kg		
PCB 157	DETSC 3401*	0.01	mg/kg		
PCB 167	DETSC 3401*	0.01	mg/kg		
PCB 169	DETSC 3401*	0.01	mg/kg		
PCB 189	DETSC 3401*	0.01	mg/kg		
PCB 7 Total	DETSC 3401#	0.01	mg/kg		
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	
Phenol	DETSC 3451*	0.01	mg/kg		
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg		
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg		
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg		
p-cresol	DETSC 3451*	0.01	mg/kg		
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg		
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg		
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg		
Subcontracted Analysis					
Benzene	$*	<2	ug/kg	<2	
Toluene	$*	<5	ug/kg	<5	
Ethylbenzene	$*	<2	ug/kg	<2	
p & m-xylene	$*	<2	ug/kg	<2	
o-xylene	$*	<2	ug/kg	<2	
MTBE	$*	<5	ug/kg	<5	
TAME	$*	< 5	ug/kg	< 5	

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2052032	2052033	2055153	2059564
			.Sample ID	F-BH103	F-BH103	F-BH115	F-BH103
			Depth	0.20	2.20	4.30	0.20
			Other ID				
			Sample Type	ES	ES	LEACHATE	ES
			Sampling Date	25/08/2022	25/08/2022	25/08/2022	25/08/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Preparation							
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y	Y	Y
Metals							
Aluminium, Dissolved	DETSC 2306	10	ug/l				420
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.5	0.50	4.9	
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l				< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	17	< 12	46	
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	< 0.03	
Chromium III, Dissolved	DETSC 2306*	1	ug/l	1.9	1.5	< 1.0	
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007	0.107	< 0.007	
Copper, Dissolved	DETSC 2306	0.4	ug/l	6.7	5.9	2.9	
Iron, Dissolved	DETSC 2306	5.5	ug/l	7.6	< 5.5	6.8	
Lead, Dissolved	DETSC 2306	0.09	ug/l	2.4	2.2	1.9	
Manganese, Dissolved	DETSC 2306	0.22	ug/l				0.41
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.04	0.04	0.01	
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l				7.4
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	< 0.5	< 0.5	
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l				< 18
Selenium, Dissolved	DETSC 2306	0.25	ug/l	1.6	0.72	2.3	
Tin, Dissolved	DETSC 2306*	0.4	ug/l				< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l				52
Zinc, Dissolved	DETSC 2306	1.3	ug/l	5.6	2.3	2.1	
Inorganics							
pH	DETSC 2008		pH	11.5	11.5	8.0	
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.5	< 0.1	5.9	
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1	0.3	
Thiocyanate	DETSC 2130	20	ug/l	< 20	< 20	< 20	
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	143	140	44.9	
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.06	0.06	0.03	
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.056	0.058	0.027	
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.046	0.047	0.022	
Chloride	DETSC 2055	0.1	mg/l				4.5
Fluoride	DETSC 2055*	0.1	mg/l				0.66
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.85	0.37	1.0	
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10	0.13	0.53	
Ortho Phosphate as P	DETSC 2205	0.01	mg/l				< 0.01
Sulphate as SO4	DETSC 2055	0.1	mg/l	21	11	55	
Total Organic Carbon	DETSC 2085	1	mg/l	4.4	4.8	2.4	
PAHs							
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	
Anthracene	DETSC 3304	0.01	ug/l	0.01	0.02	< 0.01	

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2052032	2052033	2055153	2059564
			.Sample ID	F-BH103	F-BH103	F-BH115	F-BH103
			Depth	0.20	2.20	4.30	0.20
			Other ID				
			Sample Type	ES	ES	LEACHATE	ES
			Sampling Date	25/08/2022	25/08/2022	25/08/2022	25/08/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01	< 0.01	0.03	
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.02	
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.05	
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.02	
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.02	
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.03	
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	
Fluoranthene	DETSC 3304	0.01	ug/l	0.02	< 0.01	0.06	
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.01	
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05	< 0.05	
Phenanthrene	DETSC 3304	0.01	ug/l	0.02	0.01	0.01	
Pyrene	DETSC 3304	0.01	ug/l	0.02	< 0.01	0.03	
PAH Total	DETSC 3304	0.2	ug/l	< 0.20	< 0.20	0.28	

Key: * -not accredited. n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2052023	F-BH103 0.20	SOIL	NAD	none	Michael Kay
2052024	F-BH103 2.20	SOIL	Chrysotile Amosite	amosite and chrysotile in microscopic loose fibrous asbestos insulation	Michael Kay
2052025	F-BH103 3.20	SOIL	Chrysotile	bundles of chrysotile	Michael Kay
2052026	F-BH103 4.20	SOIL	NAD	none	Michael Kay
2052027	F-BH103 6.20	SOIL	NAD	none	Michael Kay
2052030	F-BH115 4.30	SOIL	NAD	none	Michael Kay

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis
Soil Samples

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract Title NZT FEED GI

		Lab No	2052024	2052025
		.Sample ID	F-BH103	F-BH103
		Depth	2.20	3.20
		Other ID		
		Sample Type	ES	ES
		Sampling Date	25/08/2022	25/08/2022
		Sampling Time		
Test	**Method**	**Units**		
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	**0.002**	**< 0.001**
Gravimetric Quantification (a)	DETSC 1102	Mass %	0.002	na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	na	<0.001
Quantification by PCOM (c)	DETSC 1102	Mass %	na	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na	na
Breakdown of Gravimetric Analysis (a)				
Mass of Sample		g	27.88	66.15
ACMs present*		type	LFAD	
Mass of ACM in sample		g	0.00	
% ACM by mass		%	0.00	
% asbestos in ACM		%	85.00	
% asbestos in sample		%	0.002	
Breakdown of Detailed Gravimetric Analysis (b)				
% Amphibole bundles in sample		Mass %	na	na
% Chrysotile bundles in sample		Mass %	na	<0.001
Breakdown of PCOM Analysis (c)				
% Amphibole fibres in sample		Mass %	na	na
% Chrysotile fibres in sample		Mass %	na	na
Breakdown of Potentially Respirable Fibre Analysis (d)				
Amphibole fibres		Fibres/g	na	na
Chrysotile fibres		Fibres/g	na	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Information in Support of the Analytical Results

Our Ref 22-17084,22-18502
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2052023	F-BH103 0.20 SOIL	25/08/22	GJ 250ml, GJ 60ml, PT 1L		
2052024	F-BH103 2.20 SOIL	25/08/22	GJ 250ml, GJ 60ml, PT 1L		
2052025	F-BH103 3.20 SOIL	25/08/22	GJ 250ml, GJ 60ml, PT 1L		
2052026	F-BH103 4.20 SOIL	25/08/22	GJ 250ml, GJ 60ml, PT 1L		
2052027	F-BH103 6.20 SOIL	25/08/22	GJ 250ml, GJ 60ml, PT 1L		
2052028	F-BH103 7.50 SOIL	25/08/22	GJ 250ml, GJ 60ml, PT 1L		
2052029	F-BH103 15.70 SOIL	26/08/22	GJ 250ml, GJ 60ml, PT 1L		
2052030	F-BH115 4.30 SOIL	25/08/22	GJ 250ml, GJ 60ml, PT 1L		
2052031	F-BH115 5.00 SOIL	25/08/22	GJ 250ml, GJ 60ml, PT 1L		
2052032	F-BH103 0.20 LEACHATE	25/08/22	GJ 250ml, GJ 60ml, PT 1L		
2052033	F-BH103 2.20 LEACHATE	25/08/22	GJ 250ml, GJ 60ml, PT 1L		
2055153	F-BH115 4.30 LEACHATE	25/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-17093,22-17940	*Issued:*	16-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-17093,22-17940
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	9 Soil samples.
Date Received	31-Aug-22
Date Started	31-Aug-22
Date Completed	16-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17093,22-17940
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2052084	2052085	2052086	2052087	2052088	2052089	2052090	2052091	2056581
			.Sample ID	F-BH124	F-BH124	F-BH124	F-BH124	F-BH124	F-BH124	F-BH124	F-BH124	F-BH124
			Depth	3.79-3.90	5.50-6.00	6.70-6.80	7.50-7.60	9.90-10.50	11.10-11.20	12.00-12.10	14.30-14.90	26.20-26.30
			Other ID									
			Sample Type	D	B	D	D	B	D	D	B	SOIL
			Sampling Date	01/08/2022	11/08/2022	11/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022	04/08/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**									
Inorganics												
pH	DETSC 2008#		pH	11.9	9.1	9.2		9.1		8.2	8.4	8.8
Organic matter	DETSC 2002#	0.1	%						0.8			
Carbonate (as CO2)	DETSC 2005	1	%				4.2	4.4				
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	99	120	200		140		380	190	420
Sulphur as S, Total	DETSC 2320	0.01	%	0.22	0.03	0.65		0.04		0.37	0.04	1.1
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.47	0.06	0.16		0.07		0.19	0.07	0.16

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-17093,22-17940
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2052084	F-BH124 3.79-3.90 SOIL	01/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052085	F-BH124 5.50-6.00 SOIL	11/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052086	F-BH124 6.70-6.80 SOIL	11/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052087	F-BH124 7.50-7.60 SOIL	02/08/22	PT 1L	Carbonate (28 days)	
2052088	F-BH124 9.90-10.50 SOIL	02/08/22	PT 1L	Carbonate (28 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052089	F-BH124 11.10-11.20 SOIL	02/08/22	PT 1L	Organic Matter (Manual) (28 days)	
2052090	F-BH124 12.00-12.10 SOIL	02/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052091	F-BH124 14.30-14.90 SOIL	02/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-17096	*Issued:*	06-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-17096
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	9 Soil samples.
Date Received	31-Aug-22
Date Started	31-Aug-22
Date Completed	06-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-17096
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2052094	2052095	2052096	2052097	2052098	2052099	2052100	2052101	2052102
			.Sample ID	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120
			Depth	4.10-4.50	4.83-5.20	6.80-6.90	7.50-7.60	9.60-9.70	12.40-12.50	13.50-13.60	14.00-15.00	30.00-31.50
			Other ID									
			Sample Type	B	B	D	D	D	D	D	B	C
			Sampling Date	02/08/2022	02/08/2022	03/08/2022	03/08/2022	03/08/2022	03/08/2022	04/08/2022	04/08/2022	04/08/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**									
Inorganics												
pH	DETSC 2008#		pH	10.4			8.9		8.4		8.2	8.9
Organic matter	DETSC 2002#	0.1	%			2.8				2.0		
Carbonate (as CO2)	DETSC 2005	1	%		2.5			4.9				
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	820			290		430		230	370
Sulphur as S, Total	DETSC 2320	0.01	%	0.29			0.09		0.15		0.10	0.69
Sulphate as SO4, Total	DETSC 2321#	0.01	%	2.6			0.10		0.12		0.09	0.15

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-17096
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2052094	F-BH120 4.10-4.50 SOIL	02/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052095	F-BH120 4.83-5.20 SOIL	02/08/22	PT 1L	Carbonate (28 days)	
2052096	F-BH120 6.80-6.90 SOIL	03/08/22	PT 1L		
2052097	F-BH120 7.50-7.60 SOIL	03/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052098	F-BH120 9.60-9.70 SOIL	03/08/22	PT 1L		
2052099	F-BH120 12.40-12.50 SOIL	03/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052100	F-BH120 13.50-13.60 SOIL	04/08/22	PT 1L		
2052101	F-BH120 14.00-15.00 SOIL	04/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052102	F-BH120 30.00-31.50 SOIL	04/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

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Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-17096	*Issued:*	06-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-17096
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	9 Soil samples.
Date Received	31-Aug-22
Date Started	31-Aug-22
Date Completed	06-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17096
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2052094	2052095	2052096	2052097	2052098	2052099	2052100	2052101	2052102
			.Sample ID	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120
			Depth	4.10-4.50	4.83-5.20	6.80-6.90	7.50-7.60	9.60-9.70	12.40-12.50	13.50-13.60	14.00-15.00	30.00-31.50
			Other ID									
			Sample Type	B	B	D	D	D	D	D	B	C
			Sampling Date	02/08/2022	02/08/2022	03/08/2022	03/08/2022	03/08/2022	03/08/2022	04/08/2022	04/08/2022	04/08/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**									
Inorganics												
pH	DETSC 2008#		pH	10.4			8.9		8.4		8.2	8.9
Organic matter	DETSC 2002#	0.1	%			2.8				2.0		
Carbonate (as CO2)	DETSC 2005	1	%		2.5			4.9				
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	820			290		430		230	370
Sulphur as S, Total	DETSC 2320	0.01	%	0.29			0.09		0.15		0.10	0.69
Sulphate as SO4, Total	DETSC 2321#	0.01	%	2.6			0.10		0.12		0.09	0.15

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-17096
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2052094	F-BH120 4.10-4.50 SOIL	02/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052095	F-BH120 4.83-5.20 SOIL	02/08/22	PT 1L	Carbonate (28 days)	
2052096	F-BH120 6.80-6.90 SOIL	03/08/22	PT 1L		
2052097	F-BH120 7.50-7.60 SOIL	03/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052098	F-BH120 9.60-9.70 SOIL	03/08/22	PT 1L		
2052099	F-BH120 12.40-12.50 SOIL	03/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052100	F-BH120 13.50-13.60 SOIL	04/08/22	PT 1L		
2052101	F-BH120 14.00-15.00 SOIL	04/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052102	F-BH120 30.00-31.50 SOIL	04/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-17176,22-18149	*Issued:*	06-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-17176,22-18149
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	9 Soil samples.
Date Received	01-Sep-22
Date Started	01-Sep-22
Date Completed	06-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17176,22-18149
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2052473	2052474	2052475	2052476	2052477	2052478	2052479	2052882	2057766
			.Sample ID	F-BH125	F-BH125	F-BH125	F-BH125	F-BH125	F-BH125	F-BH125	F-BH125	F-BH125
			Depth	4.50-4.80	6.50-6.90	7.50-7.60	9.00-9.10	10.50-10.60	11.46-11.90	13.40-13.50	14.90-15.00	22.50-24.00
			Other ID									
			Sample Type	D	B	D	D	D	B	D	D	C
			Sampling Date	04/08/2022	04/08/2022	04/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	05/08/2022	12/09/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**									
Inorganics												
pH	DETSC 2008#		pH	8.7			7.6		8.1		8.2	8.7
Organic matter	DETSC 2002#	0.1	%		2.6					4.4		
Carbonate (as CO2)	DETSC 2005	1	%			5.2		7.9				
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	420			1200		560		300	610
Sulphur as S, Total	DETSC 2320	0.01	%	0.40			2.6		0.38		0.03	0.69
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.34			0.52		0.19		0.06	2.8

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-17176,22-18149
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2052473	F-BH125 4.50-4.80 SOIL	04/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052474	F-BH125 6.50-6.90 SOIL	04/08/22	PT 1L		
2052475	F-BH125 7.50-7.60 SOIL	04/08/22	PT 1L		
2052476	F-BH125 9.00-9.10 SOIL	05/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052477	F-BH125 10.50-10.60 SOIL	05/08/22	PT 1L		
2052478	F-BH125 11.46-11.90 SOIL	05/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2052479	F-BH125 13.40-13.50 SOIL	05/08/22	PT 1L		
2052882	F-BH125 14.90-15.00 SOIL	05/08/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-17283	*Issued:*	08-Sep-22
Client	Aecom Leeds 5th Floor 2 City Walk Leeds LS11 9AR		

Our Reference	22-17283
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	6 Soil samples.
Date Received	02-Sep-22
Date Started	02-Sep-22
Date Completed	08-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Certificate of Analysis

Certificate Number	22-17734	*Issued:*	14-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-17734
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	5 Soil samples.
Date Received	08-Sep-22
Date Started	08-Sep-22
Date Completed	14-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-17734
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2055408	2055409	2055410	2055411	2055412
			.Sample ID	F-BH128	F-BH128	F-BH128	F-BH128	F-BH128
			Depth	3.76-4.01	5.20-5.30	6.36-7.27	8.20-8.30	9.80-10.40
			Other ID					
			Sample Type	D	D	B	D	B
			Sampling Date	01/09/2022	01/09/2022	01/09/2022	01/09/2022	01/09/2022
			Sampling Time	1200	1200	1200	1200	1200
Test	**Method**	**LOD**	**Units**					
Inorganics								
pH	DETSC 2008#		pH	9.9				
Organic matter	DETSC 2002#	0.1	%			4.3	3.6	
Carbonate (as CO2)	DETSC 2005	1	%		3.7			2.9
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	15				
Sulphur as S, Total	DETSC 2320	0.01	%	0.18				
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.16				

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Information in Support of the Analytical Results

Our Ref 22-17734
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2055408	F-BH128 3.76-4.01 SOIL	01/09/22	PT 1L		
2055409	F-BH128 5.20-5.30 SOIL	01/09/22	PT 1L		
2055410	F-BH128 6.36-7.27 SOIL	01/09/22	PT 1L		
2055411	F-BH128 8.20-8.30 SOIL	01/09/22	PT 1L		
2055412	F-BH128 9.80-10.40 SOIL	01/09/22	PT 1L		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-17882	*Issued:*	20-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-17882
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	2 Soil samples, 1 Leachate sample.

Date Received	09-Sep-22
Date Started	09-Sep-22
Date Completed	20-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-17882
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2056242	2056243
			.Sample ID	F-BH116	F-BH116
			Depth	4.90	5.90
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/09/2022	02/09/2022
			Sampling Time	1100	1100
Test	**Method**	**LOD**	**Units**		
Preparation					
Moisture Content	DETSC 1004	0.1	%	20	14
Metals					
Aluminium	DETSC 2301*	1	mg/kg	1400	14000
Arsenic	DETSC 2301#	0.2	mg/kg	6.9	23
Beryllium	DETSC 2301#	0.2	mg/kg	< 0.2	1.0
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.4	1.5
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.7
Chromium III	DETSC 2301*	0.15	mg/kg	6.1	230
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	3.2	62
Iron	DETSC 2301	25	mg/kg	7000	110000
Lead	DETSC 2301#	0.3	mg/kg	22	23
Manganese	DETSC 2301#	20	mg/kg	140	7600
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	< 0.4	4.0
Nickel	DETSC 2301#	1	mg/kg	2.8	28
Phosphorus	DETSC 2301*	1	mg/kg	140	9000
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	2.3
Tin	DETSC 2301	1	mg/kg	< 1.0	3.1
Vanadium	DETSC 2301#	0.8	mg/kg	10	1200
Zinc	DETSC 2301#	1	mg/kg	17	120
Inorganics					
pH	DETSC 2008#		pH	9.2	11.7
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	1.1
Organic matter	DETSC 2002#	0.1	%	0.2	0.5
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	1.9	1.5
Chloride	DETSC 2055	1	mg/kg	32.9	251
Fluoride	DETSC 2055	1	mg/kg	< 1.0	49
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0	< 1.0
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	< 0.10	< 0.10
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	28	83
Sulphide	DETSC 2024*	10	mg/kg	20	360
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75	18
Sulphur as S, Total	DETSC 2320	0.01	%	0.02	0.37
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.05	0.25
Petroleum Hydrocarbons					
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-17882
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2056242	2056243
			.Sample ID	F-BH116	F-BH116
			Depth	4.90	5.90
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/09/2022	02/09/2022
			Sampling Time	1100	1100
Test	**Method**	**LOD**	**Units**		
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	< 1.20	< 1.20
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	28.79
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic C5-C35: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	< 10.00	
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	13.78	37.72
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	1.40	< 0.60
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40	< 1.40
Aromatic C5-C35: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00	< 10.00
TPH Ali/Aro Total C5-C35: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	14.47	
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	20.47	43.36
PAHs					
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	0.14
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.08
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	0.22

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-17882
Client Ref 60678042
Contract Title NZT Feed GI

				Lab No	2056242	2056243
				.Sample ID	F-BH116	F-BH116
				Depth	4.90	5.90
				Other ID		
				Sample Type	ES	ES
				Sampling Date	02/09/2022	02/09/2022
				Sampling Time	1100	1100
Test	**Method**	**LOD**	**Units**			
PCBs						
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01		
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01		
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01		
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01		
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01		
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01		
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01		
PCB 77	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 81	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 105	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 114	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 118	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 123	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 126	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 156	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 157	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 167	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 169	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 189	DETSC 3401*	0.01	mg/kg	< 0.01		
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01		
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	
Subcontracted Analysis						
Benzene	$*	<2	ug/kg	<2	<2	
Toluene	$*	<5	ug/kg	<5	31	
Ethylbenzene	$*	<2	ug/kg	<2	<2	
p & m-xylene	$*	<2	ug/kg	<2	19	
o-xylene	$*	<2	ug/kg	<2	<2	
MTBE	$*	<5	ug/kg	<5	<5	
TAME	$*	< 5	ug/kg	< 5	<5	

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-17882
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2056244
.Sample ID	F-BH116
Depth	4.90
Other ID	
Sample Type	ES
Sampling Date	02/09/2022
Sampling Time	1100

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Aluminium, Dissolved	DETSC 2306	10	ug/l	130
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	7.8
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	21
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.05
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	3.5
Iron, Dissolved	DETSC 2306	5.5	ug/l	350
Lead, Dissolved	DETSC 2306	0.09	ug/l	5.7
Manganese, Dissolved	DETSC 2306	0.22	ug/l	6.3
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.01
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	3.7
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	150
Selenium, Dissolved	DETSC 2306	0.25	ug/l	1.2
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	4.6
Zinc, Dissolved	DETSC 2306	1.3	ug/l	4.7
Inorganics				
pH	DETSC 2008		pH	7.3
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	280
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	23.5
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	1.4
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	1.4
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	1.1
Chloride	DETSC 2055	0.1	mg/l	9.1
Fluoride	DETSC 2055*	0.1	mg/l	0.16
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.21
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	0.05
Sulphate as SO4	DETSC 2055	0.1	mg/l	14
Total Organic Carbon	DETSC 2085	1	mg/l	4.8
Petroleum Hydrocarbons				
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1

Key: * -not accredited.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-17882
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2056244
.Sample ID	F-BH116
Depth	4.90
Other ID	
Sample Type	ES
Sampling Date	02/09/2022
Sampling Time	1100

Test	Method	LOD	Units	
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	20
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C5-C35: EH_CU+HS_1D_AL	DETSC 3072*	10	ug/l	20
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0
Aromatic C5-C35: EH_CU+HS_1D_AR	DETSC 3072*	10	ug/l	< 10
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	DETSC 3072*	10	ug/l	21
Benzene	DETSC 3322	1	ug/l	< 1.0
Toluene	DETSC 3322	1	ug/l	< 1.0
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0
Xylene	DETSC 3322	1	ug/l	< 1.0
PAHs				
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05
Phenanthrene	DETSC 3304	0.01	ug/l	0.02
Pyrene	DETSC 3304	0.01	ug/l	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20

Key: * -not accredited.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-17882
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2056244
.Sample ID	F-BH116
Depth	4.90
Other ID	
Sample Type	ES
Sampling Date	02/09/2022
Sampling Time	1100

Test	Method	LOD	Units	
PCBs				
PCB 28 + PCB 31	DETSC 3402	0.3	ug/l	< 0.3
PCB 52	DETSC 3402	0.2	ug/l	< 0.2
PCB 77	DETSC 3402	0.3	ug/l	< 0.3
PCB 81	DETSC 3402	0.2	ug/l	< 0.2
PCB 101	DETSC 3402	0.3	ug/l	< 0.3
PCB 105	DETSC 3402	0.2	ug/l	< 0.2
PCB 114	DETSC 3402	0.3	ug/l	< 0.3
PCB 118 + PCB 123	DETSC 3402	0.6	ug/l	< 0.6
PCB 126	DETSC 3402	0.5	ug/l	< 0.5
PCB 138	DETSC 3402	0.2	ug/l	< 0.2
PCB 153	DETSC 3402	0.2	ug/l	< 0.2
PCB 156	DETSC 3402	0.3	ug/l	< 0.3
PCB 157	DETSC 3402	0.2	ug/l	< 0.2
PCB 167	DETSC 3402	0.3	ug/l	< 0.3
PCB 169	DETSC 3402	0.2	ug/l	< 0.2
PCB 180	DETSC 3402	0.2	ug/l	< 0.2
PCB 189	DETSC 3402	0.3	ug/l	< 0.3
PCB 12	DETSC 3402	1	ug/l	< 1.0
PCB 7 Total	DETSC 3402	1	ug/l	< 1.0
Phenols				
Phenol	DETSC 3451*	0.1	ug/l	< 0.10
4-Chloro-3-methylphenol	DETSC 3451*	0.1	ug/l	< 0.10
2,4-Dichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10
2,4-Dimethylphenol	DETSC 3451*	0.1	ug/l	< 0.10
p-cresol	DETSC 3451*	0.1	ug/l	< 0.10
2,6-Dimethylphenol	DETSC 3451*	0.1	ug/l	< 0.10
2,6-Dichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10
2,4,6-Trichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10

Key: * -not accredited.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-17882
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2056242	F-BH116 4.90	SOIL	NAD	none	Pierce Booth

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-17882
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2056242	F-BH116 4.90 SOIL	02/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2056243	F-BH116 5.90 SOIL	02/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2056244	F-BH116 4.90 LEACHATE	02/09/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C35	EH_2D+HS_1D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C35	EH_2D+HS_1D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro Total C5-C35	EH_2D+HS_1D_Total
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL

Certificate of Analysis

Certificate Number	22-17885	*Issued:*	16-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-17885
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	One Soil sample.
Date Received	09-Sep-22
Date Started	09-Sep-22
Date Completed	16-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-17885
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2056247
.Sample ID	F-BH116
Depth	14.00
Other ID	
Sample Type	ES
Sampling Date	05/09/2022
Sampling Time	1600

Test	Method	LOD	Units	
Preparation				
Moisture Content	DETSC 1004	0.1	%	22
Metals				
Aluminium	DETSC 2301*	1	mg/kg	10000
Arsenic	DETSC 2301#	0.2	mg/kg	14
Beryllium	DETSC 2301#	0.2	mg/kg	0.6
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	6.9
Cadmium	DETSC 2301#	0.1	mg/kg	0.1
Chromium III	DETSC 2301*	0.15	mg/kg	23
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	16
Iron	DETSC 2301	25	mg/kg	32000
Lead	DETSC 2301#	0.3	mg/kg	14
Manganese	DETSC 2301#	20	mg/kg	390
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	1.9
Nickel	DETSC 2301#	1	mg/kg	22
Phosphorus	DETSC 2301*	1	mg/kg	380
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5
Tin	DETSC 2301	1	mg/kg	< 1.0
Vanadium	DETSC 2301#	0.8	mg/kg	40
Zinc	DETSC 2301#	1	mg/kg	53
Inorganics				
pH	DETSC 2008#		pH	8.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6
Organic matter	DETSC 2002#	0.1	%	3.3
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	3.1
Chloride	DETSC 2055	1	mg/kg	683
Fluoride	DETSC 2055	1	mg/kg	< 1.0
Nitrate as NO3	DETSC 2055	1	mg/kg	4.0
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	< 0.10
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	570
Sulphide	DETSC 2024*	10	mg/kg	110
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.69
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.21
Petroleum Hydrocarbons				
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17885
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2056247
.Sample ID	F-BH116
Depth	14.00
Other ID	
Sample Type	ES
Sampling Date	05/09/2022
Sampling Time	1600

Test	Method	LOD	Units	
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	< 1.20
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	14.15
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	< 0.60
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	20.34
PAHs				
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10
Phenols				
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Information in Support of the Analytical Results

Our Ref 22-17885
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2056247	F-BH116 14.00 SOIL	05/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number 22-17948 *Issued:* 23-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference 22-17948

Client Reference 60678042

Order No (not supplied)

Contract Title NZT Feed GI

Description One Soil sample.

Date Received 12-Sep-22

Date Started 12-Sep-22

Date Completed 23-Sep-22

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-17948
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2056602
.Sample ID	F-BH116
Depth	20.55
Other ID	
Sample Type	ES
Sampling Date	06/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
Moisture Content	DETSC 1004	0.1	%	10
Metals				
Arsenic	DETSC 2301#	0.2	mg/kg	7.1
Beryllium	DETSC 2301#	0.2	mg/kg	1.0
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	7.4
Cadmium	DETSC 2301#	0.1	mg/kg	0.1
Chromium III	DETSC 2301*	0.15	mg/kg	31
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	25
Lead	DETSC 2301#	0.3	mg/kg	13
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05
Nickel	DETSC 2301#	1	mg/kg	33
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	39
Zinc	DETSC 2301#	1	mg/kg	42
Inorganics				
pH	DETSC 2008#		pH	7.7
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6
Organic matter	DETSC 2002#	0.1	%	1.3
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	540
Sulphide	DETSC 2024*	10	mg/kg	40
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.07
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.10
Petroleum Hydrocarbons				
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	< 1.20
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40
Aliphatic >EC40-EC44: EH_2D_AL	DETSC 3521*	3.4	mg/kg	< 3.40
Aliphatic C5-C44: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	16.03
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-17948
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2056602
			.Sample ID	F-BH116
			Depth	20.55
			Other ID	
			Sample Type	ES
			Sampling Date	06/09/2022
			Sampling Time	n/s
Test	**Method**	**LOD**	**Units**	
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	< 0.60
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40
Aromatic >EC40-EC44: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40
Aromatic C5-C44: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00
TPH Ali/Aro C5-C44: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	22.95
PAHs				
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10
Phenols				
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-17948
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2056602	F-BH116 20.55 SOIL	06/09/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic >EC40-EC44	EH_2D_AL
Aliphatic C5-C44	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic >EC40-EC44	EH_2D_AR
Aromatic C5-C44	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C44	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-18312	*Issued:*	05-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-18312
Client Reference	60678042
Order No	(not supplied)
Contract Title	(not supplied)
Description	4 Soil samples, 1 Leachate sample.
Date Received	15-Sep-22
Date Started	15-Sep-22
Date Completed	05-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-18312
Client Ref 60678042
Contract Title

	Lab No	2058700	2058701	2058702	2058703
	.Sample ID	F-BH102	F-BH102	F-BH102	F-BH102
	Depth	1.00	1.50	6.60	8.20
	Other ID				
	Sample Type	ES	ES	ES	ES
	Sampling Date	09/09/2022	09/09/2022	09/09/2022	09/09/2022
	Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Preparation					
Moisture Content	DETSC 1004	0.1	%	8.3		5.0	18
Metals					
Aluminium	DETSC 2301*	1	mg/kg	49000			
Arsenic	DETSC 2301#	0.2	mg/kg	4.6		6.0	7.5
Beryllium	DETSC 2301#	0.2	mg/kg	5.3		9.2	0.2
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.6		8.6	1.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.2		< 0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	53		5.9	5.2
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0		< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	11		4.9	4.6
Iron	DETSC 2301	25	mg/kg	14000			
Lead	DETSC 2301#	0.3	mg/kg	12		1.0	34
Manganese	DETSC 2301#	20	mg/kg	2900			
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05		< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	1.4			
Nickel	DETSC 2301#	1	mg/kg	2.7		< 1.0	4.7
Phosphorus	DETSC 2301*	1	mg/kg	330			
Selenium	DETSC 2301#	0.5	mg/kg	1.6		2.0	< 0.5
Tin	DETSC 2301	1	mg/kg	1.3			
Vanadium	DETSC 2301#	0.8	mg/kg	120		24	14
Zinc	DETSC 2301#	1	mg/kg	55		5.5	29
Inorganics							
pH	DETSC 2008#		pH	11.2		11.2	9.4
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1		0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1		< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	1.7		0.9	< 0.6
Organic matter	DETSC 2002#	0.1	%	4.5		0.4	0.8
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	1.8			
Chloride	DETSC 2055	1	mg/kg	36.7			
Fluoride	DETSC 2055	1	mg/kg	2.4			
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0		< 1.0	< 1.0
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	< 0.10			
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	740		630	310
Sulphide	DETSC 2024*	10	mg/kg	1300		990	91
Sulphur (free)	DETSC 3049#	0.75	mg/kg	230		180	120
Sulphur as S, Total	DETSC 2320	0.01	%	0.56		0.35	0.18
Sulphate as SO4, Total	DETSC 2321#	0.01	%	1.2		0.69	0.17

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-18312
Client Ref 60678042
Contract Title

	Lab No	2058700	2058701	2058702	2058703
	.Sample ID	F-BH102	F-BH102	F-BH102	F-BH102
	Depth	1.00	1.50	6.60	8.20
	Other ID				
	Sample Type	ES	ES	ES	ES
	Sampling Date	09/09/2022	09/09/2022	09/09/2022	09/09/2022
	Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Petroleum Hydrocarbons							
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	1.68	1.87	1.90	2.59
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	1.79	1.52	< 1.20	2.47
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	2.75	< 1.50	< 1.50	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	177.1	< 3.40	< 3.40	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	272.3	< 3.40	< 3.40	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	455.6	12.35	11.93	15.17
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	1.22	< 0.90	< 0.90	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	20.59	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	227.4	1.04	2.37	1.28
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	879.2	< 1.40	< 1.40	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	58.48	< 1.40	< 1.40	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	1187	< 10.00	< 10.00	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	1643	17.94	18.75	21.59
PAHs							
Acenaphthene	DETSC 3303#	0.03	mg/kg	4.9		< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.22		< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	5.2		< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	28		0.05	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	27		0.05	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	37		0.09	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	15		< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	16		0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	28		0.04	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	4.2		< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	72		0.07	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	2.1		< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	16		0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	0.11		< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	28		< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	69		0.07	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	350		0.39	< 0.10
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.4		0.5	0.9

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-18312
Client Ref 60678042
Contract Title

			Lab No	2058700	2058701	2058702	2058703
			.Sample ID	F-BH102	F-BH102	F-BH102	F-BH102
			Depth	1.00	1.50	6.60	8.20
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	09/09/2022	09/09/2022	09/09/2022	09/09/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Subcontracted Analysis							
Benzene	$*	<2	ug/kg	<2			<2
Toluene	$*	<5	ug/kg	<5			<5
Ethylbenzene	$*	<2	ug/kg	<2			<2
p & m-xylene	$*	<2	ug/kg	<2			<2
o-xylene	$*	<2	ug/kg	<2			<2
MTBE	$*	<5	ug/kg	<5			<5
TAME	$*	< 5	ug/kg	< 5			< 5

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-18312
Client Ref 60678042
Contract Title

Lab No	2058704
.Sample ID	F-BH102
Depth	1.00
Other ID	
Sample Type	ES
Sampling Date	09/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Subcon to Jones-Liquid	$	0		Y
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Aluminium, Dissolved	DETSC 2306	10	ug/l	850
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.44
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	< 12
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	4.8
Iron, Dissolved	DETSC 2306	5.5	ug/l	< 5.5
Lead, Dissolved	DETSC 2306	0.09	ug/l	6.3
Manganese, Dissolved	DETSC 2306	0.22	ug/l	1.1
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.02
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	4.7
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	36
Selenium, Dissolved	DETSC 2306	0.25	ug/l	2.3
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	19
Zinc, Dissolved	DETSC 2306	1.3	ug/l	3.5
Inorganics				
pH	DETSC 2008		pH	10.8
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	4.5
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	0.2
Thiocyanate	DETSC 2130	20	ug/l	160
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	269
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.30
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.29
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.24
Chloride	DETSC 2055	0.1	mg/l	1.4
Fluoride	DETSC 2055*	0.1	mg/l	0.12
Nitrate as NO3	DETSC 2055	0.1	mg/l	< 0.10
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	0.02
Sulphate as SO4	DETSC 2055	0.1	mg/l	18
Total Organic Carbon	DETSC 2085	1	mg/l	6.9

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-18312
Client Ref 60678042
Contract Title

Lab No	2058704
.Sample ID	F-BH102
Depth	1.00
Other ID	
Sample Type	ES
Sampling Date	09/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
PAHs				
Acenaphthene	DETSC 3304	0.01	ug/l	2.5
Acenaphthylene	DETSC 3304	0.01	ug/l	0.17
Anthracene	DETSC 3304	0.01	ug/l	0.66
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.03
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.03
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.04
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.02
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.03
Chrysene	DETSC 3304	0.01	ug/l	0.04
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.21
Fluorene	DETSC 3304	0.01	ug/l	0.38
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.02
Naphthalene	DETSC 3304	0.05	ug/l	0.44
Phenanthrene	DETSC 3304	0.01	ug/l	0.90
Pyrene	DETSC 3304	0.01	ug/l	0.17
PAH Total	DETSC 3304	0.2	ug/l	5.7
Subcontracted Analysis				
Hexavalent Chromium	$*	<2	ug/l	<2

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-18312
Client Ref 60678042
Contract Title

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2058700	F-BH102 1.00	SOIL	NAD	none	Pierce Booth
2058701	F-BH102 1.50	SOIL	NAD	none	Pierce Booth
2058702	F-BH102 6.60	SOIL	NAD	none	Pierce Booth

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-18312
Client Ref 60678042
Contract

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2058700	F-BH102 1.00 SOIL	09/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058701	F-BH102 1.50 SOIL	09/09/22	GJ 250ml, GJ 60ml, PT 1L		
2058702	F-BH102 6.60 SOIL	09/09/22	GJ 250ml, GJ 60ml, PT 1L		
2058703	F-BH102 8.20 SOIL	09/09/22	GJ 250ml, GJ 60ml, PT 1L		
2058704	F-BH102 1.00 LEACHATE	09/09/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number 22-18314 *Issued:* 28-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference 22-18314

Client Reference 60678042

Order No (not supplied)

Contract Title NZT Feed GI

Description One Soil sample.

Date Received 15-Sep-22

Date Started 15-Sep-22

Date Completed 28-Sep-22

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-18314
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2058711
.Sample ID	F-BH102
Depth	14.50
Other ID	
Sample Type	ES
Sampling Date	12/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
Moisture Content	DETSC 1004	0.1	%	14
Metals				
Aluminium	DETSC 2301*	1	mg/kg	2500
Arsenic	DETSC 2301#	0.2	mg/kg	20
Beryllium	DETSC 2301#	0.2	mg/kg	< 0.2
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.7
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	5.6
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	6.6
Iron	DETSC 2301	25	mg/kg	18000
Lead	DETSC 2301#	0.3	mg/kg	4.8
Manganese	DETSC 2301#	20	mg/kg	320
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	1.2
Nickel	DETSC 2301#	1	mg/kg	6.6
Phosphorus	DETSC 2301*	1	mg/kg	520
Selenium	DETSC 2301#	0.5	mg/kg	0.6
Tin	DETSC 2301	1	mg/kg	< 1.0
Vanadium	DETSC 2301#	0.8	mg/kg	22
Zinc	DETSC 2301#	1	mg/kg	24
Inorganics				
pH	DETSC 2008#		pH	8.8
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6
Organic matter	DETSC 2002#	0.1	%	0.5
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	2.0
Chloride	DETSC 2055	1	mg/kg	532
Fluoride	DETSC 2055	1	mg/kg	< 1.0
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	0.52
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	110
Sulphide	DETSC 2024*	10	mg/kg	36
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.05
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.09

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-18314
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2058711
.Sample ID	F-BH102
Depth	14.50
Other ID	
Sample Type	ES
Sampling Date	12/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Petroleum Hydrocarbons				
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic >EC10-EC12: EH_2D_AL	DETSC 3521#	1.5	mg/kg	1.83
Aliphatic >EC12-EC16: EH_2D_AL	DETSC 3521#	1.2	mg/kg	1.40
Aliphatic >EC16-EC21: EH_2D_AL	DETSC 3521#	1.5	mg/kg	< 1.50
Aliphatic >EC21-EC35: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40
Aliphatic >EC35-EC40: EH_2D_AL	DETSC 3521#	3.4	mg/kg	< 3.40
Aliphatic C5-C40: EH_2D+HS_1D_AL	DETSC 3521*	10	mg/kg	12.86
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic >EC10-EC12: EH_2D_AR	DETSC 3521#	0.9	mg/kg	< 0.90
Aromatic >EC12-EC16: EH_2D_AR	DETSC 3521#	0.5	mg/kg	< 0.50
Aromatic >EC16-EC21: EH_2D_AR	DETSC 3521#	0.6	mg/kg	1.17
Aromatic >EC21-EC35: EH_2D_AR	DETSC 3521#	1.4	mg/kg	< 1.40
Aromatic >EC35-EC40: EH_2D_AR	DETSC 3521*	1.4	mg/kg	< 1.40
Aromatic C5-C40: EH_2D+HS_1D_AR	DETSC 3521*	10	mg/kg	< 10.00
TPH Ali/Aro C5-C40: EH_2D+HS_1D_Total	DETSC 3521*	10	mg/kg	18.92
PAHs				
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10
Phenols				
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-18314
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2058711	F-BH102 14.50 SOIL	12/09/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic >EC10-EC12	EH_2D_AL
Aliphatic >EC12-EC16	EH_2D_AL
Aliphatic >EC16-EC21	EH_2D_AL
Aliphatic >EC21-EC35	EH_2D_AL
Aliphatic >EC35-EC40	EH_2D_AL
Aliphatic C5-C40	EH_2D+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic >EC10-EC12	EH_2D_AR
Aromatic >EC12-EC16	EH_2D_AR
Aromatic >EC16-EC21	EH_2D_AR
Aromatic >EC21-EC35	EH_2D_AR
Aromatic >EC35-EC40	EH_2D_AR
Aromatic C5-C40	EH_2D+HS_1D_AR
TPH Ali/Aro C5-C40	EH_2D+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-18373	*Issued:*	23-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-18373
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	2 Soil samples, 2 Leachate samples.

Date Received	08-Aug-22
Date Started	16-Sep-22
Date Completed	23-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-18373
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2058947	2058948
			.Sample ID	F-BH120	F-BH120
			Depth	3.50	5.50
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/08/2022	02/08/2022
			Sampling Time	1400	1500
Test	**Method**	**LOD**	**Units**		
Metals					
Aluminium	DETSC 2301*	1	mg/kg	57000	3400
Iron	DETSC 2301	25	mg/kg	3200	8400
Manganese	DETSC 2301#	20	mg/kg	550	170
Molybdenum	DETSC 2301#	0.4	mg/kg	0.8	0.4
Phosphorus	DETSC 2301*	1	mg/kg	130	140
Tin	DETSC 2301	1	mg/kg	< 1.0	< 1.0
Inorganics					
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	3.2	1.7
Chloride	DETSC 2055	1	mg/kg	29.9	28.0
Fluoride	DETSC 2055	1	mg/kg	1.5	1.5
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	< 0.10	0.13

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-18373
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2058949	2058950
			.Sample ID	F-BH120	F-BH120
			Depth	3.50	5.50
			Other ID		
			Sample Type	ES	ES
			Sampling Date	02/08/2022	02/08/2022
			Sampling Time	1400	1500
Test	**Method**	**LOD**	**Units**		
Preparation					
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y
Metals					
Aluminium, Dissolved	DETSC 2306	10	ug/l	18	350
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1
Manganese, Dissolved	DETSC 2306	0.22	ug/l	5.6	1.5
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	3.9	16
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	19	51
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	18	16
Inorganics					
Chloride	DETSC 2055	0.1	mg/l	3.1	3.4
Fluoride	DETSC 2055*	0.1	mg/l	0.36	< 0.10
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	0.02	0.05

Key: * -not accredited.

Information in Support of the Analytical Results

Our Ref 22-18373
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2058947	F-BH120 3.50 SOIL	02/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058948	F-BH120 5.50 SOIL	02/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058949	F-BH120 3.50 LEACHATE	02/08/22	GJ 250ml, GJ 60ml, PT 1L		
2058950	F-BH120 5.50 LEACHATE	02/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

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Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-18376	*Issued:*	23-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-18376
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	7 Soil samples, 4 Leachate samples.

Date Received	11-Aug-22
Date Started	16-Sep-22
Date Completed	23-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).

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Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-18376
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2058956	2058957	2058958	2058959	2058960	2058961	2058962
			.Sample ID	F-BH125	F-BH125	F-BH125	F-BH125	F-BH130	F-BH130	F-BH130
			Depth	3.80	4.80	5.30	6.30	4.25	6.60	9.00
			Other ID							
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022	04/08/2022
			Sampling Time	1000	1030	1100	1130	1300	1400	1500
Test	**Method**	**LOD**	**Units**							
Metals										
Aluminium	DETSC 2301*	1	mg/kg	43000	5000	1700	9100	18000	1600	5600
Iron	DETSC 2301	25	mg/kg	5100	300000	10000	33000	43000	8500	14000
Manganese	DETSC 2301#	20	mg/kg	1500	3100	200	180	1300	230	140
Molybdenum	DETSC 2301#	0.4	mg/kg	0.9	1.0	0.5	1.2	2.8	0.6	1.6
Phosphorus	DETSC 2301*	1	mg/kg	200	18000	300	730	1500	190	300
Tin	DETSC 2301	1	mg/kg	< 1.0	1.8	< 1.0	< 1.0	6.1	< 1.0	< 1.0
Inorganics										
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	0.58	1.0	0.69	24	1.9	2.6	4.7
Chloride	DETSC 2055	1	mg/kg	5.3	36.9	3.8	50.9	3.6	11.0	39.0
Fluoride	DETSC 2055	1	mg/kg	1.4	1.4	1.1	< 1.0	1.5	< 1.0	1.4
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	< 0.10	5.8	0.32	7.0	0.40	0.22	0.49

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-18376
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2058963	2058964	2058965	2058966
			.Sample ID	F-BH125	F-BH125	F-BH130	F-BH130
			Depth	4.80	5.30	4.25	6.60
			Other ID				
			Sample Type	LEACHATE	LEACHATE	LEACHATE	LEACHATE
			Sampling Date	04/08/2022	04/08/2022	04/08/2022	04/08/2022
			Sampling Time	1030	1100	1300	1400
Test	**Method**	**LOD**	**Units**				
Preparation							
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y	Y	Y
Metals							
Aluminium, Dissolved	DETSC 2306	10	ug/l	760	610	79	51
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Manganese, Dissolved	DETSC 2306	0.22	ug/l	0.75	0.28	36	24
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	6.8	3.6	2.5	1.4
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	600	170	100	26
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4	< 0.4	< 0.4	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	52	12	1.7	< 0.6
Inorganics							
Chloride	DETSC 2055	0.1	mg/l	1.8	2.8	0.88	0.89
Fluoride	DETSC 2055*	0.1	mg/l	0.16	0.18	2.4	0.25
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	0.04	0.03	0.02	0.02

Key: * -not accredited.

Information in Support of the Analytical Results

Our Ref 22-18376
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2058956	F-BH125 3.80 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058957	F-BH125 4.80 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058958	F-BH125 5.30 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058959	F-BH125 6.30 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058960	F-BH130 4.25 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058961	F-BH130 6.60 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058962	F-BH130 9.00 SOIL	04/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058963	F-BH125 4.80 LEACHATE	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2058964	F-BH125 5.30 LEACHATE	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2058965	F-BH130 4.25 LEACHATE	04/08/22	GJ 250ml, GJ 60ml, PT 1L		
2058966	F-BH130 6.60 LEACHATE	04/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

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Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-18377	*Issued:*	26-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-18377
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	One Soil sample.
Date Received	11-Aug-22
Date Started	16-Sep-22
Date Completed	26-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-18377
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2058967
.Sample ID	F-BH125
Depth	14.80
Other ID	
Sample Type	SOIL
Sampling Date	05/08/2022
Sampling Time	1600

Test	Method	LOD	Units	
Metals				
Aluminium	DETSC 2301*	1	mg/kg	17000
Iron	DETSC 2301	25	mg/kg	42000
Manganese	DETSC 2301#	20	mg/kg	560
Molybdenum	DETSC 2301#	0.4	mg/kg	1.1
Phosphorus	DETSC 2301*	1	mg/kg	560
Tin	DETSC 2301	1	mg/kg	< 1.0
Inorganics				
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	2.4
Chloride	DETSC 2055	1	mg/kg	266
Fluoride	DETSC 2055	1	mg/kg	< 1.0
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	0.16

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Information in Support of the Analytical Results

Our Ref 22-18377
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2058967	F-BH125 14.80 SOIL	05/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number 22-18381 *Issued:* 26-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference 22-18381

Client Reference 60678042

Order No (not supplied)

Contract Title NZT FEED GI

Description 5 Soil samples, 2 Leachate samples.

Date Received 17-Aug-22

Date Started 16-Sep-22

Date Completed 26-Sep-22

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-18381
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2058982	2058983	2058984	2058985	2058986
			.Sample ID	F-BH119	F-BH119	F-BH133	F-BH133	F-BH133
			Depth	2.90	4.30	0.70	2.70	5.00
			Other ID					
			Sample Type	ES	ES	ES	ES	ES
			Sampling Date	09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
			Sampling Time	1000	1200	1400	1430	0930
Test	**Method**	**LOD**	**Units**					
Metals								
Aluminium	DETSC 2301*	1	mg/kg	8400	1200	16000	56000	1400
Iron	DETSC 2301	25	mg/kg	96000	7300	130000	70000	8800
Manganese	DETSC 2301#	20	mg/kg	27000	200	14000	1700	270
Molybdenum	DETSC 2301#	0.4	mg/kg	3.1	0.4	4.5	1.5	0.6
Phosphorus	DETSC 2301*	1	mg/kg	18000	170	6000	3000	240
Tin	DETSC 2301	1	mg/kg	4.9	< 1.0	14	1.1	< 1.0
Inorganics								
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	1.2	1.4	1.7	2.3	2.0
Chloride	DETSC 2055	1	mg/kg	70.1	33.2	26.8	38.4	7.0
Fluoride	DETSC 2055	1	mg/kg	22	2.4	24	9.9	2.9
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	0.25	0.12	1.0	0.20	0.87

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-18381
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2058987	2058988
			.Sample ID	F-BH119	F-BH133
			Depth	2.90	0.70
			Other ID		
			Sample Type	ES	ES
			Sampling Date	09/08/2022	09/08/2022
			Sampling Time	1000	1400
Test	**Method**	**LOD**	**Units**		
Preparation					
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y
Metals					
Aluminium, Dissolved	DETSC 2306	10	ug/l	1200	180
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1
Manganese, Dissolved	DETSC 2306	0.22	ug/l	0.26	7.0
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	2.3	5.2
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	47	110
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	7.1	47
Inorganics					
Chloride	DETSC 2055	0.1	mg/l	5.2	3.4
Fluoride	DETSC 2055*	0.1	mg/l	1.2	0.94
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	< 0.01	0.14

Key: * -not accredited.

Information in Support of the Analytical Results

Our Ref 22-18381
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2058982	F-BH119 2.90 SOIL	09/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058983	F-BH119 4.30 SOIL	09/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058984	F-BH133 0.70 SOIL	09/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058985	F-BH133 2.70 SOIL	09/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058986	F-BH133 5.00 SOIL	09/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2058987	F-BH119 2.90 LEACHATE	09/08/22	GJ 250ml, GJ 60ml, PT 1L		
2058988	F-BH133 0.70 LEACHATE	09/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-18398	*Issued:*	26-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-18398
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	4 Soil samples, 1 Leachate sample.

Date Received	30-Aug-22
Date Started	16-Sep-22
Date Completed	26-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-18398
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2059038	2059039	2059040	2059041
			.Sample ID	F-BH104	F-BH104	F-BH104	F-BH104
			Depth	3.00	4.00	6.00	15.75
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	17/08/2022	17/08/2022	17/08/2022	18/08/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Metals							
Aluminium	DETSC 2301*	1	mg/kg	8900	6500	820	20000
Iron	DETSC 2301	25	mg/kg	94000	62000	4800	37000
Manganese	DETSC 2301#	20	mg/kg	1400	68000	120	570
Molybdenum	DETSC 2301#	0.4	mg/kg	2.3	1.4	< 0.4	1.0
Phosphorus	DETSC 2301*	1	mg/kg	1500	16000	120	490
Tin	DETSC 2301	1	mg/kg	1.9	2.3	< 1.0	1.1
Inorganics							
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	1.8	1.4	1.5	3.2
Chloride	DETSC 2055	1	mg/kg	31.7	29.6	45.5	321
Fluoride	DETSC 2055	1	mg/kg	1.5	5.8	1.2	4.2
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	0.16	< 0.10	< 0.10	0.18

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-18398
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2059042
.Sample ID	F-BH104
Depth	4.00
Other ID	
Sample Type	ES
Sampling Date	17/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Aluminium, Dissolved	DETSC 2306	10	ug/l	< 10
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1
Manganese, Dissolved	DETSC 2306	0.22	ug/l	< 0.22
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	< 1.1
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	< 18
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	< 0.6
Inorganics				
Chloride	DETSC 2055	0.1	mg/l	3.8
Fluoride	DETSC 2055*	0.1	mg/l	0.69
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	0.02

Key: * -not accredited. n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-18398
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2059038	F-BH104 3.00 SOIL	17/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2059039	F-BH104 4.00 SOIL	17/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2059040	F-BH104 6.00 SOIL	17/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2059041	F-BH104 15.75 SOIL	18/08/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2059042	F-BH104 4.00 LEACHATE	17/08/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-18458	*Issued:*	23-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-18458
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	3 Soil samples.
Date Received	16-Sep-22
Date Started	16-Sep-22
Date Completed	23-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-18458
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2059320	2059321	2059322
			.Sample ID	F-BH104	F-BH104	F-BH104
			Depth	6.75	12.00-12.70	14.30-15.00
			Other ID			
			Sample Type	D	B	B
			Sampling Date	17/08/2022	17/08/2022	17/08/2022
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Inorganics						
Organic matter	DETSC 2002#	0.1	%			0.5
Carbonate (as CO2)	DETSC 2005	1	%	2.8	4.3	

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-18458
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2059320	F-BH104 6.75 SOIL	17/08/22	PT 1L	Carbonate (28 days)	
2059321	F-BH104 12.00-12.70 SOIL	17/08/22	PT 1L	Carbonate (28 days)	
2059322	F-BH104 14.30-15.00 SOIL	17/08/22	PT 1L	Organic Matter (Manual) (28 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-18467	*Issued:*	23-Sep-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-18467
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	2 Soil samples.
Date Received	16-Sep-22
Date Started	16-Sep-22
Date Completed	23-Sep-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis

Soil Samples

Our Ref 22-18467
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2059346	2059347
			.Sample ID	F-BH115	F-BH115
			Depth	6.00-6.75	9.80-10.50
			Other ID		
			Sample Type	B	B
			Sampling Date	25/08/2022	25/08/2022
			Sampling Time	1300	1300
Test	**Method**	**LOD**	**Units**		
Inorganics					
Organic matter	DETSC 2002#	0.1	%	0.5	0.2
Carbonate (as CO2)	DETSC 2005	1	%	3.3	3.0

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Information in Support of the Analytical Results

Our Ref 22-18467
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2059346	F-BH115 6.00-6.75 SOIL	25/08/22	PT 1L		
2059347	F-BH115 9.80-10.50 SOIL	25/08/22	PT 1L		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-18803	*Issued:*	05-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-18803
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	5 Soil samples, 3 Leachate samples.

Date Received	22-Sep-22
Date Started	22-Sep-22
Date Completed	05-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-18803
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2061468	2061469	2061470	2061471	2061472
			.Sample ID	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114
			Depth	0.50	1.80	2.80	3.80	5.80
			Other ID					
			Sample Type	ES	ES	ES	ES	ES
			Sampling Date	16/09/2022	16/09/2022	16/09/2022	16/09/2022	16/09/2022
			Sampling Time	1000	0900	0930	1000	1103
Test	**Method**	**LOD**	**Units**					
Asbestos Quantification	DETSC 1102	0.001	%	0.002				
Preparation								
Moisture Content	DETSC 1004	0.1	%	6.5	6.6	2.5	4.3	23
Metals								
Aluminium	DETSC 2301*	1	mg/kg	33000	21000		37000	
Arsenic	DETSC 2301#	0.2	mg/kg	13	24	9.1	5.9	7.5
Beryllium	DETSC 2301#	0.2	mg/kg	3.6	2.3	0.2	5.8	< 0.2
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	7.7	2.3	0.4	7.6	0.8
Cadmium	DETSC 2301#	0.1	mg/kg	0.4	0.4	< 0.1	< 0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	42	120	6.8	9.9	3.3
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	23	70	4.9	5.0	3.6
Iron	DETSC 2301	25	mg/kg	19000	42000		4100	
Lead	DETSC 2301#	0.3	mg/kg	35	67	19	8.8	19
Manganese	DETSC 2301#	20	mg/kg	16000	3800		1300	
Mercury	DETSC 2325#	0.05	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	1.9	1.9		0.8	
Nickel	DETSC 2301#	1	mg/kg	7.5	20	4.2	1.4	3.1
Phosphorus	DETSC 2301*	1	mg/kg	650	1900		92	
Selenium	DETSC 2301#	0.5	mg/kg	5.4	1.5	< 0.5	3.0	< 0.5
Tin	DETSC 2301	1	mg/kg	3.0	7.4		1.0	
Vanadium	DETSC 2301#	0.8	mg/kg	150	270	30	37	12
Zinc	DETSC 2301#	1	mg/kg	140	130	28	8.6	19
Inorganics								
pH	DETSC 2008#		pH	10.6	10.5	8.6	10.9	7.7
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.5	0.2	< 0.1	< 0.1	0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	1.0	< 0.6	< 0.6	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	0.7	1.7	< 0.1	0.4	0.2
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	0.74	1.1		0.79	
Chloride	DETSC 2055	1	mg/kg	363	87.6		9.6	
Fluoride	DETSC 2055	1	mg/kg	< 1.0	4.1		4.8	
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0	7.0	7.6	< 1.0	< 1.0
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	0.54	0.16		0.13	
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	1600	1200	83	630	160
Sulphide	DETSC 2024*	10	mg/kg	1400	950	170	2100	160
Sulphur (free)	DETSC 3049#	0.75	mg/kg	12	69	3.8	210	2.5
Sulphur as S, Total	DETSC 2320	0.01	%	0.75	0.39	0.04	0.41	0.06
Sulphate as SO4, Total	DETSC 2321#	0.01	%	2.8	1.4	0.12	0.91	0.13
Petroleum Hydrocarbons								
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-18803
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2061468	2061469	2061470	2061471	2061472
			.Sample ID	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114
			Depth	0.50	1.80	2.80	3.80	5.80
			Other ID					
			Sample Type	ES	ES	ES	ES	ES
			Sampling Date	16/09/2022	16/09/2022	16/09/2022	16/09/2022	16/09/2022
			Sampling Time	1000	0900	0930	1000	1103
Test	**Method**	**LOD**	**Units**					
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10
PAHs								
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.03	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	0.10	0.06	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.30	0.31	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.17	0.25	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.54	0.39	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.14	0.10	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.19	0.15	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.49	0.36	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.04	0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	1.5	0.73	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.15	0.10	< 0.03	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	0.04	0.04	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.97	0.29	< 0.03	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.93	0.66	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	5.6	3.4	< 0.10	< 0.10	< 0.10

Summary of Chemical Analysis
Soil Samples

Our Ref 22-18803
Client Ref 60678042
Contract Title NZT Feed GI

	Lab No	2061468	2061469	2061470	2061471	2061472
	.Sample ID	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114
	Depth	0.50	1.80	2.80	3.80	5.80
	Other ID					
	Sample Type	ES	ES	ES	ES	ES
	Sampling Date	16/09/2022	16/09/2022	16/09/2022	16/09/2022	16/09/2022
	Sampling Time	1000	0900	0930	1000	1103
Test	**Method**	**LOD**	**Units**					
PCBs								
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01	
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01	
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01	
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01	
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01	
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01	
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01	
PCB 77	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 81	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 105	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 114	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 118	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 123	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 126	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 156	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 157	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 167	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 169	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 189	DETSC 3401*	0.01	mg/kg	< 0.01			< 0.01	
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01	
Phenols								
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	0.7	< 0.3
Subcontracted Analysis								
Benzene	$*	<2	ug/kg	5		<2		<2
Toluene	$*	<5	ug/kg	<5		<5		<5
Ethylbenzene	$*	<2	ug/kg	<2		<2		<2
p & m-xylene	$*	<2	ug/kg	<2		<2		<2
o-xylene	$*	<2	ug/kg	<2		<2		<2
MTBE	$*	<5	ug/kg	<5		<5		<5
TAME	$*	< 5	ug/kg	< 5		<5		<5

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-18803
Client Ref 60678042
Contract Title NZT Feed GI

	Lab No	2061473	2061474	2061475
	.Sample ID	F-BH114	F-BH114	F-BH114
	Depth	0.50	1.80	3.80
	Other ID			
	Sample Type	ES	ES	ES
	Sampling Date	16/09/2022	16/09/2022	16/09/2022
	Sampling Time	1000	0900	1000
Test	**Method**	**LOD**	**Units**	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y	Y
Metals				
Aluminium, Dissolved	DETSC 2306	10	ug/l		280	
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	3.3	2.0	1.0
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l		< 0.1	
Boron, Dissolved	DETSC 2306*	12	ug/l	170	64	120
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0	1.1	1.7
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007	< 0.007	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	11	5.0	2.8
Iron, Dissolved	DETSC 2306	5.5	ug/l	< 5.5	< 5.5	< 5.5
Lead, Dissolved	DETSC 2306	0.09	ug/l	25	24	20
Manganese, Dissolved	DETSC 2306	0.22	ug/l		2.4	
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.02	0.07	0.03
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l		5.8	
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	< 0.5	< 0.5
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l		46	
Selenium, Dissolved	DETSC 2306	0.25	ug/l	1.3	1.4	9.1
Tin, Dissolved	DETSC 2306*	0.4	ug/l		< 0.4	
Vanadium, Dissolved	DETSC 2306	0.6	ug/l		45	
Zinc, Dissolved	DETSC 2306	1.3	ug/l	< 1.3	< 1.3	< 1.3
Inorganics				
pH	DETSC 2008		pH	9.4	9.5	10.6
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	1.8	0.5	0.2
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	150	30	< 20
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	516	357	136
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.08	0.11	< 0.02
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.078	0.11	< 0.015
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.064	0.087	< 0.015
Chloride	DETSC 2055	0.1	mg/l		13	
Fluoride	DETSC 2055*	0.1	mg/l		< 0.10	
Nitrate as NO3	DETSC 2055	0.1	mg/l	< 0.10	0.99	< 0.10
Nitrite as NO2	DETSC 2055	0.1	mg/l	0.48	< 0.10	< 0.10
Ortho Phosphate as P	DETSC 2205	0.01	mg/l		< 0.01	
Sulphate as SO4	DETSC 2055	0.1	mg/l	560	310	22
Total Organic Carbon	DETSC 2085	1	mg/l	11	6.2	5.6
Petroleum Hydrocarbons				
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l		< 0.1	
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l		< 0.1	

Key: * -not accredited.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-18803
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2061473	2061474	2061475
			.Sample ID	F-BH114	F-BH114	F-BH114
			Depth	0.50	1.80	3.80
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	16/09/2022	16/09/2022	16/09/2022
			Sampling Time	1000	0900	1000
Test	**Method**	**LOD**	**Units**			
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l		< 0.1	
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l		< 1.0	
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l		< 1.0	
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l		< 1.0	
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l		< 1.0	
Aliphatic C5-C35: EH_CU+HS_1D_AL	DETSC 3072*	10	ug/l		< 10	
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l		< 0.1	
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l		< 0.1	
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l		< 0.1	
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l		< 1.0	
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l		< 1.0	
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l		< 1.0	
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l		< 1.0	
Aromatic C5-C35: EH_CU+HS_1D_AR	DETSC 3072*	10	ug/l		< 10	
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	DETSC 3072*	10	ug/l		< 10	
Benzene	DETSC 3322	1	ug/l		< 1.0	
Toluene	DETSC 3322	1	ug/l		< 1.0	
Ethylbenzene	DETSC 3322	1	ug/l		< 1.0	
Xylene	DETSC 3322	1	ug/l		< 1.0	
PAHs						
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01	0.02	< 0.01
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	0.03	0.01	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.02	0.03	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.01	0.02	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.02	0.04	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.01	0.02	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.01	0.03	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	0.02	0.03	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.06	0.06	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.01	< 0.01
Naphthalene	DETSC 3304	0.05	ug/l	0.06	< 0.05	< 0.05
Phenanthrene	DETSC 3304	0.01	ug/l	0.10	0.03	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	0.04	0.05	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	0.39	0.34	< 0.20

Key: * -not accredited.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-18803
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2061473	2061474	2061475
			.Sample ID	F-BH114	F-BH114	F-BH114
			Depth	0.50	1.80	3.80
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	16/09/2022	16/09/2022	16/09/2022
			Sampling Time	1000	0900	1000
Test	**Method**	**LOD**	**Units**			
PCBs						
PCB 28 + PCB 31	DETSC 3402	0.3	ug/l		< 0.3	
PCB 52	DETSC 3402	0.2	ug/l		< 0.2	
PCB 77	DETSC 3402	0.3	ug/l		< 0.3	
PCB 81	DETSC 3402	0.2	ug/l		< 0.2	
PCB 101	DETSC 3402	0.3	ug/l		< 0.3	
PCB 105	DETSC 3402	0.2	ug/l		< 0.2	
PCB 114	DETSC 3402	0.3	ug/l		< 0.3	
PCB 118 + PCB 123	DETSC 3402	0.6	ug/l		< 0.6	
PCB 126	DETSC 3402	0.5	ug/l		< 0.5	
PCB 138	DETSC 3402	0.2	ug/l		< 0.2	
PCB 153	DETSC 3402	0.2	ug/l		< 0.2	
PCB 156	DETSC 3402	0.3	ug/l		< 0.3	
PCB 157	DETSC 3402	0.2	ug/l		< 0.2	
PCB 167	DETSC 3402	0.3	ug/l		< 0.3	
PCB 169	DETSC 3402	0.2	ug/l		< 0.2	
PCB 180	DETSC 3402	0.2	ug/l		< 0.2	
PCB 189	DETSC 3402	0.3	ug/l		< 0.3	
PCB 12	DETSC 3402	1	ug/l		< 1.0	
PCB 7 Total	DETSC 3402	1	ug/l		< 1.0	
Phenols						
Phenol	DETSC 3451*	0.1	ug/l		< 0.10	
4-Chloro-3-methylphenol	DETSC 3451*	0.1	ug/l		< 0.10	
2,4-Dichlorophenol	DETSC 3451*	0.1	ug/l		< 0.10	
2,4-Dimethylphenol	DETSC 3451*	0.1	ug/l		< 0.10	
p-cresol	DETSC 3451*	0.1	ug/l		< 0.10	
2,6-Dimethylphenol	DETSC 3451*	0.1	ug/l		< 0.10	
2,6-Dichlorophenol	DETSC 3451*	0.1	ug/l		< 0.10	
2,4,6-Trichlorophenol	DETSC 3451*	0.1	ug/l		< 0.10	

Key: * -not accredited.

Summary of Asbestos Analysis
Soil Samples

Our Ref 22-18803
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2061468	F-BH114 0.50	SOIL	Amosite	Amosite present as fibre bundles	Josh Best
2061469	F-BH114 1.80	SOIL	NAD	none	Josh Best
2061470	F-BH114 2.80	SOIL	NAD	none	Josh Best

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis
Soil Samples

Our Ref 22-18803
Client Ref 60678042
Contract Title NZT Feed GI

		Lab No	2061468
		.Sample ID	F-BH114
		Depth	0.50
		Other ID	
		Sample Type	ES
		Sampling Date	16/09/2022
		Sampling Time	1000
Test	**Method**	**Units**	
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	**0.002**
Gravimetric Quantification (a)	DETSC 1102	Mass %	na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	0.002
Quantification by PCOM (c)	DETSC 1102	Mass %	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na
Breakdown of Gravimetric Analysis (a)			
Mass of Sample		g	26.51
ACMs present*		type	
Mass of ACM in sample		g	
% ACM by mass		%	
% asbestos in ACM		%	
% asbestos in sample		%	
Breakdown of Detailed Gravimetric Analysis (b)			
% Amphibole bundles in sample		Mass %	0.002
% Chrysotile bundles in sample		Mass %	na
Breakdown of PCOM Analysis (c)			
% Amphibole fibres in sample		Mass %	na
% Chrysotile fibres in sample		Mass %	na
Breakdown of Potentially Respirable Fibre Analysis (d)			
Amphibole fibres		Fibres/g	na
Chrysotile fibres		Fibres/g	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Information in Support of the Analytical Results

Our Ref 22-18803
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2061468	F-BH114 0.50 SOIL	16/09/22	GJ 250ml, GJ 500ml, PT 1L	Ammonia (3 days)	
2061469	F-BH114 1.80 SOIL	16/09/22	GJ 250ml, GJ 500ml, PT 1L	Ammonia (3 days)	
2061470	F-BH114 2.80 SOIL	16/09/22	GJ 250ml, GJ 500ml, PT 1L		
2061471	F-BH114 3.80 SOIL	16/09/22	GJ 250ml, GJ 500ml, PT 1L	Ammonia (3 days)	
2061472	F-BH114 5.80 SOIL	16/09/22	GJ 250ml, GJ 500ml, PT 1L		
2061473	F-BH114 0.50 LEACHATE	16/09/22	GJ 250ml, GJ 500ml, PT 1L		
2061474	F-BH114 1.80 LEACHATE	16/09/22	GJ 250ml, GJ 500ml, PT 1L		
2061475	F-BH114 3.80 LEACHATE	16/09/22	GJ 250ml, GJ 500ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C40	EH_CU_1D_AL
Aliphatic C5-C40	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C40	EH_CU_1D_AR
Aromatic C5-C40	EH_CU+HS_1D_AR
TPH Ali/Aro C5-C40	EH_CU+HS_1D_Total
Aliphatic C5-C35	EH_CU+HS_1D_AL
Aromatic C5-C35	EH_CU+HS_1D_AR
TPH Ali/Aro Total C5-C35	EH_CU+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-19109	*Issued:*	20-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-19109
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	4 Soil samples.
Date Received	27-Sep-22
Date Started	27-Sep-22
Date Completed	20-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19109
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2063354	2063355	2063356	2065445
			.Sample ID	F-BH114	CR-TP112	CR-TP112	F-BH114
			Depth	13.20	0.30	2.30	20.30
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	20/09/2022	20/09/2022	20/09/2022	20/09/2022
			Sampling Time	1200	n/s	n/s	1500
Test	**Method**	**LOD**	**Units**				
Preparation							
Moisture Content	DETSC 1004	0.1	%	26	7.1		11
Metals							
Aluminium	DETSC 2301*	1	mg/kg				12000
Arsenic	DETSC 2301#	0.2	mg/kg	9.1	13		8.5
Beryllium	DETSC 2301#	0.2	mg/kg	1.0	0.5		0.6
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	5.9	0.8		2.8
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	0.5		< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	37	36		17
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0		< 1.0
Copper	DETSC 2301#	0.2	mg/kg	21	38		21
Iron	DETSC 2301	25	mg/kg				21000
Lead	DETSC 2301#	0.3	mg/kg	21	74		5.9
Manganese	DETSC 2301#	20	mg/kg				450
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05		< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg				0.5
Nickel	DETSC 2301#	1	mg/kg	33	22		21
Phosphorus	DETSC 2301*	1	mg/kg				890
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	4.0		< 0.5
Tin	DETSC 2301	1	mg/kg				1.0
Vanadium	DETSC 2301#	0.8	mg/kg	59	69		21
Zinc	DETSC 2301#	1	mg/kg	80	190		24
Inorganics							
pH	DETSC 2008#		pH	8.5	8.2		9.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	0.6		0.3
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1		< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	0.9	< 0.6		4.1
Organic matter	DETSC 2002#	0.1	%	3.3	0.5		1.2
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg				6.2
Chloride	DETSC 2055	1	mg/kg				75.5
Fluoride	DETSC 2055	1	mg/kg				36
Nitrate as NO3	DETSC 2055	1	mg/kg	< 1.0	< 1.0		17
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg				0.15
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	450	730		260
Sulphide	DETSC 2024*	10	mg/kg	76	160		24
Sulphur (free)	DETSC 3049#	0.75	mg/kg	2.8	1.1		< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.56	0.11		0.53
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.18	0.30		0.10

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19109
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2063354	2063355	2063356	2065445
			.Sample ID	F-BH114	CR-TP112	CR-TP112	F-BH114
			Depth	13.20	0.30	2.30	20.30
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	20/09/2022	20/09/2022	20/09/2022	20/09/2022
			Sampling Time	1200	n/s	n/s	1500
Test	**Method**	**LOD**	**Units**				
Petroleum Hydrocarbons							
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	82	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	540	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	560	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	190	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	< 10	< 10	1400	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	28	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	250	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	290	< 0.6
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	110	< 1.4
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	< 10	< 10	680	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	< 10	< 10	2100	< 10
PAHs							
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03		< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05		< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03		< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.06		< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	0.05		< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.09		< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03		< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03		< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.08		< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	0.39		< 0.10

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19109
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2063354	2063355	2063356	2065445
			.Sample ID	F-BH114	CR-TP112	CR-TP112	F-BH114
			Depth	13.20	0.30	2.30	20.30
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	20/09/2022	20/09/2022	20/09/2022	20/09/2022
			Sampling Time	1200	n/s	n/s	1500
Test	**Method**	**LOD**	**Units**				
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.4	< 0.3		< 0.3
Phenol	DETSC 3451*	0.01	mg/kg	< 0.01			
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg	< 0.01			
p-cresol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01			
Subcontracted Analysis							
Benzene	$*	<2	ug/kg	<2		<2	
Toluene	$*	<5	ug/kg	<5		<5	
Ethylbenzene	$*	<2	ug/kg	<2		<2	
p & m-xylene	$*	<2	ug/kg	<2		<2	
o-xylene	$*	<2	ug/kg	<2		<2	
MTBE	$*	<5	ug/kg	<5		<5	
TAME	$*	< 5	ug/kg	< 5		< 5	

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-19109
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2063354	2063356
			.Sample ID	F-BH114	CR-TP112
			Depth	13.20	2.30
			Other ID		
			Sample Type	ES	ES
			Sampling Date	20/09/2022	20/09/2022
			Sampling Time	1200	n/s
Test	**Method**	**LOD**	**Units**		
VOCs					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-19109
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2063354	2063356
			.Sample ID	F-BH114	CR-TP112
			Depth	13.20	2.30
			Other ID		
			Sample Type	ES	ES
			Sampling Date	20/09/2022	20/09/2022
			Sampling Time	1200	n/s
Test	**Method**	**LOD**	**Units**		
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Naphthalene	DETSC 3431	0.01	mg/kg		< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
SVOCs					
Phenol	DETSC 3433	0.1	mg/kg		< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg		< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg		< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg		< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	0.3
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg		< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Acenaphthylene	DETSC 3433	0.1	mg/kg		< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Acenaphthene	DETSC 3433	0.1	mg/kg		< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1	0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-19109
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2063354	2063356
			.Sample ID	F-BH114	CR-TP112
			Depth	13.20	2.30
			Other ID		
			Sample Type	ES	ES
			Sampling Date	20/09/2022	20/09/2022
			Sampling Time	1200	n/s
Test	**Method**	**LOD**	**Units**		
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Fluorene	DETSC 3433	0.1	mg/kg		< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Phenanthrene	DETSC 3433	0.1	mg/kg		0.5
Anthracene	DETSC 3433	0.1	mg/kg		< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Fluoranthene	DETSC 3433	0.1	mg/kg		0.3
Pyrene	DETSC 3433	0.1	mg/kg		0.2
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3433	0.1	mg/kg		< 0.1
Chrysene	DETSC 3433	0.1	mg/kg		0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3433	0.1	mg/kg		< 0.1
Benzo(k)fluoranthene	DETSC 3433	0.1	mg/kg		< 0.1
Benzo(a)pyrene	DETSC 3433	0.1	mg/kg		< 0.1
Indeno(123cd)pyrene	DETSC 3433	0.1	mg/kg		< 0.1
Dibenzo(ah)anthracene	DETSC 3433	0.1	mg/kg		< 0.1
Benzo(ghi)perylene	DETSC 3433	0.1	mg/kg		< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1

Key: * -not accredited. n/s -not supplied.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-19109
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2063355	CR-TP112 0.30	SOIL	NAD	none	Michael Kay

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-19109
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2063354	F-BH114 13.20 SOIL	20/09/22	GJ 250ml, GJ 500ml, PT 1L		
2063355	CR-TP112 0.30 SOIL	20/09/22	GJ 250ml, GJ 500ml, PT 1L		
2063356	CR-TP112 2.30 SOIL	20/09/22	GJ 250ml, GJ 500ml, PT 1L		
2065445	F-BH114 20.30 SOIL	20/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days), Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C40	EH_CU_1D_AL
Aliphatic C5-C40	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C40	EH_CU_1D_AR
Aromatic C5-C40	EH_CU+HS_1D_AR
TPH Ali/Aro C5-C40	EH_CU+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number 22-19275 *Issued:* 04-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference 22-19275

Client Reference 60678042

Order No (not supplied)

Contract Title NZT Feed GI

Description 8 Soil samples.

Date Received 28-Sep-22

Date Started 28-Sep-22

Date Completed 04-Oct-22

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-19275
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2064390	2064391	2064392	2064393	2064394	2064395	2064396	2064397
			.Sample ID	F-BH116	F-BH116	F-BH116	F-BH116	F-BH116	F-BH116	F-BH116	F-BH116
			Depth	4.50-4.93	6.00-6.70	9.00-9.70	11.02-11.53	12.00-12.53	12.88-13.50	14.00-14.45	14.55-15.00
			Other ID								
			Sample Type	B	B	B	B	B	B	B	B
			Sampling Date	02/09/2022	02/09/2022	02/09/2022	05/09/2022	05/09/2022	05/09/2002	05/09/2022	05/09/2022
			Sampling Time	0900	0900	0900	1000	1000	1000	1000	1000
Test	**Method**	**LOD**	**Units**								
Inorganics											
pH	DETSC 2008#		pH	12.0		11.7					
Organic matter	DETSC 2002#	0.1	%				2.2	1.8		2.5	5.4
Carbonate (as CO2)	DETSC 2005	1	%		3.4				4.5		
Chloride Aqueous Extract	DETSC 2055	1	mg/l	100		24					
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	38		41					
Sulphur as S, Total	DETSC 2320	0.01	%	0.22		0.03					
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.26		0.06					

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Information in Support of the Analytical Results

Our Ref 22-19275
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2064390	F-BH116 4.50-4.93 SOIL	02/09/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2064391	F-BH116 6.00-6.70 SOIL	02/09/22	PT 1L		
2064392	F-BH116 9.00-9.70 SOIL	02/09/22	PT 1L	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2064393	F-BH116 11.02-11.53 SOIL	05/09/22	PT 1L		
2064394	F-BH116 12.00-12.53 SOIL	05/09/22	PT 1L		
2064395	F-BH116 12.88-13.50 SOIL	05/09/02	PT 1L	Carbonate (28 days)	
2064396	F-BH116 14.00-14.45 SOIL	05/09/22	PT 1L		
2064397	F-BH116 14.55-15.00 SOIL	05/09/22	PT 1L		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-19347	*Issued:*	10-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-19347
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	5 Soil samples, 1 Leachate sample.

Date Received	28-Sep-22
Date Started	28-Sep-22
Date Completed	10-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19347
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2064596	2064597	2064598	2064599
			.Sample ID	F-TP114	F-TP114	F-TP114	F-TP114
			Depth	1.00	3.30	4.00	4.30
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	22/09/2022	22/09/2022	22/09/2022	22/09/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Preparation							
Moisture Content	DETSC 1004	0.1	%	4.4	8.2	6.4	3.9
Metals							
Aluminium	DETSC 2301*	1	mg/kg	9900	10000	4500	2700
Arsenic	DETSC 2301#	0.2	mg/kg	6.8	16	7.0	8.1
Beryllium	DETSC 2301#	0.2	mg/kg	0.8	1.6	0.5	0.3
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.5	1.2	0.9	0.5
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.7	0.3	0.2
Chromium III	DETSC 2301*	0.15	mg/kg	1300	540	310	63
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	52	54	27	14
Iron	DETSC 2301	25	mg/kg	83000	55000	42000	24000
Lead	DETSC 2301#	0.3	mg/kg	31	130	61	47
Manganese	DETSC 2301#	20	mg/kg	22000	9300	5700	1800
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	5.6	4.0	1.7	0.9
Nickel	DETSC 2301#	1	mg/kg	9.1	19	11	7.4
Phosphorus	DETSC 2301*	1	mg/kg	18000	9200	6000	1400
Selenium	DETSC 2301#	0.5	mg/kg	7.0	2.5	1.9	< 0.5
Tin	DETSC 2301	1	mg/kg	6.4	7.0	2.4	1.8
Vanadium	DETSC 2301#	0.8	mg/kg	2500	1200	800	170
Zinc	DETSC 2301#	1	mg/kg	59	140	61	51
Inorganics							
pH	DETSC 2008#		pH	11.7	11.6	11.2	11.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.1	0.2	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	0.5	1.2	1.0	0.3
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	0.50	0.63	1.4	0.82
Chloride	DETSC 2055	1	mg/kg	54.9	56.4	77.4	33.0
Fluoride	DETSC 2055	1	mg/kg	11	23	9.7	21
Nitrate as NO3	DETSC 2055	1	mg/kg	3.6	9.7	7.9	3.7
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	< 0.10	< 0.10	0.15	0.15
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	69	75	90	47
Sulphide	DETSC 2024*	10	mg/kg	420	530	330	110
Sulphur (free)	DETSC 3049#	0.75	mg/kg	1.2	0.97	< 0.75	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.22	0.13	0.07	0.03
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.25	0.20	0.14	0.08

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19347
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2064596	2064597	2064598	2064599
			.Sample ID	F-TP114	F-TP114	F-TP114	F-TP114
			Depth	1.00	3.30	4.00	4.30
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	22/09/2022	22/09/2022	22/09/2022	22/09/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Petroleum Hydrocarbons							
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
PAHs							
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	0.05	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.26	0.07	0.06
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.19	0.05	0.06
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.38	0.10	0.09
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.17	0.04	0.04
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.18	0.04	0.04
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	0.29	0.09	0.07
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.47	0.13	0.10
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.14	0.04	0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.31	0.09	0.09
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.39	0.11	0.09
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	2.9	0.77	0.64

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19347
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2064596	2064597	2064598	2064599
			.Sample ID	F-TP114	F-TP114	F-TP114	F-TP114
			Depth	1.00	3.30	4.00	4.30
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	22/09/2022	22/09/2022	22/09/2022	22/09/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg	< 0.01			
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg	< 0.01			
p-cresol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01			
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01			
Subcontracted Analysis							
Benzene	$*	<2	ug/kg	40		41	
Toluene	$*	<5	ug/kg	11		12	
Ethylbenzene	$*	<2	ug/kg	38		124	
p & m-xylene	$*	<2	ug/kg	35		103	
o-xylene	$*	<2	ug/kg	11		26	
MTBE	$*	<5	ug/kg	<5		<5	
TAME	$*	< 5	ug/kg	< 5		< 5	

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19347
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2064600
.Sample ID	F-TP114
Depth	1.00
Other ID	
Sample Type	ES
Sampling Date	22/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Aluminium, Dissolved	DETSC 2306	10	ug/l	630
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.8
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	34
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	4.2
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	0.034
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.6
Iron, Dissolved	DETSC 2306	5.5	ug/l	< 5.5
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.89
Manganese, Dissolved	DETSC 2306	0.22	ug/l	0.35
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.07
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	1.2
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	24
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.32
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	48
Zinc, Dissolved	DETSC 2306	1.3	ug/l	1.7
Inorganics				
pH	DETSC 2008		pH	9.0
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	< 20
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	48.1
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.12
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.12
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.095
Chloride	DETSC 2055	0.1	mg/l	4.0
Fluoride	DETSC 2055*	0.1	mg/l	0.47
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.51
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	0.02
Sulphate as SO4	DETSC 2055	0.1	mg/l	9.4
Total Organic Carbon	DETSC 2085	1	mg/l	1.8
PAHs				
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19347
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2064600
.Sample ID	F-TP114
Depth	1.00
Other ID	
Sample Type	ES
Sampling Date	22/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Naphthalene	DETSC 3304	0.05	ug/l	0.09
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20

Key: * -not accredited. n/s -not supplied.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-19347
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2064595	F-TP114 0.30	SOIL	NAD	none	Vicky Convery
2064596	F-TP114 1.00	SOIL	NAD	none	Vicky Convery
2064597	F-TP114 3.30	SOIL	NAD	none	Vicky Convery

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-19347
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2064595	F-TP114 0.30 SOIL	22/09/22	GJ 250ml, GJ 60ml, PT 1L		
2064596	F-TP114 1.00 SOIL	22/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2064597	F-TP114 3.30 SOIL	22/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2064598	F-TP114 4.00 SOIL	22/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2064599	F-TP114 4.30 SOIL	22/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2064600	F-TP114 1.00 LEACHATE	22/09/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C40	EH_CU_1D_AL
Aliphatic C5-C40	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C40	EH_CU_1D_AR
Aromatic C5-C40	EH_CU+HS_1D_AR
TPH Ali/Aro C5-C40	EH_CU+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-19349	*Issued:*	10-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-19349
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	5 Soil samples, 1 Leachate sample.

Date Received	28-Sep-22
Date Started	28-Sep-22
Date Completed	10-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis

Soil Samples

Our Ref 22-19349
Client Ref 60678042
Contract Title NZT Feed GI

	Lab No	2064602	2064604	2064605	2064606
	.Sample ID	F-TP113	F-TP113	F-TP113	F-TP113
	Depth	0.20	2.50	3.30	4.50
	Other ID				
	Sample Type	SOIL	SOIL	SOIL	SOIL
	Sampling Date	23/09/2022	23/09/2022	23/09/2022	23/09/2022
	Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Preparation					
Moisture Content	DETSC 1004	0.1	%	7.3	7.7	11	4.4
Metals					
Aluminium	DETSC 2301*	1	mg/kg	10000	23000	13000	
Arsenic	DETSC 2301#	0.2	mg/kg	2.5	16	39	9.9
Beryllium	DETSC 2301#	0.2	mg/kg	1.2	2.9	1.9	< 0.2
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	4.7	1.3	1.2	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	0.7	5.5	0.1
Chromium III	DETSC 2301*	0.15	mg/kg	64	150	97	3.8
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	10	79	160	6.7
Iron	DETSC 2301	25	mg/kg	8600	37000	73000	
Lead	DETSC 2301#	0.3	mg/kg	9.6	130	3900	57
Manganese	DETSC 2301#	20	mg/kg	1700	4200	2300	
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.08	0.13	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	1.4	2.4	3.3	
Nickel	DETSC 2301#	1	mg/kg	3.0	15	37	3.1
Phosphorus	DETSC 2301*	1	mg/kg	850	1600	1800	
Selenium	DETSC 2301#	0.5	mg/kg	0.9	2.1	< 0.5	< 0.5
Tin	DETSC 2301	1	mg/kg	1.2	11	24	
Vanadium	DETSC 2301#	0.8	mg/kg	130	250	230	15
Zinc	DETSC 2301#	1	mg/kg	19	270	1300	56
Inorganics							
pH	DETSC 2008#		pH	10.7	11.2	10.2	9.8
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	16	0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	3.1	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	0.5	2.0	1.4	0.4
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	0.74	0.76	0.81	
Chloride	DETSC 2055	1	mg/kg	25.2	50.1	78.3	
Fluoride	DETSC 2055	1	mg/kg	4.6	6.3	23	
Nitrate as NO3	DETSC 2055	1	mg/kg	3.8	8.1	2.8	2.8
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	< 0.10	0.15	0.14	
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	810	130	100	24
Sulphide	DETSC 2024*	10	mg/kg	870	2000	420	200
Sulphur (free)	DETSC 3049#	0.75	mg/kg	19	< 0.75	< 0.75	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.18	0.33	0.14	0.02
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.65	0.33	0.14	0.33

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19349
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2064602	2064604	2064605	2064606
			.Sample ID	F-TP113	F-TP113	F-TP113	F-TP113
			Depth	0.20	2.50	3.30	4.50
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	23/09/2022	23/09/2022	23/09/2022	23/09/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Petroleum Hydrocarbons							
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	< 0.6	7.9	22	< 0.6
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	< 1.4	26	54	< 1.4
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	< 10	34	76	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	< 10	34	76	< 10
PAHs							
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.06	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.09	0.07	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	0.36	0.57	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.04	2.2	1.9	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	1.8	1.2	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.06	2.4	1.7	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.83	0.49	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	1.1	0.74	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.06	1.8	1.4	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.25	0.15	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.10	4.6	5.1	0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	0.07	0.18	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.88	0.56	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	0.09	0.07	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.04	1.3	2.2	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.10	3.7	3.9	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.39	21	20	< 0.10
PCBs							
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg		< 0.01		
PCB 52	DETSC 3401#	0.01	mg/kg		< 0.01		
PCB 101	DETSC 3401#	0.01	mg/kg		< 0.01		
PCB 118	DETSC 3401#	0.01	mg/kg		< 0.01		
PCB 153	DETSC 3401#	0.01	mg/kg		< 0.01		
PCB 138	DETSC 3401#	0.01	mg/kg		< 0.01		
PCB 180	DETSC 3401#	0.01	mg/kg		< 0.01		
PCB 77	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 81	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 105	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 114	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 118	DETSC 3401*	0.01	mg/kg		< 0.01		

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19349
Client Ref 60678042
Contract Title NZT Feed GI

				Lab No	2064602	2064604	2064605	2064606
				.Sample ID	F-TP113	F-TP113	F-TP113	F-TP113
				Depth	0.20	2.50	3.30	4.50
				Other ID				
				Sample Type	SOIL	SOIL	SOIL	SOIL
				Sampling Date	23/09/2022	23/09/2022	23/09/2022	23/09/2022
				Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
PCB 123	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 126	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 156	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 157	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 167	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 169	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 189	DETSC 3401*	0.01	mg/kg		< 0.01		
PCB 7 Total	DETSC 3401#	0.01	mg/kg		< 0.01		
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg		< 0.01		
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg		< 0.01		
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg		< 0.01		
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg		< 0.01		
p-cresol	DETSC 3451*	0.01	mg/kg		< 0.01		
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg		< 0.01		
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg		< 0.01		
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg		< 0.01		
Subcontracted Analysis							
Benzene	$*	<2	ug/kg	41	<2		
Toluene	$*	<5	ug/kg	12	<85		
Ethylbenzene	$*	<2	ug/kg	41	<2		
p & m-xylene	$*	<2	ug/kg	33	<2		
o-xylene	$*	<2	ug/kg	10	<2		
MTBE	$*	<5	ug/kg	<5	<5		
TAME	$*	< 5	ug/kg	< 5	<5		

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19349
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2064607
.Sample ID	F-TP113
Depth	2.50
Other ID	
Sample Type	LEACHATE
Sampling Date	23/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Aluminium, Dissolved	DETSC 2306	10	ug/l	450
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	2.8
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	17
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	0.018
Copper, Dissolved	DETSC 2306	0.4	ug/l	5.8
Iron, Dissolved	DETSC 2306	5.5	ug/l	190
Lead, Dissolved	DETSC 2306	0.09	ug/l	3.8
Manganese, Dissolved	DETSC 2306	0.22	ug/l	7.4
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.04
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	< 1.1
Nickel, Dissolved	DETSC 2306	0.5	ug/l	0.6
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	38
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.46
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	14
Zinc, Dissolved	DETSC 2306	1.3	ug/l	6.4
Inorganics				
pH	DETSC 2008		pH	8.7
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	< 20
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	15.6
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.19
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.18
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.14
Chloride	DETSC 2055	0.1	mg/l	4.4
Fluoride	DETSC 2055*	0.1	mg/l	0.44
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.28
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	0.02
Sulphate as SO4	DETSC 2055	0.1	mg/l	11
Total Organic Carbon	DETSC 2085	1	mg/l	4.6
PAHs				
Acenaphthene	DETSC 3304	0.01	ug/l	0.01

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19349
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2064607
.Sample ID	F-TP113
Depth	2.50
Other ID	
Sample Type	LEACHATE
Sampling Date	23/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Acenaphthylene	DETSC 3304	0.01	ug/l	0.05
Anthracene	DETSC 3304	0.01	ug/l	0.03
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.08
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.08
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.11
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.08
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.04
Chrysene	DETSC 3304	0.01	ug/l	0.09
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	0.02
Fluoranthene	DETSC 3304	0.01	ug/l	0.23
Fluorene	DETSC 3304	0.01	ug/l	0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.08
Naphthalene	DETSC 3304	0.05	ug/l	0.09
Phenanthrene	DETSC 3304	0.01	ug/l	0.06
Pyrene	DETSC 3304	0.01	ug/l	0.20
PAH Total	DETSC 3304	0.2	ug/l	1.3

Key: * -not accredited. n/s -not supplied.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-19349
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2064603	F-TP113 0.50	SOIL	NAD	none	Josh Best
2064604	F-TP113 2.50	SOIL	NAD	none	Josh Best
2064605	F-TP113 3.30	SOIL	NAD	none	Josh Best

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-19349
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2064602	F-TP113 0.20 SOIL	23/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2064603	F-TP113 0.50 SOIL	23/09/22	GJ 250ml, GJ 60ml, PT 1L		
2064604	F-TP113 2.50 SOIL	23/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2064605	F-TP113 3.30 SOIL	23/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2064606	F-TP113 4.50 SOIL	23/09/22	GJ 250ml, GJ 60ml, PT 1L		
2064607	F-TP113 2.50 LEACHATE	23/09/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C40	EH_CU_1D_AL
Aliphatic C5-C40	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C40	EH_CU_1D_AR
Aromatic C5-C40	EH_CU+HS_1D_AR
TPH Ali/Aro C5-C40	EH_CU+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-19513	*Issued:*	11-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-19513
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	4 Soil samples, 1 Leachate sample.

Date Received	30-Sep-22
Date Started	30-Sep-22
Date Completed	11-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis

Soil Samples

Our Ref 22-19513
Client Ref 60678042
Contract Title NZT Feed GI

	Lab No	2065529	2065531	2065532
	.Sample ID	F-TP112	F-TP112	F-TP112
	Depth	0.30	2.00	3.70
	Other ID			
	Sample Type	ES	ES	ES
	Sampling Date	26/09/2022	26/09/2022	26/09/2022
	Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Preparation						
Moisture Content	DETSC 1004	0.1	%	3.3	4.5	4.3
Metals						
Aluminium	DETSC 2301*	1	mg/kg	1900	8400	2200
Arsenic	DETSC 2301#	0.2	mg/kg	3.6	2.7	8.3
Beryllium	DETSC 2301#	0.2	mg/kg	< 0.2	0.9	0.3
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.7	1.5	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.3	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	19	1300	22
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	8.2	41	8.0
Iron	DETSC 2301	25	mg/kg	44000	100000	10000
Lead	DETSC 2301#	0.3	mg/kg	7.3	18	15
Manganese	DETSC 2301#	20	mg/kg	600	29000	370
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	1.6	6.2	< 0.4
Nickel	DETSC 2301#	1	mg/kg	4.6	5.8	6.1
Phosphorus	DETSC 2301*	1	mg/kg	140	22000	340
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	7.0	< 0.5
Tin	DETSC 2301	1	mg/kg	< 1.0	7.1	< 1.0
Vanadium	DETSC 2301#	0.8	mg/kg	19	2600	48
Zinc	DETSC 2301#	1	mg/kg	85	73	34
Inorganics						
pH	DETSC 2008#		pH	9.3	11.1	9.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	0.8	0.7	0.3
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	1.2	0.62	0.64
Chloride	DETSC 2055	1	mg/kg	51.9	41.6	4.1
Fluoride	DETSC 2055	1	mg/kg	2.4	13	1.2
Nitrate as NO3	DETSC 2055	1	mg/kg	31	11	2.3
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	< 0.10	< 0.10	0.20
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	840	23	30
Sulphide	DETSC 2024*	10	mg/kg	830	510	200
Sulphur (free)	DETSC 3049#	0.75	mg/kg	3.0	< 0.75	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%	0.08	0.19	0.03
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.70	0.30	0.08

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19513
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2065529	2065531	2065532
			.Sample ID	F-TP112	F-TP112	F-TP112
			Depth	0.30	2.00	3.70
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	26/09/2022	26/09/2022	26/09/2022
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Petroleum Hydrocarbons						
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	1.8	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	< 3.4	12	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	< 10	16	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	< 10	16	< 10
PAHs						
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.07	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.11	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.03	0.14	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.08	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.08	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.04	0.10	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.06	0.13	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.08	0.05	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.05	0.12	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.30	0.93	< 0.10

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19513
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2065529	2065531	2065532
			.Sample ID	F-TP112	F-TP112	F-TP112
			Depth	0.30	2.00	3.70
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	26/09/2022	26/09/2022	26/09/2022
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.5	< 0.3	< 0.3
Subcontracted Analysis						
Benzene	$*	<2	ug/kg	<2	<2	
Toluene	$*	<5	ug/kg	<5	<5	
Ethylbenzene	$*	<2	ug/kg	<2	<2	
p & m-xylene	$*	<2	ug/kg	<2	<2	
o-xylene	$*	<2	ug/kg	<2	<2	
MTBE	$*	<5	ug/kg	<5	<5	
TAME	$*	< 5	ug/kg	< 5	< 5	

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19513
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2065533
.Sample ID	F-TP112
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	26/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Aluminium, Dissolved	DETSC 2306	10	ug/l	840
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	2.3
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	20
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	0.022
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.5
Iron, Dissolved	DETSC 2306	5.5	ug/l	16
Lead, Dissolved	DETSC 2306	0.09	ug/l	3.1
Manganese, Dissolved	DETSC 2306	0.22	ug/l	< 0.22
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.04
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	1.1
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	22
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.26
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	21
Zinc, Dissolved	DETSC 2306	1.3	ug/l	3.8
Inorganics				
pH	DETSC 2008		pH	10.8
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	< 20
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	78.8
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.04
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.040
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.033
Chloride	DETSC 2055	0.1	mg/l	4.1
Fluoride	DETSC 2055*	0.1	mg/l	0.43
Nitrate as NO3	DETSC 2055	0.1	mg/l	2.3
Nitrite as NO2	DETSC 2055	0.1	mg/l	2.0
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	< 0.01
Sulphate as SO4	DETSC 2055	0.1	mg/l	22
Total Organic Carbon	DETSC 2085	1	mg/l	43

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19513
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2065533
.Sample ID	F-TP112
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	26/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Petroleum Hydrocarbons				
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C5-C35: EH_CU+HS_1D_AL	DETSC 3072*	10	ug/l	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0
Aromatic C5-C35: EH_CU+HS_1D_AR	DETSC 3072*	10	ug/l	< 10
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	DETSC 3072*	10	ug/l	< 10
Benzene	DETSC 3322	1	ug/l	< 1.0
Toluene	DETSC 3322	1	ug/l	< 1.0
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0
Xylene	DETSC 3322	1	ug/l	< 1.0
PAHs				
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01
Acenaphthylene	DETSC 3304	0.01	ug/l	0.01
Anthracene	DETSC 3304	0.01	ug/l	0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.03
Fluorene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Naphthalene	DETSC 3304	0.05	ug/l	0.09
Phenanthrene	DETSC 3304	0.01	ug/l	0.02
Pyrene	DETSC 3304	0.01	ug/l	0.02

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19513
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2065533
.Sample ID	F-TP112
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	26/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
PAH Total	DETSC 3304	0.2	ug/l	< 0.20

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19513
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2065533
.Sample ID	F-TP112
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	26/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
PCBs				
PCB 28 + PCB 31	DETSC 3402	0.3	ug/l	< 0.3
PCB 52	DETSC 3402	0.2	ug/l	< 0.2
PCB 77	DETSC 3402	0.3	ug/l	< 0.3
PCB 81	DETSC 3402	0.2	ug/l	< 0.2
PCB 101	DETSC 3402	0.3	ug/l	< 0.3
PCB 105	DETSC 3402	0.2	ug/l	< 0.2
PCB 114	DETSC 3402	0.3	ug/l	< 0.3
PCB 118 + PCB 123	DETSC 3402	0.6	ug/l	< 0.6
PCB 126	DETSC 3402	0.5	ug/l	< 0.5
PCB 138	DETSC 3402	0.2	ug/l	< 0.2
PCB 153	DETSC 3402	0.2	ug/l	< 0.2
PCB 156	DETSC 3402	0.3	ug/l	< 0.3
PCB 157	DETSC 3402	0.2	ug/l	< 0.2
PCB 167	DETSC 3402	0.3	ug/l	< 0.3
PCB 169	DETSC 3402	0.2	ug/l	< 0.2
PCB 180	DETSC 3402	0.2	ug/l	< 0.2
PCB 189	DETSC 3402	0.3	ug/l	< 0.3
PCB 12	DETSC 3402	1	ug/l	< 1.0
PCB 7 Total	DETSC 3402	1	ug/l	< 1.0
Phenols				
Phenol	DETSC 3451*	0.1	ug/l	< 0.10
4-Chloro-3-methylphenol	DETSC 3451*	0.1	ug/l	< 0.10
2,4-Dichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10
2,4-Dimethylphenol	DETSC 3451*	0.1	ug/l	< 0.10
p-cresol	DETSC 3451*	0.1	ug/l	< 0.10
2,6-Dimethylphenol	DETSC 3451*	0.1	ug/l	< 0.10
2,6-Dichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10
2,4,6-Trichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10
Subcontracted Analysis				
Hexavalent Chromium	$*	<2	ug/l	20

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-19513
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2065529	F-TP112 0.30	SOIL	NAD	none	Josh Best
2065530	F-TP112 1.00	SOIL	NAD	none	Josh Best
2065531	F-TP112 2.00	SOIL	NAD	none	Josh Best

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-19513
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2065529	F-TP112 0.30 SOIL	26/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2065530	F-TP112 1.00 SOIL	26/09/22	GJ 250ml, GJ 60ml, PT 1L		
2065531	F-TP112 2.00 SOIL	26/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2065532	F-TP112 3.70 SOIL	26/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2065533	F-TP112 2.00 LEACHATE	26/09/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C40	EH_CU_1D_AL
Aliphatic C5-C40	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C40	EH_CU_1D_AR
Aromatic C5-C40	EH_CU+HS_1D_AR
TPH Ali/Aro C5-C40	EH_CU+HS_1D_Total
Aliphatic C5-C35	EH_CU+HS_1D_AL
Aromatic C5-C35	EH_CU+HS_1D_AR
TPH Ali/Aro Total C5-C35	EH_CU+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-19762	*Issued:*	13-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-19762
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT FEED GI
Description	12 Soil samples, 5 Leachate samples.
Date Received	04-Oct-22
Date Started	04-Oct-22
Date Completed	13-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2066853	2066854	2066855	2066856	2066857	2066858
			.Sample ID	F-TP115	F-TP115	F-TP115	F-TP117	F-TP117	F-TP117
			Depth	0.30	1.50	2.30	0.50	1.50	2.50
			Other ID						
			Sample Type	ES	ES	ES	ES	ES	ES
			Sampling Date	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Asbestos Quantification	DETSC 1102	0.001	%	0.003	0.003	0.003			
Preparation									
Moisture Content	DETSC 1004	0.1	%	8.5		9.7	8.7	11	6.6
Metals									
Aluminium	DETSC 2301*	1	mg/kg	9600		11000	5800	4200	4900
Arsenic	DETSC 2301#	0.2	mg/kg	14		14	50	19	20
Beryllium	DETSC 2301#	0.2	mg/kg	1.1		1.4	0.9	0.5	0.5
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	2.2		2.4	1.7	1.1	1.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.5		0.5	0.8	0.4	0.2
Chromium III	DETSC 2301*	0.15	mg/kg	120		240	110	240	160
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	41		38	72	37	28
Iron	DETSC 2301	25	mg/kg	35000		38000	58000	50000	52000
Lead	DETSC 2301#	0.3	mg/kg	70		85	110	76	15
Manganese	DETSC 2301#	20	mg/kg	3600		5900	7300	10000	11000
Mercury	DETSC 2325#	0.05	mg/kg	0.14		< 0.05	< 0.05	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	1.6		2.0	1.2	1.0	0.7
Nickel	DETSC 2301#	1	mg/kg	22		13	25	19	14
Phosphorus	DETSC 2301*	1	mg/kg	2700		3300	2400	5300	4800
Selenium	DETSC 2301#	0.5	mg/kg	2.2		2.4	3.2	4.5	4.5
Tin	DETSC 2301	1	mg/kg	4.3		5.8	4.9	4.8	2.8
Vanadium	DETSC 2301#	0.8	mg/kg	330		460	420	860	640
Zinc	DETSC 2301#	1	mg/kg	170		160	160	54	28
Inorganics									
pH	DETSC 2008#		pH	10.9		11.7	9.2	11.4	10.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2		0.8	0.2	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6		< 0.6	< 0.6	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	2.6		12	2.8	2.8	0.2
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	0.90		1.4	0.80	0.65	1.1
Chloride	DETSC 2055	1	mg/kg	89.5		63.9	371	334	64.5
Fluoride	DETSC 2055	1	mg/kg	22		46	2.5	8.9	< 1.0
Nitrate as NO3	DETSC 2055	1	mg/kg	5.1		10	17	34	13
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	0.23		0.22	0.95	0.29	1.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	18		410	390	790	1000
Sulphide	DETSC 2024*	10	mg/kg	920		1300	1100	310	700
Sulphur (free)	DETSC 3049#	0.75	mg/kg	8.9		3.1	10	0.94	2.1
Sulphur as S, Total	DETSC 2320	0.01	%	0.20		0.21	0.17	0.10	0.11
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.34		0.78	0.42	0.42	0.50
Petroleum Hydrocarbons									

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2066853	2066854	2066855	2066856	2066857	2066858
				.Sample ID	F-TP115	F-TP115	F-TP115	F-TP117	F-TP117	F-TP117
				Depth	0.30	1.50	2.30	0.50	1.50	2.50
				Other ID						
				Sample Type	ES	ES	ES	ES	ES	ES
				Sampling Date	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022
				Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**							
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5		< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	11		< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	35		< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	200		< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4		< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	250		< 10	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9		< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	9.0		< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	50		6.7	23	< 0.6	4.7
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	460		42	85	< 1.4	39
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	89		12	6.6	< 1.4	6.6
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	610		61	120	< 10	50
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	850		61	120	< 10	50
PAHs										
Acenaphthene	DETSC 3303#	0.03	mg/kg	0.03		< 0.03	0.05	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.03		< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	0.16		0.11	0.32	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.45		0.36	1.4	< 0.03	0.07
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.32		0.25	1.0	< 0.03	0.04
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.56		0.50	1.6	0.05	0.08
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.20		0.17	0.51	0.04	0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.27		0.22	0.62	< 0.03	0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.57		0.49	1.7	0.05	0.11
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.06		0.04	0.18	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	1.3		0.99	3.2	0.06	0.17
Fluorene	DETSC 3303	0.03	mg/kg	0.05		< 0.03	0.04	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.17		0.16	0.46	0.04	0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	0.03		0.03	0.05	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.49		0.40	1.6	0.04	0.10
Pyrene	DETSC 3303#	0.03	mg/kg	1.2		0.97	2.4	0.04	0.11
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	5.8		4.7	15	0.32	0.74
PCBs										
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg				< 0.01		
PCB 52	DETSC 3401#	0.01	mg/kg				< 0.01		

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2066853	2066854	2066855	2066856	2066857	2066858
				.Sample ID	F-TP115	F-TP115	F-TP115	F-TP117	F-TP117	F-TP117
				Depth	0.30	1.50	2.30	0.50	1.50	2.50
				Other ID						
				Sample Type	ES	ES	ES	ES	ES	ES
				Sampling Date	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022
				Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**							
PCB 101	DETSC 3401#	0.01	mg/kg					< 0.01		
PCB 118	DETSC 3401#	0.01	mg/kg					< 0.01		
PCB 153	DETSC 3401#	0.01	mg/kg					< 0.01		
PCB 138	DETSC 3401#	0.01	mg/kg					< 0.01		
PCB 180	DETSC 3401#	0.01	mg/kg					< 0.01		
PCB 77	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 81	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 105	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 114	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 118	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 123	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 126	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 156	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 157	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 167	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 169	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 189	DETSC 3401*	0.01	mg/kg					< 0.01		
PCB 7 Total	DETSC 3401#	0.01	mg/kg					< 0.01		
Phenols										
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3		< 0.3	< 0.3	< 0.3	< 0.3	
Phenol	DETSC 3451*	0.01	mg/kg						< 0.01	
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg						< 0.01	
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg						< 0.01	
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg						< 0.01	
p-cresol	DETSC 3451*	0.01	mg/kg						< 0.01	
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg						< 0.01	
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg						< 0.01	
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg						< 0.01	
Subcontracted Analysis										
Benzene	$*	<2	ug/kg	<2				5		6
Toluene	$*	<5	ug/kg	<5				<5		<5
Ethylbenzene	$*	<2	ug/kg	<2				<2		<2
p & m-xylene	$*	<2	ug/kg	<2				<2		<2
o-xylene	$*	<2	ug/kg	<2				<2		<2
MTBE	$*	<5	ug/kg	<5				<5		<5
TAME	$*	< 5	ug/kg	< 5				< 5		< 5

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2066859	2066860	2066861	2066862	2066863	2066864
				.Sample ID	F-TP119	F-TP119	F-TP119	F-TP119	F-TP119	F-TP119
				Depth	0.20	0.70	1.70	2.70	3.00	4.00
				Other ID						
				Sample Type	ES	ES	ES	ES	ES	ES
				Sampling Date	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022
				Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**							
Asbestos Quantification	DETSC 1102	0.001	%		0.004		0.015			
Preparation										
Moisture Content	DETSC 1004	0.1	%		6.7	5.5		12	7.0	12
Metals										
Aluminium	DETSC 2301*	1	mg/kg		3700			14000	14000	3900
Arsenic	DETSC 2301#	0.2	mg/kg		6.2	13		9.5	5.1	5.6
Beryllium	DETSC 2301#	0.2	mg/kg		0.3	0.6		1.5	1.7	0.4
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg		1.0	1.0		< 0.2	1.1	0.9
Cadmium	DETSC 2301#	0.1	mg/kg		1.0	1.5		1.0	0.4	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg		31	290		240	230	20
Chromium, Hexavalent	DETSC 2204*	1	mg/kg		< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg		29	45		57	24	3.1
Iron	DETSC 2301	25	mg/kg		140000			72000	50000	6300
Lead	DETSC 2301#	0.3	mg/kg		26	30		130	26	17
Manganese	DETSC 2301#	20	mg/kg		1400			11000	10000	560
Mercury	DETSC 2325#	0.05	mg/kg		< 0.05	< 0.05		0.07	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg		2.5			2.7	2.1	< 0.4
Nickel	DETSC 2301#	1	mg/kg		19	22		17	8.0	2.1
Phosphorus	DETSC 2301*	1	mg/kg		400			2700	1700	270
Selenium	DETSC 2301#	0.5	mg/kg		1.0	3.1		3.5	3.8	< 0.5
Tin	DETSC 2301	1	mg/kg		2.8			6.7	3.0	< 1.0
Vanadium	DETSC 2301#	0.8	mg/kg		63	710		790	810	45
Zinc	DETSC 2301#	1	mg/kg		170	110		190	71	19
Inorganics										
pH	DETSC 2008#		pH		10.6	11.6		11.8	12.0	11.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg		< 0.1	< 0.1		0.3	0.4	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg		< 0.1	< 0.1		< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg		< 0.6	< 0.6		< 0.6	1.8	< 0.6
Organic matter	DETSC 2002#	0.1	%		< 0.1	0.7		7.9	< 0.1	0.7
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg		0.66			0.63	0.79	0.68
Chloride	DETSC 2055	1	mg/kg		140			172	552	22.2
Fluoride	DETSC 2055	1	mg/kg		2.4			13	3.5	4.8
Nitrate as NO3	DETSC 2055	1	mg/kg		33	16		13	3.4	9.3
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg		0.35			0.21	0.19	0.24
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l		420	290		210	130	240
Sulphide	DETSC 2024*	10	mg/kg		140	280		580	1100	240
Sulphur (free)	DETSC 3049#	0.75	mg/kg		2.0	3.1		20	5.6	< 0.75
Sulphur as S, Total	DETSC 2320	0.01	%		0.04	0.10		0.20	0.24	0.06
Sulphate as SO4, Total	DETSC 2321#	0.01	%		0.19	0.37		0.60	0.78	0.19
Petroleum Hydrocarbons										

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2066859	2066860	2066861	2066862	2066863	2066864
			.Sample ID	F-TP119	F-TP119	F-TP119	F-TP119	F-TP119	F-TP119
			Depth	0.20	0.70	1.70	2.70	3.00	4.00
			Other ID						
			Sample Type	ES	ES	ES	ES	ES	ES
			Sampling Date	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5		< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	7.9		< 1.2	11	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	13		< 1.5	13	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	< 3.4	20		< 3.4	14	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4		< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	< 10	41		< 10	39	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9		2.4	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5		17	2.0	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6		77	18	< 0.6
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4		140	25	< 1.4
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4		16	< 1.4	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	< 10	< 10		260	44	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	< 10	41		260	83	< 10
PAHs									
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		0.60	0.86	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	0.03	0.05		1.4	1.5	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.04	0.05		3.2	1.7	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.05	0.05		2.3	1.2	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.06	0.09		3.3	2.2	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.04		1.1	0.73	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.04		1.3	0.89	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.08	0.11		3.5	2.4	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03		0.27	0.19	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.14	0.24		12	7.9	0.06
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03		0.36	0.78	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.04		0.89	0.60	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	0.09	0.05		0.10	0.38	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.14	0.15		7.8	8.0	0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.10	0.17		11	6.4	0.04
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.71	1.1		48	36	< 0.10
PCBs									
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg						
PCB 52	DETSC 3401#	0.01	mg/kg						

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

			Lab No	2066859	2066860	2066861	2066862	2066863	2066864
			.Sample ID	F-TP119	F-TP119	F-TP119	F-TP119	F-TP119	F-TP119
			Depth	0.20	0.70	1.70	2.70	3.00	4.00
			Other ID						
			Sample Type	ES	ES	ES	ES	ES	ES
			Sampling Date	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
PCB 101	DETSC 3401#	0.01	mg/kg						
PCB 118	DETSC 3401#	0.01	mg/kg						
PCB 153	DETSC 3401#	0.01	mg/kg						
PCB 138	DETSC 3401#	0.01	mg/kg						
PCB 180	DETSC 3401#	0.01	mg/kg						
PCB 77	DETSC 3401*	0.01	mg/kg						
PCB 81	DETSC 3401*	0.01	mg/kg						
PCB 105	DETSC 3401*	0.01	mg/kg						
PCB 114	DETSC 3401*	0.01	mg/kg						
PCB 118	DETSC 3401*	0.01	mg/kg						
PCB 123	DETSC 3401*	0.01	mg/kg						
PCB 126	DETSC 3401*	0.01	mg/kg						
PCB 156	DETSC 3401*	0.01	mg/kg						
PCB 157	DETSC 3401*	0.01	mg/kg						
PCB 167	DETSC 3401*	0.01	mg/kg						
PCB 169	DETSC 3401*	0.01	mg/kg						
PCB 189	DETSC 3401*	0.01	mg/kg						
PCB 7 Total	DETSC 3401#	0.01	mg/kg						
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3		< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg						
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg						
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg						
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg						
p-cresol	DETSC 3451*	0.01	mg/kg						
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg						
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg						
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg						
Subcontracted Analysis									
Benzene	$*	<2	ug/kg		<2		5	4	
Toluene	$*	<5	ug/kg		<5		<5	<5	
Ethylbenzene	$*	<2	ug/kg		<2		<2	<2	
p & m-xylene	$*	<2	ug/kg		<2		<2	<2	
o-xylene	$*	<2	ug/kg		<2		<2	<2	
MTBE	$*	<5	ug/kg		<5		<5	<5	
TAME	$*	< 5	ug/kg		< 5		< 5	< 5	

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2066856
.Sample ID	F-TP117
Depth	0.50
Other ID	
Sample Type	ES
Sampling Date	27/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
VOCs				
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2066856
.Sample ID	F-TP117
Depth	0.50
Other ID	
Sample Type	ES
Sampling Date	27/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01
SVOCs				
Phenol	DETSC 3433	0.1	mg/kg	< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	0.2
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	0.2
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2066856
.Sample ID	F-TP117
Depth	0.50
Other ID	
Sample Type	ES
Sampling Date	27/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	0.5

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2066865	2066866	2066867	2066868	2066869
				.Sample ID	F-TP115	F-TP115	F-TP117	F-TP119	F-TP119
				Depth	0.30	2.30	1.50	0.70	2.70
				Other ID					
				Sample Type	ES	ES	ES	ES	ES
				Sampling Date	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022
				Sampling Time	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Preparation									
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y	Y	Y	Y
Metals									
Aluminium, Dissolved	DETSC 2306	10	ug/l	570	670	51	330	1200
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.6	3.6	5.7	1.5	0.96
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	29	46	81	23	14
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0	< 1.0	17	3.9	12
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007	< 0.007	0.020	0.019	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.3	2.6	2.2	3.7	8.1
Iron, Dissolved	DETSC 2306	5.5	ug/l	9.9	14	< 5.5	< 5.5	< 5.5
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.53	1.3	6.7	0.29	1.4
Manganese, Dissolved	DETSC 2306	0.22	ug/l	0.54	0.36	1.1	0.25	< 0.22
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.02	0.08	< 0.01	0.06	0.03
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	< 1.1	1.4	1.2	6.8	2.5
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	< 18	46	140	< 18	< 18
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.60	0.98	0.97	0.55	1.1
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	36	89	120	72	49
Zinc, Dissolved	DETSC 2306	1.3	ug/l	2.2	2.9	< 1.3	2.2	< 1.3
Inorganics									
pH	DETSC 2008		pH	8.4	9.7	9.0	10.6	11.6
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	< 0.1	1.0	0.1	0.3	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	27	28	< 20	29	< 20
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	57.6	82.4	79.7	80.9	143
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	0.06	0.06	0.06	0.06	0.07
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	0.057	0.061	0.052	0.061	0.068
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.047	0.050	0.043	0.050	0.056
Chloride	DETSC 2055	0.1	mg/l	12	2.4	38	14	9.2
Fluoride	DETSC 2055*	0.1	mg/l	0.11	0.20	< 0.10	0.22	0.41
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.40	0.35	3.4	1.6	0.99
Nitrite as NO2	DETSC 2055	0.1	mg/l	0.14	< 0.10	0.35	0.21	0.34
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	0.03	0.03	0.09	0.04	0.01
Sulphate as SO4	DETSC 2055	0.1	mg/l	40	31	82	27	17
Total Organic Carbon	DETSC 2085	1	mg/l	3.9	4.3	3.4	1500	11

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2066865	2066866	2066867	2066868	2066869
				.Sample ID	F-TP115	F-TP115	F-TP117	F-TP119	F-TP119
				Depth	0.30	2.30	1.50	0.70	2.70
				Other ID					
				Sample Type	ES	ES	ES	ES	ES
				Sampling Date	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022
				Sampling Time	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Petroleum Hydrocarbons									
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l					< 0.1	
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l					< 0.1	
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l					< 0.1	
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l					< 1.0	
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l					< 1.0	
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l					4.9	
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l					10	
Aliphatic C5-C35: EH_CU+HS_1D_AL	DETSC 3072*	10	ug/l					16	
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l					< 0.1	
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l					< 0.1	
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l					< 0.1	
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l					< 1.0	
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l					< 1.0	
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l					< 1.0	
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l					< 1.0	
Aromatic C5-C35: EH_CU+HS_1D_AR	DETSC 3072*	10	ug/l					< 10	
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	DETSC 3072*	10	ug/l					16	
Benzene	DETSC 3322	1	ug/l					< 1.0	
Toluene	DETSC 3322	1	ug/l					< 1.0	
Ethylbenzene	DETSC 3322	1	ug/l					< 1.0	
Xylene	DETSC 3322	1	ug/l					< 1.0	
PAHs									
Acenaphthene	DETSC 3304	0.01	ug/l	0.05	0.02	0.02	0.02	0.39	
Acenaphthylene	DETSC 3304	0.01	ug/l	0.03	0.02	< 0.01	< 0.01	0.02	
Anthracene	DETSC 3304	0.01	ug/l	0.04	0.06	0.04	0.05	0.20	
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.06	0.04	< 0.01	< 0.01	0.05	
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.06	0.03	< 0.01	< 0.01	0.03	
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.11	0.06	< 0.01	< 0.01	0.05	
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.05	0.03	< 0.01	< 0.01	0.02	
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.04	0.02	< 0.01	< 0.01	0.02	
Chrysene	DETSC 3304	0.01	ug/l	0.07	0.04	< 0.01	< 0.01	0.05	
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Fluoranthene	DETSC 3304	0.01	ug/l	0.10	0.06	0.02	0.04	0.18	
Fluorene	DETSC 3304	0.01	ug/l	0.05	0.04	0.04	0.04	0.11	
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.04	0.02	< 0.01	< 0.01	0.02	
Naphthalene	DETSC 3304	0.05	ug/l	0.07	0.06	< 0.05	0.06	0.90	
Phenanthrene	DETSC 3304	0.01	ug/l	0.17	0.14	0.12	0.14	0.52	
Pyrene	DETSC 3304	0.01	ug/l	0.13	0.08	0.02	0.03	0.16	

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

				Lab No	2066865	2066866	2066867	2066868	2066869
				.Sample ID	F-TP115	F-TP115	F-TP117	F-TP119	F-TP119
				Depth	0.30	2.30	1.50	0.70	2.70
				Other ID					
				Sample Type	ES	ES	ES	ES	ES
				Sampling Date	27/09/2022	27/09/2022	27/09/2022	27/09/2022	27/09/2022
				Sampling Time	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
PAH Total	DETSC 3304	0.2	ug/l	1.1	0.71	0.28	0.37	2.7
PCBs									
PCB 28 + PCB 31	DETSC 3402	0.3	ug/l				< 0.3	
PCB 52	DETSC 3402	0.2	ug/l				< 0.2	
PCB 77	DETSC 3402	0.3	ug/l				< 0.3	
PCB 81	DETSC 3402	0.2	ug/l				< 0.2	
PCB 101	DETSC 3402	0.3	ug/l				< 0.3	
PCB 105	DETSC 3402	0.2	ug/l				< 0.2	
PCB 114	DETSC 3402	0.3	ug/l				< 0.3	
PCB 118 + PCB 123	DETSC 3402	0.6	ug/l				< 0.6	
PCB 126	DETSC 3402	0.5	ug/l				< 0.5	
PCB 138	DETSC 3402	0.2	ug/l				< 0.2	
PCB 153	DETSC 3402	0.2	ug/l				< 0.2	
PCB 156	DETSC 3402	0.3	ug/l				< 0.3	
PCB 157	DETSC 3402	0.2	ug/l				< 0.2	
PCB 167	DETSC 3402	0.3	ug/l				< 0.3	
PCB 169	DETSC 3402	0.2	ug/l				< 0.2	
PCB 180	DETSC 3402	0.2	ug/l				< 0.2	
PCB 189	DETSC 3402	0.3	ug/l				< 0.3	
PCB 12	DETSC 3402	1	ug/l				< 1.0	
PCB 7 Total	DETSC 3402	1	ug/l				< 1.0	
Phenols									
Phenol	DETSC 3451*	0.1	ug/l				< 0.10	
4-Chloro-3-methylphenol	DETSC 3451*	0.1	ug/l				< 0.10	
2,4-Dichlorophenol	DETSC 3451*	0.1	ug/l				< 0.10	
2,4-Dimethylphenol	DETSC 3451*	0.1	ug/l				< 0.10	
p-cresol	DETSC 3451*	0.1	ug/l				< 0.10	
2,6-Dimethylphenol	DETSC 3451*	0.1	ug/l				< 0.10	
2,6-Dichlorophenol	DETSC 3451*	0.1	ug/l				< 0.10	
2,4,6-Trichlorophenol	DETSC 3451*	0.1	ug/l				< 0.10	
Subcontracted Analysis									
Hexavalent Chromium	$*	<2	ug/kg		<2			

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2066853	F-TP115 0.30	SOIL	Chrysotile	Bundles of Chrysotile fibres	Darryl Fletcher
2066854	F-TP115 1.50	SOIL	Chrysotile Amosite	Bundles of Chrysotile & Amosite fibres	Darryl Fletcher
2066855	F-TP115 2.30	SOIL	Amosite Chrysotile	Bundles of Amosite & Chrysotile fibres	Darryl Fletcher
2066856	F-TP117 0.50	SOIL	NAD	none	Darryl Fletcher
2066857	F-TP117 1.50	SOIL	NAD	none	Darryl Fletcher
2066858	F-TP117 2.50	SOIL	NAD	none	Darryl Fletcher
2066859	F-TP119 0.20	SOIL	Chrysotile	Chrysotile fibres present in microscopic Loose Fibrous Asbestos Debris	Darryl Fletcher
2066860	F-TP119 0.70	SOIL	NAD	none	Darryl Fletcher
2066861	F-TP119 1.70	SOIL	Chrysotile Amosite	Bundles of Chrysotile fibres & Chrysotile & Amosite fibres present in microscopic Loose Fibrous Asbestos Debris	Darryl Fletcher
2066862	F-TP119 2.70	SOIL	NAD	none	Darryl Fletcher

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis

Soil Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

		Lab No	2066853	2066854	2066855	2066859
		.Sample ID	F-TP115	F-TP115	F-TP115	F-TP119
		Depth	0.30	1.50	2.30	0.20
		Other ID				
		Sample Type	ES	ES	ES	ES
		Sampling Date	27/09/2022	27/09/2022	27/09/2022	27/09/2022
		Sampling Time				
Test	**Method**	**Units**				
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	**0.003**	**0.003**	**0.003**	**0.004**
Gravimetric Quantification (a)	DETSC 1102	Mass %	na	na	na	0.004
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	0.003	0.003	0.003	na
Quantification by PCOM (c)	DETSC 1102	Mass %	na	na	na	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na	na	na	na
Breakdown of Gravimetric Analysis (a)						
Mass of Sample		g	50.95	1539.47	855.21	1710.47
ACMs present*		type				LFAD
Mass of ACM in sample		g				0.07
% ACM by mass		%				0.00
% asbestos in ACM		%				85
% asbestos in sample		%				0.004
Breakdown of Detailed Gravimetric Analysis (b)						
% Amphibole bundles in sample		Mass %	na	0.001	0.001	na
% Chrysotile bundles in sample		Mass %	0.003	0.002	0.002	na
Breakdown of PCOM Analysis (c)						
% Amphibole fibres in sample		Mass %	na	na	na	na
% Chrysotile fibres in sample		Mass %	na	na	na	na
Breakdown of Potentially Respirable Fibre Analysis (d)						
Amphibole fibres		Fibres/g	na	na	na	na
Chrysotile fibres		Fibres/g	na	na	na	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Summary of Asbestos Quantification Analys

Soil Samples

Our Ref 22-19762
Client Ref 60678042
Contract Title NZT FEED GI

Lab No	2066861
.Sample ID	F-TP119
Depth	1.70
Other ID	
Sample Type	ES
Sampling Date	27/09/2022
Sampling Time	

Test	**Method**	**Units**	
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	**0.015**
Gravimetric Quantification (a)	DETSC 1102	Mass %	0.003
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	0.011
Quantification by PCOM (c)	DETSC 1102	Mass %	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na
Breakdown of Gravimetric Analysis (a)			
Mass of Sample		g	1472.84
ACMs present*		type	LFAD
Mass of ACM in sample		g	0.06
% ACM by mass		%	0.00
% asbestos in ACM		%	85
% asbestos in sample		%	0.003
Breakdown of Detailed Gravimetric Analysis (b)			
% Amphibole bundles in sample		Mass %	na
% Chrysotile bundles in sample		Mass %	0.011
Breakdown of PCOM Analysis (c)			
% Amphibole fibres in sample		Mass %	na
% Chrysotile fibres in sample		Mass %	na
Breakdown of Potentially Respirable Fibre Analysis (d)			
Amphibole fibres		Fibres/g	na
Chrysotile fibres		Fibres/g	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Information in Support of the Analytical Results

Our Ref 22-19762
Client Ref 60678042
Contract NZT FEED GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2066853	F-TP115 0.30 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2066854	F-TP115 1.50 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066855	F-TP115 2.30 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2066856	F-TP117 0.50 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2066857	F-TP117 1.50 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2066858	F-TP117 2.50 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2066859	F-TP119 0.20 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2066860	F-TP119 0.70 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066861	F-TP119 1.70 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066862	F-TP119 2.70 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2066863	F-TP119 3.00 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2066864	F-TP119 4.00 SOIL	27/09/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2066865	F-TP115 0.30 LEACHATE	27/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066866	F-TP115 2.30 LEACHATE	27/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066867	F-TP117 1.50 LEACHATE	27/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066868	F-TP119 0.70 LEACHATE	27/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066869	F-TP119 2.70 LEACHATE	27/09/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C40	EH_CU_1D_AL
Aliphatic C5-C40	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C40	EH_CU_1D_AR
Aromatic C5-C40	EH_CU+HS_1D_AR
TPH Ali/Aro C5-C40	EH_CU+HS_1D_Total
Aliphatic C5-C35	EH_CU+HS_1D_AL
Aromatic C5-C35	EH_CU+HS_1D_AR
TPH Ali/Aro Total C5-C35	EH_CU+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-20035	*Issued:*	13-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-20035
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	7 Soil samples.
Date Received	07-Oct-22
Date Started	07-Oct-22
Date Completed	13-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 22-20035
Client Ref 60678042
Contract Title NZT Feed GI

Lab No			2068166	2068167	2068168	2068169	2068170	2068171	2068172
.Sample ID			F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114
Depth			3.00-3.70	5.40-6.00	6.00-6.90	8.30-9.00	9.00-9.70	11.40-12.00	12.93-13.45
Other ID									
Sample Type			B	B	B	B	B	B	B
Sampling Date			03/10/2022	03/10/2022	03/10/2022	03/10/2022	03/10/2022	20/09/2022	03/10/2022
Sampling Time			n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**							
Inorganics										
pH	DETSC 2008#		pH	10.6		8.6				
Organic matter	DETSC 2002#	0.1	%		1.2		< 0.1		0.7	3.5
Carbonate (as CO2)	DETSC 2005	1	%			4.8		3.6		
Chloride Aqueous Extract	DETSC 2055	1	mg/l	25		17				
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	960		240				
Sulphur as S, Total	DETSC 2320	0.01	%	0.14		0.05				
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.25		0.09				

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-20035
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2068166	F-BH114 3.00-3.70 SOIL	03/10/22	PT 1L		
2068167	F-BH114 5.40-6.00 SOIL	03/10/22	PT 1L		
2068168	F-BH114 6.00-6.90 SOIL	03/10/22	PT 1L		
2068169	F-BH114 8.30-9.00 SOIL	03/10/22	PT 1L		
2068170	F-BH114 9.00-9.70 SOIL	03/10/22	PT 1L		
2068171	F-BH114 11.40-12.00 SOIL	20/09/22	PT 1L		
2068172	F-BH114 12.93-13.45 SOIL	03/10/22	PT 1L		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-20036	*Issued:*	13-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-20036
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	3 Soil samples.
Date Received	07-Oct-22
Date Started	07-Oct-22
Date Completed	13-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-20036
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2068173	2068174	2068175
			.Sample ID	F-BH102	F-BH102	F-BH102
			Depth	6.75-7.15	8.27-9.00	11.44-12.00
			Other ID			
			Sample Type	B	B	B
			Sampling Date	03/10/2022	03/10/2022	03/10/2022
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Inorganics						
pH	DETSC 2008#		pH	11.1		10.3
Organic matter	DETSC 2002#	0.1	%		0.1	
Carbonate (as CO2)	DETSC 2005	1	%		2.8	6.8
Chloride Aqueous Extract	DETSC 2055	1	mg/l	12		14
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	530		230
Sulphur as S, Total	DETSC 2320	0.01	%	0.23		0.04
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.54		0.17

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-20036
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2068173	F-BH102 6.75-7.15 SOIL	03/10/22	PT 1L		
2068174	F-BH102 8.27-9.00 SOIL	03/10/22	PT 1L		
2068175	F-BH102 11.44-12.00 SOIL	03/10/22	PT 1L		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number	22-20306	*Issued:*	02-Nov-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-20306
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	9 Soil samples, 3 Leachate samples.

Date Received	11-Oct-22
Date Started	11-Oct-22
Date Completed	02-Nov-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2069597	2069598	2069599	2069600	2069602	2069603	2069604
			.Sample ID	F-TP104	F-TP104	F-TP104	F-TP104	F-TP105	F-TP105	F-TP105
			Depth	0.50	1.50	2.40	3.40	0.50	1.80	2.80
			Other ID							
			Sample Type	ES	ES	ES	ES	ES	ES	ES
			Sampling Date	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**							
Preparation										
Moisture Content	DETSC 1004	0.1	%	8.3	13	17	20	8.8	7.1	17
Metals										
Aluminium	DETSC 2301*	1	mg/kg	67000	64000	6800	3500	37000	2500	880
Arsenic	DETSC 2301#	0.2	mg/kg	7.9	6.9	6.0	6.6	3.7	7.9	4.8
Beryllium	DETSC 2301#	0.2	mg/kg	5.6	6.2	0.8	0.4	3.5	0.3	< 0.2
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	2.8	2.8	1.3	0.4	1.9	1.2	1.4
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.2	< 0.1	< 0.1	0.3	0.1	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	24	17	5.6	4.4	130	3.5	2.3
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	9.5	10	5.2	3.1	24	7.3	3.1
Iron	DETSC 2301	25	mg/kg	12000	6700	7300	6300	79000	7100	4000
Lead	DETSC 2301#	0.3	mg/kg	3.8	12	22	11	19	30	18
Manganese	DETSC 2301#	20	mg/kg	3800	3700	470	280	3500	230	100
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	1.1	1.0	0.4	0.9	3.0	0.5	< 0.4
Nickel	DETSC 2301#	1	mg/kg	5.1	2.2	3.7	2.5	9.8	3.7	2.3
Phosphorus	DETSC 2301*	1	mg/kg	230	150	140	160	610	130	100
Selenium	DETSC 2301#	0.5	mg/kg	3.0	3.3	0.8	< 0.5	2.3	< 0.5	< 0.5
Tin	DETSC 2301	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	1.3	1.3	< 1.0
Vanadium	DETSC 2301#	0.8	mg/kg	83	81	20	13	120	12	7.7
Zinc	DETSC 2301#	1	mg/kg	20	37	55	32	120	65	28
Inorganics										
pH	DETSC 2008#		pH	9.8	10.7	10.1	8.7	11.4	8.1	8.2
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1	0.3	19	16
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	2.7	0.1	0.1	< 0.1	< 0.1	0.3	0.1
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	2.3	0.91	1.2	0.73	0.55	0.73	0.53
Chloride	DETSC 2055	1	mg/kg	< 100.0	26.4	152	< 50.0	27.6	10.3	107
Fluoride	DETSC 2055	1	mg/kg	15	25	11	< 50.00	8.6	6.0	2.3
Nitrate as NO3	DETSC 2055	1	mg/kg	3.1	8.1	1.8	< 50.00	4.3	4.3	1.3
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	0.37	< 0.10	< 0.10	< 0.10	< 0.10	0.36	0.82
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	1600	800	310	140	460	150	150
Sulphide	DETSC 2024*	10	mg/kg	1800	1900	26	100	590	52	36
Sulphur (free)	DETSC 3049#	0.75	mg/kg	18	1.8	4.0	< 0.75	1.7	2.3	3.4
Sulphur as S, Total	DETSC 2320	0.01	%	0.45	0.39	0.07	0.04	0.25	0.03	0.03
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.68	0.59	0.17	0.10	0.76	0.09	0.07
Petroleum Hydrocarbons										
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	0.30	< 0.01	0.44	0.44	0.39	0.41
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Summary of Chemical Analysis
Soil Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2069597	2069598	2069599	2069600	2069602	2069603	2069604
			.Sample ID	F-TP104	F-TP104	F-TP104	F-TP104	F-TP105	F-TP105	F-TP105
			Depth	0.50	1.50	2.40	3.40	0.50	1.80	2.80
			Other ID							
			Sample Type	ES	ES	ES	ES	ES	ES	ES
			Sampling Date	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**							
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	2.8	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	44	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	86	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	36	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	170	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	12	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	38	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	13	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	62	< 10	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	230	< 10	< 10	< 10	< 10	< 10	< 10
PAHs										
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.03	< 0.03	0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.07	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.07	0.04	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03	< 0.03	< 0.03	0.08	0.13	0.12
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.03	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.07	0.54	0.36
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.04	0.05	0.10
Pyrene	DETSC 3303#	0.03	mg/kg	0.04	0.04	< 0.03	< 0.03	0.09	0.11	0.10
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	0.52	0.86	0.68
PCBs										
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01				
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01				
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01				
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01				
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01				
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01				
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01				

Summary of Chemical Analysis
Soil Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2069597	2069598	2069599	2069600	2069602	2069603	2069604
			.Sample ID	F-TP104	F-TP104	F-TP104	F-TP104	F-TP105	F-TP105	F-TP105
			Depth	0.50	1.50	2.40	3.40	0.50	1.80	2.80
			Other ID							
			Sample Type	ES	ES	ES	ES	ES	ES	ES
			Sampling Date	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**							
PCB 77	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 81	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 105	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 114	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 118	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 123	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 126	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 156	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 157	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 167	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 169	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 189	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01				
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01				
Phenols										
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg	< 0.01		< 0.01				
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg	< 0.01		< 0.01				
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01		< 0.01				
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg	< 0.01		< 0.01				
p-cresol	DETSC 3451*	0.01	mg/kg	< 0.01		< 0.01				
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg	< 0.01		< 0.01				
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01		< 0.01				
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg	< 0.01		< 0.01				
Acid Herbicides										
Mecoprop	DETSC 3447	35	ug/kg					< 35		
2,4-D	DETSC 3447	35	ug/kg					< 35		
Bentazone	DETSC 3447	35	ug/kg					< 35		
Picloram	DETSC 3447	35	ug/kg					< 35		
MCPA	DETSC 3447	35	ug/kg					< 35		
Clopyralid	DETSC 3447	35	ug/kg					< 35		
Dicamba	DETSC 3447	35	ug/kg					< 35		
2,3,6-TBA	DETSC 3447	35	ug/kg					< 35		
Dichlorprop	DETSC 3447	35	ug/kg					< 35		
Bromoxynil	DETSC 3447	35	ug/kg					< 35		
Triclopyr	DETSC 3447	35	ug/kg					< 35		
Fenoprop	DETSC 3447	35	ug/kg					< 35		
MCPB	DETSC 3447*	35	ug/kg					< 35		
2,4,5-T	DETSC 3447	35	ug/kg					< 35		
Fluroxypyr	DETSC 3447	35	ug/kg					< 35		
2,4-DB	DETSC 3447	35	ug/kg					< 35		
Ioxynil	DETSC 3447	35	ug/kg					< 35		
Benazolin	DETSC 3447	35	ug/kg					< 35		

Summary of Chemical Analysis
Soil Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

				Lab No	2069597	2069598	2069599	2069600	2069602	2069603	2069604
				.Sample ID	F-TP104	F-TP104	F-TP104	F-TP104	F-TP105	F-TP105	F-TP105
				Depth	0.50	1.50	2.40	3.40	0.50	1.80	2.80
				Other ID							
				Sample Type	ES	ES	ES	ES	ES	ES	ES
				Sampling Date	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022	05/10/2022
				Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**								
PCP	DETSC 3447*	35	ug/kg						< 35		
OCPs											
alpha-BHC	DETSC 3441*	0.1	mg/kg						< 0.1		
gamma-BHC (Lindane)	DETSC 3441*	0.1	mg/kg						< 0.1		
beta-BHC	DETSC 3441*	0.1	mg/kg						< 0.1		
delta-BHC	DETSC 3441*	0.1	mg/kg						< 0.1		
Heptachlor	DETSC 3441*	0.1	mg/kg						< 0.1		
Aldrin	DETSC 3441*	0.1	mg/kg						< 0.1		
Heptachlor epoxide	DETSC 3441*	0.1	mg/kg						< 0.1		
gamma-Chlordane	DETSC 3441*	0.1	mg/kg						< 0.1		
Endosulphan I & Alpha-chlorodane	DETSC 3441*	0.1	mg/kg						< 0.1		
4,4-DDE	DETSC 3441*	0.1	mg/kg						< 0.1		
Dieldrin	DETSC 3441*	0.1	mg/kg						< 0.1		
Endrin	DETSC 3441*	0.1	mg/kg						< 0.1		
Endosulphan II & 4,4-DDD	DETSC 3441*	0.1	mg/kg						< 0.1		
Endrin aldehyde	DETSC 3441*	0.1	mg/kg						< 0.1		
4,4-DDT	DETSC 3441*	0.1	mg/kg						< 0.1		
Endosulphan sulphate	DETSC 3441*	0.1	mg/kg						< 0.1		
Methoxychlor	DETSC 3441*	0.1	mg/kg						< 0.1		
Endrin ketone	DETSC 3441*	0.1	mg/kg						< 0.1		
OPPs											
Dichlorvos	DETSC 3433*	0.1	mg/kg						< 0.1		
Mevinphos	DETSC 3433*	0.1	mg/kg						< 0.1		
Demeton-O	DETSC 3433*	0.1	mg/kg						< 0.1		
Ethoprop	DETSC 3433*	0.1	mg/kg						< 0.1		
Naled	DETSC 3433*	0.1	mg/kg						< 0.1		
Phorate	DETSC 3433*	0.1	mg/kg						< 0.1		
Demeton-S	DETSC 3433*	0.1	mg/kg						< 0.1		
Diazinon	DETSC 3433*	0.1	mg/kg						< 0.1		
Disulfoton	DETSC 3433*	0.1	mg/kg						< 0.1		
Methylparathion	DETSC 3433*	0.1	mg/kg						< 0.1		
Ronnel	DETSC 3433*	0.1	mg/kg						< 0.1		
Fenthion	DETSC 3433*	0.1	mg/kg						< 0.1		
Chlopyrifos	DETSC 3433*	0.1	mg/kg						< 0.1		
Trichlorinate	DETSC 3433*	0.1	mg/kg						< 0.1		
Merphos	DETSC 3433*	0.1	mg/kg						< 0.1		
Stirofos	DETSC 3433*	0.1	mg/kg						< 0.1		
Tokuthion	DETSC 3433*	0.1	mg/kg						< 0.1		
Fensulfothion	DETSC 3433*	0.1	mg/kg						< 0.1		
Bolstar	DETSC 3433*	0.1	mg/kg						< 0.1		
Azinphos methyl	DETSC 3433*	0.1	mg/kg						< 0.1		
Coumaphos	DETSC 3433*	0.1	mg/kg						< 0.1		

Summary of Chemical Analysis
Soil Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2069597		2069598		2069599		2069600	2069602	2069603	2069604
			.Sample ID	F-TP104		F-TP104		F-TP104		F-TP104	F-TP105	F-TP105	F-TP105
			Depth	0.50		1.50		2.40		3.40	0.50	1.80	2.80
			Other ID										
			Sample Type	ES		ES		ES		ES	ES	ES	ES
			Sampling Date	05/10/2022		05/10/2022		05/10/2022		05/10/2022	05/10/2022	05/10/2022	05/10/2022
			Sampling Time	n/s		n/s		n/s		n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**										
Subcontracted Analysis													
Benzene	$*	<2	ug/kg	<2				<2			<2		5
Toluene	$*	<5	ug/kg	<5				<5			<5		<5
Ethylbenzene	$*	<2	ug/kg	<2				<2			<2		<2
p & m-xylene	$*	<2	ug/kg	<2				<2			<2		<2
o-xylene	$*	<2	ug/kg	<2				<2			<2		<2
MTBE	$*	<5	ug/kg	<5				<5			<5		<5
TAME	$*	< 5	ug/kg	< 5				< 5			< 5		< 5

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2069597
.Sample ID	F-TP104
Depth	0.50
Other ID	
Sample Type	ES
Sampling Date	05/10/2022
Sampling Time	n/s

Test	Method	LOD	Units	
VOCs				
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2069597
.Sample ID	F-TP104
Depth	0.50
Other ID	
Sample Type	ES
Sampling Date	05/10/2022
Sampling Time	n/s

Test	Method	LOD	Units	
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01
SVOCs				
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1

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Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2069597
.Sample ID	F-TP104
Depth	0.50
Other ID	
Sample Type	ES
Sampling Date	05/10/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

	Lab No	2069605	2069606	2069607
	.Sample ID	F-TP104	F-TP104	F-TP105
	Depth	0.50	2.40	0.50
	Other ID			
	Sample Type	ES	ES	ES
	Sampling Date	05/10/2022	05/10/2022	05/10/2022
	Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Preparation						
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y	Y
Metals						
Aluminium, Dissolved	DETSC 2306	10	ug/l	62	120	1300
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.52	2.0	0.50
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	30	45	28
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.06	< 0.03	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0	1.4	1.1
Chromium, Hexavalent	DETSC 2203	0.007	mg/l	< 0.007	< 0.007	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l	3.0	1.6	3.5
Iron, Dissolved	DETSC 2306	5.5	ug/l	18	22	7.9
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.57	15	24
Manganese, Dissolved	DETSC 2306	0.22	ug/l	12	10	1.7
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.03	< 0.01	0.02
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	2.4	3.4	1.7
Nickel, Dissolved	DETSC 2306	0.5	ug/l	0.6	< 0.5	< 0.5
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	< 18	26	< 18
Selenium, Dissolved	DETSC 2306	0.25	ug/l	1.6	6.3	1.6
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4	< 0.4	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	4.5	2.1	5.0
Zinc, Dissolved	DETSC 2306	1.3	ug/l	2.3	4.7	8.2
Inorganics						
pH	DETSC 2008		pH	6.3	6.9	10.4
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	< 0.1	0.4	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	0.1	< 0.1
Thiocyanate	DETSC 2130	20	ug/l	< 20	< 20	< 20
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	78.1	44.9	59.0
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l	< 0.02	< 0.02	< 0.02
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l	< 0.015	< 0.015	< 0.015
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	< 0.015	< 0.015	< 0.015
Chloride	DETSC 2055	0.1	mg/l	2.0	12	9.3
Fluoride	DETSC 2055*	0.1	mg/l	0.34	0.21	< 0.10
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.13	0.19	0.25
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10	0.31	0.29
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	< 0.01	< 0.01	< 0.01
Sulphate as SO4	DETSC 2055	0.1	mg/l	120	36	37
Total Organic Carbon	DETSC 2085	1	mg/l	3.5	3.8	5.2
Petroleum Hydrocarbons						
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2069605	2069606	2069607
			.Sample ID	F-TP104	F-TP104	F-TP105
			Depth	0.50	2.40	0.50
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	05/10/2022	05/10/2022	05/10/2022
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	
Aliphatic C5-C35: EH_CU+HS_1D_AL	DETSC 3072*	10	ug/l	< 10	< 10	
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	1.4	
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	7.4	3.2	
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	13	3.0	
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	5.8	5.2	
Aromatic C5-C35: EH_CU+HS_1D_AR	DETSC 3072*	10	ug/l	27	13	
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	DETSC 3072*	10	ug/l	27	13	
Benzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	
Toluene	DETSC 3322	1	ug/l	< 1.0	< 1.0	
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	
Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0	
PAHs						
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.01
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01	0.01	0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	0.01	0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	0.02	0.02
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Naphthalene	DETSC 3304	0.05	ug/l	0.10	0.14	0.15
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01	0.01	0.02
Pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.02	0.02
PAH Total	DETSC 3304	0.2	ug/l	< 0.20	0.21	0.25
PCBs						
PCB 28 + PCB 31	DETSC 3402	0.3	ug/l	< 0.3	< 0.3	
PCB 52	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	
PCB 77	DETSC 3402	0.3	ug/l	< 0.3	< 0.3	
PCB 81	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2069605	2069606	2069607
			.Sample ID	F-TP104	F-TP104	F-TP105
			Depth	0.50	2.40	0.50
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	05/10/2022	05/10/2022	05/10/2022
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
PCB 101	DETSC 3402	0.3	ug/l	< 0.3	< 0.3	
PCB 105	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	
PCB 114	DETSC 3402	0.3	ug/l	< 0.3	< 0.3	
PCB 118 + PCB 123	DETSC 3402	0.6	ug/l	< 0.6	< 0.6	
PCB 126	DETSC 3402	0.5	ug/l	< 0.5	< 0.5	
PCB 138	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	
PCB 153	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	
PCB 156	DETSC 3402	0.3	ug/l	< 0.3	< 0.3	
PCB 157	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	
PCB 167	DETSC 3402	0.3	ug/l	< 0.3	< 0.3	
PCB 169	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	
PCB 180	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	
PCB 189	DETSC 3402	0.3	ug/l	< 0.3	< 0.3	
PCB 12	DETSC 3402	1	ug/l	< 1.0	< 1.0	
PCB 7 Total	DETSC 3402	1	ug/l	< 1.0	< 1.0	
Phenols						
Phenol	DETSC 3451*	0.1	ug/l	< 0.10	< 0.10	
4-Chloro-3-methylphenol	DETSC 3451*	0.1	ug/l	< 0.10	< 0.10	
2,4-Dichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10	< 0.10	
2,4-Dimethylphenol	DETSC 3451*	0.1	ug/l	< 0.10	< 0.10	
p-cresol	DETSC 3451*	0.1	ug/l	< 0.10	< 0.10	
2,6-Dimethylphenol	DETSC 3451*	0.1	ug/l	< 0.10	< 0.10	
2,6-Dichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10	< 0.10	
2,4,6-Trichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10	< 0.10	
Acid Herbicides						
Mecoprop	DETSC 3448	0.02	ug/l			< 0.02
2,4-D	DETSC 3448*	0.02	ug/l			< 0.02
Bentazone	DETSC 3448	0.02	ug/l			< 0.02
Picloram	DETSC 3448*	0.02	ug/l			< 0.02
MCPA	DETSC 3448	0.02	ug/l			< 0.02
Clopyralid	DETSC 3448	0.02	ug/l			< 0.02
Dicamba	DETSC 3448	0.02	ug/l			< 0.02
2,3,6-TBA	DETSC 3448	0.02	ug/l			< 0.02
Dichlorprop	DETSC 3448	0.02	ug/l			< 0.02
Bromoxynil	DETSC 3448	0.02	ug/l			< 0.02
Trichlopyr	DETSC 3448*	0.02	ug/l			< 0.02
Fenoprop	DETSC 3448	0.02	ug/l			< 0.02
MCPB	DETSC 3448	0.02	ug/l			< 0.02
2,4,5-T	DETSC 3448	0.02	ug/l			< 0.02
Fluroxypyr	DETSC 3448	0.02	ug/l			< 0.02
2,4-DB	DETSC 3448	0.02	ug/l			< 0.02
Ioxynil	DETSC 3448	0.02	ug/l			< 0.02

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

				Lab No	2069605	2069606	2069607
				.Sample ID	F-TP104	F-TP104	F-TP105
				Depth	0.50	2.40	0.50
				Other ID			
				Sample Type	ES	ES	ES
				Sampling Date	05/10/2022	05/10/2022	05/10/2022
				Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Benazolin	DETSC 3448*	0.02	ug/l				< 0.02
Pentachlorophenol	DETSC 3448*	0.02	ug/l				< 0.02
OCPs							
alpha-BHC	DETSC 3434*	1	ug/l				< 3.0
gamma-BHC (Lindane)	DETSC 3434*	1	ug/l				< 3.0
beta-BHC	DETSC 3434*	1	ug/l				< 3.0
delta-BHC	DETSC 3434*	1	ug/l				< 3.0
Heptachlor	DETSC 3434*	1	ug/l				< 3.0
Aldrin	DETSC 3434*	1	ug/l				< 3.0
Heptachlor epoxide	DETSC 3434*	1	ug/l				< 3.0
gamma-Chlordane	DETSC 3434*	1	ug/l				< 3.0
Endosulphan I	DETSC 3434*	1	ug/l				< 3.0
4,4-DDE	DETSC 3434*	1	ug/l				< 3.0
Dieldrin	DETSC 3434*	1	ug/l				< 3.0
Endrin	DETSC 3434*	1	ug/l				< 3.0
Endosulphan II	DETSC 3434*	1	ug/l				< 3.0
Endrin aldehyde	DETSC 3434*	1	ug/l				< 3.0
4,4-DDT	DETSC 3434*	1	ug/l				< 3.0
Endosulphan sulphate	DETSC 3434*	1	ug/l				< 3.0
Methoxychlor	DETSC 3434*	1	ug/l				< 3.0
Endrin ketone	DETSC 3434*	1	ug/l				< 3.0
OPPs							
Dichlorvos	DETSC 3434*	1	ug/l				< 3.0
Mevinphos	DETSC 3434*	1	ug/l				< 3.0
Demeton-O	DETSC 3434*	1	ug/l				< 3.0
Ethoprop	DETSC 3434*	1	ug/l				< 3.0
Naled	DETSC 3434*	1	ug/l				< 3.0
Phorate	DETSC 3434*	1	ug/l				< 3.0
Demeton-S	DETSC 3434*	1	ug/l				< 3.0
Diazinon	DETSC 3434*	1	ug/l				< 3.0
Disulfoton	DETSC 3434*	1	ug/l				< 3.0
Methylparathion	DETSC 3434*	1	ug/l				< 3.0
Ronnel	DETSC 3434*	1	ug/l				< 3.0
Fenthion	DETSC 3434*	1	ug/l				< 3.0
Chlopyrifos	DETSC 3434*	1	ug/l				< 3.0
Trichlorinate	DETSC 3434*	1	ug/l				< 3.0
Merphos	DETSC 3434*	1	ug/l				< 3.0
Stirofos	DETSC 3434*	1	ug/l				< 3.0
Tokuthion	DETSC 3434*	1	ug/l				< 3.0
Fensulfothion	DETSC 3434*	1	ug/l				< 3.0
Bolstar	DETSC 3434*	1	ug/l				< 3.0
Azinphos methyl	DETSC 3434*	1	ug/l				< 3.0

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis
Leachate Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2069605	2069606	2069607
			.Sample ID	F-TP104	F-TP104	F-TP105
			Depth	0.50	2.40	0.50
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	05/10/2022	05/10/2022	05/10/2022
			Sampling Time	n/s	n/s	n/s
Test		**Method**	**LOD**	**Units**		
Coumaphos		DETSC 3434*	1	ug/l		< 3.0
Subcontracted Analysis						
Hexavalent Chromium		$*	<2	ug/kg	<2	<2	

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 22-20306
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2069596	F-TP104	SOIL	NAD	none	Steven Lambert
2069597	F-TP104 0.50	SOIL	NAD	none	Steven Lambert
2069598	F-TP104 1.50	SOIL	NAD	none	Steven Lambert
2069601	F-TP105	SOIL	NAD	none	Steven Lambert
2069602	F-TP105 0.50	SOIL	NAD	none	Steven Lambert
2069603	F-TP105 1.80	SOIL	NAD	none	Steven Lambert

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-20306
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2069596	F-TP104 SOIL	05/10/22	GJ 250ml, GJ 60ml, PT 1L		
2069597	F-TP104 0.50 SOIL	05/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2069598	F-TP104 1.50 SOIL	05/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2069599	F-TP104 2.40 SOIL	05/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2069600	F-TP104 3.40 SOIL	05/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2069601	F-TP105 SOIL	05/10/22	GJ 250ml, GJ 60ml, PT 1L		
2069602	F-TP105 0.50 SOIL	05/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2069603	F-TP105 1.80 SOIL	05/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2069604	F-TP105 2.80 SOIL	05/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2069605	F-TP104 0.50 LEACHATE	05/10/22	GJ 250ml, GJ 60ml, PT 1L		
2069606	F-TP104 2.40 LEACHATE	05/10/22	GJ 250ml, GJ 60ml, PT 1L		
2069607	F-TP105 0.50 LEACHATE	05/10/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C40	EH_CU_1D_AL
Aliphatic C5-C40	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C40	EH_CU_1D_AR
Aromatic C5-C40	EH_CU+HS_1D_AR
TPH Ali/Aro C5-C40	EH_CU+HS_1D_Total
Aliphatic C5-C35	EH_CU+HS_1D_AL
Aromatic C5-C35	EH_CU+HS_1D_AR
TPH Ali/Aro Total C5-C35	EH_CU+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-20457	*Issued:*	21-Oct-22

Client Aecom Leeds
5th Floor
2 City Walk
Leeds
LS11 9AR

Our Reference	22-20457
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	11 Soil samples, 4 Leachate samples.
Date Received	12-Oct-22
Date Started	12-Oct-22
Date Completed	21-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2070379	2070380	2070382	2070383	2070384	2070385
			.Sample ID	F-TP106A	F-TP106A	F-TP106A	F-TP106A	F-TP116	F-TP116
			Depth	0.00	0.50	2.00	2.50	0.20	0.80
			Other ID						
			Sample Type	ES	ES	ES	ES	ES	ES
			Sampling Date	07/10/2022	07/10/2022	07/10/2022	07/10/2022	06/10/2022	06/10/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Asbestos Quantification	DETSC 1102	0.001	%	0.004					
Preparation									
Moisture Content	DETSC 1004	0.1	%	6.4	7.9	15	18	4.3	7.3
Metals									
Aluminium	DETSC 2301*	1	mg/kg	15000	30000	1700	31000	22000	
Arsenic	DETSC 2301#	0.2	mg/kg	2.5	3.1	5.2	6.5	6.0	9.1
Beryllium	DETSC 2301#	0.2	mg/kg	1.6	2.8	< 0.2	4.0	2.3	2.3
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	2.6	3.0	1.0	2.4	5.3	13
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	< 0.1	< 0.1	0.1	0.1	1.3
Chromium III	DETSC 2301*	0.15	mg/kg	51	8.5	2.8	7.5	120	90
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	11	4.6	3.2	7.7	11	16
Iron	DETSC 2301	25	mg/kg	44000	6900	5100	6300	11000	
Lead	DETSC 2301#	0.3	mg/kg	11	1.6	19	12	64	23
Manganese	DETSC 2301#	20	mg/kg	2500	2000	150	930	10000	
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.09	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	1.6	0.5	1.3	0.9	0.9	
Nickel	DETSC 2301#	1	mg/kg	6.3	1.4	2.7	3.6	3.1	5.9
Phosphorus	DETSC 2301*	1	mg/kg	330	62	120	100	2700	
Selenium	DETSC 2301#	0.5	mg/kg	1.4	1.9	< 0.5	1.6	4.4	4.7
Tin	DETSC 2301	1	mg/kg	1.3	< 1.0	< 1.0	< 1.0	1.2	
Vanadium	DETSC 2301#	0.8	mg/kg	65	29	8.7	29	320	240
Zinc	DETSC 2301#	1	mg/kg	49	13	19	33	24	72
Inorganics									
pH	DETSC 2008#		pH	9.9	9.4	9.1	10.0	11.6	10.9
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.3	0.2	0.2	0.2	0.3	0.3
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	0.5	1.0	< 0.1	1.4	1.6	0.8
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	1.3	1.2	1.4	1.7	0.78	
Chloride	DETSC 2055	1	mg/kg	52.4	13.8	66.9	52.3	66.0	
Fluoride	DETSC 2055	1	mg/kg	9.5	7.2	5.4	15	3.4	
Nitrate as NO3	DETSC 2055	1	mg/kg	7.1	5.3	1.6	2.2	3.8	10
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	0.26	0.34	0.85	0.17	0.39	
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	630	1100	160	410	1400	960
Sulphide	DETSC 2024*	10	mg/kg	840	2200	160	2700	2000	1700
Sulphur (free)	DETSC 3049#	0.75	mg/kg	2.3	10	2.0	< 0.75	20	12
Sulphur as S, Total	DETSC 2320	0.01	%	0.15	0.24	0.03	0.25	0.32	0.28
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.63	1.1	0.11	0.74	1.7	2.1
Petroleum Hydrocarbons									

Summary of Chemical Analysis

Soil Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

				Lab No	2070379	2070380	2070382	2070383	2070384	2070385
				.Sample ID	F-TP106A	F-TP106A	F-TP106A	F-TP106A	F-TP116	F-TP116
				Depth	0.00	0.50	2.00	2.50	0.20	0.80
				Other ID						
				Sample Type	ES	ES	ES	ES	ES	ES
				Sampling Date	07/10/2022	07/10/2022	07/10/2022	07/10/2022	06/10/2022	06/10/2022
				Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**		**LOD**	**Units**						
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*		0.01	mg/kg	0.20	0.28	0.33	0.30	0.26	0.29
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*		0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*		0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#		1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#		1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#		1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	4.2	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#		3.4	mg/kg	21	< 3.4	< 3.4	< 3.4	110	14
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*		3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	18	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*		10	mg/kg	25	< 10	< 10	< 10	140	16
Aromatic C5-C7: HS_1D_AR	DETSC 3321*		0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*		0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*		0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#		0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#		0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#		0.6	mg/kg	2.4	< 0.6	< 0.6	< 0.6	16	4.1
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#		1.4	mg/kg	29	< 1.4	< 1.4	< 1.4	65	4.4
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*		1.4	mg/kg	5.7	< 1.4	< 1.4	< 1.4	2.2	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*		10	mg/kg	37	< 10	< 10	< 10	84	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*		10	mg/kg	62	< 10	< 10	< 10	220	24
PAHs										
Acenaphthene	DETSC 3303#		0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#		0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.05	0.05
Anthracene	DETSC 3303		0.03	mg/kg	< 0.03	0.03	< 0.03	< 0.03	0.10	0.25
Benzo(a)anthracene	DETSC 3303#		0.03	mg/kg	0.11	< 0.03	< 0.03	< 0.03	0.91	0.83
Benzo(a)pyrene	DETSC 3303#		0.03	mg/kg	0.06	< 0.03	< 0.03	< 0.03	0.68	0.48
Benzo(b)fluoranthene	DETSC 3303#		0.03	mg/kg	0.15	< 0.03	< 0.03	< 0.03	0.94	0.83
Benzo(g,h,i)perylene	DETSC 3303#		0.03	mg/kg	0.05	< 0.03	< 0.03	< 0.03	0.29	0.29
Benzo(k)fluoranthene	DETSC 3303#		0.03	mg/kg	0.06	< 0.03	< 0.03	< 0.03	0.39	0.36
Chrysene	DETSC 3303		0.03	mg/kg	0.15	< 0.03	< 0.03	< 0.03	0.82	0.75
Dibenzo(a,h)anthracene	DETSC 3303#		0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.07	0.05
Fluoranthene	DETSC 3303#		0.03	mg/kg	0.24	< 0.03	< 0.03	< 0.03	2.2	1.9
Fluorene	DETSC 3303		0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#		0.03	mg/kg	0.05	< 0.03	< 0.03	< 0.03	0.27	0.25
Naphthalene	DETSC 3303#		0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#		0.03	mg/kg	0.14	< 0.03	< 0.03	< 0.03	1.1	0.61
Pyrene	DETSC 3303#		0.03	mg/kg	0.16	< 0.03	< 0.03	< 0.03	1.5	1.6
PAH - USEPA 16, Total	DETSC 3303		0.1	mg/kg	1.2	< 0.10	< 0.10	< 0.10	9.4	8.3
PCBs										
PCB 28 + PCB 31	DETSC 3401#		0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 52	DETSC 3401#		0.01	mg/kg			< 0.01	< 0.01		< 0.01

Summary of Chemical Analysis

Soil Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2070379	2070380	2070382	2070383	2070384	2070385
			.Sample ID	F-TP106A	F-TP106A	F-TP106A	F-TP106A	F-TP116	F-TP116
			Depth	0.00	0.50	2.00	2.50	0.20	0.80
			Other ID						
			Sample Type	ES	ES	ES	ES	ES	ES
			Sampling Date	07/10/2022	07/10/2022	07/10/2022	07/10/2022	06/10/2022	06/10/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
PCB 101	DETSC 3401#	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 118	DETSC 3401#	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 153	DETSC 3401#	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 138	DETSC 3401#	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 180	DETSC 3401#	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 77	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 81	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 105	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 114	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 118	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 123	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 126	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 156	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 157	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 167	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 169	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 189	DETSC 3401*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
PCB 7 Total	DETSC 3401#	0.01	mg/kg			< 0.01	< 0.01		< 0.01
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
p-cresol	DETSC 3451*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg			< 0.01	< 0.01		< 0.01
Subcontracted Analysis									
Benzene	$*	<2	ug/kg		<2	<2	<2		<2
Toluene	$*	<5	ug/kg		<5	<5	<5		<5
Ethylbenzene	$*	<2	ug/kg		<2	<2	<2		<2
p & m-xylene	$*	<2	ug/kg		<2	<2	<2		<2
o-xylene	$*	<2	ug/kg		<2	<2	<2		<2
MTBE	$*	<5	ug/kg		<5	<5	<5		<5
TAME	$*	< 5	ug/kg		< 5	< 5	< 5		< 5

Summary of Chemical Analysis

Soil Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2070386	2070387	2070388	2070389
			.Sample ID	F-TP116	F-TP116	F-TP116	F-TP116
			Depth	1.50	3.10	4.10	4.50
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	07/10/2022	07/10/2022	07/10/2022	07/10/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Asbestos Quantification	DETSC 1102	0.001	%				
Preparation							
Moisture Content	DETSC 1004	0.1	%	6.3	7.4	10	10
Metals							
Aluminium	DETSC 2301*	1	mg/kg	23000	19000	16000	
Arsenic	DETSC 2301#	0.2	mg/kg	21	15	20	18
Beryllium	DETSC 2301#	0.2	mg/kg	2.4	1.6	1.6	1.1
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	11	3.0	2.9	3.1
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.6	0.5	1.0
Chromium III	DETSC 2301*	0.15	mg/kg	93	120	90	51
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	33	46	33	29
Iron	DETSC 2301	25	mg/kg	35000	51000	45000	
Lead	DETSC 2301#	0.3	mg/kg	22	95	74	82
Manganese	DETSC 2301#	20	mg/kg	37000	3900	4300	
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	4.2	4.9	1.5	
Nickel	DETSC 2301#	1	mg/kg	19	16	17	19
Phosphorus	DETSC 2301*	1	mg/kg	1600	5000	3500	
Selenium	DETSC 2301#	0.5	mg/kg	14	2.1	1.9	1.3
Tin	DETSC 2301	1	mg/kg	2.4	3.4	3.3	
Vanadium	DETSC 2301#	0.8	mg/kg	240	430	330	220
Zinc	DETSC 2301#	1	mg/kg	31	170	340	1100
Inorganics							
pH	DETSC 2008#		pH	11.5	11.2	11.5	10.8
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	0.3	1.1	0.3
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	0.2	< 0.1	< 0.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6
Organic matter	DETSC 2002#	0.1	%	1.0	2.9	2.5	3.4
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	1.0	1.0	0.99	
Chloride	DETSC 2055	1	mg/kg	281	161	165	
Fluoride	DETSC 2055	1	mg/kg	9.2	33	45	
Nitrate as NO3	DETSC 2055	1	mg/kg	4.1	15	16	14
Ortho Phosphate as P	DETSC 2205*	0.1	mg/kg	0.69	0.74	0.24	
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	1600	670	520	480
Sulphide	DETSC 2024*	10	mg/kg	1700	1300	1400	780
Sulphur (free)	DETSC 3049#	0.75	mg/kg	13	13	5.2	6.7
Sulphur as S, Total	DETSC 2320	0.01	%	0.51	0.26	0.22	0.14
Sulphate as SO4, Total	DETSC 2321#	0.01	%	2.0	0.64	0.70	0.41
Petroleum Hydrocarbons							

Summary of Chemical Analysis

Soil Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2070386	2070387	2070388	2070389
			.Sample ID	F-TP116	F-TP116	F-TP116	F-TP116
			Depth	1.50	3.10	4.10	4.50
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	07/10/2022	07/10/2022	07/10/2022	07/10/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	0.27	0.20	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	1.9	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	38	< 3.4	< 3.4	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	4.5	< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	45	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	3.7	1.4	< 0.6	2.7
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	22	1.5	< 1.4	1.9
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	26	< 10	< 10	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	71	< 10	< 10	< 10
PAHs							
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.20
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	0.07	0.10	0.12	0.27
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.32	0.27	0.30	0.83
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.22	0.24	0.16	0.36
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.43	0.33	0.27	0.57
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.13	0.11	0.09	0.15
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.18	0.12	0.11	0.25
Chrysene	DETSC 3303	0.03	mg/kg	0.33	0.26	0.32	0.78
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.04
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.62	0.65	0.86	2.4
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.11
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.14	0.10	0.06	0.12
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.05
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.25	0.37	0.33	2.2
Pyrene	DETSC 3303#	0.03	mg/kg	0.50	0.48	0.62	1.8
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	3.2	3.0	3.2	10
PCBs							
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg			< 0.01	
PCB 52	DETSC 3401#	0.01	mg/kg			< 0.01	

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Soil Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

	Lab No	2070386	2070387	2070388	2070389
	.Sample ID	F-TP116	F-TP116	F-TP116	F-TP116
	Depth	1.50	3.10	4.10	4.50
	Other ID				
	Sample Type	ES	ES	ES	ES
	Sampling Date	07/10/2022	07/10/2022	07/10/2022	07/10/2022
	Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
PCB 101	DETSC 3401#	0.01	mg/kg			< 0.01	
PCB 118	DETSC 3401#	0.01	mg/kg			< 0.01	
PCB 153	DETSC 3401#	0.01	mg/kg			< 0.01	
PCB 138	DETSC 3401#	0.01	mg/kg			< 0.01	
PCB 180	DETSC 3401#	0.01	mg/kg			< 0.01	
PCB 77	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 81	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 105	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 114	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 118	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 123	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 126	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 156	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 157	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 167	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 169	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 189	DETSC 3401*	0.01	mg/kg			< 0.01	
PCB 7 Total	DETSC 3401#	0.01	mg/kg			< 0.01	
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Phenol	DETSC 3451*	0.01	mg/kg			< 0.01	
4-Chloro-3-methylphenol	DETSC 3451*	0.01	mg/kg			< 0.01	
2,4-Dichlorophenol	DETSC 3451*	0.01	mg/kg			< 0.01	
2,4-Dimethylphenol	DETSC 3451*	0.01	mg/kg			< 0.01	
p-cresol	DETSC 3451*	0.01	mg/kg			< 0.01	
2,6-Dimethylphenol	DETSC 3451*	0.01	mg/kg			< 0.01	
2,6-Dichlorophenol	DETSC 3451*	0.01	mg/kg			< 0.01	
2,4,6-Trichlorophenol	DETSC 3451*	0.01	mg/kg			< 0.01	
Subcontracted Analysis							
Benzene	$*	<2	ug/kg		<2	<2	
Toluene	$*	<5	ug/kg		<5	<5	
Ethylbenzene	$*	<2	ug/kg		<2	<2	
p & m-xylene	$*	<2	ug/kg		<2	<2	
o-xylene	$*	<2	ug/kg		<2	<2	
MTBE	$*	<5	ug/kg		<5	<5	
TAME	$*	< 5	ug/kg		< 5	< 5	

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2070382	2070383
			.Sample ID	F-TP106A	F-TP106A
			Depth	2.00	2.50
			Other ID		
			Sample Type	ES	ES
			Sampling Date	07/10/2022	07/10/2022
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
VOCs					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2070382	2070383
			.Sample ID	F-TP106A	F-TP106A
			Depth	2.00	2.50
			Other ID		
			Sample Type	ES	ES
			Sampling Date	07/10/2022	07/10/2022
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
SVOCs					
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2070382	2070383
			.Sample ID	F-TP106A	F-TP106A
			Depth	2.00	2.50
			Other ID		
			Sample Type	ES	ES
			Sampling Date	07/10/2022	07/10/2022
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1

Key: * -not accredited. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2070390	2070391	2070392	2070393
			.Sample ID	F-TP106A	F-TP116	F-TP116	F-TP116
			Depth	2.00	1.50	3.10	4.10
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	07/10/2022	07/10/2022	07/10/2022	07/10/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Preparation							
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y	Y	Y
Metals							
Aluminium, Dissolved	DETSC 2306	10	ug/l	67	130	98	100
Arsenic, Dissolved	DETSC 2306	0.16	ug/l		9.6	3.2	3.2
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l		330	110	45
Cadmium, Dissolved	DETSC 2306	0.03	ug/l		< 0.03	< 0.03	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l		6.1	1.8	< 1.0
Chromium, Hexavalent	DETSC 2203	0.007	mg/l		< 0.007	< 0.007	< 0.007
Copper, Dissolved	DETSC 2306	0.4	ug/l		1.9	1.4	2.6
Iron, Dissolved	DETSC 2306	5.5	ug/l		7.7	< 5.5	< 5.5
Lead, Dissolved	DETSC 2306	0.09	ug/l		0.78	0.22	0.17
Manganese, Dissolved	DETSC 2306	0.22	ug/l	32	4.8	0.97	1.2
Mercury, Dissolved	DETSC 2306	0.01	ug/l		0.04	0.02	0.02
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	7.6	17	3.7	1.9
Nickel, Dissolved	DETSC 2306	0.5	ug/l		< 0.5	< 0.5	< 0.5
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	26	250	60	50
Selenium, Dissolved	DETSC 2306	0.25	ug/l		3.3	1.6	1.1
Tin, Dissolved	DETSC 2306*	0.4	ug/l	< 0.4	< 0.4	< 0.4	< 0.4
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	5.1	27	24	9.7
Zinc, Dissolved	DETSC 2306	1.3	ug/l		< 1.3	< 1.3	< 1.3
Inorganics							
pH	DETSC 2008		pH		10.1	8.7	8.1
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l		1.9	0.5	0.3
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l		< 0.1	< 0.1	< 0.1
Thiocyanate	DETSC 2130	20	ug/l		51	< 20	< 20
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l		318	173	101
Ammoniacal Nitrogen as NH4	DETSC 2207	0.015	mg/l		< 0.02	< 0.02	< 0.02
Ammoniacal Nitrogen as NH3	DETSC 2207	0.015	mg/l		< 0.015	< 0.015	< 0.015
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l		< 0.015	< 0.015	< 0.015
Chloride	DETSC 2055	0.1	mg/l	8.9	55	22	8.7
Fluoride	DETSC 2055*	0.1	mg/l	0.68	0.20	1.5	0.76
Nitrate as NO3	DETSC 2055	0.1	mg/l		0.41	2.0	1.3
Nitrite as NO2	DETSC 2055	0.1	mg/l		0.47	< 0.10	0.20
Ortho Phosphate as P	DETSC 2205	0.01	mg/l	0.01	0.04	< 0.01	< 0.01
Sulphate as SO4	DETSC 2055	0.1	mg/l		63	22	12
Total Organic Carbon	DETSC 2085	1	mg/l		6.2	3.0	2.2

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2070390	2070391	2070392	2070393
			.Sample ID	F-TP106A	F-TP116	F-TP116	F-TP116
			Depth	2.00	1.50	3.10	4.10
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	07/10/2022	07/10/2022	07/10/2022	07/10/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Petroleum Hydrocarbons							
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	24		19	
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1		< 0.1	
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1		< 0.1	
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0		< 1.0	
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0		< 1.0	
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0		< 1.0	
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0		< 1.0	
Aliphatic C5-C35: EH_CU+HS_1D_AL	DETSC 3072*	10	ug/l	24		19	
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1		< 0.1	
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1		< 0.1	
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1		< 0.1	
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0		< 1.0	
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0		< 1.0	
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0		< 1.0	
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0		< 1.0	
Aromatic C5-C35: EH_CU+HS_1D_AR	DETSC 3072*	10	ug/l	< 10		< 10	
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	DETSC 3072*	10	ug/l	25		19	
Benzene	DETSC 3322	1	ug/l	< 1.0		< 1.0	
Toluene	DETSC 3322	1	ug/l	< 1.0		< 1.0	
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0		< 1.0	
Xylene	DETSC 3322	1	ug/l	< 1.0		< 1.0	
PAHs							
Acenaphthene	DETSC 3304	0.01	ug/l		0.01	0.05	0.04
Acenaphthylene	DETSC 3304	0.01	ug/l		< 0.01	0.02	< 0.01
Anthracene	DETSC 3304	0.01	ug/l		0.02	0.01	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l		0.02	0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l		< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l		< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l		< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l		< 0.01	< 0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l		0.02	0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l		< 0.01	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l		0.05	0.03	0.02
Fluorene	DETSC 3304	0.01	ug/l		< 0.01	0.02	0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l		< 0.01	< 0.01	< 0.01
Naphthalene	DETSC 3304	0.05	ug/l		0.09	0.13	0.13
Phenanthrene	DETSC 3304	0.01	ug/l		0.04	0.05	0.02
Pyrene	DETSC 3304	0.01	ug/l		0.04	0.02	0.02

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Chemical Analysis

Leachate Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

			Lab No	2070390	2070391	2070392	2070393
			.Sample ID	F-TP106A	F-TP116	F-TP116	F-TP116
			Depth	2.00	1.50	3.10	4.10
			Other ID				
			Sample Type	ES	ES	ES	ES
			Sampling Date	07/10/2022	07/10/2022	07/10/2022	07/10/2022
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
PAH Total	DETSC 3304	0.2	ug/l		0.29	0.35	0.24
PCBs							
PCB 28 + PCB 31	DETSC 3402	0.3	ug/l	< 0.3		< 0.3	
PCB 52	DETSC 3402	0.2	ug/l	< 0.2		< 0.2	
PCB 77	DETSC 3402	0.3	ug/l	< 0.3		< 0.3	
PCB 81	DETSC 3402	0.2	ug/l	< 0.2		< 0.2	
PCB 101	DETSC 3402	0.3	ug/l	< 0.3		< 0.3	
PCB 105	DETSC 3402	0.2	ug/l	< 0.2		< 0.2	
PCB 114	DETSC 3402	0.3	ug/l	< 0.3		< 0.3	
PCB 118 + PCB 123	DETSC 3402	0.6	ug/l	< 0.6		< 0.6	
PCB 126	DETSC 3402	0.5	ug/l	< 0.5		< 0.5	
PCB 138	DETSC 3402	0.2	ug/l	< 0.2		< 0.2	
PCB 153	DETSC 3402	0.2	ug/l	< 0.2		< 0.2	
PCB 156	DETSC 3402	0.3	ug/l	< 0.3		< 0.3	
PCB 157	DETSC 3402	0.2	ug/l	< 0.2		< 0.2	
PCB 167	DETSC 3402	0.3	ug/l	< 0.3		< 0.3	
PCB 169	DETSC 3402	0.2	ug/l	< 0.2		< 0.2	
PCB 180	DETSC 3402	0.2	ug/l	< 0.2		< 0.2	
PCB 189	DETSC 3402	0.3	ug/l	< 0.3		< 0.3	
PCB 12	DETSC 3402	1	ug/l	< 1.0		< 1.0	
PCB 7 Total	DETSC 3402	1	ug/l	< 1.0		< 1.0	
Phenols							
Phenol	DETSC 3451*	0.1	ug/l	< 0.10		< 0.10	
4-Chloro-3-methylphenol	DETSC 3451*	0.1	ug/l	< 0.10		< 0.10	
2,4-Dichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10		< 0.10	
2,4-Dimethylphenol	DETSC 3451*	0.1	ug/l	< 0.10		< 0.10	
p-cresol	DETSC 3451*	0.1	ug/l	< 0.10		< 0.10	
2,6-Dimethylphenol	DETSC 3451*	0.1	ug/l	< 0.10		< 0.10	
2,6-Dichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10		< 0.10	
2,4,6-Trichlorophenol	DETSC 3451*	0.1	ug/l	< 0.10		< 0.10	
Subcontracted Analysis							
Hexavalent Chromium	$*	<2	ug/kg	<2	<2	<2	

Key: * -not accredited. $ -subcontracted. n/s -not supplied.

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2070379	F-TP106A 0.00	SOIL	Chrysotile	Chrysotile present as fibre bundles	Josh Best
2070380	F-TP106A 0.50	SOIL	NAD	none	Josh Best
2070381	F-TP106A 1.00	SOIL	NAD	none	Josh Best
2070384	F-TP116 0.20	SOIL	NAD	none	Josh Best
2070385	F-TP116 0.80	SOIL	NAD	none	Josh Best
2070386	F-TP116 1.50	SOIL	NAD	none	Josh Best
2070387	F-TP116 3.10	SOIL	NAD	none	Josh Best

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis

Soil Samples

Our Ref 22-20457
Client Ref 60678042
Contract Title NZT Feed GI

		Lab No	2070379
		.Sample ID	F-TP106A
		Depth	0.00
		Other ID	
		Sample Type	ES
		Sampling Date	07/10/2022
		Sampling Time	
Test	**Method**	**Units**	
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	**0.004**
Gravimetric Quantification (a)	DETSC 1102	Mass %	na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	0.004
Quantification by PCOM (c)	DETSC 1102	Mass %	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na
Breakdown of Gravimetric Analysis (a)			
Mass of Sample		g	1482.03
ACMs present*		type	
Mass of ACM in sample		g	
% ACM by mass		%	
% asbestos in ACM		%	
% asbestos in sample		%	
Breakdown of Detailed Gravimetric Analysis (b)			
% Amphibole bundles in sample		Mass %	na
% Chrysotile bundles in sample		Mass %	0.004
Breakdown of PCOM Analysis (c)			
% Amphibole fibres in sample		Mass %	na
% Chrysotile fibres in sample		Mass %	na
Breakdown of Potentially Respirable Fibre Analysis (d)			
Amphibole fibres		Fibres/g	na
Chrysotile fibres		Fibres/g	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Information in Support of the Analytical Results

Our Ref 22-20457
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2070379	F-TP106A 0.00 SOIL	07/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2070380	F-TP106A 0.50 SOIL	07/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2070381	F-TP106A 1.00 SOIL	07/10/22	GJ 250ml, GJ 60ml, PT 1L		
2070382	F-TP106A 2.00 SOIL	07/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2070383	F-TP106A 2.50 SOIL	07/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2070384	F-TP116 0.20 SOIL	06/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2070385	F-TP116 0.80 SOIL	06/10/22	GJ 250ml, GJ 60ml, PT 1L		
2070386	F-TP116 1.50 SOIL	07/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2070387	F-TP116 3.10 SOIL	07/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2070388	F-TP116 4.10 SOIL	07/10/22	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
2070389	F-TP116 4.50 SOIL	07/10/22	GJ 250ml, GJ 60ml, PT 1L		
2070390	F-TP106A 2.00 LEACHATE	07/10/22	GJ 250ml, GJ 60ml, PT 1L		
2070391	F-TP116 1.50 LEACHATE	07/10/22	GJ 250ml, GJ 60ml, PT 1L		
2070392	F-TP116 3.10 LEACHATE	07/10/22	GJ 250ml, GJ 60ml, PT 1L		
2070393	F-TP116 4.10 LEACHATE	07/10/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C40	EH_CU_1D_AL
Aliphatic C5-C40	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C40	EH_CU_1D_AR
Aromatic C5-C40	EH_CU+HS_1D_AR
TPH Ali/Aro C5-C40	EH_CU+HS_1D_Total
Aliphatic C5-C35	EH_CU+HS_1D_AL
Aromatic C5-C35	EH_CU+HS_1D_AR
TPH Ali/Aro Total C5-C35	EH_CU+HS_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-22032	*Issued:*	04-Nov-22

Client Aecom Nottingham
12 Regan Way
Chetwynd Business Park
Chilwell
Nottingham
NG9 6RZ

Our Reference	22-22032
Client Reference	60678042
Order No	(not supplied)
Contract Title	NZT Feed GI
Description	One Soil sample.
Date Received	31-Oct-22
Date Started	31-Oct-22
Date Completed	04-Nov-22
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-22032
Client Ref 60678042
Contract Title NZT Feed GI

Lab No	2078777
.Sample ID	F-TP112
Depth	4.00-4.50
Other ID	
Sample Type	B
Sampling Date	26/09/2022
Sampling Time	n/s

Test	Method	LOD	Units	
Metals				
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l	< 10
Inorganics				
pH	DETSC 2008#		pH	11.2
Chloride Aqueous Extract	DETSC 2055	1	mg/l	13
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l	4.2
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	42
Sulphur as S, Total	DETSC 2320	0.01	%	0.09
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.22

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-22032
Client Ref 60678042
Contract NZT Feed GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2078777	F-TP112 4.00-4.50 SOIL	26/09/22	PT 1L	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

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F: +44 (0) 1244 833781
W: www.element.com

Arcadis
3 Picadilly Place
Manchester
M1 3BN

Attention :	Andy Smith
Date :	18th October, 2022
Your reference :	10047374
Our reference :	Test Report 22/16637 Batch 1 Schedule C
Location :	Redcar
Date samples received :	12th October, 2022
Status :	Final Report
Issue :	1

Five samples were received for analysis on 12th October, 2022 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.

Authorised By:

Simon Gomery BSc
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology Environmental UK Limited
Registered in England and Wales
Registered Office: 3rd Floor Davidson Building, 5 Southampton Street, London WC2E 7HA
Company Registration No: 11371415

Element Materials Technology

Client Name: Arcadis
Reference: 10047374
Location: Redcar
Contact: Andy Smith
EMT Job No: 22/16637

Report : Liquid

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

EMT Sample No.	1-7	8-14	15-21	22-28	29-35							
Sample ID	01S2-BHA04S05102 2WG1125	02F-BH102D05102 2WG1235	03F-BH102S05102 2WG1400	04MS/BH13S0 51022WG1500	05MS/BH13D0 51022WG1600							
Depth												
COC No / misc												
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G							
Sample Date	05/10/2022 11:25	05/10/2022 11:35	05/10/2022 14:00	05/10/2022 15:00	05/10/2022 16:00							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	1	1	1	1	1							
Date of Receipt	12/10/2022	12/10/2022	12/10/2022	12/10/2022	12/10/2022							

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Dissolved Arsenic #	3.7	5.0	<2.5	8.6	4.5						<2.5	ug/l	TM30/PM14
Dissolved Barium #	186	88	96	39	53						<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM30/PM14
Dissolved Boron	46	287	70	821	1341						<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	9.6	9.1	12.2	3.2	3.2						<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7	<7						<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5	<5						<5	ug/l	TM30/PM14
Dissolved Manganese #	3	<2	<2	107	1607						<2	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1	<1						<1	ug/l	TM30/PM14
Dissolved Nickel #	6	2	3	<2	4						<2	ug/l	TM30/PM14
Dissolved Selenium #	4	9	7	<3	<3						<3	ug/l	TM30/PM14
Dissolved Vanadium #	51.3	9.6	<1.5	<1.5	<1.5						<1.5	ug/l	TM30/PM14
Dissolved Zinc #	3	<3	<3	<3	<3						<3	ug/l	TM30/PM14

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Arcadis
Reference: 10047374
Location: Redcar
Contact: Andy Smith

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 22/16637						

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.

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/16637

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 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease 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 UKAS requirement 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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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: 22/16637

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
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				
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			

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Arcadis
3 Picadilly Place
Manchester
M1 3BN

Attention :	Andy Smith
Date :	18th October, 2022
Your reference :	10047374
Our reference :	Test Report 22/16637 Batch 1 Schedule A 22/16637 Batch 1 Schedule B
Location :	Redcar
Date samples received :	12th October, 2022
Status :	Final Report
Issue :	1

Five samples were received for analysis on 12th October, 2022 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.

Authorised By:

Simon Gomery BSc
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Arcadis
Reference: 10047374
Location: Redcar
Contact: Andy Smith
EMT Job No: 22/16637

Report : Liquid

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

EMT Sample No.	1-7	8-14	15-21	22-28	29-35						LOD/LOR	Units	Method No.
Sample ID	01S2-BHA04S05102 2WG1125	02F-BH102D05102 2WG1235	03F-BH102S05102 2WG1400	04MS/BH13S0 51022WG1500	05MS/BH13D0 51022WG1600								
Depth													
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G								
Sample Date	05/10/2022 11:25	05/10/2022 11:35	05/10/2022 14:00	05/10/2022 15:00	05/10/2022 16:00								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	1	1	1	1	1								
Date of Receipt	12/10/2022	12/10/2022	12/10/2022	12/10/2022	12/10/2022								
PAH MS													
Naphthalene #	0.1	<0.1	<0.1	0.1	0.1						<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005	<0.005	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Acenaphthene #	0.050	<0.005	<0.005	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Fluorene #	<0.005	<0.005	<0.005	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Phenanthrene #	0.140	<0.005	0.084	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Anthracene #	0.043	<0.005	0.019	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Fluoranthene #	0.141	0.048	0.209	<0.005	0.016						<0.005	ug/l	TM4/PM30
Pyrene #	0.111	0.047	0.185	<0.005	0.018						<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.005	0.078	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.005	0.108	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	<0.008	0.205	<0.008	<0.008						<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005	0.103	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005	0.069	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	<0.005	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005	0.065	<0.005	<0.005						<0.005	ug/l	TM4/PM30
PAH 16 Total #	0.585	<0.173	1.125	<0.173	<0.173						<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008	0.148	<0.008	<0.008						<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	0.057	<0.008	<0.008						<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	85	81	82	86	80						<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	10	<5	<5						<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1	<1						<1	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
Surrogate Recovery Toluene D8	100	102	104	104	108						<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	105	102	102	105	107						<0	%	TM15/PM10
TPH CWG													
Aliphatics													
>C5-C6 #	<10	24	98	<10	<10						<10	ug/l	TM36/PM12
>C6-C8 #	<10	64	184	<10	<10						<10	ug/l	TM36/PM12
>C8-C10 #	<10	304	989	<10	<10						<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5	<5						<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<10	392	1271	<10	<10						<10	ug/l	TM5/TM36/PM12/PM16/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Arcadis
Reference: 10047374
Location: Redcar
Contact: Andy Smith
EMT Job No: 22/16637

Report : Liquid

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

EMT Sample No.	1-7	8-14	15-21	22-28	29-35						LOD/LOR	Units	Method No.
Sample ID	01S2-BHA04S05102 2WG1125	02F-BH102D05102 2WG1235	03F-BH102S05102 2WG1400	04MS/BH13S0 51022WG1500	05MS/BH13D0 51022WG1600								
Depth													
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G								
Sample Date	05/10/2022 11:25	05/10/2022 11:35	05/10/2022 14:00	05/10/2022 15:00	05/10/2022 16:00								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	1	1	1	1	1								
Date of Receipt	12/10/2022	12/10/2022	12/10/2022	12/10/2022	12/10/2022								
TPH CWG													
Aromatics													
>C5-EC7 #	<10	<10	<10	<10	<10						<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	11	<10	<10						<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	20	52	<10	<10						<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	<5	<5						<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10	<10	10	<10	<10						<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	<10	20	73	<10	<10						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<10	412	1344	<10	<10						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Phenol #	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	0.22	<0.02	<0.02	<0.02	<0.02						<0.02	mg/l	TM38/PM0
Free Cyanide #	0.09	0.01	<0.01	0.02	<0.01						<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	2.64	0.30	0.37	4.64	5.74						<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<6	<6	<6	<6	<6						<6	ug/l	TM38/PM0
Thiocyanate	0.20	0.11	0.04	9.54 AA	<0.02						<0.02	mg/l	TM107/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Arcadis
Reference: 10047374
Location: Redcar
Contact: Andy Smith
EMT Job No: 22/16637

SVOC Report : **Liquid**

EMT Sample No.	1-7	8-14	15-21	22-28	29-35							
Sample ID	01S2-BHA04S051022WG1125	02F-BH102D051022WG1235	03F-BH102S051022WG1400	04MS/BH13S051022WG1500	05MS/BH13D051022WG1600							
Depth										Please see attached notes for all abbreviations and acronyms		
COC No / misc												
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G							
Sample Date	05/10/2022 11:25	05/10/2022 11:35	05/10/2022 14:00	05/10/2022 15:00	05/10/2022 16:00							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	1	1	1	1	1							
Date of Receipt	12/10/2022	12/10/2022	12/10/2022	12/10/2022	12/10/2022							
SVOC MS										LOD/LOR	Units	Method No.
Phenols												
2-Chlorophenol #	<1	<1	<1	<1	2					<1	ug/l	TM16/PM30
2-Methylphenol #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
4-Methylphenol	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Nitrophenol	<10	<10	<10	<10	<10					<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Phenol	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
PAHs												
2-Chloronaphthalene #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
2-Methylnaphthalene #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Phthalates												
Bis(2-ethylhexyl) phthalate	<5	<5	<5	<5	<5					<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Di-n-butyl phthalate #	<1.5	<1.5	<1.5	<1.5	<1.5					<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Diethyl phthalate #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Dimethyl phthalate	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Other SVOCs												
1,2-Dichlorobenzene #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
1,3-Dichlorobenzene #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
1,4-Dichlorobenzene #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
2,4-Dinitrotoluene #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Bromophenylphenylether #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Chlorophenylphenylether #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Azobenzene #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Carbazole #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Dibenzofuran #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Hexachlorobenzene #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Hexachlorobutadiene #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Hexachloroethane #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Isophorone #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM16/PM30
Nitrobenzene #	<1	<1	<1	<1	<1					<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	113	104	119	112	110					<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	115	107	119	110	110					<0	%	TM16/PM30

Client Name: Arcadis
Reference: 10047374
Location: Redcar
Contact: Andy Smith
EMT Job No: 22/16637

VOC Report : **Liquid**

EMT Sample No.	1-7	8-14	15-21	22-28	29-35							
Sample ID	01S2-BHA04S051022WG1125	02F-BH102D051022WG1235	03F-BH102S051022WG1400	04MS/BH13S051022WG1500	05MS/BH13D051022WG1600							
Depth										Please see attached notes for all abbreviations and acronyms		
COC No / misc												
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G							
Sample Date	05/10/2022 11:25	05/10/2022 11:35	05/10/2022 14:00	05/10/2022 15:00	05/10/2022 16:00							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	1	1	1	1	1							
Date of Receipt	12/10/2022	12/10/2022	12/10/2022	12/10/2022	12/10/2022							
VOC MS												
Dichlorodifluoromethane	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM15/PM10
Chloromethane #	<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
Bromomethane	<1	<1	<1	<1	<1					<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<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
Dichloromethane (DCM) #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1					<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Toluene #	<5	<5	10	<5	<5					<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1	<1					<1	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
Styrene	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4					<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<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
n-Butylbenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2					<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3					<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	100	102	104	104	108					<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	105	102	102	105	107					<0	%	TM15/PM10

Client Name: Arcadis
Reference: 10047374
Location: Redcar
Contact: Andy Smith

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 22/16637						

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.

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/16637

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 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease 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 UKAS requirement 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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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: 22/16637

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
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.				
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.	Yes			
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			
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.				
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.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.	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			

EMT Job No: 22/16637

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
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.				
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.	Yes			
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				

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Arcadis
3 Picadilly Place
Manchester
M1 3BN

Attention :	Olivia Grace
Date :	16th December, 2022
Your reference :	10035117
Our reference :	Test Report 22/18344 Batch 1
Location :	Redcar LWoW
Date samples received :	8th November, 2022
Status :	Final Report
Issue :	1

Five samples were received for analysis on 8th November, 2022 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.

Authorised By:

Paul Boden BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Olivia Grace
EMT Job No: 22/18344

Report : Liquid

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

EMT Sample No.	1-11	12-22	23-33	34-44	45-55						LOD/LOR	Units	Method No.
Sample ID	MS-BH13S	F-BH101D	F-BH101M	F-BH102D	F-BH102M								
Depth	7.00	25.00	8.00	28.00	10.00								
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G								
Sample Date	09/11/2022 13:30	09/11/2022 11:30	09/11/2022 10:30	09/11/2022 16:30	09/11/2022 15:15								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	1	1	1	1	1								
Date of Receipt	08/11/2022	08/11/2022	08/11/2022	08/11/2022	08/11/2022								
Dissolved Aluminium #	-	356.8	556.7 AB	-	38.4						<1.5	ug/l	TM170/PM14
Dissolved Arsenic #	NDP	5.8	4.9	NDP	5.1						<0.9	ug/l	TM170/PM14
Dissolved Boron #	NDP	114	111	NDP	339						<12	ug/l	TM170/PM14
Dissolved Cadmium #	NDP	0.07	0.08	NDP	0.07						<0.03	ug/l	TM170/PM14
Total Dissolved Chromium #	NDP	1.3	0.5	NDP	0.7						<0.2	ug/l	TM170/PM14
Dissolved Copper #	NDP	<1	<1	NDP	<1						<1	ug/l	TM170/PM14
Total Dissolved Iron #	NDP	26.2	24.6	NDP	11.1						<4.7	ug/l	TM170/PM14
Dissolved Lead #	NDP	<0.4	<0.4	NDP	<0.4						<0.4	ug/l	TM170/PM14
Dissolved Manganese #	NDP	<1.5	<1.5	NDP	<1.5						<1.5	ug/l	TM170/PM14
Dissolved Molybdenum #	-	227.0	260.5 AB	-	225.9						<0.2	ug/l	TM170/PM14
Dissolved Nickel #	NDP	1.4	1.4	NDP	1.5						<0.2	ug/l	TM170/PM14
Dissolved Zinc #	NDP	1.6	1.5	NDP	<1.5						<1.5	ug/l	TM170/PM14
Dissolved Aluminium #	2.7	-	-	92.3	-						<1.5	ug/l	TM30/PM14
Dissolved Arsenic #	8.4	-	-	1.9	-						<0.9	ug/l	TM30/PM14
Dissolved Boron	803	-	-	168	-						<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.03	-	-	<0.03	-						<0.03	ug/l	TM30/PM14
Dissolved Calcium #	79.8	317.4 AB	323.2 AB	537.5 AB	182.1						<0.2	mg/l	TM30/PM14
Total Dissolved Chromium #	<0.2	-	-	0.9	-						<0.2	ug/l	TM30/PM14
Dissolved Copper #	<3	-	-	<3	-						<3	ug/l	TM30/PM14
Total Dissolved Iron #	835.5	-	-	20.9	-						<4.7	ug/l	TM30/PM14
Dissolved Lead #	<0.4	-	-	<0.4	-						<0.4	ug/l	TM30/PM14
Dissolved Magnesium #	59.4	0.1	0.2	<0.1	0.3						<0.1	mg/l	TM30/PM14
Dissolved Manganese #	91.4	-	-	<1.5	-						<1.5	ug/l	TM30/PM14
Dissolved Molybdenum #	11.0	-	-	248.0	-						<0.2	ug/l	TM30/PM14
Dissolved Nickel #	0.2	-	-	3.9	-						<0.2	ug/l	TM30/PM14
Dissolved Potassium #	100.2	40.2	30.9	88.4	53.7						<0.1	mg/l	TM30/PM14
Dissolved Silicon	3164	5725	5267	896	5219						<100	ug/l	TM30/PM14
Dissolved Sodium #	1018.5 AC	202.9	155.5	903.9 AB	132.4						<0.1	mg/l	TM30/PM14
Dissolved Zinc #	<1.5	-	-	<1.5	-						<1.5	ug/l	TM30/PM14
Mercury Dissolved by CVAF #	<0.01	<0.01	<0.01	0.34 AA	<0.01						<0.01	ug/l	TM61/PM0
Total Dissolved Sulphur as S	130565 AC	167646 AC	120440 AC	113135 AC	156417 AC						<10	ug/l	TM30/PM14

Please see attached notes for all abbreviations and acronyms

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Olivia Grace
EMT Job No: 22/18344

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.	1-11	12-22	23-33	34-44	45-55						LOD/LOR	Units	Method No.
Sample ID	MS-BH13S	F-BH101D	F-BH101M	F-BH102D	F-BH102M								
Depth	7.00	25.00	8.00	28.00	10.00								
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G								
Sample Date	09/11/2022 13:30	09/11/2022 11:30	09/11/2022 10:30	09/11/2022 16:30	09/11/2022 15:15								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	1	1	1	1	1								
Date of Receipt	08/11/2022	08/11/2022	08/11/2022	08/11/2022	08/11/2022								
PAH MS													
Naphthalene #	0.1	0.1	<0.1	<0.1	<0.1						<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005	<0.005	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Acenaphthene #	<0.005	<0.005	0.014	0.010	0.010						<0.005	ug/l	TM4/PM30
Fluorene #	0.005	<0.005	0.012	<0.005	0.007						<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	<0.005	<0.005	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Anthracene #	<0.005	<0.005	<0.005	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Fluoranthene #	0.006	0.006+	0.006+	0.017+	0.050+						<0.005	ug/l	TM4/PM30
Pyrene #	0.010	0.007+	0.007+	0.015+	0.048+						<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.005	<0.005	0.008	0.026						<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.005	<0.005	0.010	0.024						<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	<0.008	<0.008	0.016	0.047						<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005	<0.005	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005	<0.005	0.007	0.013						<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	<0.005	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005	<0.005	0.006	0.013						<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	<0.173	<0.173	<0.173	0.238						<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008	<0.008	0.012	0.034						<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	<0.008	<0.008	0.013						<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	88	81	84	79	89						<0	%	TM4/PM30
VOC TICs	ND	ND	ND	See Attached	ND							None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	ug/l	TM15/PM10
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
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
Surrogate Recovery Toluene D8	87	92	95	100	94						<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	92	94	97	97	95						<0	%	TM15/PM10
SVOC TICs	ND	ND	ND	See Attached	ND							None	TM16/PM30

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Olivia Grace
EMT Job No: 22/18344

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.	1-11	12-22	23-33	34-44	45-55						LOD/LOR	Units	Method No.
Sample ID	MS-BH13S	F-BH101D	F-BH101M	F-BH102D	F-BH102M								
Depth	7.00	25.00	8.00	28.00	10.00								
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G								
Sample Date	09/11/2022 13:30	09/11/2022 11:30	09/11/2022 10:30	09/11/2022 16:30	09/11/2022 15:15								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	1	1	1	1	1								
Date of Receipt	08/11/2022	08/11/2022	08/11/2022	08/11/2022	08/11/2022								
TPH CWG													
Aliphatics													
>C5-C6 #	<10	13	<10	71	24						<10	ug/l	TM36/PM12
>C6-C8 #	<10	30	15	195	57						<10	ug/l	TM36/PM12
>C8-C10 #	<10	104	66	987	77						<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5	<5						<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>C35-C44	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<10	147	81	1253	158						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics C5-44	<10	147	81	1253	158						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<10	<10	<10	<10	<10						<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10	<10	<10						<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	13	14	68	14						<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	<5	<5						<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>EC35-EC44	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	<10	13	14	68	14						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<10	160	95	1321	172						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aromatics C5-44	<10	13	14	68	14						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-44)	<10	160	95	1321	172						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Resorcinol	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
Catechol	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
Phenol #	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
m/p-cresol	<0.02	<0.02	<0.02	0.04	<0.02						<0.02	mg/l	TM26/PM0
o-cresol	<0.01	<0.01	<0.01	0.02	<0.01						<0.01	mg/l	TM26/PM0
Total cresols #	<0.03	<0.03	<0.03	0.06	<0.03						<0.03	mg/l	TM26/PM0
Xylenols #	<0.06	<0.06	<0.06	<0.06	<0.06						<0.06	mg/l	TM26/PM0
1-naphthol	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
2,3,5-trimethyl phenol	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
2-isopropylphenol	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
Total Speciated Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/l	TM26/PM0
Sulphate as SO4 #	366.6	480.4	359.3	343.4	463.2						<0.5	mg/l	TM38/PM0
Chloride #	1346.1	342.5	262.7	982.0	144.8						<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	0.19	0.03	0.08	0.12	<0.02						<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	0.06	<0.06	<0.06	<0.06	<0.06						<0.06	mg/l	TM38/PM0

Element Materials Technology

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Olivia Grace
EMT Job No: 22/18344

Report : Liquid

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

EMT Sample No.	1-11	12-22	23-33	34-44	45-55						LOD/LOR	Units	Method No.
Sample ID	MS-BH13S	F-BH101D	F-BH101M	F-BH102D	F-BH102M								
Depth	7.00	25.00	8.00	28.00	10.00								
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G								
Sample Date	09/11/2022 13:30	09/11/2022 11:30	09/11/2022 10:30	09/11/2022 16:30	09/11/2022 15:15								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	1	1	1	1	1								
Date of Receipt	08/11/2022	08/11/2022	08/11/2022	08/11/2022	08/11/2022								
Free Cyanide	0.019	0.003	0.008	0.008$_{AB}$	0.033$_{AC}$						<0.001	mg/l	TM89/PM0
Total Cyanide	0.052	0.017	0.015	0.023$_{AB}$	0.064$_{AC}$						<0.001	mg/l	TM89/PM0
Complex Cyanide	0.033	0.014	0.007	0.015$_{AB}$	0.031$_{AC}$						<0.001	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	5.00	2.02	1.70	1.48	0.07						<0.03	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	170	172	198	1118	142						<1	mg/l	TM75/PM0
Sulphide	<0.01	<0.01	<0.01	0.02	<0.01						<0.01	mg/l	TM107/PM0
Thiocyanate	0.07	0.07	0.02	0.04	0.07						<0.02	mg/l	TM107/PM0
Dissolved Organic Carbon #	5	107	67	699	67						<2	mg/l	TM60/PM0
Dissolved Inorganic Carbon #	38	<2	<2	<2	<2						<2	mg/l	TM60/PM0
pH #	8.05	11.55	11.73	12.41	11.44						<0.01	pH units	TM73/PM0
Total Suspended Solids #	<10	82	41	21	58						<10	mg/l	TM37/PM0
Total Cations	55.73	25.70	23.70	68.40	16.24						<0.00	mmolc/l	TM30/PM14
Total Anions	49.00	23.10	18.85	57.20	16.57						<0.00	mmolc/l	TM0/PM0
% Cation Excess	6.43	5.33	11.40	8.92	-1.01							%	TM0/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Olivia Grace
EMT Job No: 22/18344

SVOC Report : **Liquid**

EMT Sample No.	1-11	12-22	23-33	34-44	45-55						LOD/LOR	Units	Method No.
Sample ID	MS-BH13S	F-BH101D	F-BH101M	F-BH102D	F-BH102M								
Depth	7.00	25.00	8.00	28.00	10.00								
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G								
Sample Date	09/11/2022 13:30	09/11/2022 11:30	09/11/2022 10:30	09/11/2022 16:30	09/11/2022 15:15								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	1	1	1	1	1								
Date of Receipt	08/11/2022	08/11/2022	08/11/2022	08/11/2022	08/11/2022								
SVOC MS													
Phenols													
2-Chlorophenol #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
2-Methylphenol #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
4-Methylphenol	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
4-Nitrophenol	<10	<10	<10	<10	<10						<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Phenol	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
2-Methylnaphthalene #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<5	<5	<5	<5	<5						<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Di-n-butyl phthalate #	<1.5	<1.5	<1.5	<1.5	<1.5						<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Diethyl phthalate #	<1	<1+	<1+	<1+	<1+						<1	ug/l	TM16/PM30
Dimethyl phthalate	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
1,3-Dichlorobenzene #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
1,4-Dichlorobenzene #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
2,4-Dinitrotoluene #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
4-Bromophenylphenylether #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
4-Chlorophenylphenylether #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
Azobenzene #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Carbazole #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
Dibenzofuran #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
Hexachlorobenzene #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Hexachlorobutadiene #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Hexachloroethane #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Isophorone #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM16/PM30
Nitrobenzene #	<1	<1	<1	<1	<1						<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	114	101	105	98	96						<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	125	145SV	150SV	146SV	142SV						<0	%	TM16/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Olivia Grace
EMT Job No: 22/18344

VOC Report : **Liquid**

EMT Sample No.	1-11	12-22	23-33	34-44	45-55						LOD/LOR	Units	Method No.
Sample ID	MS-BH13S	F-BH101D	F-BH101M	F-BH102D	F-BH102M								
Depth	7.00	25.00	8.00	28.00	10.00								
COC No / misc													
Containers	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G	V H HN N P G								
Sample Date	09/11/2022 13:30	09/11/2022 11:30	09/11/2022 10:30	09/11/2022 16:30	09/11/2022 15:15								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	1	1	1	1	1								
Date of Receipt	08/11/2022	08/11/2022	08/11/2022	08/11/2022	08/11/2022								
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	ug/l	TM15/PM10
Chloromethane #	<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
Bromomethane	<1	<1	<1	<1	<1						<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<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
Dichloromethane (DCM) #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1						<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5	<5	<5						<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1	<1						<1	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
Styrene	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4						<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<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
n-Butylbenzene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2						<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3						<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	87	92	95	100	94						<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	92	94	97	97	95						<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Job number: 22/18344
Sample number: 34
Sample identity: F-BH102D
Sample depth: 28.00
Sample Type: Ground Water
Units: ug/l

Method: VOC
Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
66-25-1	Hexanal	5.429	90	105
110-43-0	2-Heptanone	6.125	91	227

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Job number: 22/18344
Sample number: 44
Sample identity: F-BH102D
Sample depth: 28.00
Sample Type: Ground Water
Units: ug/l

Method: SVOC
Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
111-27-3	1-Hexanol	3.024	83	139
110-43-0	2-Heptanone	3.200	90	267
3391-86-4	1-Octen-3-ol	4.187	90	132

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Arcadis

Reference: 10035117

Location: Redcar LWoW

Contact: Olivia Grace

Matrix : Liquid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Method No.	NDP Reason
22/18344	1	MS-BH13S	7.00	1-11	TM170/PM14	Sample unsuitable for analysis by ICP-MS. Sample rescheduled for analysis by ICP-OES
22/18344	1	F-BH102D	28.00	34-44	TM170/PM14	Sample unsuitable for analysis by ICP-MS. Sample rescheduled for analysis by ICP-OES

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Olivia Grace

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 22/18344						

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.

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/18344

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 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease 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 UKAS requirement 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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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	x4 Dilution
AB	x5 Dilution
AC	x10 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: 22/18344

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.				
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.	Yes			
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	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				
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			
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.				

EMT Job No: 22/18344

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
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.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.	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				
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			
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			
TM37	Modified methods - TSS: USEPA 160.2 (1985), 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.	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: 2013I	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	PM0	No preparation is required.	Yes			

EMT Job No: 22/18344

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
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			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				
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			

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Arcadis
3 Picadilly Place
Manchester
M1 3BN

Attention :	Olivia Grace
Date :	25th November, 2022
Your reference :	
Our reference :	Test Report 22/18471 Batch 1
Location :	Redcar
Date samples received :	10th November, 2022
Status :	Final Report
Issue :	1

Three samples were received for analysis on 10th November, 2022 of which three 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.

Authorised By:

Simon Gomery BSc
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Arcadis
Reference:
Location: Redcar
Contact: Olivia Grace
EMT Job No: 22/18471

Report : Liquid

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

EMT Sample No.	1-11	12-22	23-33									
Sample ID	F-BH102s	MS-BH13d	MS-BH17d									
Depth	10.00	17.00	18.00									
COC No / misc												
Containers	V H HN N P G	V H HN Z P G	V H HN Z P G									
Sample Date	08/11/2022	01/11/2022	01/11/2022									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	10/11/2022	10/11/2022	10/11/2022									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Dissolved Aluminium #	156.0	-	148.6								<1.5	ug/l	TM170/PM14
Dissolved Arsenic #	4.3	NDP	6.9								<0.9	ug/l	TM170/PM14
Dissolved Boron #	219	NDP	16								<12	ug/l	TM170/PM14
Dissolved Cadmium #	0.11	NDP	<0.03								<0.03	ug/l	TM170/PM14
Total Dissolved Chromium #	0.3	NDP	<0.2								<0.2	ug/l	TM170/PM14
Dissolved Copper #	<1	NDP	<1								<1	ug/l	TM170/PM14
Total Dissolved Iron #	31.3	NDP	28.4								<4.7	ug/l	TM170/PM14
Dissolved Lead #	<0.4	NDP	<0.4								<0.4	ug/l	TM170/PM14
Dissolved Manganese #	1.7	NDP	<1.5								<1.5	ug/l	TM170/PM14
Dissolved Molybdenum #	208.5	-	50.7								<0.2	ug/l	TM170/PM14
Dissolved Nickel #	2.3	NDP	1.7								<0.2	ug/l	TM170/PM14
Dissolved Zinc #	3.4	NDP	2.4								<1.5	ug/l	TM170/PM14
Dissolved Aluminium #	-	1.5	-								<1.5	ug/l	TM30/PM14
Dissolved Arsenic #	-	3.0	-								<0.9	ug/l	TM30/PM14
Dissolved Boron	-	1393	-								<12	ug/l	TM30/PM14
Dissolved Cadmium #	-	<0.03	-								<0.03	ug/l	TM30/PM14
Dissolved Calcium #	404.5$_{AC}$	1347.8$_{AC}$	434.6$_{AB}$								<0.2	mg/l	TM30/PM14
Total Dissolved Chromium #	-	0.4	-								<0.2	ug/l	TM30/PM14
Dissolved Copper #	-	<3	-								<3	ug/l	TM30/PM14
Total Dissolved Iron #	-	1816.4	-								<4.7	ug/l	TM30/PM14
Dissolved Lead #	-	<0.4	-								<0.4	ug/l	TM30/PM14
Dissolved Magnesium #	<0.1	985.8$_{AC}$	0.3								<0.1	mg/l	TM30/PM14
Dissolved Manganese #	-	1717.2	-								<1.5	ug/l	TM30/PM14
Dissolved Molybdenum #	-	<0.2	-								<0.2	ug/l	TM30/PM14
Dissolved Nickel #	-	2.8	-								<0.2	ug/l	TM30/PM14
Dissolved Potassium #	56.1	117.7$_{AC}$	122.8$_{AB}$								<0.1	mg/l	TM30/PM14
Dissolved Silicon	3232	2606	8961								<100	ug/l	TM30/PM14
Dissolved Sodium #	165.3	8236.7$_{AE}$	89.1								<0.1	mg/l	TM30/PM14
Dissolved Zinc #	-	39.9	-								<1.5	ug/l	TM30/PM14
Mercury Dissolved by CVAF #	0.12$_{AA}$	<0.01	<0.01								<0.01	ug/l	TM61/PM0
Total Dissolved Sulphur as S	339617$_{AC}$	939605$_{AE}$	300119$_{AD}$								<10	ug/l	TM30/PM14

Client Name: Arcadis
Reference:
Location: Redcar
Contact: Olivia Grace
EMT Job No: 22/18471

Report : Liquid

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

EMT Sample No.	1-11	12-22	23-33									
Sample ID	F-BH102s	MS-BH13d	MS-BH17d									
Depth	10.00	17.00	18.00									
COC No / misc												
Containers	V H HN N P G	V H HN Z P G	V H HN Z P G									
Sample Date	08/11/2022	01/11/2022	01/11/2022									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	10/11/2022	10/11/2022	10/11/2022									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
PAH MS													
Naphthalene #	<0.1	0.1	<0.1								<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005	0.037								<0.005	ug/l	TM4/PM30
Acenaphthene #	0.011	0.006	0.224								<0.005	ug/l	TM4/PM30
Fluorene #	<0.005	<0.005	0.052								<0.005	ug/l	TM4/PM30
Phenanthrene #	0.018	<0.005	0.069								<0.005	ug/l	TM4/PM30
Anthracene #	<0.005	<0.005	0.005								<0.005	ug/l	TM4/PM30
Fluoranthene #	0.024+	0.005+	0.021+								<0.005	ug/l	TM4/PM30
Pyrene #	0.018+	0.007+	0.020+								<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.006	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Chrysene #	0.008	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	<0.173	0.428								<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	81	82	82								<0	%	TM4/PM30
VOC TICs	ND	ND	ND									None	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	<5								<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1								<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	91	93	101								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	94	105								<0	%	TM15/PM10
SVOC TICs	ND	ND	ND									None	TM16/PM30

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Arcadis
Reference:
Location: Redcar
Contact: Olivia Grace
EMT Job No: 22/18471

Report : Liquid

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

EMT Sample No.	1-11	12-22	23-33									
Sample ID	F-BH102s	MS-BH13d	MS-BH17d									
Depth	10.00	17.00	18.00									
COC No / misc												
Containers	V H HN N P G	V H HN Z P G	V H HN Z P G									
Sample Date	08/11/2022	01/11/2022	01/11/2022									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	10/11/2022	10/11/2022	10/11/2022									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	39	<10	<10								<10	ug/l	TM36/PM12
>C6-C8 #	11	<10	<10								<10	ug/l	TM36/PM12
>C8-C10 #	98	<10	<10								<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5								<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C35-C44	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	148	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics C5-44	148	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5								<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>EC35-EC44	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	<10	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	148	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aromatics C5-44	<10	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-44)	148	<10	<10								<10	ug/l	TM5/TM36/PM12/PM16/PM30
Resorcinol	<0.01	<0.01	<0.01								<0.01	mg/l	TM26/PM0
Catechol	<0.01	<0.01	<0.01								<0.01	mg/l	TM26/PM0
Phenol #	<0.01	<0.01	<0.01								<0.01	mg/l	TM26/PM0
m/p-cresol	0.03	<0.02	<0.02								<0.02	mg/l	TM26/PM0
o-cresol	<0.01	<0.01	<0.01								<0.01	mg/l	TM26/PM0
Total cresols #	0.03	<0.03	<0.03								<0.03	mg/l	TM26/PM0
Xylenols #	<0.06	<0.06	<0.06								<0.06	mg/l	TM26/PM0
1-naphthol	<0.01	<0.01	<0.01								<0.01	mg/l	TM26/PM0
2,3,5-trimethyl phenol	<0.01	<0.01	<0.01								<0.01	mg/l	TM26/PM0
2-isopropylphenol	<0.01	<0.01	<0.01								<0.01	mg/l	TM26/PM0
Total Speciated Phenols HPLC	<0.1	<0.1	<0.1								<0.1	mg/l	TM26/PM0
Sulphate as SO4 #	633.7	3433.1	1176.4								<0.5	mg/l	TM38/PM0
Chloride #	178.5	13236.6 AD	82.4								<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2	<0.2								<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02	<0.02								<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4 #	<0.06	<0.06	<0.06								<0.06	mg/l	TM38/PM0

Client Name: Arcadis
Reference:
Location: Redcar
Contact: Olivia Grace
EMT Job No: 22/18471

Report : Liquid

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

EMT Sample No.	1-11	12-22	23-33									
Sample ID	F-BH102s	MS-BH13d	MS-BH17d									
Depth	10.00	17.00	18.00									
COC No / misc												
Containers	V H HN N P G	V H HN Z P G	V H HN Z P G									
Sample Date	08/11/2022	01/11/2022	01/11/2022									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	10/11/2022	10/11/2022	10/11/2022									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Free Cyanide	<0.100 AF	0.001	<0.005 AB								<0.001	mg/l	TM89/PM0
Total Cyanide	0.114 AF	0.020	0.055								<0.001	mg/l	TM89/PM0
Complex Cyanide	0.114 AF	0.019	0.054								<0.001	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	0.11	5.86	4.25								<0.03	mg/l	TM38/PM0
Total Alkalinity as CaCO3 #	322	350	114								<1	mg/l	TM75/PM0
Sulphide	0.76	<0.01	<0.01								<0.01	mg/l	TM107/PM0
Thiocyanate	0.14	<0.02	0.15								<0.02	mg/l	TM107/PM0
Dissolved Organic Carbon #	80	<2	6								<2	mg/l	TM60/PM0
Dissolved Inorganic Carbon #	<2	87	<2								<2	mg/l	TM60/PM0
pH #	11.88	7.07	11.17								<0.01	pH units	TM73/PM0
Total Suspended Solids #	19	64	42								<10	mg/l	TM37/PM0
Total Cations	28.81	509.64 AC	28.73								<0.00	mmolc/l	TM30/PM14
Total Anions	24.67	451.86	29.10								<0.00	mmolc/l	TM0/PM0
% Cation Excess	7.74	6.01	-0.64									%	TM0/PM0

Client Name: Arcadis
Reference:
Location: Redcar
Contact: Olivia Grace
EMT Job No: 22/18471

SVOC Report : **Liquid**

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-11	12-22	23-33									
Sample ID	F-BH102s	MS-BH13d	MS-BH17d									
Depth	10.00	17.00	18.00									
COC No / misc												
Containers	V H HN N P G	V H HN Z P G	V H HN Z P G									
Sample Date	08/11/2022	01/11/2022	01/11/2022									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	10/11/2022	10/11/2022	10/11/2022									
SVOC MS												
Phenols												
2-Chlorophenol #	<1	1	<1								<1	ug/l	TM16/PM30
2-Methylphenol #	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol #	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1	<1	<1								<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1	<1								<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
4-Methylphenol	<1	<1	<1								<1	ug/l	TM16/PM30
4-Nitrophenol	<10	<10	<10								<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1	<1								<1	ug/l	TM16/PM30
Phenol	<1	<1	<1								<1	ug/l	TM16/PM30
PAHs												
2-Chloronaphthalene #	<1	<1	<1								<1	ug/l	TM16/PM30
2-Methylnaphthalene #	<1	<1	<1								<1	ug/l	TM16/PM30
Phthalates												
Bis(2-ethylhexyl) phthalate	<5	<5	<5								<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1	<1								<1	ug/l	TM16/PM30
Di-n-butyl phthalate #	<1.5	<1.5	<1.5								<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1	<1								<1	ug/l	TM16/PM30
Diethyl phthalate #	<1	2	<1								<1	ug/l	TM16/PM30
Dimethyl phthalate	<1	<1	<1								<1	ug/l	TM16/PM30
Other SVOCs												
1,2-Dichlorobenzene #	<1	<1	<1								<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene #	<1+	<1+	<1+								<1	ug/l	TM16/PM30
1,3-Dichlorobenzene #	<1	<1	<1								<1	ug/l	TM16/PM30
1,4-Dichlorobenzene #	<1	<1	<1								<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<1								<1	ug/l	TM16/PM30
2,4-Dinitrotoluene #	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<1								<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<1								<1	ug/l	TM16/PM30
4-Bromophenylphenylether #	<1	<1	<1								<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<1								<1	ug/l	TM16/PM30
4-Chlorophenylphenylether #	<1+	<1+	<1+								<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
Azobenzene #	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether #	<1	<1	<1								<1	ug/l	TM16/PM30
Carbazole #	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
Dibenzofuran #	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
Hexachlorobenzene #	<1	<1	<1								<1	ug/l	TM16/PM30
Hexachlorobutadiene #	<1+	<1+	<1+								<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<1								<1	ug/l	TM16/PM30
Hexachloroethane #	<1	<1	<1								<1	ug/l	TM16/PM30
Isophorone #	<0.5+	<0.5+	<0.5+								<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.5	<0.5	<0.5								<0.5	ug/l	TM16/PM30
Nitrobenzene #	<1+	<1+	<1+								<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	111	111	110								<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	122	115	116								<0	%	TM16/PM30

Please include all sections of this report if it is reproduced
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Client Name: Arcadis
Reference:
Location: Redcar
Contact: Olivia Grace
EMT Job No: 22/18471

VOC Report : **Liquid**

EMT Sample No.	1-11	12-22	23-33									
Sample ID	F-BH102s	MS-BH13d	MS-BH17d									
Depth	10.00	17.00	18.00									
COC No / misc												
Containers	V H HN N P G	V H HN Z P G	V H HN Z P G									
Sample Date	08/11/2022	01/11/2022	01/11/2022									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	10/11/2022	10/11/2022	10/11/2022									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2	<2								<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1								<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3								<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3								<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3								<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1								<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3								<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2								<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2								<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2								<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2								<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5								<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2								<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2								<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1								<1	ug/l	TM15/PM10
Styrene	<2	<2	<2								<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2								<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4								<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3								<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3								<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	91	93	101								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	99	94	105								<0	%	TM15/PM10

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

Client Name: Arcadis

Matrix : Liquid

Reference:

Location: Redcar

Contact: Olivia Grace

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Method No.	NDP Reason
22/18471	1	MS-BH13d	17.00	12-22	TM170/PM14	Sample unsuitable for analysis by ICP-MS. Sample rescheduled for analysis by ICP-OES

Client Name: Arcadis

Matrix : Liquid

Reference:

Location: Redcar

Contact: Olivia Grace

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
22/18471	1	MS-BH13d	17.00	12-22	Nitrate, Nitrite	Sample holding time exceeded
22/18471	1	MS-BH17d	18.00	23-33	Nitrate, Nitrite	Sample holding time exceeded

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/18471

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 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease 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 UKAS requirement 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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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	x4 Dilution
AB	x5 Dilution
AC	x10 Dilution
AD	x20 Dilution
AE	x50 Dilution
AF	x100 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: 22/18471

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.				
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.	Yes			
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	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				
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			
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.				

EMT Job No: 22/18471

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
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.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.	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				
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			
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			
TM37	Modified methods - TSS: USEPA 160.2 (1985), 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.	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: 2013I	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	PM0	No preparation is required.	Yes			

EMT Job No: 22/18471

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
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			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				
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			

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LS1 4BN

Attention :	Jonathan Miles
Date :	20th January, 2023
Your reference :	10035117
Our reference :	Test Report 23/527 Batch 1 Schedule A 23/527 Batch 1 Schedule C
Location :	Redcar LWoW
Date samples received :	13th January, 2023
Status :	Final Report
Issue :	1

Seven samples were received for analysis on 13th January, 2023 of which seven 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.

Authorised By:

Simon Gomery BSc
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles
EMT Job No: 23/527

Report : Liquid

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

EMT Sample No.	1-13	14-26	27-39	40-52	53-65	66-78	79-91				LOD/LOR	Units	Method No.
Sample ID	F-BH101D	F-BH101S	F-BH102D	F-BH102S	MS/BH14	MS/BH15D	MS/BH15S						
Depth	25.50	7.00	28.50	10.00	6.50	8.00	4.00						
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	09/01/2023 14:30	09/01/2023 11:30	09/01/2023 16:25	10/01/2023 12:30	10/01/2023 14:30	10/01/2023 15:45	10/01/2023 17:00						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023						
Dissolved Aluminium	7.2	301	NDP	268	386	54.6	87.8				<1.5	ug/l	TM170/PM14
Dissolved Arsenic	7.4	2.5	NDP	13.7	19.5	14.9	5.9				<0.9	ug/l	TM170/PM14
Dissolved Boron	312	83	NDP	185	32	102	78				<12	ug/l	TM170/PM14
Dissolved Cadmium	0.05	0.06	NDP	0.03	0.05	<0.03	<0.03				<0.03	ug/l	TM170/PM14
Total Dissolved Chromium	6.9	8.3	NDP	3.2	6.3	1.2	7.8				<0.2	ug/l	TM170/PM14
Dissolved Copper	<1	4	NDP	<1	1	<1	4				<1	ug/l	TM170/PM14
Total Dissolved Iron	8.5	51.1	NDP	57.2	17.0	39.4	32.7				<4.7	ug/l	TM170/PM14
Dissolved Lead	<0.4	<0.4	NDP	<0.4	<0.4	<0.4	<0.4				<0.4	ug/l	TM170/PM14
Dissolved Manganese	<1.5	1.7	NDP	7.1	1.8	4.3	4.8				<1.5	ug/l	TM170/PM14
Dissolved Molybdenum	220	229	NDP	113	180	39.8	39.8				<0.2	ug/l	TM170/PM14
Dissolved Nickel	0.9	3.4	NDP	1.2	5.8	1.0	1.2				<0.2	ug/l	TM170/PM14
Dissolved Zinc	<1.5	1.8	NDP	3.4	2.0	2.2	5.8				<1.5	ug/l	TM170/PM14
Dissolved Aluminium #	-	-	148	-	-	-	-				<1.5	ug/l	TM30/PM14
Dissolved Arsenic #	-	-	4.9	-	-	-	-				<0.9	ug/l	TM30/PM14
Dissolved Boron	-	-	176	-	-	-	-				<12	ug/l	TM30/PM14
Dissolved Cadmium #	-	-	<0.03	-	-	-	-				<0.03	ug/l	TM30/PM14
Dissolved Calcium	-	-	-	113	170	-	-				<0.2	mg/l	TM30/PM14
Dissolved Calcium #	303_{AA}	514_{AB}	424_{AB}	-	-	377_{AA}	497_{AA}				<0.2	mg/l	TM30/PM14
Total Dissolved Chromium #	-	-	6.5	-	-	-	-				<0.2	ug/l	TM30/PM14
Dissolved Copper #	-	-	<3	-	-	-	-				<3	ug/l	TM30/PM14
Total Dissolved Iron #	-	-	22.6	-	-	-	-				<4.7	ug/l	TM30/PM14
Dissolved Lead #	-	-	<0.4	-	-	-	-				<0.4	ug/l	TM30/PM14
Dissolved Magnesium	3.7	<0.1	<0.1	0.4	<0.1	<0.1	0.2				<0.1	mg/l	TM30/PM14
Dissolved Manganese #	-	-	<1.5	-	-	-	-				<1.5	ug/l	TM30/PM14
Dissolved Molybdenum #	-	-	187	-	-	-	-				<0.2	ug/l	TM30/PM14
Dissolved Nickel #	-	-	4.2	-	-	-	-				<0.2	ug/l	TM30/PM14
Dissolved Potassium	70.8	76.3	75.0	32.7	79.1	91.7	90.7				<0.1	mg/l	TM30/PM14
Dissolved Silicon	7510	4680	1910	7640	10300	6970	6550				<100	ug/l	TM30/PM14
Dissolved Sodium	-	-	-	92.7	54.7	64.2	53.7				<0.1	mg/l	TM30/PM14
Dissolved Sodium #	235_{AA}	382_{AB}	802_{AB}	-	-	-	-				<0.1	mg/l	TM30/PM14
Dissolved Zinc #	-	-	2.3	-	-	-	-				<1.5	ug/l	TM30/PM14
Mercury Dissolved by CVAF	<0.01	0.01	$<0.10_{AB}$	0.02	0.02	<0.01	<0.01				<0.01	ug/l	TM61/PM0
Total Sulphur as S	271.00_{AB}	308.00_{AB}	142.00_{AB}	122.00_{AB}	166.00_{AB}	339.00_{AB}	389.00_{AB}				<0.01	mg/l	TM30/PM14

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles
EMT Job No: 23/527

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Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
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Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023						
PAH MS													
Naphthalene	<0.1	0.1	<0.1	<0.1	0.4	0.6	<0.1				<0.1	ug/l	TM4/PM30
Acenaphthylene	0.639	0.037	<0.005	0.034	<0.005	<0.005	0.081				<0.005	ug/l	TM4/PM30
Acenaphthene	0.394	0.035	0.026	0.051	0.594	0.343	0.285				<0.005	ug/l	TM4/PM30
Fluorene	0.720	0.048	0.026	0.038	0.187	0.007	0.112				<0.005	ug/l	TM4/PM30
Phenanthrene	4.48	0.217	0.123	0.243	0.644	0.091	0.008				<0.005	ug/l	TM4/PM30
Anthracene	1.02	0.036	0.022	0.076	0.091	0.020	0.018				<0.005	ug/l	TM4/PM30
Fluoranthene	2.47	0.111	0.057	0.641	0.413	0.034	0.034				<0.005	ug/l	TM4/PM30
Pyrene	3.08	0.087	0.053	0.605	0.291	0.034	0.028				<0.005	ug/l	TM4/PM30
Benzo(a)anthracene	1.22	0.028	0.019	0.299	0.030	0.008	0.008				<0.005	ug/l	TM4/PM30
Chrysene	1.08	0.032	0.021	0.343	0.026	0.007	0.009				<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene	0.880	0.034	0.032	0.659	0.021	<0.008	0.011				<0.008	ug/l	TM4/PM30
Benzo(a)pyrene	0.607	0.014	0.012	0.233	<0.005	<0.005	<0.005				<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene	0.216	0.009	0.013	0.213	<0.005	<0.005	<0.005				<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene	0.058	<0.005	<0.005	0.041	<0.005	<0.005	<0.005				<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene	0.247	0.008	0.010	0.166	<0.005	<0.005	<0.005				<0.005	ug/l	TM4/PM30
PAH 16 Total	17.111	0.796	0.414	3.642	2.697	1.144	0.594				<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.634	0.025	0.023	0.474	0.015	<0.008	<0.008				<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	0.246	0.010	0.009	0.185	<0.008	<0.008	<0.008				<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	75	85	84	87	88	82	85				<0	%	TM4/PM30
VOC TICs	ND	ND	See Attached	ND	ND	ND	ND					None	TM15/PM10
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM15/PM10
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM15/PM10
Toluene	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM15/PM10
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
m/p-Xylene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
o-Xylene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	100	102	104	102	103	103	104				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	108	103	105	102	104	101	105				<0	%	TM15/PM10
SVOC TICs	ND	ND	See Attached	ND	ND	ND	ND					None	TM16/PM30

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EMT Job No: 23/527

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Sample Date	09/01/2023 14:30	09/01/2023 11:30	09/01/2023 16:25	10/01/2023 12:30	10/01/2023 14:30	10/01/2023 15:45	10/01/2023 17:00						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023						
TPH CWG													
Aliphatics													
>C5-C6	<10	<10	45	22	<10	<10	<10				<10	ug/l	TM36/PM12
>C6-C8	<10	<10	88	12	<10	<10	<10				<10	ug/l	TM36/PM12
>C8-C10	12	27	564	42	<10	<10	<10				<10	ug/l	TM36/PM12
>C10-C12	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM5/PM16/PM30
>C12-C16	160	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>C16-C21	1860	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>C21-C35	840	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>C35-C44	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-44	2872	27	697	76	<10	<10	<10				<10	ug/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM36/PM12
>EC7-EC8	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM36/PM12
>EC8-EC10	<10	<10	57	<10	<10	<10	<10				<10	ug/l	TM36/PM12
>EC10-EC12	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM5/PM16/PM30
>EC12-EC16	60	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>EC16-EC21	700	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>EC21-EC35	270	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>EC35-EC44	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
Total aromatics C5-44	1030	<10	57	<10	<10	<10	<10				<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-44)	3902	27	754	76	<10	<10	<10				<10	ug/l	TM5/TM36/PM12/PM16/PM30
Resorcinol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
Catechol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
m/p-cresol	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02				<0.02	mg/l	TM26/PM0
o-cresol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
Total cresols	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				<0.03	mg/l	TM26/PM0
Xylenols	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06				<0.06	mg/l	TM26/PM0
1-naphthol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
2,3,5-trimethyl phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
2-isopropylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
Total Speciated Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	mg/l	TM26/PM0
Sulphate as SO4	622	776	367	343	430	867	1010				<0.5	mg/l	TM38/PM0
Chloride	383	504	1110	125	54.3	74.9	59.1				<0.3	mg/l	TM38/PM0
Nitrate as NO3	0.4	<0.2	<0.2	<0.2	0.3	<0.2	3.9				<0.2	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	-	-	-	<0.2	-	4.4				<0.2	mg/l	TM38/PM0
Nitrite as NO2	-	<0.02	0.08	<0.02	-	<0.02	-				<0.02	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	-	-	-	<0.02	-	2.68				<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06				<0.06	mg/l	TM38/PM0
Inorganic Nitrogen	2.62	2.67	1.75	0.07	5.11	3.07	2.55				<0.05	mg/l	TM38/PM0

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Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023						
Free Cyanide	0.156$_{AE}$	0.037$_{AA}$	0.064$_{AC}$	0.141$_{AE}$	0.036$_{AA}$	0.158$_{AD}$	<0.010$_{AB}$				<0.001	mg/l	TM89/PM0
Total Cyanide	0.156$_{AE}$	0.051$_{AA}$	0.067$_{AC}$	0.141$_{AE}$	0.035$_{AA}$	0.186$_{AD}$	0.018$_{AB}$				<0.001	mg/l	TM89/PM0
Complex Cyanide	<0.050$_{AE}$	0.014$_{AA}$	<0.015$_{AC}$	<0.050$_{AE}$	<0.005$_{AA}$	<0.030$_{AD}$	0.018$_{AB}$				<0.001	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	2.62	2.67	1.72	0.07	5.11	3.07	0.73				<0.03	mg/l	TM38/PM0
Total Alkalinity as CaCO3	66	228	778	144	214	58	62				<1	mg/l	TM75/PM0
Dibutyltin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM94/PM48
Tributyltin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM94/PM48
Triphenyltin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM94/PM48
Sulphide	<0.01	<0.01	0.01	0.01	<0.01	0.02	<0.01				<0.01	mg/l	TM107/PM0
Thiocyanate	<0.02	0.02	0.06	0.04	0.21	0.28	0.15				<0.02	mg/l	TM107/PM0
Dissolved Organic Carbon	20	62	390	99	9	6	5				<2	mg/l	TM60/PM0
Dissolved Inorganic Carbon	<2	<2	<2	2	<2	<2	<2				<2	mg/l	TM60/PM0
pH	9.92	11.4	12.1	11.2	11.3	9.90	10.2				<0.01	pH units	TM73/PM0
Total Suspended Solids	69	60	16	91	12	68	24				<10	mg/l	TM37/PM0
Total Cations	27.46	44.22	57.96	10.54	12.89	23.95	29.47				<0.00	mmolc/l	TM30/PM14
Total Anions	25.08	34.93	54.55	13.55	14.77	21.32	24.00				<0.00	mmolc/l	TM0/PM0
% Cation Excess	4.53	11.74	3.03	-12.49	-6.80	5.81	10.23					%	TM0/PM0

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SVOC Report : **Liquid**

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Depth	25.50	7.00	28.50	10.00	6.50	8.00	4.00						
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	09/01/2023 14:30	09/01/2023 11:30	09/01/2023 16:25	10/01/2023 12:30	10/01/2023 14:30	10/01/2023 15:45	10/01/2023 17:00						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023						
SVOC MS													
Phenols													
2-Chlorophenol #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2-Methylphenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
4-Methylphenol	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Nitrophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Phenol	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2-Methylnaphthalene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Di-n-butyl phthalate #	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5				<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Diethyl phthalate #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Dimethyl phthalate	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
1,3-Dichlorobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
1,4-Dichlorobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2,4-Dinitrotoluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Bromophenylphenylether #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Chlorophenylphenylether #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Azobenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Carbazole #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Dibenzofuran #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Hexachlorobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Hexachlorobutadiene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Hexachloroethane #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Isophorone #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Nitrobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	116	106	102	119	102	107	105				<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	125	117	123	122	125	129	125				<0	%	TM16/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles
EMT Job No: 23/527

VOC Report : **Liquid**

EMT Sample No.	1-13	14-26	27-39	40-52	53-65	66-78	79-91					
Sample ID	F-BH101D	F-BH101S	F-BH102D	F-BH102S	MS/BH14	MS/BH15D	MS/BH15S					
Depth	25.50	7.00	28.50	10.00	6.50	8.00	4.00					
COC No / misc												
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G					
Sample Date	09/01/2023 14:30	09/01/2023 11:30	09/01/2023 16:25	10/01/2023 12:30	10/01/2023 14:30	10/01/2023 15:45	10/01/2023 17:00					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	1	1	1	1	1	1	1					
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023					
VOC MS												
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM15/PM10
Chloromethane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Vinyl Chloride	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
Chloroethane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Trichlorofluoromethane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE)	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Dichloromethane (DCM)	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,1-Dichloroethane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
Bromochloromethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Chloroform	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,1,1-Trichloroethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,1-Dichloropropene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Carbon tetrachloride	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,2-Dichloroethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM15/PM10
Trichloroethene (TCE)	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,2-Dichloropropane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Dibromomethane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Bromodichloromethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Toluene	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,1,2-Trichloroethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Tetrachloroethene (PCE)	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,3-Dichloropropane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,2-Dibromoethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Chlorobenzene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
m/p-Xylene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
o-Xylene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Isopropylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4				<4	ug/l	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,2,3-Trichloropropane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Propylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
tert-Butylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
sec-Butylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
4-Isopropyltoluene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,3-Dichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,4-Dichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
n-Butylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,2-Dichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	6	<2				<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	100	102	104	102	103	103	104				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	108	103	105	102	104	101	105				<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Job number: 23/527
Sample number: 27
Sample identity: F-BH102D
Sample depth: 28.50
Sample Type: Ground Water
Units: ug/l

Method: VOC
Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
110-43-0	2-Heptanone	6.199	91	236

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Job number: 23/527
Sample number: 35
Sample identity: F-BH102D
Sample depth: 28.50
Sample Type: Ground Water
Units: ug/l

Method: SVOC
Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
111-27-3	1-Hexanol	3.512	83	107
110-43-0	2-Heptanone	3.692	91	178

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Arcadis

Reference: 10035117

Location: Redcar LWoW

Contact: Jonathan Miles

Matrix : Liquid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Method No.	NDP Reason
23/527	1	F-BH102D	28.50	27-39	TM170/PM14	Sample unsuitable for analysis by ICP-MS. Sample rescheduled for analysis by ICP-OES

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 23/527						

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/527

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 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease 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 UKAS requirement 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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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	x10 Dilution
AC	x15 Dilution
AD	x30 Dilution
AE	x50 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: 23/527

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.				
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.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
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				
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			

EMT Job No: 23/527

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
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 (1985), 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: 2013I	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: 2013I	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.				
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	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.				
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM94	Derivatisation and extraction of Organotins. Analysis by GC-MS	PM48	Samples are pretreated and derivatised. The derviatised organotins are then extracted using hexane.				

EMT Job No: 23/527

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
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				
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				

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Arcadis
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Leeds
LS1 4BN

Attention :	Jonathan Miles
Date :	23rd January, 2023
Your reference :	10035117
Our reference :	Test Report 23/527 Batch 1 Schedule A 23/527 Batch 1 Schedule C
Location :	Redcar LWoW
Date samples received :	13th January, 2023
Status :	Final Report
Issue :	1

Seven samples were received for analysis on 13th January, 2023 of which seven 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.

Authorised By:

Simon Gomery BSc
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles
EMT Job No: 23/527

Report : Liquid

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

EMT Sample No.	1-13	14-26	27-39	40-52	53-65	66-78	79-91				LOD/LOR	Units	Method No.
Sample ID	F-BH101D	F-BH101S	F-BH102D	F-BH102S	MS/BH14	MS/BH15D	MS/BH15S						
Depth	25.50	7.00	28.50	10.00	6.50	8.00	4.00						
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	09/01/2023 14:30	09/01/2023 11:30	09/01/2023 16:25	10/01/2023 12:30	10/01/2023 14:30	10/01/2023 15:45	10/01/2023 17:00						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023						
Dissolved Aluminium	7.2	301	NDP	268	386	54.6	87.8				<1.5	ug/l	TM170/PM14
Dissolved Arsenic	7.4	2.5	NDP	13.7	19.5	14.9	5.9				<0.9	ug/l	TM170/PM14
Dissolved Boron	312	83	NDP	185	32	102	78				<12	ug/l	TM170/PM14
Dissolved Cadmium	0.05	0.06	NDP	0.03	0.05	<0.03	<0.03				<0.03	ug/l	TM170/PM14
Total Dissolved Chromium	6.9	8.3	NDP	3.2	6.3	1.2	7.8				<0.2	ug/l	TM170/PM14
Dissolved Copper	<1	4	NDP	<1	1	<1	4				<1	ug/l	TM170/PM14
Total Dissolved Iron	8.5	51.1	NDP	57.2	17.0	39.4	32.7				<4.7	ug/l	TM170/PM14
Dissolved Lead	<0.4	<0.4	NDP	<0.4	<0.4	<0.4	<0.4				<0.4	ug/l	TM170/PM14
Dissolved Manganese	<1.5	1.7	NDP	7.1	1.8	4.3	4.8				<1.5	ug/l	TM170/PM14
Dissolved Molybdenum	220	229	NDP	113	180	39.8	39.8				<0.2	ug/l	TM170/PM14
Dissolved Nickel	0.9	3.4	NDP	1.2	5.8	1.0	1.2				<0.2	ug/l	TM170/PM14
Dissolved Zinc	<1.5	1.8	NDP	3.4	2.0	2.2	5.8				<1.5	ug/l	TM170/PM14
Dissolved Aluminium #	-	-	148	-	-	-	-				<1.5	ug/l	TM30/PM14
Dissolved Arsenic #	-	-	4.9	-	-	-	-				<0.9	ug/l	TM30/PM14
Dissolved Boron	-	-	176	-	-	-	-				<12	ug/l	TM30/PM14
Dissolved Cadmium #	-	-	<0.03	-	-	-	-				<0.03	ug/l	TM30/PM14
Dissolved Calcium	-	-	-	113	170	-	-				<0.2	mg/l	TM30/PM14
Dissolved Calcium #	303_{AA}	514_{AB}	424_{AB}	-	-	377_{AA}	497_{AA}				<0.2	mg/l	TM30/PM14
Total Dissolved Chromium #	-	-	6.5	-	-	-	-				<0.2	ug/l	TM30/PM14
Dissolved Copper #	-	-	<3	-	-	-	-				<3	ug/l	TM30/PM14
Total Dissolved Iron #	-	-	22.6	-	-	-	-				<4.7	ug/l	TM30/PM14
Dissolved Lead #	-	-	<0.4	-	-	-	-				<0.4	ug/l	TM30/PM14
Dissolved Magnesium	3.7	<0.1	<0.1	0.4	<0.1	<0.1	0.2				<0.1	mg/l	TM30/PM14
Dissolved Manganese #	-	-	<1.5	-	-	-	-				<1.5	ug/l	TM30/PM14
Dissolved Molybdenum #	-	-	187	-	-	-	-				<0.2	ug/l	TM30/PM14
Dissolved Nickel #	-	-	4.2	-	-	-	-				<0.2	ug/l	TM30/PM14
Dissolved Potassium	70.8	76.3	75.0	32.7	79.1	91.7	90.7				<0.1	mg/l	TM30/PM14
Dissolved Silicon	7510	4680	1910	7640	10300	6970	6550				<100	ug/l	TM30/PM14
Dissolved Sodium	-	-	-	92.7	54.7	64.2	53.7				<0.1	mg/l	TM30/PM14
Dissolved Sodium #	235_{AA}	382_{AB}	802_{AB}	-	-	-	-				<0.1	mg/l	TM30/PM14
Dissolved Zinc #	-	-	2.3	-	-	-	-				<1.5	ug/l	TM30/PM14
Mercury Dissolved by CVAF	<0.01	0.01	$<0.10_{AB}$	0.02	0.02	<0.01	<0.01				<0.01	ug/l	TM61/PM0
Total Sulphur as S	271.00_{AB}	308.00_{AB}	142.00_{AB}	122.00_{AB}	166.00_{AB}	339.00_{AB}	389.00_{AB}				<0.01	mg/l	TM30/PM14

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles
EMT Job No: 23/527

Report : Liquid

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

EMT Sample No.	1-13	14-26	27-39	40-52	53-65	66-78	79-91				LOD/LOR	Units	Method No.
Sample ID	F-BH101D	F-BH101S	F-BH102D	F-BH102S	MS/BH14	MS/BH15D	MS/BH15S						
Depth	25.50	7.00	28.50	10.00	6.50	8.00	4.00						
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	09/01/2023 14:30	09/01/2023 11:30	09/01/2023 16:25	10/01/2023 12:30	10/01/2023 14:30	10/01/2023 15:45	10/01/2023 17:00						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023						
PAH MS													
Naphthalene	<0.1	0.1	<0.1	<0.1	0.4	0.6	<0.1				<0.1	ug/l	TM4/PM30
Acenaphthylene	0.639	0.037	<0.005	0.034	<0.005	<0.005	0.081				<0.005	ug/l	TM4/PM30
Acenaphthene	0.394	0.035	0.026	0.051	0.594	0.343	0.285				<0.005	ug/l	TM4/PM30
Fluorene	0.720	0.048	0.026	0.038	0.187	0.007	0.112				<0.005	ug/l	TM4/PM30
Phenanthrene	4.48	0.217	0.123	0.243	0.644	0.091	0.008				<0.005	ug/l	TM4/PM30
Anthracene	1.02	0.036	0.022	0.076	0.091	0.020	0.018				<0.005	ug/l	TM4/PM30
Fluoranthene	2.47	0.111	0.057	0.641	0.413	0.034	0.034				<0.005	ug/l	TM4/PM30
Pyrene	3.08	0.087	0.053	0.605	0.291	0.034	0.028				<0.005	ug/l	TM4/PM30
Benzo(a)anthracene	1.22	0.028	0.019	0.299	0.030	0.008	0.008				<0.005	ug/l	TM4/PM30
Chrysene	1.08	0.032	0.021	0.343	0.026	0.007	0.009				<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene	0.880	0.034	0.032	0.659	0.021	<0.008	0.011				<0.008	ug/l	TM4/PM30
Benzo(a)pyrene	0.607	0.014	0.012	0.233	<0.005	<0.005	<0.005				<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene	0.216	0.009	0.013	0.213	<0.005	<0.005	<0.005				<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene	0.058	<0.005	<0.005	0.041	<0.005	<0.005	<0.005				<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene	0.247	0.008	0.010	0.166	<0.005	<0.005	<0.005				<0.005	ug/l	TM4/PM30
PAH 16 Total	17.111	0.796	0.414	3.642	2.697	1.144	0.594				<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.634	0.025	0.023	0.474	0.015	<0.008	<0.008				<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	0.246	0.010	0.009	0.185	<0.008	<0.008	<0.008				<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	75	85	84	87	88	82	85				<0	%	TM4/PM30
VOC TICs	ND	ND	See Attached	ND	ND	ND	ND					None	TM15/PM10
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM15/PM10
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM15/PM10
Toluene	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM15/PM10
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
m/p-Xylene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
o-Xylene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	100	102	104	102	103	103	104				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	108	103	105	102	104	101	105				<0	%	TM15/PM10
SVOC TICs	ND	ND	See Attached	ND	ND	ND	ND					None	TM16/PM30

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles
EMT Job No: 23/527

Report : Liquid

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

EMT Sample No.	1-13	14-26	27-39	40-52	53-65	66-78	79-91				LOD/LOR	Units	Method No.
Sample ID	F-BH101D	F-BH101S	F-BH102D	F-BH102S	MS/BH14	MS/BH15D	MS/BH15S						
Depth	25.50	7.00	28.50	10.00	6.50	8.00	4.00						
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	09/01/2023 14:30	09/01/2023 11:30	09/01/2023 16:25	10/01/2023 12:30	10/01/2023 14:30	10/01/2023 15:45	10/01/2023 17:00						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023						
TPH CWG													
Aliphatics													
>C5-C6	<10	<10	45	22	<10	<10	<10				<10	ug/l	TM36/PM12
>C6-C8	<10	<10	88	12	<10	<10	<10				<10	ug/l	TM36/PM12
>C8-C10	12	27	564	42	<10	<10	<10				<10	ug/l	TM36/PM12
>C10-C12	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM5/PM16/PM30
>C12-C16	160	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>C16-C21	1860	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>C21-C35	840	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>C35-C44	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-44	2872	27	697	76	<10	<10	<10				<10	ug/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM36/PM12
>EC7-EC8	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM36/PM12
>EC8-EC10	<10	<10	57	<10	<10	<10	<10				<10	ug/l	TM36/PM12
>EC10-EC12	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM5/PM16/PM30
>EC12-EC16	60	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>EC16-EC21	700	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>EC21-EC35	270	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
>EC35-EC44	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM5/PM16/PM30
Total aromatics C5-44	1030	<10	57	<10	<10	<10	<10				<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-44)	3902	27	754	76	<10	<10	<10				<10	ug/l	TM5/TM36/PM12/PM16/PM30
Resorcinol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
Catechol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
m/p-cresol	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02				<0.02	mg/l	TM26/PM0
o-cresol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
Total cresols	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				<0.03	mg/l	TM26/PM0
Xylenols	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06				<0.06	mg/l	TM26/PM0
1-naphthol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
2,3,5-trimethyl phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
2-isopropylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	mg/l	TM26/PM0
Total Speciated Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	mg/l	TM26/PM0
Sulphate as SO4	622	776	367	343	430	867	1010				<0.5	mg/l	TM38/PM0
Chloride	383	504	1110	125	54.3	74.9	59.1				<0.3	mg/l	TM38/PM0
Nitrate as NO3	-	<0.2	<0.2	<0.2	-	<0.2	-				<0.2	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	-	-	-	<0.2	-	4.4				<0.2	mg/l	TM38/PM0
Nitrite as NO2	-	<0.02	0.08	<0.02	-	<0.02	-				<0.02	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	-	-	-	<0.02	-	2.68				<0.02	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06				<0.06	mg/l	TM38/PM0
Inorganic Nitrogen	2.62	2.67	1.75	0.07	5.11	3.07	2.55				<0.05	mg/l	TM38/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles
EMT Job No: 23/527

Report : Liquid

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

EMT Sample No.	1-13	14-26	27-39	40-52	53-65	66-78	79-91				LOD/LOR	Units	Method No.
Sample ID	F-BH101D	F-BH101S	F-BH102D	F-BH102S	MS/BH14	MS/BH15D	MS/BH15S						
Depth	25.50	7.00	28.50	10.00	6.50	8.00	4.00						
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	09/01/2023 14:30	09/01/2023 11:30	09/01/2023 16:25	10/01/2023 12:30	10/01/2023 14:30	10/01/2023 15:45	10/01/2023 17:00						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023						
Free Cyanide	0.156$_{AE}$	0.037$_{AA}$	0.064$_{AC}$	0.141$_{AE}$	0.036$_{AA}$	0.158$_{AD}$	<0.010$_{AB}$				<0.001	mg/l	TM89/PM0
Total Cyanide	0.156$_{AE}$	0.051$_{AA}$	0.067$_{AC}$	0.141$_{AE}$	0.035$_{AA}$	0.186$_{AD}$	0.018$_{AB}$				<0.001	mg/l	TM89/PM0
Complex Cyanide	<0.050$_{AE}$	0.014$_{AA}$	<0.015$_{AC}$	<0.050$_{AE}$	<0.005$_{AA}$	<0.030$_{AD}$	0.018$_{AB}$				<0.001	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	2.62	2.67	1.72	0.07	5.11	3.07	0.73				<0.03	mg/l	TM38/PM0
Total Alkalinity as CaCO3	66	228	778	144	214	58	62				<1	mg/l	TM75/PM0
Dibutyltin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM94/PM48
Tributyltin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM94/PM48
Triphenyltin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM94/PM48
Sulphide	<0.01	<0.01	0.01	0.01	<0.01	0.02	<0.01				<0.01	mg/l	TM107/PM0
Thiocyanate	<0.02	0.02	0.06	0.04	0.21	0.28	0.15				<0.02	mg/l	TM107/PM0
Dissolved Organic Carbon	20	62	390	99	9	6	5				<2	mg/l	TM60/PM0
Dissolved Inorganic Carbon	<2	<2	<2	2	<2	<2	<2				<2	mg/l	TM60/PM0
pH	9.92	11.4	12.1	11.2	11.3	9.90	10.2				<0.01	pH units	TM73/PM0
Total Suspended Solids	69	60	16	91	12	68	24				<10	mg/l	TM37/PM0
Total Cations	27.46	44.22	57.96	10.54	12.89	23.95	29.47				<0.00	mmolc/l	TM30/PM14
Total Anions	25.08	34.93	54.55	13.55	14.77	21.32	24.00				<0.00	mmolc/l	TM0/PM0
% Cation Excess	4.53	11.74	3.03	-12.49	-6.80	5.81	10.23					%	TM0/PM0

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced

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

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles
EMT Job No: 23/527

SVOC Report : **Liquid**

EMT Sample No.	1-13	14-26	27-39	40-52	53-65	66-78	79-91				LOD/LOR	Units	Method No.
Sample ID	F-BH101D	F-BH101S	F-BH102D	F-BH102S	MS/BH14	MS/BH15D	MS/BH15S						
Depth	25.50	7.00	28.50	10.00	6.50	8.00	4.00						
COC No / misc													
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G						
Sample Date	09/01/2023 14:30	09/01/2023 11:30	09/01/2023 16:25	10/01/2023 12:30	10/01/2023 14:30	10/01/2023 15:45	10/01/2023 17:00						
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023						
SVOC MS													
Phenols													
2-Chlorophenol #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2-Methylphenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
4-Methylphenol	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Nitrophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Phenol	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2-Methylnaphthalene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Di-n-butyl phthalate #	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5				<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Diethyl phthalate #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Dimethyl phthalate	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Other SVOCs													
1,2-Dichlorobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
1,3-Dichlorobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
1,4-Dichlorobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2,4-Dinitrotoluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Bromophenylphenylether #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Chlorophenylphenylether #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Azobenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Carbazole #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Dibenzofuran #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Hexachlorobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Hexachlorobutadiene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Hexachloroethane #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Isophorone #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Nitrobenzene #	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	116	106	102	119	102	107	105				<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	125	117	123	122	125	129	125				<0	%	TM16/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles
EMT Job No: 23/527

VOC Report : **Liquid**

EMT Sample No.	1-13	14-26	27-39	40-52	53-65	66-78	79-91					
Sample ID	F-BH101D	F-BH101S	F-BH102D	F-BH102S	MS/BH14	MS/BH15D	MS/BH15S					
Depth	25.50	7.00	28.50	10.00	6.50	8.00	4.00					
COC No / misc												
Containers	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G	V H HN N Z P G					
Sample Date	09/01/2023 14:30	09/01/2023 11:30	09/01/2023 16:25	10/01/2023 12:30	10/01/2023 14:30	10/01/2023 15:45	10/01/2023 17:00					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	1	1	1	1	1	1	1					
Date of Receipt	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023	13/01/2023					
VOC MS												
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM15/PM10
Chloromethane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Vinyl Chloride	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
Chloroethane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Trichlorofluoromethane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE)	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Dichloromethane (DCM)	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,1-Dichloroethane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
Bromochloromethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Chloroform	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,1,1-Trichloroethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,1-Dichloropropene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Carbon tetrachloride	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,2-Dichloroethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM15/PM10
Trichloroethene (TCE)	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,2-Dichloropropane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Dibromomethane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Bromodichloromethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Toluene	<5	<5	<5	<5	<5	<5	<5				<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,1,2-Trichloroethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Tetrachloroethene (PCE)	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,3-Dichloropropane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,2-Dibromoethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Chlorobenzene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
m/p-Xylene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
o-Xylene	<1	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Isopropylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4				<4	ug/l	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,2,3-Trichloropropane	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Propylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
tert-Butylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
sec-Butylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
4-Isopropyltoluene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,3-Dichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,4-Dichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
n-Butylbenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,2-Dichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	6	<2				<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	100	102	104	102	103	103	104				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	108	103	105	102	104	101	105				<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Job number: 23/527
Sample number: 27
Sample identity: F-BH102D
Sample depth: 28.50
Sample Type: Ground Water
Units: ug/l

Method: VOC
Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
110-43-0	2-Heptanone	6.199	91	236

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Job number: 23/527
Sample number: 35
Sample identity: F-BH102D
Sample depth: 28.50
Sample Type: Ground Water
Units: ug/l

Method: SVOC
Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
111-27-3	1-Hexanol	3.512	83	107
110-43-0	2-Heptanone	3.692	91	178

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Arcadis

Reference: 10035117

Location: Redcar LWoW

Contact: Jonathan Miles

Matrix : Liquid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Method No.	NDP Reason
23/527	1	F-BH102D	28.50	27-39	TM170/PM14	Sample unsuitable for analysis by ICP-MS. Sample rescheduled for analysis by ICP-OES

Client Name: Arcadis
Reference: 10035117
Location: Redcar LWoW
Contact: Jonathan Miles

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 23/527						

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/527

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 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease 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 UKAS requirement 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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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	x10 Dilution
AC	x15 Dilution
AD	x30 Dilution
AE	x50 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: 23/527

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.				
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.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
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				
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			

EMT Job No: 23/527

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
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 (1985), 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: 2013I	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: 2013I	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.				
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	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.				
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM94	Derivatisation and extraction of Organotins. Analysis by GC-MS	PM48	Samples are pretreated and derivatised. The derviatised organotins are then extracted using hexane.				

EMT Job No: 23/527

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
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				
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				

Appendix F

Arcadis 2022 Groundwater Monitoring Summary

10035117-AUK-XX-XX-RP-ZZ-623-01-Data Gap Areas GQRA							
Appendix F: Groundwater Monitoring Summary							
Geology Screened	**Date**	**Location Code**	**Well**	**Reference Elevation**	**Depth to Water (m bgl)**	**Depth to Base (m bgl)**	**Water Level (m AOD)**
MM	05/10/2022	F-BH102	D	9.088	6.800	29.98	2.288
TFD	05/10/2022		S		6.420	11.3	2.668
MM	04/11/2022		D		8.775	29.765	0.313
TFD	04/11/2022		S		7.395	29.765	1.693
TFD	08/11/2022		S		6.320	11.34	2.768
MM	14/12/2022		D		7.400	29.992	1.688
TFD	14/12/2022		S		6.182	11.322	2.906
MM	09/01/2023		D		7.380	29.74	1.708
TFD	10/01/2023		S		6.070	11.39	3.018

Notes:

m AOD	Meters Above Ordance Datum
TFD	Tidal Flat Deposits
MM	Mercia Mudstone Group

Appendix G

Summary of Sample Deviations

10035117-AUK-XX-XX-RP-ZZ-623-01-Data Gap Areas GQRA

Appendix F: Summary of Sample Deviations at Environmental Testing Laboratory

Lab	Lab Reference	Lab No.	Sample ID	Deviation
				Holding Time Exceeded for tests
DETS	22-17093,22-17940	2052084	F-BH124 3.79-3.90 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17093,22-17940	2052085	F-BH124 5.50-6.00 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17093,22-17940	2052086	F-BH124 6.70-6.80 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17093,22-17940	2052087	F-BH124 7.50-7.60 SOIL	Carbonate (28 days)
DETS	22-17093,22-17940	2052088	F-BH124 9.90-10.50 SOIL	Carbonate (28 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17093,22-17940	2052089	F-BH124 11.10-11.20 SOIL	Organic Matter (Manual) (28 days)
DETS	22-17093,22-17940	2052090	F-BH124 12.00-12.10 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17093,22-17940	2052091	F-BH124 14.30-14.90 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17096	2052094	F-BH120 4.10-4.50 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17096	2052095	F-BH120 4.83-5.20 SOIL	Carbonate (28 days)
DETS	22-17096	2052097	F-BH120 7.50-7.60 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17096	2052099	F-BH120 12.40-12.50 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17096	2052101	F-BH120 14.00-15.00 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17096	2052102	F-BH120 30.00-31.50 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17176,22-18149	2052473	F-BH125 4.50-4.80 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)2052474F-BH125 6.50-6.90 SOIL04/08/22PT 1L
DETS	22-17176,22-18149	2052476	F-BH125 9.00-9.10 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)2052474F-BH125 6.50-6.90 SOIL04/08/22PT 1L
DETS	22-17176,22-18149	2052478	F-BH125 11.46-11.90 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)2052474F-BH125 6.50-6.90 SOIL04/08/22PT 1L
DETS	22-17176,22-18149	2052882	F-BH125 14.90-15.00 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)2052474F-BH125 6.50-6.90 SOIL04/08/22PT 1L
DETS	22-17283	2053079	F-BH119 3.00-3.10 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)2053080F-BH119 4.60-5.10 SOIL09/08/22PT 1L
DETS	22-17283	2053081	F-BH119 8.10-8.20 SOI	Total Sulphur ICP (7 days), pH + Conductivity (7 days)2053080F-BH119 4.60-5.10 SOIL09/08/22PT 1L
DETS	22-18458	2059320	F-BH104 6.75 SOIL	Carbonate (28 days)
DETS	22-18458	2059321	F-BH104 12.00-12.70 SOIL	Carbonate (28 days)
DETS	22-18458	2059322	F-BH104 14.30-15.00 SOIL	Organic Matter (Manual) (28 days)
DETS	22-19275	2064390	F-BH116 4.50-4.93 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-19275	2064392	F-BH116 9.00-9.70 SOIL	Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-19275	2064395	F-BH116 12.88-13.50 SOIL	Carbonate (28 days)
DETS	22-22032	2078777	F-TP112 4.00-4.50 SOIL	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)
DETS	22-16049	2046862	F-BH119 2.90 SOIL	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-16049	2046863	F-BH119 4.30 SOIL	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17018	2051750	F-BH104 21.80 SOIL	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17019	2051752	F-BH104 3.00 SOIL	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17019	2051753	F-BH104 4.00 SOIL	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days), VOC (7 days)
DETS	22-17019	2051755	F-BH104 6.00 SOIL	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17019	2051756	F-BH104 15.75 SOIL	Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-17882	2056242	F-BH116 4.90 SOIL	Ammonia (3 days)
DETS	22-17882	2056243	F-BH116 5.90 SOIL	Ammonia (3 days)
DETS	22-17885	2056247	F-BH116 14.00 SOIL	Ammonia (3 days)
DETS	22-18312	2058700	F-BH102 1.00 SOIL	Ammonia (3 days)
DETS	22-18373	2058947	F-BH120 3.50 SOIL	Ammonia (3 days)
DETS	22-18373	2058948	F-BH120 5.50 SOIL	Ammonia (3 days)
DETS	22-18376	2058956	F-BH125 3.80 SOIL	Ammonia (3 days)
DETS	22-18376	2058957	F-BH125 4.80 SOIL	Ammonia (3 days)
DETS	22-18376	2058958	F-BH125 5.30 SOIL	Ammonia (3 days)
DETS	22-18376	2058959	F-BH125 6.30 SOIL	Ammonia (3 days)
DETS	22-18377	2058967	F-BH125 14.80 SOIL	Ammonia (3 days)
DETS	22-18381	2058982	F-BH119 2.90 SOIL	Ammonia (3 days)
DETS	22-18381	2058983	F-BH119 4.30 SOIL	Ammonia (3 days)
DETS	22-18398	2059038	F-BH104 3.00 SOIL	Ammonia (3 days)
DETS	22-18398	2059039	F-BH104 4.00 SOIL	Ammonia (3 days)
DETS	22-18398	2059040	F-BH104 6.00 SOIL	Ammonia (3 days)
DETS	22-18398	2059041	F-BH104 15.75 SOIL	Ammonia (3 days)
DETS	22-18803	2061468	F-BH114 0.50 SOIL	Ammonia (3 days)
DETS	22-18803	2061469	F-BH114 1.80 SOIL	Ammonia (3 days)
DETS	22-18803	2061471	F-BH114 3.80 SOIL	Ammonia (3 days)
DETS	22-19109	2065445	F-BH114 20.30 SOIL	Ammonia (3 days), Sulphur (free) (7 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)
DETS	22-19347	2064596	F-TP114 1.00 SOIL	Ammonia (3 days)
DETS	22-19347	2064597	F-TP114 3.30 SOIL	Ammonia (3 days)
DETS	22-19347	2064598	F-TP114 4.00 SOIL	Ammonia (3 days)
DETS	22-19347	2064599	F-TP114 4.30 SOIL	Ammonia (3 days)
DETS	22-19349	2064602	F-TP113 0.20 SOIL	Ammonia (3 days)
DETS	22-19349	2064604	F-TP113 2.50 SOIL	Ammonia (3 days)
DETS	22-19349	2064605	F-TP113 3.30 SOIL	Ammonia (3 days)
DETS	22-19513	2065529	F-TP112 0.30 SOIL	Ammonia (3 days)
DETS	22-19513	2065531	F-TP112 2.00 SOIL	Ammonia (3 days)
DETS	22-19513	2065532	F-TP112 3.70 SOIL	Ammonia (3 days)
DETS	22-19762	2066853	F-TP115 0.30 SOIL	Ammonia (3 days)
DETS	22-19762	2066855	F-TP115 2.30 SOIL	Ammonia (3 days)
DETS	22-19762	2066856	F-TP117 0.50 SOIL	Ammonia (3 days)
DETS	22-19762	2066857	F-TP117 1.50 SOIL	Ammonia (3 days)
DETS	22-19762	2066858	F-TP117 2.50 SOIL	Ammonia (3 days)
DETS	22-20306	2070249	F-TP120 0.00 SOIL	Ammonia (3 days)
DETS	22-20306	2070250	F-TP120 0.50 SOIL	Ammonia (3 days)
DETS	22-20306	2070252	F-TP120 2.30 SOIL	Ammonia (3 days)
DETS	22-20306	2070253	F-TP120 3.00 SOIL	Ammonia (3 days)
DETS	22-20306	2070255	F-TP121 0.50 SOIL	Ammonia (3 days)
DETS	22-20306	2070256	F-TP121 0.80 SOIL	Ammonia (3 days)
DETS	22-20306	2070257	F-TP121 1.80 SOIL	Ammonia (3 days)
DETS	22-20306	2070258	F-TP121 3.80 SOIL	Ammonia (3 days)
DETS	22-20457	2070384	F-TP116 0.20 SOIL	Ammonia (3 days)
DETS	22-20457	2070386	F-TP116 1.50 SOIL	Ammonia (3 days)
DETS	22-20457	2070387	F-TP116 3.10 SOIL	Ammonia (3 days)

10035117-AUK-XX-XX-RP-ZZ-623-01-Data Gap Areas GQRA

Appendix F: Summary of Sample Deviations at Environmental Testing Laboratory

Lab	Lab Reference	Lab No.	Sample ID	Deviation
				Holding Time Exceeded for tests
DETS	22-20457	2070388	F-TP116 4.10 SOIL	Ammonia (3 days)

10035117-AUK-XX-XX-RP-ZZ-623-01-Data Gap Areas GQRA				
Appendix F: Summary of Sample Deviations at Environmental Testing Laboratory				
Lab	Lab Reference	Lab No.	Sample ID	Deviation
				Holding Time Exceeded for tests

Appendix H

Comparison of Measured Concentrations of Contaminants of Concern in Soil with Human Health GAC

Appendix H : Comparison of Measured Concentrations of CoC in Soil with GAC (mg/kg)

Chemical Group	Compound	Redcar Remediation Criteria - Soil	Location											
			Location ID	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH115	F-BH115	F-BH116	F-BH116	F-BH116
			Sample Depth Range	0.5	1.8	2.8	3.8	5.8	13.2	20.3	4.3	5	4.9	5.9	14
			Sampled Date	16/09/2022	16/09/2022	16/09/2022	16/09/2022	16/09/2022	20/09/2022	20/09/2022	25/08/2022	25/08/2022	02/09/2022	02/09/2022	05/09/2022
			Matrix Description	GMG	GMG	GMG	GMG	TFD	TFD	RMF	GMG	TFD	SMG	TFD	TFD
Metals	Aluminium		mg/kg	33,000	21,000	-	37,000	-	-	12,000	-	-	1400	14,000	10,000
	Arsenic	640	mg/kg	13	24	9.1	5.9	7.5	9.1	8.5	51	7.3	6.9	23	14
	Beryllium		mg/kg	3.6	2.3	0.2	5.8	<0.2	1	0.6	2.5	<0.2	<0.2	1	0.6
	Boron	240000	mg/kg	7.7	2.3	0.4	7.6	0.8	5.9	2.8	1.1	0.2	0.4	1.5	6.9
	Cadmium	190	mg/kg	0.4	0.4	<0.1	<0.1	<0.1	0.1	<0.1	8.2	<0.1	<0.1	0.7	0.1
	Chromium (hexavalent)	33	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chromium	8600	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
	Chromium (Trivalent)		mg/kg	42	120	6.8	9.9	3.3	37	17	180	2.2	6.1	230	23
	Copper	68000	mg/kg	23	70	4.9	5	3.6	21	21	100	1.5	3.2	62	16
	Iron	-	mg/kg	19,000	42,000	-	4100	-	-	21,000	-	-	7000	110,000	32,000
	Lead	2300	mg/kg	35	67	19	8.8	19	21	5.9	1200	14	22	23	14
	Manganese	-	mg/kg	16,000	3800	-	1300	-	-	450	-	-	140	7600	390
	Mercury	58*	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Molybdenum		mg/kg	1.9	1.9	-	0.8	-	-	0.5	-	-	<0.4	4	1.9
	Nickel	980	mg/kg	7.5	20	4.2	1.4	3.1	33	21	37	1.7	2.8	28	22
	Selenium	-	mg/kg	5.4	1.5	<0.5	3	<0.5	<0.5	<0.5	2.5	<0.5	<0.5	2.3	<0.5
	Tin		mg/kg	3	7.4	-	1	-	-	1	-	-	<1	3.1	<1
	Zinc	730000	mg/kg	140	130	28	8.6	19	80	24	8400	17	17	120	53
Asbestos	Asbestos Quantification Total		%	0.002	-	-	-	-	-	-	-	-	-	-	-
	Asbestos fibres		Detect	1	0	0	-	-	-	-	0	-	0	-	-
Inorganics	Chloride		mg/kg	363	87.6	-	9.6	-	-	75.5	-	-	32.9	251	683
	Orthophosphate as P		mg/kg	0.54	0.16	-	0.13	-	-	0.15	-	-	<0.1	<0.1	<0.1
PAH	PAH 16 Total		mg/kg	5.6	3.4	<0.1	<0.1	<0.1	<0.1	<0.1	2.4	<0.1	<0.1	0.22	<0.1
	Naphthalene	1900	mg/kg	0.04	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.14	<0.03
	Acenaphthene	84000**	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Acenaphthylene	83000**	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	23000	mg/kg	1.5	0.73	<0.03	<0.03	<0.03	<0.03	<0.03	0.58	<0.03	<0.03	0.03	<0.03
	Phenanthrene	22000	mg/kg	0.97	0.29	<0.03	<0.03	<0.03	<0.03	<0.03	0.11	<0.03	<0.03	0.08	<0.03
	Fluorene	63000**	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Pyrene	54000	mg/kg	0.93	0.66	<0.03	<0.03	<0.03	<0.03	<0.03	0.42	<0.03	<0.03	<0.03	<0.03
	Benzo(a)anthracene	170	mg/kg	0.3	0.31	<0.03	<0.03	<0.03	<0.03	<0.03	0.14	<0.03	<0.03	<0.03	<0.03
	Benzo(b)fluoranthene	44	mg/kg	0.54	0.39	<0.03	<0.03	<0.03	<0.03	<0.03	0.35	<0.03	<0.03	<0.03	<0.03
	Benzo(k)fluoranthene	1200	mg/kg	0.19	0.15	<0.03	<0.03	<0.03	<0.03	<0.03	0.15	<0.03	<0.03	<0.03	<0.03
	Benzo(a)pyrene	77	mg/kg	0.17	0.25	<0.03	<0.03	<0.03	<0.03	<0.03	0.18	<0.03	<0.03	<0.03	<0.03
	Dibenz(a,h)anthracene	3.5	mg/kg	0.04	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Benzo(g,h,i)perylene	3900	mg/kg	0.14	0.1	<0.03	<0.03	<0.03	<0.03	<0.03	0.14	<0.03	<0.03	<0.03	<0.03
	Indeno(1,2,3-c,d)pyrene	500	mg/kg	0.15	0.1	<0.03	<0.03	<0.03	<0.03	<0.03	0.13	<0.03	<0.03	<0.03	<0.03
TPH CWG	>C5-EC6 Aliphatics		mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01
	>C6-C8 Aliphatics	7800**	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>C8-C10 Aliphatics	2000**	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>C10-C12 Aliphatics	9700**	mg/kg	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
	>C12-C16 Aliphatics	59000**	mg/kg	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	3.15	<1.2	<1.2	<1.2
	>C16-C21 Aliphatics		mg/kg	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	2.66	2.97	<1.5	<1.5	<1.5
	>C21-C35 Aliphatics		mg/kg	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	184.6	<3.4	<3.4	28.79	<3.4
	Total >C5 - C40 Aliphatics		mg/kg	<10	<10	<10	<10	<10	<10	<10	193.3	16.44	13.78	37.72	14.15
	>EC5-EC7 Aromatics	26000**	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC7-EC8 Aromatics	56000**	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC8-EC10 Aromatics	3500**	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC10-EC12 Aromatics	16000**	mg/kg	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
	>EC12-EC16 Aromatics	36000**	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	>EC16-EC21 Aromatics	28000	mg/kg	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	0.61	<0.6	1.4	<0.6	<0.6
	>EC21-EC35 Aromatics	28000	mg/kg	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
	>EC35 - EC40 Aromatics		mg/kg	-	-	-	-	-	-	-	<1.4	<1.4	<1.4	<1.4	<1.4
	>EC40-EC44 Aromatics		mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
	Total >EC5 - EC40 Aromatics		mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Total Aliphatics + Aromatics (>C5 - C40)		mg/kg	<10	<10	<10	<10	<10	<10	<10	198.2	22.43	20.47	43.36	20.34
BTEX and MTBE	Benzene		mg/kg	0.005	-	<0.002	-	<0.002	<0.002	-	-	<0.002	<0.002	<0.002	-
	Toluene		mg/kg	<0.005	-	<0.005	-	<0.005	<0.005	-	-	<0.005	<0.005	0.031	-
	Ethylbenzene		mg/kg	<0.002	-	<0.002	-	<0.002	<0.002	-	-	<0.002	<0.002	<0.002	-
	Xylene (m & p)		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Xylene (o)		mg/kg	<0.002	-	<0.002	-	<0.002	<0.002	-	-	<0.002	<0.002	<0.002	-
	Xylene Total		mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
	MTBE		mg/kg	<0.005	-	<0.005	-	<0.005	<0.005	-	-	<0.005	<0.005	<0.005	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	Location ID	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH115	F-BH115	F-BH116	F-BH116	F-BH116
			Sample Depth Range	0.5	1.8	2.8	3.8	5.8	13.2	20.3	4.3	5	4.9	5.9	14
			Sampled Date	16/09/2022	16/09/2022	16/09/2022	16/09/2022	16/09/2022	20/09/2022	20/09/2022	25/08/2022	25/08/2022	02/09/2022	02/09/2022	05/09/2022
			Matrix Description	GMG	GMG	GMG	GMG	TFD	TFD	RMF	GMG	TFD	SMG	TFD	TFD
VOC	Styrene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	cis-1,3-dichloropropene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	trans-1,3-dichloropropene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,1,1,2-tetrachloroethane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,1,1-trichloroethane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,1,2-trichloroethane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,1-dichloroethane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,1-dichloroethene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,1-dichloropropene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,2,3-trichloropropane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,2,4-trimethylbenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,2-dibromo-3-chloropropane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,2-dibromoethane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,2-dichloroethane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,2-dichloropropane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,3,5-trimethylbenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,3-dichloropropane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	2,2-dichloropropane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	2-chlorotoluene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	4-chlorotoluene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Bromobenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Bromochloromethane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Bromodichloromethane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Bromoform		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Carbon tetrachloride		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Chlorodibromomethane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Chloroform		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	cis-1,2-dichloroethene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Dibromomethane		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Isopropylbenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	n-butylbenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	n-propylbenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	p-isopropyltoluene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	sec-butylbenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Trichloroethene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	tert-butylbenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Tetrachloroethene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	trans-1,2-dichloroethene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Vinyl chloride		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	tert-Amyl methyl ether		mg/kg	<0.005	-	<0.005	-	<0.005	<0.005	-	-	<0.005	<0.005	<0.005	-
VOC/SVOC	1,2,3-trichlorobenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,2,4-trichlorobenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,2-dichlorobenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,3-dichlorobenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	1,4-dichlorobenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Chlorobenzene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Hexachlorobutadiene		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	Location ID	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH115	F-BH115	F-BH116	F-BH116	F-BH116
			Sample Depth Range	0.5	1.8	2.8	3.8	5.8	13.2	20.3	4.3	5	4.9	5.9	14
			Sampled Date	16/09/2022	16/09/2022	16/09/2022	16/09/2022	16/09/2022	20/09/2022	20/09/2022	25/08/2022	25/08/2022	02/09/2022	02/09/2022	05/09/2022
			Matrix Description	GMG	GMG	GMG	GMG	TFD	TFD	RMF	GMG	TFD	SMG	TFD	TFD
SVOC	1,4-dinitrobenzene		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Benzyl alcohol		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	4-bromophenyl phenyl ether		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	4-nitroaniline		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	4-nitrophenol		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	1,2-Dinitrobenzene		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	1,3-Dinitrobenzene		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2,3,4,6-tetrachlorophenol		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2,3,5,6-Tetrachlorophenol		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2,4,5-trichlorophenol		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2,4,6-trichlorophenol		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	2,4-dichlorophenol		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	2,4-dimethylphenol		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	2,4-dinitrotoluene		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2,6-dichlorophenol		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	2,6-Dimethylphenol		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	2,6-dinitrotoluene		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2-chloronaphthalene		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2-chlorophenol		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2-methylnaphthalene		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2-methylphenol		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2-nitroaniline		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	3-nitroaniline		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	4-chlorophenyl phenyl ether		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	4-methylphenol		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-
	Azobenzene		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Bis(2-chloroethoxy) methane		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Bis(2-chloroisopropyl) ether		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Bis(2-ethylhexyl) phthalate		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Butyl benzyl phthalate		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Carbazole		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Dibenzofuran		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Diethylphthalate		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Dimethyl phthalate		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Di-n-butyl phthalate		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Di-n-octyl phthalate		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Diphenylamine		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Hexachlorobenzene		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Hexachlorocyclopentadiene		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Pentachlorophenol		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	Location ID	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH114	F-BH115	F-BH115	F-BH116	F-BH116	F-BH116
			Sample Depth Range	0.5	1.8	2.8	3.8	5.8	13.2	20.3	4.3	5	4.9	5.9	14
			Sampled Date	16/09/2022	16/09/2022	16/09/2022	16/09/2022	16/09/2022	20/09/2022	20/09/2022	25/08/2022	25/08/2022	02/09/2022	02/09/2022	05/09/2022
			Matrix Description	GMG	GMG	GMG	GMG	TFD	TFD	RMF	GMG	TFD	SMG	TFD	TFD
PCB	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (PCB 189)		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 156)		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PCB 167)		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169)		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	PCB 101		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	PCB 118		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	PCB 138		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	PCB 153		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	PCB 180		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	PCB 28 + PCB 31		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	PCB 52		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	Pentachlorobiphenyl, 2,3,3,4,4- (PCB 105)		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 114)		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 123)		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	Pentachlorobiphenyl, 3,3,4,4,5- (PCB 126)		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	Tetrachlorobiphenyl, 3,3,4,4- (PCB 77)		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 81)		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
	Total PCB 7 Congeners		mg/kg	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-
Phenolics	3-&4-methylphenol		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
	Phenol		mg/kg	<0.3	<0.3	<0.3	0.7	<0.3	<0.01 - 0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
SVOC TIC	Aniline		mg/kg	-	-	-	-	-	<0.1	-	-	-	-	-	-
NA	4-chloro-2-methylphenol		mg/kg	-	-	-	-	-	<0.01	-	-	-	-	-	-

Notes

Exceeds - Adopted Screening Criteria

Appendix H : Comparison of Measured Concentrations of CoC in Soil with GAC (mg

Chemical Group	Compound	Redcar Remediation Criteria - Soil	Workshop/Stores											
			F-BH116	F-TP115	F-TP115	F-TP115	F-TP116	F-TP116	F-TP116	F-TP116	F-TP116	F-TP116	F-TP117	F-TP117
			20.55	0.3	1.5	2.3	0.2	0.8	1.5	3.1	4.1	4.5	0.5	1.5
			06/09/2022	27/09/2022	27/09/2022	27/09/2022	06/10/2022	06/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	27/09/2022	27/09/2022
			RMF	GMG	GMG	GMG	GMG	GMG	SMG	SMG	SMG	SMG	GMG	SMG
Metals	Aluminium		-	9600	-	11,000	22,000	-	23,000	19,000	16,000	-	5800	4200
	Arsenic	640	7.1	14	-	14	6	9.1	21	15	20	18	50	19
	Beryllium		1	1.1	-	1.4	2.3	2.3	2.4	1.6	1.6	1.1	0.9	0.5
	Boron	240000	7.4	2.2	-	2.4	5.3	13	11	3	2.9	3.1	1.7	1.1
	Cadmium	190	0.1	0.5	-	0.5	0.1	1.3	0.2	0.6	0.5	1	0.8	0.4
	Chromium (hexavalent)	33	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chromium	8600	-	-	-	-	-	-	-	-	-	-	-	-
	Chromium (Trivalent)		31	120	-	240	120	90	93	120	90	51	110	240
	Copper	68000	25	41	-	38	11	16	33	46	33	29	72	37
	Iron	-	-	35,000	-	38,000	11,000	-	35,000	51,000	45,000	-	58,000	50,000
	Lead	2300	13	70	-	85	64	23	22	95	74	82	110	76
	Manganese	-	-	3600	-	5900	10,000	-	37,000	3900	4300	-	7300	10,000
	Mercury	58*	<0.05	0.14	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Molybdenum		-	1.6	-	2	0.9	-	4.2	4.9	1.5	-	1.2	1
	Nickel	980	33	22	-	13	3.1	5.9	19	16	17	19	25	19
	Selenium	-	<0.5	2.2	-	2.4	4.4	4.7	14	2.1	1.9	1.3	3.2	4.5
	Tin		-	4.3	-	5.8	1.2	-	2.4	3.4	3.3	-	4.9	4.8
	Zinc	730000	42	170	-	160	24	72	31	170	340	1100	160	54
Asbestos	Asbestos Quantification Total		-	0.003	0.003	0.003	-	-	-	-	-	-	-	-
	Asbestos fibres		-	1	1	1	0	0	0	0	-	-	0	0
Inorganics	Chloride		-	89.5	-	63.9	66	-	281	161	165	-	371	334
	Orthophosphate as P		-	0.23	-	0.22	0.39	-	0.69	0.74	0.24	-	0.95	0.29
PAH	PAH 16 Total		<0.1	5.8	-	4.7	9.4	8.3	3.2	3	3.2	10	15	0.32
	Naphthalene	1900	<0.03	0.03	-	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	0.05	<0.03
	Acenaphthene	84000**	<0.03	0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.2	0.05	<0.03
	Acenaphthylene	83000**	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	23000	<0.03	1.3	-	0.99	2.2	1.9	0.62	0.65	0.86	2.4	3.2	0.06
	Phenanthrene	22000	<0.03	0.49	-	0.4	1.1	0.61	0.25	0.37	0.33	2.2	1.6	0.04
	Fluorene	63000**	<0.03	0.05	-	<0.03	<0.03	0.03	<0.03	<0.03	<0.03	0.11	0.04	<0.03
	Pyrene	54000	<0.03	1.2	-	0.97	1.5	1.6	0.5	0.48	0.62	1.8	2.4	0.04
	Benzo(a)anthracene	170	<0.03	0.45	-	0.36	0.91	0.83	0.32	0.27	0.3	0.83	1.4	<0.03
	Benzo(b)fluoranthene	44	<0.03	0.56	-	0.5	0.94	0.83	0.43	0.33	0.27	0.57	1.6	0.05
	Benzo(k)fluoranthene	1200	<0.03	0.27	-	0.22	0.39	0.36	0.18	0.12	0.11	0.25	0.62	<0.03
	Benzo(a)pyrene	77	<0.03	0.32	-	0.25	0.68	0.48	0.22	0.24	0.16	0.36	1	<0.03
	Dibenz(a,h)anthracene	3.5	<0.03	0.06	-	0.04	0.07	0.05	<0.03	<0.03	<0.03	0.04	0.18	<0.03
	Benzo(g,h,i)perylene	3900	<0.03	0.2	-	0.17	0.29	0.29	0.13	0.11	0.09	0.15	0.51	0.04
	Indeno(1,2,3-c,d)pyrene	500	<0.03	0.17	-	0.16	0.27	0.25	0.14	0.1	0.06	0.12	0.46	0.04
TPH CWG	>C5-EC6 Aliphatics		<0.01	<0.01	-	<0.01	0.26	0.29	0.27	0.2	<0.01	<0.01	<0.01	<0.01
	>C6-C8 Aliphatics	7800**	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>C8-C10 Aliphatics	2000**	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>C10-C12 Aliphatics	9700**	<1.5	<1.5	-	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
	>C12-C16 Aliphatics	59000**	<1.2	11	-	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
	>C16-C21 Aliphatics		<1.5	35	-	<1.5	4.2	<1.5	1.9	<1.5	<1.5	<1.5	<1.5	<1.5
	>C21-C35 Aliphatics		<3.4	200	-	<3.4	110	14	38	<3.4	<3.4	<3.4	<3.4	<3.4
	Total >C5 - C40 Aliphatics		-	250	-	<10	140	16	45	<10	<10	<10	<10	<10
	>EC5-EC7 Aromatics	26000**	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC7-EC8 Aromatics	56000**	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC8-EC10 Aromatics	3500**	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC10-EC12 Aromatics	16000**	<0.9	<0.9	-	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
	>EC12-EC16 Aromatics	36000**	<0.5	9	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	>EC16-EC21 Aromatics	28000	<0.6	50	-	6.7	16	4.1	3.7	1.4	<0.6	2.7	23	<0.6
	>EC21-EC35 Aromatics	28000	<1.4	460	-	42	65	4.4	22	1.5	<1.4	1.9	85	<1.4
	>EC35 - EC40 Aromatics		<1.4	-	-	-	-	-	-	-	-	-	-	-
	>EC40-EC44 Aromatics		<1.4	-	-	-	-	-	-	-	-	-	-	-
	Total >EC5 - EC40 Aromatics		-	610	-	61	84	<10	26	<10	<10	<10	120	<10
	Total Aliphatics + Aromatics (>C5 - C40)		-	850	-	61	220	24	71	<10	<10	<10	120	<10
BTEX and MTBE	Benzene		-	<0.002	-	-	-	<0.002	-	<0.002	<0.002	-	<0.01 - 0.005	-
	Toluene		-	<0.005	-	-	-	<0.005	-	<0.005	<0.005	-	<0.005	-
	Ethylbenzene		-	<0.002	-	-	-	<0.002	-	<0.002	<0.002	-	<0.002	-
	Xylene (m & p)		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Xylene (o)		-	<0.002	-	-	-	<0.002	-	<0.002	<0.002	-	<0.002	-
	Xylene Total		-	-	-	-	-	-	-	-	-	-	-	-
	MTBE		-	<0.005	-	-	-	<0.005	-	<0.005	<0.005	-	<0.005	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH116 20.55 06/09/2022 RMF	F-TP115 0.3 27/09/2022 GMG	F-TP115 1.5 27/09/2022 GMG	F-TP115 2.3 27/09/2022 GMG	F-TP116 0.2 06/10/2022 GMG	F-TP116 0.8 06/10/2022 GMG	F-TP116 1.5 07/10/2022 SMG	F-TP116 3.1 07/10/2022 SMG	F-TP116 4.1 07/10/2022 SMG	F-TP116 4.5 07/10/2022 SMG	F-TP117 0.5 27/09/2022 GMG	F-TP117 1.5 27/09/2022 SMG
VOC	Styrene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	cis-1,3-dichloropropene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	trans-1,3-dichloropropene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,1,1,2-tetrachloroethane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,1,1-trichloroethane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,1,2-trichloroethane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,1-dichloroethane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,1-dichloroethene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,1-dichloropropene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,2,3-trichloropropane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,2,4-trimethylbenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,2-dibromo-3-chloropropane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,2-dibromoethane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,2-dichloroethane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,2-dichloropropane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,3,5-trimethylbenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,3-dichloropropane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	2,2-dichloropropane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	2-chlorotoluene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	4-chlorotoluene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Bromobenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Bromochloromethane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Bromodichloromethane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Bromoform		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Carbon tetrachloride		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Chlorodibromomethane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Chloroform		-	-	-	-	-	-	-	-	-	-	<0.01	-
	cis-1,2-dichloroethene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Dibromomethane		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Isopropylbenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	n-butylbenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	n-propylbenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	p-isopropyltoluene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	sec-butylbenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Trichloroethene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	tert-butylbenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Tetrachloroethene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	trans-1,2-dichloroethene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Vinyl chloride		-	-	-	-	-	-	-	-	-	-	<0.01	-
	tert-Amyl methyl ether		-	<0.005	-	-	-	<0.005	-	<0.005	<0.005	-	<0.005	-
VOC/SVOC	1,2,3-trichlorobenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,2,4-trichlorobenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,2-dichlorobenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,3-dichlorobenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	1,4-dichlorobenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Chlorobenzene		-	-	-	-	-	-	-	-	-	-	<0.01	-
	Hexachlorobutadiene		-	-	-	-	-	-	-	-	-	-	<0.01	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH116 20.55 06/09/2022 RMF	F-TP115 0.3 27/09/2022 GMG	F-TP115 1.5 27/09/2022 GMG	F-TP115 2.3 27/09/2022 GMG	F-TP116 0.2 06/10/2022 GMG	F-TP116 0.8 06/10/2022 GMG	F-TP116 1.5 07/10/2022 SMG	F-TP116 3.1 07/10/2022 SMG	F-TP116 4.1 07/10/2022 SMG	F-TP116 4.5 07/10/2022 SMG	F-TP117 0.5 27/09/2022 GMG	F-TP117 1.5 27/09/2022 SMG
SVOC	1,4-dinitrobenzene		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Benzyl alcohol		-	-	-	-	-	-	-	-	-	-	<0.1	-
	4-bromophenyl phenyl ether		-	-	-	-	-	-	-	-	-	-	<0.1	-
	4-nitroaniline		-	-	-	-	-	-	-	-	-	-	<0.1	-
	4-nitrophenol		-	-	-	-	-	-	-	-	-	-	<0.1	-
	1,2-Dinitrobenzene		-	-	-	-	-	-	-	-	-	-	<0.1	-
	1,3-Dinitrobenzene		-	-	-	-	-	-	-	-	-	-	<0.1	-
	2,3,4,6-tetrachlorophenol		-	-	-	-	-	-	-	-	-	-	<0.1	-
	2,3,5,6-Tetrachlorophenol		-	-	-	-	-	-	-	-	-	-	<0.1	-
	2,4,5-trichlorophenol		-	-	-	-	-	-	-	-	-	-	<0.1	-
	2,4,6-trichlorophenol		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.1	<0.01
	2,4-dichlorophenol		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.1	<0.01
	2,4-dimethylphenol		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.1	<0.01
	2,4-dinitrotoluene		-	-	-	-	-	-	-	-	-	-	<0.1	-
	2,6-dichlorophenol		-	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01
	2,6-Dimethylphenol		-	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01
	2,6-dinitrotoluene		-	-	-	-	-	-	-	-	-	-	<0.1	-
	2-chloronaphthalene		-	-	-	-	-	-	-	-	-	-	<0.1	-
	2-chlorophenol		-	-	-	-	-	-	-	-	-	-	<0.1	-
	2-methylnaphthalene		-	-	-	-	-	-	-	-	-	-	0.2	-
	2-methylphenol		-	-	-	-	-	-	-	-	-	-	<0.1	-
	2-nitroaniline		-	-	-	-	-	-	-	-	-	-	<0.1	-
	3-nitroaniline		-	-	-	-	-	-	-	-	-	-	<0.1	-
	4,6-Dinitro-2-methylphenol		-	-	-	-	-	-	-	-	-	-	<0.1	-
	4-chlorophenyl phenyl ether		-	-	-	-	-	-	-	-	-	-	<0.1	-
	4-methylphenol		-	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01
	Azobenzene		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Bis(2-chloroethoxy) methane		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Bis(2-chloroisopropyl) ether		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Bis(2-ethylhexyl) phthalate		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Butyl benzyl phthalate		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Carbazole		-	-	-	-	-	-	-	-	-	-	0.5	-
	Dibenzofuran		-	-	-	-	-	-	-	-	-	-	0.2	-
	Diethylphthalate		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Dimethyl phthalate		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Di-n-butyl phthalate		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Di-n-octyl phthalate		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Diphenylamine		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Hexachlorobenzene		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Hexachlorocyclopentadiene		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Pentachlorophenol		-	-	-	-	-	-	-	-	-	-	<0.1	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH116	F-TP115	F-TP115	F-TP115	F-TP116	F-TP116	F-TP116	F-TP116	F-TP116	F-TP116	F-TP117	F-TP117
			20.55	0.3	1.5	2.3	0.2	0.8	1.5	3.1	4.1	4.5	0.5	1.5
			06/09/2022	27/09/2022	27/09/2022	27/09/2022	06/10/2022	06/10/2022	07/10/2022	07/10/2022	07/10/2022	07/10/2022	27/09/2022	27/09/2022
			RMF	GMG	GMG	GMG	GMG	GMG	SMG	SMG	SMG	SMG	GMG	SMG
PCB	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (PCB 189)		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 156)		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PCB 167)		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169)		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	PCB 101		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	PCB 118		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	PCB 138		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	PCB 153		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	PCB 180		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	PCB 28 + PCB 31		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	PCB 52		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	Pentachlorobiphenyl, 2,3,3,4,4- (PCB 105)		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 114)		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 123)		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	Pentachlorobiphenyl, 3,3,4,4,5- (PCB 126)		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	Tetrachlorobiphenyl, 3,3,4,4- (PCB 77)		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 81)		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
	Total PCB 7 Congeners		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.01	-
Phenolics	3-&4-methylphenol		-	-	-	-	-	-	-	-	-	-	<0.1	-
	Phenol		<0.3	<0.3	-	<0.3	<0.3	<0.01	<0.3	<0.3	<0.01	<0.3	<0.1	<0.01
SVOC TIC	Aniline		-	-	-	-	-	-	-	-	-	-	<0.1	-
NA	4-chloro-2-methylphenol		-	-	-	-	-	<0.01	-	-	<0.01	-	<0.1	<0.01

Notes

Exceeds - Adopted Scre

Appendix H : Comparison of Measured Concentrations of CoC in Soil with GAC (mg

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-TP117	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120	F-BH124	F-BH124	F-BH124	F-BH124	F-BH124	F-BH125
			2.5	3.5	4.5	5.5	14.8	20	3.8	5.1	7.8	10.8	18.8	3.8
			27/09/2022	02/08/2022	02/08/2022	02/08/2022	03/08/2022	03/08/2022	01/08/2022	01/08/2022	01/08/2022	02/08/2022	02/08/2022	04/08/2022
			SMG	SMG	SMG	TFD	GT	RMF	GMG	TFD	TFD	TFD	RMF	GMG
Metals	Aluminium		4900	57,000	-	3400	-	-	-	-	-	-	-	43,000
	Arsenic	640	20	4.7	-	4.7	6.5	24	9	9.4	6.5	3.6	26	3.5
	Beryllium		0.5	6.3	-	<0.2	1	0.7	1.9	<0.2	<0.2	<0.2	0.6	5.9
	Boron	240000	1.2	1.3	-	<0.2	3.5	3.4	1.1	0.4	0.6	0.8	2	6
	Cadmium	190	0.2	<0.1	-	<0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1
	Chromium (hexavalent)	33	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chromium	8600	-	-	-	-	-	-	-	-	-	-	-	-
	Chromium (Trivalent)		160	2.3	-	3.3	31	28	410	4.1	4.9	2.7	18	14
	Copper	68000	28	3.3	-	4.4	36	34	130	3.7	3.2	2.9	18	5
	Iron	-	52,000	3200	-	8400	-	-	-	-	-	-	-	5100
	Lead	2300	15	2.6	-	22	18	13	17	34	4.4	3.1	23	1.4
	Manganese	-	11,000	550	-	170	-	-	-	-	-	-	-	1500
	Mercury	58*	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Molybdenum		0.7	0.8	-	0.4	-	-	-	-	-	-	-	0.9
	Nickel	980	14	<1	-	3.1	33	30	12	3.2	3.4	2.6	26	1.2
	Selenium	-	4.5	0.7	-	<0.5	<0.5	0.6	4.1	<0.5	<0.5	<0.5	<0.5	1.2
	Tin		2.8	<1	-	<1	-	-	-	-	-	-	-	<1
	Zinc	730000	28	7.1	-	16	59	54	38	32	20	13	120	4.1
Asbestos	Asbestos Quantification Total		-	-	-	-	-	-	-	-	-	-	-	-
	Asbestos fibres		0	0	0	-	-	-	0	-	-	-	-	0
Inorganics	Chloride		64.5	29.9	-	28	-	-	-	-	-	-	-	5.3
	Orthophosphate as P		1.6	<0.1	-	0.13	-	-	-	-	-	-	-	<0.1
PAH	PAH 16 Total		0.74	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.13
	Naphthalene	1900	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Acenaphthene	84000**	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Acenaphthylene	83000**	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	23000	0.17	<0.03	-	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	0.05
	Phenanthrene	22000	0.1	<0.03	-	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	0.03
	Fluorene	63000**	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Pyrene	54000	0.11	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04
	Benzo(a)anthracene	170	0.07	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Benzo(b)fluoranthene	44	0.08	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Benzo(k)fluoranthene	1200	0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Benzo(a)pyrene	77	0.04	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Dibenz(a,h)anthracene	3.5	<0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Benzo(g,h,i)perylene	3900	0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
	Indeno(1,2,3-c,d)pyrene	500	0.03	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
TPH CWG	>C5-EC6 Aliphatics		<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>C6-C8 Aliphatics	7800**	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>C8-C10 Aliphatics	2000**	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>C10-C12 Aliphatics	9700**	<1.5	<1.5	-	1.94	<1.5	<1.5	2.63	2.14	2.3	2.61	1.67	<1.5
	>C12-C16 Aliphatics	59000**	<1.2	<1.2	-	<1.2	<1.2	<1.2	2.69	2.55	2.64	2.97	3.44	-
	>C16-C21 Aliphatics		<1.5	<1.5	-	<1.5	<1.5	<1.5	2.71	2.2	2.37	2.83	3.02	<1.5
	>C21-C35 Aliphatics		<3.4	<3.4	-	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
	Total >C5 - C40 Aliphatics		<10	12.58	-	13.63	<10	<10	15.48	14.97	15.51	16.99	11.17	-
	>EC5-EC7 Aromatics	26000**	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC7-EC8 Aromatics	56000**	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC8-EC10 Aromatics	3500**	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC10-EC12 Aromatics	16000**	<0.9	<0.9	-	<0.9	<0.9	<0.9	1.36	1.22	<0.9	<0.9	<0.9	<0.9
	>EC12-EC16 Aromatics	36000**	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.58	<0.5	<0.5	<0.5	<0.5	<0.5
	>EC16-EC21 Aromatics	28000	4.7	<0.6	-	<0.6	<0.6	<0.6	2.04	1.73	1.22	1.26	<0.6	1.58
	>EC21-EC35 Aromatics	28000	39	<1.4	-	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
	>EC35 - EC40 Aromatics		-	<1.4	-	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
	>EC40-EC44 Aromatics		-	-	-	-	-	-	-	-	-	-	-	-
	Total >EC5 - EC40 Aromatics		50	<10	-	<10	<10	<10	<10	<10	<10	<10	<10	-
	Total Aliphatics + Aromatics (>C5 - C40)		50	18.08	-	19.55	<10	<10	22.53	21.85	21.8	23.56	11.21	-
BTEX and MTBE	Benzene		0.006	<0.002	-	<0.002	-	-	<0.002	<0.002	-	<0.002	-	-
	Toluene		<0.005	<0.005	-	<0.005	-	-	<0.005	<0.005	-	<0.005	-	-
	Ethylbenzene		<0.002	<0.002	-	<0.002	-	-	<0.002	<0.002	-	<0.002	-	-
	Xylene (m & p)		-	-	-	-	-	-	-	-	-	-	-	-
	Xylene (o)		<0.002	<0.002	-	<0.002	-	-	<0.002	<0.002	-	<0.002	-	-
	Xylene Total		-	-	-	-	-	-	-	-	-	-	-	-
	MTBE		<0.005	<0.005	-	<0.005	-	-	<0.005	<0.005	-	<0.005	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-TP117 2.5 27/09/2022 SMG	F-BH120 3.5 02/08/2022 SMG	F-BH120 4.5 02/08/2022 SMG	F-BH120 5.5 02/08/2022 TFD	F-BH120 14.8 03/08/2022 GT	F-BH120 20 03/08/2022 RMF	F-BH124 3.8 01/08/2022 GMG	F-BH124 5.1 01/08/2022 TFD	F-BH124 7.8 01/08/2022 TFD	F-BH124 10.8 02/08/2022 TFD	F-BH124 18.8 02/08/2022 RMF	F-BH125 3.8 04/08/2022 GMG
VOC	Styrene		-	-	-	-	-	-	-	-	-	-	-	-
	cis-1,3-dichloropropene		-	-	-	-	-	-	-	-	-	-	-	-
	trans-1,3-dichloropropene		-	-	-	-	-	-	-	-	-	-	-	-
	1,1,1,2-tetrachloroethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,1,1-trichloroethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,1,2-trichloroethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,1-dichloroethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,1-dichloroethene		-	-	-	-	-	-	-	-	-	-	-	-
	1,1-dichloropropene		-	-	-	-	-	-	-	-	-	-	-	-
	1,2,3-trichloropropane		-	-	-	-	-	-	-	-	-	-	-	-
	1,2,4-trimethylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-dibromo-3-chloropropane		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-dibromoethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-dichloroethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-dichloropropane		-	-	-	-	-	-	-	-	-	-	-	-
	1,3,5-trimethylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,3-dichloropropane		-	-	-	-	-	-	-	-	-	-	-	-
	2,2-dichloropropane		-	-	-	-	-	-	-	-	-	-	-	-
	2-chlorotoluene		-	-	-	-	-	-	-	-	-	-	-	-
	4-chlorotoluene		-	-	-	-	-	-	-	-	-	-	-	-
	Bromobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Bromochloromethane		-	-	-	-	-	-	-	-	-	-	-	-
	Bromodichloromethane		-	-	-	-	-	-	-	-	-	-	-	-
	Bromoform		-	-	-	-	-	-	-	-	-	-	-	-
	Carbon tetrachloride		-	-	-	-	-	-	-	-	-	-	-	-
	Chlorodibromomethane		-	-	-	-	-	-	-	-	-	-	-	-
	Chloroform		-	-	-	-	-	-	-	-	-	-	-	-
	cis-1,2-dichloroethene		-	-	-	-	-	-	-	-	-	-	-	-
	Dibromomethane		-	-	-	-	-	-	-	-	-	-	-	-
	Isopropylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	n-butylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	n-propylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	p-isopropyltoluene		-	-	-	-	-	-	-	-	-	-	-	-
	sec-butylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Trichloroethene		-	-	-	-	-	-	-	-	-	-	-	-
	tert-butylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Tetrachloroethene		-	-	-	-	-	-	-	-	-	-	-	-
	trans-1,2-dichloroethene		-	-	-	-	-	-	-	-	-	-	-	-
	Vinyl chloride		-	-	-	-	-	-	-	-	-	-	-	-
	tert-Amyl methyl ether		<0.005	<0.005	-	<0.005	-	-	<0.005	<0.005	-	<0.005	-	-
VOC/SVOC	1,2,3-trichlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,2,4-trichlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-dichlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,3-dichlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,4-dichlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Chlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobutadiene		-	-	-	-	-	-	-	-	-	-	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-TP117 2.5 27/09/2022 SMG	F-BH120 3.5 02/08/2022 SMG	F-BH120 4.5 02/08/2022 SMG	F-BH120 5.5 02/08/2022 TFD	F-BH120 14.8 03/08/2022 GT	F-BH120 20 03/08/2022 RMF	F-BH124 3.8 01/08/2022 GMG	F-BH124 5.1 01/08/2022 TFD	F-BH124 7.8 01/08/2022 TFD	F-BH124 10.8 02/08/2022 TFD	F-BH124 18.8 02/08/2022 RMF	F-BH125 3.8 04/08/2022 GMG
SVOC	1,4-dinitrobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Benzyl alcohol		-	-	-	-	-	-	-	-	-	-	-	-
	4-bromophenyl phenyl ether		-	-	-	-	-	-	-	-	-	-	-	-
	4-nitroaniline		-	-	-	-	-	-	-	-	-	-	-	-
	4-nitrophenol		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-Dinitrobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,3-Dinitrobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	2,3,4,6-tetrachlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2,3,5,6-Tetrachlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2,4,5-trichlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2,4,6-trichlorophenol		-	-	-	-	-	-	<0.01	-	-	-	-	-
	2,4-dichlorophenol		-	-	-	-	-	-	<0.01	-	-	-	-	-
	2,4-dimethylphenol		-	-	-	-	-	-	<0.01	-	-	-	-	-
	2,4-dinitrotoluene		-	-	-	-	-	-	-	-	-	-	-	-
	2,6-dichlorophenol		-	-	-	-	-	-	<0.01	-	-	-	-	-
	2,6-Dimethylphenol		-	-	-	-	-	-	<0.01	-	-	-	-	-
	2,6-dinitrotoluene		-	-	-	-	-	-	-	-	-	-	-	-
	2-chloronaphthalene		-	-	-	-	-	-	-	-	-	-	-	-
	2-chlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2-methylnaphthalene		-	-	-	-	-	-	-	-	-	-	-	-
	2-methylphenol		-	-	-	-	-	-	-	-	-	-	-	-
	2-nitroaniline		-	-	-	-	-	-	-	-	-	-	-	-
	3-nitroaniline		-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol		-	-	-	-	-	-	-	-	-	-	-	-
	4-chlorophenyl phenyl ether		-	-	-	-	-	-	-	-	-	-	-	-
	4-methylphenol		-	-	-	-	-	-	<0.01	-	-	-	-	-
	Azobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Bis(2-chloroethoxy) methane		-	-	-	-	-	-	-	-	-	-	-	-
	Bis(2-chloroisopropyl) ether		-	-	-	-	-	-	-	-	-	-	-	-
	Bis(2-ethylhexyl) phthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Butyl benzyl phthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Carbazole		-	-	-	-	-	-	-	-	-	-	-	-
	Dibenzofuran		-	-	-	-	-	-	-	-	-	-	-	-
	Diethylphthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Dimethyl phthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Di-n-butyl phthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Di-n-octyl phthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Diphenylamine		-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorocyclopentadiene		-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorophenol		-	-	-	-	-	-	-	-	-	-	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-TP117	F-BH120	F-BH120	F-BH120	F-BH120	F-BH120	F-BH124	F-BH124	F-BH124	F-BH124	F-BH124	F-BH125
			2.5	3.5	4.5	5.5	14.8	20	3.8	5.1	7.8	10.8	18.8	3.8
			27/09/2022	02/08/2022	02/08/2022	02/08/2022	03/08/2022	03/08/2022	01/08/2022	01/08/2022	01/08/2022	02/08/2022	02/08/2022	04/08/2022
			SMG	SMG	SMG	TFD	GT	RMF	GMG	TFD	TFD	TFD	RMF	GMG
PCB	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (PCB 189)		-	<0.01	-	-	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 156)		-	<0.01	-	-	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PCB 167)		-	<0.01	-	-	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169)		-	<0.01	-	-	-	-	-	-	-	-	-	-
	PCB 101		-	<0.01	-	-	-	-	-	-	-	-	-	-
	PCB 118		-	<0.01	-	-	-	-	-	-	-	-	-	-
	PCB 138		-	<0.01	-	-	-	-	-	-	-	-	-	-
	PCB 153		-	<0.01	-	-	-	-	-	-	-	-	-	-
	PCB 180		-	<0.01	-	-	-	-	-	-	-	-	-	-
	PCB 28 + PCB 31		-	<0.01	-	-	-	-	-	-	-	-	-	-
	PCB 52		-	<0.01	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,3,4,4- (PCB 105)		-	<0.01	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 114)		-	<0.01	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 123)		-	<0.01	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 3,3,4,4,5- (PCB 126)		-	<0.01	-	-	-	-	-	-	-	-	-	-
	Tetrachlorobiphenyl, 3,3,4,4- (PCB 77)		-	<0.01	-	-	-	-	-	-	-	-	-	-
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 81)		-	<0.01	-	-	-	-	-	-	-	-	-	-
	Total PCB 7 Congeners		-	<0.01	-	-	-	-	-	-	-	-	-	-
Phenolics	3-&4-methylphenol		-	-	-	-	-	-	-	-	-	-	-	-
	Phenol		<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.01	<0.3	<0.3	<0.3	<0.3	<0.3
SVOC TIC	Aniline		-	-	-	-	-	-	-	-	-	-	-	-
NA	4-chloro-2-methylphenol		-	-	-	-	-	-	<0.01	-	-	-	-	-

Notes

Exceeds - Adopted Scre

Appendix H : Comparison of Measured Concentrations of CoC in Soil with GAC (mg

Chemical Group	Compound	Redcar Remediation Criteria - Soil	Blast Furnace Stoc											
			F-BH125	F-BH125	F-BH125	F-BH125	F-BH125	F-BH128	F-BH128	F-BH128	F-BH128	F-TP112	F-TP112	F-TP112
			4.8	5.3	6.3	11.8	14.8	3.9	4.9	8.5	13.5	0.3	1	2
			04/08/2022	04/08/2022	04/08/2022	05/08/2022	05/08/2022	28/07/2022	28/07/2022	28/07/2022	29/07/2022	26/09/2022	26/09/2022	26/09/2022
			GMG	TFD	TFD	TFD	GT	GMG	TFD	TFD	TFD	GMG	GMG	GMG
Metals	Aluminium		5000	1700	9100	-	17,000	-	-	-	-	1900	-	8400
	Arsenic	640	19	8.2	6.8	20	9	7.3	6.5	6.2	18	3.6	-	2.7
	Beryllium		0.3	0.4	0.5	0.5	1.3	0.6	<0.2	<0.2	0.8	<0.2	-	0.9
	Boron	240000	1.2	0.9	2.7	5.5	3.5	0.8	<0.2	3.4	4.5	0.7	-	1.5
	Cadmium	190	0.2	<0.1	0.2	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	-	0.3
	Chromium (hexavalent)	33	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1
	Chromium	8600	-	-	-	-	-	-	-	-	-	-	-	-
	Chromium (Trivalent)		480	9.7	25	21	39	870	3.8	4.4	41	19	-	1300
	Copper	68000	25	3.5	12	12	27	30	3.6	5.4	17	8.2	-	41
	Iron	-	300,000	10,000	33,000	-	42,000	-	-	-	-	44,000	-	100,000
	Lead	2300	14	20	16	12	17	12	20	4.4	15	7.3	-	18
	Manganese	-	3100	200	180	-	560	-	-	-	-	600	-	29,000
	Mercury	58*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05
	Molybdenum		1	0.5	1.2	-	1.1	-	-	-	-	1.6	-	6.2
	Nickel	980	25	4.1	16	19	43	10	2.4	4.4	27	4.6	-	5.8
	Selenium	-	<0.5	<0.5	<0.5	<0.5	<0.5	5.7	<0.5	<0.5	<0.5	<0.5	-	7
	Tin		1.8	<1	<1	-	<1	-	-	-	-	<1	-	7.1
	Zinc	730000	46	18	63	46	61	48	16	22	63	85	-	73
Asbestos	Asbestos Quantification Total		-	-	-	-	-	-	-	-	-	-	-	-
	Asbestos fibres		0	-	-	-	-	0	-	-	-	0	0	0
Inorganics	Chloride		36.9	3.8	50.9	-	266	-	-	-	-	51.9	-	41.6
	Orthophosphate as P		5.8	0.32	7	-	0.16	-	-	-	-	<0.1	-	<0.1
PAH	PAH 16 Total		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	-	0.93
	Naphthalene	1900	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	-	<0.03
	Acenaphthene	84000**	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03
	Acenaphthylene	83000**	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	23000	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	0.06	-	0.13
	Phenanthrene	22000	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	0.08	-	0.05
	Fluorene	63000**	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03
	Pyrene	54000	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	-	0.12
	Benzo(a)anthracene	170	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	0.07
	Benzo(b)fluoranthene	44	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	-	0.14
	Benzo(k)fluoranthene	1200	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	0.08
	Benzo(a)pyrene	77	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	0.11
	Dibenz(a,h)anthracene	3.5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03
	Benzo(g,h,i)perylene	3900	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	0.08
	Indeno(1,2,3-c,d)pyrene	500	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	0.05
TPH CWG	>C5-EC6 Aliphatics		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>C6-C8 Aliphatics	7800**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>C8-C10 Aliphatics	2000**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>C10-C12 Aliphatics	9700**	<1.5	2.01	<1.5	<1.5	<1.5	1.86	2.41	3.77	2.62	<1.5	-	<1.5
	>C12-C16 Aliphatics	59000**	-	-	-	-	<1.2	2.07	3.01	5.4	3.32	<1.2	-	<1.2
	>C16-C21 Aliphatics		<1.5	3.36	<1.5	<1.5	<1.5	<1.5	1.99	3.79	2.28	<1.5	-	1.8
	>C21-C35 Aliphatics		<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	-	12
	Total >C5 - C40 Aliphatics		-	-	-	-	13.48	12.72	15.82	21.62	17.07	<10	-	16
	>EC5-EC7 Aromatics	26000**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>EC7-EC8 Aromatics	56000**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>EC8-EC10 Aromatics	3500**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>EC10-EC12 Aromatics	16000**	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	-	<0.9
	>EC12-EC16 Aromatics	36000**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
	>EC16-EC21 Aromatics	28000	1.33	1.07	1.57	1.1	1.16	2.33	2.7	18.29	16.43	<0.6	-	<0.6
	>EC21-EC35 Aromatics	28000	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	-	<1.4
	>EC35 - EC40 Aromatics		<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	-	-	-
	>EC40-EC44 Aromatics		-	-	-	-	-	-	-	-	-	-	-	-
	Total >EC5 - EC40 Aromatics		-	-	-	-	<10	<10	<10	23.66	21.91	<10	-	<10
	Total Aliphatics + Aromatics (>C5 - C40)		-	-	-	-	19.8	19.51	23.73	45.28	38.98	<10	-	16
BTEX and MTBE	Benzene		<0.01 - 0.008	<0.002	-	<0.002	-	<0.002	-	-	-	<0.002	-	<0.002
	Toluene		<0.01 - 0.01	<0.005	-	<0.005	-	<0.005	-	-	-	<0.005	-	<0.005
	Ethylbenzene		<0.01 - 0.006	<0.002	-	<0.002	-	<0.002	-	-	-	<0.002	-	<0.002
	Xylene (m & p)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Xylene (o)		<0.01 - 0.004	<0.002	-	<0.002	-	<0.002	-	-	-	<0.002	-	<0.002
	Xylene Total		-	-	-	-	-	-	-	-	-	-	-	-
	MTBE		<0.005	<0.005	-	<0.005	-	<0.005	-	-	-	<0.005	-	<0.005

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH125 4.8 04/08/2022 GMG	F-BH125 5.3 04/08/2022 TFD	F-BH125 6.3 04/08/2022 TFD	F-BH125 11.8 05/08/2022 TFD	F-BH125 14.8 05/08/2022 GT	F-BH128 3.9 28/07/2022 GMG	F-BH128 4.9 28/07/2022 TFD	F-BH128 8.5 28/07/2022 TFD	F-BH128 13.5 29/07/2022 TFD	F-TP112 0.3 26/09/2022 GMG	F-TP112 1 26/09/2022 GMG	F-TP112 2 26/09/2022 GMG
VOC	Styrene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	cis-1,3-dichloropropene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	trans-1,3-dichloropropene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,1,1,2-tetrachloroethane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,1,1-trichloroethane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,1,2-trichloroethane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,1-dichloroethane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,1-dichloroethene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,1-dichloropropene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,2,3-trichloropropane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,2,4-trimethylbenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,2-dibromo-3-chloropropane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,2-dibromoethane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,2-dichloroethane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,2-dichloropropane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,3,5-trimethylbenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,3-dichloropropane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	2,2-dichloropropane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	2-chlorotoluene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	4-chlorotoluene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Bromobenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Bromochloromethane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Bromodichloromethane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Bromoform		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Carbon tetrachloride		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Chlorodibromomethane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Chloroform		<0.01	-	-	-	-	-	-	-	-	-	-	-
	cis-1,2-dichloroethene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Dibromomethane		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Isopropylbenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	n-butylbenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	n-propylbenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	p-isopropyltoluene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	sec-butylbenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Trichloroethene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	tert-butylbenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Tetrachloroethene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	trans-1,2-dichloroethene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Vinyl chloride		<0.01	-	-	-	-	-	-	-	-	-	-	-
	tert-Amyl methyl ether		<0.005	<0.005	-	<0.005	-	<0.005	-	-	-	<0.005	-	<0.005
VOC/SVOC	1,2,3-trichlorobenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,2,4-trichlorobenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,2-dichlorobenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,3-dichlorobenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	1,4-dichlorobenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Chlorobenzene		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobutadiene		<0.01	-	-	-	-	-	-	-	-	-	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH125	F-BH125	F-BH125	F-BH125	F-BH125	F-BH128	F-BH128	F-BH128	F-BH128	F-TP112	F-TP112	F-TP112
			4.8	5.3	6.3	11.8	14.8	3.9	4.9	8.5	13.5	0.3	1	2
			04/08/2022	04/08/2022	04/08/2022	05/08/2022	05/08/2022	28/07/2022	28/07/2022	28/07/2022	29/07/2022	26/09/2022	26/09/2022	26/09/2022
			GMG	TFD	TFD	TFD	GT	GMG	TFD	TFD	TFD	GMG	GMG	GMG
SVOC	1,4-dinitrobenzene		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Benzyl alcohol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	4-bromophenyl phenyl ether		<0.1	-	-	-	-	-	-	-	-	-	-	-
	4-nitroaniline		<0.1	-	-	-	-	-	-	-	-	-	-	-
	4-nitrophenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	1,2-Dinitrobenzene		<0.1	-	-	-	-	-	-	-	-	-	-	-
	1,3-Dinitrobenzene		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2,3,4,6-tetrachlorophenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2,3,5,6-Tetrachlorophenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2,4,5-trichlorophenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2,4,6-trichlorophenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2,4-dichlorophenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2,4-dimethylphenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2,4-dinitrotoluene		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2,6-dichlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2,6-Dimethylphenol		-	-	-	-	-	-	-	-	-	-	-	-
	2,6-dinitrotoluene		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2-chloronaphthalene		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2-chlorophenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2-methylnaphthalene		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2-methylphenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	2-nitroaniline		<0.1	-	-	-	-	-	-	-	-	-	-	-
	3-nitroaniline		<0.1	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	4-chlorophenyl phenyl ether		<0.1	-	-	-	-	-	-	-	-	-	-	-
	4-methylphenol		-	-	-	-	-	-	-	-	-	-	-	-
	Azobenzene		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Bis(2-chloroethoxy) methane		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Bis(2-chloroisopropyl) ether		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Bis(2-ethylhexyl) phthalate		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Butyl benzyl phthalate		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Carbazole		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Dibenzofuran		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Diethylphthalate		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Dimethyl phthalate		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Di-n-butyl phthalate		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Di-n-octyl phthalate		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Diphenylamine		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobenzene		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorocyclopentadiene		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorophenol		<0.1	-	-	-	-	-	-	-	-	-	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH125	F-BH125	F-BH125	F-BH125	F-BH125	F-BH128	F-BH128	F-BH128	F-BH128	F-TP112	F-TP112	F-TP112
			4.8	5.3	6.3	11.8	14.8	3.9	4.9	8.5	13.5	0.3	1	2
			04/08/2022	04/08/2022	04/08/2022	05/08/2022	05/08/2022	28/07/2022	28/07/2022	28/07/2022	29/07/2022	26/09/2022	26/09/2022	26/09/2022
			GMG	TFD	TFD	TFD	GT	GMG	TFD	TFD	TFD	GMG	GMG	GMG
PCB	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (PCB 189)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 156)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PCB 167)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	PCB 101		<0.01	-	-	-	-	-	-	-	-	-	-	-
	PCB 118		<0.01	-	-	-	-	-	-	-	-	-	-	-
	PCB 138		<0.01	-	-	-	-	-	-	-	-	-	-	-
	PCB 153		<0.01	-	-	-	-	-	-	-	-	-	-	-
	PCB 180		<0.01	-	-	-	-	-	-	-	-	-	-	-
	PCB 28 + PCB 31		<0.01	-	-	-	-	-	-	-	-	-	-	-
	PCB 52		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,3,4,4- (PCB 105)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 114)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 123)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 3,3,4,4,5- (PCB 126)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Tetrachlorobiphenyl, 3,3,4,4- (PCB 77)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 81)		<0.01	-	-	-	-	-	-	-	-	-	-	-
	Total PCB 7 Congeners		<0.01	-	-	-	-	-	-	-	-	-	-	-
Phenolics	3-&4-methylphenol		<0.1	-	-	-	-	-	-	-	-	-	-	-
	Phenol		<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.5	-	<0.3
SVOC TIC	Aniline		<0.1	-	-	-	-	-	-	-	-	-	-	-
NA	4-chloro-2-methylphenol		<0.1	-	-	-	-	-	-	-	-	-	-	-

Notes

Exceeds - Adopted Scre

Appendix H : Comparison of Measured Concentrations of CoC in Soil with GAC (mo

Chemical Group	Compound	Redcar Remediation Criteria - Soil	khouse											
			F-TP112	F-TP113	F-TP113	F-TP113	F-TP113	F-TP113	F-TP114	F-TP114	F-TP114	F-TP114	F-TP114	F-BH119
			3.7	0.2	0.5	2.5	3.3	4.5	0.3	1	3.3	4	4.3	2.9
			26/09/2022	23/09/2022	23/09/2022	23/09/2022	23/09/2022	23/09/2022	22/09/2022	22/09/2022	22/09/2022	22/09/2022	22/09/2022	09/08/2022
			TFD	GMG	GMG	GMG	GMG	TFD	GMG	SMG	GMG	GMG	TFD	GMG
Metals	Aluminium		2200	10,000	-	23,000	13,000	-	-	9900	10,000	4500	2700	8400
	Arsenic	640	8.3	2.5	-	16	39	9.9	-	6.8	16	7	8.1	8.4
	Beryllium		0.3	1.2	-	2.9	1.9	<0.2	-	0.8	1.6	0.5	0.3	0.5
	Boron	240000	0.3	4.7	-	1.3	1.2	0.3	-	1.5	1.2	0.9	0.5	1.2
	Cadmium	190	<0.1	0.1	-	0.7	5.5	0.1	-	0.3	0.7	0.3	0.2	0.3
	Chromium (hexavalent)	33	<1	<1	-	<1	<1	<1	-	<1	<1	<1	<1	<1
	Chromium	8600	-	-	-	-	-	-	-	-	-	-	-	-
	Chromium (Trivalent)		22	64	-	150	97	3.8	-	1300	540	310	63	720
	Copper	68000	8	10	-	79	160	6.7	-	52	54	27	14	63
	Iron	-	10,000	8600	-	37,000	73,000	-	-	83,000	55,000	42,000	24,000	96,000
	Lead	2300	15	9.6	-	130	3900	57	-	31	130	61	47	26
	Manganese	-	370	1700	-	4200	2300	-	-	22,000	9300	5700	1800	27,000
	Mercury	58*	<0.05	<0.05	-	0.08	0.13	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
	Molybdenum		<0.4	1.4	-	2.4	3.3	-	-	5.6	4	1.7	0.9	3.1
	Nickel	980	6.1	3	-	15	37	3.1	-	9.1	19	11	7.4	14
	Selenium	-	<0.5	0.9	-	2.1	<0.5	<0.5	-	7	2.5	1.9	<0.5	5.9
	Tin		<1	1.2	-	11	24	-	-	6.4	7	2.4	1.8	4.9
	Zinc	730000	34	19	-	270	1300	56	-	59	140	61	51	54
Asbestos	Asbestos Quantification Total		-	-	-	-	-	-	-	-	-	-	-	-
	Asbestos fibres		-	-	0	0	0	-	0	0	0	-	-	0
Inorganics	Chloride		4.1	25.2	-	50.1	78.3	-	-	54.9	56.4	77.4	33	70.1
	Orthophosphate as P		0.2	<0.1	-	0.15	0.14	-	-	<0.1	<0.1	0.15	0.15	0.25
PAH	PAH 16 Total		<0.1	0.39	-	21	20	<0.1	-	<0.1	2.9	0.77	0.64	0.5
	Naphthalene	1900	<0.03	<0.03	-	0.09	0.07	<0.03	-	<0.03	0.03	<0.03	<0.03	<0.03
	Acenaphthene	84000**	<0.03	<0.03	-	<0.03	0.06	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03
	Acenaphthylene	83000**	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	23000	<0.03	0.1	-	4.6	5.1	0.03	-	<0.03	0.47	0.13	0.1	0.15
	Phenanthrene	22000	<0.03	0.04	-	1.3	2.2	<0.03	-	<0.03	0.31	0.09	0.09	0.06
	Fluorene	63000**	<0.03	<0.03	-	0.07	0.18	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03
	Pyrene	54000	<0.03	0.1	-	3.7	3.9	<0.03	-	<0.03	0.39	0.11	0.09	0.11
	Benzo(a)anthracene	170	<0.03	0.04	-	2.2	1.9	<0.03	-	<0.03	0.26	0.07	0.06	0.04
	Benzo(b)fluoranthene	44	<0.03	0.06	-	2.4	1.7	<0.03	-	<0.03	0.38	0.1	0.09	0.06
	Benzo(k)fluoranthene	1200	<0.03	<0.03	-	1.1	0.74	<0.03	-	<0.03	0.18	0.04	0.04	<0.03
	Benzo(a)pyrene	77	<0.03	<0.03	-	1.8	1.2	<0.03	-	<0.03	0.19	0.05	0.06	0.03
	Dibenz(a,h)anthracene	3.5	<0.03	<0.03	-	0.25	0.15	<0.03	-	<0.03	0.03	<0.03	<0.03	<0.03
	Benzo(g,h,i)perylene	3900	<0.03	<0.03	-	0.83	0.49	<0.03	-	<0.03	0.17	0.04	0.04	<0.03
	Indeno(1,2,3-c,d)pyrene	500	<0.03	<0.03	-	0.88	0.56	<0.03	-	<0.03	0.14	0.04	0.03	<0.03
TPH CWG	>C5-EC6 Aliphatics		<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01
	>C6-C8 Aliphatics	7800**	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01
	>C8-C10 Aliphatics	2000**	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01
	>C10-C12 Aliphatics	9700**	<1.5	<1.5	-	<1.5	<1.5	<1.5	-	<1.5	<1.5	<1.5	<1.5	<1.5
	>C12-C16 Aliphatics	59000**	<1.2	<1.2	-	<1.2	<1.2	<1.2	-	<1.2	<1.2	<1.2	<1.2	<1.2
	>C16-C21 Aliphatics		<1.5	<1.5	-	<1.5	<1.5	<1.5	-	<1.5	<1.5	<1.5	<1.5	<1.5
	>C21-C35 Aliphatics		<3.4	<3.4	-	<3.4	<3.4	<3.4	-	<3.4	<3.4	<3.4	<3.4	<3.4
	Total >C5 - C40 Aliphatics		<10	<10	-	<10	<10	<10	-	<10	<10	<10	<10	11.56
	>EC5-EC7 Aromatics	26000**	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC7-EC8 Aromatics	56000**	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC8-EC10 Aromatics	3500**	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC10-EC12 Aromatics	16000**	<0.9	<0.9	-	<0.9	<0.9	<0.9	-	<0.9	<0.9	<0.9	<0.9	<0.9
	>EC12-EC16 Aromatics	36000**	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
	>EC16-EC21 Aromatics	28000	<0.6	<0.6	-	7.9	22	<0.6	-	<0.6	<0.6	<0.6	<0.6	3.59
	>EC21-EC35 Aromatics	28000	<1.4	<1.4	-	26	54	<1.4	-	<1.4	<1.4	<1.4	<1.4	<1.4
	>EC35 - EC40 Aromatics		-	-	-	-	-	-	-	-	-	-	-	<1.4
	>EC40-EC44 Aromatics		-	-	-	-	-	-	-	-	-	-	-	-
	Total >EC5 - EC40 Aromatics		<10	<10	-	34	76	<10	-	<10	<10	<10	<10	<10
	Total Aliphatics + Aromatics (>C5 - C40)		<10	<10	-	34	76	<10	-	<10	<10	<10	<10	19.59
BTEX and MTBE	Benzene		-	0.041	-	<0.002	-	-	-	0.04	-	0.041	-	-
	Toluene		-	0.012	-	<0.085	-	-	-	0.011	-	0.012	-	-
	Ethylbenzene		-	0.041	-	<0.002	-	-	-	0.038	-	0.124	-	-
	Xylene (m & p)		-	-	-	-	-	-	-	-	-	-	-	-
	Xylene (o)		-	0.01	-	<0.002	-	-	-	0.011	-	0.026	-	-
	Xylene Total		-	-	-	-	-	-	-	-	-	-	-	-
	MTBE		-	<0.005	-	<0.005	-	-	-	<0.005	-	<0.005	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-TP112 3.7 26/09/2022 TFD	F-TP113 0.2 23/09/2022 GMG	F-TP113 0.5 23/09/2022 GMG	F-TP113 2.5 23/09/2022 GMG	F-TP113 3.3 23/09/2022 GMG	F-TP113 4.5 23/09/2022 TFD	F-TP114 0.3 22/09/2022 GMG	F-TP114 1 22/09/2022 SMG	F-TP114 3.3 22/09/2022 GMG	F-TP114 4 22/09/2022 GMG	F-TP114 4.3 22/09/2022 TFD	F-BH119 2.9 09/08/2022 GMG
VOC	Styrene		-	-	-	-	-	-	-	-	-	-	-	-
	cis-1,3-dichloropropene		-	-	-	-	-	-	-	-	-	-	-	-
	trans-1,3-dichloropropene		-	-	-	-	-	-	-	-	-	-	-	-
	1,1,1,2-tetrachloroethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,1,1-trichloroethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,1,2-trichloroethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,1-dichloroethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,1-dichloroethene		-	-	-	-	-	-	-	-	-	-	-	-
	1,1-dichloropropene		-	-	-	-	-	-	-	-	-	-	-	-
	1,2,3-trichloropropane		-	-	-	-	-	-	-	-	-	-	-	-
	1,2,4-trimethylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-dibromo-3-chloropropane		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-dibromoethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-dichloroethane		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-dichloropropane		-	-	-	-	-	-	-	-	-	-	-	-
	1,3,5-trimethylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,3-dichloropropane		-	-	-	-	-	-	-	-	-	-	-	-
	2,2-dichloropropane		-	-	-	-	-	-	-	-	-	-	-	-
	2-chlorotoluene		-	-	-	-	-	-	-	-	-	-	-	-
	4-chlorotoluene		-	-	-	-	-	-	-	-	-	-	-	-
	Bromobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Bromochloromethane		-	-	-	-	-	-	-	-	-	-	-	-
	Bromodichloromethane		-	-	-	-	-	-	-	-	-	-	-	-
	Bromoform		-	-	-	-	-	-	-	-	-	-	-	-
	Carbon tetrachloride		-	-	-	-	-	-	-	-	-	-	-	-
	Chlorodibromomethane		-	-	-	-	-	-	-	-	-	-	-	-
	Chloroform		-	-	-	-	-	-	-	-	-	-	-	-
	cis-1,2-dichloroethene		-	-	-	-	-	-	-	-	-	-	-	-
	Dibromomethane		-	-	-	-	-	-	-	-	-	-	-	-
	Isopropylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	n-butylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	n-propylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	p-isopropyltoluene		-	-	-	-	-	-	-	-	-	-	-	-
	sec-butylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Trichloroethene		-	-	-	-	-	-	-	-	-	-	-	-
	tert-butylbenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Tetrachloroethene		-	-	-	-	-	-	-	-	-	-	-	-
	trans-1,2-dichloroethene		-	-	-	-	-	-	-	-	-	-	-	-
	Vinyl chloride		-	-	-	-	-	-	-	-	-	-	-	-
	tert-Amyl methyl ether		-	<0.005	-	<0.005	-	-	-	<0.005	-	<0.005	-	-
VOC/SVOC	1,2,3-trichlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,2,4-trichlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-dichlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,3-dichlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,4-dichlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Chlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobutadiene		-	-	-	-	-	-	-	-	-	-	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-TP112	F-TP113	F-TP113	F-TP113	F-TP113	F-TP113	F-TP114	F-TP114	F-TP114	F-TP114	F-TP114	F-BH119
			3.7	0.2	0.5	2.5	3.3	4.5	0.3	1	3.3	4	4.3	2.9
			26/09/2022	23/09/2022	23/09/2022	23/09/2022	23/09/2022	23/09/2022	22/09/2022	22/09/2022	22/09/2022	22/09/2022	22/09/2022	09/08/2022
			TFD	GMG	GMG	GMG	GMG	TFD	GMG	SMG	GMG	GMG	TFD	GMG
SVOC	1,4-dinitrobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Benzyl alcohol		-	-	-	-	-	-	-	-	-	-	-	-
	4-bromophenyl phenyl ether		-	-	-	-	-	-	-	-	-	-	-	-
	4-nitroaniline		-	-	-	-	-	-	-	-	-	-	-	-
	4-nitrophenol		-	-	-	-	-	-	-	-	-	-	-	-
	1,2-Dinitrobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,3-Dinitrobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	2,3,4,6-tetrachlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2,3,5,6-Tetrachlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2,4,5-trichlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2,4,6-trichlorophenol		-	-	-	<0.01	-	-	-	<0.01	-	-	-	-
	2,4-dichlorophenol		-	-	-	<0.01	-	-	-	<0.01	-	-	-	-
	2,4-dimethylphenol		-	-	-	<0.01	-	-	-	<0.01	-	-	-	-
	2,4-dinitrotoluene		-	-	-	-	-	-	-	-	-	-	-	-
	2,6-dichlorophenol		-	-	-	<0.01	-	-	-	<0.01	-	-	-	-
	2,6-Dimethylphenol		-	-	-	<0.01	-	-	-	<0.01	-	-	-	-
	2,6-dinitrotoluene		-	-	-	-	-	-	-	-	-	-	-	-
	2-chloronaphthalene		-	-	-	-	-	-	-	-	-	-	-	-
	2-chlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2-methylnaphthalene		-	-	-	-	-	-	-	-	-	-	-	-
	2-methylphenol		-	-	-	-	-	-	-	-	-	-	-	-
	2-nitroaniline		-	-	-	-	-	-	-	-	-	-	-	-
	3-nitroaniline		-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol		-	-	-	-	-	-	-	-	-	-	-	-
	4-chlorophenyl phenyl ether		-	-	-	-	-	-	-	-	-	-	-	-
	4-methylphenol		-	-	-	<0.01	-	-	-	<0.01	-	-	-	-
	Azobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Bis(2-chloroethoxy) methane		-	-	-	-	-	-	-	-	-	-	-	-
	Bis(2-chloroisopropyl) ether		-	-	-	-	-	-	-	-	-	-	-	-
	Bis(2-ethylhexyl) phthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Butyl benzyl phthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Carbazole		-	-	-	-	-	-	-	-	-	-	-	-
	Dibenzofuran		-	-	-	-	-	-	-	-	-	-	-	-
	Diethylphthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Dimethyl phthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Di-n-butyl phthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Di-n-octyl phthalate		-	-	-	-	-	-	-	-	-	-	-	-
	Diphenylamine		-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorocyclopentadiene		-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorophenol		-	-	-	-	-	-	-	-	-	-	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-TP112	F-TP113	F-TP113	F-TP113	F-TP113	F-TP113	F-TP114	F-TP114	F-TP114	F-TP114	F-TP114	F-BH119
			3.7	0.2	0.5	2.5	3.3	4.5	0.3	1	3.3	4	4.3	2.9
			26/09/2022	23/09/2022	23/09/2022	23/09/2022	23/09/2022	23/09/2022	22/09/2022	22/09/2022	22/09/2022	22/09/2022	22/09/2022	09/08/2022
			TFD	GMG	GMG	GMG	GMG	TFD	GMG	SMG	GMG	GMG	TFD	GMG
PCB	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (PCB 189)		-	-	-	<0.01	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 156)		-	-	-	<0.01	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PCB 167)		-	-	-	<0.01	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169)		-	-	-	<0.01	-	-	-	-	-	-	-	-
	PCB 101		-	-	-	<0.01	-	-	-	-	-	-	-	-
	PCB 118		-	-	-	<0.01	-	-	-	-	-	-	-	-
	PCB 138		-	-	-	<0.01	-	-	-	-	-	-	-	-
	PCB 153		-	-	-	<0.01	-	-	-	-	-	-	-	-
	PCB 180		-	-	-	<0.01	-	-	-	-	-	-	-	-
	PCB 28 + PCB 31		-	-	-	<0.01	-	-	-	-	-	-	-	-
	PCB 52		-	-	-	<0.01	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,3,4,4- (PCB 105)		-	-	-	<0.01	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 114)		-	-	-	<0.01	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 123)		-	-	-	<0.01	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 3,3,4,4,5- (PCB 126)		-	-	-	<0.01	-	-	-	-	-	-	-	-
	Tetrachlorobiphenyl, 3,3,4,4- (PCB 77)		-	-	-	<0.01	-	-	-	-	-	-	-	-
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 81)		-	-	-	<0.01	-	-	-	-	-	-	-	-
	Total PCB 7 Congeners		-	-	-	<0.01	-	-	-	-	-	-	-	-
Phenolics	3-&4-methylphenol		-	-	-	-	-	-	-	-	-	-	-	-
	Phenol		<0.3	<0.3	-	<0.01	<0.3	<0.3	-	<0.01	<0.3	<0.3	<0.3	<0.3
SVOC TIC	Aniline		-	-	-	-	-	-	-	-	-	-	-	-
NA	4-chloro-2-methylphenol		-	-	-	<0.01	-	-	-	<0.01	-	-	-	-

Notes

Exceeds - Adopted Scre

Appendix H : Comparison of Measured Concentrations of CoC in Soil with GAC (mc

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH119 4.3 09/08/2022 TFD	F-BH119 12.9 10/08/2022 GT	LWW-TP5 2 06/12/2022	LWW-TP5 4 06/12/2022	LWW-TP5 1 06/12/2022	F-TP120 0 06/10/2022 GMG	F-TP120 0.5 06/10/2022 GMG	F-TP120 1.5 06/10/2022 GMG	F-TP120 2.3 06/10/2022 GMG	F-TP120 3 06/10/2022 GMG	F-TP121 0 06/10/2022 GMG	F-TP121 0.5 06/10/2022 GMG
Metals	Aluminium		1200	-	29580	42860	62430	4400	5000	-	5800	5200	-	10,000
	Arsenic	640	9.5	6	12.9	48.3	11.6	4	3.8	-	6.4	4.6	-	6.1
	Beryllium		<0.2	1.3	-	-	-	0.4	0.3	-	0.5	0.4	-	0.7
	Boron	240000	<0.2	6.3	3.1	5.1	2.2	1.7	1.8	-	1.8	2.2	-	0.7
	Cadmium	190	<0.1	<0.1	0.7	1.6	0.2	0.4	0.3	-	0.5	0.4	-	0.1
	Chromium (hexavalent)	33	<1	<1	<0.3	<0.3	<0.3	<1	<1	-	<1	<1	-	<1
	Chromium	8600	-	-	805.2	130.7	115.4	-	-	-	-	-	-	-
	Chromium (Trivalent)		4.7	35	-	-	-	170	940	-	840	810	-	48
	Copper	68000	4	21	65	130	24	60	42	-	68	47	-	19
	Iron	-	7300	-	132600	93510	96870	25,000	110,000	-	130,000	100,000	-	38,000
	Lead	2300	21	18	78	247	36	100	20	-	30	33	-	14
	Manganese	-	200	-	17700	3744	5244	3100	20,000	-	22,000	19,000	-	1000
	Mercury	58*	<0.05	<0.05	<0.1	0.2	<0.1	0.05	<0.05	-	0.08	0.1	-	<0.05
	Molybdenum		0.4	-	3.6	3	1.4	1.7	6.3	-	6.8	5.3	-	1.2
	Nickel	980	2.9	35	29.1	54.8	19.8	8.1	11	-	23	14	-	23
	Selenium	-	<0.5	<0.5	4	3	3	1.2	5.9	-	6.7	5.5	-	<0.5
	Tin		<1	-	-	-	-	6	7.9	-	11	9.7	-	<1
	Zinc	730000	31	63	247	598	109	160	49	-	56	86	-	54
Asbestos	Asbestos Quantification Total		-	-	-	-	-	-	-	-	-	-	-	-
	Asbestos fibres		-	-	0	0	1	0	0	0	0	-	0	0
Inorganics	Chloride		33.2	-	183	111	140	63.5	79.9	-	70.1	61.8	-	20.1
	Orthophosphate as P		0.12	-	-	-	-	<0.1	0.41	-	0.13	0.35	-	0.12
PAH	PAH 16 Total		<0.1	<0.1	-	-	-	98	18	-	0.62	0.24	-	<0.1
	Naphthalene	1900	<0.03	<0.03	<0.027 - 0.18	<0.027 - 0.15	<0.027 - 0.05	0.08	0.04	-	<0.03	<0.03	-	<0.03
	Acenaphthene	84000**	<0.03	<0.03	<0.05	<0.05	<0.05	16	0.21	-	<0.03	<0.03	-	<0.03
	Acenaphthylene	83000**	-	-	0.24	0.14	<0.03	-	-	-	-	-	-	-
	Fluoranthene	23000	<0.03	<0.03	1.26	1.88	0.14	12	3.5	-	0.13	0.08	-	0.04
	Phenanthrene	22000	<0.03	<0.03	0.75	1.01	0.11	15	0.95	-	0.07	0.13	-	<0.03
	Fluorene	63000**	<0.03	<0.03	0.1	0.07	<0.04	3.4	0.06	-	<0.03	<0.03	-	<0.03
	Pyrene	54000	<0.03	<0.03	1.08	1.66	0.12	12	3.3	-	0.1	0.04	-	<0.03
	Benzo(a)anthracene	170	<0.03	<0.03	0.67	0.95	0.1	6	1.5	-	0.04	<0.03	-	<0.03
	Benzo(b)fluoranthene	44	<0.03	<0.03	0.98	1.32	0.12	6.9	2	-	0.07	<0.03	-	<0.03
	Benzo(k)fluoranthene	1200	<0.03	<0.03	0.38	0.52	0.04	3.5	0.79	-	0.03	<0.03	-	<0.03
	Benzo(a)pyrene	77	<0.03	<0.03	0.73	0.4 - 0.95	<0.04	6.6	2	-	0.05	<0.03	-	<0.03
	Dibenz(a,h)anthracene	3.5	<0.03	<0.03	0.12	0.14	<0.04	0.52	0.13	-	<0.03	<0.03	-	<0.03
	Benzo(g,h,i)perylene	3900	<0.03	<0.03	0.51	0.64	0.08	2.8	0.79	-	0.03	<0.03	-	<0.03
	Indeno(1,2,3-c,d)pyrene	500	<0.03	<0.03	0.55	0.73	0.08	2.4	0.6	-	0.03	<0.03	-	<0.03
TPH CWG	>C5-EC6 Aliphatics		<0.01	<0.01	-	-	-	0.34	0.51	-	0.59	0.43	-	0.41
	>C6-C8 Aliphatics	7800**	<0.01	<0.01	<0.1	<0.1	<0.1	<0.01	<0.01	-	<0.01	<0.01	-	<0.01
	>C8-C10 Aliphatics	2000**	<0.01	<0.01	<0.1	<0.1	<0.1	<0.01	<0.01	-	<0.01	<0.01	-	<0.01
	>C10-C12 Aliphatics	9700**	<1.5	<1.5	<0.2	<0.2	1.9	<1.5	<1.5	-	<1.5	<1.5	-	<1.5
	>C12-C16 Aliphatics	59000**	<1.2	<1.2	<4	<4	14	<1.2	<1.2	-	<1.2	<1.2	-	<1.2
	>C16-C21 Aliphatics		<1.5	<1.5	<7	<7	41	<1.5	2.4	-	<1.5	<1.5	-	<1.5
	>C21-C35 Aliphatics		<3.4	<3.4	26	56	158	<3.4	16	-	<3.4	<3.4	-	<3.4
	Total >C5 - C40 Aliphatics		13.1	13.54	-	-	-	<10	24	-	<10	<10	-	<10
	>EC5-EC7 Aromatics	26000**	<0.01	<0.01	<0.1	<0.1	<0.1	<0.01	<0.01	-	<0.01	<0.01	-	<0.01
	>EC7-EC8 Aromatics	56000**	<0.01	<0.01	<0.1	<0.1	<0.1	<0.01	<0.01	-	<0.01	<0.01	-	<0.01
	>EC8-EC10 Aromatics	3500**	<0.01	<0.01	<0.1	<0.1	<0.1	<0.01	<0.01	-	<0.01	<0.01	-	<0.01
	>EC10-EC12 Aromatics	16000**	<0.9	<0.9	<0.2	<0.2	<0.2	<0.9	<0.9	-	<0.9	<0.9	-	<0.9
	>EC12-EC16 Aromatics	36000**	<0.5	<0.5	<4	7	<4	24	<0.5	-	<0.5	<0.5	-	<0.5
	>EC16-EC21 Aromatics	28000	3.96	4.04	27	42	<7	35	2.7	-	<0.6	<0.6	-	<0.6
	>EC21-EC35 Aromatics	28000	<1.4	<1.4	82	188	57	31	3.7	-	<1.4	<1.4	-	<1.4
	>EC35 - EC40 Aromatics		<1.4	<1.4	-	-	-	-	-	-	-	-	-	-
	>EC40-EC44 Aromatics		-	-	-	-	-	-	-	-	-	-	-	-
	Total >EC5 - EC40 Aromatics		<10	<10	-	-	-	89	<10	-	<10	<10	-	<10
	Total Aliphatics + Aromatics (>C5 - C40)		22.08	22.78	-	-	-	90	31	-	<10	<10	-	<10
BTEX and MTBE	Benzene		-	-	<0.003	<0.003	<0.003	-	<0.002	-	<0.002	-	-	<0.002
	Toluene		-	-	<0.003	<0.003	<0.003	-	<0.005	-	<0.005	-	-	<0.005
	Ethylbenzene		-	-	<0.003	<0.003	<0.003	-	<0.002	-	<0.002	-	-	<0.002
	Xylene (m & p)		-	-	<0.005	<0.005	<0.005 - 0.011	-	-	-	-	-	-	-
	Xylene (o)		-	-	<0.003	<0.003	<0.003	-	<0.002	-	<0.002	-	-	<0.002
	Xylene Total		-	-	-	-	-	-	-	-	-	-	-	-
	MTBE		-	-	<0.002	<0.002	<0.002	-	<0.005	-	<0.005	-	-	<0.005

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH119 4.3 09/08/2022 TFD	F-BH119 12.9 10/08/2022 GT	LWW-TP5 2 06/12/2022	LWW-TP5 4 06/12/2022	LWW-TP5 1 06/12/2022	F-TP120 0 06/10/2022 GMG	F-TP120 0.5 06/10/2022 GMG	F-TP120 1.5 06/10/2022 GMG	F-TP120 2.3 06/10/2022 GMG	F-TP120 3 06/10/2022 GMG	F-TP121 0 06/10/2022 GMG	F-TP121 0.5 06/10/2022 GMG
VOC	Styrene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	cis-1,3-dichloropropene		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	trans-1,3-dichloropropene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	1,1,1,2-tetrachloroethane		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	1,1,1-trichloroethane		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	1,1,2-trichloroethane		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	1,1-dichloroethane		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	1,1-dichloroethene		-	-	<0.006	<0.006	<0.006	-	-	-	-	-	-	-
	1,1-dichloropropene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	1,2,3-trichloropropane		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	1,2,4-trimethylbenzene		-	-	<0.006	<0.006	<0.006	-	-	-	-	-	-	-
	1,2-dibromo-3-chloropropane		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	1,2-dibromoethane		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	1,2-dichloroethane		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	1,2-dichloropropane		-	-	<0.006	<0.006	<0.006	-	-	-	-	-	-	-
	1,3,5-trimethylbenzene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	1,3-dichloropropane		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	2,2-dichloropropane		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	2-chlorotoluene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	4-chlorotoluene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	Bromobenzene		-	-	<0.002	<0.002	<0.002	-	-	-	-	-	-	-
	Bromochloromethane		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	Bromodichloromethane		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	Bromoform		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	Carbon tetrachloride		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	Chlorodibromomethane		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	Chloroform		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	cis-1,2-dichloroethene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	Dibromomethane		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	Isopropylbenzene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	n-butylbenzene		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	n-propylbenzene		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	p-isopropyltoluene		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	sec-butylbenzene		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	Trichloroethene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	tert-butylbenzene		-	-	<0.005	<0.005	<0.005	-	-	-	-	-	-	-
	Tetrachloroethene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	trans-1,2-dichloroethene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	Vinyl chloride		-	-	<0.002	<0.002	<0.002	-	-	-	-	-	-	-
	tert-Amyl methyl ether		-	-	-	-	-	-	<0.005	-	<0.005	-	-	<0.005
VOC/SVOC	1,2,3-trichlorobenzene		-	-	<0.007	<0.007	<0.007	-	-	-	-	-	-	-
	1,2,4-trichlorobenzene		-	-	<0.007	<0.007	<0.007	-	-	-	-	-	-	-
	1,2-dichlorobenzene		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	1,3-dichlorobenzene		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	1,4-dichlorobenzene		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-
	Chlorobenzene		-	-	<0.003	<0.003	<0.003	-	-	-	-	-	-	-
	Hexachlorobutadiene		-	-	<0.004	<0.004	<0.004	-	-	-	-	-	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH119	F-BH119	LWW-TP5	LWW-TP5	LWW-TP5	F-TP120	F-TP120	F-TP120	F-TP120	F-TP120	F-TP121	F-TP121
			4.3	12.9	2	4	1	0	0.5	1.5	2.3	3	0	0.5
			09/08/2022	10/08/2022	06/12/2022	06/12/2022	06/12/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022
			TFD	GT				GMG	GMG	GMG	GMG	GMG	GMG	GMG
SVOC	1,4-dinitrobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	Benzyl alcohol		-	-	-	-	-	-	-	-	-	-	-	-
	4-bromophenyl phenyl ether		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	4-nitroaniline		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	4-nitrophenol		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	1,2-Dinitrobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	1,3-Dinitrobenzene		-	-	-	-	-	-	-	-	-	-	-	-
	2,3,4,6-tetrachlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2,3,5,6-Tetrachlorophenol		-	-	-	-	-	-	-	-	-	-	-	-
	2,4,5-trichlorophenol		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	2,4,6-trichlorophenol		-	-	<0.01	<0.01	<0.01	-	<0.01	-	-	-	-	<0.01
	2,4-dichlorophenol		-	-	<0.01	<0.01	<0.01	-	<0.01	-	-	-	-	<0.01
	2,4-dimethylphenol		-	-	<0.01	<0.01	<0.01	-	<0.01	-	-	-	-	<0.01
	2,4-dinitrotoluene		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	2,6-dichlorophenol		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	2,6-Dimethylphenol		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	2,6-dinitrotoluene		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	2-chloronaphthalene		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	2-chlorophenol		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	2-methylnaphthalene		-	-	0.07	0.22	0.04	-	-	-	-	-	-	-
	2-methylphenol		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	2-nitroaniline		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	3-nitroaniline		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol		-	-	-	-	-	-	-	-	-	-	-	-
	4-chlorophenyl phenyl ether		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	4-methylphenol		-	-	<0.01	<0.01	<0.01	-	0.01	-	-	-	-	0.01
	Azobenzene		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	Bis(2-chloroethoxy) methane		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	Bis(2-chloroisopropyl) ether		-	-	-	-	-	-	-	-	-	-	-	-
	Bis(2-ethylhexyl) phthalate		-	-	<0.1	<0.1	<0.1	-	-	-	-	-	-	-
	Butyl benzyl phthalate		-	-	<0.1	<0.1	<0.1	-	-	-	-	-	-	-
	Carbazole		-	-	0.04	0.18	0.02	-	-	-	-	-	-	-
	Dibenzofuran		-	-	0.06	0.13	0.03	-	-	-	-	-	-	-
	Diethylphthalate		-	-	<0.1	<0.1	<0.1	-	-	-	-	-	-	-
	Dimethyl phthalate		-	-	<0.1	<0.1	<0.1	-	-	-	-	-	-	-
	Di-n-butyl phthalate		-	-	0.3	<0.1	<0.1	-	-	-	-	-	-	-
	Di-n-octyl phthalate		-	-	<0.1	<0.1	<0.1	-	-	-	-	-	-	-
	Diphenylamine		-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobenzene		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	Hexachlorocyclopentadiene		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
	Pentachlorophenol		-	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH119	F-BH119	LWW-TP5	LWW-TP5	LWW-TP5	F-TP120	F-TP120	F-TP120	F-TP120	F-TP120	F-TP121	F-TP121
			4.3	12.9	2	4	1	0	0.5	1.5	2.3	3	0	0.5
			09/08/2022	10/08/2022	06/12/2022	06/12/2022	06/12/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022
			TFD	GT				GMG	GMG	GMG	GMG	GMG	GMG	GMG
PCB	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (PCB 189)		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 156)		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PCB 167)		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169)		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	PCB 101		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	PCB 118		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	PCB 138		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	PCB 153		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	PCB 180		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	PCB 28 + PCB 31		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	PCB 52		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	Pentachlorobiphenyl, 2,3,3,4,4- (PCB 105)		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 114)		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 123)		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	Pentachlorobiphenyl, 3,3,4,4,5- (PCB 126)		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	Tetrachlorobiphenyl, 3,3,4,4- (PCB 77)		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 81)		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
	Total PCB 7 Congeners		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01
Phenolics	3-&4-methylphenol		-	-	-	-	-	-	-	-	-	-	-	-
	Phenol		<0.3	<0.3	<0.01	<0.01	<0.01	<0.3	<0.3 - 0.02	-	<0.3	<0.3	-	<0.01
SVOC TIC	Aniline		-	-	-	-	-	-	-	-	-	-	-	-
NA	4-chloro-2-methylphenol		-	-	-	-	-	-	<0.01	-	-	-	-	<0.01

Notes

Exceeds - Adopted Scre

Appendix H : Comparison of Measured Concentrations of CoC in Soil with GAC (mg

Chemical Group	Compound	Redcar Remediation Criteria - Soil	Residual Former Redcar Works											
			F-TP121	F-TP121	F-TP121	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH104	F-BH104	F-BH104	F-BH104
			0.8	1.8	3.8	1	1.5	6.6	8.2	14.5	3	4	5	6
			06/10/2022	06/10/2022	06/10/2022	09/09/2022	09/09/2022	09/09/2022	09/09/2022	12/09/2022	17/08/2022	17/08/2022	17/08/2022	17/08/2022
			GMG	GMG	GMG	SMG	SMG	SMG	TFD	TFD	SMG	SMG	SMG	TFD
Metals	Aluminium		9900	8800	19,000	49,000	-	-	-	2500	8900	6500	-	820
	Arsenic	640	7.7	12	7.9	4.6	-	6	7.5	20	7.5	29	-	6.3
	Beryllium		0.9	1.1	1.7	5.3	-	9.2	0.2	<0.2	0.3	0.9	-	<0.2
	Boron	240000	0.9	1.2	3.2	1.6	-	8.6	1.2	0.7	1.3	0.7	-	0.3
	Cadmium	190	0.2	0.2	0.4	0.2	-	<0.1	<0.1	<0.1	<0.1	0.2	-	<0.1
	Chromium (hexavalent)	33	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	-	<1
	Chromium	8600	-	-	-	-	-	-	-	-	-	-	-	-
	Chromium (Trivalent)		22	28	36	53	-	5.9	5.2	5.6	35	360	-	3.4
	Copper	68000	24	34	17	11	-	4.9	4.6	6.6	20	34	-	3.8
	Iron	-	31,000	20,000	14,000	14,000	-	-	-	18,000	94,000	62,000	-	4800
	Lead	2300	23	42	49	12	-	1	34	4.8	13	21	-	6.2
	Manganese	-	900	1000	1500	2900	-	-	-	320	1400	68,000	-	120
	Mercury	58*	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05
	Molybdenum		0.8	0.8	0.5	1.4	-	-	-	1.2	2.3	1.4	-	<0.4
	Nickel	980	31	15	6	2.7	-	<1	4.7	6.6	10	17	-	2.5
	Selenium	-	<0.5	<0.5	0.7	1.6	-	2	<0.5	0.6	1	13	-	<0.5
	Tin		1.2	2.4	1.4	1.3	-	-	-	<1	1.9	2.3	-	<1
	Zinc	730000	72	86	260	55	-	5.5	29	24	29	78	-	12
Asbestos	Asbestos Quantification Total		-	-	-	-	-	-	-	-	-	-	-	-
	Asbestos fibres		0	0	-	0	0	0	-	-	0	0	0	-
Inorganics	Chloride		18.8	131	74.1	36.7	-	-	-	532	31.7	29.6	-	45.5
	Orthophosphate as P		<0.1	0.25	<0.1	<0.1	-	-	-	0.52	0.16	<0.1	-	<0.1
PAH	PAH 16 Total		<0.1	2.7	8.5	350	-	0.39	<0.1	<0.1	0.51	1	-	<0.1
	Naphthalene	1900	<0.03	<0.03	0.03	0.11	-	<0.03	<0.03	<0.03	<0.03	0.04	-	<0.03
	Acenaphthene	84000**	<0.03	<0.03	0.06	4.9	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03
	Acenaphthylene	83000**	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	23000	0.03	0.55	2.4	72	-	0.07	<0.03	<0.03	0.06	0.19	-	<0.03
	Phenanthrene	22000	<0.03	0.43	1.5	28	-	<0.03	<0.03	<0.03	0.03	0.13	-	<0.03
	Fluorene	63000**	<0.03	<0.03	0.07	2.1	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03
	Pyrene	54000	<0.03	0.39	1.6	69	-	0.07	<0.03	<0.03	0.12	0.17	-	<0.03
	Benzo(a)anthracene	170	<0.03	0.29	0.73	28	-	0.05	<0.03	<0.03	0.03	0.07	-	<0.03
	Benzo(b)fluoranthene	44	0.03	0.23	0.45	37	-	0.09	<0.03	<0.03	0.05	0.11	-	<0.03
	Benzo(k)fluoranthene	1200	<0.03	0.1	0.21	16	-	0.03	<0.03	<0.03	<0.03	0.05	-	<0.03
	Benzo(a)pyrene	77	<0.03	0.21	0.27	27	-	0.05	<0.03	<0.03	0.04	0.05	-	<0.03
	Dibenz(a,h)anthracene	3.5	<0.03	<0.03	0.03	4.2	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03
	Benzo(g,h,i)perylene	3900	<0.03	0.08	0.11	15	-	<0.03	<0.03	<0.03	<0.03	0.05	-	<0.03
	Indeno(1,2,3-c,d)pyrene	500	<0.03	0.07	0.11	16	-	0.03	<0.03	<0.03	<0.03	0.04	-	<0.03
TPH CWG	>C5-EC6 Aliphatics		0.58	0.38	0.37	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>C6-C8 Aliphatics	7800**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>C8-C10 Aliphatics	2000**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>C10-C12 Aliphatics	9700**	<1.5	<1.5	2.1	1.68	1.87	1.9	2.59	1.83	5.01	4.88	-	5.37
	>C12-C16 Aliphatics	59000**	<1.2	<1.2	2.1	1.79	1.52	<1.2	2.47	1.4	1.99	2.29	-	3.26
	>C16-C21 Aliphatics		<1.5	2.8	8.8	2.75	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	-	1.95
	>C21-C35 Aliphatics		<3.4	9.1	21	177.1	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	-	<3.4
	Total >C5 - C40 Aliphatics		<10	13	35	455.6	12.35	11.93	15.17	12.86	16.11	16.04	-	19.24
	>EC5-EC7 Aromatics	26000**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>EC7-EC8 Aromatics	56000**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>EC8-EC10 Aromatics	3500**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
	>EC10-EC12 Aromatics	16000**	<0.9	2.9	<0.9	1.22	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	-	<0.9
	>EC12-EC16 Aromatics	36000**	<0.5	3	1.7	20.59	<0.5	<0.5	<0.5	<0.5	0.97	<0.5	-	<0.5
	>EC16-EC21 Aromatics	28000	<0.6	9.4	23	227.4	1.04	2.37	1.28	1.17	52.62	4.56	-	4.93
	>EC21-EC35 Aromatics	28000	<1.4	22	35	879.2	<1.4	<1.4	<1.4	<1.4	414.5	3.63	-	<1.4
	>EC35 - EC40 Aromatics		-	-	-	58.48	<1.4	<1.4	<1.4	<1.4	124.3	<1.4	-	<1.4
	>EC40-EC44 Aromatics		-	-	-	-	-	-	-	-	-	-	-	-
	Total >EC5 - EC40 Aromatics		<10	38	59	1187	<10	<10	<10	<10	593.4	11.2	-	10.29
	Total Aliphatics + Aromatics (>C5 - C40)		<10	51	94	1643	17.94	18.75	21.59	18.92	609.5	27.24	-	29.52
BTEX and MTBE	Benzene		<0.01	<0.002	<0.002	<0.002	-	-	<0.002	-	<0.002	<0.01	-	<0.002
	Toluene		<0.01	<0.005	<0.005	<0.005	-	-	<0.005	-	<0.005	<0.01	-	<0.005
	Ethylbenzene		<0.01	<0.002	<0.002	<0.002	-	-	<0.002	-	<0.002	<0.01	-	<0.002
	Xylene (m & p)		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Xylene (o)		<0.01	<0.002	<0.002	<0.002	-	-	<0.002	-	<0.002	<0.01	-	<0.002
	Xylene Total		-	-	-	-	-	-	-	-	-	-	-	-
	MTBE		<0.01	<0.005	<0.005	<0.005	-	-	<0.005	-	<0.005	<0.01	-	<0.005

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-TP121	F-TP121	F-TP121	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH104	F-BH104	F-BH104	F-BH104
			0.8	1.8	3.8	1	1.5	6.6	8.2	14.5	3	4	5	6
			06/10/2022	06/10/2022	06/10/2022	09/09/2022	09/09/2022	09/09/2022	09/09/2022	12/09/2022	17/08/2022	17/08/2022	17/08/2022	17/08/2022
			GMG	GMG	GMG	SMG	SMG	SMG	TFD	TFD	SMG	SMG	SMG	TFD
VOC	Styrene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	cis-1,3-dichloropropene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	trans-1,3-dichloropropene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,1,1,2-tetrachloroethane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,1,1-trichloroethane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,1,2-trichloroethane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,1-dichloroethane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,1-dichloroethene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,1-dichloropropene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,2,3-trichloropropane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,2,4-trimethylbenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,2-dibromo-3-chloropropane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,2-dibromoethane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,2-dichloroethane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,2-dichloropropane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,3,5-trimethylbenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,3-dichloropropane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	2,2-dichloropropane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	2-chlorotoluene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	4-chlorotoluene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Bromobenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Bromochloromethane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Bromodichloromethane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Bromoform		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Carbon tetrachloride		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Chlorodibromomethane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Chloroform		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	cis-1,2-dichloroethene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Dibromomethane		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Isopropylbenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	n-butylbenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	n-propylbenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	p-isopropyltoluene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	sec-butylbenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Trichloroethene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	tert-butylbenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Tetrachloroethene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	trans-1,2-dichloroethene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Vinyl chloride		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	tert-Amyl methyl ether		-	<0.005	<0.005	<0.005	-	-	<0.005	-	<0.005	-	-	<0.005
VOC/SVOC	1,2,3-trichlorobenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,2,4-trichlorobenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,2-dichlorobenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,3-dichlorobenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	1,4-dichlorobenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Chlorobenzene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Hexachlorobutadiene		<0.01	-	-	-	-	-	-	-	-	<0.01	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-TP121	F-TP121	F-TP121	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH104	F-BH104	F-BH104	F-BH104
			0.8	1.8	3.8	1	1.5	6.6	8.2	14.5	3	4	5	6
			06/10/2022	06/10/2022	06/10/2022	09/09/2022	09/09/2022	09/09/2022	09/09/2022	12/09/2022	17/08/2022	17/08/2022	17/08/2022	17/08/2022
			GMG	GMG	GMG	SMG	SMG	SMG	TFD	TFD	SMG	SMG	SMG	TFD
SVOC	1,4-dinitrobenzene		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Benzyl alcohol		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	4-bromophenyl phenyl ether		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	4-nitroaniline		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	4-nitrophenol		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	1,2-Dinitrobenzene		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	1,3-Dinitrobenzene		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	2,3,4,6-tetrachlorophenol		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	2,3,5,6-Tetrachlorophenol		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	2,4,5-trichlorophenol		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	2,4,6-trichlorophenol		<0.1	-	-	-	-	-	-	-	<0.01	<0.01	-	<0.01
	2,4-dichlorophenol		<0.1	-	-	-	-	-	-	-	<0.01	<0.01	-	<0.01
	2,4-dimethylphenol		<0.1	-	-	-	-	-	-	-	<0.01	<0.01	-	<0.01
	2,4-dinitrotoluene		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	2,6-dichlorophenol		-	-	-	-	-	-	-	-	<0.01	<0.01	-	<0.01
	2,6-Dimethylphenol		-	-	-	-	-	-	-	-	<0.01	<0.01	-	<0.01
	2,6-dinitrotoluene		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	2-chloronaphthalene		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	2-chlorophenol		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	2-methylnaphthalene		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	2-methylphenol		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	2-nitroaniline		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	3-nitroaniline		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	4,6-Dinitro-2-methylphenol		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	4-chlorophenyl phenyl ether		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	4-methylphenol		-	-	-	-	-	-	-	-	<0.01	<0.01	-	<0.01
	Azobenzene		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Bis(2-chloroethoxy) methane		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Bis(2-chloroisopropyl) ether		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Bis(2-ethylhexyl) phthalate		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Butyl benzyl phthalate		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Carbazole		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Dibenzofuran		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Diethylphthalate		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Dimethyl phthalate		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Di-n-butyl phthalate		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Di-n-octyl phthalate		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Diphenylamine		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Hexachlorobenzene		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Hexachlorocyclopentadiene		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Pentachlorophenol		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-TP121	F-TP121	F-TP121	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH104	F-BH104	F-BH104	F-BH104
			0.8	1.8	3.8	1	1.5	6.6	8.2	14.5	3	4	5	6
			06/10/2022	06/10/2022	06/10/2022	09/09/2022	09/09/2022	09/09/2022	09/09/2022	12/09/2022	17/08/2022	17/08/2022	17/08/2022	17/08/2022
			GMG	GMG	GMG	SMG	SMG	SMG	TFD	TFD	SMG	SMG	SMG	TFD
PCB	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (PCB 189)		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 156)		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PCB 167)		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169)		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	PCB 101		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	PCB 118		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	PCB 138		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	PCB 153		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	PCB 180		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	PCB 28 + PCB 31		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	PCB 52		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	Pentachlorobiphenyl, 2,3,3,4,4- (PCB 105)		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 114)		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 123)		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	Pentachlorobiphenyl, 3,3,4,4,5- (PCB 126)		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	Tetrachlorobiphenyl, 3,3,4,4- (PCB 77)		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 81)		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
	Total PCB 7 Congeners		-	<0.01	-	-	-	-	-	-	<0.01	-	-	<0.01
Phenolics	3-&4-methylphenol		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
	Phenol		<0.1	<0.3	<0.3	0.4	-	0.5	0.9	<0.3	<0.01	<0.01	-	<0.01
SVOC TIC	Aniline		<0.1	-	-	-	-	-	-	-	-	<0.1	-	-
NA	4-chloro-2-methylphenol		<0.1	-	-	-	-	-	-	-	<0.01	<0.01	-	<0.01

Notes

Exceeds - Adopted Scre

Appendix H : Comparison of Measured Concentrations of CoC in Soil with GAC (mc

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH104 15.75 18/08/2022 GT	F-BH104 21.8 18/08/2022 RMF	14AT7 4-4 21/04/2004	LWW-TP1 1 05/12/2022	LWW-TP1 2 05/01/2023
Metals	Aluminium		20,000	-	-	11650	11800
	Arsenic	640	8.4	42	8.1	7.3	9.8
	Beryllium		1.3	0.9	-	-	-
	Boron	240000	6.4	5.2	0.6	3	2.7
	Cadmium	190	<0.1	1.6	0.6	0.2	<0.1
	Chromium (hexavalent)	33	<1	<1	-	<0.3	<0.3
	Chromium	8600	-	-	18.8	1484	1850
	Chromium (Trivalent)		45	19	-	-	-
	Copper	68000	27	33	2.1	73	76
	Iron	-	37,000	-	-	100800	142000
	Lead	2300	18	26	11.9	69	35
	Manganese	-	570	-	-	29580	31300
	Mercury	58*	<0.05	0.07	<0.1	<0.1	<0.1
	Molybdenum		1	-	-	6.2	6.1
	Nickel	980	40	33	2.6	16.4	22.1
	Selenium	-	<0.5	<0.5	7.4	10	8
	Tin		1.1	-	-	-	-
	Zinc	730000	53	46	75	158	182
Asbestos	Asbestos Quantification Total		-	-	-	-	-
	Asbestos fibres		-	-	-	0	1
Inorganics	Chloride		321	-	-	47	45
	Orthophosphate as P		0.18	-	-	-	-
PAH	PAH 16 Total		<0.1	<0.1	-	-	-
	Naphthalene	1900	<0.03	<0.03	<1	<0.027 - 0.11	<0.027
	Acenaphthene	84000**	<0.03	<0.03	<1	0.05	<0.05
	Acenaphthylene	83000**	-	-	<1	0.07	<0.03
	Fluoranthene	23000	<0.03	<0.03	6	1.08	0.17
	Phenanthrene	22000	<0.03	<0.03	3	0.42	0.09
	Fluorene	63000**	<0.03	<0.03	<1	<0.04	<0.04
	Pyrene	54000	<0.03	<0.03	5	0.91	0.14
	Benzo(a)anthracene	170	<0.03	<0.03	3	0.62	0.12
	Benzo(b)fluoranthene	44	<0.03	<0.03	2	0.96	0.14
	Benzo(k)fluoranthene	1200	<0.03	<0.03	2	0.38	0.06
	Benzo(a)pyrene	77	<0.03	<0.03	2	0.73	<0.04
	Dibenz(a,h)anthracene	3.5	<0.03	<0.03	<1	0.15	<0.04
	Benzo(g,h,i)perylene	3900	<0.03	<0.03	1	0.57	0.09
	Indeno(1,2,3-c,d)pyrene	500	<0.03	<0.03	1	0.6	0.11
TPH CWG	>C5-EC6 Aliphatics		<0.01	<0.01	-	-	-
	>C6-C8 Aliphatics	7800**	<0.01	<0.01	-	<0.1	<0.1
	>C8-C10 Aliphatics	2000**	<0.01	<0.01	-	<0.1	<0.1
	>C10-C12 Aliphatics	9700**	5.26	4.69	-	<0.2	<0.2
	>C12-C16 Aliphatics	59000**	3.25	1.61	-	<4	<4
	>C16-C21 Aliphatics		<1.5	<1.5	-	<7	<7
	>C21-C35 Aliphatics		<3.4	<3.4	-	<7	21
	Total >C5 - C40 Aliphatics		18.85	15.66	-	-	-
	>EC5-EC7 Aromatics	26000**	<0.01	<0.01	-	<0.1	<0.1
	>EC7-EC8 Aromatics	56000**	<0.01	<0.01	-	<0.1	<0.1
	>EC8-EC10 Aromatics	3500**	<0.01	<0.01	-	<0.1	<0.1
	>EC10-EC12 Aromatics	16000**	<0.9	<0.9	-	<0.2	<0.2
	>EC12-EC16 Aromatics	36000**	<0.5	<0.5	-	<4	<4
	>EC16-EC21 Aromatics	28000	4.85	4.53	-	<7	<7
	>EC21-EC35 Aromatics	28000	<1.4	<1.4	-	38	<7
	>EC35 - EC40 Aromatics		<1.4	<1.4	-	-	-
	>EC40-EC44 Aromatics		-	-	-	-	-
	Total >EC5 - EC40 Aromatics		10.09	<10	-	-	-
	Total Aliphatics + Aromatics (>C5 - C40)		28.94	24.94	-	-	-
BTEX and MTBE	Benzene		<0.002	-	<10	<0.003	<0.003
	Toluene		<0.005	-	<10	<0.003	<0.003
	Ethylbenzene		<0.002	-	<10	<0.003	<0.003
	Xylene (m & p)		-	-	-	<0.005	<0.005
	Xylene (o)		<0.002	-	-	<0.003	<0.003
	Xylene Total		-	-	<20	-	-
	MTBE		<0.005	-	-	<0.002	<0.002

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH104 15.75 18/08/2022 GT	F-BH104 21.8 18/08/2022 RMF	14AT7 4-4 21/04/2004	LWW-TP1 1 05/12/2022	LWW-TP1 2 05/01/2023
VOC	Styrene		-	-	-	<0.003	<0.003
	cis-1,3-dichloropropene		-	-	-	<0.004	<0.004
	trans-1,3-dichloropropene		-	-	-	<0.003	<0.003
	1,1,1,2-tetrachloroethane		-	-	-	<0.003	<0.003
	1,1,1-trichloroethane		-	-	-	<0.003	<0.003
	1,1,2-trichloroethane		-	-	-	<0.003	<0.003
	1,1-dichloroethane		-	-	-	<0.003	<0.003
	1,1-dichloroethene		-	-	-	<0.006	<0.006
	1,1-dichloropropene		-	-	-	<0.003	<0.003
	1,2,3-trichloropropane		-	-	-	<0.004	<0.004
	1,2,4-trimethylbenzene		-	-	-	<0.006	<0.006
	1,2-dibromo-3-chloropropane		-	-	-	<0.004	<0.004
	1,2-dibromoethane		-	-	-	<0.003	<0.003
	1,2-dichloroethane		-	-	-	<0.004	<0.004
	1,2-dichloropropane		-	-	-	<0.006	<0.006
	1,3,5-trimethylbenzene		-	-	-	<0.003	<0.003
	1,3-dichloropropane		-	-	-	<0.003	<0.003
	2,2-dichloropropane		-	-	-	<0.004	<0.004
	2-chlorotoluene		-	-	-	<0.003	<0.003
	4-chlorotoluene		-	-	-	<0.003	<0.003
	Bromobenzene		-	-	-	<0.002	<0.002
	Bromochloromethane		-	-	-	<0.003	<0.003
	Bromodichloromethane		-	-	-	<0.003	<0.003
	Bromoform		-	-	-	<0.003	<0.003
	Carbon tetrachloride		-	-	-	<0.004	<0.004
	Chlorodibromomethane		-	-	-	<0.003	<0.003
	Chloroform		-	-	-	<0.003	<0.003
	cis-1,2-dichloroethene		-	-	-	<0.003	<0.003
	Dibromomethane		-	-	-	<0.003	<0.003
	Isopropylbenzene		-	-	-	<0.003	<0.003
	n-butylbenzene		-	-	-	<0.004	<0.004
	n-propylbenzene		-	-	-	<0.004	<0.004
	p-isopropyltoluene		-	-	-	<0.004	<0.004
	sec-butylbenzene		-	-	-	<0.004	<0.004
	Trichloroethene		-	-	-	<0.003	<0.003
	tert-butylbenzene		-	-	-	<0.005	<0.005
	Tetrachloroethene		-	-	-	<0.003	<0.003
	trans-1,2-dichloroethene		-	-	-	<0.003	<0.003
	Vinyl chloride		-	-	-	<0.002	<0.002
	tert-Amyl methyl ether		<0.005	-	-	-	-
VOC/SVOC	1,2,3-trichlorobenzene		-	-	-	<0.007	<0.007
	1,2,4-trichlorobenzene		-	-	-	<0.007	<0.007
	1,2-dichlorobenzene		-	-	-	<0.004	<0.004
	1,3-dichlorobenzene		-	-	-	<0.004	<0.004
	1,4-dichlorobenzene		-	-	-	<0.004	<0.004
	Chlorobenzene		-	-	-	<0.003	<0.003
	Hexachlorobutadiene		-	-	-	<0.004	<0.004

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH104 15.75 18/08/2022 GT	F-BH104 21.8 18/08/2022 RMF	14AT7 4-4 21/04/2004	LWW-TP1 1 05/12/2022	LWW-TP1 2 05/01/2023
SVOC	1,4-dinitrobenzene		-	-	-	-	-
	Benzyl alcohol		-	-	-	-	-
	4-bromophenyl phenyl ether		-	-	-	<0.01	<0.01
	4-nitroaniline		-	-	-	<0.01	<0.01
	4-nitrophenol		-	-	-	<0.01	<0.01
	1,2-Dinitrobenzene		-	-	-	-	-
	1,3-Dinitrobenzene		-	-	-	-	-
	2,3,4,6-tetrachlorophenol		-	-	-	-	-
	2,3,5,6-Tetrachlorophenol		-	-	-	-	-
	2,4,5-trichlorophenol		-	-	-	<0.01	<0.01
	2,4,6-trichlorophenol		-	-	-	<0.01	<0.01
	2,4-dichlorophenol		-	-	-	<0.01	<0.01
	2,4-dimethylphenol		-	-	-	<0.01	<0.01
	2,4-dinitrotoluene		-	-	-	<0.01	<0.01
	2,6-dichlorophenol		-	-	-	-	-
	2,6-Dimethylphenol		-	-	-	-	-
	2,6-dinitrotoluene		-	-	-	<0.01	<0.01
	2-chloronaphthalene		-	-	-	<0.01	<0.01
	2-chlorophenol		-	-	-	<0.01	<0.01
	2-methylnaphthalene		-	-	-	0.04	<0.01
	2-methylphenol		-	-	-	<0.01	<0.01
	2-nitroaniline		-	-	-	<0.01	<0.01
	3-nitroaniline		-	-	-	<0.01	<0.01
	4,6-Dinitro-2-methylphenol		-	-	-	-	-
	4-chlorophenyl phenyl ether		-	-	-	<0.01	<0.01
	4-methylphenol		-	-	-	<0.01	<0.01
	Azobenzene		-	-	-	<0.01	<0.01
	Bis(2-chloroethoxy) methane		-	-	-	<0.01	<0.01
	Bis(2-chloroisopropyl) ether		-	-	-	-	-
	Bis(2-ethylhexyl) phthalate		-	-	-	<0.1	<0.1
	Butyl benzyl phthalate		-	-	-	<0.1	<0.1
	Carbazole		-	-	-	0.03	<0.01
	Dibenzofuran		-	-	-	0.05	0.01
	Diethylphthalate		-	-	-	<0.1	<0.1
	Dimethyl phthalate		-	-	-	<0.1	<0.1
	Di-n-butyl phthalate		-	-	-	<0.1	<0.1
	Di-n-octyl phthalate		-	-	-	<0.1	<0.1
	Diphenylamine		-	-	-	-	-
	Hexachlorobenzene		-	-	-	<0.01	<0.01
	Hexachlorocyclopentadiene		-	-	-	<0.01	<0.01
	Pentachlorophenol		-	-	-	<0.01	<0.01

Chemical Group	Compound	Redcar Remediation Criteria - Soil	F-BH104 15.75 18/08/2022 GT	F-BH104 21.8 18/08/2022 RMF	14AT7 4-4 21/04/2004	LWW-TP1 1 05/12/2022	LWW-TP1 2 05/01/2023
PCB	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (PCB 189)		-	-	-	-	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 156)		-	-	-	-	-
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PCB 167)		-	-	-	-	-
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169)		-	-	-	-	-
	PCB 101		-	-	-	-	-
	PCB 118		-	-	-	-	-
	PCB 138		-	-	-	-	-
	PCB 153		-	-	-	-	-
	PCB 180		-	-	-	-	-
	PCB 28 + PCB 31		-	-	-	-	-
	PCB 52		-	-	-	-	-
	Pentachlorobiphenyl, 2,3,3,4,4- (PCB 105)		-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 114)		-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 123)		-	-	-	-	-
	Pentachlorobiphenyl, 3,3,4,4,5- (PCB 126)		-	-	-	-	-
	Tetrachlorobiphenyl, 3,3,4,4- (PCB 77)		-	-	-	-	-
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 81)		-	-	-	-	-
	Total PCB 7 Congeners		-	-	-	-	-
Phenolics	3-&4-methylphenol		-	-	-	-	-
	Phenol		<0.3	0.6	<0.5	<0.01	<0.01
SVOC TIC	Aniline		-	-	-	-	-
NA	4-chloro-2-methylphenol		-	-	-	-	-

Notes

Exceeds - Adopted Scre

Appendix I

Comparison of Measured Concentrations of Contaminants of Concern in Soil Leachate with GAC

Appendix I: Comparison of Measured Concentrations of CoC in Leachate with GAC (µg/L)

Chemical Group	Compound	Redcar - Adopted Saline EQS	UK Drinking Water Standards	Location	Workshop/Stores																	
				Location ID	F-BH114	F-BH114	F-BH114	F-BH115	F-BH116	F-TP115	F-TP115	F-TP115	F-TP116	F-TP116	F-TP116	F-TP116	F-TP116	F-TP117	F-BH120	F-BH120	F-TP112	F-TP112
				Sample Depth Range	0.5	1.8	3.8	4.3	4.9	2.3	0.3	2.3	1.5	1.5	3.1	3.1	4.1	1.5	3.5	5.5	2	
				Sampled Date	16/09/2022	16/09/2022	16/09/2022	25/08/2022	02/09/2022	27/09/2022	27/09/2022	27/09/2022	07/10/2022	10/07/2022	10/07/2022	07/10/2022	07/10/2022	27/09/2022	02/08/2022	02/08/2022	26/09/2022	
Metals	Aluminium		200	µg/L	-	280	-	-	130	-	570	670	130	-	-	98	100	51	18	350	840	-
	Arsenic	25	10	µg/L	3.3	2	1	4.9	7.8	-	1.6	3.6	9.6	-	-	3.2	3.2	5.7	1.9	5.8	2.3	-
	Beryllium			µg/L	-	<0.1	-	-	<0.1	-	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
	Boron	7000	1000	µg/L	170	64	120	46	21	-	29	46	330	-	-	110	45	81	34	<12	20	-
	Cadmium	0.2	5	µg/L	<0.03	<0.03	<0.03	<0.03	0.05	-	<0.03	<0.03	<0.03	-	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-
	Chromium (hexavalent)	0.6		µg/L	<7	<7	<7	<7	<7	<2	<7	<7	<7	<2	<2	<7	<7	20	<7	<7	22	20
	Chromium (Trivalent)			µg/L	<1	1.1	1.7	<1	<1	-	<1	<1	6.1	-	-	1.8	<1	17	<1	<1	<1	-
	Copper	3.76	2000	µg/L	11	5	2.8	2.9	3.5	-	2.3	2.6	1.9	-	-	1.4	2.6	2.2	6.2	4.6	2.5	-
	Iron	1000	200	µg/L	<5.5	<5.5	<5.5	6.8	350	-	9.9	14	7.7	-	-	<5.5	<5.5	<5.5	<5.5	47	16	-
	Lead	1.3	10	µg/L	25	24	20	1.9	5.7	-	0.53	1.3	0.78	-	-	0.22	0.17	6.7	1.3	3.8	3.1	-
	Manganese		50	µg/L	-	2.4	-	-	6.3	-	0.54	0.36	4.8	-	-	0.97	1.2	1.1	5.6	1.5	<0.22	-
	Mercury	0.07	1	µg/L	0.02	0.07	0.03	0.01	0.01	-	0.02	0.08	0.04	-	-	0.02	0.02	<0.01	0.04	0.01	0.04	-
	Molybdenum		70	µg/L	-	5.8	-	-	3.7	-	<1.1	1.4	17	-	-	3.7	1.9	1.2	3.9	16	1.1	-
	Nickel	8.6	20	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
	Selenium		10	µg/L	1.3	1.4	9.1	2.3	1.2	-	0.6	0.98	3.3	-	-	1.6	1.1	0.97	14	2.4	0.26	-
	Tin			µg/L	-	<0.4	-	-	<0.4	-	<0.4	<0.4	<0.4	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	-
	Vanadium	100		µg/L	-	45	-	-	4.6	-	36	89	27	-	-	24	9.7	120	18	16	21	-
	Zinc	7.9	3000	µg/L	<1.3	<1.3	<1.3	2.1	4.7	-	2.2	2.9	<1.3	-	-	<1.3	<1.3	<1.3	<1.3	1.3	3.8	-
Inorganics	Ammoniacal N as NH4			mg/L	0.08	0.11	<0.02	0.03	1.4	-	0.06	0.06	<0.02	-	-	<0.02	<0.02	0.06	0.94	0.11	0.04	-
	Ammoniacal Nitrogen as N	0.021		mg/L	0.064	0.087	<0.015	0.022	1.1	-	0.047	0.05	<0.015	-	-	<0.015	<0.015	0.043	0.73	0.084	0.033	-
	Ammoniacal Nitrogen as NH3			mg/L	0.078	0.11	<0.015	0.027	1.4	-	0.057	0.061	<0.015	-	-	<0.015	<0.015	0.052	0.88	0.1	0.04	-
	Calcium Carbonate			µg/L	516,000	357,000	136,000	44,900	23,500	-	57,600	82,400	318,000	-	-	173,000	101,000	79,700	99,300	32,700	78,800	-
	Chloride		250	mg/L	-	13	-	-	9.1	-	12	2.4	55	-	-	22	8.7	38	3.1	3.4	4.1	-
	Cyanide (Free)		50	µg/L	<0.1	<0.1	<0.1	0.3	<0.1	-	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
	Cyanide Total	1	50	µg/L	1.8	0.5	0.2	5.9	<0.1	-	<0.1	1	1.9	-	-	0.5	0.3	0.1	0.8	0.6	<0.1	-
	Fluoride		1500	µg/L	-	<100	-	-	160	-	110	200	200	-	-	1500	760	<100	360	<100	430	-
	Nitrate (as NO3-)		50(NO3)	mg/L	<0.1	0.99	<0.1	1	0.21	-	0.4	0.35	0.41	-	-	2	1.3	3.4	0.18	0.16	2.3	-
	Nitrite (as NO2-)		0.5(NO2)	mg/L	0.48	<0.1	<0.1	0.53	<0.1	-	0.14	<0.1	0.47	-	-	<0.1	0.2	0.35	<0.1	<0.1	2	-
	pH (aqueous extract)			pH Units	9.4	9.5	10.6	8	7.3	-	8.4	9.7	10.1	-	-	8.7	8.1	9	10.1	8.9	10.8	-
	Phosphorus			µg/L	-	46	-	-	150	-	<18	46	250	-	-	60	50	140	19	51	22	-
	Sulphate as SO4			mg/L	560	310	22	55	14	-	40	31	63	-	-	22	12	82	52	11	22	-
	Thiocyanate (as SCN)	9		µg/L	150	30	<20	<20	280	-	27	28	51	-	-	<20	<20	<20	160	230	<20	-
	Orthophosphate as P			µg/L	-	<10	-	-	50	-	30	30	40	-	-	<10	<10	90	20	50	<10	-
PAH	PAH (total, NSW Waste 2008)			µg/L	0.39	0.34	<0.2	0.28	<0.2	-	1.1	0.71	0.29	-	-	0.35	0.24	0.28	<0.2	0.26	<0.2	-
	Naphthalene	2		µg/L	0.06	<0.05	<0.05	<0.05	<0.05	-	0.07	0.06	0.09	-	-	0.13	0.13	<0.05	0.08	0.12	0.09	-
	Acenaphthene			µg/L	<0.01	0.02	<0.01	<0.01	<0.01	-	0.05	0.02	0.01	-	-	0.05	0.04	0.02	0.01	0.07	<0.01	-
	Fluoranthene	0.0063		µg/L	0.06	0.06	<0.01	0.06	0.01	-	0.1	0.06	0.05	-	-	0.03	0.02	0.02	<0.01	0.01	0.03	-
	Anthracene	0.1		µg/L	0.03	0.01	<0.01	<0.01	<0.01	-	0.04	0.06	0.02	-	-	0.01	<0.01	0.04	<0.01	<0.01	0.01	-
	Phenanthrene			µg/L	0.1	0.03	<0.01	0.01	0.02	-	0.17	0.14	0.04	-	-	0.05	0.02	0.12	0.02	0.02	0.02	-
	Fluorene			µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.05	0.04	<0.01	-	-	0.02	0.01	0.04	<0.01	0.02	<0.01	-
	Chrysene			µg/L	0.02	0.03	<0.01	0.03	<0.01	-	0.07	0.04	0.02	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
	Pyrene			µg/L	0.04	0.05	<0.01	0.03	<0.01	-	0.13	0.08	0.04	-	-	0.02	0.02	0.02	<0.01	0.01	0.02	-
	Benzo(a)anthracene			µg/L	0.02	0.03	<0.01	0.03	<0.01	-	0.06	0.04	0.02	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
	Benzo(b)fluoranthene		0.025	µg/L	0.02	0.04	<0.01	0.05	<0.01	-	0.11	0.06	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
	Benzo(k)fluoranthene		0.025	µg/L	0.01	0.03	<0.01	0.02	<0.01	-	0.04	0.02	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
	Benzo(a)pyrene	0.00017	0.01	µg/L	0.01	0.02	<0.01	0.02	<0.01	-	0.06	0.03	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
	Dibenz(a,h)anthracene			µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
	Benzo(g,h,i)perylene		0.025	µg/L	0.01	0.02	<0.01	0.02	<0.01	-	0.05	0.03	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	-
	Indeno(1,2,3-c,d)pyrene		0.025	µg/L	<0.01	0.01	<0.01	0.01	<0.01	-	0.04	0.02	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
TPH CWG	>C5-C6 Aliphatics			µg/l	-	<0.1	-	-	<0.1	-	-	-	-	-	-	19	-	-	-	-	<0.1	-
	>C6-C8 Aliphatics	4.55	See TPH	µg/L	-	<0.1	-	-	20	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
	>C8-C10 Aliphatics	4.55	See TPH	µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
	>C10-C12 Aliphatics	4.55	See TPH	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	>C12-C16 Aliphatics	4.55	See TPH	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	>C16-C21 Aliphatics		See TPH	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	>C21-C35 Aliphatics		See TPH	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	Total >C5-C35 Aliphatics		See TPH	µg/L	-	<10	-	-	20	-	-	-	-	-	-	19	-	-	-	-	<10	-
	>EC5-EC7 Aromatics		See TPH	µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
	>EC7-EC8 Aromatics		See TPH	µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
	>EC8-EC10 Aromatics	4.55	See TPH	µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
	>EC10-EC12 Aromatics	4.55	See TPH	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	>EC12-EC16 Aromatics	4.55	See TPH	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	>EC16-EC21 Aromatics	4.55	See TPH	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	>EC21-EC35 Aromatics	4.55	See TPH	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	Total >EC5-EC35 Aromatics		See TPH	µg/L	-	<10	-	-	<10	-	-	-	-	-	-	<10	-	-	-	-	<10	-
	TPH >C5-C35 Aliphatics/Aromatics		10	µg/L	-	<10	-	-	21	-	-	-	-	-	-	19	-	-	-	-	<10	-
BTEX and MTBE	Benzene	8	1	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	Toluene	74	700	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	Ethylbenzene	20	300	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	Xylene Total	30	500	µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
SVOC	2,4,6-trichlorophenol			µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
	2,4-dichlorophenol			µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
	2,4-dimethylphenol			µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
	2,6-dichlorophenol			µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
	2,6-Dimethylphenol			µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
	4-methylphenol			µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
PCB	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (PCB			µg/L	-	<0.3	-	-	<0.3	-	-	-	-	-	-	<0.3	-	-	-	-	<0.3	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 156)			µg/L	-	<0.3	-	-	<0.3	-	-	-	-	-	-	<0.3	-	-	-	-	<0.3	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 157)			µg/L	-	<0.2	-	-	<0.2	-	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PCB 167)			µg/L	-	<0.3	-	-	<0.3	-	-	-	-	-	-	<0.3	-	-	-	-	<0.3	-
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169)			µg/L	-	<0.2	-	-	<0.2	-	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-
	PCB 101			µg/L	-	<0.3	-	-	<0.3	-	-	-	-	-	-	<0.3	-	-	-	-	<0.3	-
	PCB 138			µg/L	-	<0.2	-	-	<0.2	-	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-
	PCB 118 + PCB 123			mg/L	-	<0.0006	-	-	<0.0006	-	-	-	-	-	-	<0.0006	-	-	-	-	<0.0006	-
	PCB 153			µg/L	-	<0.2	-	-	<0.2	-	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-
	PCB 180			µg/L	-	<0.2	-	-	<0.2	-	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-
	PCB 52			µg/L	-	<0.2	-	-	<0.2	-	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-
	PCB 28 + PCB 31			mg/L	-	<0.0003	-	-	<0.0003	-	-	-	-	-	-	<0.0003	-	-	-	-	<0.0003	-
	Pentachlorobiphenyl, 2,3,3,4,4- (PCB 105)			µg/L	-	<0.2	-	-	<0.2	-	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 114)			µg/L	-	<0.3	-	-	<0.3	-	-	-	-	-	-	<0.3	-	-	-	-	<0.3	-
	Pentachlorobiphenyl, 3,3,4,4,5- (PCB 126)			µg/L	-	<0.5	-	-	<0.5	-	-	-	-	-	-	<0.5	-	-	-	-	<0.5	-
	Tetrachlorobiphenyl, 3,3,4,4- (PCB 77)			µg/L	-	<0.3	-	-	<0.3	-	-	-	-	-	-	<0.3	-	-	-	-	<0.3	-
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 81)			µg/L	-	<0.2	-	-	<0.2	-	-	-	-	-	-	<0.2	-	-	-	-	<0.2	-
	Total PCB 7 Congeners			µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
	Total PCB WHO 12			µg/L	-	<1	-	-	<1	-	-	-	-	-	-	<1	-	-	-	-	<1	-
Phenolics	Phenol	7.7	5800	µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
NA	4-chloro-2-methylphenol			µg/L	-	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-
Other	Total Organic Carbon			mg/l	11	6.2	5.6	2.4	4.8	-	3.9	4.3	6.2	-	-	3	2.2	3.4	2.9	3.1	43	-

Notes

Exceeds - Adopted Saline EQS and the UK Drinking Water Standard.

Exceeds - Adopted Saline EQS.

Appendix I: Comparison of Measured Concentrations of CoC in Leachate with GAC (ug/L)

Chemical Group	Compound	Redcar - Adopted Saline EQS	UK Drinking Water Standards	Blast Furnace Stockhouse									Residual Former Redcar Works						
				F-BH119	F-BH124	F-BH125	F-BH125	F-BH128	F-TP113	F-TP114	LWW-TP5	LWW-TP5	LWW-TP5	F-TP120	F-TP121	F-TP121	F-BH102	F-BH102	F-BH104	LWW-TP1	LWW-TP1
				2.9	3.8	4.8	5.3	3.9	2.5	1	2	4	1	0.5	0.8	0.8	1	1	4	1	2
				09/08/2022	01/08/2022	04/08/2022	04/08/2022	28/07/2022	23/09/2022	22/09/2022	06/12/2022	06/12/2022	06/12/2022	06/10/2022	06/10/2022	10/06/2022	09/09/2022	09/09/2022	17/08/2022	05/12/2022	05/01/2023
Metals	Aluminium		200	1200	-	760	610	-	450	630	206	118	<20	370	21	-	-	850	<10	1275	1020
	Arsenic	25	10	0.65	0.91	53	11	0.76	2.8	1.8	3.3	2.9	5.5	0.86	0.18	-	-	0.44	<0.16	<2.5	<2.5
	Beryllium			<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	<0.1	<0.1	-	-	<0.1	<0.1	-	-
	Boron	7000	1000	<12	<12	34	<12	15	17	34	157	121	72	<12	27	-	-	<12	<12	<12	<12
	Cadmium	0.2	5	0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.5	<0.5	<0.5	0.14	<0.03	-	-	<0.03	<0.03	<0.5	<0.5
	Chromium (hexavalent)	0.6		<7	<7	<7	<7	<7	18	34	<6	<6	<6	<7	<7	<2	<2	<7	<7	101	52
	Chromium (Trivalent)			6.6	2	<1	<1	3.4	<1	4.2	-	-	-	41	<1	-	-	<1	<1	-	-
	Copper	3.76	2000	15	5.4	5	2.1	4	5.8	2.6	<7	<7	<7	6.2	1.6	-	-	4.8	<0.4	19	13
	Iron	1000	200	<5.5	8.9	8.8	7.5	<5.5	190	<5.5	<4.7	10.2	<4.7	18	57	-	-	<5.5	<5.5	<4.7	<4.7
	Lead	1.3	10	15	0.68	4.6	1.6	0.82	3.8	0.89	<5	<5	<5	7.5	0.11	-	-	6.3	<0.09	7	<5
	Manganese		50	0.26	-	0.75	0.28	-	7.4	0.35	<2	<2	<2	1.3	2.5	-	-	1.1	<0.22	<2	<2
	Mercury	0.07	1	0.04	0.08	0.22	0.07	0.27	0.04	0.07	<0.01	<0.01	<0.01	0.13	<0.01	-	-	0.02	<0.01	<0.01	<0.01
	Molybdenum		70	2.3	-	6.8	3.6	-	<1.1	1.2	<2	4	3	310	1.7	-	-	4.7	<1.1	5	7
	Nickel	8.6	20	<0.5	<0.5	2.5	1.4	0.6	0.6	<0.5	<2	<2	<2	<0.5	<0.5	-	-	<0.5	<0.5	<2	<2
	Selenium		10	0.92	0.83	8.9	7.7	0.74	0.46	0.32	<3	<3	<3	4.4	0.31	-	-	2.3	<0.25	<3	<3
	Tin			<0.4	-	<0.4	<0.4	-	<0.4	<0.4	-	-	-	<0.4	<0.4	-	-	<0.4	<0.4	-	-
	Vanadium	100		7.1	-	52	12	-	14	48	239	62.6	64.7	2.5	<0.6	-	-	19	<0.6	3.4	5.1
	Zinc	7.9	3000	7.3	2.8	2.2	<1.3	1.9	6.4	1.7	<3	<3	<3	9.5	<1.3	-	-	3.5	<1.3	3	<3
Inorganics	Ammoniacal N as NH4			0.03	0.26	0.14	0.23	0.03	0.19	0.12	-	-	-	<0.02	<0.02	-	-	0.3	0.03		
	Ammoniacal Nitrogen as N	0.021		0.025	0.2	0.11	0.18	0.024	0.14	0.095	<0.03	<0.03	<0.03	<0.015	<0.015	-	-	0.24	0.024	0.12	0.04
	Ammoniacal Nitrogen as NH3			0.03	0.24	0.13	0.22	0.029	0.18	0.12	-	-	-	<0.015	<0.015	-	-	0.29	0.029	-	-
	Calcium Carbonate			288,000	109,000	17,900	72,800	172,000	15,600	48,100	-	-	-	876,000	47,200	-	-	269,000	<100	-	-
	Chloride		250	5.2	-	1.8	2.8	-	4.4	4	1.1	3.9	1.3	10	3.5	-	-	1.4	3.8	3.7	4.3
	Cyanide (Free)		50	0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<1	<1	<0.1	<0.1	-	-	0.2	2.1	<1	<1
	Cyanide Total	1	50	0.6	0.4	2.4	1.3	0.4	0.1	<0.1	3	3	2	0.4	<0.1	-	-	4.5	<0.1	2	1
	Fluoride		1500	1200	-	160	180	-	440	470	-	-	-	620	1100	-	-	120	690	-	-
	Nitrate (as NO3-)		50(NO3)	1.3	0.36	<0.1	<0.1	0.93	0.28	0.51	2.1	5.2	0.6	2.3	0.17	-	-	<0.1	1.2	<0.2	1.4
	Nitrite (as NO2-)		0.5(NO2)	0.37	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	<0.02	<0.02	<0.02	0.1	0.38	-	-	<0.1	<0.1	0.22	0.64
	pH (aqueous extract)			11.8	10.7	7.8	8.5	11	8.7	9	-	-	-	12.2	8.5	-	-	10.8	10.9	-	-
	Phosphorus			47	-	600	170	-	38	24	-	-	-	110	<18	-	-	36	<18	-	-
	Sulphate as SO4			2.8	12	56	48	6.3	11	9.4	-	-	-	6.3	8.6	-	-	18	21	-	-
	Thiocyanate (as SCN)	9		26	<20	160	35	42	<20	<20	<20	<20	<20	<20	25	-	-	160	<20	<20	<20
	Orthophosphate as P			<10	-	40	30		20	20	-	-	-	<10	<10	-	-	20	20	-	-
PAH	PAH (total, NSW Waste 2008)			0.21	<0.2	<0.2	<0.2	<0.2	1.3	<0.2	-	-	-	0.3	<0.2	-	-	5.7	<0.2	-	-
	Naphthalene	2		<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.09	<0.1	<0.1	<0.1	0.08	<0.05	-	-	0.44	0.05	<0.1	<0.1
	Acenaphthene			<0.01	<0.01	0.01	0.02	0.02	0.01	<0.01	0.011	0.049	0.006	0.05	<0.01	-	-	2.5	<0.01	0.03	0.033
	Fluoranthene	0.0063		0.05	<0.01	0.02	0.02	<0.01	0.23	<0.01	0.178	1.3	0.194	0.03	<0.01	-	-	0.21	0.02	0.057	0.104
	Anthracene	0.1		0.02	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	0.032	0.148	0.019	0.04	<0.01	-	-	0.66	<0.01	0.008	0.018
	Phenanthrene			0.04	0.01	0.02	0.03	<0.01	0.06	<0.01	0.129	0.628	0.064	0.09	<0.01	-	-	0.9	0.01	0.057	0.068
	Fluorene			<0.01	<0.01	0.01	0.02	<0.01	0.01	<0.01	0.019	0.052	0.006	<0.01	<0.01	-	-	0.38	<0.01	0.007	0.011
	Chrysene			0.03	<0.01	<0.01	<0.01	<0.01	0.09	<0.01	0.075	0.603	0.115	<0.01	<0.01	-	-	0.04	<0.01	0.012	0.041
	Pyrene			0.05	<0.01	0.02	0.01	<0.01	0.2	<0.01	0.149	1.108	0.202	0.02	<0.01	-	-	0.17	0.01	0.056	0.088
	Benzo(a)anthracene			0.02	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	0.07	0.547	0.129	<0.01	<0.01	-	-	0.03	<0.01	0.006	0.038
	Benzo(b)fluoranthene		0.025	<0.01	<0.01	<0.01	<0.01	0.01	0.11	<0.01	0.098	0.757	0.193	<0.01	<0.01	-	-	0.04	<0.01	<0.008	0.057
	Benzo(k)fluoranthene		0.025	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	0.038	0.295	0.075	<0.01	<0.01	-	-	0.03	<0.01	<0.008	0.022
	Benzo(a)pyrene	0.00017	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	0.06	0.488	0.107	<0.01	<0.01	-	-	0.03	<0.01	<0.005	0.031
	Dibenz(a,h)anthracene			<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.005	0.039	0.011	<0.01	<0.01	-	-	<0.01	<0.01	<0.005	<0.005
	Benzo(g,h,i)perylene		0.025	<0.01	0.01	<0.01	<0.01	<0.01	0.08	<0.01	0.034	0.295	0.063	<0.01	<0.01	-	-	0.02	<0.01	<0.005	0.018
	Indeno(1,2,3-c,d)pyrene		0.025	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	0.046	0.346	0.099	<0.01	<0.01	-	-	0.02	<0.01	<0.005	0.024
TPH CWG	>C5-C6 Aliphatics			-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
	>C6-C8 Aliphatics	4.55	See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<0.1	-	-	-	-	<10	<10
	>C8-C10 Aliphatics	4.55	See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<0.1	-	-	-	-	<10	<10
	>C10-C12 Aliphatics	4.55	See TPH	-	-	-	-	-	-	-	<5	<5	<5	-	<1	-	-	-	-	<5	<5
	>C12-C16 Aliphatics	4.55	See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<1	-	-	-	-	<10	<10
	>C16-C21 Aliphatics		See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<1	-	-	-	-	<10	<10
	>C21-C35 Aliphatics		See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<1	-	-	-	-	<10	<10
	Total >C5-C35 Aliphatics		See TPH	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
	>EC5-EC7 Aromatics		See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<0.1	-	-	-	-	<10	<10
	>EC7-EC8 Aromatics		See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<0.1	-	-	-	-	<10	<10
	>EC8-EC10 Aromatics	4.55	See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<0.1	-	-	-	-	<10	<10
	>EC10-EC12 Aromatics	4.55	See TPH	-	-	-	-	-	-	-	<5	<5	<5	-	<1	-	-	-	-	<5	<5
	>EC12-EC16 Aromatics	4.55	See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<1	-	-	-	-	<10	<10
	>EC16-EC21 Aromatics	4.55	See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<1	-	-	-	-	<10	<10
	>EC21-EC35 Aromatics	4.55	See TPH	-	-	-	-	-	-	-	<10	<10	<10	-	<1	-	-	-	-	<10	<10
	Total >EC5-EC35 Aromatics		See TPH	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
	TPH >C5-C35 Aliphatics/Aromatics		10	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
BTEX and MTBE	Benzene	8	1	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<1	-	-	-	-	<0.5	<0.5
	Toluene	74	700	-	-	-	-	-	-	-	<5	<5	<5	-	<1	-	-	-	-	<5	<5
	Ethylbenzene	20	300	-	-	-	-	-	-	-	<1	<1	<1	-	<1	-	-	-	-	<1	<1
	Xylene Total	30	500	-	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-	-
SVOC	2,4,6-trichlorophenol			-	-	-	-	-	-	-	<1	<1	<1	-	<0.1	-	-	-	-	<1	<1
	2,4-dichlorophenol			-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	<0.1	-	-	-	-	<0.5	<0.5
	2,4-dimethylphenol			-	-	-	-	-	-	-	<1	<1	<1	-	<0.1	-	-	-	-	<1	<1
	2,6-dichlorophenol			-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2,6-Dimethylphenol			-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
	4-methylphenol			-	-	-	-	-	-	-	<1	<1	<1	-	<0.1	-	-	-	-	<1	<1
PCB	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (PCB			-	-	-	-	-	-	-	-	-	-	-	<0.3	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 156)			-	-	-	-	-	-	-	-	-	-	-	<0.3	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PCB 157)			-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PCB 167)			-	-	-	-	-	-	-	-	-	-	-	<0.3	-	-	-	-	-	-
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169)			-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-
	PCB 101			-	-	-	-	-	-	-	-	-	-	-	<0.3	-	-	-	-	-	-
	PCB 138			-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-
	PCB 118 + PCB 123			-	-	-	-	-	-	-	-	-	-	-	<0.0006	-	-	-	-	-	-
	PCB 153			-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-
	PCB 180			-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-
	PCB 52			-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-
	PCB 28 + PCB 31			-	-	-	-	-	-	-	-	-	-	-	<0.0003	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,3,4,4- (PCB 105)			-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCB 114)			-	-	-	-	-	-	-	-	-	-	-	<0.3	-	-	-	-	-	-
	Pentachlorobiphenyl, 3,3,4,4,5- (PCB 126)			-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
	Tetrachlorobiphenyl, 3,3,4,4- (PCB 77)			-	-	-	-	-	-	-	-	-	-	-	<0.3	-	-	-	-	-	-
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 81)			-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-
	Total PCB 7 Congeners			-	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-	-
	Total PCB WHO 12			-	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-	-
Phenolics	Phenol	7.7	5800	-	-	-	-	-	-	-	<1	<1	<1	-	<0.1	-	-	-	-	<1	<1
NA	4-chloro-2-methylphenol			-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
Other	Total Organic Carbon			5.6	3.6	3.2	2.2	3.6	4.6	1.8	-	-	-	7.3	4.2	-	-	6.9	6.8	-	-

Notes

Exceeds - Adopted Saline EQS and the UK

Exceeds - Adopted Saline EQS.

Appendix J

Comparison of Measured Concentrations of Contaminants of Concern in Groundwater with GAC

Appendix J: Comparison of Measured Concentrations of CoC in Groundwater/Leachate with GAC (µg/L)

hemical Grou	Compound	Redcar - Adopted Saline EQS	UK Drinking Water Standards	Location	Residual Former Redcar Works						
				Location ID	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102
				Well	S	S	D	D	M	D	S
				Sample Date	05/10/2022	08/11/2022	05/10/2022	09/11/2022		09/01/2023	10/01/2023
Metals	Aluminium (Filtered)		200	µg/L	-	156	-	92.3	38.4	4.9	13.7
	Arsenic (Filtered)	25	10	µg/L	<2.5	4.3	5	0 - 1.9	5.1	-	-
	Barium (Filtered)		1300	µg/L	96	-	88	-	-	-	-
	Beryllium (Filtered)			µg/L	<0.5	-	<0.5	-	-	176	185
	Boron (Filtered)	7000	1000	µg/L	70	219	287	0 - 168	339	<0.03	0.03
	Cadmium (Filtered)	0.2	5	µg/L	<0.5	0.11	<0.5	<0.03 - 0	0.07	-	-
	Chromium (hexavalent)	0.6		µg/L	<6	-	<6	-	-	6.5	3.2
	Chromium (Filtered)	0.6	50	µg/L	12.2	0.3	9.1	0 - 0.9	0.7	<3	<1
	Copper (Filtered)	3.76	2000	µg/L	<7	<1	<7	<3 - 0	<1	22.6	57.2
	Iron (Filtered)	1000	200	µg/L	-	31.3	-	0 - 20.9	11.1	<0.4	<0.4
	Lead (Filtered)	1.3	10	µg/L	<5	<0.4	<5	<0.4 - 0	<0.4	<1.5	7.1
	Manganese (Filtered)		50	µg/L	<2	1.7	<2	<1.5 - 0	<1.5	<0.1	0.02
	Mercury (Filtered)	0.07	1	µg/L	<1	0.12	<1	0.34	<0.01	187	113
	Molybdenum (Filtered)		70	µg/L	-	208.5	-	248	225.9	4.2	1.2
	Nickel (Filtered)	8.6	20	µg/L	3	2.3	2	0 - 3.9	1.5	-	-
	Selenium (Filtered)		10	µg/L	7	-	9	-	-	1910	7640
	Silicon (Filtered)			µg/L	-	3232	-	896	5219	-	-
	Vanadium (Filtered)	100		µg/L	<1.5	-	9.6	-	-	2.3	3.4
	Zinc (Filtered)	7.9	3000	µg/L	<3	3.4	<3	<1.5 - 0	<1.5	1.72	0.07
Inorganics	Ammoniacal Nitrogen as N	0.021		mg/L	0.37	0.11	0.3	1.48	0.07	424	113
	Calcium (Filtered)			mg/L	-	404.5	-	537.5	182.1	1110	125
	Chloride		250	mg/L	-	178.5	-	982	144.8	64	141
	Cyanide (Free)		50	µg/L	<10	<100	10	8	33	-	-
	Cyanide (Total)	1	50	µg/L	-	114	-	23	64	-	-
	Cyanide (Complex)			mg/l	-	0.114	-	0.015	0.031	<0.1	0.4
	Magnesium (Filtered)			mg/L	-	<0.1	-	<0.1	0.3	<0.2	<0.2
	Nitrate (as NO3-)		50(NO3)	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	0.08	<0.02
	Nitrite (as NO2-)		0.5(NO2)	mg/L	<0.02	<0.02	<0.02	0.12	<0.02	75	32.7
	Potassium (Filtered)			mg/L	-	56.1	-	88.4	53.7	802	92.7
	Sodium (Filtered)		200	mg/L	-	165.3	-	903.9	132.4	367	343
	Sulphate		250(SO4)	mg/L	-	633.7	-	343.4	463.2	10	10
	Sulphide			µg/L	-	760	-	20	<10	142	122
	Sulphur as S			mg/L	-	339.617	-	113.135	156.417	60	40
	Thiocyanate (as SCN)	9		µg/L	40	140	110	40	70	<0.1	<0.1

hemical Grou	Compound	Redcar - Adopted Saline EQS	UK Drinking Water Standards	Location	Residual Former Redcar Works						
				Location ID	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102
				Well	S	S	D	D	M	D	S
				Sample Date	05/10/2022	08/11/2022	05/10/2022	09/11/2022		09/01/2023	10/01/2023
PAH	Naphthalene	2		µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.026	0.051
	Acenaphthene			µg/L	<0.005	0.011	<0.005	0.01	0.01	<0.005	0.034
	Acenaphthylene			µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.057	0.641
	Fluoranthene	0.0063		µg/L	0.209	0.024	0.048	0.017	0.05	0.022	0.076
	Anthracene	0.1		µg/L	0.019	<0.005	<0.005	<0.005	<0.005	0.123	0.243
	Phenanthrene			µg/L	0.084	0.018	<0.005	<0.005	<0.005	0.026	0.038
	Fluorene			µg/L	<0.005	<0.005	<0.005	<0.005	0.007	0.021	0.343
	Chrysene			µg/L	0.108	0.008	<0.005	0.01	0.024	0.053	0.605
	Pyrene			µg/L	0.185	0.018	0.047	0.015	0.048	0.019	0.299
	Benzo(a)anthracene			µg/L	0.078	0.006	<0.005	0.008	0.026	0.023	0.474
	Benzo(b)fluoranthene		0.025	µg/L	0.148	<0.008	<0.008	0.012	0.034	0.009	0.185
	Benzo(k)fluoranthene		0.025	µg/L	0.057	<0.008	<0.008	<0.008	0.013	0.012	0.233
	Benzo(a)pyrene	0.00017	0.01	µg/L	0.103	<0.005	<0.005	<0.005	<0.005	<0.005	0.041
	Dibenz(a,h)anthracene			µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	0.166
	Benzo(g,h,i)perylene		0.025	µg/L	0.065	<0.005	<0.005	0.006	0.013	0.013	0.213
	Indeno(1,2,3-c,d)pyrene		0.025	µg/L	0.069	<0.005	<0.005	0.007	0.013	0.414	3.642
	PAH 16 Total			µg/L	1.125	<0.173	<0.173	<0.173	0.238	0.032	0.659
	Benzo(b+k)fluoranthene			µg/L	0.205	0.008	<0.008	0.016	0.047	45	22
TPH CWG	>C5-C6 Aliphatics	4.55	See TPH	µg/L	98	39	24	71	24	88	12
	>C6-C8 Aliphatics	4.55	See TPH	µg/L	184	11	64	195	57	564	42
	>C8-C10 Aliphatics	4.55	See TPH	µg/L	989	98	304	987	77	<5	<5
	>C10-C12 Aliphatics	4.55	See TPH	µg/L	<5	<5	<5	<5	<5	<10	<10
	>C12-C16 Aliphatics	4.55	See TPH	µg/L	<10	<10	<10	<10	<10	<10	<10
	>C16-C21 Aliphatics		See TPH	µg/L	<10	<10	<10	<10	<10	<10	<10
	>C21-C35 Aliphatics		See TPH	µg/L	<10	<10	<10	<10	<10	<10	<10
	>C35-C44 Aliphatics			µg/L	-	<10	-	<10	<10	-	-
	Total >C5-C35 Aliphatics		See TPH	µg/L	1271	148	392	1253	158	<10	<10
	>EC5-EC7 Aromatics		See TPH	µg/L	<10	<10	<10	<10	<10	<10	<10
	>EC7-EC8 Aromatics		See TPH	µg/L	11	<10	<10	<10	<10	57	<10
	>EC8-EC10 Aromatics	4.55	See TPH	µg/L	52	<10	20	68	14	<5	<5
	>EC10-EC12 Aromatics	4.55	See TPH	µg/L	<5	<5	<5	<5	<5	<10	<10
	>EC12-EC16 Aromatics	4.55	See TPH	µg/L	10	<10	<10	<10	<10	<10	<10
	>EC16-EC21 Aromatics	4.55	See TPH	µg/L	<10	<10	<10	<10	<10	<10	<10
	>EC21-EC35 Aromatics	4.55	See TPH	µg/L	<10	<10	<10	<10	<10	<10	<10
	>EC35-EC44 Aromatics			µg/L	-	<10	-	<10	<10	57	<10
	Total >EC5-EC44 Aromatics			µg/L	-	<10	-	68	14	-	-
	TPH >C5-C35		|10	µg/L	1344	148	412	1321	172	<0.5	<0.5
BTEX and MT	Benzene	8	1	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
	Toluene	74	700	µg/L	10	<5	<5	<5	<5	<1	<1
	Ethylbenzene	20	300	µg/L	<1	<1	<1	<1	<1	<2	<2
	Xylene (m & p)		250	µg/L	<2	-	<2	-	-	<1	<1
	Xylene (o)		250	µg/L	<1	<1	<1	<1	<1	<0.1	<0.1
	MTBE		15	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<2	<2

hemical Grou	Compound	Redcar - Adopted Saline EQS	UK Drinking Water Standards	Location	Residual Former Redcar Works						
				Location ID	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102
				Well	S	S	D	D	M	D	S
				Sample Date	05/10/2022	08/11/2022	05/10/2022	09/11/2022		09/01/2023	10/01/2023
VOC	Styrene			µg/L	<2	<2	<2	<2	<2	<2	<2
	cis-1,3-dichloropropene			µg/L	<2	<2	<2	<2	<2	<2	<2
	trans-1,3-dichloropropene			µg/L	<2	<2	<2	<2	<2	<2	<2
	1,1,1,2-tetrachloroethane			µg/L	<2	<2	<2	<2	<2	<2	<2
	1,1,1-trichloroethane		2000	µg/L	<2	<2	<2	<2	<2	<4	<4
	1,1,2,2-tetrachloroethane			µg/L	<4	<4	<4	<4	<4	<2	<2
	1,1,2-trichloroethane			µg/L	<2	<2	<2	<2	<2	<3	<3
	1,1-dichloroethane		2.8	µg/L	<3	<3	<3	<3	<3	<3	<3
	1,1-dichloroethene		140	µg/L	<3	<3	<3	<3	<3	<3	<3
	1,1-dichloropropene			µg/L	<3	<3	<3	<3	<3	<3	<3
	1,2,3-trichloropropane			µg/L	<3	<3	<3	<3	<3	<3	<3
	1,2,4-trimethylbenzene			µg/L	<3	<3	<3	<3	<3	<2	<2
	1,2-dibromo-3-chloropropane			µg/L	<2	<2	<2	<2	<2	<2	<2
	1,2-dibromoethane			µg/L	<2	<2	<2	<2	<2	<2	<2
	1,2-dichloroethane	10	3	µg/L	<2	<2	<2	<2	<2	<2	<2
	1,2-dichloropropane	8		µg/L	<2	<2	<2	<2	<2	<3	<3
	1,3,5-trimethylbenzene			µg/L	<3	<3	<3	<3	<3	<2	<2
	2,2-dichloropropane			µg/L	<1	<1	<1	<1	<1	-	-
	Pyridine			µg/L	<100	-	<100	-	-	<3	<3
	2-chlorotoluene			µg/L	<3	<3	<3	<3	<3	<3	<3
	4-chlorotoluene			µg/L	<3	<3	<3	<3	<3	<2	<2
	Bromobenzene			µg/L	<2	<2	<2	<2	<2	<2	<2
	Bromochloromethane			µg/L	<2	<2	<2	<2	<2	<2	<2
	Bromodichloromethane		25	µg/L	<2	<2	<2	<2	<2	<2	<2
	Bromoform		25	µg/L	<2	<2	<2	<2	<2	<1	<1
	Bromomethane			µg/L	<1	<1	<1	<1	<1	<2	<2
	Carbon tetrachloride		3	µg/L	<2	<2	<2	<2	<2	<2	<2
	Chlorodibromomethane		25	µg/L	<2	<2	<2	<2	<2	<3	<3
	Chloroethane			µg/L	<3	<3	<3	<3	<3	<2	<2
	Chloroform	2.5	25	µg/L	<2	<2	<2	<2	<2	<3	<3
	Chloromethane			µg/L	<3	<3	<3	<3	<3	<3	<3
	cis-1,2-dichloroethene		25	µg/L	<3	<3	<3	<3	<3	<3	<3
	Dibromomethane			µg/L	<3	<3	<3	<3	<3	<2	<2
	Dichlorodifluoromethane			µg/L	<2	<2	<2	<2	<2	<3	<3
	Dichloromethane			µg/L	<3	<3	<3	<3	<3	<3	<3
	Isopropylbenzene			µg/L	<3	<3	<3	<3	<3	<3	<3
	n-butylbenzene			µg/L	<3	<3	<3	<3	<3	<3	<3
	n-propylbenzene			µg/L	<3	<3	<3	<3	<3	107	-
	n-Hexanol			µg/L	-	-	-	139	-	<3	<3
	p-isopropyltoluene			µg/L	<3	<3	<3	<3	<3	<3	<3
	sec-butylbenzene			µg/L	<3	<3	<3	<3	<3	<3	<3
	Trichloroethene		5	µg/L	<3	<3	<3	<3	<3	<3	<3
	tert-butylbenzene			µg/L	<3	<3	<3	<3	<3	<3	<3
	Tetrachloroethene		5	µg/L	<3	<3	<3	<3	<3	<3	<3
	trans-1,2-dichloroethene		25	µg/L	<3	<3	<3	<3	<3	<3	<3
	Trichlorofluoromethane			µg/L	<3	<3	<3	<3	<3	<0.1	<0.1
	Vinyl chloride		0.5	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<3	<3
VOC/SVOC	1,2,3-trichlorobenzene			µg/L	<3	<3	<3	<3	<3	<1	<1
	1,2,4-trichlorobenzene			µg/L	<1	<1	<1	<1	<1	<1	<1
	1,2-dichlorobenzene			µg/L	<1	<1	<1	<1	<1	<1	<1
	1,3-dichlorobenzene			µg/L	<1	<1	<1	<1	<1	<1	<1
	1,4-dichlorobenzene			µg/L	<1	<1	<1	<1	<1	<2	<2
	Chlorobenzene		100	µg/L	<2	<2	<2	<2	<2	<1	<1
	Hexachlorobutadiene			µg/L	<1	<1	<1	<1	<1	<1	<1

hemical Grou	Compound	Redcar - Adopted Saline EQS	UK Drinking Water Standards	Location	Residual Former Redcar Works						
				Location ID	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102	F-BH102
				Well	S	S	D	D	M	D	S
				Sample Date	05/10/2022	08/11/2022	05/10/2022	09/11/2022		09/01/2023	10/01/2023
SVOC	4-bromophenyl phenyl ether			µg/L	<1	<1	<1	<1	<1	<0.5	<0.5
	4-nitroaniline			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<10
	4-nitrophenol			µg/L	<10	<10	<10	<10	<10	<10	<10
	Catechol			µg/L	-	<10	-	<10	<10	<10	<10
	2,3,5-Trimethylphenol			µg/L	-	<10	-	<10	<10	<0.5	<0.5
	2,4,5-trichlorophenol			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
	2,4,6-trichlorophenol			µg/L	<1	<1	<1	<1	<1	<0.5	<0.5
	2,4-dichlorophenol			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
	2,4-dimethylphenol			µg/L	<1	<1	<1	<1	<1	<0.5	<0.5
	2,4-dinitrotoluene			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
	2,6-dinitrotoluene			µg/L	<1	<1	<1	<1	<1	<1	<1
	2-chloronaphthalene			µg/L	<1	<1	<1	<1	<1	<1	<1
	2-chlorophenol			µg/L	<1	<1	<1	<1	<1	<10	<10
	2-Isopropylphenol			µg/L	-	<10	-	<10	<10	<1	<1
	2-methylnaphthalene			µg/L	<1	<1	<1	<1	<1	<0.5	<0.5
	2-methylphenol			µg/L	<0.5	<0.5	<0.5	<0.5 - 20	<0.5	<1	<1
	2-nitroaniline			µg/L	<1	<1	<1	<1	<1	<0.5	<0.5
	2-nitrophenol			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
	3-nitroaniline			µg/L	<1	<1	<1	<1	<1	<0.5	<0.5
	4-chloro-3-methylphenol			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
	4-chloroaniline			µg/L	<1	<1	<1	<1	<1	<1	<1
	4-chlorophenyl phenyl ether			µg/L	<1	<1	<1	<1	<1	<1	<1
	4-methylphenol			µg/L	<1	<1	<1	<1	<1	<0.5	<0.5
	Azobenzene			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Bis(2-chloroethoxy) methane			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
	Bis(2-chloroethyl)ether			µg/L	<1	<1	<1	<1	<1	<5	<5
	Bis(2-ethylhexyl) phthalate	1.3		µg/L	<5	<5	<5	<5	<5	<1	<1
	Butyl benzyl phthalate			µg/L	<1	<1	<1	<1	<1	<0.5	<0.5
	Carbazole			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenzofuran			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
	Diethylphthalate			µg/L	<1	<1	<1	<1	<1	<1	<1
	Dimethyl phthalate			µg/L	<1	<1	<1	<1	<1	<1.5	<1.5
	Di-n-butyl phthalate			µg/L	<1.5	<1.5	<1.5	<1.5	<1.5	<1	<1
	Di-n-octyl phthalate			µg/L	<1	<1	<1	<1	<1	<1	<1
	Hexachlorobenzene			µg/L	<1	<1	<1	<1	<1	<1	<1
	Hexachlorocyclopentadiene			µg/L	<1	<1	<1	<1	<1	<1	<1
	Hexachloroethane			µg/L	<1	<1	<1	<1	<1	<0.5	<0.5
	Isophorone			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
	Nitrobenzene			µg/L	<1	<1	<1	<1	<1	<0.5	<0.5
	N-nitrosodi-n-propylamine			µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
	Pentachlorophenol			µg/L	<1	<1	<1	<1	<1	-	-
SVOC TIC	1-Octen-3-ol			ug/l	-	-	-	132	-	178 - 236	-
VOC TIC	2-Heptanone			ug/l	-	-	-	227 - 267	-	<60	<60
Phenolics	Xylenols			µg/L	-	<60	-	<60	<60	<30	<30
	Cresol Total			µg/L	-	30	-	60	<30	<1	<1
	Phenol	7.7	5800	µg/L	<1	<1	<1	<1	<1	<10	<10
	1-naphthol			µg/L	-	<10	-	<10	<10	-	-
	m/p-cresol			mg/l	-	0.03	-	0.04	<0.02	<10	<10
	resorcinol (m-			µg/L	-	<10	-	<10	<10	<100	<100
	Total Speciated Phenols			µg/L	-	<100	-	<100	<100	<2000	2000
Other	Dissolved Inorganic Carbon			µg/L	-	<2000	-	<2000	<2000	390000	99000
	Dissolved Organic Carbon			µg/L	-	80,000	-	699,000	67,000	-	-
	Hexanal			µg/L	-	-	-	105	-		

Notes

Exceeds - Adopted Saline EQS and the UK Drinking Water Standard.
Exceeds - Adopted Saline EQS.

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