



Remediation Verification and Long-term Monitoring Plan (Southern Area) Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK

On behalf of:

Wheat Quarter Limited and Metropolitan Thames Valley Housing

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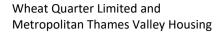
Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK



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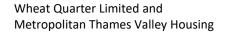
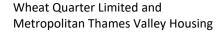




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Abbreviations

AOD Above Ordnance Datum

AST Above Ground Storage Tank

bgl below ground level

BGS British Geological Survey

CL:AIRE Contaminated Land: Applications in Real Environments

DCM Dichloromethane

DQRA Detailed Quantitative Risk Assessment

EA Environment Agency

EAME Earth & Marine Environmental Consultants Ltd

LNAPL Light Non-aqueous phase liquid

LOD Limit of Detection

MNA Monitored Natural Attenuation

NAPL Non-aqueous phase liquid

NGR National Grid Reference

ORC Oxygen Releasing Compound

PID Photo-ionisation Detector

RTW Remedial Targets Worksheet

SGV Soil Guideline Value

SVOC Semi-Volatile Organic Compound

UST Underground Storage Tank

VOC Volatile Organic Compound

WFD Water Framework Directive

WQS Water Quality Standards

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Executive Summary

Earth & Marine Environmental Consultants Ltd ("EAME") was commissioned by Wheat Quarter Limited and Metropolitan Thames Valley Housing ("the Client") to undertake an environmental assessment in relation to a parcel of land located at Broadwater Road, Welwyn Garden City, AL8 6UN). The Client is planning to redevelop the site as a mixed-use development with residential properties (without gardens), office, retail, and leisure elements.

It was already known that the site (former polycell factory) had been contaminated with hydrocarbons leaking from a tank farm associated with the former factory operations. This contamination had been subjected to a remedial programme between 2008 and 2011 related to the former development proposals. When EAME began site investigations in 2017 (associated with the new Wheat Quarter development proposals), residual contamination was discovered in both the historic monitoring wells from the former remedial works and new wells installed by EAME. The contamination was mainly present at around 23 metres depth, co-incident with the groundwater and in the form of petroleum hydrocarbons.

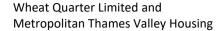
The investigations and field measurements undertaken by EAME did not identify Non-Aqueous Phase Liquid (NAPL), but the concentrations of hydrocarbon in the samples, suggest it was likely to be present. Furthermore, some of the results were higher than had been observed in the last round of Monitored Natural Attenuation (MNA) monitoring undertaken by the previous developers. However, rather than this being an indication of a worsening of the situation, EAME believes this reflects a change in sampling techniques. During the earlier phase of remedial works, groundwater samples were recovered by standard purge and pump techniques, which can agitate and disturb the water samples and release volatiles (thus showing less hydrocarbon in the analysis than might exist in reality). EAME used the EA recommended so called low-flow sampling technique, which causes minimal sample disturbance and gives a more accurate sample of the real-life conditions at that sampling point (i.e. higher values).

The ongoing presence of hydrocarbon contamination at depth and co-incident with the water table, along with the strong likelihood of NAPL being present, warranted the consideration of further remedial works being undertaken. Following consultation with the EA to agree the overall approach, the developer used a window of opportunity prior to substantive construction works to implement a pro-active remedial programme targeting this impacted groundwater horizon in the source area.

The remedial strategy for this site was based on the principle of achieving environmental betterment, in other words reducing the long-term pollution potential of the residual

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material, removing as much pollutant (NAPL) as practicable in the window of opportunity that was available.

It should thus be noted that the remedial works presented in this report are supplemental works related to a new mixed-use development scenario and following on from a much more substantial remediation project associated with a former development plan. In the initial remediation works carried out in 2008 - 2011, the underground storage tanks, which are the source of the groundwater contamination, were removed along with contaminated soils. This was followed by a groundwater pump and treat programme and subsequently MNA, which ended in September 2015.

This report relates to the most recent round of remediation works in the same area, which has comprised installation of delineation/pumping wells, injection of mobilisation agents and groundwater abstraction and treatment (prior to discharge). The developer took the opportunity of an extension in the site hand-over and construction programme to extend the remediation works by a further two weeks. The active remediation works are now completed (and reported here). The programme will now move into a long-term post remedial monitoring and MNA programme.

One of the key observations from the recently completed remedial works is that, although a NAPL was clearly present (or could be created by pumping the groundwater down and creating a local cone of depression), at times up to 300mm thick, this reduced to trace levels at the end of the remedial programme in all monitoring wells. The total volume of recovered NAPL, however, was very low. This means that the total mass of NAPL in the area is also very low.

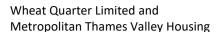
Moreover, when considering the NAPL thickness and presence against groundwater level, it appears that the NAPL only becomes evident at certain groundwater depths. These limited response zones for NAPL suggest that rather than there being an extensive pool of NAPL resting on the groundwater contiguously over a wide area, the NAPL is instead sat in discrete lenses in the chalk that only manifest themselves in groundwater when the water table passes through those zones.

The remedial works took place during the summer of 2018, which was unusually warm and dry, leading to a generally lower groundwater level across the area and thus reduced ability to over-pump the groundwater.

This limitation on pumping rates and the inconsistent ad-hoc manifestation of NAPL in different boreholes, on the one hand has made this a challenging and complex remedial project. However, it also indicates that the NAPL as a source is not a large magnitude cohesive pool of NAPL and the residual contamination is not a significant ongoing pollution source.

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The remedial programme has removed several kg of dissolved phase hydrocarbons and up to 50 litres of free phase NAPL. Furthermore, at the onset of the remedial programme the maximum observed NAPL thickness was 50mm, by the end of the remediation programme the NAPL was effectively absent.

The programme has been robust and substantive and the optimum approach that could have been applied in consideration of the specific site constraints and proposed development programme. Whist residual contamination remains deep below the site surface and thus periodically in contact with the groundwater, we believe that there is little opportunity to achieve further sustainable removal of this material *i.e.* the site conditions are very challenging in terms of the depth of contamination, groundwater flow characteristics and fragmented/sporadic nature of the residual NAPL.

EAME believes substantial betterment using sustainable remedial techniques has been achieved through the most recent round of remedial works and that a much better understanding of the residual contamination status has been obtained. This will help to inform the piling strategy (which may encounter some of the residual material) and associated mitigation measures that will be applied (being developed by Metropolitan Thames Valley Housing (MHVT) and its contractors). This data set will be further added to by the ongoing long-term monitoring programme which EAME is confident will show a gradual improvement in groundwater quality over time.

EAME does not regard the residual contamination to be prejudicial to the development objectives as the conditions do not pose a threat to site users and infrastructure and will not be exacerbated by the implementation of the development proposals. With the conditions that prevail on the site now, EAME does not believe that the site would be designated as a Part 2a [contaminated] site under the UK environmental regulatory regime and any associated planning conditions can be successfully discharged.



1 Introduction

1.1 Background

Earth & Marine Environmental Consultants Ltd ("EAME") was commissioned by Wheat Quarter Limited and Metropolitan Thames Valley Housing ("the Client") to prepare a Remediation Verification and Long-term Monitoring Plan in relation to a parcel of land located at Broadwater Road, Welwyn Garden City, AL8 6UN, UK ("the Site") (Figure 1.1). It is understood that the Client is planning to redevelop the site as a mixed development with residential properties (without gardens), office, retail, and leisure elements ("Proposed Development"). This report relates solely to the southern area of the development and the remediation that occurred during Q3-2018 (Figure 1-1).



Figure 1-1: Proposed Development Area

Google Earth Imaging with the permission of Google - Licensed to Earth and Marine Environmental Consultants Ltd.

This report has been produced in-line with current Environment Agency (EA) guidance on the verification of remediation of land contamination¹.

¹ Environment Agency (2010). Verification of remediation of land Contamination, Report: SC030114/R1, ISBN: 978-1-84911-175-1



1.2 Site Location and Setting

The southern site is approximately 3.6 ha in area and is also accessed via Hydeway off Broadwater Road (A1000) (*Figure 1-2*). The site is located centrally within the town of Welwyn Garden City at National Grid Reference (NGR) TL 24134 12739 (51.799529, -0.20121127) (Annex A - Figure A1). The site is relatively flat and lies at an elevation of between 84 and 85 metres above ordnance datum (AOD). The following current uses were identified surrounding the southern site (Annex A - Figure A2):

- **NORTH** Hydeway beyond which is the northern Site.
- EAST Broadwater Road (A1000) beyond which are commercial premises and offices.
- SOUTH Disused Roche Products facility (Grade II listed) and multiple residential blocks.
- **WEST** P.W Gates Distribution Ltd warehouse (southern hub) beyond which are railway lines (East Coast Mainline) associated with Welwyn Garden City station and car parking.

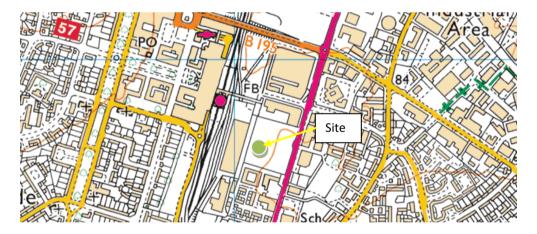


Figure 1-2: Site Location

Ordnance Survey 1: 25,000 scale map - with the permission of The Controller of Her Majesty's Stationery Office, Crown Copyright Earth and Marine Environmental Consultants Ltd, Licence No. 100050755

A full assessment of the sites environmental setting is outlined within the standalone Phase II environmental assessment report² and remediation strategy³.

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² EAME (2018). Environmental Assessment (Southern Area) Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK, Wheat Quarter Limited, Ref. 016-1512, REV01, September 2018,

³ EAME (2018). Remediation Strategy (Southern Area) Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK, Wheat Quarter Limited, Ref. 016-1512, REV01, September 2018



1.3 Site History

The southern site has been divided into three zones based on historic uses (Figure 1-3).



Figure 1-3: Southern Site Zoning

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1.3.1 Polycell factory

The Site was initially developed between 1925 and 1939, with the land immediately adjoining the site to the north and south developed between 1966 and 1976. The original use of the Site was as a film studio that opened in 1928. After this the site was taken over by Ardath Tobacco Company Ltd (1940s - 1960) and then by Polycell (1964). The Polycell Site ceased operation in late 1998.



A Dames and Moore Report (2000)⁴ states that the Polycell facility produced a range of DIY products including Polyfilla and associated products, wallpaper adhesives and paint cleaning fluids. The primary operations carried out on site involved mixing of raw materials and packaging of products. There were two principal areas of production:

- Polyfilla and paste area this was used primarily to produce dry products and some liquid pastes and was located at the western corner of the site. Associated with this area was a wastewater tank for receiving the washing water from the paste lines. The warehouse was adjacent to the powders and paste building and was used for storage of all products produced on the Site.
- **Liquids area** located at the northern end of the Site, was used to produce paint strippers and brush cleansers.

Associated with the liquids area was a solvent tank farm (*Figure 1-4*) comprising 13 (six in use when the site was operational, seven redundant) underground storage tanks (USTs) and one above ground storage tank (AST).

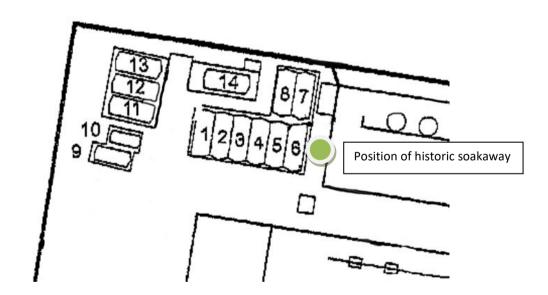


Figure 1-4: Layout of Polycell tank farm and historic soakaway⁵

Naphtha, white spirit and methanol were stored in the six 4,000-gallon USTs (tanks 7 & 8, 5 & 6, and 3 & 4 respectively) and methylene chloride was stored in a 6,250-gallon AST (tank 14).

⁴ Dames and Moore (2000). FINAL FACTUAL REPORT - POLYCELL PRODUCTS LIMITED, WELWYN GARDEN CITY FOR WILLIAMS PLC, Ref: R2779/38842-019-401/WH, 14 July 2000

⁵ Modified from URS Presentation (October 2000), Polycell products Ltd, Welwyn Garden City, Findings of Site Investigations and Risk Assessment, Welwyn Hatfield Council Offices, 12th October 2000.



The seven redundant tanks have volumes ranging from 1,500 to 6,000 gallons and were used to store white spirit, derv, IPA, oxtail, naphtha, turps and methanol.

At the time of the Site acquisition by Tesco Stores Ltd they were informed that the Site was contaminated, and the nature and extent of the contamination was confirmed by subsequent Site investigations undertaken by Delta-Simons. Delta-Simons undertook several phases of intrusive site investigation and long-term groundwater monitoring at the Site between 2003-2016. A long-term strategy was agreed (in conjunction with the Welwyn Hatfield Council and the Environment Agency) to undertake a voluntary groundwater remediation scheme to reduce the associated environmental risks.

Delta-Simons investigations at the Site identified localised soil contamination and significant widespread groundwater contamination at depth within the Principal Chalk Aquifer. The source of the contamination was determined to be leakage from the USTs located in the northwest corner of the former Polycell factory.

The key contaminants identified in the groundwater at the Site comprise 'White Spirit' characterised by a mix of light end aliphatic hydrocarbons, dichloromethane, trimethylbenzene, naphthalene, ethylbenzene and xylenes. Non-aqueous phase liquid (NAPL) free product was identified on the surface of the groundwater at a depth of approximately 22 m within the Chalk within selected boreholes.

Elevated concentrations of total petroleum hydrocarbons (TPH) and volatile organic compounds (VOC) were identified within shallow Made Ground around the periphery of the tank farm. The contamination is considered to have been caused by leakages from the pipework associated with the tank farm, or from the USTs themselves, or a combination of both.

Elevated concentrations of TPH, semi-volatile organic compounds (SVOC) and VOC at depth within the Chalk, in the direction of the identified groundwater flow (primarily towards the southeast), were associated with the free product on the surface of the groundwater.

Groundwater monitoring undertaken prior to the remediation works identified that the dissolved contamination was reaching the boundaries of the Site and investigations on the adjacent CPUK land (to the north of the Site) identified deep groundwater contamination in several boreholes, which has been identified as originating from the tank farm.

1.4 Previous Remedial Activities (2008 – 2011)

Given the scale and extent of the groundwater contamination at the Site a remediation strategy and monitoring programme was devised following a Detailed quantitative risk



assessment (DQRA) completed by Delta-Simons in December 2005. The main objective of the remediation strategy was to remove the principal source of contamination, therefore, preventing the continued contamination of groundwater from the source area. The source was considered to comprise the tank farm and surrounding impacted shallow soils, and free product on the groundwater at depth beneath the tank farm. The secondary objective of the remediation programme was to remediate the dissolved phase groundwater contamination to the derived remedial targets, to minimise impact to the wider groundwater environment.

The remediation scheme comprised a combination of techniques to remove the source of the contamination and address the dissolved phase contamination plume across the wider Site. These included:

- Stage 1 Tank pull and soil excavation completed September/October 2008;
- Stage 2 Soil excavation validation completed October 2008;
- Stage 3 On-site ex-situ biopile remediation completed July 2009;
- Stage 4 Pump and Treat groundwater remediation/Free product recovery completed January 2011;
- Stage 5 Soil vapour extraction completed January 2011;
- Stage 6 Oxygen Releasing Compound (ORC) injection completed early 2011; and
- Stage 7 Long-term groundwater monitoring/Monitored Natural Attenuation (MNA) October 2008 to September 2015.

In September 2015 Delta-Simons concluded that the source removal and ex-situ soil remediation was successful in removing the bulk of the soil contamination source and treating the contaminated soils. The active groundwater remediation phase was successful in removing free product from the groundwater. Free product was not recorded since March 2010 up to the last round of monitoring in September 2015. In addition, the soil vapour extraction system removed approximately 70 tonnes of volatile compounds from the soils beneath the former tank farm. The results of the long-term groundwater monitoring programme indicate that the groundwater remediation scheme has been effective in significantly reducing the dissolved phase hydrocarbon and VOC contamination within the source zone and the dissolved phase plume.

Delta-Simons noted, that contamination levels within the groundwater beneath the former tank farm remain elevated. Delta-Simons work at the Site was completed in September 2015 with the final report issued in March 2016.



2 Remediation Strategy

2.1 Introduction

After an updated site assessment, including a revised Detailed Quantitative Risk Assessment (DQRA)² was undertaken by EAME in 2017/2018, a formal Remediation Options Appraisal and Remediation Strategy was developed and submitted to the Welwyn Hatfield Borough Council (24/09/18) in relation to planning Condition 3 Part 2 of N6/2015/0294/PP. Prior to submission the outline proposed remediation works and programme was submitted (on 22/06/18) to the Environment Agency for comment. Where possible EA requests were incorporated into the Remediation Options Appraisal and Remediation Strategy.

The investigations and field measurements undertaken by EAME did not identify Non-Aqueous Phase Liquid (NAPL), but the concentrations of hydrocarbon in the samples, suggest it was likely to be present. Furthermore, some of the results were higher than had been observed in the last round of MNA monitoring undertaken by the previous developers. However, rather than this being an indication of a worsening of the situation, EAME believes this reflects a change in sampling techniques. During the earlier phase of remedial works (by Delta-Simons), groundwater samples were recovered by standard purge and pump techniques, which can agitate and disturb the water samples and release volatiles (thus showing less hydrocarbon in the analysis than might exist in reality). EAME used the more recently developed and EA recommended so called low-flow sampling technique, which causes minimal sample disturbance and gives a more accurate sample of the real-life conditions at that sampling point (i.e. higher values). The results were sufficient to indicate that the site would benefit from some further remedial intervention.

2.2 Roles and Responsibilities

The various roles and responsibilities related to the remediation scheme are outlined within *Table 2-1*.

Table 2-1: Remediation scheme roles and responsibilities

Role	Named Party	Responsibilities
Developer	Wheat Quarter Limited and Metropolitan Thames Valley Housing	Appointment of environmental consultant and remediation contractor.
Project Management	Scott Hill	Overall project management of the Wheat Quarter project.



Role	Named Party	Responsibilities
Environmental Consultant	EAME	Preparation of Remediation Options Appraisal and Remediation Strategy. Preparation and implementation of the Remediation Verification and Long- term Monitoring Plan.
Remediation Contractor	John F Hunt Remediation Ltd	Implementation of the remediation scheme in-line with Remediation Strategy.
Stakeholder	Environment Agency	Statutory consultee with respect to contaminated land and groundwater issues.
Stakeholder	Welwyn Hatfield Borough Council	Setting of planning conditions relating to the Proposed Development.

2.3 Remediation Objectives

CLR11⁶ defines remediation objectives as site-specific objectives that relate solely to the reduction or control of risks associated with one or more pollutant linkages that are demonstrated, through risk assessment, to represent unacceptable risks. The objectives should be achievable, having regard to risks to the identified receptors, costs and benefits, technical feasibility, sustainability criteria and the proposed end-use of the site.

The results of the Detailed Quantitative Risk Assessment (DQRA) suggested that there was potential for impacts on off-site groundwater quality from residual groundwater contamination associated with the residual petroleum hydrocarbon contamination present in the deeper soils and groundwater beneath the former tank farm/remediation area.

The principal objective was of the remediation strategy was:

a decrease in contaminant mass around the former tank farm/remediation area to achieve "betterment" in-line with EA expectations......

It is important to note that there are no identified human health pollution linkages between the groundwater (located at circa 23 metres below ground level) and the proposed

⁶ Environment Agency (2004). Model Procedures for the Management of Land Contamination, Contaminated Land Report 11, ISBN: 1844322955



development end users, so the only remedial focus is betterment of the groundwater conditions, rather than a need to address any human health risk.

2.4 Remediation Criteria

CLR11 defines remediation criteria as measures (usually, but not necessarily, expressed in quantitative terms) against which compliance with remediation objectives will be assessed.

The Environment Agency required the programme to achieve betterment (contaminant reduction) and expressed a wish to see a reduction in NAPL mass of between 80-85% as evidence of such betterment. It is important to note, however, that the discontinuous/sporadic nature of the NAPL within the soil strata (as identified by the varying response of individual boreholes across the study area) means calculation of the initial baseline NAPL mass is extremely difficult to estimate. As a surrogate for NAPL mass NAPL thickness is proposed as an effective quantitative level with which to assess remedial effectiveness.

2.5 Consultation with the Environment Agency

Throughout the site investigation, DQRA and remediation design process the EA has been consulted via the assigned planning liaison officer, as outlined within *Table 2-2*.

Table 2-2: EA Consultation Record

Date	Туре	Notes
29/03/18	Meeting held at EA offices in WGC	Provision of draft site investigation results in relation to the groundwater conditions on the southern site.
16/04/18	Minutes provided by EA of meeting held on 29/03/18.	EA requested ConSim spreadsheets to review input criteria and assumptions.
23/05/18	Letter from EA to EAME (Ref. NE/2018/128222/04-L01)	Review of Environmental Assessment (Southern Area), Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK (project reference 016-1512, Rev 00), PDF- DQRA inputs_Consim" (ref 016-1512, Rev 00, dated March 2018), Remedial Targets Methodology (RTM) worksheets.

Wheat Quarter Limited and Metropolitan Thames Valley Housing

Remediation Verification and Long-term Monitoring Plan (Southern Area)
Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK

Date	Туре	Notes
22/06/18	Letter from EAME to EA (Ref. 016-1512 Wheat Quarter Limited - Response to EA Letter of 23-05-18 REV00)	Review of the EA comments related specifically to the ConSim and RTM input parameters.
22/06/18	Letter from EAME to EA (Ref. 016-1512 Plutus Estates WGC EA Remediation Letter REV00)	Outlining proposed remediation works (including programme).
19/07/18	Letter from EA to EAME (Ref. NE/2018/128222/04-L01)	Review of Correspondence dated 22nd June 2018, re Proposed Development, Southern Area of Broadwater Road Site (EAME ref 016-1512 Wheat Quarter Limited Response to EA letter of 23-05-18 REV00), Correspondence dated 22nd June 2018, re Proposed remediation works at Broadwater Road site, Welwyn Garden City (EAME ref:01601512 Plutus Estates WGC EA Remediation Letter RECV00)
20/07/18	Letter from EAME to EA (Ref. 016-1512 Wheat Quarter Limited - Response to EA Letter of 19-07-18 REV00)	Comments regarding DQRA, proposed remedial works and betterment.
07/08/18	Letter from EA to EAME (Ref. NE/2018/128222/06-L01)	Review of Remediation Strategy (Southern Area), Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK (EAME, Rev00, ref 016-1512, June 2018) and Letter dated 20th July 2018, their ref: 016-1512 Wheat Quarter Limited - Response to EA Letter of 19-07-18 REV00.



3 Remediation Scheme (Implementation Phase)

3.1 Scope of Works

The groundwater remediation programme was implemented as per the previously submitted Remediation Strategy. The scope of works was set-out within the John F Hunt Remediation (JFHR) letter dated 11th June 2018 (Ref. 17090/SH/April18/003) and was extended (in-light of EA comments received on 19/07/18, Ref. NE/2018/128222/04-L01 and 07/08/18, Ref. NE/2018/128222/06-L01) as per JFHR letter dated 15th August 2018 (Ref. 17090/SH/Aug18/003).

Deviations from the previously stated programme were:

- some borehole positions were altered due to the location of the tree line and raised bank on the western edge of the site (*i.e.* access was not possible); and
- some boreholes were positioned based on historic information on the suspected source zone, along with information gathered in the field (visual and olfactory evidence of contamination) in order to improve borehole locations.

Overall, the spacing of the remediation wells were 5 to 6 metres which aligns to the proposed spacing stated in the Remediation Strategy.

3.2 Implementation Programme

The key dates associated with the works were:

- 5th June 2018 5th July 2018 Construction of borehole grid
- 6th June 2018 29th July 2018 Construction and commissioning of the Water Treatment Plant (WTP)
- 30th July 2018 19th August 2018 Phase 1 groundwater pumping
- 20th August 2018 23rd August 2018 Injection phase
- 24th August 2018 14th September 2018 Phase 2 groundwater pumping (including extension)
- 17th September 2018 Monitoring (post remediation)

All active groundwater remediation operations ceased on 14th September 2018.

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Photograph 3-1: Remediation array with wastewater treatment plant (12/07/18)

The installed remediation and monitoring well array are outlined in Figure 3-1.



Figure 3-1: Installed remediation and monitoring array

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The location of the remediation wells is outlined within *Table 3-1*.

 Table 3-1: Remediation and monitoring wells

Well Ref.	Location		m AOD
A2	524064	212765.5	85.718
A3	524073.4	212765.4	85.393
A4	524079.3	212763.8	85.405
A5	524084.9	212762.2	85.47
A6	524091	212760.6	85.508
В3	524071.9	212759.7	85.399
B4	524079.1	212755.5	85.412
B5	524084	212756.2	85.247
В6	524090.2	212754.5	85.383
BH1-17	524077.5	212758	85.207
BH31	524076.5	212752.6	85.436
BH31-RN31	524090.9	212758.3	85.344
вн36	524062.6	212759.3	85.926
C2	524067.5	212754.7	84.842
C3	524071.9	212753.8	85.55
C5	524082.9	212751	85.171
C6	524088.2	212749	85.429
C7	524094.7	212749.5	85.27
D2	524065.8	212748.7	85.385
D4	524074.2	212746.4	85.426
D5	524081.4	212745.4	85.346
Z5	524084.5	212767	85.318

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3.3 Depth to Groundwater

The depth to groundwater was recorded daily by JFHR throughout the remediation works. This allowed JFHR to determine information such as:

- zone of influence (during pumping);
- indication of efficiency of pumping for the given ground conditions (pump yields);
- target pump depths;
- overall groundwater trends; and
- an indication of depth at which NAPL was present (utilising NAPL data).

The groundwater levels throughout the remediation process are outlined within Figure 3-2.

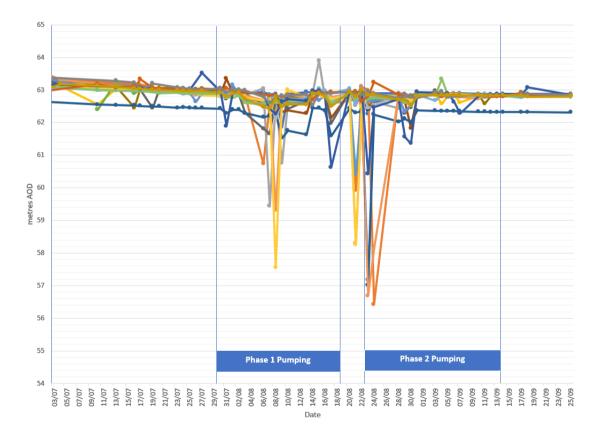


Figure 3-2: Groundwater levels during remediation process (July - September 2018)

The base groundwater data is provided in Annex C.



An overall trend of declining groundwater levels (between July and September) was observed which JFHR consider can be attributed to seasonal groundwater fluctuations. This summer there was a prolonged warm dry spell which limited groundwater recharge in the region enabling an overall drop in groundwater levels. In addition, the influence of the two groundwater pumping phases can clearly be observed. During phases where the pumps were set deeper within the individual boreholes *i.e.* to form a 'cone of depression', a significant response in the depth to groundwater can be observed. During this phase the groundwater flow direction would have been reversed (locally around the borehole) with groundwater being drawn into the source zone area for subsequent abstraction. During phases where pumps were set shallower *i.e.* to maximise NAPL removal through skimming, the groundwater levels were closer to 'natural' (resting) levels.

As indicated previously, the volume of water that could be physically abstracted throughout the active works was low. This was primarily due to the local hydrogeological conditions and can be observed in the depth to water data/trends (*Figure 3-2*). A reduction in groundwater levels of up to 6 metres was observed for a comparatively low pump volume, suggesting low recharge rates and flow conditions.

3.4 NAPL Thickness

Between 2010 and the last round of Delta-Simons monitoring in September 2015 measurable free product was not identified on the groundwater. Whilst limited evidence of NAPL had been detected prior to the remediation works (2017-2018), given the site history and the high dissolved phase concentrations (above solubility limits of specific determinands), the presence of NAPL was suspected, but proved difficult to observe.

NAPL thickness reduction is a key project objective and was recorded daily throughout the works. During the remediation works determination of NAPL thickness allowed boreholes with the highest recorded NAPL levels to be targeted (*i.e.* defined as primary targets for more active pumping) although any boreholes recording NAPL down to 'trace' levels were also actively pumped throughout the works as baseline recovery effort. The pumping programme was tuned this way daily to maximise product recovery.

The information collected throughout the drilling phase indicated the surface of the 'putty chalk' and 'competent chalk' to be undulating. Whilst there was a comparatively low number of boreholes exhibiting NAPL upon commencement of the works, it can be observed that the number of boreholes exhibiting NAPL during the works increased; this would have been caused by the remediation works themselves, which were designed to locally 'mobilise' the NAPL to the borehole array such that it could then be abstracted for treatment in a controlled manner (*Table 3-2*).



The spatial distribution of NAPL below the source area (chalk aquifer), and the ability to target/remove the contamination as part of the treatment works, would have been determined by the 'dual porosity' characteristics of the soil matrix. In addition, the local hydrogeological conditions, as determined throughout the drilling works and interpreted in *Annex A*, indicated the surface of the 'putty chalk' and 'competent chalk' to be inconsistent.

Both these factors would have made the identification and subsequent removal of NAPL at depth more difficult. This was observed first-hand at the site, where no NAPL had been detected prior to the JFHR drilling works, yet the dissolved phase concentrations of the contaminants of concern within the source area were significant, indicating product was present locally.

The NAPL trends observed throughout the treatment works accord with the anticipated understanding of the local ground conditions (including that associated with the dual porosity chalk matrix), along with historic information pertaining to the source area. Whilst there was a comparatively low number of boreholes exhibiting NAPL post drilling/upon commencement of the pumping works, it can be observed that the number of boreholes exhibiting NAPL during the treatment works increased. This increase can be attributed to the remediation works themselves, which were designed to locally 'mobilise' the NAPL such that it could then be abstracted for treatment.

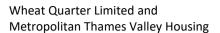
During the pumping works, NAPL was observed to mobilise as a series of pulses. It is considered that this pulsing can be attributed to the nature of the dual porosity matrix and would also indicate that NAPL was not present in significant quantities across the source area. Combined, these challenging conditions made it difficult to remove the NAPL efficiently at depth, even though the pumping works achieved a localised 'cone of depression' and a degree of NAPL manipulation.

Table 3-2: NAPL data from remediation scheme (by stage)

Stage	No. Data points	Data Points >Zero	% NAPL Detection	Max. NAPL (mm)	Mean NAPL (mm)	SD	CI (95%)
Grid Construction	220	9	4.1 %	50 mm	0.773	5.612	± 0.742
WTP construction	396	41	10.4 %	140 mm	1.051	8.738	± 0.861
Phase 1 Pumping	330	39	11.8 %	60 mm	0.595	4.843	± 0.523
Injection Phase	66	11	16.7 %	50mm	4.464	12.404	± 2.993
Phase 2 Pumping	374	82	21.9 %	300 mm	4.045	24.053	± 2.438

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Stage	No. Data points	Data Points >Zero	% NAPL Detection	Max. NAPL (mm)	Mean NAPL (mm)	SD	CI (95%)
Monitoring	198	7	3.5 %	0.1 mm	0.004	0.019	± 0.003

Notes

No. data points - Groundwater monitoring events during which NAPL levels were recorded

Data points > zero - Number of NAPL data points greater than zero.

SD - Standard Deviation

CI - Confidence Interval (95%)

The greatest increase in NAPL thickness was observed during the injection works/pumping phase 2, which is as expected as the injection programme was designed to mobilise contamination prior to subsequent abstraction and discharge. This illustrates that the groundwater conditions were such that the removal of NAPL from the chalk matrix required a significant physical effort and manipulation.

Upon completion of the injection phase, the pumps were set at a shallower level in order that the removal of NAPL could be maximised. At the start of the monitoring phase *i.e.* upon completion of the active remediation works, only trace levels of NAPL (<1mm or 'globules') were recorded in a limited number of boreholes. The pump data (expressed as litres and m³) is outlined within *Annex E* for each borehole, along with the total volume. The tabulated data indicates which boreholes were targeted, depending on evidence of NAPL and/or high dissolved phase.

There is evidence to suggest that as groundwater levels reduce, the NAPL thickness increases. This indicates that the NAPL may be present/trapped at specific levels below the site *e.g.* for borehole B5, the NAPL thickness maximises between 63.3 m AOD to 62.3 m AOD approximately (*Figure 3-3*).



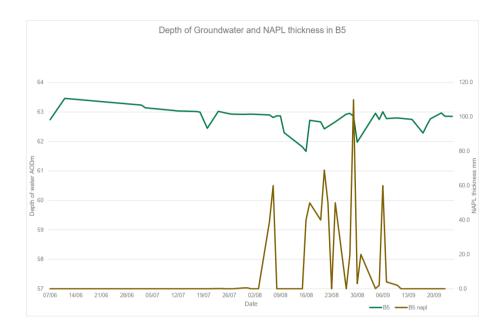


Figure 3-3: Borehole B5 NAPL vs Groundwater Level

For borehole C3, the NAPL thickness maximises between 63.2m AOD to 63.6m AOD approximately (*Figure 3-4*).

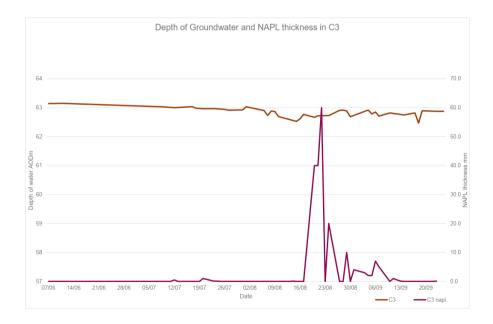
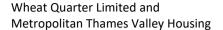


Figure 3-4: Borehole C3 NAPL vs Groundwater Level

This fits with our understanding of the chalk matrix. It is therefore possible that NAPL may be detected in the future, depending on the natural groundwater cycle (i.e. NAPL may only be





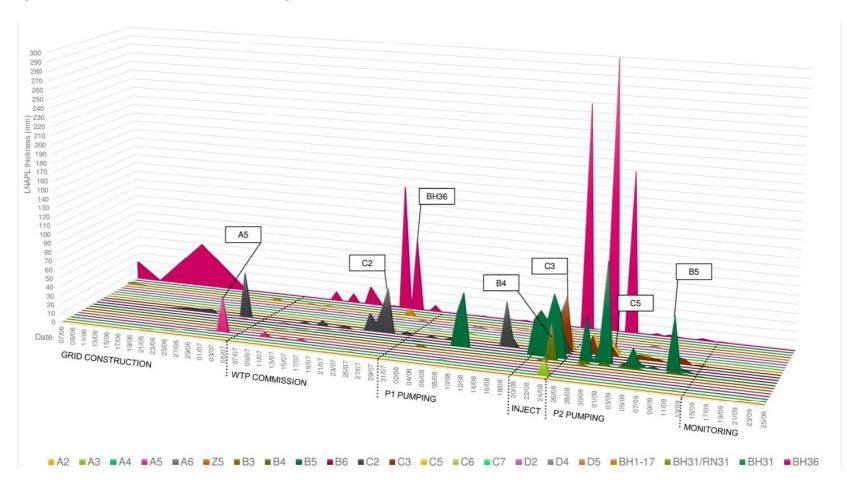
formed should the resting groundwater levels be incident with the identified contamination depth). This dynamic makes it difficult to target and effect NAPL removal over a wide area as we are effectively dealing with isolated lenses of NAPL that periodically coincide with groundwater movements.

Whilst the thickness of NAPL was recorded at up to 300mm (BH36), it is considered that the total 'mass' of NAPL over the target area is low. This is evidenced by the fact that the thickness of NAPL was reduced to trace levels in all boreholes (including BH36) during the active remediation works, yet the volume of NAPL recovered in the Water Treatment Plant (WTP) was nominal (*Figure 3-5*). If there had been a large volume of NAPL and the works had reduced this to trace levels (as evidenced by the monitoring), then there should be a corresponding large amount of NAPL collected, rather than the few tens of litres actually collected.

Given that the 'mass' of NAPL was not known and/or could not be accurately estimated at the start of the works, and the observation that the NAPL appears to be sat in discrete lenses at specific horizons, EAME consider that it will not be possible to estimate the 'mass' of NAPL post remediation. It is not possible therefore, to confidently assess the mass reduction in pollutant because of the remedial works. NAPL was clearly present and was removed and in that regard, betterment has been achieved, but it cannot be quantified. Instead, a more useful metric under these conditions would be to examine NAPL thickness. As outlined within *Table 3-2* the initial maximum NAPL thickness during the grid construction phase was 50 mm and during the post remedial works monitoring phase 0.1 mm. This would equate to a <u>99.8%</u> reduction in observed NAPL thickness (pre and post remediation).

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Figure 3-5: NAPL Thickness in Boreholes During and Post-Remediation Works



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3.5 Dissolved Phase – Chemical Data

A large body of data was collected with regards to the dissolved phase concentrations within the plume area and the historic EAME boreholes (*Annex F*). With respect to the plume area, whilst this information can be utilised to estimate dissolved phase contaminant mass reduction associated with the recent remedial works, given the sporadic and fragmented nature of the plume and presence of NAPL, it should not be used to determine specific groundwater trends in terms of pollutant behaviour. It was known prior to the remediation works that the dissolved phase concentrations of key contaminants of concern within the plume area were high, and this remains the case post remediation.

The dataset collected can be utilised from the plume area and wider historic boreholes as part of the planned long-term monitoring programme (*Section 3.5*).

An initial calculation of mass reduction (dissolved phase only) would indicate the following:

- Aromatic $C_5 C_{35}$, 4.3 kg of contaminant mass removed (dissolved phase only).
- Dichloromethane, 8.5 kg of contaminant mass removed (dissolved phase only).

Note that the above are indications only using average pumping volumes over the entire remediation plume area.

The above calculations do not consider the physical NAPL removed as part of the works. As indicated previously, whilst NAPL was removed during the pumping works (as evidenced by the reduction in NAPL thickness), the overall volume observed within the WTP was small. JFHR estimate that between 25 – 50 litres of NAPL was removed by the WTP as part of the recent works.

3.6 Monitored Natural Attenuation (MNA)

A discussion of the potential for natural attenuation processes within the dissolved phase in the groundwater beneath the site was included within the original site investigation report².

Groundwater samples collected during the JFHR remediation were analysed for the following MNA indicator parameters (as outlined in EA document R&D P95)⁷, Dissolved Oxygen, Nitrate, Ferrous & Ferric Iron (Fe II & Fe III), Sulphate, Chloride and Dissolved Methane. The

⁷ Environment Agency (2000). Guidance on the Assessment and Monitoring of Natural Attenuation of Contaminants in Groundwater, R&D Publication 95, M. A. Carey1, J. R. Finnamore2, M. J. Morrey1 & P.A. Marsland, ISBN: 1 85705 263 2



concentrations of the MNA parameters are provided in *Annex F*. We respect to the proposed long-term monitoring wells (*i.e.* BH36, A2, BH02-17, BH05-17 and BH06-17)⁸ the potential MNA conditions are as follows:

Dissolved Oxygen (DO) & Redox Potential (Eh) – The laboratory analytical results indicate that dissolved oxygen was elevated above 0.5 mg/l in all wells (*Figure 3-6*). There is a general trend of increasing DO down hydraulic gradient of the highest groundwater contaminant concentration suggest that down hydraulic gradient conditions are aerobic.

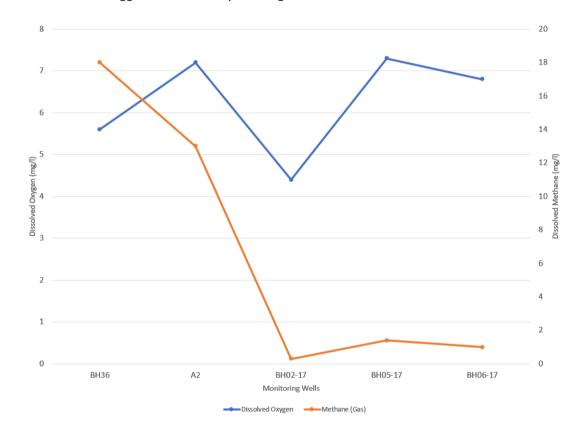


Figure 3-6: Dissolved Oxygen and Dissolved Methane (mg/l)

Nitrate – Nitrate concentrations are elevated in all monitoring wells. Thermodynamically, nitrate is the next most favourable electron acceptor after oxygen and the results suggest that denitrification during anaerobic degradation is not occurring.

Iron (Fe II) – Concentrations of Fe(II) are elevated in monitoring wells BH36, A2 and BH02-17 but depleted in monitoring wells BH05-17 and BH06-17. This could suggest that Fe(III) reduction during microbial degradation is occurring but Fe(III) concentrations are not

⁸ Boreholes BH302s and BH302d not monitored during remediation programme.



consistently depleted in the corresponding monitoring wells and thus it is unclear if this is an active process.

Sulphate – Sulphate concentrations were elevated in all monitoring wells, suggesting that sulphate reduction is not occurring, and it is not being used as an electron acceptor during biodegradation of organic contaminants.

Dissolved Methane (CH₄) – Concentrations of methane were observed to be elevated in all monitoring wells (*Figure 3-6*). The highest dissolved methane concentration has been recorded in monitoring wells BH36 and A2 where the highest groundwater contaminant concentrations were recorded. This could suggest the presence of methanogenic bacteria and near the wells *i.e.* the system has reached the point where methanogenesis is occurring.

Appraisal of primary and secondary lines of evidence suggests that on balance there is potential for natural attenuation processes to be active within the groundwater contaminant plume. It is proposed therefore that the remedial programme will move into a long term MNA monitoring phase to continue beyond the development construction works.



4 Long Term Monitoring Plan

4.1 Introduction

In-line with the commitments outlined within the Remediation Strategy two phases of monitoring (post-remediation) are to be undertaken:

- post remediation groundwater monitoring; and
- long-term groundwater monitoring.

4.2 Post-remediation Monitoring

John F Hunts Remediation (JFHR) are to undertake the following groundwater monitoring programme to assess trends and potential rebound post remediation (*Table 4-1*).

Table 4-1: Post-remediation groundwater monitoring programme

Month	Туре	Monitoring Date	Notes
Month 0		September 2018	Completion of groundwater remediation scheme and removal and decommissioning of all equipment.
Month 0	80 U	September 2018	Monitoring of selected injection grid wells + 5 wider site monitoring boreholes.
Month 2	Monitori	November 2018	Monitoring of selected injection grid wells + 5 wider site monitoring boreholes.
Month 4	Bi-monthly Monitoring	January 2019	Monitoring of selected injection grid wells + 5 wider site monitoring boreholes.
Month 6	B _.	March 2019	Monitoring of selected injection grid wells + 5 wider site monitoring boreholes.
Month 9	terly oring	June 2019	Monitoring selected injection grid wells + 5 wider site monitoring boreholes.
Month 12	Quarterly Monitoring	September 2019	Monitoring of selected injection grid wells + 5 wider site monitoring boreholes.

Injection wells (A2, A6, Z5, C7, D4 + NAPL monitoring of BH36) and wider site boreholes – BH01-17, BH02-17, BH03-17, BH05d-17 and BH06d-17. It is important to note that this could change in-light of MHVT development schedules.



The determinands proposed are aligned to the key risk drivers, identified within the Detailed Quantitative Risk Assessment (DQRA), and typical Monitored Natural Attenuation (MNA) parameters (e.g. dissolved oxygen, redox potential, nitrate, Iron II, sulphate and dissolved methane). Information recorded will include depth to water, presence/absence of NAPL and water sampling (via low flow technique) for chemical testing. Upon completion of the post-remediation groundwater monitoring programme a standalone factual report will be produced.

4.3 Long-term Monitoring

Following the demolition, site clearance and 2018 remediation works (undertaken by John F Hunts) the southern site contains thirty-one viable potential long-term monitoring wells. However, the potential accessibility of these wells needs to be balanced against the proposed development schedule and availability post-construction. As a result, Curtins Consulting, advising the site developer Metropolitan Thames Valley Housing (MHVT), were consulted (*Annex G*) to determine the most suitable locations that would be available post-construction considering buildings, roadways and landscaping (*Figure 4-1*). Where locations are potentially close to building footings (*e.g.* D2 and C2) these have also been discounted.

Table 4-2: Proposed long-term monitoring wells

Well Ref.	Location	Elevation (m AOD)	Notes
BH36 (RW37)	524219.398 212863.343	85.467 m	Bilfinger Berger Environmental Ltd remediation well (2008/2009). No borehole log available. Located within roadway.
A2	524064.043 212765.482	85.718 m	John F Hunt remediation well (drilled 2018). Borehole log available. Located within roadway.
BH302s	524160.612 212755.483	85.467 m	URS Dames & Moore well (drilled 1999/2000). No borehole log available. Located in landscaped area.
BH302d	524160.612 212755.483	85.213 m	URS Dames & Moore well (drilled 1999/2000). No borehole log available. Located in landscaped area.
BH02-17	524116.588 212766.212	85.467 m	EAME well (drilled 2017). Borehole log available. Located in car parking space.



Well Ref.	Location	Elevation (m AOD)	Notes
BH05d-17	524103.558 212711.406	85.316 m	EAME well (drilled 2017). Borehole log available. Located in car parking space.
BH06d-17	524167.876 212642.478	84.981 m	EAME well (drilled 2017). Borehole log available. Located in roadway.



Figure 4-1: Available long-term monitoring wells (post-construction)

 $Google\ Earth\ Imaging\ with\ the\ permission\ of\ Google-Licensed\ to\ Earth\ and\ Marine\ Environmental\ Consultants\ Ltd.$

The seven proposed long-term groundwater monitoring wells are outlined within *Table 4-2*. These are located around the historic source *i.e.* the remediated tank farm (BH36, A2, BH02-17 and BH5d-17) and down gradient of the anticipated groundwater flow (BH06d-17, BH302s and BH302d). All borehole headworks will be protected during the construction phases activities and installed to allow long-term monitoring (*i.e.* post construction).



The data collected during the Post-remediation Monitoring will be utilised as a baseline against which the longer-term monitoring will be compared. The determinands proposed are aligned to the key risk drivers, identified within the Detailed Quantitative Risk Assessment (DQRA), and typical Monitored Natural Attenuation (MNA) parameters (e.g. dissolved oxygen, redox potential, nitrate, Iron II, sulphate and dissolved methane). Appraisal of primary and secondary lines of evidence suggests that there is potential for natural attenuation processes to be active within the groundwater contaminant plume. The proposed monitoring will be undertaken in accordance with the principals outlined within current EA guidance9.

The proposed long-term groundwater monitoring programme is outlined in Table 4-3.

Table 4-3: Long-term groundwater monitoring programme

Month	Туре	Monitoring Date	Notes			
Month 12		September 2019	Completion of post-remediation monitoring.			
Month 18	hly ng	March 2020	Monitoring of 7 monitoring wells.			
Month 24	Six-monthly Monitoring	September 2020	Monitoring of 7 monitoring wells.			
Month 30	Six-	April 2021	Monitoring of 7 monitoring wells.			
Long-term monitoring wells – BH36 (RW37), A2, BH302s, BH302d, BH02-17, BH05d-17, BH06d-17						

The groundwater results will be compared to the post remediation baseline to assess on-going groundwater trends.

4.4 **Sampling Procedure and Analysis**

4.4.1 **Purging and Sampling of Wells**

All wells will be dipped prior to purging, using a Geotech Interface Meter to determine current well volume and to determine if any free-phase liquid is present. All wells were then purged using low-flow purging followed by low-flow sampling. If difficulties are encountered the fallback position will be three-standard well volume methodology (where achievable)^{10,11} using Waterra Standard High-Density Polyethylene (HDPE) tubing (16 mm) and a Waterra PP1

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⁹ Environment Agency (2000). Guidance on the Assessment and Monitoring of Natural Attenuation of Contaminants in Groundwater, R&D **Publication 95**

¹⁰ Environment Agency (2003). Guidance on monitoring of landfill leachate, groundwater and surface water. 283pp.

¹¹ ASTM (2012). ASTM D6542 2012. Standard guide for purging methods for wells used for groundwater quality investigations



Power-pack. In either case low-flow sampling will be undertaken. Pipework will be dedicated to each borehole and not re-used.

4.4.2 Headspace Testing

All groundwater samples will be tested by dynamic headspace analysis, for the presence of volatile organic compounds (VOCs) using a Photoionization Detector (PID). The PID screens for a wide range of volatile organic compounds including hydrocarbon compounds and certain chlorinated solvents but does not indicate a specific compound. The measurements obtained by the instrument in parts per million by volume (ppmv) provide a semi-quantitative indication of the concentration of hydrocarbon vapours that are.

4.4.3 Sample Integrity

All samples will be placed in containers appropriate to the type of analysis being undertaken and stored in cool boxes maintained at a low temperature (using ice packs), to avoid the loss of volatile compounds. Dispatch to the accredited laboratory will take place as soon as possible following the completion of the investigation.

All sampling will be undertaken using EAME in-house field procedures (available on request) and relevant guidance, such as BS ISO 5667-11:2009, BS 6068-6.11:2009 Water quality Sampling. Guidance on sampling of groundwaters.

All collected samples will be submitted to i2 Analytical Ltd a UKAS (ISO 17025) accredited laboratory for chemical analysis. All samples were given a unique reference number, dated and the information recorded on an appropriate Chain of Custody (CoC) form for dispatch with the samples to the appropriate laboratory.

4.5 Reporting

After each round of groundwater monitoring a formal report shall be issued to the Local Authority outlining current groundwater conditions and trends.

4.6 Borehole Decommissioning

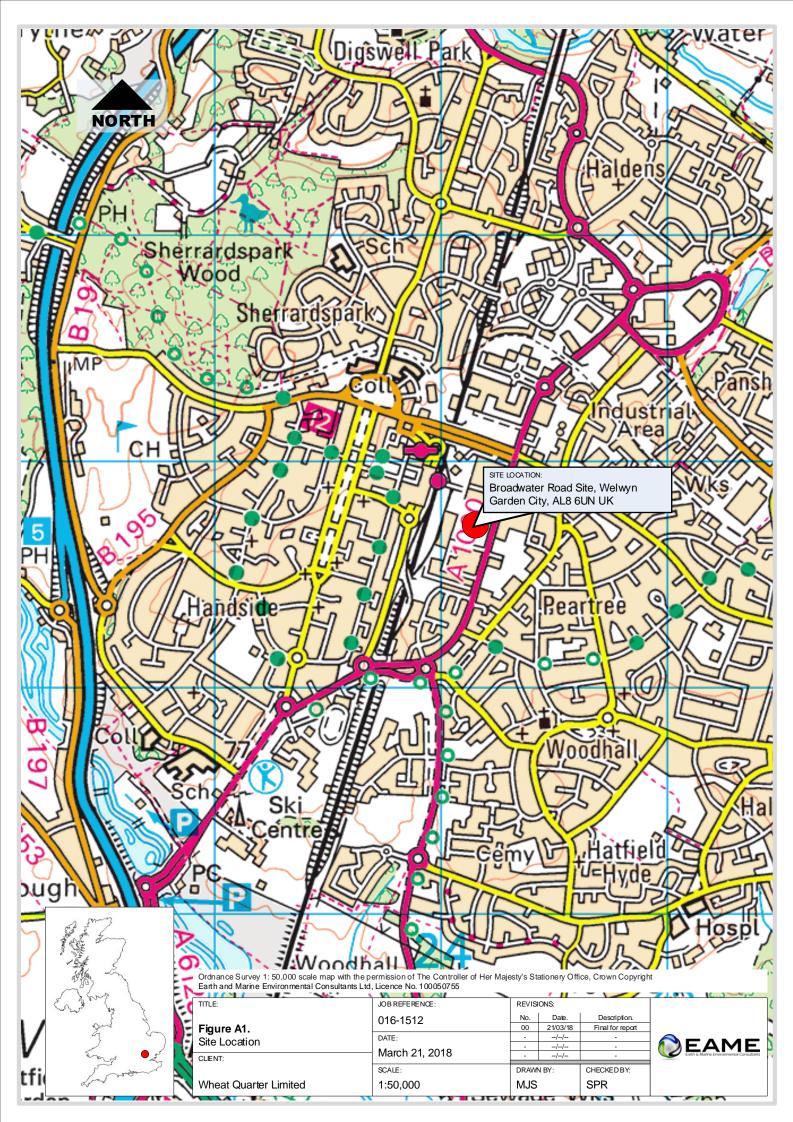
Once the agreed monitoring programme has been completed all on-site groundwater wells will require decommissioning in accordance with the methods and procedures detailed within Good Practise for Decommissioning Redundant Boreholes and Wells (Environment Agency 2004). Confirmation of effective decommissioning shall be submitted to the Local Authority.

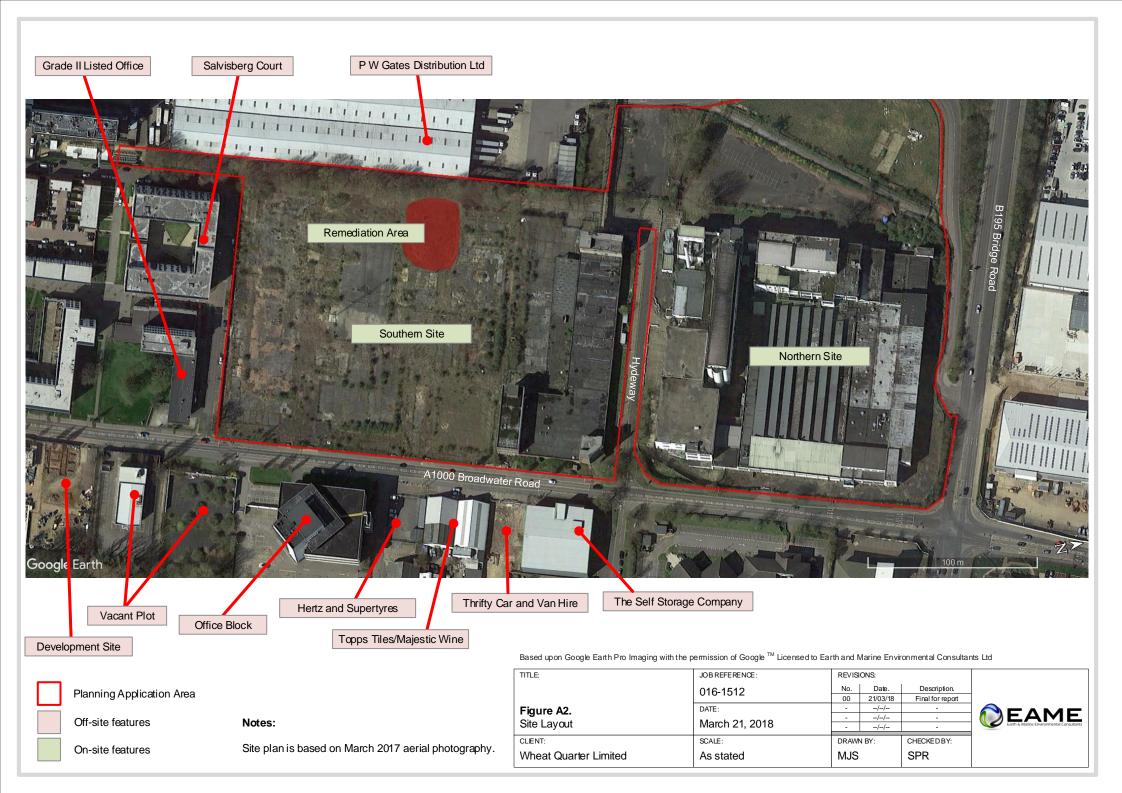
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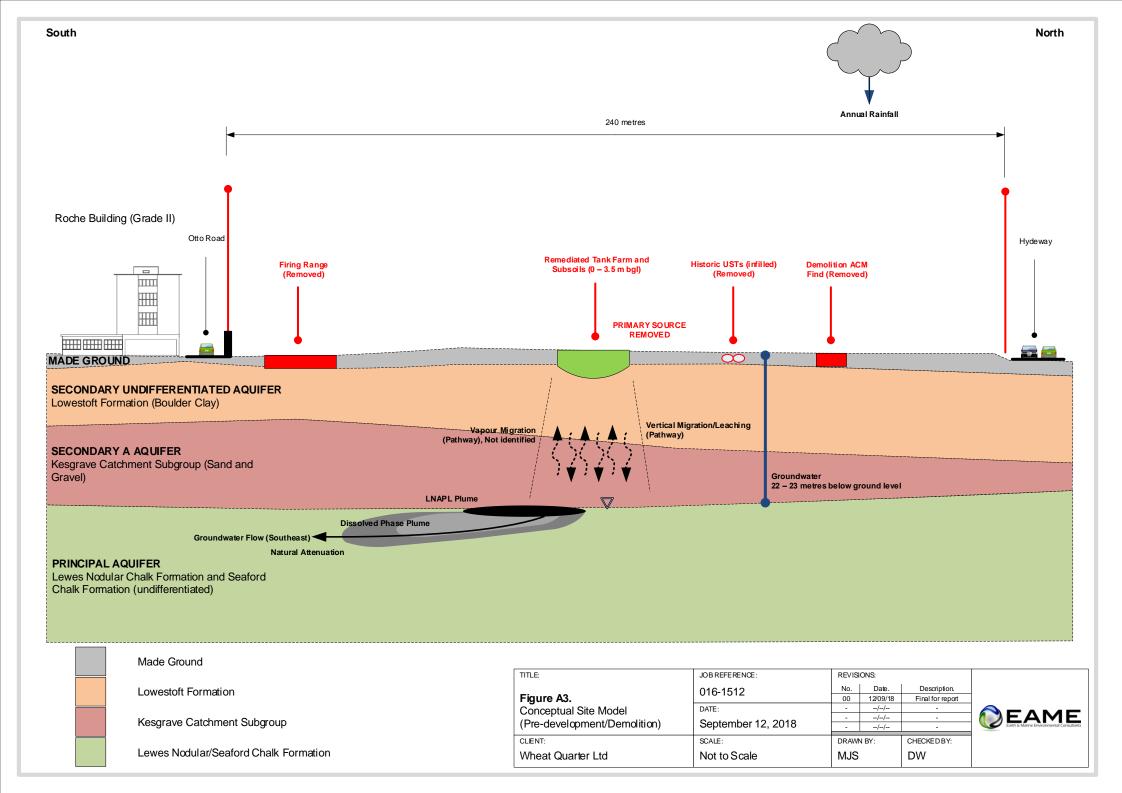


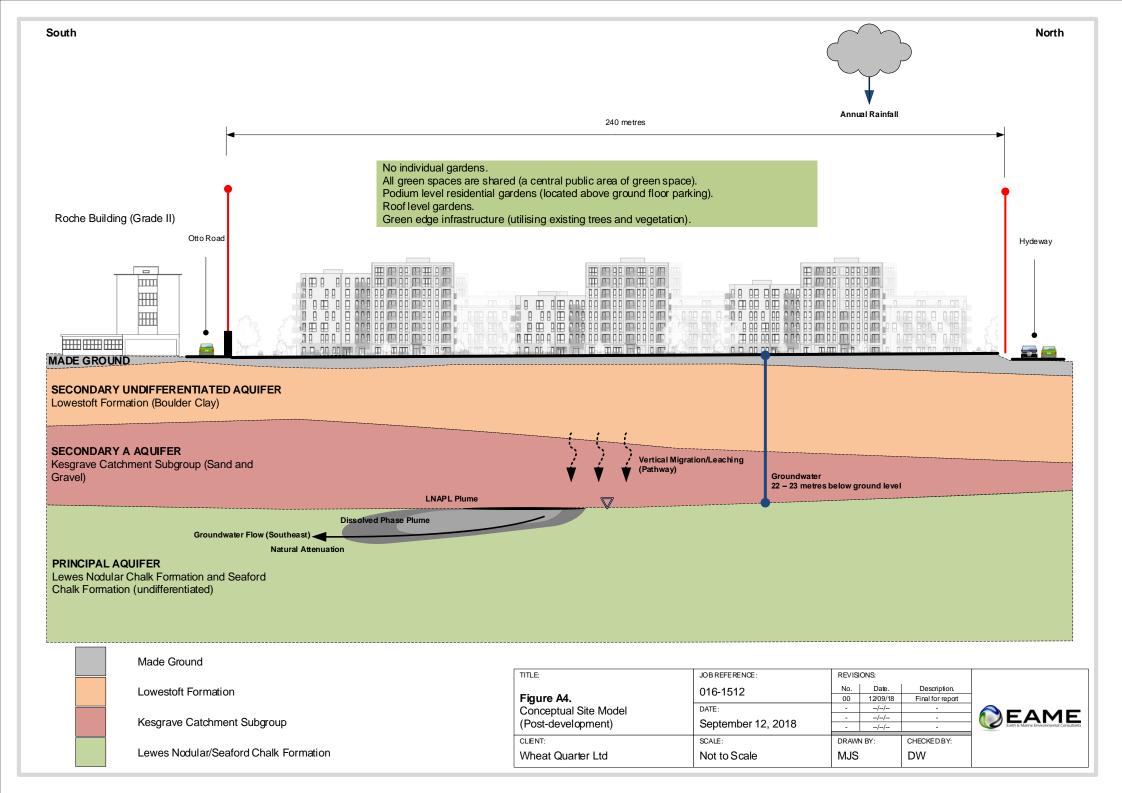
Annex A – Figures

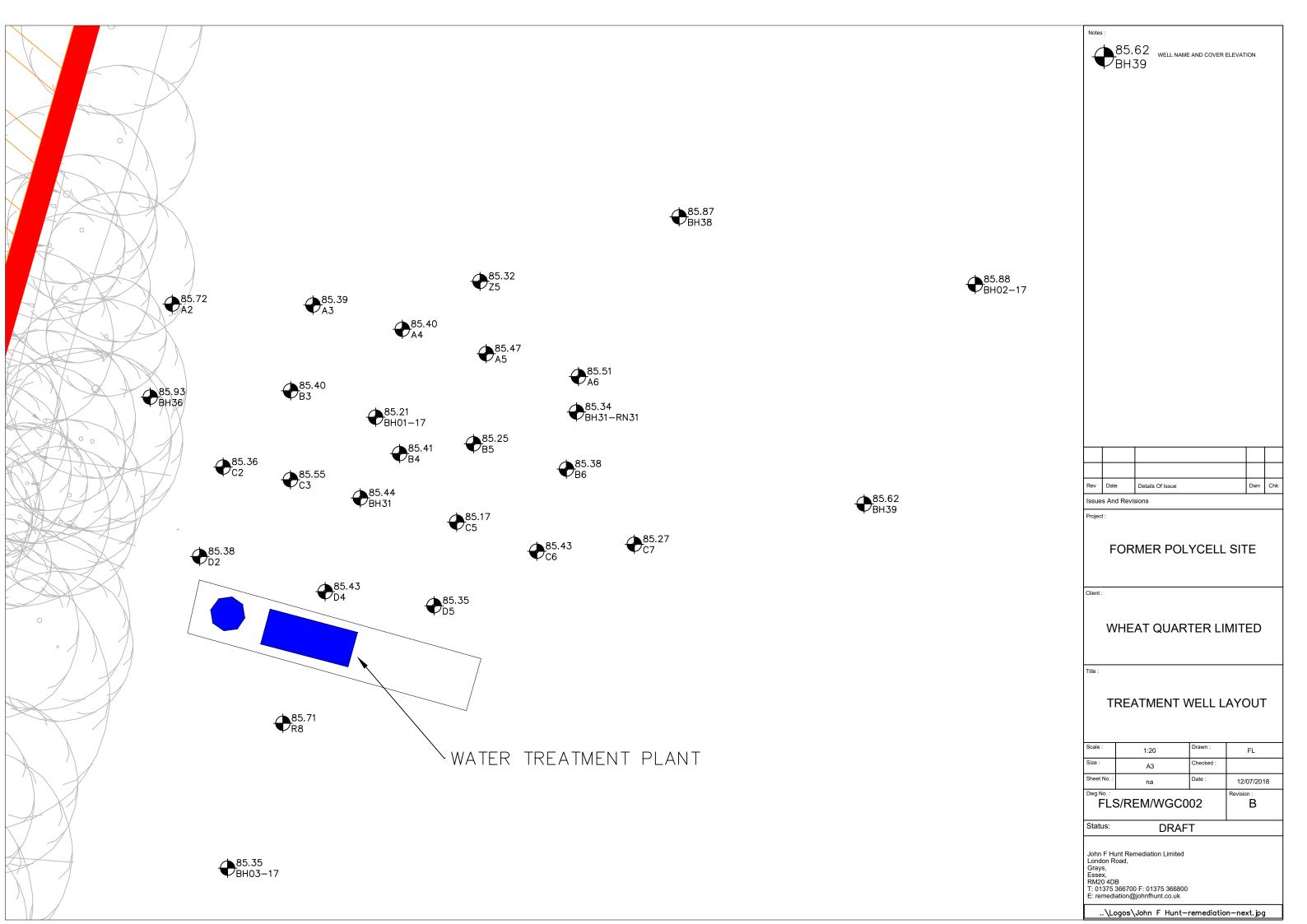
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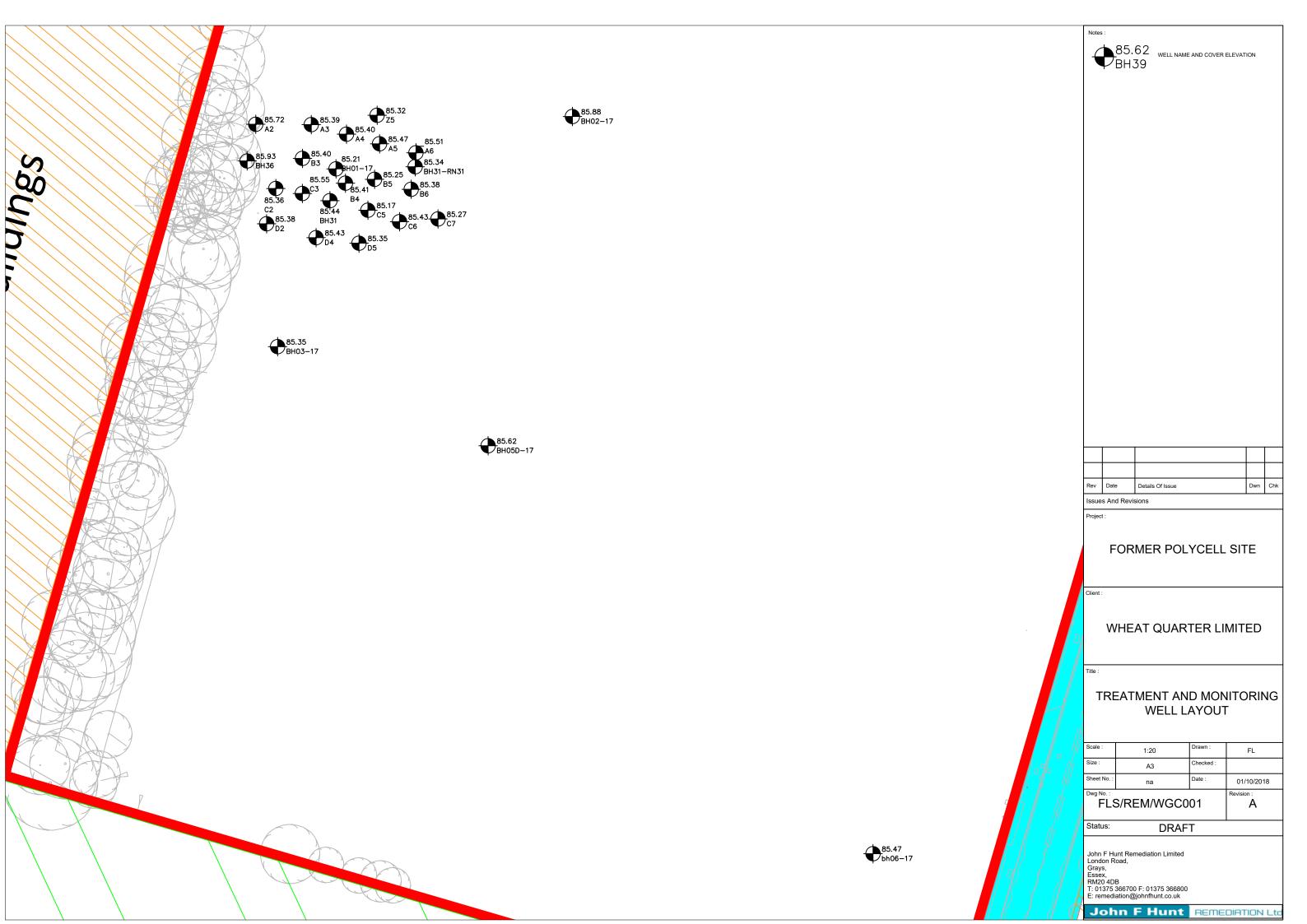


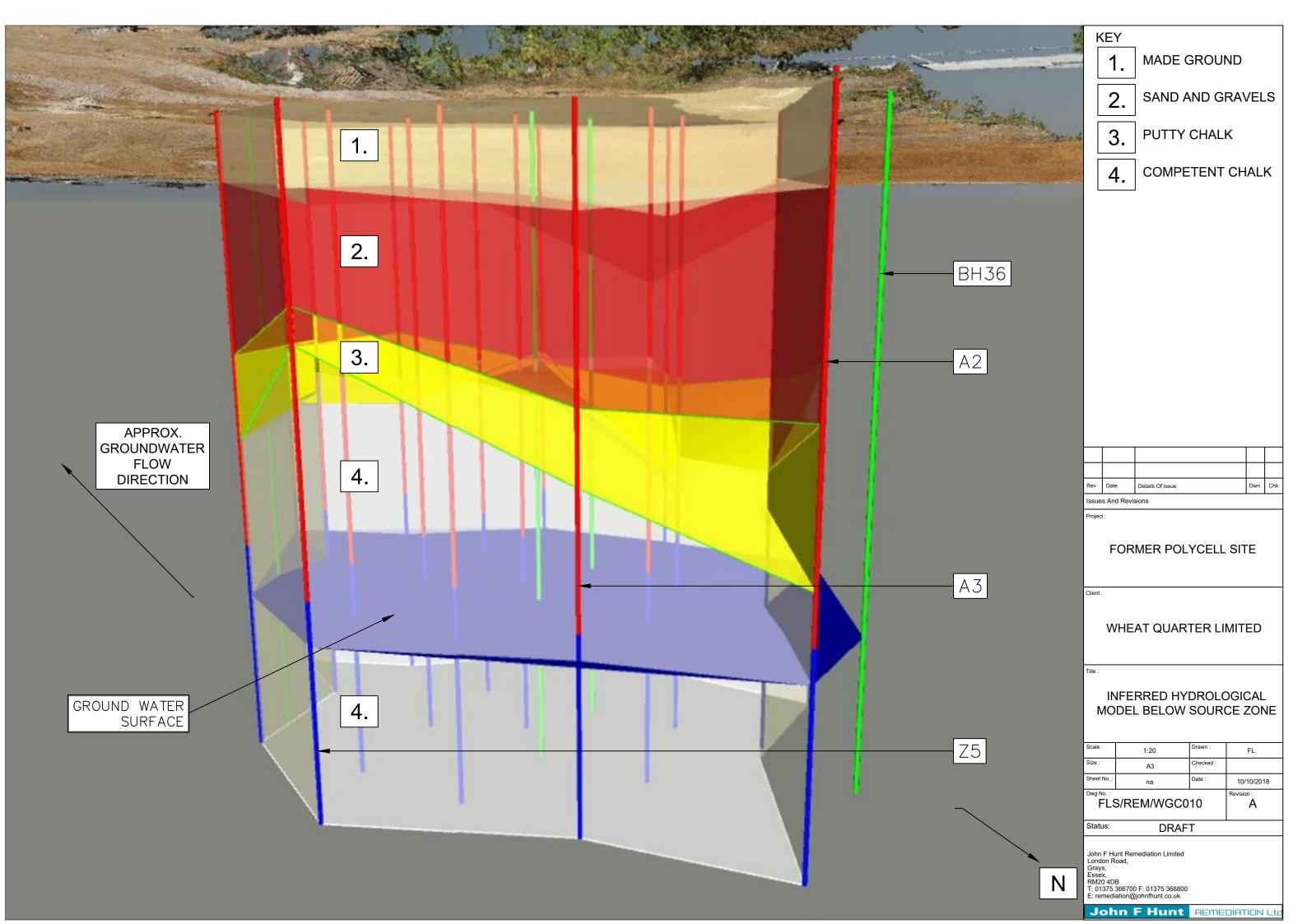




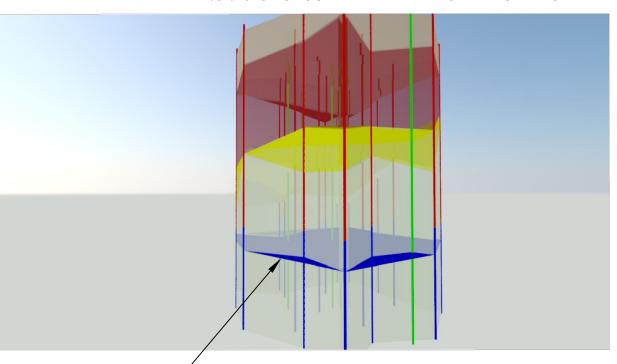




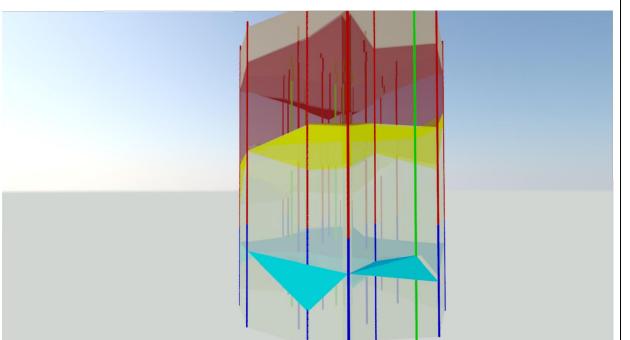




11/07/2018 - GROUNDWATER PRE-ACTIVE PUMPING

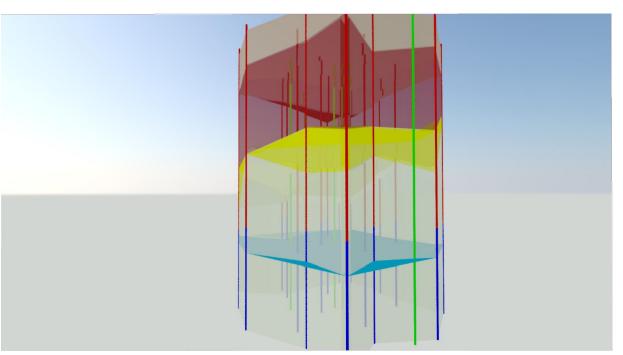


21/08/2018 - GROUNDWATER DURING ACTIVE PUMPING



GROUND WATER

25/09/2018 - GROUNDWATER END ACTIVE PUMPING



Rev	Date	Details Of Issue	Dwn	Chk

Issues And Revisions

FORMER POLYCELL SITE

WHEAT QUARTER LIMITED

EXAMPLE OF GROUNDWATER DRAWDOWN DURING PUMPING

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FLS/REM/WGC011

Status: DRAFT

John F Hunt Remediation Limited London Road, Grays, Essex, RM20 4DB T: 01375 366700 F: 01375 366800 E: remediation@johnfhunt.co.uk

John F Hunt REMEDIATION Ltd



Annex B – Remediation Grid – Borehole Logs

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				<u> </u>										
				<u> </u>										
	73.84 73.84													
1.5	$ \begin{array}{c c} \circ \circ \circ \circ \\ \circ \wedge \circ \\ \circ \circ \circ \circ $					((Poor racovany	from 11 5	-15m. Assumed soft pu	ttv challe	Only grovels				
						recovered.))		_	-		·			
			73.34		12.00	Brown sandy GR subangular to rou	RAVEL. S	Sand is fine to coarse. Clint and quartz	Gravel is	fine to coarse,	, 1			
						INFERRED: Put					/			
							-							
	0													
					(3.10)									
5 1]	70.24		15.10								X	
5.1						Soft offwhite put	tty CHAL	K with occasional subro	ounded fl	int gravels.				
	0													
									ПГ					
						hole Drilling Fl	lush Re		$\parallel \parallel$		ENERA MAD			
Top o Run (n	of Bas n) Run	e of (m)	Recovery (%)	Top of Run (m)	Base of Run (m)	Flush Return		Remarks	-	15.1m inferred	MAR		1000	_
11.50	1.50 15.10 10								 >1	5.1m, logged	by engi	neer.	.080	•
15.10 18.12 100														
A 11 .1:	imension	s in me	tres Cli	ent W	heat Quar	ter Ltd	Method/	Rotary Sonic Rig	with Co	re Log	ged By		 11	=

Projec	et									BOR	EHOI	LE N	lo
		r Poly	cell Sit							A2 (RHI	ገበፉ	51
Job N	o		Dat	03-07	-18	Ground Level		Co-Ordinates ()		A2 (וווט		ן יי
	ner Poly	cell S	ite	04-07	-18	85.3	4	E 212,765.5 N	524,064.1				
Conti										Sheet			
	John F	Hunt	Remed	iation							of of	4	
	PID							STRATA				ent/	III
Depth	Result	Water	Reduce	d	Depth (Thick-			DESCRIPTION			Geology	nstrument/	ackf
	(ppm)		Level	Legend	ness)						Gec	Inst	Ř
16.1		-				Soft offwhite (continued)	putty CHAl	LK with occasional subrou	inded flint gravel	S.			
				<u> </u>									
	0				(3.00)	16.50 Orange	yellow staii	ning with a 70mm dia. sub	rounded flint cob	ble			
17.1		1											
						17.40 Orange	vellow stair	nino					
	0					17.60 Becomi							
			67.2		18.10								
18.1			07.2	* 	10.10	Putty CHALK	with chalk	fragments <2cm dia. with	occasional orang	ge staining			
-	0				(0.70)	and flint grave	els.						
	U		66.5	4	18.80								
- 19						Offwhite struc	ctureless CI	HALK					
-	0												
- 20					(2.50)								
					(2.30)								
-	0.6					20.30 Band of	subrounde	d, fine to coarse flint grave	els				1
				<u> </u>		20.60 - 20.80	Broken (an	gular) flints				00	200
20- 21				<u> </u>								0	$\mathcal{N}_{\mathbf{a}}$
2 October 2018			64.0	4 " "	21.30								
	1.1				(0.60)	Offwhite sligh		uctureless CHALK with po	ockets of putty. I	Mild			
21.7	63.9	-	63.4		(0.60)	21.50 Band of	flint	d		1			
= - 22		-	03.4					rk grey staining around sha ld to moderate hydrocarbo		nge brown			
4 0.G						Offwhite struc	ctureless CF	HALK with occasional fine	e to medium, ang	ılar to			
AGS (30.8					Tourided Time §	graveis						
STD,						22.65 Band of	f flint grave	ls. Mild sewage/solvent o	dour. Mild hydro	carbon			
E - 23		-				odour.							
rary: (
- Fig	12.8												
23.8	4	-				23.60 - 23.70 23.70 Rand of	Brown rust	coloured staining ng with a mild to moderate	hydrocarbon od	our		[°Œ	±3
E E				 						oui		6 E	\mathbb{N}
∃ Bore	hole Co	ore Re				hole Drilling	Flush Re	eturn		GENER.			
Top Run (se of (m)	Core Recovery	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		REMAR			
A 101	18.12 23.80 100								0-15.1m inf >15.1m, log			logs.	
[편] 18.1 23.8	18.12 23.80 100 23.80 26.30 100								,,,				
oject:													
- P													
표													
21.77 22.88 22.89 23.88 23.8			T	<u> </u>	m - C		1	Datam-C	ide Com				=
All o	All dimensions in metres Client Wheat Quarter Ltd						Method/ Plant Us	Rotary Sonic Rig w sed Recovery	iin Core	Logged By J F	Russel	1	
₾ [Scale 1:50							11100,019					

Proje	ct										BOR	EHOI	LE No
		er Po	lyce	ell Site							Λ2 /	(RHI	D05)
Job N				Date	03-07	-18	Ground Level (Co-Ordinates ()		AZ (ВП	D03)
	ner Pol	ycell	Site	;	04-07	-18	85.34	4	E 212,765.5 N	524,064.1			
Cont	ractor	ги	, D	. 1.	٠.						Sheet	4 C	4
	John	r nu	nı K	Remedi	ation						'	4 of	
Depth	PID Resul (ppm)	Water	F	Reduced Level	Legend	Depth (Thick- ness)			STRATA DESCRIPTION			Geology	Instrument/ Backfill
24.3	120					nessy	rounded flint g	ravels (con	HALK with occasional fine tinued) at odour with a very mild h	_			
25.3	10.1						25.00 Occasion	nal flint gra	avels				
26.3		_				(9.10)	25.90 - 26.20 (Occasional	flint gravels				
- 27							26.60 No hydro 27.00 - 27.10 I		lour. Sewage/solvent odou	r remains.			
-	6.8												
28.6	8 14.6						28.30 - 31.00 (staining	Occasional	flint to medium angular fl	int gravel with o	orange		
Support Supp	6												
SITE.GPJ Library: 0													
Bore					nole Drilling	Flush Re	eturn		GENER				
Top Run (26.3 28.6 28.6					Flush Return		Remarks		REMAR ferred from gged by eng	KS drillers	logs.		
Report ID: JFH BH	All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd					Method/ Plant Us	Rotary Sonic Rig wi	th Core	Logged By	Russel	11		

Projec	t									BORI	EHOI	LE N	o
		r Pol	ycell Sit	e						A3 (RHI	D 01	, l
Job No			Da	05-06	-18	Ground Level (` '	Co-Ordinates ()		75 (D: ::	וטכ	'
	er Poly	cell S	ite	06-06	-18	84.84	4	E 212,765.5 N	524,073.3				
Contr			_							Sheet			
	John F	Hun	t Reme	diation							of ·	4	
	PID	is is						STRATA				lent/	
Depth	Result (ppm)	Water	Reduc	Legend	Depth (Thick-			DESCRIPTION			Geology	Instrument/	sack
0	(PPIII)		Leve	31. 31.	ness)						g	Ins	H 7//
			84.5	59 	0.25	Topsoil	INID. C	1- CDAVEL C- 1:	£ t	1:			
-	0							sandy GRAVEL. Sand is to subrounded of concret		ravel is			
- 1		-											W
					(1.85)								
+	31.1												
						1 90 Pagamin	a o dork ar	ey sandy gravel with a mile	d bydraeerban ade	nie.			
- 2		-	82.7	74	2.10								
	1824					Gravel is fine t	to coarse, s	nge brown sandy GRAVE ubangular to subrounded o	 L. Sand is fine to of concrete and bri 	coarse. ck.			
-						Moderate to st	trong hydro	carbon odour.					
					(1.40)								
3						3.00 Becoming	g slightly cl	layey and less odourous.					
	81.34 3.50												
- 3.5	Sti						iff dark bro	own slightly sandy slightly	gravelly CLAY.	Sand is			
	295.5				(1.00)			s fine to medium, subangu d-moderate hydrocarbon o					
					(1.00)	4.00 - 4.50 Mi	ild sewage/	solvent odour					
- 4.5			80.3		4.50								
4.5	0.1			00.00	(0.60)	Loose orange to coarse, subr	brown sand	ly GRAVEL. Sand is fine rounded of flints.	to coarse. Gravel	is fine			
8 - 5			79.7	0 . 0 .	(0.60)	4.70 Becoming no odour	g paler in c	olour toward base and dry	(loose) with very	mild to			
2 October 2018			77.	0.0.0		Loose orange 1	brown SAN	IDS and GRAVELS. San	d is fine to coarse.	Gravel			
2 001	73.9			0.0.0		is fine to coars odour. Mild so	se, subangu ewage/solv	lar to rounded of flint. No ent odour.	obvious hydrocar	bon			
Date:				0 0 0			6						
事 6		-		0.0.0									
0.0	4.0			000									
AGS	4.9			0000									
STD				0.0									
[7				0.00									
brary:				0.0.0									
	4			0000									
편 명				.0 0 .0									W
o Bore					Borel	nole Drilling	Flush Re	eturn		GENER.	Λ T	×///	~~
Top		se of	Core	Top of	Base of	Flush Return		Remarks		GENEK. REMAR			
Run (1		(m)	Recovery (%)	Run (m		%		Vehial R2					
0.00	0.00 2.10 100 5 2.10 3.50 100 3.50 4.50 100				nite grouting lost into	1							
원 2.10 형 3.50				fe	ormation at 16m.								
출 4.50 5.10	4.50 5.10 100 5.10 6.80 100												
6.80	6.80 8.50 100												
Second S													
All dimensions in metres Client Wheat Quarter Ltd						Rotary Sonic Rig w	ith Core I	ogged By	1	1			
<u>R</u>	Scale 1:50						Plant Us	sed Recovery		Jŀ	Russel	1	

						DOM		E LUG						
Projec		D 1	11.01.								BOR	EHOI	LE N	lo
* 1 > 1		r Poly	cell Site		1	G 17 1					A3 ((BHI	D01	1)
Job N			Date	03-00		Ground Level	` ′	Co-Ordinates ()			7.00	(=:		• ,
	er Poly	cell S	ite	06-06	-18	84.8	4	E 212,765.5	N 52	4,073.3				
Contr			_								Sheet			
	John F	Hunt	Remedi	ation								2 of		
	PID							STRATA				>	lent/	Backfill
Depth	Result	Water	Reduced Level	Legend	Depth (Thick-			DESCRIPTION				Geology	Lrunz	ack
_	(ppm)		Level		ness)							ğ	Ins	m N
8				00.00	(6.20)	Loose orange is fine to coars	brown SA se, subang	NDS and GRAVELS. Salar to rounded of flint.	and is No ob	fine to coarse vious hydroca	. Gravel rbon		M	
	11.9			0.0.0.0.		odour. Mild s	ewage/sol	vent odour. (continued)		•				X
				0.0.0.0		8.50 Sand bec	oming me	dium to coarse						
9		_		0. 0. 7									M	
				0,00										X
	0			0.0.0.0.										
				0 0 0									M	
10		.]		0.0.7.0.7										X
				0.0.0.0.										
	305			0.0.0										
				0.0.0										X
11				0.0.0.0.		10.80 Solvent	odour bec	oming strong with depth						
			73.54		11.30								M	
	1719					Soft offwhite/solvent odour.	pale yellov	v putty CHALK with ora	inge st	aining and a s	strong			X
					(1.10)									
12					(1.10)								M	
			72.44		12.40									X
	2064		72			Firm offwhite	putty CH	ALK with chalk fragmen	ts <4c	m dia. Occas	sional			
						orange staining	g and a str	ong solvent odour.					M	
13		-		7	(1.40)	12.90 - 13.60	Band of ro	ounded flint cobbles <10	cm dia					X
					(1.10)									
	202												M	
			71.04		13.80	Firm offwhite	putty CH	ALK with chalk fragmen	te and	horizontal fra	ctures	1		X
14						(<2cm spacing			w and	nonzonai Ha	.cui cs			
					(1.20)	14.30 Solvent	odour bec	oming sweeter						
	901				(1.20)	0 231, ent								K
			69.84		15.00									
15		1	07.04		13.00	Weathered off	white stru	ctureless CHALK with <	1cm c	halk fragmen	ts with	1		
						occasional flir	nt gravels (rounded <6cm)						K
929														
Bore	hole Co	ore Re	ecovery	'	Borel	nole Drilling	Flush R	eturn			GENER	ΔΙ		<u> </u>
Тор		se of	Core	Top of	Base of	Flush Return		Remarks	$\parallel \parallel$		REMAR			
	(%)							- Committee						
	8.50 10.70 100 10.70 12.00 100													
12.00 15.00 100														
15.00 17.80 100														
13														
All dimensions in metres Client Wheat Quarter Ltd								Rotary Sonic Rig		Core	Logged By	D 1	1	
	Scale 1	1:50					Plant U	sed Recovery	y		J	Russel	1	

Projec	et							LOG		BOR	EHOI	E No
		ner Pol	ycell Sit							A3 (BHI	201)
Job N		111 6	Dat	e 05-06 06-06		Ground Level (84.84		Co-Ordinates ()	524 072 2	, 0,	٠, ١,	301)
Contr		lycell S	Site	00-00	-10	04.04	4	E 212,765.5 N	324,073.3	Sheet		
	John	F Hun	nt Remed	liation							3 of 4	1
	PID	H						STRATA			, x	ent/ ill
Depth	Resul (ppm	t at	Reduce Level	Legend	Depth (Thick- ness)			DESCRIPTION			Geology	Instrument/ Backfill
16	357					Weathered off occasional flin	white struc at gravels (r	tureless CHALK with <1c ounded <6cm) <i>(continued)</i>	m chalk fragmen	ts with		
- 17 -	625				(6.30)	17.50 Rounde 17.80 Chalk fi		le 7cm dia. ecoming 1-5cm dia.				
18.8	613	 				19.10 Band (<	(5cm) of ho	rizontal fractures				
- 20	415	_						our becoming mild, and a n	nild hydrcoarbon	odour.		
21		_				20.30 Band of	Horizontai	nactures \100mmua.				
	1465	;	63.5	4	21.30			ey staining with a mild hyd		<4cm.		
- 22 -	1470				(1.60)	22.20 - 22.30 2 22.45 - 22.90 2	_	ey staining with a mild hyd ey staining	rocarbon odour			
23.2	61.94					Pale white stru	actureless C	rker grey staining with a st HALK with pockets of pure decreasing and a mild sev	tty.			
E. GP3 LIB	rehole Core Recovery Bo				(1.20)							
Bore					Borel	nole Drilling	Flush Re	eturn		GENER.	AL	
Top o		Base of un (m)	Core Recovery (%)	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		REMAR		
21.0	17.80 21.00 100 21.00 24.00 100 24.00 26.50 100											
All d		ons in me 1:50	netres C	lient W	heat Quar	ter Ltd	Method/ Plant Us	Rotary Sonic Rig wi	ith Core	Logged By J F	Russel	1

Projec										BORE	±HOI	LE No
		r Poly	cell Site							Δ3 (RHI	D01)
Job N	lo		Date	05-06-	-18	Ground Level (m)	Co-Ordinates ()		73 (וו וכ	501)
Forn	ner Poly	cell S	ite	06-06-	-18	84.84	1	E 212,765.5 N 5	24,073.3			
Conti	ractor		'							Sheet		
	John F	Hunt	Remed	iation						4	4 of 4	4
	DID							STRATA				ent/
Depth	PID Result	Water	Paduaa	1	Depth			DESCRIPTION			Geology	Instrument/ Backfill
1	(ppm)	≥	Level	Legend	(Thick- ness)			DESCRIENT TO I			jeol	nstr Ba
24			60.74	1	24.10							، هيك
						Pale white stur	ctureless to	weak structured CHALK vectures. Mild to moderate se	vith pockets of wage/solvent o	putty.		194
-	334											
												()
- 25		-										COL
-	260					25.30 - 25.60 F staining	Putty chalk	around a broken flint cobbl	e with rare bro	wn/orange		19 E
						summg						
- 26												BOTH S
20	230					2620 26201	1 600					
26.5						26.20 - 26.30 H	Band of flu	nt				
-26.5				 								
	30				(6.05)							
					` ′							194
-27.5		1										
						27.60 - 27.90 E 27.80 - 27.90 E						600
-	35					27.80 - 27.90 F	Sand of fin	п				
-28.5		-										KE.
<u>:</u> -	250											BOTH S
	279											
						29.40 Band of	flint					
29.7		-						taining with a sewage seaw	1 . 1			
	315					29./0 Band of	pale grey s	taining with a sewage seaw	eea oaour			
			54.69		30.15							
<u> </u>												
Rom	holo Ca	oro D	PCOVOET	<u> </u>	Roral	nole Drilling	Fluch Da	Aturn		OFF TEE		<u> </u>
	Cop of Base of Core Top of Base of Flush Return (m) Run (m) Recovery Run (m) Run (m) %					Tusii ix			GENERA REMAR			
Run (Flush Return		Remarks		KEWIAK	NO		
		.40	100		' '							
26.5 29.4	$\begin{vmatrix} 29 \\ 0 \end{vmatrix} = 30$.15	100									
All			etres Cl	ient W	heat Quar	ter Ltd	Method/	Rotary Sonic Rig with	1 Core	Logged By		11
[All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd						Plant Us	ed Recovery		JR	Russel	ll .

							DUKI	THOL	LUG					
Projec			. ,	11.61.							BOR	ЕНО	LE N	lo
Job N		er Po	lyce	11 Site Date			Ground Level ((m)	Co-Ordinates ()			A 4		
	o ier Pol	vcell	Site		22-06-	18	84.87		E 212,763.8 N	524 079 2				
Contr		yccii	Site		22-00-	10	04.0	/	L 212,703.0 1V	324,077.2	Sheet			_
		F Hu	nt R	emedi	ation							l of	4	
	DID								STRATA		')ti	=
epth	PID Result	Water	R	educed	Legend	Depth			DESCRIPTION			Geology	l	Backfill
	(ppm)			Level	Legend	(Thick- ness)						Geo	Inst	B
							MADE GROU (depth inferred	JND - SAN I from drill	DS and GRAVELS with bed logs)	oands of CLAY	and flints			
						(3.50)								
				81.37		3.50	CANDS - 10	DANELC	with bands of CLAY and f	N14				
					0.00		SANDS and G	KAVELS	With bands of CLAY and i	lints				
					0.0.0.0.									
					0000									
					0.000									
					0000									
					0.0.0									
					000									
					0.0.0.									
					1.0 15 0 1									
					0.0.0.0									
					000									
					0.0.0.									
					0.000	(7.00)								
					0 0 0 0									
					1000									
					0.0.0.									
3ore	hole (Core I	Reco	overy	10 // 0 /	Borel	nole Drilling	Flush Re	eturn		GENER.	AI.	<i>V / / I</i>	_
Тор	of B	ase of		Core	Top of Run (m)	Base of Run (m)	Flush Return		Remarks	1	REMAR			
Run (m) Ki	Run (m) Recovery Run (m) Run (m) %					rable materia leted by drille			ıs				
			100			activities.	Based on print and from drill	resente	d					
									Water stri	ke depths not etivites. Stati	added	due t	5	
										20m.	arvites. Stall	c ievel	3 001(w
	All dimensions in metres Client Wheat Quarter Ltd											_		
Alld					ter Ltd	Method/ Plant Us	eRotary Sonic Rig wi	th Flush	Logged By SONIC	DRII	LIN	_		
	Scale 1:50								Troming Bollie Rig Wi		201110	~1111		_`

Projec	ct										BORE	EHO	LE N	lo
		r Poly	cell Site									A 4		
Job N			Date			Ground Level		Co-Ordinates ()						
	ner Poly	cell Si	te	22-06-	-18	84.8	7	E 212,763.8	N 52	24,079.2	GI 4			
Conti		Hunt	Remed	iotion							Sheet	of	1	
	JOIIII I	Trum	Kenicu	lation				CTD A T A			1	, 01		
Depth	PID Result	Water			Depth			STRATA				gy	men	Backfill
Depin	(ppm)	Wa	Reduce Level	Legend	(Thick- ness)			DESCRIPTION				Geology		Bac
_				0000	ness)	SANDS and C	GRAVELS v	with bands of CLAY a	and flin	ts (continued)			Wā	X
				0000										
				0.0 \ 0.0										
				0.00										
				0.0.0										
-				0.0.0.0										
				0.0.0										
-				0. 7. 0. 7										
			7/1 2	7.00.00	10.50									
-			/4.3		10.30	CHALK								
-														
-														
<u>o</u>														
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ale: v														
2 -														
5 														
55 -														
0.0														
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g g														
<u> </u>														
Bore	hole Co	ore Re			Borel	nole Drilling	Flush Re	turn			GENERA		<i>V</i> ///	<i>V//</i>
Top Run (of Bas (m) Run	se of (m)	Core Recovery (%)	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		No recoveral	REMARI		hle	
										Log complet activities. I sediment and Water strike flushing acti 20m.	ed by driller Based on pr I from drille depths not a	rs duri esente ed logs added	ng flu d s. due t	0
All	limension Scale 1		tres C	lient W	heat Quar	ter Ltd	Method/ Plant Us	eRotary Sonic Rig	g with	Flush	Logged By	DRII	LIN	iG

	Projec	et											BOR	EHOI	LE No
			ner Po	lycell										A 4	
	Job N				Date			Ground Level (Co-Ordinates ()				~~	
		ner Pol	ycell	Site		22-06-	18	84.87	7	E 212,763.	8 N 52	24,079.2			
	Contr		гп	, D	1.	,•							Sheet	2 (4
		John	r Hu	nt Re	mean	ation								3 of	
		PID	ie.				T			STRATA				256	Instrument/ Backfill
	Depth	Resul (ppm)	Water	Re	duced evel	Legend	Depth (Thick-			DESCRIPTION	N			Geology	strur Back
	_					l l	ness)	CHALK (conti	inued)					Ü	
	-														
	_														
	-														
	-														>>>
	-														ه زا این
	_						(19.50)								
							(19.30)								
2018	_														
tober															
: 2 Oc	-														
Date															
GLB	-														
3.4_0	ı														
) AGS	-														
IT ST															
y: GIN	.														
Librar															
3PJ II															
SITE.(Borehole Core Recovery Top of Run (m) Base of Recovery (%) Run (m) Run (m) Recovery (%)													
SELL	Bore					Borel	nole Drilling	Flush Re	eturn			GENER			
OLYC	Top				Top of Run (m)	Base of Run (m)	Flush Return		Remarks			REMAF			
MER F	Kuii (6)		1001 (11)					No recoverab Log complete	le materia d by drill	ıl availa ers duri	ble. ng flush
FOR											activities. E sediment and	Based on p	resente	d	
'roject.											Water strike of flushing activ	depths not	added	due to	
Ĭ.	:											20m.	nes. Stäl	ic icvel	OCIOW
JFH B															
Report ID: JFH BH Project: FORMER POLYCELL SITE. GPJ Library: GINT STD AGS 4_0.GLB Date: 2 October 2018	All c	All dimensions in metres Scale 1:50				ent W]	neat Quar	ter Ltd	Method/ Plant Us	eRotary Sonic R	Lig with	Flush L	ogged By SONIC	DRIL	LING
_					•				•						

	Projec											BORI	EHOI	LE No
		Forme	r Polyc										A4	
	Job N			Date			Ground Level (Co-Ordinates ()					
-		er Poly	cell Sit	e	22-06-	-18	84.8	7	E 212,763.	8 N 52	24,079.2	GI 4		
	Contr	actor John F	Hunt	Remed	iation							Sheet	l of 4	1
F	1	JOIII I	Truit	Cilicu					CTD A T A				7 01 -	1 -
r	Depth	PID Result	Water			Depth			STRATA	т			gg	Instrument/ Backfill
ľ	жриг	(ppm)	₩.	Reduced Level	Legend	(Thick- ness)			DESCRIPTION	N			Geology	nstru Bac
H						ness)	CHALK (cont	inued)						
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				54.87		30.00								
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i														
	Bore	hole Co	ore Rec	coverv		Borel	nole Drilling	Flush R	eturn			GENER	ΛĪ	
	Тор	op of Base of Core Top of Base of Flush							Remarks			REMAR		
-	Kun (Run (m) Run (m) Recovery Run (m) Run (m)									No recover	able material eted by drille	availa	ble.
											activities.	Based on pr	esente	d
											Water strik	Based on prond from drille to depths not stivites. Statis	added	due to
											flushing ac 20m.	tivites. Stati	c ievels	s below
<u>`</u>	Д11 А	imension	s in met	es Cl	ient W	heat Quar	ter Ltd	Method	/	Ц		Logged By		
2	7311 U	Scale 1	:50		**	Quai	<u></u>	Plant U	se R otary Sonic R	ig with	Flush	Logged By SONIC	DRII	LING

						DUKI	CHOLI	LUG					
Projec										BOR	EHOI	LE N	lo
Job N		r Pol	ycell S	ate		Ground Level	(m)	Co-Ordinates ()			A5		
	o ier Poly	cell S		26-06	-18	84.8		E 212,762.3	N 524 084 9				
Contr		-			10		<u>, </u>	2212,702.0	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Sheet			
	John I	Hun	t Rem	ediation						-	l of	4	
	PID	12						STRATA			55	ent/	
epth	Result	Wat	Redu	ced Legend	Depth (Thick-			DESCRIPTION			Geology	String	Backfill
\dashv			Lev	<u> </u>	ness)	MADE GROU	JND - SAN	IDS and GRAVELS with	n bands of CLAY	and flints	Ğ	<u>-</u>	_
						(depth inferred	d from drill	ed logs)					X
													X
												\gg	
	The property of the property o							X					
	Result (ppm) Result (ppm) Result (ppm) Result (ness) Result (ness) MADE GROUND - SANDS and GRAVELS with bands of CL/ (depth inferred from drilled logs) SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints												
	81.37 0							X					
		SANDS and GRAVELS with bands of CLAY and flints											
	SANDS and GRAVELS with bands of CLAY and												
	SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints			d flints				X					
	SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints SANDS and GRAVELS with bands of CLAY and flints					X							
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				on son									X
	000	. <i>O</i> . <i>O</i> . <i>O</i> .	(7.50)							\gg	X		
		0.00	(7.50)							S			
				0.0.0.0									X
Bore	ehole Core Recovery		Borel	nole Drilling	Flush Re	eturn		GENER.	AI.	<u>v//</u>	<u> </u>		
	of Ba	se of	Core	Top of	Base of					REMAR	KS		
ruii (m) Run (m) Recovery Run (m) I				19	100			Log compl activities. sediment a strike dept	rable materia eted by drille Based on pr nd from drille hs not added ctivites. Stati	rs duri resente ed logs due to	ng fl d . Wa	er
All dimensions in metres Client Wheat Quarter Ltd Method/							20m.	Suti	- 10101				
						vith Flush	Logged By SONIC	DRIL	LIN	G			
Borehole Core Recovery Top of Run (m)		I.											

Projec	et										BORI	EHOI	LE N	Vо
	Forme	r Polyc										A5		
Job N			Date			Ground Level		Co-Ordinates ()				70		
Forn	ner Poly	cell Sit	e	26-06-	-18	84.8	7	E 212,762	3 N 52	24,084.9	GI 4			
Conti	ractor John F	Hunt]	Damadi	ation							Sheet	2 of	1	
	JOIIII I	Truit	Kemea					CTD ATA				. 01		
Depth	PID Result	Water			Depth			STRATA	т			gy	men	Backfill
Берш	(ppm)	Wa	Reduced Level	Legend	(Thick- ness)			DESCRIPTION	N			Geology	nstru	Вас
				00.00	ness)	SANDS and C	GRAVELS	with bands of CLAY	and flin	ts (continued)			W	
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				1.0 /										
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			73.87	0.000	11.00									
						CHALK								
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									П					<u> </u>
Bore Top	chole Co	ore Red	Covery Core	Top of	Borel Base of	nole Drilling	Flush Re				GENERA REMAR			
Run (m) Run	R(m)	ecovery (%)	Run (m)		Flush Return		Remarks		No recovera	ble material	availa	ble.	
			. ,							Log complet activities. sediment and strike depths flushing acti 20m.	Based on pr I from drille not added	esente ed logs due to	d . Wa	ter
	1		CI	iont XX	hast O	ton I + 1	Method/	,			agged D-			
Allo	limension Scale 1		res Cli	ient W	heat Quar	ier Lta	Plant Us	eRotary Sonic R	ig with	Flush	Logged By SONIC	DRIL	LIN	1G

	Projec	:t						DOM		E LOG			BOR	EHOI	LE No
	,		er Po	lycell	Site								Done		22 1 10
	Job N				Date			Ground Level (Co-Ordinates ()				A5	
		er Pol	ycell	Site		26-06-	18	84.87	7	E 212,762.3	N 5	24,084.9			
	Contr		F Hu	nt Ren	nedi:	ation							Sheet	3 of 4	4
										STRATA					
	Depth	PID Result	Water	Red	uced		Depth			DESCRIPTION				Geology	Instrument/ Backfill
		(ppm)	×	Le	vel	Legend	(Thick- ness)							Geo	Instr Ba
								CHALK (cont	inued)						
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							(10.00)								
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ibrary:															
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SITE.		Borehole Core Recove Top of Run (m) Run (m) Run (m) Run (m) Run (m)													
/CELL	Bore			<u> </u>	Т		nole Drilling	Flush R		\parallel		GENER			
R POL	Top (Recov	ery	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		No recovera	REMAR		ble
ORME				(70)	,	19	30	0	Flush re	eturn lost into formation	n	Log comple activities.	ted by drille	ers duri	ng flush
ject: F(sediment an strike depth	d from drill s not added	ed logs due to	. Water
1 Pro												flushing act 20m.	ivites. Stati	c levels	s below
JFH BP															
Report ID: JFH BH Project: FORMER POLYCELL SITE.GPJ Library: GINT STD AGS 4_0.GLB Date: 2	All d	All dimensions in metres			Cli	ent W]	heat Quar	ter Ltd	Method	/	<u> </u>	El 1	Logged By	DDY	I DIC
Rep		All dimensions in metre Scale 1:50							Plant U	seRotary Sonic Rig	g with	Flush	SONIĆ	DKIL	LING

Proje	ect												BOR	EHOI	LE No
		mer Po	olyce	ell Site										A5	
Job 1				Date			Ground Level (Co-Ordinates	-				AJ	
	mer Po	olycell	l Site	;	26-06-	18	84.87	7	E 212,7	62.3	N 52	24,084.9			
Con	tractor												Sheet		
	Joh	n F Hı	unt R	Remedi	ation								4	4 of	4
	PII	, ;	<u> </u>						STRAT	Α					ill
Depth	Resu (ppr	ılt 💆	w ater	Reduced Level	Legend	Depth (Thick- ness)			DESCRIPT	ΓΙΟΝ				Geology	Instrument Backfill
Report ID: JFH BH Project: FORMER POLYCELL SITE.GPJ Library: GINT STD AGS 4_0.GLB Date: 2 October 2018	rehole of (m)	Core Base of Run (m)	f Re	overy Core covery (%)	Top of Run (m)	30.00	nole Drilling Flush Return		eturn Remarks			Log comple activities. sediment a	GENER REMAR Table materia eted by drille Based on p	AL KS I availa ers eurie resente ed logs	ble. flush d
ID: JFH BH Proje				Cu:	and YY	 	414-1	NA.A. S	/			strike deptl flushing ac 20m.	hs not added tivites. Stati	aue to c level	s below
HA III	dimens Sca	ions in le 1:50		es Cli	ent W	heat Quar	ier Lta	Method Plant U	√ se R otary Soni	c Rig	with	Flush	Logged By SONIC	DRIL	LING

							BORI	THOLI	E LOG							
Projec													BOR	EHOI	LE N	lo
		mer Po	olyce	_										A6		
Job N		1 11	a:	Date		10	Ground Level (Co-Ordinates	-	NT 50	14 000 0		, 10		
	ner Por	olycell	Site		20-06-	-18	84.89	•)	E 212,	760.6	N 52	24,090.8	Sheet			
Conti		n F Hu	ınt D	omodi	otion									2 of -	1	
	JOIII	1111	ши К	emear	ation				CED 45	T. 4				7 01 4		
D 4	PIE	olt sta	5			Depth			STRA					gs	ment	Œ.
Depth	Rest (ppn	n) š	R	leduced Level	Legend	(Thick- ness)			DESCRIP	TION				Geology		Ŋ Backfill
				74.39		10.50 (4.50)	SAND and GF Weak CHALK Firm CHALK logs)	C with flint	(assumed putty	y chalk in						
-							- '									
Bore	hole	Core	Reco	verv	<u> </u>	Borel	nole Drilling	Flush Re	turn				GENER	ΔΤ	V//.	2/
Тор	of 1	Base of		Core	Top of	Base of	Flush Return		Remarks		$\exists \parallel$		REMAR			
Bore	of Base of Core Top of Base of						80					Log comple activities. sediment as strike depth	able materia eted by drill Based on p nd from dril ns not added tivites. Stat	ers duri presente led logs l due to	ng flu d . Wat	er
All		sions in le 1:50	metre	s Cli	ent W	heat Quar	ter Ltd	Method/ Plant Us	e R otary Sor	nic Rig	 with	Flush	Logged By SONIC	DRIL	LIN	==

Projec	et										BORE	EHOI	LE No
		r Poly	cell Site									A6	
Job N			Date			Ground Level		Co-Ordinates ()				~ U	
	ner Poly	cell Si	te	20-06-	-18	84.89	9	E 212,760.6	N 52	24,090.8	CI. 4		
Conti	ractor	Hunt	Remed	iation							Sheet	of ·	1
	JOIIII I	Truiti	Kemed	1411011				CTD AT A			3	01 .	
Depth	PID Result	Water			Depth			STRATA				gy	men
Берш	(ppm)	N N	Reduce Level	Legend	(Thick- ness)			DESCRIPTION				Geology	Instrument/ Backfill
					nessj	Firm CHALK	with flint (a	assumed structureless	chalk,	inferred from o	lrilled		WĪ N
						logs) (continue	ed)						
-													
-													
-													
													696
-													logb.
-													
					(15.00)								
Bore	hole Co	re Re	covery	<u> </u>	Borel	nole Drilling	Flush Re	eturn			CENED	A T	b H
Тор	of Bas	e of	Core Recovery	Top of	Base of	Flush Return	Trushi ree	Remarks			GENERA REMAR		
Run (m) Run	(m) R	(%)	Run (m)	Run (m)	70				No recovera Log comple activities. sediment an strike depth flushing act 20m.	ted by drille Based on pr d from drille s not added	rs duri esente ed logs due to	ng flush d . Water
All	limension Scale 1		tres Cl	ient W	heat Quar	ter Ltd	Method/ Plant Us	eRotary Sonic Ri	g with	Flush	Logged By SONIC	DRII	LING

Pro	oject											BORI	EHOI	LE No
		rmer	Polyc	ell Site									A6	
	o No			Date			Ground Level (Co-Ordinates ()				70	
_	rmer F		ell Sit	e	20-06-	-18	84.89	9	E 212,760.6	5 N 52	24,090.8	GI 4		
	ontractor I o l		Hunt l	Remedi	iation							Sheet	l of 4	4
H	701		Tunt	Cincu					STRATA				01 -	
Dep	PI Res	ID sult	Water			Depth			DESCRIPTION	т			gy	ımen kfill
Der	(pp	om)	Ä	Level	Legend	(Thick- ness)			DESCRIPTION				Geology	Instrument/ Backfill
						nessy	Firm CHALK	with flint (assumed structureles	s chalk, i	nferred from	drilled		
							logs) (continue	ea)						
-														
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2				54.00		20.00								
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R _i	orehol:	e Co	re Rec	POVETV		Borek	nole Drilling	Fluch Re	eturn			CENTED	A T	
Т					Top of	Base of	Flush Return	1 10011 100	Remarks	\parallel		GENER. REMAR		
Ru	ın (m)	(m) Run (m) Recovery Run (m) Run (m)					%0				No recover	able material	availa	ble.
5											activities.	eted by drille Based on pr	esente	d Water
50											strike deptl	Based on prond from drillens not added tivites. Stati	due to	. water
											20m.	uviies. Stati	ievels	s below
A	All dimer	nsions	in metr	res Cl	ient W	heat Quar	ter Ltd	Methoda Plant Us	seRotary Sonic Ri	io with	Fluch	Logged By SONIC	DBII	LING

							2011		ELUU						
Projec												BOR	ЕНО	LE N	lo
		er Po	lycel	ll Site									В3	Į.	
Job N				Date			Ground Level		Co-Ordinates ()				D	,	
	ner Pol	ycell :	Site		22-06-	-18	84.8	7	E 212,759.7	N 52	24,072.0				
Conti	ractor		_									Sheet			
	John	F Hui	nt Re	emedi	ation								1 of	4	
	PID	i.							STRATA				53	lent/	fill
Depth	Result (ppm)	Water	R	educed	Legend	Depth (Thick-			DESCRIPTION				Geology	1	Backfill
-	41 /		'	LCVCI		ness)	MADE GROI	IND - SAN	ND and GRAVEL fill				Ğ	1,5	_
							WADE GROC	JND - SAI	VD and GRAVEL III						
-															
															X
-															
						(3.50)									
						(3.30)									
_															
-															
-			-	81.37		3.50	CLAY with gr	ravel flints							X
-					<u>-</u>										
					<u> </u>										
1															
						(4.00)									X
980						()									
<u> </u> -															
5					<u> </u>										
<u> </u>															X
2															
Dialy				77.37		7.50									X
<u></u>				11.51	0000	7.50	Fine SAND ar	nd medium	GRAVEL						
					0 0 0										
Bore	ehole (Core F	Reco			Borel	hole Drilling	Flush R	eturn			GENER	AL.		
Top	of B	ase of	C	ore overy	Top of	Base of	Flush Return		Remarks			REMAR			
Run (m) Ri	ın (m)	Kec (%)	Run (m)	Run (m)	70					able materia			1.
					0	10.5	100				activities.	Based on p	resent	ed	
0											strike deptl	nd from drill ns not added	due to)	
_ 											flushing ac 20m.	tivites. Stati	c leve	is belo	W
Bore Top Run (All dimensions in metres				ent W	heat Quar	ter Ltd	Method	/			Logged By			
ž III (1:50				. 2001	- -	Plant U	seRotary Sonic Rig	g with	Flush	SONIĆ	DRI	LLIN	[G

						BORI	EHOL	E LOG							
Projec												BOR	EHOI	LE No	,
		er Poly	cell Site										В3		
Job N		11.0	Date		10	Ground Level (Co-Ordinat	-	NT 50	24.072.0				
Contr	er Poly	ycell S	ite	22-06-	-18	84.8	/	E 212	2,759.7	N 52	24,072.0	Sheet			_
Contr		F Hunt	Remed	intion									2 of 4	1	
	JOIIII .	r mum	Remed	lation				C/ED A	- T. A			-	2 01 2		=
Donath	PID	Water			Depth			STRA					gg	men! kfill	
Depth	Result (ppm)	Wa	Reduced Level	Legend	(Thick- ness)			DESCR	IPTION				Geology	Instrument/	i
Bore			74.3		(3.00)	CHALK with		gravel (co	ontinued)						
															\mathcal{Y}
Bore	hole C	ore R			Borel	nole Drilling	Flush R	eturn				GENER			
Top (Core Recovery	Top of Run (m)	Base of Run (m)	Flush Return		Remarks				REMAR			
Kull (of Base of Core Top of Ba				30	80					Log comple activities. sediment an strike depth	able materia eted by drille Based on p nd from drill ns not added tivites. Stati	ers during resented ed logs due to	ng flush d . Water	
All d			etres Cl	lient W	heat Quar	ter Ltd	Method Plant U	l/ [se R otary Sc	onic Ric	with	Fluch	Logged By SONIC	DBII	LING	=
All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd Method/Plant UseRotary Sonic	mic Kig	will	Tusii	SOMIC	DVIL	טאווים									

	Project											BOREHOLE No						
	Former Polycell Site												В3					
	Job No Date							round Level (m) Co-Ordinates ()					DJ					
		er Poly	cell S	Site	22-06-	-18	84.87	7	E 212,759.7	N 52	24,072.0	GI 4						
	Contr		F Hun	ıt Reme	diation							Sheet	3 of -	1				
		JOIIII	TIUI	T Kenne	diation				CTD ATA				J 01 ·					
	Depth	PID Result	Water			Depth			STRATA				gg	meni kfill				
	Depui	(ppm)	Wa	Reduce Level	ed Legend	(Thick- ness)			DESCRIPTION				Geology	Instrument/ Backfill				
	_				<u> </u>	ness)	CHALK with	flint (contin	nued)				1					
					 													
	_																	
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	-																	
					 													
	-																	
														60 6				
	-																	
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118	-																	
ber 20																		
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3LB	-													ISE.				
4_0.G																		
) AGS	-																	
TST																		
y: GIN																		
Librar																		
BPJ																		
SITE.																		
CELL	Bore		ore R	ecover	_		nole Drilling	Flush Re	lush Return			GENERA						
POLY	Top Run (se of n (m)	Core Recover	Top of Run (m)	Base of Run (m)	Flush Return		Remarks			REMAF						
RMER			(****)	(%)							No recoverab Log complete	d by drill	ers duri	ng flush				
t: FOF											activities. E sediment and	from dril	led logs	d . Water				
Projec						strike depths not a flushing activites.					not added rites. Stat	due to	s below					
<u>Н</u>	:										20m.	Zano ievois oeio						
J. JFH																		
Report ID: JFH BH Project: FORMER POLYCELL SITE.GPJ Library: GINT STD AGS 4_0.GLB Date: 2 October 2018	All	All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd						Method/ Plant Us	Method/ Plant UseRotary Sonic Rig with Flush					Logged By SONIC DRILLING				

Projec										BOREHOLE No				
	Forme	r Poly										В3		
Job No Date					Ground Level (m) Co-Ordinates ()									
Former Polycell Site 22-06-18						84.8	7	E 212,7	759.7	N 52	24,072.0			
Conti	ractor		D	1' .'								Sheet	4 C	4
	John F	Hunt	Remed	nation	ī								4 of	
	PID	er			P 4			STRAT					56	nstrument/ Backfill
Depth	Result (ppm)	Water	Reduce	Legend	Depth (Thick-			DESCRIP	TION				Geology	strur Back
-	'		Leve		ness)	CHALK with	flint (contin	med)					Ű	
						CILILLY WILL	min (comm	incay						
-														·文字。
 														
					-									
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<u>-</u> } -			54.8	37	30.00								-	
) - 														
-														
-														
i i														
Bore	Borehole Core Recovery Borehole Dr.				hole Drilling	rilling Flush Return					GENER	AL	<u>'</u>	
Top Run (of Bas	e of	Core Recovery	Top of	Base of	Flush Return		Remarks				REMAR	RKS	
Kuii (ııı) Kull	(111)	(%)	Run (m)						$\parallel \parallel$	No recove Log comp	rable materia leted by drille	ıl availa ers duri	ible. ng flush
											activities.	leted by drille Based on p and from dril	resente	d . Water
											strike dept	hs not added ctivites. Stat	due to	s helow
											20m.	aivites. Stat	ic ievel	2 DEIOM
All	All dimensions in metres Client Wheat Quarter Ltd					ter Ltd	Method/	aD at === C	:. D:		Elm-1.	Logged By	DDII	IDIC
Scale 1:50						Plant Us	eRotary Son	ic kig v	vitn	гiusn	SŎNIĆ	DKIL	LING	

						DUK	LHOLI	LUG							
Projec	Project Former Polycell Site										BORI	BOREHOLE No			
Job N		er Pol		Site Date		Ground Level	(m)	Co-Ordinates ()			_	B4			
	er Poly	cell S		29-06	-18	84.9		E 212,755.6	N 52	4.079.1					
	ractor							,		,	Sheet				
	John l	F Hun	t Rem	ediation							1	of ·	4		
	PID	er						STRATA				sy	nent/	fill	
epth	Result (ppm)	Water	Redu Lev	lced vel Legend	Depth (Thick-			DESCRIPTION				Geology	strur	Back	
					ness)	MADE GROU	JND - SAN	D and GRAVEL and C	LAY (inferred from	n drilled	9		8	
					(3.50)									XIIIXIIIXIIIX	
			83	1.41	3.50										
						SAND and GI	KAVEL and	TCLAY						<u> </u>	
				0.00										X	
Bore	hole C	ore R	lecove			nole Drilling	Flush Re	eturn			GENER.	AL	-//	sh er w	
Top (of Ba	se of n (m)	Core Recove	ery Run (m)	Base of Run (m)	Flush Return		Remarks		N	REMAR		1.1		
		` /	(%)	0	17.5	100				Log comple activities. sediment ar strike depth	able material eted by drille Based on pr nd from drille ns not added tivites. Stati	rs duri resente ed logs due to	ng flu d . Wa	er	
All d	limension Scale	ns in m 1:50	netres	Client W	heat Quar	ter Ltd	Method/ Plant Us	Method/ Plant UseRotary Sonic Rig with Flush				gged By SONIC DRILLING			
	Scarc							Tiotal y Bollie Rig		10011	201110	~1111		_	

Projec	et										BORI	EHOI	LE N	lо
		r Polyc			ı			1				B 4		
Job N		11. 61.	Date			Ground Level		Co-Ordinates ()	37.504	0=0.4		D T		
Contr	ner Poly	cell Site	e	29-06-	18	84.9	1	E 212,755.6	N 524	,079.1	Sheet			
Conti		Hunt I	Remedi	ation								2 of 4	4	
	301111		Comean					STRATA						
Depth	PID Result	Water	D . J 1		Depth			DESCRIPTION				ogy	mer.	kfill
D sp un	(ppm)	\bowtie	Reduced Level	Legend	(Thick- ness)			DESCRI HOW				Geology	 Instru	Backfill
				00.00.	11600)	SAND and GF	RAVEL an	d CLAY (continued)					WĀ	N/
				0 0 0 0										
				000										
-				1.0. 70.										
				0.0.0.0										
-				0.0.0										
				0000										
				0.0.0.										
				0000										
				0.0.0.0										
-				0.00										
				0.0.0.										
-		-	73.41	0000	11.50	CHALK								
2 -														
S - -														
(6)														
5														
Bore	hole Co	ore Rec	overy	1 1	Borel	nole Drilling	Flush R	eturn			GENER	 Δ Τ	<u> </u>	12/2
Top	of Bas	se of	Core	Top of Run (m)	Base of Run (m)	Flush Return		Remarks			REMAR	KS		
Kull (iii) Kull	(III)	(%)	(44)	(**)					Log comple	able material sted by drille Based on production drille s not added ivites. Stati	rs duri	no fli	ish er ow
All c	limension Scale 1	s in metr	es Cli	ent W	neat Quar	ter Ltd	Method Plant U	/ se R otary Sonic Rig	with F	lush	Logged By SONIC	DRII	LIN	=== [G

							DOM		LOG					
Projec												BOR	EHOI	LE No
7 1 37		er Pol	-				G 17 1		G 0 1'	^			B4	
Job N		11 (Date	29-06-	10	Ground Level		Co-Ordinates (-	524.070.1			
Contr	er Pol	ycen	Site		29-06-	18	84.9	1	E 212,7	33.0 N	524,079.1	Sheet		
Contr		F Hur	nt Re	medi	ation								3 of	4
	PID	er							STRAT				25	nent/ fill
Depth	Result (ppm)	Water	Red L	duced evel	Legend	Depth (Thick- ness)			DESCRIPT	TION			Geology	Instrument/ Backfill
						11035)	CHALK (cont	inued)						WĪ 🛚
-														
<u> </u>														
-														
_														
-														، نا ان ، زا ان م
-														
						(18.50)								
						(18.50)								
-														
-														
-														
L														
D	hala (Come F	200-			Dono!	nolo Duillin -	Eluak D	oturn					
Top	hole (ase of	Co	re	Top of	Base of	nole Drilling Flush Return	TIUSII K	Remarks			GENER REMAR		
Bore Top o	m) Ru	un (m)	Reco (%	6)	Run (m) 17.5	Run (m) 30	0	Flush re	turn lost into for	mation	Log comple activities. sediment a strike deptl	rable materia eted by drille Based on p nd from drill ns not added tivites. Stati	ers during resented ed logs due to	ng flush d . Water
All d	limensio	ons in n	netres	Cli	ent W	heat Quar	ter Ltd	Method/ Plant Us	eRotary Soni	c Rig wit	h Flush	Logged By SONIC	DRIL	LING

Proje	ct										BOR	EHOI	LE No
	Forme	r Poly										В4	
Job N			Da			Ground Level		Co-Ordinates ()				דט	
	ner Poly	cell S	ite	29-06	-18	84.9	1	E 212,75	5.6 N	524,079.1	GI 4		
Cont	ractor	Hunt	Reme	diation							Sheet	4 of	1
	JOINI I	Truiri	Terric	ulation				CTD A T A				1 01	
Depth	PID Result	Water			Depth			STRATA DESCRIPTION				gy	nstrument Backfill
Берш	(ppm)	Ä	Reduc Leve	ed l Legend	(Thick- ness)			DESCRIPTI	ON			Geology	nstru Bac
_				1 1	ness)	CHALK (cont	tinued)						
-					[
-				l l									
-													
				1 1	[[
-													
-													
					1								
<u>o</u> _													
N N N N N N N N N N N N N N N N N N N													
000													
Da E													
-0.6LB			54.	91	30.00								
2													
0													
5 													
2													
Bore	ehole Co	oro Da	ecover	.,	Rorel	l hole Drilling	Fluch R	eturn		$\overline{\mathbb{T}}$	CENTED		
Top	of Bas	se of	Core	Top of	Base of	Flush Return	Tusii K	Remarks		1	GENER REMAR		
Run	(m) Run	(m)	Recover (%)	y Run (m	Run (m)	%		Remarks		No recover	able materia	l availa	ible.
										Log compl activities.	eted by drille Based on p nd from drill	rs duri resente	ng Hush
roject.										strike dept	hs not added	due to	
										flushing ac 20m.	tivites. Stati	c level	s below
Á All	dimension	s in me	etres	L Client W	/heat Quar	ter Ltd	Method	/		Ш	Logged By		
ğ ,	Scale 1			•	~	· 	Plant Us	seRotary Sonic	Rig wi	th Flush	SONIĆ	DRII	LING

						BORI	EHOLI	E LOG					
Projec											BOR	EHO	LE No
T 1 N		r Poly	cell Site			G 11 1.	()	0.01: 1.0				B5	
Job N	o ner Poly	rall Si	Date	27-06-	10	Ground Level (84.8)		Co-Ordinates () E 212,756	2 N 5	24 084 1			
Contr		cen si	ite	27-00-	10	04.0.	<u> </u>	E 212,/30	.5 1 5	24,004.1	Sheet		
		Hunt	Remedi	iation								l of	4
	DID							STRATA					tut/
Depth	PID Result (ppm)	Water	Reduced Level	Legend	Depth (Thick- ness)			DESCRIPTIO	N			Geology	Instrument/ Backfill
Bore Carl Brilliagou, robinitary of the state of this are a consolinated and the state of the st	shala C		81.35		(3.50)	(inferred from	drilled logs	with occasional ban					
Top	of Ba	se of	Core	Top of	Base of	Flush Return	_ 15011 100	Remarks			GENER REMAR		
Run (m) Rui	1 (m) I	Recovery (%)	Run (m)	Run (m) 18.5	100				Log comple activities. sediment ar strike depth	able materia eted by drille Based on p nd from drill ns not added tivites. Stati	ers duri resente ed logs due to	ng flush ed s. Water
All	limension Scale		tres Cl	ient W	heat Quai	ter Ltd	Method/ Plant Us	eRotary Sonic F	Rig with	Flush	Logged By SONIC	DRII	LING

Projec	ct										BORE	EHOl	LE N	lo
		r Polyce										В5		
Job N		11 0.4	Date		10	Ground Level		Co-Ordinates ()	N 50	4.004.1				
Cont	ner Polye	cell Site	<u> </u>	27-06-	-18	84.8	3	E 212,756.3	N 524	4,084.1	Sheet			
Conti		Hunt R	Remedi	ation								of	4	
								STRATA						_
Depth	PID Result	Water	Reduced		Depth			DESCRIPTION				Geology	ume	Backfill
	(ppm)		Reduced Level		(Thick- ness)							Geo	Insti	Ba
			73.35		11.50	CHALK	JKAVELS V	with occasional band	S OI CLA	Y and Hints				
5	ehole Co			Т		nole Drilling	Flush Re			(GENERA DEMARI	AL		
Top Run (of Bas (m) Run	(m) Re	Core covery (%)	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		No recoverab Log complete activities. E sediment and strike depths flushing activ 20m.	ed by driller Based on pr from drille not added	availars duri esente ed logs	ng flu d s. Wat	ter
All	dimension		es Cli	ent W	heat Quar	ter Ltd	Method/	se R otary Sonic Ri	g with 1	Elush	ogged By	DBII	IIN	

							DOM		E LOG						
Projec													BOR	EHOI	LE No
7 1 37		ner Pol					G 17 1	()	0.01				_	B5	
Job N		l11 <i>(</i>		Date	27.06	10	Ground Level		Co-Ordinate	-	NI 50	14.004.1			
Contr		lycell S	Site		27-06-	18	84.8	3	E 212,	,/36.3	N 32	24,084.1	Sheet		
Conti		F Hur	nt Rei	medi	ation									3 of	4
	PID	12							STRA	TA				8	ient/
Depth	Resul (ppm)	Water	Red L	duced evel	Legend	Depth (Thick- ness)			DESCRII	PTION				Geology	Instrument/ Backfill
_						iless)	CHALK (cont	inued)							WĪ K
_															
-															
-															
-															
-															
-															
-															
-															
_															
						(18.50)									
-															
-															
.															
-															
-															
Bore		Core F					nole Drilling	Flush Re	eturn				GENER		1,7 , ,
Top (Run (of B m) R	ase of un (m)	Reco	very	Top of Run (m)	Base of Run (m)	Flush Return		Remarks			No recover	REMAR able materia		ble
			(%	0)	18.5	30	0	Flush re	turn lost into f	ormation		Log comple activities. sediment ar strike depth	eted by drille Based on p ad from drill as not added tivites. Stati	ers duri resente ed logs due to	ng flush d . Water
Bore Top Run (ons in n	netres	Cli	ent W	heat Quar	ter Ltd	Method/ Plant Us	eRotary Son	nic Rig	 with	Flush	Logged By SONIC	DRII	LING

	Projec	et												BORI	EHOI	LE No
			ner Po	olyce	ll Site					_					В5	
	Job N				Date			Ground Level (Co-Ordinates (_				DJ	
		ner Po	ycell	Site	:	27-06-	18	84.85	5	E 212,7	56.3	N 52	24,084.1			
	Contr													Sheet		
		John	F Hu	ınt R	lemedi	ation									of ·	4
		PID								STRATA	A				 	ent/ iii
	Depth	Resul (ppm	Water	F	Reduced Level	Legend	Depth (Thick- ness)			DESCRIPT	TION				Geology	Instrument Backfill
Report ID: JFH BH Project: FORMER POLYCELL SITE.GPJ Library: GINT STD AGS 4 0.GLB Date: 2 October 2018	-	of E	ase of	Red	Core covery	Top of Run (m)	30.00	nole Drilling Flush Return		eturn Remarks			Log comple activities. sediment a	GENER. REMAR able material eted by drille Based on pind from drill	AL KS I availa resente ed logs	ble. flush d
ID: JFH BH Projec			Die Core Recover Base of Run (m) Core Recover (%)										strike deptl flushing ac 20m.	ns not added tivites. Stati	due to	s below
Report .	All			metre	es Cli	ent W	heat Quar	ter Ltd	Method Plant U	l/ ∫se R otary Soni	c Rig	with	Flush	Logged By SONIC	DRIL	LING

P	rojec	t									BORE	EHO	LE N	lo
		Forme	r Poly								B6 (RН	חח	4 \
	ob No				ate 13-0	6-18	Ground Level		Co-Ordinates ()		D0 (ווט	DU.	+)
_		er Poly	cell S	ite	14-0	6-18	84.8	6	E 212,754.6 N	V 524,090.2				
C	Contra										Sheet			
		John F	Hun	t Reme	diation						1	of	4	
De	epth	PID Result (ppm)	Water	Reduc Leve	ced Legen	Depth (Thick-			STRATA DESCRIPTION			Geology	nstrument/	Backfill
-	2	2.4				(4.40)	MADE GROU fine to coarse, fragments.	UND - Brov , angular to	vn sandy GRAVEL. San rounded of flint, brick an	d is fine to coarse d concrete. Occas	. Gravel is ional glass	0		
4	1.4	2.3	_		96 0 0	4.40 (0.50) 4.90	coarse, subang	gular to rou	ly GRAVEL. Sand is fine ded of flint.					
7 October 2	5.4	0.7	-		· · · · · · · · · · · · · · · · · · ·		medium, suba	ngular to ro	unded of flint.					
- 6	5.2	0.5	_			(3.60)		-	ravelly with fine to mediu	um gravels				
Library.	7	0	-			(3.00)	0.00 Becomin	ig slightly g	aveny with the to field	iii giaveis				
7	7.6	1.3				. : 								
B	Borel	hole Co	ore R		-		hole Drilling	Flush Ro	eturn		GENERA			
R	Top o Run (n	of Bas n) Run	se of (m)	Core Recover (%)	Top o Run (1	Base of Run (m)	Flush Return		Remarks		REMAR			
Igeci. rO	0.00 2.10 4.40 6.20 7.60	4.4 6.2 7.0	20	25 50 100 100 50										
Lepoit II	All di	imension Scale 1		etres	Client	Wheat Quar	rter Ltd	Method Plant Us	Rotary Sonic Rig w sed Recovery	vith Core	Logged By J R	usse	11	

Projec	et									BORI	EHOL	ΕN	Го
		Poly	cell Site							B6 (внг	202	1)
Job N		- 11 G	Date	13-06		Ground Level (84.86		Co-Ordinates ()	524 000 2	50 (•,
Conti	ner Polyo	cell Si	ite	14-06	-18	84.80)	E 212,754.6 N	324,090.2	Sheet			
Conti		Hunt	Remed	iation							2 of 4	ļ	
	PID	ı						STRATA				ent/	II.
Depth	Result (ppm)	Water	Reduced Level	Legend	Depth (Thick- ness)			DESCRIPTION			Geology	nstrument	Backfill
8				0		Loose pale oran	nge gravell ngular to ro	y SAND. Sand is fine to runded of flint. (continued)	nedium. Gravel is	s fine to			
-	0.3		76.36	0	8.50	Orange brown medium, subro	gravelly Sa	AND. Sand is fine to coarsounded of flint.	se. Gravel is fine	to			
- 9				0		9.00 (Barrel sh	oe was los	at 9m and could not be re		was			
-	0			0	(1.90)	9.10 Sand beco	oming fine	m to the east and the BH r to medium	eestablished.)				
				0									
10.1			74.46		10.40								
-	0		74.26		10.60			LK mixed with sand.				\gg	
						Offwhite soft p	outty CHA	LK with orange staining.					
- 11						11 10 Fragmen	ote of chalk	<10mm dia. increasing to	20mm with denth				
						Orange staining			Zonim with depti	1.			
	0												
_					(2.90)								
12.2					(2.90)			I flint cobble 100mm dia.					
-	0					12.20 - 12.30 F	Sana oi iii	ıı					
	U												
13													
- 13	0.0		71.36		13.50								
1	0.2					Offwhite putty	to structur	eless CHALK with chalk f	fragements <20mi	n dia.			
 - 14					(0.70)								
			70.66		14.20	14.10 Subroun				/			
	4.2					Offwhite slight	tly pale gre	y structureless CHALK.					
15						15 10 D 1 C	1		1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	r. ,			
a la						gravels	paie grey s	taining with a very weak s	aity odour, with i	ıınt			
	2.4												
2	3.4												
Bore	hole Co	re Re			Bore	nole Drilling	Flush Re	eturn		GENER.			
Bore Top Run (8.50 11.1 15.2 15.2	of Bas m) Run		Core Recovery (%)	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		REMAR	KS		
8.50 10.1			100 100]				
12.2	0 15.	20	100 100 75										
13.2	10.	20	13										
5													
All c	limensions		etres Cl	ient W	heat Quar	ter Ltd	Method/ Plant Us	Rotary Sonic Rig wi	th Core	Logged By	Russel	<u> </u>	
2	Scale 1	:50					riant US	ed Recovery		Jŀ	cussel	l	

Proje	ct									BORI	EHOI	LE No
		r Poly	cell Site	;						B6 (RHI	D04)
Job N		11.0	Date.	13-06		Ground Level (Co-Ordinates ()	50.4 000 0	50 (וווט	JU 4)
	ner Poly	cell S	ite	14-06	-18	84.80	6	E 212,754.6 N	524,090.2	Sheet		
Cont		Hun	t Remed	iation							of ·	4
	PID							STRATA				int/
Depth		Water	Reduced Level	Legend	Depth (Thick- ness)			DESCRIPTION			Geology	nstrument/ Backfill
-16.5					nessy	Offwhite sligh 16.00 Salty od	tly pale gre our becom	y structureless CHALK. (c) ing solvent based	ontinued)			
-	4.1					17.40 Band of		actures in 5cm band				
- 18	4.6				(8.20)	17.00 Weak IN	orizonar ir	actures in John Gund				
- 19 -	1.9					19.00 Band of 19.20 Band of		taining with a mild to mod	erate salty solver	nt odour		
- 20						19.90 Band of	pale grey s	staining				
-	7.1					20.30 Band of 20.60 Band of		staining				
8 - 21	L	-										
LB Date: 2 October 2018	404.2					21.10 - 21.30 dodour with sor	Band of gre ne orange s	ey staining with a moderate taining	to strong salty s	olvent		
STD AGS 4 0.0	299.5	_	62.46	5 " " "	22.40	Shattered flint. Offwhite sligh	. Possible l	ey staining with a strong sw NAPL staining with orange uctureless CHALK with oc	brown staining	around		
Library: GINT	23.6				(1.40)	horizonal fract	tures <20m	m dia.				
23.8	<u> </u>	1	61.06	5 1 1	23.80	Firm putty CH	AIV					
Bor	ehole C	<u> </u>	ecovery	<u> </u>	l Borel	nole Drilling		eturn		CEVIED	A T	<u> </u>
Top Run	of Ba	se of	Core Recovery	Top of Run (m)	Base of	Flush Return	2 10011 100	Remarks		GENERA REMAR		
22.5 20 20 20 20 20 20 20 2	20 21 20 23	.00 .80 .10	(%) 100 100 100									
All	dimensior Scale		ctres	ient W	heat Quar	ter Ltd	Method/ Plant Us	Rotary Sonic Rig wi	th Core	Logged By J R	Russe	1

Projec	et									BOR	EHOI	LE No
		r Poly	cell Site							B6 /	'RHI	D04)
Job N			Date	13-06	-18	Ground Level (n	·	Co-Ordinates ()		D0 (וווט	JU 4)
	ner Poly	cell Si	te	14-06	-18	84.86		E 212,754.6 N	524,090.2			
Contr		**	~ 1							Sheet	4 0	
	John F	Hunt	Remed	ation	1					•	4 of 4	4
	PID	er						STRATA			250	nent/ fill
Depth	Result (ppm)	Water	Reduced Level	Legend	Depth (Thick-			DESCRIPTION			Geology	nstrument Backfill
_			Level	<u> </u>	ness) (0.50)	Eigen grotter CII A	IV (conti	:J)			Ğ	
	43.3		60.56	5	24.30	Firm putty CHA						
_						Offwhite structu Salty odour beco	ureless CH oming a m	IALK with bands of weak aild sewage/solvent odour.	horizontal fracture	es.		
		₹				,						
-		=										
						25.10 - 25.30 St	ubrounded	I flint cobbles				
-25.5		-										
	16.9					25.90 Subround						
26.1												
					(4.30)							
-	27.3				(4.30)	26.60 - 26.70 St	ubrounded	I flint cobbles				
						20.00 - 20.70 50	abrounded	Time cooles				
- 27		1										
	32.3				-	27.20 Subround		obbles actures with a mid sewage	solvent odour			
	32.3					27.40 Weak not 27.60 - 27.70 St			sorvent odour			
- 28												
20	10.2											
_	18.2		56.26		28.60							
28.6	11.6	1	30.20		20.00	Offwhite structu	ureless CH	IALK with mild to modera	te sewage/solvent	odour.		
2 October 2018						28.90 Band of f	lint					
tober					(1.50)							
50 	7				(1.50)							
Date												
GLB			54.76		30.10							200
0.0												
) AGS												
TST												
NE I												
-ibrary												
TE.G												
Bore	hole Co	ore Re	covery		Borel	hole Drilling F	Flush Re	turn		GENER	ΑI	
Top	of Bas	e of ,	Core	Top of	Base of	Flush Return		Remarks		REMAR		
ĭ Run (Run (m) Run (m) Recovery Run (m) Run (
26.1 28.6		60	100 100									
∠8.0	30.	10	100									
Proj												
표												
Report ID: JFH BH Project: FORMER POLYCELL SITE. GPJ Library: GINT STD AGS 4_0.GLB Date: Dat												
All d	limension Scale 1		tres Cl	ient W	heat Quar	ter Ltd	Method/ Plant Us	Rotary Sonic Rig wi	th Core	ogged By	Russel	1
~ ლ	ocale I	.50					1 10111 08	Kecovery		JI	Lussel	1

Projec										BOKE	LHOI	LE No
		r Poly	ycell Sit					T		C2 (BHI	D02)
Job N			Dat	07-06		Ground Level	` ′	Co-Ordinates ()		(_	JUL,
Forn	ner Poly	cell S	lite	08-06	-18	84.8	4	E 212,754.7 N	524,067.5			
Conti	ractor									Sheet		
	John F	Hun	t Remed	liation						1	of	
	PID	 						STRATA			>	Instrument/ Backfill
Depth	Result	Water	Reduce	Legend	Depth (Thick-			DESCRIPTION			Geology	trum ackf
_	(ppm)		Level	Legena	ness)						ğ	Ins
0						MADE GROU	JND - Bro	wn slightly clayey sandy G coarse, angular to rounded	RAVEL. Sand i of flint, concrete	s fine to		
_	0.1				(0.95)	clinker.		, g	,			
	0.1				, ,							
- 1			83.8	9	0.95	MADE CROI	INID. D	11 CI AX	C 1 !			
1								wn sandy gravelly CLAY. , subangular to rounded of		coarse		
_	0.1											
	0.1											
- 2					(1.75)	1.02 2.04 DI	14. 1. 1					
2						1.93 - 2.04 Bl 2.00 Becom	ning very sa	andv				
	0.2					2.10 - 2.18 Ba	and of coar	se sand				
2.7			82.1	4	2.70							
2.,					(0, (0)	Brown gravell flint	ly CLAY.	Gravel is fine to medium, s	ubrounded to ro	unded of		
	1.2		81.5	4	(0.60)							
	1.2		61.3			Dark brown v	ery friable	CLAY with some black sta	ining. Occasion	nal gravels,		
3.7						fine to mediur	n of flint.	No odour				
5.7					(1.20)							
-	0.1				` /							
	0.1		80.3	4	4.50							
4.7				<u> </u>		Brown sandy	gravelly Cl	LAY. Sand is fine to coars	e. Gravel is fine	, subround		
4./	_					of flint. Some	e black star coarse sand	ning present. I				
-	0				(1.00)							
5.3		-	79.3	4	5.50							
-			79.1		5.70	Loose brown						
	1.6							velly SAND. Sand is fine to cocasional black staining		l is fine to		
-	1.0					medium, roun	ded of filli	. Occasional black stamm	g. 140 odour.			
				0								
6.6		-				6.60 - 8.10 M	ild to mode	erate sewage/solvent odour				
						0.00 - 0.10 M	na to mouc	rate sewage/sorvent odour				
	1.2											
- 7.5		1		. 0								
	0.3			. · · · · · · · ·								
Bore	ehole Ca	ore R	ecovery	7	Borel	nole Drilling	Flush R	eturn		CENTED		<u> </u>
Тор		e of	Core	Top of	Base of	·	- 10.511 10			GENERA REMAR		
Run ((m)	Recovery (%)	Run (m)		Flush Return		Remarks				
0.00) 2.	70	100	†								
2.70 5.30		30 60	100 100									
6.60		10	100									
A11 c	limension	s in m	etres C	lient W	heat Quar	ter Ltd	Method	/ Rotary Sonic Rig w	ith Core	Logged By		
	Scale 1			,,	4		Plant U			J'R	lussel	1

Projec	et									BORE	EHO	LE N	Vо
		r Polyo	cell Site							C2 (ВH	D0:	2)
Job N		11 01	Date	07-06-	-18	Ground Level	· ·	Co-Ordinates ()	24.067.5	02 (- 11		-,
	ner Poly	cell Si	te	08-06-	-18	84.8	4	E 212,754.7 N 5	24,067.5	Sheet			
Contr		Hunt	Remedi	ation							of	1	
	JOINT	Tiunt						CTD ATA			- 01		
Depth	PID Result	Water			Depth			STRATA DESCRIPTION			gy	lmen	Backfill
Bepui	(ppm)	X	Reduced Level	Legend	(Thick- ness)			DESCRI HON			Geology	nstr	Вас
8.1		•		0	nessj	Loose brown	orange grave	elly SAND. Sand is fine to	coarse. Gravel is	fine to		WĀ	
						8.40 - 8.47 Da		Occasional black staining.	No odour. (<i>conti</i>	nuea)			
	0					0.40 - 0.47 Da	iik biowii si	uninig					
				0									
9.1				. · · · · · · · ·									X
_	0.2			0	(7.60)								
10.1													
				0									X
						10.45 Band of	dark staine	d coarse sand					
_													
	0.3			0									
-				. · . · · · · .									X
				0									
-													
12.2													
	0.9			0									X
	0.9												
13.3			71.54		13.30								
-						Loose dark bro subrounded to	own gravelly rounded of	SAND. Sand is coarse. Gr flint. Sand mixed with putt	avel is fine to me y chalk	edium			
						13.30 - 16.30		•					
-													
				0									
	0												
					(3.00)								
				0									
<u> </u>													
	1. 1. 6				י מ	- ala D!!!	El., -1. D					V /2	<u> </u>
	Borehole Core Recovery Top of Base of Core Top of Base of Flush Return						riusn Ke			GENERA REMARI			
Run ($\binom{e}{m}$ R	ecovery (%)	Run (m)		Flush Return		Remarks	<u> </u>	TAINITAIN	120		
8.10) 10.	10	100	15	16		Benton	nie grouting lost into					
10.1 13.1	0 13. 0 16.		100 33				fc	ormation at 16m					
All c	limension	s in met	res Cl	ent W	heat Quar	ter Ltd	Method/ Plant Use	Rotary Sonic Rig with	Core L	ogged By	11556		

F	rojec	:t						2110121			BORI	EHOI	LE N	lo
			r Poly	ycell Site							C2 (BHI	DO2	2)
	ob N		aall C	Date	07-06 08-06		Ground Level (84.84		Co-Ordinates () E 212,754.7 N	524 067 5) - (-,
_	Contr	er Polyactor	cen s	otte	08-00	-18	84.84	+	E 212,/34./ N	324,007.3	Sheet			
		John F	Hun	t Remed	iation							of ·	4	
		PID							STRATA				ent/	III
D	epth	Result (ppm)	Water	Reduce	Legend	Depth (Thick-			DESCRIPTION			Geology	trum	Backfill
_	16			Level	. 0	ness)						Ge		
1	6.3	0.3	1	68.5	4	16.30	Offwhite soft i	nutty CHA	LK with dark yellow staini	ng Occasional	fragments			
-							of competent of	chalk <6cm	dia.	ng. Occusionar	iraginenis			
		0.8				(1.20)								
1	7.3		_											
-				67.3	4 <u> </u>	17.50	Offwhite struc	tureless CI	IALK with pockets of putt	y chalk.				
		1					17.55 - 17.85 1	Band of da	rk yellow staining					
Ť.														
1	8.3		1				18.30 Band of	yellow sta	ining					
		1				(2.40)								
F		1											\/\/	\ X /
١,	0.5													
	9.5			64.0		10.00								000
-		0.2		64.9	1 ' 	19.90	19.80 Band of		ining uctureless CHALK with gr	ev hands of stair	ning and			
2	20.2		1				strong hydroca	ırbon odou	r.				60	
-		183					20.40 - 20.87	470mm bar	nd of grey staining with a s	trong hydrocarb	on odour			٥
018		103				(1.90)								\big
October 2018	1.2		-											0,0
							21.40 Band of	grey staini	ng					
Date		37.5		63.0	1 1 1	21.80	Offwhite weak	dv structur	ed CHALK with horizonta	1 fractures in bar	nds and		60	
0.GLB	2.2						pockets of put	ty chalk. S	trong hydrocarbon odour				00	
GS 4														
STD A		384					22.58 Band of	medium to	coarse, subrounded flint g	gravels				
GINT -	23		-											
ibrary:													60	
<u> </u>		34.5												
SITE														
Į Į				ecovery			nole Drilling	Flush Re	eturn		GENER.			
I E	Top o Run (1		e of (m)	Core Recovery	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		REMAR	KS		
RME —	16.30	0 19	.30	100						11				
ect: FC	19.30 22.20	$\begin{bmatrix} 0 & 22 \\ 0 & 25 \end{bmatrix}$.20	100 100										
Proje														
Report ID: JFH BH Project: FORMER POLYCELL SITE.GPJ Library: GINT STD AGS 4_0.GLB Date: 2														
<u>≒</u> _	A 11 1	<u> </u>	. i	atma: C1	ient II	Theat Over	tar I ta	Mathad	Rotary Sonic Rig wi	th Core	Logged By			
Repor	All dimensions in metres Scale 1:50 Client Wheat (ncat Quar	ici Llu	Plant Us		.u1 C01C	J F	Russe	11	

Projec	et							BC	DREHOI	LE No
		r Polyc						C:	2 (BHI	D02)
Job N			Date	07-06	-18	Ground Level (m)			- (5:::	5 02,
	ner Poly	cell Site	e	08-06-	-18	84.84	E 212,754.7 N 52			
Conti		Hunt I	1:	.4:				Shee		1
	John F	Huni	Kemeai	ation					4 of	
	PID	ter			D 4		STRATA		S6	nent fill
Depth	Result (ppm)	Water	Reduced Level	Legend	Depth (Thick-		DESCRIPTION		Geology	nstrument Backfill
24					ness)	Offwhite weakly s	structured CHALK with horizontal fi	ractures in bands and		
						pockets of putty c 24.20 Band of dar	halk. Strong hydrocarbon odour (co	ntinued)		
 	80					below hydrocar	bon odour decreases.			
- 25	22.2	1								
-25.5										
23.3						25.50 Mild hydrod Moderate to strong	carbon odour - decreasing. g sewage/solvent odour.			
-	11.4				(8.30)					
						26.00 Decreasing	sewage/solvent odour			
-26.5		-								
	11.4									
- 27	0.6	1				27.00 Subrounded	l flint cobble			
27.3		1				27.30 50mm band	ls of weak structure in chalk - horizo	ntal fractures		
	13									
- 28										
-	0.3									
29		-								
Cetobe										
<u> </u>	1									
0.0CD Da			54.74		20.10					
5			54.74		30.10				+	
5 5 7										
- - 5										
Jaly.										
<u>i</u>										
Bore	hole Co	ore Rec	covery		Borel	nole Drilling Flu	ush Return	GENI	=- ₹RAI.	
Top Run (of Bas	se of	Core	Top of Run (m)	Base of	Flush Return	Remarks	REMA		
25.0	0 27.	.30	100							
27.3 29.3	0 29.	.30	100 100							
DO 1										
5										
All	limension Scale 1	s in metr	es Cli	ent W	heat Quar	ter Ltd	Method/ Rotary Sonic Rig with Plant Used Recovery	Core Logged	By J Russel	11

Project					BOREHO	LE No
Former Polyo	ell Site				Ca	
Job No	Date	Ground Level (m)	Co-Ordinates ()		C3	
Former Polycell Sit	e 20-06-18	84.85	84.85 E 212,753.9 N 524,072.0			
Contractor	·				Sheet	
John F Hunt	Remediation				1 of	4
PID #			STRATA			ent/ ill

Dep	th R	PID esult opm)	Water	Reduced Level	Legend	Depth (Thick- ness)		STRATA DESCRIPTION						
-				82.15		(2.70)	MADE GROU from drilled lo	JND - SANDS and GRAVELS, with C	LAY and flint (inferred	Geology	Instrument/ Backfill			
Date: 2 October 2018				78.85		(3.30)	SANDS and C	GRAVELS, with CLAY and flint						
SITE.GPJ Library: GINT STD AGS 4_0.GLB Date: 2 October 2018				70.05		(2.20)	Weak ground	- unidentified						
Bo				covery Core	Ton of			Flush Return	GENER.					
To Ru	op of n (m)	Base Run (ot (m)	Recovery (%)	Top of Run (m)	Base of Run (m)	Flush Return	Remarks	REMAR No recoverable material	availa	ıble.			
JFH BH Project: FORMER POLYCELL SITE.GPJ Library:					0 6	6 8.2	100	Bentonite lost into formation at 6-7m	Log completed by drille activities. Based on properties and from drill strike depths not added flushing activites. Station 20m.	esente ed logs due to	d s. Water			
₩	ll dime	ensions Scale 1:	in met	tres Cli	ent W]	neat Quar	ter Ltd	Method/ Plant Use Rotary Sonic Rig with	Logged By SONIC	DRII	LING			

Borehole Core Recovery		Borehole Drilling Flush Return							
Top of Run (m) Base of Recovery (%)	Top of Run (m)			Remarks					
	0 6	6 8.2	100	Bentonite lost into formation at 6-7m					

GENERAL REMARKS

All dimensions in metres Scale 1:50	Client	Wheat Quarter Ltd	Method/ Plant UseRotary Sonic Rig with Flush	Logged By SONIC DRILLING

Project				BOREHOLE No
Former Polycel	l Site			Ca
Job No	Date	Ground Level (m)	Co-Ordinates ()	C3
Former Polycell Site	20-06-18	84.85	E 212,753.9 N 524,072.0	
Contractor				Sheet
John F Hunt Re	emediation			2 of 4

Depth	PID Result	Water	Reduced		Depth		STRATA DESCRIPTION		Geology Instrument/ Backfill
	(ppm)	5	Level	Legend	(Thick- ness)				Geo Instr
			76.65	00.00	8.20		- unidentified <i>(continued)</i> GRAVELS, and flints.		
					(7.30)		X with flints (assumed putty chalk)		
Top		se of	covery Core	Top of	Base of		Flush Return Remarks	GENERA REMAR	
Run (ı	m) Rur	sc of I (m)	Recovery (%)	Run (m) 8.2 12.5	Run (m) 12.5 18	Flush Return 100 50	Bentonite lost into formation at 11.7m	No recoverable material Log completed by drille activities. Based on pr sediment and from drille strike depths not added flushing activites. Station	available. rs during flush resented ed logs. Water due to
All d	limension Scale 1		tres Cli	ent W]	neat Quar	ter Ltd	Method/ Plant Use R otary Sonic Rig wit	20m. Logged By	DRILLING

Borehol	le Core F	Recovery		Borehole Drilling Flush Return							
Top of Run (m)	Base of Run (m)	Core Recovery (%)	Top of Run (m)	Base of Run (m)	Flush Return	Remarks					
			8.2 12.5	12.5 18	100 50	Bentonite lost into formation at 11.7m					

GENERAL REMARKS

All dimensions in metres Scale 1:50	Client	Wheat Quarter Ltd	Method/ Plant UseRotary Sonic Rig with Flush	Logged By SONIC DRILLING

						BORI	EHOLI	E LOG						
Projec												BOR	ЕНОІ	LE No
		er Poly	cell Site					<u> </u>					C3	
Job N			Date			Ground Level		Co-Ordinates	_				00	
	er Poly	ycell S	ite	20-06-	-18	84.8	5	E 212,7	753.9 N	N 52	24,072.0	GI 4		
Contr		E Hund	Damad	iation								Sheet	2 of	1
	JOHN .	r Huni	Remed	lation									3 of 4	
_	PID	ter			Donath			STRAT					l SS	Instrument/ Backfill
Depth	Result (ppm)	Water	Reduced	Legend	Depth (Thick-			DESCRIP	ΓΙΟΝ				Geology	stru Back
-					ness)	Weak CHALK	with flints	(assumed putty	v chalk) (cont	inued)		Ü	
								\ 1)	, , , (,			
-														
					(2.50)									
-														
			66.85	5	18.00									
						Firm CHALK	with flints	(assumed struct	ureless cl	nalk)				
_														
-														
- 1														ز ان
					(4.00)									
-			62.85	5	22.00	CHAIK with	nossible fi	ssures and flints	,					
ś						(Fissures assur	med due to	loss of flush on	drilling)					
8-														
-														
-														
Bore	hole C	ore Re	ecovery		Borel	nole Drilling	Flush Re	turn				GENER	AI.	•
Top	of Ba	ise of	Core	Top of	Base of	Flush Return		Remarks		$\parallel \parallel$		REMAR		
Bore	m) Ru	n (m)	Recovery (%)	Run (m) 18 22	Run (m) 22 30	50 0					Log comple activities. sediment ar strike depth	able materia eted by drille Based on p nd from drill ns not added tivites. Stati	ers during resented ed logs due to	ng flush d . Water
All d	limensio Scale		etres Cl	ient W	heat Quar	ter Ltd	Method/ Plant Us	eRotary Soni	ic Rig w	vith	Flush	Logged By SONIC	DRIL	LING

Proje	ct										BOR	EHOI	LE No
	Forme	r Polyo										C 3	
Job N			Date			Ground Level (Co-Ordinates ()				03	
	ner Poly	cell Si	te	20-06	-18	84.85	5	E 212,753.9	N 52	24,072.0			
Conti	ractor		D 1	· .·							Sheet	4 C	4
	John F	Hunt	Remed	lation	ı							4 of 4	
	PID	ter			Depth			STRATA) Sig	Instrument/ Backfill
Depth	Result (ppm)	Water	Reduce Level	Legend	(Thick-			DESCRIPTION				Geology	stru Back
_					ness)	CHALK, with	possible fi	ssures and flints				G	
						(Fissures assur	ned due to	loss of flush on drilli	ng) (con	itinued)			
-													
ļ.					(8.00)								
					(11)								
-													
-													
-													
2 2 -													
] ;													
5 1 =			54.8	5	30.00								
			21.0										
.' }													
:													
i - -													
5													
Dom	hala Ca	Da			Dowal	nala Duillina	Eluah Da						
Bore Top	ehole Co	e of	Core	Top of		hole Drilling	TIUSII K		\parallel		GENER REMAR		
Run (m) Run	R = R	lecovery (%)	Run (m)		Flush Return		Remarks		No recovera			ble.
			(70)						\parallel	Log comple	ted by drille	rs duri	ng flush
										activities. sediment an strike depth	d from drill	ed logs	. Water
<u> </u>										flushing act	ivites. Stati	c levels	s below
i										20m.			
All	limension Scale 1		res C	lient W	heat Quar	ter Ltd	Method/ Plant Us	seRotary Sonic Ri	g with	Flush	Logged By SONIC	DRIL	LING

							DUKI	THOL	LUG						
Projec		ъ 1		a:								BORI	EHOI	LE N	lo
Job N	Form	er Pol		Site Date			Ground Level	(m)	Co-Ordinates ()				C5		
	er Poly	cell S		Dute	27-06-	18	84.82		E 212,751	.0 N 52	24,082.8				
	actor	<u> </u>							,			Sheet			_
	John	F Hur	nt Rer	nedia	ation							1	of ·	4	
	PID	er							STRATA				sy.	nent/	fill
epth	Result (ppm)	Water	Rec	luced evel	Legend	Depth (Thick-			DESCRIPTIO	N			Geology	strun	Backfill
\dashv				CVCI		ness)	MADE GROU	JND - SAN	DS and GRAVELS	S with bar	nds of CLAY (inferred	Ğ		
							from drilled lo	gs)							
															X
														X	
															X
															8
						(4.00)									
						(4.00)									
															X
			8	80.82	0.00	4.00	SANDS and C	DAVEIS	with bands of CLA	v					
					0 0 0		SANDS allu C	IKAVELS	with balles of CLA	.1					X
					0.0.0										
					0.00										
					0000										
					0.0.0.0										
					000										X
					0.0.0.										
					0 0 0										X
					0.0.0.4										
					0.00										
					0.0.0.										X
					0.0.0.0										8
					0,000	(7.75)									
	hole C				TP 0		ole Drilling	Flush Re				GENER.			
Top (Run (of Ba m) Ru	se of n (m)	Recov	very	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		No recover	REMAR able material		hle	
			(%	<u>')</u>	0	11.75	100				Log comple	eted by drille Based on p	rs duri	ng flu d	
											sediment ai	nd from drille as not added	ed logs	. Wa	er
											flushing ac 20m.	tivites. Stati	c levels	s belo	w
All dimensions in metres Client Wheat Quarter Ltd							ter Ltd	Method	, Th	<u> </u>	E1 1	Logged By	DDT		=
All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd								Plant Us	eRotary Sonic I	Rig with	Flush	SONIĆ	DRIL	LIN	G

BOREHOLE LOG												
Proje	ect							BOR	EHOl	LE No		
	Forme	r Polyc	ell Site						C5			
Job N	No		Date			Ground Level (m)	Co-Ordinates ()		Co			
Forn	ner Poly	cell Site	e	27-06	-18	84.82	E 212,751.0 N 524,082.8					
Cont	ractor							Sheet				
	John F	Hunt l	Remedia	ation				1	2 of	4		
	PID	r					STRATA			ent/		
Depth Result (ppm)									Geology	Instrument Backfill		
				0.00		SANDS and GRAVELS	with bands of CLAY (continued)					

	Depth	PID Result (ppm)	Water	Reduced Level		Depth (Thick- ness)		DESCRIPTION		Geology Instrumer Backfil		
L SITE.GPJ Library: GINT STD AGS 4_0.GLB Date: 2 October 2018	Do	shele C	one P	73.07		11.75	CHALK	Flush Poture				
LYCELL	Bore Top		se of	Core	Top of	Boreh Base of		Flush Return	GENERA REMAR			
Report ID: JFH BH Project: FORMER POLYCELL	Run (m) Run (m) Recovery Run (m) Run (m) Run (m) Run (m) Run (m) Run (m) Run (m) Run (m) Run (m) Run (m) Run (m)						Flush Return 30	Remarks Bentonite lost into formation between 12-15m apx	No recoverable material Log completed by drille activities. Based on pr sediment and from drille strike depths not added flushing activites. Static 20m.	available. rs during flush esented ed logs. Water due to		
Report ID: JF	All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd Plant UseRotary Sonic Rig with Flush SONIC DRII											

Boreho	le Core F	Recovery		Boreh	ole Drilling	Flush Return
Top of Run (m)	Base of Run (m)	Core Recovery (%)	Top of Run (m)	Base of Run (m)	Flush Return	Remarks
			11.75	30	30	Bentonite lost into formation between 12-15m apx

GENERAL REMARKS

All dimensions in metres Scale 1:50	Client	Wheat Quarter Ltd	Method/ Plant UseRotary Sonic Rig with Flush	Logged By SONIC DRILLING

	Projec	et												BOR	EHO	LE No
			ner Po	lycel											C5	
	Job N				Date			Ground Level (Co-Ordinates ()					CJ	
			lycell	Site		27-06-	18	84.82	2	E 212,75	51.0 N	1 52	4,082.8	CI. 4		
	Contr		ı F Hu	int Da	amadi	otion								Sheet	3 of	1
		JOIII	11 114		ZIIICUI:					CTD ATA					7 01	
	Depth	PID Resu					Depth			STRATA					gg	men kfill
	Сри	(ppn		E Re	educed Level	Legend	(Thick- ness)			DESCRIPTI	ON				Geology	Instrument/ Backfill
	_						ness)	CHALK (conti	inued)						 	W IX
	-															
	-															
	-															
	-															
																300
	-															
	-															
018							(18.25)									
ober 2																
2 Oct	-															
Date																
GLB	-															
3 4 0.																
D AG	-															
NT ST	L															
iz G	.															
Libra	-															
GPJ																
SITE					1			1 5 '11'	F1 1 D							Po H
YCELL	Bore		Core		ore	Top of	Base of	nole Drilling	Flush Re			$-\parallel$		GENER REMAI		
POL	Top Run (Dol Dasc of D				Flush Return		Remarks			No recoverab			hle		
RMEF				1 (:	70)							$-\parallel$	Log complete	ed by drill	ers duri	ng flush
ct: FO												activities. I sediment and	l from dril	led logs	s. Water	
Proje													strike depths flushing activ	not added vites. Stat	i aue to tic level	s below
HH H											20m.					
Borehole Core Recovery Top of Run (m)										,						
Report II	All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd						ter Ltd	Method/ Plant Us	eRotary Sonic	Rigw	/ith]	Flush	ogged By SONIC	DRII	LLING	

Projec	ct											BOR	EHOI	LE No
	Forme	r Poly											C5	
Job N				ate		Ground Level		Co-Ordinates	_				CJ	
	ner Poly	cell Si	te	27-06	5-18	84.8	2	E 212,7	751.0	N 52	24,082.8			
Conti	ractor	. TT4	D	. 11 41								Sheet	4 - 6	4
	John F	Hunt	Keme	ediation	T							,	4 of	
	PID	ter			D 4			STRAT					25	nstrument/ Backfill
Depth	Result (ppm)	Water	Redu	ced el Legend	Depth (Thick-			DESCRIP	TION				Geology	strur Back
-	'		Lev		ness)	CHALK (cont	tinued)						Ű	
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Bore	hole Co	ore Re	cove	ry	Borel	nole Drilling	Flush R	eturn				GENER	ΔΙ.	<u> </u>
Тор	of Bas	se of _	Core Recove	Top of	Base of	Flush Return		Remarks				REMAR		
Run (ııı) Kun	(m) F	(%)	, Kull (III	, 1011 (111)	/ •				$-\parallel$	No recover Log compl	able materia	l availa ers duri	ible. ng flush
											activities.	eted by drille Based on p nd from dril	resente	d . Water
											strike dept	hs not added tivites. Stat	due to	halow
:											20m.	arvites. Stat	ic ievel	s delow
All	limension	s in me	tres	Client W	/heat Quar	ter Ltd	Method Plant II	/ coM at C	:. D'	ا للـــــــــــــــــــــــــــــــــــ	Eluc1	Logged By	יימת	IDIC
2	Scale 1	:50					riant U	seRotary Son	uc Kig v	vitn	гiusn	ŠŎNIĆ	DΚΙΙ	LING

						DUKI	LHOLI	LUG						
Projec		D 1	11.014								BORI	ЕНО	LE N	lo
Job N		r Polyc	ell Site			C111	()	C. O. F. A.				C6		
		11.01			10	Ground Level		Co-Ordinates ()	O N 50	14.000.1				
Conti	ner Poly	cell Sit	ie	15-06-	-18	84.84	4	E 212,748.	.9 N 32	24,088.1	Sheet			
Conti		Hunt	Remed	iation								of	4	
	PID							STRATA						==
Depth	Result (ppm)	Water	Reduced Level	Legend	Depth (Thick- ness)			DESCRIPTIO	N			Geology	nstrum	Backfill
			81.34		(3.50)	SANDS and C		e GRAVEL fill						
	hole Co			T. C		nole Drilling	Flush Re	turn			GENER			
Top Run (of Bas m) Rur	se of R	Core	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		Na	REMAR		.1.1 -	
(,		(%)	0	15	100				Log compleactivities. sediment a strike deptl	rable material eted by drille Based on pr nd from drille as not added tivites. Station	rs duri esente ed logs due to	ing flu ed s. Wat	ter
All	limension Scale 1	s in met	res Cl	ient W	l heat Quar	ter Ltd	Method/ Plant Us	eRotary Sonic F	Lig with	Flush	Logged By SONIC	DRII	LLIN	 [G

						DUKI	CHOL	LOG				
Project										BOR	EHOI	LE No
		r Poly	cell Site			G 17 1					C6	
Job No	er Poly	aall C:	Date	15-06-	10	Ground Level 84.8		Co-Ordinates ()	1 524 000 1			
Contra		cen si	ie	13-00-	10	04.0	'1	E 212,748.9 N	324,066.1	Sheet		
		Hunt	Remedi	ation							2 of 4	4
	PID	h						STRATA			>	ill
Depth	Result (ppm)	Water	Reduced Level	Legend	Depth (Thick-			DESCRIPTION			Geology	Instrument/ Backfill
+				0000	ness)	SANDS and C	GRAVELS	with CLAY (continued)			9	
			69.84		10.50 (4.50)			(assumed to be structurely				
Borel	nole Co	re Re	covery		Borel	nole Drilling	Flush Re	eturn		CENIED	A T	
Тор о	f Bas	se of L	Core Recovery	Top of	Base of	Flush Return	11001110	Remarks		GENER REMAR		
Run (n	n) Run	ı (m)	(%)	Run (m) 15	Run (m) 30	80			Log complete activities. sediment a strike dept	rable materia leted by drille Based on p nd from drill hs not added ctivites. Stati	ers during resented ed logs due to	ng flush d . Water
All di	mension Scale 1		res Cli	ent W	heat Quar	ter Ltd	Method Plant Us	eRotary Sonic Rig w	rith Flush	Logged By SONIC	DRIL	LING

Projec	ct										BORE	EHOI	LE No
	Forme	r Polyc										C6	
Job N			Date			Ground Level		Co-Ordinates ()				00	
	ner Polyeractor	cell Sit	e	15-06-	-18	84.8	4	E 212,748.	9 N 52	24,088.1	Sheet		
Conti	John F	Hunt l	Remed	iation								of ·	4
			- Cilicu					STRATA				01	
Depth	PID Result	Water	D 1	1	Depth			DESCRIPTION	NT.			gc	ımen kfill
Z op un	(ppm)	⋈	Level	Legend	(Thick- ness)			DESCRII IIO	•			Geology	Instrument/ Backfill
					,	Firm CHALK	with flints	(assumed to be struc	ctureless	chalk) (continu	ed)		
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Bore Top	chole Co	e of	Core	Top of	Base of	nole Drilling Flush Return	Flush Re	eturn Remarks			GENERARI REMARI		
Run (m) Run	(m) R	ecovery (%)	Run (m)	Run (m)	%		Remarks		No recovera	ble material	availa	ble.
										Log complet activities. sediment an strike depths flushing acti 20m.	Based on pr d from drille s not added	esente ed logs due to	d . Water
All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd Method/Plant UseRotary Sonic Rig with Flush SONIC DR										DRIL	LING		

Projec											BORI	EHOI	LE No
		r Polyc	ell Site									C6	
Job N			Date			Ground Level (Co-Ordinates ()				00	
	ner Poly	cell Sit	e	15-06-	18	84.84	4	E 212,748.9	N 524	1,088.1	GI 4		
Conti		Hunt	Remedi	ation							Sheet	of	1
	JOIIII I	Truin.	Kemedi	اامانا				CTD AT A				01	
Depth	PID Result	Water			Depth			STRATA				gy	strument Backfill
Depui	(ppm)	W	Reduced Level	Legend	(Thick- ness)			DESCRIPTION				Geology	nstru Bac
_					ness)	Firm CHALK	with flints	(assumed to be structu	ıreless cl	nalk) <i>(continu</i>	ed)	<u> </u>	
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Bore	hole Co	ore Re	covery		Borel	nole Drilling	Flush Re	eturn			GENER.	AL	
Top Run (of Bas	e of R	Core ecovery	Top of Run (m)	Base of Run (m)	Flush Return		Remarks			REMAR	KS	
Kuii (, Kull	(111)	(%)	(***)	()				\parallel	No recovera Log complet	ed by drille	rs duri	no flush
										activities. sediment and strike depths flushing acti	Based on pr d from drille	esente ed logs	d . Water
56										strike depths flushing acti	not added vites. Static	due to	s below
= 5										20m.			•
All	limension Scale 1	s in met	res Cli	ent W	heat Quar	ter Ltd	Method Plant Us	seRotary Sonic Ris	o with I	Flush	Logged By SONIC	DRII	LING

							DUK	LHOLI	LOG						
Projec												BOR	ЕНОІ	LE N	0
		ner Po	olyce	ll Site									C7		
Job N			~.	Date		10	Ground Level		Co-Ordinates ()	4 37 56			•		
Contr		lycell	Site		04-07-	-18	84.8	0	E 212,749.	4 N 52	24,094.8	Sheet			
Conu		F Hu	ınt R	temedi	ation								l of	4	
									STRATA					_	=
Depth	PID Resu	lt ∣ të	F	Reduced		Depth			DESCRIPTION	V			logy	Instrument/	ckfil
	(ppm			Level	Legend	(Thick- ness)							Geology	Insti	Ba
							MADE GROU	JND - SAN	D and GRAVEL an	d CLAY					
-															X
-															
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-															X
						(3.50)									
•															
_															X
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				04.20		2.70									
-			-	81.30	0.0.0	3.50	SANDS and C	GRAVELS							X
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Bore	hole	Core 1	Reco	overy	10 / 0 /	Borel	nole Drilling	Flush Re	turn			GENER	ΔΙ.	<i>V</i> //.	<u> </u>
Тор	of E	Base of	D (Core covery	Top of	Base of	Flush Return		Remarks			REMAR			
Run (m) R	un (m)	Ko	(%)	Run (m) 0	21	100				Log comple activities. sediment ar strike depth	able materia eted by drille Based on p nd from drill ns not added tivites. Stati	ers duri resente ed logs due to	ng flu d . Wat	er
All d		ons in 1 e 1:50	metre	es Cli	ent W	heat Quar	ter Ltd	Method/ Plant Us	eRotary Sonic R	ig with	Flush	Logged By SONIC	DRIL	LIN	— G

	Projec	et										BOR	ЕНОІ	E No	
		Form	er Po	lyce			C7								
	Job N				Date			C1							
		er Pol	ycell	Site		04-07-	18	84.80)	E 212,749.4 N	524,094.8				
	Contr			_								Sheet			
	<u> </u>	John	F Hu	nt R	emedi	ation							2 of 4		
		PID	1 5							STRATA			, s	Instrument/ Backfill	
	Depth	Result (ppm)	Water	R	educed	Legend	Depth (Thick-			DESCRIPTION			Geology	trun 3ack	
	_	(PPIII)			Level		ness)	GANIDO 10	DANELC	() () () () () () () () () ()			g	SZ INS	
						0.0.0.0.		SANDS and G	RAVELS	(continued)					
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	-		73.30 0 0 0 11.50 Weak CHALK with flints (assumed to be putty chalk).							lk).			\mathbb{X}		
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ELL S	Bore	hole (ore l	Reco	very		Borel	nole Drilling	Flush Re	eturn		GENER.	ΑL		
)LYC	Тор		ase of		Core	Top of	Base of	Flush Return		Remarks		REMAR			
ER PC	Run (m) Rı	ın (m)		overy %)	Run (m)	Run (m)	%0			No recovera	overable material availab			
ORMI											Log complet activities.	Based on pr	resente	1	
ect: F											sediment and strike depths	d from drill	ed logs	. Water	
Proj											flushing acti	vites. Stati	c levels	below	
HH															
J. J.F.	<u></u>														
Report ID: JFH BH Project: FORMER POLYCELL SITE.GPJ Library: GINT STD AGS 4_0.GLB Date: 2 October 2018	All c	All dimensions in metres							Logged By SONIC DRILLING						
Re		Scale 1:50 Plant Use Rotary Sonic Rig with Flush								IUI FIUSII	SONIĆ DRILLING				

							DOM	LHOLI	LUU					
Projec												BOR	EHOI	LE No
		ner Pol					G 17 1		G 0 11				C7	
Job N		11 (Date	04.07	10	Ground Level (Co-Ordinates ()	1 NI 51	24.004.9		•	
Contr	er Pol	ycen s	Site		04-07-	18	84.80	0	E 212,749	7.4 N 32	24,094.8	Sheet		
Conta		F Hur	nt Ren	nedi	ation								3 of	4
	PID	<u></u>				5 4			STRATA				256	nent/ fill
Depth	Result (ppm)	Water	Red Le	luced evel	Legend	Depth (Thick- ness)			DESCRIPTIO	DΝ			Geology	Instrument/ Backfill
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Bore	hole (nole Drilling	Flush Re	turn			GENER		11/11
Top o Run (of B m) R	ase of un (m)	Cor Recov	very	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		No recover	REMAR able materia		ble.
Bore Top o			(%		21	30	30	Flush re	urn lost into forma	ation	Log comple activities. sediment ar strike depth	eted by drille Based on pand from drill is not added tivites. Stati	ers during resented ed logs due to	ng flush d . Water
All d	limensio	ons in m	netres	Cli	ent W]	neat Quar	ter Ltd	Method/ Plant Us	eRotary Sonic 1	Rig with	Flush	Logged By SONIC	DRIL	LING

Proje	et										BORE	EHOI	LE No
		r Polyo	cell Site								C7		
Job N			Date			Ground Level (Co-Ordinates ()				O1	
	ner Poly	cell Sit	te	04-07-	-18	84.80)	E 212,749.4	N 52	24,094.8	CI. (
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	JOIIII I	Truit						CTDATA				01	
Depth	PID Result	Water			Depth			STRATA				gy	nstrument Backfill
Бериг	(ppm)	\ ⊗	Reduced Level	Legend	(Thick- ness)			DESCRIPTION				Geology	nstru Bac
-					nessj	Firm CHALK	with flints (assumed to be struct	ureless	chalk (continue	ed)		
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5	hole Co		Covery Core	Top of	Base of	nole Drilling	Flush Re				GENERARI REMARI		
Top Run (m) Bas	e of R	Recovery (%)	Run (m)	Run (m)	Flush Return		Remarks		No recovera			hle
			(70)							Log complet	ted by drille	rs duri	ng flush
-										activities.	d from drille	ed logs	. Water
Į.									strike depths flushing acti	vites. Statio	levels	s below	
5										20m.			
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All	All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd							eRotary Sonic Ri	g with	Flush	Logged By SONIC	DRIL	LING

							DUKI	EHOLI	LUG						
Projec												BOR	EHOI	LE N	0
		ner Pol	lycel										D2		
Job N		1 11 4	a.,	Date	20.06	10	Ground Level (Co-Ordinates ()	NI 50	14.066.0				
Contr		lycell S	Site		28-06-	-18	84.82	2	E 212,748.8	N 52	4,066.0	Sheet			
Conti		F Hu	nt Re	emedi	ation								of ·	4	
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Depth	PID Resul	Water	Ъ	. 1 1		Depth			DESCRIPTION				ogy	ımer	Ϋ́Ε
Бериг	(ppm		l	eaucea Level	Legend	(Thick- ness)			DESCRII HON				Geology	Instrument/	Вас
-						nessy	MADE GROU	JND - SAN	DS and GRAVELS wi	th ban	ds of CLAY.			WĀ	X
_															X
-															
						(2.70)									X
-						(2.70)									
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Bore	hole	Core F	Reco	very	<u>la - a -1</u>	Borel	nole Drilling	Flush Re	eturn			GENER.	ΔΙ.	<u> </u>	<u> </u>
Top	of E	Base of		ore overy	Top of	Base of	Flush Return		Remarks			REMAR			
Run (m) K	un (m)	(9	%)	Run (m)						No recoveral Log complet				sh
					0	12	100				activities. I sediment and	Based on pr	esente	ď	
											strike depths	not added	due to		
											flushing active 20m.	vius. Sidli	c icvel	0010	r v
All			netres	Cli	ent W	heat Quar	ter Ltd	Method/ Plant Us	eRotary Sonic Rig	with	Flush	ogged By Sonic	: Dril	ing	
All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd						,8					0				

Projec	ct										BORE	ЕНО	LE N	lo
												D2		
Job N		Polycell Site 28-06-18 84.82 E 212,748.8 N 524,06												
		cell Site	2	28-06-	18	84.8	2	E 212,/48.8	N 524	4,066.0	Sheet			
Conti		Hunt R	Remedi	ation								of	4	
								STRATA						_
Depth	PID Result (ppm)	Water	Reduced Level	Legend	Depth (Thick-			DESCRIPTION				Geology		Backfill
offeroingly, offeroingly of the following a constant of th			72.82		12.00	CHALK		with bands of CLAY.	(continu	red)				
5						nole Drilling	Flush Re				GENERARI REMARI	AL		
Top Run (of Bas m) Run	(m) Re	covery	Top of Run (m)	Base of Run (m)	Flush Return	Remarks REI No recoverable n						hle	
	12 30 80								No recovera Log comple activities. sediment an strike depth flushing act 20m.	ted by drille Based on pr d from drille s not added	rs duri esente ed logs due to	ng flu d s. Wat	ter	
All	dimension		es Cli	ient W	heat Quar	ter Ltd	Method/ Plant Us	seRotary Sonic Ric	with 1	Flush	Logged By	Dril	ling	

Proje	ct										BORI	EHOI	LE N	10
		r Polyc	ell Site					ı				D2		
Job N		11 01	Date		10	Ground Level		Co-Ordinates ()	D NI 50	14.066.0				
	ner Polyeractor	cell Sit	ie	28-06-	18	84.8		E 212,748.8	8 N 32	24,066.0	Sheet			
Cont		Hunt	Remedi	iation								of 4	4	
								STRATA						_
Depth	PID Result	Water	Reduced	1 .	Depth			DESCRIPTION	1			Geology	nme.	Backfill
	(ppm)		Reduced Level	Legend	(Thick- ness)							Geo	Instr	Ва
						CHALK (cont	inued)							
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Top Run (of Bas	se of R	Core ecovery	Top of Run (m)	Base of Run (m)	Flush Return		Remarks			REMAR			
	C-, Tom	(/	(%)							Log compl	rable material eted by drille Based on pr nd from drille hs not added ctivites. Station	rs duri	no flu	ish er ow
A 11	dimension	e in mat	rec Cli	ient W	heat Quar	ter I td	Method	/			Logged By			
	ımension Scale 1	s in met :50	ies Ci	ν	ncai Qual	ici Liu	Plant Us	se R otary Sonic R	ig with	Flush	Sonic	: Drill	ling	

P	Projec	t											BORI	EHOl	LE No
		Forme	r Poly											D2	
	ob N				Date			Ground Level		Co-Ordinates ()				UL	
_		er Poly	cell S	ite		28-06-	-18	84.82	2	E 212,748.8	N 52	24,066.0	GI 4		
'	Contr	actor John F	Llum	t Dan	nadi	otion							Sheet	of	1
F		JOIIII I	TTUII	T Kell	near					CED ATLA				101	
D	epth	PID Result	Water				Depth			STRATA				gy	men kfill
	epui	(ppm)	W	Red Le	luced evel	Legend	(Thick- ness)			DESCRIPTION				Geology	nstrument Backfill
-						<u> </u>	ness)	CHALK (cont	inued)						
-															
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<u> </u> -				5	54.82		30.00								
2 2 3															
- 25															
2															
5															
Library															
2															
5 I							rehole Drilling Flush Return					GENER	AL_		
[] []	Top ((m) Run (m) Recovery Run (m) Run (m				Base of Run (m)	Flush Return		Remarks			REMAR		1.1	
Y		(%)						\parallel	No recovera Log complet	ed by drille	rs duri	no flush			
2								activities. sediment and	Based on pi l from drille	esente ed logs	d s. Water				
A I Ole								strike depths flushing acti	not added	due to					
<u> </u>									20m.						
	All dimensions in metres Client Whe					ent W	heat Quar	ter Ltd	Method/ Plant Us	se R otary Sonic Ri	o with	Flush	Logged By	Dril	ling

Projec										BORE	tHOl	LE N	NO
		r Pol	ycell Site			Ground Level (Co-Ordinates ()		D4 (RH	מם	3)
Job N			J- (<u>ار ا</u>		J							
	er Poly	cell S	Site	12-06-	-18	84.73	3	E 212,747.0	N 524,074.5				
Contr										Sheet			
	John F	Hun	t Remed	iation						1	of	4	
	PID	H						STRATA			· >	ent/	<u>;</u> =
Depth	Result	Water	Reduced	Legend	Depth			DESCRIPTION			Geology	100	Backfill
	(ppm)		Level	Legend	(Thick- ness)						Gec	Inst	ñ
1.3	1.1				(4.00)	coarse. Grave concrete.	l is fine to	vn slightly clayey sandy coarse subangular to rou sandy crushed concrete yey with depth	inded of flint, bricl	is fine to			
-	0.7 80.73												
- - 6 -							e to coarse. Grave	4 is time to					
- 7					(3.90)								
Bore	hole Co	ore R				nole Drilling	Flush Re	eturn		GENERA			
Top (of Bas	se of (m)	Core Recovery	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		REMAR			
0.00 2.50 5.00 6.50) 2.) 5.) 6.	50 00 50 50 00	(%) 100 100 100 100	Tom (III)	Kun (III)	,,							
All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd Method/ Rotary Sonic Rig with Core Plant Used Recovery								Logged By J R	Lusse	11			

	Projec	et									BOR	EHOI	LE No
		Forme	r Pol	ycell Sit	e						D4 (ъμι	D03)
	Job N			Da	11-06-	-18	Ground Level		Co-Ordinates ()		D4 (БПІ	Jusj
		ner Poly	cell S	lite	12-06-	-18	84.7.	3	E 212,747.0 N :	524,074.5			
	Contr										Sheet		
		John F	Hun	t Reme	diation						1 2	2 of 4	4
		PID							STRATA			>	Instrument/ Backfill
	Depth	Result (ppm)	Water	Reduc	Legend	Depth (Thick-			DESCRIPTION			Geology	trun
		0.1		Leve		ness)	T 1		II CANID C 1 :- C 4		- C	g	
		0.1					coarse, subrou	orange grav nded to ro	velly SAND. Sand is fine to anded of flint. (continued)	coarse. Gravei is	s tine to		
	_												
					a .								
	- 9		-	75.7	73 - 0	9.00	Loose brown o	orange grav	velly SAND. Sand is fine to	coarse. Gravel is	s fine to		
							coarse, subrou ((Poor recover	nded to rou	unded of flint.				
	-				0		((1 001 1000 1))	y 9-12111))					
					. · . · · · ·								
	_				0								
		0			a .								
					0								
					a .	(4.20)							
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	- 12												
	12												
	_	0			a								
					. 0								
2018	- 13			71		12.20	13.00 Becomin	ng chalky					
ctober				/1.3	53 0	13.20	Offwhite soft	putty CHA	LK with occasional orange	staining.			
: 2 Oc	-	0					((Poor recover	y due to fli	int stuck in barrel 15-18m)) ints of chalk <40mm dia in p	=			
Date													
GLB	- 14		-		<u> </u>								
3 4_0.													
D AG	_	0			1								
IT ST							14.70 Band of	flint					
y: GIN	- 15												
Librar		0											
PJ II		0											
ITE.						(5.40)							
ELL S	Bore	hole C	ore R	ecover	7	Borel	hole Drilling	Flush R	eturn		GENER.	AL	
OLYC	Тор		se of	Core Recovery	Top of	Base of	Flush Return		Remarks		REMAR		
ER P	Run (m) Rur	n (m)	(%)	Run (m)	Run (m)	70						
-ORM	9.00 12.0		.00	33 100									
ject: F	15.0		.00	30									
Pro													
H BH													
ID: JF				. 1.	Tions XX	1 4 0	T 4.3	M.41 1	/ Rotary Sonic Rig wit	th Core	2 2 2 2 1 D		
Report ID: JFH BH Project: FORMER POLYCELL SITE.GPJ Library: GINT STD AGS 4_0.GLB Date: 2 October 2018	All c	limension Scale 1		etres	Client W	heat Quar	ter Lta	Plant U	sed Recovery	in Core L	ogged By J F	Russel	1
-													

Proje	ct										BOR	EHO	LE N	o
		er Po	lyce	ll Site							D4	(BH	200	۱۱
Job N				Date	11-06-	-18	Ground Level (Co-Ordinates ()		"	ווטו		"
	ner Po	ycell	Site	:	12-06-	-18	84.73	3	E 212,747.0 N	524,074.5				
Cont	ractor	г	, D	. 1.							Sheet	2 6		
	John	F Hu	nt K	emedi	ation							3 of		
	PID	i .	,						STRATA			55	Instrument/	E]]
Depth	Resul (ppm	Water	F	Reduced Level	Legend	Depth (Thick-			DESCRIPTION			Geology	strur.	3ack
16	di.	_		Level		ness)	Offivhita aaft	mutter CHAI	LK with occasional orange	atainina		Ğ	ΔŽ,	
							((Poor recover	y due to flii	nt stuck in barrel 15-18m)	(continued)				
-	0													
- 17														
+	0													
- 18		_												
	0		-	66.13		18.60	Offwhite struc	rtureless CE	IALK with chalk fragment	ts <60mm dia_and	l nockets			
1.0							of putty chalk.	·	TALK With Chark fragmen	is sooniin dia. and	pockets			
- 19		_												
	0													
						(2.40)	19.50 Band of	flint						
- 20	L	_				(2.40)								
20														
_	0.6													
	0.0												$\frac{1}{2}$	700
8 - 21		_	-	63.73		21.00	Off-1:44	1 CI	IAT IZ	1- (< 50 1:-)	. C 1-		0	
2 October 2018							horiontal fract	ureiess CF ures .	IALK with occasional ban	ids (<50mm dia).	or weak		ŀŒ	
200-	6.2						21.40 Band of	pale grey s	taining and a mild hydroca	arbon odour				
Date													64	S°
흵- 22	<u></u>	\dashv												70
0.								Band of pal	e grey staining and a mod	erate hydrocarbon	odour.		: CE	Š
AGS	152						Flint gravels							D 0
TST													6	Š
23						(4.30)	22 10 Hydroor	erhon odour	decreasing and a mild to	moderate sevices	colvent			٥
ibrary					7 7 7	(1100)	odour appearing	ng (patchy)	decreasing and a mild to	moderate sewage/	SOIVEIII		15/1	Š
	17.3													٥
三 回 回														Š
Bor	ehole (Core 1	Rec	overy		Borel	ole Drilling	Flush Re	turn		GENER			$\overline{}$
Top	of B	ase of		Core	Top of	Base of	Flush Return		Remarks		REMAI			
Run		un (m)		covery (%)	Run (m)	Run (m)	%		TOTAL					
18.0	00 2	21.00		100										
인 21.0 항 24.0		24.00 27.20		100 100										
Proj														
HBH														
Report ID: JFH BH Project: FORMER POLYCELL SITE. GPJ Library: GINT STD AGS 4_0.61B Date: April			<u>L</u>			<u></u> _								
All	dimensi		metre	es Cli	ent W	heat Quar	ter Ltd	Method/ Plant Us	Rotary Sonic Rig w	ith Core 1	Logged By	Russe	11	
&	Scale	21:50						1 Iaiit US	ed Recovery		J	russe	11	

Projec										BORE	≟HOI	LE No
		r Pol	ycell Site							D4 (BH	וצטם
Job N	o		Date	11-06		Ground Level (m)	1)	Co-Ordinates ()			וווט	000)
Forn	ner Poly	cell S	lite	12-06	-18	84.73		E 212,747.0 N :	524,074.5			
Conti	ractor									Sheet		
	John F	Hun	t Remed	iation							4 of	4
	PID	ı						STRATA			_	Instrument/ Backfill
Depth	Result	/ate	Reduce	1	Depth			DESCRIPTION			Geology	lckf
	(ppm)		Level	Legend	(Thick- ness)						Geo	Instr Ba
24						Offwhite structur	reless CH	ALK with occasional band	ls (<50mm dia)	. of weak		
						horiontal fracture	es . (conti	nued)				
	400											
						24.70 Band of fli	lint					1919
25		-		 								40
			59.43	3	25.30	*** 1	00.11	CYX LY XX 11 1 1 0	1 11 77		<u> </u>	k OF
	307					Weak structured fractures < 10mm	offwhite n dia.	CHALK with pockets of p	utty chalk. Hoi	ızontal		COL
						25.60 Band of fli	lint					
26		1										自
						26.20 1/2	l- :1	1 < 1 f < 40	4"			
	17.2					26.20 Very weak	k irregular	norizontal fractures <40m	ım dia.			
	17.3											
27		1										
												1913
	28.3				(4.70)							
					(4.70)	27 90 Dand of fli	lint					
28		-				27.80 Band of fil	ши					COF
	Result (ppm) Result (ppm) Result (ppm) Reduced Level Legend (Thickness) Offwhite structureless CHALK with occasional ba horiontal fractures. (continued) 24.70 Band of flint Weak structured offwhite CHALK with pockets of fractures <10mm dia. 25.60 Band of flint 26.20 Very weak irregular horizontal fractures <40mm dia. 25.80 Band of flint 27. 28.3 (4.70) 28.3 (4.70) 27.80 Band of flint 28.40 Band of flint 28.40 Band of grey staining with a mild to odour.											
	6.4					28.40 Band of fli	lint					は
							and of gre	staining with a mild to m	oderate sewage	/solvent		
29						00000						局
	2.2											
						20.70 D1 -6.6	I					
			54.73	3	30.00	29.70 Band of fil	ıınt					
3ore	hole Co	ore R	ecovery	1	Borel	hole Drilling Fl	lush Re	turn		GENER	<u></u> ΔΤ	
Тор		e of	Core	Top of	Base of	Flush Return		Remarks		REMAR		
lun (m) Run	(m)	Recovery (%)	Run (m)	Run (m)	%		Remarks				
27.2	0 30.	.00	100									
			1		m		N	Datamy Carrie Dia	th Com	r 15		
All	limension Scale 1		etres Cl	ient W	heat Quar	ter Ltd	Method/ Plant Use	Rotary Sonic Rig wit	ın Core	Logged By J R	Russel	11
	1											

Former Polycell Site		Projec	:t											BORE	ЕНО	LE N	lo
Some Properties Street S				r Poly											D5		
South Flutt Remediation Strata Depth Reduced Legend Depth Clinick Description Depth Reduced Legend Depth Clinick Description Description Depth Description Descr						Date									DJ		
John F Hunt Remediation				cell S	ite		03-07-	18	84.80	0	E 212,745.4	N 524,081.5					
Borehole Core Recovery Borehole Drilling Flush Return GENERAL REMARKS Run (m) Run (m) Recovery Run (m) Run (m) Run (m) Recovery Run (m)		Contr			_										0		
Depth Reduct Legend Legend Legend Chiefs DESCRIPTION DES			John F	Hunt	t Rem	edia	ation							l	of	4	
MADE GROUND - SAND and GRAVEL with bands of CLAY (inferred from drilled logs) 4.00			PID	er							STRATA				53	lent/	[]]
MADE GROUND - SAND and GRAVEL with bands of CLAY (inferred from drilled logs) 4.00		Depth	Result	Wate	Redu	iced	Legend	Depth (Thick-			DESCRIPTION				olog		3ack
Borcholc Core Recovery Borchole Drilling Flush Return GENERAL			(PPIII)		Lev	vei	****	ness)	MADE CROSS	DID GAN	D. 1 CD AVER 24.1	1 667 137	<i>(</i> : C	1.0	Ge	Institution	Щ
Top of Run (m) Base of Run (m)	STE:GF3 Library: GINT STD AGS 4_0.GLB Date: 2 October 20 to							4.00	drilled logs) SAND and GR	RAVEL wit	h bands of CLAY	ands of CLA 1	(iiiieii	ed Holli			
Run (m) Run (m							T		1	Flush Re							
No recoverable material available. Log completed by drillers during flush activities. Based on presented sediment and from drilled logs. Water strike depths not added due to flushing activities. Static levels below 20m. All dimensions in metres Client Wheat Quarter Ltd Method/ Logged By		Top o	of Bas m) Run	e of (m)	Recove	ery			Flush Return		Remarks	NT.				.1.1	
All dimensions in metres Client Wheat Quarter Ltd Method/ Plant Use Rotary Sonic Rig with Flush Logged By	JETH DHI II FIGHECI. FORINER				(%)				100			Log con activitie sedimen strike de flushing	npleted s. Ba at and f epths n	l by drille ased on pr from drille ot added	rs duri esente ed logs due to	ing flu ed s. Wa	ter
	epoil ID.	All d			etres	Clie	ent W	heat Quar	ter Ltd	Method/ Plant Us	eRotary Sonic Rig	with Flush	Lo	gged By			

Projec	et										BORE	EHO]	LE N	lо
		r Poly	cell Site									D5		
Job N			Date			Ground Level (Co-Ordinates ()				D 0		
Contr	ner Poly	cell Si	te	03-07-	-18	84.80)	E 212,745.4	N 52	4,081.5	Sheet			
Conti		Hunt	Remedi	iation								of	4	
	JOHN I	Traint	Terrical					STRATA				. 01		i
Depth	PID Result	Water	D 1		Depth			DESCRIPTION				ogy	lmen	kfill
Depui	(ppm)	×	Reduced Level	Legend	(Thick- ness)			DESCRIPTION				Geology	nstru	Backfill
				0.00	(8.30)	SAND and GR	RAVEL wit	h bands of CLAY (cor	ıtinuea	"			WĀ	X
				0 0 0 0										
				0 0 0										
-				10. 1. 0. 1										
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-				0.00										
			72.50		12.30	CHALK with	flint							
2														
3														
9-														
2														
5														
Bore	hole Co	ore Re	covery		Borel	nole Drilling	Flush Re	eturn			GENERA	ΔΤ.	<u> </u>	<u> </u>
Top	of Bas	e of	Core Recovery	Top of Run (m)	Base of	Flush Return		Remarks		N.	REMAR	KS	1.1	
			(%)	12.3	16.5	50				Log comple activities. sediment an strike depth	able material sted by drille Based on pr d from drille s not added ivites. Statio	rs duri esente ed logs due to	ng flu d s. Wat	ter
All c	limension Scale 1		tres Cl	ient W	heat Quar	ter Ltd	Method/ Plant Us	seRotary Sonic Rig	with	Flush	Logged By			

Proje	ct										BORI	EHOI	LE N	10
		r Poly	cell Site									D5		
Job N			Date			Ground Level		Co-Ordinates ()				DJ		
	ner Poly	cell Si	ite	03-07-	18	84.8	0	E 212,74	5.4 N 5	24,081.5	GI 4			
Conti	ractor	Hunt	Remed	liation							Sheet	3 of	1	
	JOIIII I	Truin	Remed					CTD AT A						
Donath	PID Result	Water			Depth			STRATA				gs	men	Backfill
Depth	(ppm)	Wa	Reduce Level	d	(Thick-			DESCRIPTION	JN			Geology) Stru	Bac
-					ness)	CHALK with	flint (contin	ued)						N/
-														
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-														
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0 07					(15.50)									
cioner					(17.70)								60	# 3
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LIDIA														
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	1 1 6				D 1	1 7 '11'	EL 1 D		П				Por	<u> </u>
Bore Top	ehole Co	e of	Core	Top of	Base of	nole Drilling Flush Return	Flush Re	turn Remarks			GENER. REMAR			
Run ((m) Run	(m)	Recovery (%)	Run (m)	Run (m)	%		Kemarks		No recover	able material	l availa	ıble.	
				16.5	30	0	Flush retu	rn lost into forma 16.5m.	tion at	Log comple activities.	eted by drille Based on pr nd from drille	rs duri esente ed logs	ng flu d s. Wat	ish
5										strike dept	hs not added tivites. Stati	due to		
										20m.	Stati	. 10 v Cli	. JCIO	**
All	dimension Scale 1		etres C	lient W	heat Quar	ter Ltd	Method/ Plant Us	Rotary Sonic	Rig with	n Flush	Logged By			

Proje										BOK	EHOI	LE No
7.1.3		r Pol	ycell Site			G 17 17	′ `				D5	
Job N		11.0	Date		10	Ground Level (Co-Ordinates ()	. 504 001 5			
	ner Poly	cell S	site	03-07	-18	84.80	<u> </u>	E 212,745.4 N	1 524,081.5	Sheet		
Conti		' Цпи	it Remed	liation							4 of -	1
	JOIIII I	TTUI	T Kerned	11411011				CED A EL			1 01	
D 4	PID	ter			Depth			STRATA			gs	nstrument/ Backfill
Depth	Result (ppm)	Water	Reduce Level	Legend	(Thick-			DESCRIPTION			Geology	stru Back
-			- 20.01	- п	ness)	CHALK with	flint <i>(conti</i>	nued)			U	
						CITI ILIL WILLI	inin (comi	ilicu)				
-												。 ()
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				7 7								
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= D			54.8		30.00							
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5												
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= 2 5												
<u> </u>												
Bore	ehole Co	ore R	lecovery	7	Borel	nole Drilling	Flush R	eturn		GENER	AL	
Top	of Bas	e of	Core Recovery	Top of Run (m)	Base of	Flush Return		Remarks		REMAR		
Run ((m) Run	(m)	(%)	Kun (m)	Run (m)	/0			No reco	verable materia	l availa	ible.
5									activitie	npleted by drille s. Based on p at and from drill	resente	ng musn d
200									sedimer strike de	nt and from drill epths not added gactivites. Stati	ed logs due to	. Water
<u>-</u>									flushing 20m.	activites. Stati	c level	s below
5												
<u> </u>			T		<u> </u>			,	Ш	r		
All	dimension Scale 1		etres C	lient W	heat Quar	ter Ltd	Method Plant U	/ se R otary Sonic Rig w	rith Flush	Logged By		

Progret Former Polycell Site Date Date Date Stock							BORI	EHOLI	E LOG					
Dob No Former Polycell Site O5-07-18 State O5-07-18 O5-07-18 State O5-07-18 O5-07-18 State O5-07-18 Sta	Projec											BOR	EHO]	LE No
Former Polycell Site	7.13		r Poly				- 1 <u>7</u> 1	<i>,</i> ,					Z 5	
Contractor John F Hunt Remediation Sheet 1 of 4			rell Si			.18			_	8 N 5	24 084 6			
John F Hunt Remediation 1 of 4 Depth PID Result (ppm) Result (ppm) Reduced (ppm) Reduced (ppm) Result (ppm) Reduced (ppm)			cen si		03-07-	10	04.0		E 212,700	.6 19 3	24,004.0	Sheet		
(3.50) 81.32 3.50 \$\int 2 \cdot 0 \			Hunt	Remed	iation								1 of	4
(3.50) 81.32 3.50 P P P P P P P P P P P P P P P P P P P		DID	L						STRATA					ent/
(3.50) 81.32 3.50 P P P P P P P P P P P P P P P P P P P	Depth	Result	Wate	Reduced Level	d Legend	(Thick-			DESCRIPTIO	N			Geology	nstrum Backfi
Top of Run (m)	LS IE. GFU I Library: GIN IS ID AGS 4, 0. GLB Date: 2 October 2018	shale C	ore Re	77.32		3.50 (4.00)	SAND and Gi	PAVEL and possi	l CLAY					
Run (m) Run (m) Recovery Run (m) Run (m) % Run (m) Run (m) Recovery Run (m) Run (m) % Run (m) Run (m) Recovery Run (m) Run (m) % Run (m) Ru	Ton		se of	Core	Top of	Base of		1 14311 10						
All dimensions in metres Scale 1:50 Client Wheat Quarter Ltd Method/ Plant Use Rotary Sonic Rig with Flush SONIC DRILLING	Run (m) Rui	n (m)		Run (m)	Run (m) 7.5	100	Loose		lk?	Log comple activities. sediment ar strike depth flushing act	able materia eted by drille Based on p nd from drill ns not added	l availa ers duri resente ed logs due to	ng flush d . Water
	All			tres	lient W	heat Quai	ter Ltd	Method/ Plant Us	eRotary Sonic I	Rig with	ı Flush	Logged By SONIC	DRII	LING

						DUKI	THOLI	LUG					
Proje		D 1	11.00							BC	REHO	LE N	lo
T 1 N		r Poly	cell Site			C 11 1	()	G 0 1: 4 0			Z 5		
Job N		11 0	Date		10	Ground Level (Co-Ordinates ()	1.504.004				
	ner Poly ractor	cell Si	te	05-07-	-18	84.82	2	E 212,766.8 N	N 524,084.	Shee	4		
Cont		Hunt	Remed	iation						Snee	2 of	4	
	PID	.						STRATA				ent/	⊟
Depth		Water	Reduced Level	Legend	Depth (Thick-			DESCRIPTION			Geology	tram	Backfill
_	(ppin)		Level	Legena	ness)	Very loose are	und - nossi	ble putty chalk or void.	No returned	material	Ge	Ins	
						(continued)	una possi	ore putty chark of void.	vo returned	material.			
-					(2.00)								
													X
_													X
_			75.32	2	9.50	E. CHAIK	:1 0: :						
						Firm CHALK	with flints						
-													X
-													
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Bore Top	chole Co	se of	Core	Top of	Base of	nole Drilling Flush Return	Flush Re	eturn Remarks	$-\parallel\parallel$	GENI REMA			
Run (m) Rur	(m) F	Recovery (%)	Run (m)	Run (m)	%		Remarks	No re	coverable mate	erial avail	able.	,
				9.5	30	100			activi sedim	ompleted by di ties. Based o ent and from o	n presente Irilled log	ed s. Wat	er
									strike flushi	depths not adding activites. S	ded due to	ls belo	w
									20m.		10 10	5510	
A 11	1:: :			ient W	heat Quar	tar I td	Method/			Logged	By		
All	limension Scale 1	is in me 1:50	ues C	1011t VV	ncai Qual	ici Liu	Plant Us	eRotary Sonic Rig w	ith Flush	SON	IC DRII	LLIN	G

Projec	et										BORI	EHOI	LE No
	Forme	r Polyc										Z 5	
Job N			Date			Ground Level		Co-Ordinates ()				25	
	ner Poly	cell Sit	e	05-07-	-18	84.8	2	E 212,766	5.8 N 5	24,084.6			
Contr		TT 4	D 1	. ,.							Sheet		4
	John F	Hunt	Kemea	iation								of 4	
	PID	ter			D 4			STRATA				ž	Instrument/ Backfill
Depth	Result (ppm)	Water	Reduced Level	Legend	Depth (Thick-			DESCRIPTIO	ON			Geology	struı Back
-			Level		ness)	Firm CHALK	with flints	(continued)				Ğ	
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i——	hole Co		covery Core	Т f.		nole Drilling	Flush Re				GENER.		
Top Run (of Bas m) Run	e of (m) R	ecovery (%)	Top of Run (m)	Base of Run (m)	Flush Return		Remarks		No recovera	REMAR		ble
			(/0)							Log comple activities. sediment ar strike depth flushing act 20m.	ted by drille Based on prid from drille	rs duri esente ed logs	ng flush d . Water
All o	limension Scale 1	s in met	res Cl	ient W	heat Quar	ter Ltd	Method/ Plant Us	seRotary Sonic	Rig with	Flush	Logged By SONIC	DRIL	LING

Projec	ct											BOR	EHOI	LE No
	Forme	r Poly											Z 5	
Job N			Da			Ground Level		Co-Ordinates (25	
	ner Poly	cell Si	te	05-07	-18	84.8	2	E 212,70	66.8 N	1 52	4,084.6			
Conti	ractor	· TT 4	D	1								Sheet	4 C	4
	John F	Hunt	Keme	diation	T								4 of	
	PID	er			P 4			STRATA					256	nstrument/ Backfill
Depth	Result (ppm)	Water	Reduce	Legend	Depth (Thick-			DESCRIPT	ION				Geology	strur Back
-	'		Leve	<u> </u>	ness)	Firm CHALK	with flints	(continued)					Ď	
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Bore	hole Co	ore Re	cover	yl	Borel	hole Drilling	Flush Re	eturn		$\overline{\mathbb{T}}$		GENER	ΔΙ	
Тор	of Bas	se of	Core	Top of	Base of	Flush Return		Remarks				REMAR		
Run (m) Run	(m) F	Recovery (%)	Run (m)	Run (m)	70				$\ \ $	No recove	rable materia	l availa	ible.
5											activities.	leted by drille Based on p and from drill	resente	d Water
											strike dept	hs not added etivites. Stat	due to	. water
											flushing ac 20m.	ctivites. Stati	c levels	s below
i														
A 11 -	limension	e in met	tree (l lient W	heat Quar	ter I td	Method/	,		ШL		Logged By		
All	Scale 1		100		mui Quai	. WI LIU	Plant Us	eRotary Soni	c Rig w	ith 1	Flush	SONIC	DRIL	LING



Annex C - Groundwater Level Data

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										De	oth of Gro	ound Wat	ter (AODr	m) in Bore	eholes								
Phase	Date	A2	A3	A4	A5	A6	Z 5	В3	B4	B5	В6	C2	C3	C5	C6	C 7	D2	D4	D5	BH36	BH31	BH31/RN31	BH01-17
ū	6/7/2018 6/11/2018 6/19/2018 6/27/2018		63.423	63.65	64.148	63.464		63.649		62.737	63.718	62.68	63.142	64.076	63.91			63.111		63.266	62.842	63.504	62.547
Grid Construction	6/28/2018 6/29/2018 6/30/2018							63.152		63.462			63.151	63.559				63.12			62.876		
Grid	7/1/2018 7/2/2018 7/3/2018 7/4/2018		63.319	63.16	63.218	63.272 63.178		63.101	63.103	63.235 63.144	63.319			63.298	63.31		63.106	63.059	63.081				63.185
	7/5/2018 7/6/2018 7/7/2018																						
	7/8/2018 7/9/2018 7/10/2018 7/11/2018	63.204	63.263	63.09	62.554	62.983	62.396	63.031	63.035	63.073	63.179	62.561	63.031	63.042	63.191	63.09	63.045	63.002	63.002		63.186		63.127
	7/12/2018 7/13/2018 7/14/2018	63.173	63.211	63.037	63.027	63.029	63.244	63.016	62.991	63.035	63.117	62.538	63.002	63.01	63.131	63.038	63.025	62.978	62.986	63.104	63.081	63.285	63.09
WTP Commission	7/15/2018 7/16/2018 7/17/2018 7/18/2018	63.158 63.125	63.179 63.158	63.02 63.007	63.005 62.994	63.011 63.003	62.905 63.018	63.005 62.994	62.995 62.982	63.017 62.997	62.454 63.07	62.527 62.51	63.037 62.985	63.001 62.991	63.104 63.084	63.016 63.002	63.019 63.005	62.972 62.961	62.981 62.966	63.103 63.081	63.101 63.333	63.224 63.004	63.054 63.037
WTP C	7/19/2018 7/20/2018 7/21/2018	63.008 63.013	63.121 62.95	62.977 62.975	62.965 62.95	62.978 62.974	62.985 62.979	62.969 62.968	62.962 62.963	62.447 63.021	63.029 63.016	62.493 62.494	62.966 62.969	62.966 62.958	63.042 63.035	62.97 62.98	62.986 62.965	62.942 62.94	62.938 62.905	63.049 63.006	63.059 63.061	63.203	63.009 63.005
	7/22/2018 7/23/2018 7/24/2018 7/25/2018	62.989 62.984 62.976	63.032 62.99 62.981	62.949 62.933 62.924	62.928 62.964 62.912	62.949 62.933 62.922	62.953 62.947 62.936	62.944 62.927 62.925	62.938 62.919 62.917	62.94 62.926 62.918	62.98 62.967 62.966	62.45 62.469 62.45	62.943 62.916 62.925	62.935 62.922 62.917	62.976 62.948 62.941	62.945 62.934 62.923	62.965 62.95 62.936	62.915 62.873 62.903	62.918 62.908 62.887	63.028 63.02 63.004	63.063 63.004 63.009	63.08 63.057 63.038	62.981 62.971 62.947
	7/26/2018 7/27/2018 7/28/2018	62.98 62.973	62.977 62.99	62.926 62.913	62.918 62.909	62.925 62.914	62.941 62.988	62.929 62.915	62.919 62.888	62.924 62.926	63.033 62.961	62.438 62.442	62.925 63.035	62.646 62.908	62.839 62.934	62.92 62.906	62.941 62.838	62.904 62.881	62.901 62.89	63.522	63.049	63.001	62.964
	7/29/2018 7/30/2018 7/31/2018 8/1/2018	62.947 62.908 62.934	62.967 62.882 62.926	62.893 62.84 62.876	62.882 62.815 62.864	62.896 62.838 63.147	62.898 62.832 62.893	62.893 62.814 62.882	62.894 63.352 62.879	62.901 62.812 62.871	62.934 62.818 62.914	62.423 62.287 62.391	62.902 62.732 62.886	62.896 62.788 62.864	62.906 62.875 62.884	62.798 62.745 62.865	62.824 62.9 62.891	62.95 62.875 62.86	62.886 62.781 62.749	62.95 61.891 62.944	63.01 63.06 62.953	63.058 62.918 63.03	62.921 62.781 62.907
	8/2/2018 8/3/2018 8/4/2018	62.929	62.93 62.823	62.874 62.849	62.863 62.833	62.873 62.844	62.886 62.849	62.873 62.784	62.864 62.731	62.867 62.299	62.914 62.889	62.393 62.286	62.872 62.694	62.856 62.637	62.883 62.838	62.848 62.767	62.879 62.769	62.894 62.641	62.829 62.613	62.936 62.937	62.939 62.956	63.012 62.989	62.911 62.735
ing	8/5/2018 8/6/2018 8/7/2018 8/8/2018	62.928 62.868 62.883	60.733 62.593 62.733	63.042 59.435 62.71	62.607 62.62 62.34	62.607 62.601 62.698	62.59 62.553 62.623	62.62 62.602 62.729	62.482 62.618 62.682	61.816 61.663 62.717	62.565 62.768 62.713	62.168 62.218 62.272	62.528 62.614 62.77	62.529 62.648 62.671	62.683 62.734 59.309	62.669 62.624 62.1	62.674 62.739 57.555	62.566 62.838 62.676	62.562 62.621 62.612	62.85 62.419 62.256	62.845 62.829 62.836	62.788 62.587 62.786	62.494 62.423 62.767
Phase 1 Pumping	8/9/2018 8/10/2018 8/11/2018	61.858 62.888	62.633 62.693	60.759 62.655	62.56 62.62	62.598 62.648	62.508 62.558	62.619 62.669	62.328 62.382	62.665 62.427	62.703 62.803	61.525 61.752	62.67 62.72	62.571 62.641	62.794 62.869	62.67 62.74	62.745 63.005	62.676 62.716	62.606 62.656	62.646 62.726	62.786 62.846	62.824 62.834	62.487 62.577
Ph	8/12/2018 8/13/2018 8/14/2018 8/15/2018	62.938 62.938 62.963	62.729 62.903 62.908	62.659 62.885 63.895	62.635 62.9 62.89	62.658 62.873 62.888	62.579 62.888 62.908	62.686 62.889 62.909	62.282 62.892 62.902	62.667 62.927 62.952	62.743 62.746 62.923	61.632 62.442 62.445	62.73 62.91 62.92	62.626 62.886 62.688	62.769 62.851 62.889	62.72 62.715 63	62.8 62.915 62.845	62.736 62.896 63.036	62.666 62.886 62.879	62.666 62.966 62.976	62.866 62.706 62.916	62.864 62.534 62.886	62.557 62.897 62.907
	8/16/2018 8/17/2018 8/18/2018 8/19/2018	62.929 62.918	62.743	62.775 62.593	62.7	62.792 62.708	62.823 62.7	62.649	62.82 62.152	62.853 61.977	62.683	62.371 61.592	62.889 62.69	62.843 62.558	62.803 62.787	62.942 62.657	62.759 62.743	62.962 62.896	62.897 62.586	62.846 60.636	62.926	62.883 62.904	62.807 62.497
	8/20/2018 8/21/2018 8/22/2018	62.958 62.935 62.943	62.903 59.923 63.093	62.675 62.725 62.975	62.89 62.688 62.86	62.878 60.418 62.57	62.888 62.696 62.978	62.919 62.691 62.769	62.912 62.724 62.952	62.957 62.746 63.007	62.943 62.543 62.933	62.432 62.302 62.342	62.92 62.785 62.85	62.901 62.656 62.861	62.889 58.299 62.549	63 62.755 62.9	62.845 58.255 62.505	63.036 62.562 63.046	62.886 62.735 62.996	62.931 62.891 62.996	62.936 62.961 62.666	62.954 62.869 62.864	62.927 62.781 63.012
Injection	8/23/2018 8/24/2018 8/25/2018 8/26/2018	62.268 62.898	62.993 56.429	62.805 62.64	62.895 62.8	57.168 62.738	62.718 62.738	62.399 62.649	62.702 62.772	62.777 62.797	62.513 62.673	57.012 62.242	62.71 62.82	62.651 62.671	56.689 58.119	62.44 62.53	62.795 62.865	62.756 62.786	62.716 62.746	60.426 62.466	62.806 63.246	62.954 62.904	62.847 62.857
	8/27/2018 8/28/2018 8/29/2018	62.898 62.877	62.893 62.864	62.435 62.783	62.81 62.78	62.888 62.838	62.818 62.798	62.739 62.715	62.679 62.617	62.747 62.287	62.853 62.773	62.032 62.114	62.75 62.82	62.741 62.331	62.839 62.814	62.84 62.765	62.805 62.814	62.676 62.727	62.716 62.615	62.716 61.556	62.856 62.824	62.754 62.804	62.697 62.697
ing	8/30/2018 8/31/2018 9/1/2018 9/2/2018	62.823 62.926	62.803 62.901	62.701 62.87	62.77 62.812	62.808 62.897	62.739 62.879	62.589 62.864	61.828 62.836	62.542 62.768	62.783 62.883	62.012 62.368	62.47 62.893	62.551 62.794	62.736 62.858	62.692 62.841	62.665 62.9	62.516 62.859	62.516 62.861	61.352 62.931	62.782 62.77	62.773 62.752	62.529 62.822
Phase 2 Pumping	9/3/2018 9/4/2018 9/5/2018	62.916 62.908 62.906	62.873 62.888	62.861 62.825 62.847	62.846 62.565 62.825	62.9 62.868 62.874	62.873 62.858 62.861	62.864 62.849 62.849	62.868 62.852 62.834	62.967 62.857 62.857	62.891 62.873 62.868	62.366 62.352 62.352	62.88 62.875 62.876	62.846 62.846	62.872 62.844 62.846	62.843 62.83 62.83	62.895 62.885 62.878	62.676 62.846 62.849	62.85 63.336 62.839	62.912 62.886 62.896	62.869 62.786 62.844	62.909 62.944 62.776	62.852 62.837 62.841
Ph	9/6/2018 9/7/2018 9/8/2018 9/9/2018	62.906 62.896	62.889 62.791	62.85 62.83	62.837 62.617	62.876 62.86	62.863 62.841	62.851 62.834	62.862 62.842	62.852 62.835	62.873 62.833	62.359 62.346	62.879 62.869	62.844 62.839	62.854 62.789	62.79 62.811	62.884 62.868	62.851 62.842	62.838 62.829	62.631 62.276	62.856 62.841	62.801 62.797	62.844 62.831
	9/10/2018 9/11/2018 9/12/2018 9/13/2018	62.881 62.884 62.87 62.873	62.855 62.851 62.823 62.838	62.827 62.825 62.811 62.814	62.824 62.82 62.817 62.819	62.852 62.844 62.831 62.834	62.839 62.836 62.824 62.826	62.828 62.837 62.824 62.827	62.835 62.821 62.812 62.828	62.828 62.82 62.822 62.817	62.854 62.58 62.821 62.823	62.333 62.332 62.322 62.325	62.845 62.849 62.845 62.852	62.83 62.821 62.82 62.82	62.733 62.827 62.819 62.822	62.806 62.804 62.798 62.798	62.859 62.857 62.847 62.848	62.824 62.825 62.816 62.815	62.817 62.817 62.808 62.809	62.817 62.822 62.866 62.864	62.838 62.796 62.793 62.794	62.871 62.773 62.818 62.83	62.835 62.813 62.827 62.832
	9/14/2018 9/15/2018 9/16/2018	62.877	62.843	62.823	62.825	62.834	62.829	62.831	62.82	62.817	62.823	62.326	62.845	62.819	62.818	62.797	62.849	62.814	62.808	62.87	62.796	62.842	62.836
Monitoring	9/17/2018 9/18/2018 9/19/2018 9/20/2018	62.878 62.878	62.833 62.832	62.825 62.811	62.84 62.816	62.838 62.828	62.838 62.813	62.824 62.822	62.822 62.818	62.817 62.808	62.833 62.827	62.322 62.327	62.835 62.825	62.766 62.819	62.819 62.825	62.8 62.795	62.847 62.847	62.816 62.816	62.806 62.806	62.866 63.074	62.911 62.818	62.874 62.876	62.832 62.791
Moni	9/21/2018 9/22/2018 9/23/2018																						
	9/24/2018 9/25/2018	62.888	62.843	62.805	62.84	62.828	62.828	62.829	62.822	62.817	62.813	62.312	62.82	62.811	62.809	62.78	62.865	62.806	62.796	62.856	62.806	62.854	62.807

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Annex D - NAPL Level Data

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								Thick	ness (mı	m) of Prod	duct (LNA	APL) in B	oreholes	S							
Phase	Date	A2 A3	A4 A5	A6	Z5	B3	B4	B5	B6	C2	C3	C5	C6	C 7	D2	D4	D5	BH36	BH31	BH31/RN31	BH01-17
	6/7/2018 6/11/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0 0.0	0.0	0.0	2.0 0.0
<u> </u>	6/19/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0
rctio	6/27/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	6/28/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
So	6/29/2018 7/2/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grid	7/3/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	1.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7/4/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
	7/5/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7/6/2018 7/7/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7/8/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7/9/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7/10/2018	0.0 0.0	0.0 5.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
_	7/11/2018 7/12/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commission	7/13/2018	0.0 0.0	0.0 1.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	10.0	0.0	0.0	1.0
E E	7/16/2018	0.0 0.0	0.0 2.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.5	0.0	0.0	0.0	0.0	0.5	0.0	10.0	0.0	0.0	0.0
S	7/17/2018 7/18/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WTP	7/18/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0
	7/20/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0
	7/23/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
	7/24/2018 7/25/2018	0.0 0.5 0.0 0.0	0.0 0.1 0.1 0.1	0.0	0.0	0.0	0.0	0.0 0.1	0.1	20.0 10.0	1.0 0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0 140.0	0.0 0.1	0.0	0.0 0.5
	7/26/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.1	0.0	0.1	0.0	27.0	0.1	0.0	0.5	0.1	0.0	0.5	0.0	0.0	0.0	0.0	0.0
	7/27/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.0	0.0	0.0	9.0
	7/30/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	7.0	0.0	0.0	0.0
	7/31/2018 8/1/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0 0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8/2/2018	0.0 0.1	0.0 0.1	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	8/3/2018	0.0 0.0	0.0 0.0	0.0	0.0	3.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.5	0.0	0.0	0.5
Pumping	8/6/2018 8/7/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1 0.5	0.0	0.0	0.1 0.1
I Pu	8/8/2018	0.0 0.0	1.0 0.0	0.0	0.0	0.0	0.0	39.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.1
Phase 1	8/9/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
문	8/10/2018 8/13/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8/14/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.0	0.0	0.0	0.0
	8/15/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
	8/16/2018 8/17/2018	0.0 0.0 0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.1	0.0	0.0	10.0 0.0	0.1 0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1 0.0	0.0	0.1	0.0
-	8/20/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Injection	8/21/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<u> </u>	8/22/2018 8/23/2018	0.0 0.5 0.0 18.0	0.0 0.0	0.0	0.0	4.0	0.1	40.0	0.0	40.0	40.0 40.0	20.0 28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8/24/2018	0.0 18.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0 0.5	41.0 0.0	69.0 50.0	0.0	7.0 20.0	60.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0 250.0	0.0	0.0	0.0
	8/27/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8/28/2018	0.0 0.1	0.0 0.0	0.0	0.0	2.0	5.0	50.0	0.0	0.0	20.0	20.0	0.0	0.0	0.1	0.0	0.0	300.0	0.0	0.0	0.0
	8/29/2018 8/30/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0 20.0	0.0	0.0	0.0	0.0 10.0	0.0	0.0	0.0	2.0 0.0	0.0	0.0	0.0	0.0	0.0
in g	8/31/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	5.0	110.0	0.0	0.0	10.0	12.0	2.0	0.0	0.0	0.0	0.0	180.0	0.0	0.0	0.0
Pumping	9/3/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	3.0	3.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	9/4/2018 9/5/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.1 0.1	2.0	20.0	0.0	0.0	4.0 3.0	2.0 2.0	0.1	0.0	0.0	0.1 2.0	0.0	2.0 0.0	0.1 0.0	0.0	0.0
Phase	9/6/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.1	0.0	5.0 0.1	0.0	0.0	2.0	0.0	0.0 0.1	0.0	0.0	0.1	0.0	2.0	0.0	0.0	0.0
<u> </u>	9/7/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
	9/10/2018	0.0 0.1	0.0 0.0	0.0	0.0	0.1	0.5	60.0	0.0	0.0	7.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0
	9/11/2018 9/12/2018	0.0 0.5 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	2.0 1.0	4.0 2.0	0.0	0.0	5.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0 1.0	0.0	0.0	0.0
	9/13/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9/14/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
	9/17/2018 9/18/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.1	0.0	0.0	0.0
	9/19/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ring	9/20/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monitoring	9/21/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ψ	9/22/2018 9/23/2018	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9/24/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9/25/2018	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0

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Annex E – Groundwater Pumping Data

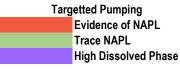
016-1512 Revision 02 November 2018



Total Volume of Groundwater Removed and Treated

	Date	Cumilative Daily Discharge Reading	m3 per Day	No of Pumps Running		Pumped		A3 Volume	A4 Volume	A5 Volume	A6 Volume	B3 Volume	B4 Volume	B5 Volume	B6 Volume	C2 Volume	C3	C5 Volume	C6	D2 Volume	D4 Volume	D5 Volume	Z5 Volume	BH36 Volume	BH31
		(m3)					(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)
	7/30/2018	0	0	0	2	0.0										1	2							0	
	7/31/2018	2	2	4	3327	3.3										753	925				787			862	
	8/1/2018	4	2	4	1437	1.4										301	374				548			215	
	8/2/2018	5	1	5	825	0.8		81						10.50		3	0				659			82	
	8/3/2018	/	2	4	5204	5.2		541						1358			1282				1183			840	\vdash
	8/4/2018	14	7	4	4671	4.7						1077		1192			1193				1407			879	-
p p	8/5/2018 8/6/2018	21 29	7	3	6478 6173	6.5 6.2						1077 0		1724 1935			1698 1882				1980 2356			\vdash	\vdash
Pumping			- 1	<u> </u>						1007		U		1933			1002		1000	1070	2330	1000		\longrightarrow	-
Pur	8/7/2018	35	6	4	6355	6.4				1927			4050			4540			1260	1279		1890	4700		
_	8/8/2018	40	5	4	7832	7.8				1848			1952	1000		1519			401	407			1706	\longrightarrow	
Phase	8/9/2018 8/10/2018	45 51	5 6	3	7606 7437	7.6 7.4							2132 2086	1890 1890	 	1666 1556		<u> </u>					1918 1905	 	\vdash
<u> </u>	8/11/2018	56	5	4	5810	5.8							1000	1470		1391							1905	\vdash	\vdash
	8/12/2018	62	6	<u>4</u> //	5735	5.7							1000	1470		1360							1949	\vdash	-
	8/13/2018	70	8	4	7506	7.5							1743	1967		1885							1912		-
	8/14/2018	73	3	3	6454	6.5		1080				952	1306	2025		1000				1091			1012		
	8/15/2018	73	0	0	1658	1.7		159				1499	1000	2020						1001					
	8/16/2018	78	5	3	4335	4.3		1091				2152								1091					
	8/17/2018	83	5	3	5993	6.0						648	1205	1980		2160				7007					
	8/20/2018	87	4	5	8773	8.8		2241	220		896			1200		1440			886				1890		
Injectio	n 8/21/2018	93	6	5	7782	7.8	1458	1113			1845								1476				1890		
	8/22/2018	95	2	5	1581	1.6					1581														
	8/23/2018	98	3	3	2654	2.7	1036												1618						
	8/24/2018	103	5	7	5397	5.4	1260	469						549				1440	592				328	760	
	8/27/2018	105	2	7	2199	2.2							51	272		276	277	76					454	794	
	8/28/2018	110	5	6	5404	5.4							833	749		949	1208	493						1173	
	8/29/2018	116	6	7	7447	7.4							1419	1260		507	743	1654			537			1329	
ත	8/30/2018	125	9	7	8273	8.3								1240		1890	1470	780			1163			1730	
l ju	8/31/2018	132	7	6	7104	7.1				0-0				1196			1523	1366			954			447	1620
Pumping	9/3/2018	138	6	6	5613	5.6				258			101	1276	<u> </u>		1660	890		4000				839	691
3.21	9/4/2018	143	5	5	4600	4.6				000			431 269	809	-		1063 808	407		1890	625			100	\vdash
Phase 2	9/5/2018 9/6/2018	149 154	6 5	<u> </u>	3153 5072	3.2 5.1		702		960 672			209	354 99			1680		711		635			129 1208	
₫	9/7/2018	160	6	5	6664	6.7		702		564		1620		1050			1448		968		-			1015	
	9/10/2018	165	5	5	2987	3.0				JU 1		1020		1203	66		1289		90					340	
	9/11/2018	167	2	5	845	0.8							158	192	9		356							130	
	9/12/2018	167	0	5	1340	1.3							415	259			533							134	
	9/13/2018	169	2	5	1922	1.9							486	228			671		248					289	
	9/14/2018	172	3	5	1215	1.2							304				415			135				361	
ng	9/17/2018	174	2	0	0	0.0																			
tori	9/18/2018	176	2	0	0	0.0																			
Monitoring	9/19/2018	177	1	0	0	0.0																			
	TOTALS (m3)	177				184.9	3.75	7.48	0.22	6.23	4.32	7.95	16.79	30.83	0.07	17.65	22.50	7.10	8.25	5.89	12.21	1.89	15.86	13.56	2.31
	TOTALS (I)	177000			184856		3754	7477	220	6228	4322	7948	16786	30832	75	17654	22495	7105	8248	5893	12207	1890	15857	13555	2311

NOTES ** It should be noted that the flow meter at the discharge point was occasionally blocked by carbon pellets from the treatment of the water and is therefore assumed to have underread on the water volumed treated. The volumes pumped from each borehole are estimated based on number of pump cycles and volume pumped into a measuring container.





Annex F – Soil, Groundwater and NAPL Analytical Results

016-1512 Revision 02 November 2018



Wheat Quarter Limited

Remediation Verification and Long-term Monitoring Plan (Southern Area)

Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK

Groundwater Overview

016-1512 Revision 00 October 2018

Project: Former Polycell Site
Site Address: Welwyn Garden City

Document title: Chemical Tracking Document

Laboratory	Date of sample	Date sent to lab	Results issued	Sample ID	Lab Sample ID	Report Lab ID	Water, Soil	Sample description	Remediation	Sample Scheduling (Soil Suites)
i2	8.06.18	9.06.18	15.06.18	BHD02	977867	18-88372	Soil	Chalk	Drilling Phase	BTEX, TPHCWG, Product ID
i2	12.06.18	12.06.18	19.06.18	BH01-17	980101	18-88733	Water	Predrilling sample historic BHs	Post Drilling	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	12.06.18	12.06.18	19.06.18	BH03-17	980102	18-88733	Water	Predrilling sample historic BHs	Post Drilling	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	12.06.18	12.06.18	19.06.18	BH02-17	980103	18-88733	Water	Predrilling sample historic BHs	Post Drilling	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	12.06.18	12.06.18	19.06.18	BH06d-17	980104	18-88733	Water	Predrilling sample historic BHs	Post Drilling	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	12.06.18	12.06.18	19.06.18	BH05d-17	980105	18-88733	Water	Predrilling sample historic BHs	Post Drilling	MNA Parameters, Petroleum Hydrocarbons, PAH
i2	13.06.18	14.06.18	21.06.18	BH36	982048	18-89053	Product	NAPL	NAPL ID	Species, VOCs (selected) Product ID
i2	15.6.18	15.06.18	22.06.18	BHD04 28.6-30	982765	18-89175	soil	Chalk	Post drilling / WTP	PAH,BTEX, Naphthalene, TPHCWG,VOCs
i2	24.07.18	24.07.18	31.07.18	BH06d-17	1007596	18-93676	Water	GW	Commissioning Post drilling / WTP	MNA Parameters, Petroleum Hydrocarbons, PAH
				***					Commissioning Post drilling / WTP	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	24.07.18	24.07.18	31.07.18	BH05d-17	1007597	18-93676	Water	GW	Commissioning Post drilling / WTP	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	24.07.18	24.07.18	31.07.18	BH03-17	1007598	18-93676	Water	GW	Commissioning Post drilling / WTP	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	25.07.18	25.07.18	01.08.18	BH02-17	1008596	18-93862	Water	GW	Commissioning	Species, VOCs (selected)
i2	25.07.18	25.07.18	01.08.18	BH31/RW31	1008597	18-93862	Water	GW	Post drilling / WTP Commissioning	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	25.07.18	25.07.18	01.08.18	A6	1008598	18-93862	Water	GW	Post drilling / WTP Commissioning	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	26.07.18	26.07.18	02.08.18	В6	1009742	18-94058	Water	GW	Post drilling / WTP Commissioning	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	26.07.18	26.07.18	02.08.18	C6	1009743	18-94058	Water	GW	Post drilling / WTP Commissioning	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	26.07.18	26.07.18	02.08.18	C7	1009744	18-94058	Water	GW	Post drilling / WTP Commissioning	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	26.07.18	26.07.18	02.08.18	D2	1009745	18-94058	Water	GW	Post drilling / WTP	MNA Parameters, Petroleum Hydrocarbons, PAH
i2	26.07.18	26.07.18	02.08.18	D4	1009746	18-94058	Water	GW	Commissioning Post drilling / WTP	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	26.07.18	26.07.18	02.08.18	D5	1009747	18-94058	Water	GW	Commissioning Post drilling / WTP	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2								GW	Commissioning Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
	30.07.18	30.07.18	06.08.18	A2	1011476	18-94400	Water		monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	30.07.18	30.07.18	06.08.18	C2	1011477	18-94400	Water	GW	monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	30.07.18	30.07.18	06.08.18	C3	1011478	18-94400	Water	GW	monitoring	Species, VOCs (selected)
i2	30.07.18	30.07.18	06.08.18	Z5	1011479	18-94400	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	30.07.18	30.07.18	06.08.18	BH1-17	1011480	18-94400	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	30.07.18	30.07.18	06.08.18	BH 36	1011481	18-94400	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	31.07.18	31.07.18	07.08.18	В3	1012501	18-94561	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	31.07.18	31.07.18	07.08.18	B5	1012502	18-94561	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	31.07.18	31.07.18	07.08.18	A3	1012503	18-94561	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	08.08.18	08.08.18	16.08.18	BH02-17	1019838	18-95815	Water	GW	Phase 1 Pump - fortnight	MNA Parameters, Petroleum Hydrocarbons, PAH
i2	08.08.18	08.08.18	16.08.18	BH03-17	1019839	18-95815	Water	GW	monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	08.08.18	08.08.18	16.08.18	BH06d-17	1019840	18-95815	Water	GW	monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	08.08.18	08.08.18	16.08.18	BH05d-17	1019841	18-95815	Water	GW	monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
									monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	09.08.18	09.08.18	16.08.18	BH1-17	1021246	18-96027	Water	GW	monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	10.08.18	10.08.18	18.08.18	A3	1021271	18-96039	Water	GW	monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	13.08.18	13.08.18	21.08.18	A2	1023050	18-96359	Water	GW	monitoring	Species, VOCs (selected)
i2	13.08.18	13.08.18	21.08.18	D5	1023051	18-96359	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	13.08.18	13.08.18	21.08.18	D4	1023052	18-96359	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	13.08.18	13.08.18	21.08.18	D2	1023053	18-96359	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	14.08.18	14.08.18	22.08.18	A6	1024181	18-96583	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	14.08.18	14.08.18	22.08.18	B6	1024182	18-96583	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	14.08.18	14.08.18	22.08.18	C7	1024183	18-96583	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH
i2	14.08.18	14.08.18	22.08.18	C6	1024184	18-96583	Water	GW	Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	14.08.18	14.08.18	22.08.18	ВН36	1024185	18-96583	Water	GW	monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	14.08.18	14.08.18	22.08.18	C2	1024186	18-96583	Water	GW	monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
									monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	14.08.18	14.08.18	22.08.18	B4	1024187	18-96583	Water	GW	monitoring Phase 1 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	14.08.18	14.08.18	22.08.18	B5	1024188	18-96583	Water	GW	monitoring	Species, VOCs (selected)
i2	14.08.18	14.08.18	22.08.18	Z5	1024189	18-96583	Water	GW	Phase 1 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	22.08.18	23.08.18	03.08.18	BH02-17	1031514	18-97811	Water	GW	Injection Phase	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	22.08.18	23.08.18	03.08.18	BH03-17	1031515	18-97811	Water	GW	Injection Phase	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	22.08.18	23.08.18	03.08.18	BH05D-17	1031516	18-97811	Water	GW	Injection Phase	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	23.08.18	23.08.18	03.08.18	BH06D-17	1031517	18-97811	Water	GW	Injection Phase	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	04.09.18	04.09.18	10.09.18	BH36	1038810	18-99022	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH
i2	03.09.18	04.09.18	10.09.18	A2	1038815	18-99025	Water	GW	Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	03.09.18	04.09.18	10.09.18	A3	1038816	18-99025	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2									monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
	03.09.18	04.09.18	10.09.18	A6	1038817	18-99025	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	03.09.18	04.09.18	10.09.18	B4	1038818	18-99025	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
	03.09.18	04.09.18	10.09.18	B5	1038819	18-99025	Water	GW	monitoring	Species, VOCs (selected)
i2									Phase 2 Pump - fortnight	MNA Parameters, Petroleum Hydrocarbons, PAH

Project: Former Polycell Site
Site Address: Welwyn Garden City

Document title: Chemical Tracking Document

Laboratory	Date of sample	Date sent to lab	Results issued	Sample ID	Lab Sample ID	Report Lab ID	Water, Soil	Sample description	Remediation	Sample Scheduling (Soil Suites)
i2	03.09.18	04.09.18	10.09.18	C2	1038821	18-99025	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	03.09.18	04.09.18	10.09.18	C6	1038822	18-99025	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	03.09.18	04.09.18	10.09.18	C7	1038823	18-99025	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	03.09.18	04.09.18	10.09.18	D2	1038824	18-99025	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	03.09.18	04.09.18	10.09.18	D5	1038825	18-99025	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	03.09.18	04.09.18	10.09.18	В3	1038826	18-99025	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	03.09.18	04.09.18	10.09.18	Z5	1038827	18-99025	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	03.09.18	04.09.18	10.09.18	A5	1038828	18-99025	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	03.09.18	04.09.18	10.09.18	D4	1038829	18-99025	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	03.09.18	04.09.18	10.09.18	BH1-17	1038832	18-99027	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	10.09.18	11.09.18	17.09.18	B4	1043121	18-99770	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	10.09.18	11.09.18	17.09.18	B5	1043122	18-99770	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	10.09.18	11.09.18	17.09.18	B6	1043123	18-99770	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)
i2	10.09.18	11.09.18	17.09.18	D2	1043124	18-99770	Water	GW	Phase 2 Pump - fortnight monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH
i2	10.09.18	11.09.18	17.09.18	C2	1043125	18-99770	Water	GW	Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	10.09.18	11.09.18	17.09.18	A2	1043126	18-99770	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	10.09.18	11.09.18	17.09.18	A3	1043127	18-99770	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	10.09.18	11.09.18	17.09.18	BH1-17	1043224	18-99801	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	10.09.18	10.p9.18	17.09.18	BH36	1043389	18-99834	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	12.09.18	12.09.18	19.09.18	Z5	1043935	18-99937	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	12.09.18	12.09.18	19.09.18	A6	1043936	18-99937	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	12.09.18	12.09.18	19.09.18	C7	1043937	18-99937	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	12.09.18	12.09.18	19.09.18	C6	1043938	18-99937	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	12.09.18	12.09.18	19.09.18	D5	1043939	18-99937	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	12.09.18	12.09.18	19.09.18	D4	1043940	18-99937	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	05.09.18	06.09.18	13.09.18	BH02-17	1038702	18-99008	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	05.09.18	06.09.18	13.09.18	BH03-17	1038703	18-99008	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	05.09.18	06.09.18	13.09.18	BH05-17	1038704	18-99008	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	05.09.18	06.09.18	13.09.18	BH06-17	1038705	18-99008	Water	GW	monitoring Phase 2 Pump - fortnight	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	17.09.18	25.09.18	25.09.18	A3	1047975	18-10787	Water	GW	monitoring Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	17.09.18	25.09.18	25.09.18	BH1-17	1047976	18-10787	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	17.09.18	25.09.18	25.09.18	A5	1047977	18-10787	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	17.09.18	25.09.18	25.09.18	B5	1047978	18-10787	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	17.09.18	25.09.18	25.09.18	B4	1047978	18-10787	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
									Ţ.	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2 i2	17.09.18	25.09.18	25.09.18	Z5	1047980	18-10787	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
	18.09.18	25.09.18	25.09.18	A2	1047981	18-10787	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	18.09.18	25.09.18	25.09.18	BH36	1047982	18-10787	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	18.09.18	25.09.18	25.09.18	D2	1047983	18-10787	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	18.09.18	25.09.18	25.09.18	C2	1047984	18-10787	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	18.09.18	25.09.18	25.09.18	C3	1047985	18-10787	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	19.09.18	26.09.18	26.09.18	BH02-17	1049510	18-11067	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	19.09.18	26.09.18	26.09.18	BH03-17	1049511	18-11067	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	19.09.18	26.09.18	26.09.18	BH05d-17	1049512	18-11067	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	19.09.18	26.09.18	26.09.18	BH06d-17	1049513	18-11067	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	18.09.18	26.09.18	26.09.18	A6	1049514	18-11068	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	18.09.18	26.09.18	26.09.18	B6	1049515	18-11068	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH
i2	18.09.18	26.09.18	26.09.18	C6	1049516	18-11068	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH MNA Parameters, Petroleum Hydrocarbons, PAH
i2	18.09.18	26.09.18	26.09.18	C7	1049517	18-11068	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH MNA Parameters, Petroleum Hydrocarbons, PAH
i2	19.09.18	26.09.18	26.09.18	D4	1049518	18-11068	Water	GW	Post Works Monitoring	Species, VOCs (selected) MNA Parameters, Petroleum Hydrocarbons, PAH MNA Parameters, Petroleum Hydrocarbons, PAH
i2	19.09.18	26.09.18	26.09.18	D5	1049519	18-11068	Water	GW	Post Works Monitoring	MNA Parameters, Petroleum Hydrocarbons, PAH Species, VOCs (selected)

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Analysis summary sheet for BH36



Borehole Rationale:	Historic b main plun	orehole on edge of ne						
Lab Sample Number			Product ID 982048	Post Drill / Commission 1011481	Phase 1 Pump 1024185	Phase 2 Pump 1038810	Phase 2 Pump 1043389	1047982
Sample Reference			BH36	BH 36	BH36	BH36	BH36	BH36
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled			13/06/2018	27/07/2018	14/08/2018	04/09/2018	10/09/2018	18/09/2018
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection						
General Inorganics								
рН	pH Units	N/A		6.7	6.7	6.6	6.7	6.7
Sulphate as SO ₄	μg/l	45		30100	17200	21600	10900	13300
Sulphate as SO ₄	mg/l	0.045		30.1	17.2	21.6	10.9	13.3
Chloride	mg/l	0.15		230	240	630	650	550
Nitrate as N	mg/l	0.01		0.1	0.08	0.01	0.05	0.08
Nitrate as NO ₃	mg/l	0.05		0.44	0.38	0.05	0.21	0.37
Chemical Oxygen Demand (Total)	mg/l	2		300	170	420	510	370
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1		210	79	240	3	1.3
Redox Potential	mV	-800		58.4	46.6	204.6	0.8	-32.60
Dissolved Oxygen	mg/l	1		3	3.1	1.6	2.9	5.6
Speciated PAHs								
Naphthalene	μg/l	0.01		149	58.8	60.6	113	54.4
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004		1.2	1.1	3.4	0.63	1.4
Fe ²⁺	mg/l	0.2		1.04	0.86	0.26	0.6	1.32
Fe ³⁺	mg/l	0.2		< 0.20	< 0.20	3.12	< 0.20	< 0.20
Monoaromatics								
Benzene	μg/l	1		4.7	< 1.0	6.5	4.6	10.6
Toluene	μg/l	1		46.9	38.6	40.4	31	59.9
Ethylbenzene	μg/l	1		86.3	181	289	340	280
p & m-xylene	μg/l	1		2230	1570	1280	3970	1210
o-xylene	μg/l	<u>1</u> 1		1210	1030	984	2420	856
MTBE (Methyl Tertiary Butyl Ether)	μg/l	I		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1		8	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10		450	< 10	< 10	220	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10		< 10	< 10	< 10	250	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10		< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10		< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1		4.7	< 1.0	6.5	4.6	11
TPH-CWG - Aromatic >C7 - C8	μg/l	1		47	39	40	31	60
TPH-CWG - Aromatic >C8 - C10	μg/l	1 10		23000	12000	9900	35000	13000
TPH-CWG - Aromatic >C10 - C12	μg/l	10		9100	1800	8200	5200	1600
TPH-CWG - Aromatic >C12 - C16	μg/l	10		1100	44	330	220	180
TPH-CWG - Aromatic >C16 - C21	μg/l	10		< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10		< 10	< 10	< 10	< 10	< 10
TRU OWO AND		10		100	10	40	470	10
TPH-CWG - Aliphatic (C5 - C35) TPH-CWG - Aromatic (C5 - C35)	μg/l μg/l	10 10		460 33000	< 10 14000	< 10 19000	470 40000	< 10 15000
	Ĭ	-						
VOCs								
1,3,5-Trimethylbenzene	μg/l	1		4760	1940	1440	5620	2030
1,2,3-Trichloropropane	μg/l	<u>.</u> 1			1	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	<u>.</u> 1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	<u>.</u> 1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100		5400	5400	11000	17000	43000
Carbon disulphide	μg/l	1		< 1.0	< 1.0	40	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	+							
Environmental Forensics								
Environmental Forensics Gases				13				

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Analysis summary sheet for BH1-17

EAME 2017 borehole - overall Borehole Rationale:

Borehole Rationale:	GW trends	orenoie - overaii						
			Baseline	Post Drill	Phase 1 Pump	Phase 2 Pump	Phase 2 Pump	Start Monitoring
Lab Sample Number			980101	1011480	1021246	1038832	1043224	1047976
Sample Reference			BH01-17	BH01-17	BH01-17	BH1-17	BH1-17	BH1-17
Sample Number			None Supplied					
Depth (m)			None Supplied					
Date Sampled			11/06/2018	27/07/2018	09/08/2018	03/09/2018	10/09/2018	17/09/2018
Time Taken			None Supplied					
		g L						
Analytical Parameter	Units	Limit of detection						
(Water Analysis)	Ø	of						
General Inorganics								
pH	pH Units	N/A		6.3	6.6	10.3	9.9	9.3
Sulphate as SO ₄	μg/l	45	11000	15000	12500	114000	106000	83800
Sulphate as SO ₄	mg/l	0.045	11	15	12.5	114	106	83.8
Chloride Nitrate as N	mg/l mg/l	0.15 0.01	400 0.13	570 0.17	420 0.19	440 1.35	520 0.57	490 0.40
Nitrate as NO ₃	mg/l	0.05	0.13	0.77	0.19	5.96	2.5	1.76
Chemical Oxygen Demand (Total)	mg/l	2		3200	1200	1500	1500	960
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1		830	440	560	1400	520
Redox Potential	mV	-800	9.4	21.3	17.6	122.8	-123.6	57.30
Dissolved Oxygen	mg/l	1	1.5	2.4	1.2	2.8	1.5	1.3
Speciated PAHs	+		+					
Naphthalene	μg/l	0.01	62.3	650	31.6	36.7	7.87	18.3
Heavy Metals / Metalloids Iron (dissolved)	mg/l	0.004	21	0.017	2.1	1.4	0.39	0.59
Fe ²⁺	mg/l	0.2	14.9	< 0.20	2.1	< 0.20	< 0.20	< 0.20
Fe ³⁺	mg/l	0.2	6.15	< 0.20	< 0.20	1.41	0.39	0.59
Monoaromatics Benzene	ug/l	1	6.5	11.7	12.9	4.8	4.9	6.3
Toluene	μg/l μg/l	1	63.9	182	192	52.5	64.4	85.1
Ethylbenzene	μg/l	1	119	408	352	106	121	176
p & m-xylene	μg/l	1	760	9190	2060	592	658	991
o-xylene MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	668 < 1.0	11200	2080	905	1080	1020
MIDE (Methyl Terhary Butyl Ether)	μg/l	I	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 TPH-CWG - Aliphatic >C8 - C10	µg/l µg/l	1	< 1.0 < 1.0	< 1.0 83	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10	66	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	6.5	12	13	4.8	4.9	6.3
TPH-CWG - Aromatic >C7 - C8	μg/l	1	64	180	190	53	64	85
TPH-CWG - Aromatic >C8 - C10	μg/l	1	4700	85000	16000	5500	6100	5700
TPH-CWG - Aromatic > C10 - C12	μg/l	10	7300	7600	10000	4900	350	1600
TPH-CWG - Aromatic >C12 - C16 TPH-CWG - Aromatic >C16 - C21	μg/l μg/l	10 10	860 < 10	4000 190	1200 < 10	2000 92	83 < 10	390 < 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
				-				
TDLL CWC Aliabatia (OF COS)		10	. 40	450		.40	.40	.40
TPH-CWG - Aliphatic (C5 - C35) TPH-CWG - Aromatic (C5 - C35)	μg/l μg/l	10 10	< 10 13000	150 97000	< 10 28000	< 10 13000	< 10 6600	< 10 7800
3	La,			2.000		.5555	3333	. 555
				-				
VOCs			005	10000	00.40	707	1110	044
1,3,5-Trimethylbenzene 1,2,3-Trichloropropane	μg/l μg/l	<u>1</u> 1	665	19200	2340 < 1.0	737 < 1.0	1110 < 1.0	844 < 1.0
1,3,5-Trichlorobenzene	μg/l	1	†	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	100	11000	8900	100	14000	47000
Carbon disulphide Dichlorodifluoromethane	μg/l μg/l	<u>1</u> 1	+	< 1.0 < 1.0	< 1.0 < 1.0	8000 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0
S.G. NOTOGINGO OFFICERIALIE	μ9/1			× 1.0	× 1.0	× 1.0	× 1.0	× 1.0
Environmental Forensics								
Gases Methane	ma/l	0.1	17	24	33	9.2	18	12
iviotrial IC	mg/l	0.1	1/	47	JJ	7.4	10	14

Former Polycell Site Analysis summary sheet for BH02-17 EAME 2017 borehole - overall Project: Document Title:

Borehole Rationale:	GW trend	017 borehole - overall ds	r	ī		ı		
			Baseline	Post Drill	Phase 1 Pump	Post Injection	Phase 2 Pump	Start Monitoring
Lab Sample Number			980103	1008596	1019838	1031514	1038702	1049510
Sample Reference			BH02-17	BH02-17	BH02-17	BH02-17	BH02-17	BH02-17
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled			11/06/2018	25/07/2018	08/08/2018	24/08/2018	05/09/2018	19/09/2018
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection						
General Inorganics								-
pH	pH Units	N/A		6.6	6.5	7	6.9	6.5
Sulphate as SO ₄	μg/l	45	9120	80200	41400	58700	45700	40500
Sulphate as SO ₄	mg/l	0.045	9.1	80.2	41.4	58.7	45.7	40.5
Chloride	mg/l	0.15	1300	400	630	500	610	710
Nitrate as N Nitrate as NO ₃	mg/l mg/l	0.01	0.08 0.37	0.04	0.05	0.06	0.15 0.64	0.14
Chemical Oxygen Demand (Total)	mg/l	2	0.57	110	170	160	190	510
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	İ	1.2	19	97	2.1	U/S
Redox Potential	mV	-800	21.4	-33.2	4.5	204.3	164.4	-35.90
Dissolved Oxygen	mg/l	1	2	3	6.8	2	8.2	4.4
Speciated PAHs	+		ļ					
Naphthalene	μg/l	0.01	11.7	5.38	6.49	5.4	0.88	16.0
reaprimaterie	pg.	0.01		0.00	0.10	0.1	0.00	10.0
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	20	4.9	10	6.4	2.2	15
Fe ²⁺	mg/l	0.2	6.35	< 0.20	8.8	4.25	0.63	1.24
Fe ³⁺	mg/l	0.2	13.9	4.78	1.38	2.12	1.53	14.1
Monoaromatics	+							
Benzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.0
Ethylbenzene	μg/l	1	25.9	< 1.0	< 1.0	< 1.0	4.4	14.4
p & m-xylene	μg/l	11	223	29.5	8.9	83	45.8	130
o-xylene MTBE (Methyl Tertiary Butyl Ether)	μg/l μg/l	1	202 < 1.0	39.8 < 1.0	8.1 < 1.0	70.6 < 1.0	37.9 < 1.0	100 < 1.0
INT DE (Metriyi Tertiary Butyi Etrier)	дуп	· · · · · · · · · · · · · · · · · · ·	< 1.0	V 1.0	V 1.0	V 1.0	< 1.0	V 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 TPH-CWG - Aliphatic >C10 - C12	μg/l μg/l	1 10	< 1.0 < 10	< 1.0 < 10	< 1.0 < 10	< 1.0 < 10	< 1.0 < 10	< 1.0 < 10
TPH-CWG - Aliphatic >C12 - C16	µд/I	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TRU 0110 4 05								_
TPH-CWG - Aromatic >C5 - C7 TPH-CWG - Aromatic >C7 - C8	μg/l μg/l	1	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 2.0
TPH-CWG - Aromatic >C7 - C8 TPH-CWG - Aromatic >C8 - C10	μg/l μg/l	1	< 1.0 3400	< 1.0 910	< 1.0 420	2900	< 1.0 1500	3100
TPH-CWG - Aromatic >C10 - C12	μg/l	10	1600	1100	420	700	7200	2500
TPH-CWG - Aromatic >C12 - C16	μg/Ι	10	51	25	< 10	59	5200	250
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	2400	100
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
	+ +							
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	5000	2100	840	3700	16000	5900
VOCs	+							
1,3,5-Trimethylbenzene	μg/l	1	564	< 1.0	110	742	290	697
1,2,3-Trichloropropane	μg/l	1					< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane Dichloromethane	μg/l	1 100	40000	< 1.0 100	< 1.0 4900	< 1.0 11000	< 1.0 47000	< 1.0 6400
Dichloromethane Carbon disulphide	μg/l μg/l	100	40000	100 < 1.0	4900 < 1.0	11000 < 1.0	47000 < 1.0	6400 < 1.0
Dichlorodifluoromethane	µg/I	1	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	1.0	_	İ					
Environmental Forensics								
Conne	+		 					
Gases Methane	mg/l	0.1	0.7	0.4	0.5	0.4	0.6	0.3
monaro	тул	0.1	V.1	V. 4	0.0	0.4	0.0	0.0

Project: Former Polycell Site

Document Title:

Analysis summary sheet for

BH03-17

Borehole Rationale:	EAME 201 GW trends	7 borehole - overall	1		<u> </u>		<u> </u>	I
			Baseline	Post Drill	Phase 1 Pump	Post Injection	Phase 2 Pump	Start Monitoring
Lab Sample Number			980102	1007600	1019839	1031515	1038703	1049511
Sample Reference			BH03-17	BH03-17	BH03-17	BH03-17	BH03-17	BH03-17
Sample Number			None Supplied					
Depth (m)			None Supplied					
Date Sampled			11/06/2018	23/07/2018	08/08/2018	24/08/2018	05/09/2018	19/09/2018
Time Taken			None Supplied					
Analytical Parameter (Water Analysis)	Units	Limit of detection						
General Inorganics						_		
pH	pH Units	N/A		6.8	6.7	7	7.5	6.7
Sulphate as SO₄ Sulphate as SO₄	μg/l	45	263000	232000	197000	203000	3630 3.6	208000
Chloride	mg/l mg/l	0.045 0.15	263 260	232 280	197 340	203 330	110	208 370
Nitrate as N	mg/l	0.13	0.1	0.07	0.04	0.05	0.05	0.08
Nitrate as NO ₃	mg/l	0.05	0.42	0.33	0.16	0.03	0.03	0.00
Chemical Oxygen Demand (Total)	mg/l	2		44	40	43	54	46
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1		1.5	2.5	3.1	3.4	U/S
Redox Potential	mV	-800	35.1	-62.6	18.9	198.1	148.8	-52.80
Dissolved Oxygen	mg/l	1	1.7	3.5	5.6	1	8.7	5.4
Speciated PAHs		2.24	5.00	10.0	10	10.0	0.10	20.1
Naphthalene	μg/l	0.01	5.69	19.6	12	10.6	0.19	32.1
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	3.6	0.005	2.9	0.038	1.7	4.5
Fe ²⁺	mg/l	0.2	3.59	< 0.20	2.8	< 0.20	< 0.20	0.76
Fe ³⁺	mg/l	0.2	< 0.20	< 0.20	< 0.20	< 0.20	1.71	3.77
Billion a systematical								
Monoaromatics Benzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	μg/l	1	5.1	87.9	1.6	4.4	< 1.0	8.6
p & m-xylene	μg/l	1	299	376	30.8	123	< 1.0	172
o-xylene	μg/l	1	16.2	6.2	< 1.0	5.6	< 1.0	10.7
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TRILOMO Assessable OF O7	//	4	.10	.10	.10	.10	.10	.10
TPH-CWG - Aromatic >C5 - C7 TPH-CWG - Aromatic >C7 - C8	μg/l	1	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0
TPH-CWG - Aromatic >C7 - C8 TPH-CWG - Aromatic >C8 - C10	µg/l µg/l	<u> </u>	1500	< 1.0 4100	370	1300	8.8	1800
TPH-CWG - Aromatic >C10 - C12	μg/l	10	2100	920	160	320	110	1200
TPH-CWG - Aromatic >C12 - C16	μg/l	10	< 10	100	< 10	190	140	260
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	33	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) TPH-CWG - Aromatic (C5 - C35)	μg/l μg/l	10 10	< 10 3600	< 10 5100	< 10 530	< 10 1800	< 10 290	< 10 3300
11 11-0WG - Alomatic (05 - 055)	μ9/1	10	3000	3100	330	1000	230	3300
VOCs			+					
1,3,5-Trimethylbenzene	μg/l	1	270	870	81.2	340	4.3	421
1,2,3-Trichloropropane	μg/l	1					< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	< 100	< 100	< 100	< 100	< 100	110
Carbon disulphide	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Environmental Forensics								
				-				
Gases		•	1	2.2	1.5		1.0	
Methane	mg/l	0.1	0.9	0.2	1.5	1.1	1.9	1.4

Project: Former Polycell Site

Document Title:

Borehole Rationale:

Analysis summary sheet for BH05d-17

EAME 2017 borehole - overall

Borenole Rationale:	GW trend	ds						
			Baseline	Post Drill	Phase 1 Pump	Post Injection	Phase 2 Pump	Start Monitoring
Lab Sample Number			980105	1007599	1019841	1031516	1038704	1049512
Sample Reference			BH05d-17	BH05d-17	BH05d-17	BH05D-17	BH05D-17	BH05d-17
•								
Sample Number Depth (m)			None Supplied None Supplied	None Supplied None Supplied	None Supplied None Supplied	None Supplied None Supplied	None Supplied None Supplied	None Supplied None Supplied
Date Sampled			12/06/2018	23/07/2018	08/08/2018	24/08/2018	05/09/2018	19/09/2018
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
				- ' '				
Analytical Parameter	_	de L						
(Water Analysis)	Units	Limit of detection						
(Water Analysis)	o,	9 9						
General Inorganics								
pH	pH Units	N/A		7	7	7.4	7.4	7.0
Sulphate as SO ₄	μg/l	45	32200	93700	92000	116000	107000	118000
Sulphate as SO ₄	mg/l	0.045	32.2	93.7	92	116	107	118
Chloride	mg/l	0.15	180	68	75	74	160	81
Nitrate as N	mg/l	0.01	0.12	3.52	2.76	2.17	1.81	1.20
Nitrate as NO ₃	mg/l	0.05	0.53	15.6	12.2	9.61	8	5.33
Chemical Oxygen Demand (Total)	mg/l	2 1		41 < 1.0	12 < 1.0	11	51 2.6	23
BOD (Biochemical Oxygen Demand) (Total) - UK Redox Potential	mg/l mV	-800	23.9	< 1.0 117.2	< 1.0 90.9	1.2	154.9	-47.50
Dissolved Oxygen	mg/l	1	3.1	7.2	8.3	1.2	8.7	7.3
								_
Speciated PAHs								
Naphthalene	μg/l	0.01	1.3	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Heavy Metals / Metalloids		0.004	0.0	0.040	0.005	0.007	0.000	0.047
Iron (dissolved) Fe ²⁺	mg/l mg/l	0.004	3.6 3.55	0.018 < 0.20	0.005 < 0.20	0.027 < 0.20	0.062 < 0.20	0.017 < 0.20
Fe ³⁺	mg/l	0.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	g/.	0.2	7 0.20	7 0.20	V 0.20	V 0.20	V 0.20	V 0.20
Monoaromatics								
Benzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	μg/l	1	2.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	μg/l	1	2.5	< 1.0	< 1.0	< 1.0	< 1.0 15.1	< 1.0
o-xylene MTBE (Methyl Tertiary Butyl Ether)	μg/l μg/l	1	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0	< 1.0 < 1.0
WIDE (Methy) Ternary Buryl Emer)	μул	'	V 1.0	V 1.0	V 1.0	V 1.0	V 1.0	V 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 TPH-CWG - Aliphatic >C16 - C21	μg/l μg/l	10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
3.1.0 /	La.		1.0	,	1	1.5	1.5	1.5
TPH-CWG - Aromatic >C5 - C7	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	43	< 1.0
TPH-CWG - Aromatic >C10 - C12	μg/l	10	130	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 TPH-CWG - Aromatic >C16 - C21	μg/l	10 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 TPH-CWG - Aromatic >C21 - C35	μg/l μg/l	10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10
THE OWN AROTHER POLICY CO.	μ9/1	10	× 10	<u> </u>	× 10	× 10	× 10	× 10
	1							
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	130	10	10	10	43	10
VOCs	+							
1,3,5-Trimethylbenzene	μg/l	1	11.9	< 1.0	< 1.0	< 1.0	27.8	< 1.0
1,2,3-Trichloropropane	μg/I μg/I	1	11.5	` 1.0	`	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	< 100	< 100	< 100	< 100	< 100	1200
Carbon disulphide	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	+ +							
Environmental Forensics	+ +		+				-	
Environmental Forensics			+			1		
Gases								

Project: Former Polycell Site

Analysis summary shee

Analysis summary sheet for BH06d-17 EAME 2017 borehole -

John F Hunt REMEDIATION

Borehole Rationale:

overall GW trends Baseline Post Drill Phase 1 Pump Post Injection Phase 2 Pump Start Monitoring 1038705 Lab Sample Number 980104 1007598 1019840 1031517 1049513 Sample Reference BH06d-17 BH06d-17 BH06d-17 BH06d-17 BH06-17 BH06d-27 Sample Number None Supplied None Supplied None Supplied None Supplied None Supplied None Supplied None Supplied None Supplied None Supplied None Supplied None Supplied None Supplied Depth (m) 11/06/2018 23/07/2018 08/08/2018 24/08/2018 05/09/2018 19/09/2018 Date Sampled None Supplied None Supplied None Supplied None Supplied None Supplied None Supplied Time Taken Limit of detection Analytical Parameter Units (Water Analysis) General Inorganics N/A 7.1 6.9 7.2 7.1 6.8 pH Units 6070 Sulphate as SO₄ μg/l 45 1860 2490 10000 217000 250000 Sulphate as SO₄ mg/l 0.045 6.1 1.9 2.5 10 217 250 130 100 110 300 mg/l 0.15 300 Chloride 0.01 0.11 0.05 0.07 0.17 Nitrate as N 0.07 0.12 mg/l Nitrate as NO3 mg/l 0.05 0.48 0.22 0.33 0.32 0.75 0.53 Chemical Oxygen Demand (Total) mg/l 2 15 14 19 51 71 1.7 U/S BOD (Biochemical Oxygen Demand) (Total) - UK mg/l 1.7 1.6 1.7 -800 62.4 62.4 187.7 163.6 -45.10 Redox Potential mV 15.1 Dissolved Oxygen mg/l 1.9 7.6 4.7 1.1 8.3 6.8 Speciated PAHs 0.01 2.11 0.82 1.17 1.95 13.6 68.1 μg/l Naphthalene Heavy Metals / Metalloids Iron (dissolved) mg/l 0.004 4.6 1.6 0.92 0.2 0.58 2.4 0.2 4.51 < 0.20 0.9 < 0.20 < 0.20 0.21 mg/l 0.2 < 0.20 1.59 < 0.20 < 0.20 0.58 2.20 mg/l Monoaromatics 1.5 2.2 < 1.0 < 1.0 < 1.0 < 1.0 Benzene μg/l < 1.0 < 1.0 Toluene μg/l 1 < 1.0 < 1.0 < 1.0 < 1.0 Ethylbenzene μg/l 1 < 1.0 5.1 < 1.0 < 1.0 < 1.0 26.9 1 4.5 2.4 < 1.0 < 1.0 104 304 p & m-xylene μg/l 6.4 < 1.0 < 1.0 < 1.0 < 1.0 3.6 o-xylene μg/l MTBE (Methyl Tertiary Butyl Ether) 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 μg/l Petroleum Hydrocarbons TPH-CWG - Aliphatic >C5 - C6 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 μg/l TPH-CWG - Aliphatic >C6 - C8 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 μg/l TPH-CWG - Aliphatic >C8 - C10 μg/l < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 TPH-CWG - Aliphatic >C10 - C12 μg/l 10 < 10 < 10 < 10 < 10 < 10 < 10 TPH-CWG - Aliphatic >C12 - C16 10 < 10 < 10 < 10 < 10 < 10 < 10 μg/l TPH-CWG - Aliphatic >C16 - C21 10 < 10 < 10 < 10 < 10 < 10 μg/l < 10 TPH-CWG - Aliphatic >C21 - C35 μg/l 10 < 10 < 10 < 10 < 10 < 10 < 10 TPH-CWG - Aromatic >C5 - C7 1.5 2.2 < 1.0 < 1.0 < 1.0 < 1.0 μg/l TPH-CWG - Aromatic >C7 - C8 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 μg/l 39 6.9 1100 3600 TPH-CWG - Aromatic >C8 - C10 μg/l 70 6.1 TPH-CWG - Aromatic >C10 - C12 μg/l 10 300 54 43 130 740 3200 TPH-CWG - Aromatic >C12 - C16 10 < 10 64 < 10 41 190 330 μg/l 10 < 10 < 10 < 10 TPH-CWG - Aromatic >C16 - C21 < 10 < 10 < 10 μg/l 10 < 10 < 10 < 10 < 10 TPH-CWG - Aromatic >C21 - C35 μg/l < 10 < 10 TPH-CWG - Aliphatic (C5 - C35) 10 < 10 < 10 < 10 < 10 < 10 < 10 μg/l 10 370 2000 7100 TPH-CWG - Aromatic (C5 - C35) 160 180 49 μg/l VOCs 1,2,3-Trichloropropane < 1.0 < 1.0 μg/l 1 1,3,5-Trichlorobenzene < 1.0 < 1.0 μg/l 1 < 1.0 < 1.0 < 1.0 Bromochloromethane μg/l 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 100 < 100 340 < 100 < 100 < 100 < 100 Dichloromethane μg/l 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 Carbon disulphide μg/l Dichlorodifluoromethane μg/l 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 Methane 4.4 < 0.1 mg/l

Project:	Former Polycell Site		
	Analysis summary	Johi	n F Hunt
Document Title:	sheet for BH31/RN31		EDIATION
Borehole Rationale:	Historic borehole -		
	centre of plume	T	
			Post Drill
Lab Sample Number			1008597
Sample Reference Sample Number			BH31/RN31 None Supplied
Depth (m)			None Supplied
Date Sampled			25/07/2018
Time Taken			None Supplied
Analytical Parameter	Units	Limit of detection	
(Water Analysis)	i	tion t	
OI			
General Inorganics pH	pH Units	N/A	6.7
Sulphate as SO ₄	μg/l	45	10900
Sulphate as SO ₄	mg/l	0.045	10.9
Chloride	mg/l	0.15	200
Nitrate as N	mg/l	0.01	< 0.01
Nitrate as NO ₃	mg/l	0.05	< 0.05
Chemical Oxygen Demand (Total) BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l mg/l	1	150 < 1.0
Redox Potential	mV	-800	-50
Dissolved Oxygen	mg/l	1	2
Speciated PAHs		0.01	12.9
Naphthalene	μg/l	0.01	12.9
Heavy Metals / Metalloids			
Iron (dissolved)	mg/l	0.004	2.3
Fe ²⁺	mg/l	0.2	< 0.20
Fe ³⁺	mg/l	0.2	2.23
Monoaromatics			
Benzene	μg/l	1	< 1.0
Toluene	μg/l	1	19.8
Ethylbenzene p & m-xylene	μg/l μg/l	1	< 1.0 58.9
o-xylene	μg/l	1	1310
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0
Detrologie Undersonbare			
Petroleum Hydrocarbons TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10
TPH-CWG - Aliphatic >C16 - C21 TPH-CWG - Aliphatic >C21 - C35	μg/l μg/l	10	< 10 < 10
TETT-GWG - Allphalic >021 - 033	µ9/1	10	V 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	< 1.0
TPH-CWG - Aromatic >C7 - C8	μg/l	1	20
TPH-CWG - Aromatic >C8 - C10	μg/l	1	2100
TPH-CWG - Aromatic >C10 - C12 TPH-CWG - Aromatic >C12 - C16	μg/l μg/l	10	1200 120
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10
TRU OWO All Late (OF COS)		10	10
TPH-CWG - Aliphatic (C5 - C35) TPH-CWG - Aromatic (C5 - C35)	μg/l μg/l	10	< 10 3400
	ha.		3.00
VOCs		ļ .	4.0
1,3,5-Trimethylbenzene	μg/l	1	< 1.0 < 1.0
1,3,5-Trichlorobenzene Bromochloromethane	μg/l μg/l	1	< 1.0 < 1.0
Dichloromethane	μg/l	100	< 100
Carbon disulphide	μg/l	1	< 1.0
Dichlorodifluoromethane	ua/l	1	< 1.0
Dictilorodilidoromethane	μg/l		
Dictiorodination the traile	μдл		
	μул		
Environmental Forensics	дуг		
	дул		

Project:	Former Polycell Site						
•	Analysis summary						
Document Title:	sheet for A2 2018 JFHR -			John	F Hun	REME	DIATION
Borehole Rationale:	remediation grid	1		1	1	ı	ı
			Post Drill	Phase 1 Pump	Phase 2 Pump	Phase 2 Pump	Start Monitoring
Lab Sample Number			1011476	1023050	1038815	1043126	1047981
Sample Reference			A2	A2	A2	A2	A2
Sample Number Depth (m)			None Supplied None Supplied	None Supplied None Supplied	None Supplied None Supplied	None Supplied None Supplied	None Supplied None Supplied
Date Sampled			27/07/2018	13/08/2018	04/09/2018	10/09/2018	18/09/2018
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection					
General Inorganics							
pH	pH Units	N/A	6.6	6.6	6.6	6.7	6.7
Sulphate as SO ₄	μg/l	45	6960	7800	6060	5960	6360
Sulphate as SO₄	mg/l	0.045	7	7.8	6.1	6	6.4
Chloride	mg/l	0.15	580	820	480	510	560
Nitrate as N	mg/l	0.01	0.15	0.07	< 0.01	0.1	0.07
Nitrate as NO ₃	mg/l	0.05	0.66	0.32	< 0.05 48	0.43	0.32
Chemical Oxygen Demand (Total) BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l mg/l	1	74 59	70 31	48 30	71 4.9	100
Redox Potential	mV	-800	89.6	13.1	197.5	-30.7	-46.90
Dissolved Oxygen	mg/l	1	4.3	1.6	3.2	1.4	7.2
Speciated PAHs							
Naphthalene	μg/l	0.01	31.1	50.9	35	40.2	48.2
Heavy Metals / Metalloids Iron (dissolved)	mg/l	0.004	4.3	6.2	4.1	1.8	3.2
Fe ²⁺	mg/l	0.004	2.86	5.8	< 0.20	1.8	3.00
Fe ³⁺	mg/l	0.2	1.47	0.4	4.1	< 0.20	< 0.20
Monoaromatics							
Benzene	μg/l	1	< 1.0	< 1.0	< 1.0	1.5	2.3
Toluene	μg/l	1	24	18.2	< 1.0	14.6	21.3
Ethylbenzene	μg/l	1	< 1.0	75.3	< 1.0	52.4	141
p & m-xylene	μg/l	1	990	971	452	804	1200
o-xylene MTBE (Methyl Tertiary Butyl Ether)	μg/l μg/l	1	1120 < 1.0	1170 < 1.0	397 < 1.0	709 < 1.0	602 < 1.0
	H9/1		V 1.0	\ 1.0	× 1.0	\ 1.0	\ 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 TPH-CWG - Aliphatic >C10 - C12	μg/l μg/l	10	< 1.0 < 10	< 1.0 < 10	< 1.0 < 10	< 1.0 < 10	< 1.0 < 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
TRU OWO A COST				1.0			2.2
TPH-CWG - Aromatic > C5 - C7	μg/l	1	< 1.0	< 1.0	< 1.0	1.5	2.3
TPH-CWG - Aromatic >C7 - C8 TPH-CWG - Aromatic >C8 - C10	μg/l μg/l	1	24 6200	18 6500	< 1.0 4300	15 6100	21 8200
TPH-CWG - Aromatic >C0 - C10	μg/l	10	1400	4000	2900	4200	1500
TPH-CWG - Aromatic >C12 - C16	μg/l	10	1100	1100	420	500	150
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) TPH-CWG - Aromatic (C5 - C35)	μg/l μg/l	10 10	< 10 8600	< 10 12000	< 10 7600	< 10 11000	< 10 9900
11 11-0WG - Alomatic (03 - 033)	μ9/I	10	0000	12000	7000	11000	3300
W00-		-					
VOCs	110/1	1	071	000	705	006	1050
1,3,5-Trimethylbenzene 1,2,3-Trichloropropane	μg/l μg/l	1	971	838	705 < 1.0	986	1250 < 1.0
1,3,5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	630	1100	2600	2600	4200
Carbon disulphide	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fundamental Farracia							
Environmental Forensics							
Gases			_				
Methane	mg/l	0.1	13	15	21	18	13

Project: Former Polycell Site

Analysis summary sheet for A3 2018 JFHR -Document Title:

John F Hunt REMEDIATION

Borehole Rationale:	2018 JFHR - remediation grid						
	remediation grid						
			Start Phase 1 Pump	Phase 1 Pump	Phase 2 Pump	Phase 2 Pump	Start Monitoring
Lab Sample Number			1012503	1021271	1038816	1043127	1047975
Sample Reference			A3	A3	A3	A3	A3
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied None Supplied
Depth (m) Date Sampled			None Supplied 30/07/2018	None Supplied 10/08/2018	None Supplied 04/09/2018	None Supplied 10/09/2018	17/09/2018
Time Taken			None Supplied				
Time Taken			None Supplied	None Supplied	None Supplied	Notic Supplied	None Supplied
		٠ ـ					
Analytical Parameter	Units	Limit of detection					
(Water Analysis)	ਛੋਂ	함현					
		5 -					
General Inorganics							
На	pH Units	N/A	6.8	6.6	6.7	6.8	6.8
Sulphate as SO ₄	μg/l	45	8300	8160	11100	7260	7900
Sulphate as SO ₄	mg/l	0.045	8.3	8.2	11.1	7.3	7.9
Chloride	mg/l	0.15	180	250	260	260	240
Nitrate as N	mg/l	0.01	0.14	0.16	0.07	0.11	0.14
Nitrate as NO ₃	mg/l	0.05	0.6	0.71	0.32	0.48	0.64
Chemical Oxygen Demand (Total)	mg/l	2	370	380	430	420	390
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	110	280	210	170	210
Redox Potential	mV	-800	69	34.6	191.1	-16.7	63.60
Dissolved Oxygen	mg/l	1	6.2	3.3	1.3	1.7	2.7
		+ :	-	2.0		•••	
Speciated PAHs							
Naphthalene	μg/l	0.01	91.4	123	114	86.1	52.2
Heavy Metals / Metalloids							
Iron (dissolved)	mg/l	0.004	0.079	2	3.9	0.46	0.83
Fe ²⁺	mg/l	0.2	< 0.20	2	< 0.20	0.22	0.80
Fe ³⁺	mg/l	0.2	< 0.20	< 0.20	3.91	0.24	< 0.20
Monoaromatics							
Benzene	μg/l	1	5.5	11.6	8.1	5	6.1
Toluene	μg/l	1	187	298	175	118	122
Ethylbenzene	μg/l	1	233	237	239	170	199
p & m-xylene	μg/l	1	1730	2040	1570	1290	841
o-xylene	μg/l	1	2500	2490	2370	1800	1510
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10	490	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	5.5	12	8.1	5	6.1
TPH-CWG - Aromatic >C7 - C8	μg/l	1	190	300	170	120	120
TPH-CWG - Aromatic >C8 - C10	μg/l	1	15000	11000	17000	14000	10000
TPH-CWG - Aromatic >C10 - C12	μg/l	10	1400	8500	12000	11000	2700
TPH-CWG - Aromatic >C12 - C16	μg/l	10	900	5200	5800	4800	670
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
			1				
				2			
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	18000	25000	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	10	490	36000	30000	14000
NOO-							
VOCs			2000	1000	0705	2000	1016
1,3,5-Trimethylbenzene	μg/l	1	2260	1200	2790	2030	1210
1,2,3-Trichloropropane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	660	1	4000	5100	4900
Carbon disulphide	μg/l	1	< 1.0	2800	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Environmental Forensics							
Gases							
Methane	mg/l	0.1	8.6	8	5.2	3.6	6.0

Project:	Former Polycell Site			
	Analysis summary		John	F Hunt
Document Title:	sheet for A5			DIATION
	2018 JFHR -		Heimer	
Borehole Rationale:	remediation grid			
			Dhasa 2 Dr	Chart Manite 1
Lab Sample Number			Phase 2 Pump 1038828	Start Monitoring 1047977
Sample Reference			A5	A5
Sample Number			None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied
Date Sampled			04/09/2018	17/09/2018
Time Taken			None Supplied	None Supplied
		_		
Analytical Parameter	Ç	Lim		
(Water Analysis)	Units	Limit of detection		
		5 7		
General Inorganics				
pH	pH Units	N/A	10.5	10.3
Sulphate as SO ₄	μg/l	45	87100	87800
Sulphate as SO ₄	mg/l	0.045	87.1	87.8
Chloride	mg/l	0.15	730	780
Nitrate as N	mg/l	0.01	0.53	0.19
Nitrate as NO ₃	mg/l	0.05	2.36	0.85
Chemical Oxygen Demand (Total)	mg/l	2	1200	1600
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	460	75
Redox Potential	mV	-800 1	123.1	39.10
Dissolved Oxygen	mg/l	'	17	11
Speciated PAHs				
Naphthalene	μg/l	0.01	72.4	< 0.01
партини	P9/1	5.01	16.7	₹ 0.01
Heavy Metals / Metalloids				
Iron (dissolved)	mg/l	0.004	0.31	0.11
Fe ²⁺	mg/l	0.2	< 0.20	< 0.20
Fe ³⁺	mg/l	0.2	0.31	< 0.20
Monoaromatics				
Benzene	μg/l	1	5.3	7.5
Toluene	μg/l	1	144	99.3
Ethylbenzene	μg/l	1	301	203
p & m-xylene	μg/l	1	1940	653
o-xylene	μg/l	1	2570	1080
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0
Datus la com I budua a sub a na				
Petroleum Hydrocarbons	//	4	.10	.10
TPH-CWG - Aliphatic >C5 - C6 TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0 < 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l μg/l	1	< 1.0 < 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	510	< 1.0
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C21 TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10
011 0 7 mpriduo 2021 - 000	μ9/1		, 10	× 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	5.3	7.5
TPH-CWG - Aromatic >C7 - C8	μg/l	1	140	99
TPH-CWG - Aromatic >C8 - C10	μg/l	1	25000	6500
TPH-CWG - Aromatic >C10 - C12	μg/l	10	14000	2700
TPH-CWG - Aromatic >C12 - C16	μg/l	10	2000	1200
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10
	10			
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	510	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	41000	10000
VOCe				
VOCs	//	4	4000	715
1,3,5-Trimethylbenzene	μg/l	1	4390	715 < 1.0
1,2,3-Trichloropropane	μg/l μg/l	1	< 1.0 < 1.0	< 1.0 < 1.0
1,3,5-Trichlorobenzene Bromochloromethane	μg/I μg/I	1	< 1.0 < 1.0	< 1.0
Dichloromethane	μg/I μg/I	100	180000	130000
Dichloromethane Carbon disulphide	μg/I μg/I	100	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	< 1.0	< 1.0
Diomotoulia of the trial is	μ9/1	-	< 1.0	< 1.U
Environmental Forensics				
Gases				
Methane	mg/l	0.1	1	1.4

Project: Former Polycell Site

Document Title: Analysis summary sheet for A6

Environmental Forensics

Gases Methane John F Hunt REMEDIATION

2018 JFHR -**Borehole Rationale:** remediation grid Post Drill / Commission Phase 2 Pump Phase 1 Pump Phase 2 Pump Start Monitoring Lab Sample Number 1008598 1024181 1038817 1043936 1049514 Sample Reference A6 A6 A6 A6 A6 Sample Number None Supplied None Supplied None Supplied None Supplied None Supplied Depth (m) None Supplied None Supplied None Supplied None Supplied None Supplied 25/07/2018 03/09/2018 18/09/2018 14/08/2018 12/09/2018 Date Sampled Time Taken None Supplied None Supplied None Supplied None Supplied None Supplied Limit of detection Analytical Parameter (Water Analysis) **General Inorganics** N/A pH Units 6.6 6.8 6.6 6.6 6.6 Sulphate as SO₄ μg/l 45 18500 11600 18000 11900 11800 0.045 18.5 11.9 Sulphate as SO₄ mg/l 11.6 18 11.8 Chloride 0.15 330 390 360 490 420 mg/l Nitrate as N 0.01 < 0.01 0.1 0.01 80.0 0.10 mg/l Nitrate as NO 0.05 < 0.05 0.43 0.05 0.37 0.43 mg/l Chemical Oxygen Demand (Total) mg/l 2 290 840 470 910 550 BOD (Biochemical Oxygen Demand) (Total) - UK 330 190 mg/l < 1.0 < 1.0 260 Redox Potential -800 -35.6 19.7 189.3 41.9 -32.50 mV Dissolved Oxygen mg/l 3.8 1.8 1.5 7 1.3 Speciated PAHs 44.5 Naphthalene μg/l 0.01 31.2 37.1 72.4 52.6 Heavy Metals / Metalloids Iron (dissolved) mg/l 0.004 2.9 5.1 1.6 2 2.6 0.2 < 0.20 0.62 < 0.20 1.92 1.12 mg/l Fe³⁺ < 0.20 mg/l 0.2 2.95 4.47 1.54 1.49 **Monoaromatics** < 1.0 Benzene μg/l 1 < 1.0 3.6 4.4 1.7 Toluene μg/l 31.4 11.5 44.3 66.6 37.0 80.5 Ethylbenzene 1 49.3 22.4 66 126 μg/l p & m-xylene μg/l 1 1090 135 633 1020 734 o-xylene 1670 244 964 1370 944 μg/l MTBE (Methyl Tertiary Butyl Ether) μg/l < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 **Petroleum Hydrocarbons** < 1.0 < 1.0 < 1.0 TPH-CWG - Aliphatic >C5 - C6 μg/l < 1.0 < 1.0 TPH-CWG - Aliphatic >C6 - C8 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 μg/l TPH-CWG - Aliphatic >C8 - C10 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 μg/l TPH-CWG - Aliphatic >C10 - C12 μg/l 10 < 10 < 10 < 10 < 10 < 10 TPH-CWG - Aliphatic >C12 - C16 10 < 10 < 10 < 10 < 10 μg/l < 10 TPH-CWG - Aliphatic >C16 - C21 < 10 < 10 10 < 10 < 10 < 10 μg/l TPH-CWG - Aliphatic >C21 - C35 μg/l 10 < 10 < 10 < 10 < 10 < 10 TPH-CWG - Aromatic >C5 - C7 < 1.0 < 1.0 3.6 4.4 1 1.7 μg/l TPH-CWG - Aromatic >C7 - C8 μg/l 1 31 12 44 67 37 6800 930 5500 6600 4400 TPH-CWG - Aromatic >C8 - C10 1 μg/l 10 1300 1600 5400 5200 3600 TPH-CWG - Aromatic >C10 - C12 μg/l TPH-CWG - Aromatic >C12 - C16 10 100 1000 1400 1600 3600 μg/l TPH-CWG - Aromatic >C16 - C21 10 μg/l < 10 < 10 < 10 < 10 < 10 TPH-CWG - Aromatic >C21 - C35 μg/l 10 < 10 < 10 < 10 < 10 < 10 TPH-CWG - Aliphatic (C5 - C35) 10 μg/l < 10 < 10 < 10 < 10 < 10 TPH-CWG - Aromatic (C5 - C35) 10 8200 3600 12000 13000 12000 **VOCs** < 1.0 92.9 1,3,5-Trimethylbenzene 760 736 597 μg/l 1,2,3-Trichloropropane 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 1,3,5-Trichlorobenzene μg/l < 1.0 < 1.0 < 1.0 < 1.0 Bromochloromethane μg/l < 1.0 100 100 120000 31000 29000 4500 Dichloromethane μg/l arbon disulphide < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 Dichlorodifluoromethane 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0

mg/l

0.1

2.1

5.2

2.7

8.3

3.9

Former Polycell Site Project:

Analysis summary sheet for Z5 2018 JFHR -Document Title:

Post Drill / Cot	1024189
Lab Sample Reference 25 Sample Reference 25 Sample Mimber None Supple None Supplement (Marker) Dath (M) None Supplement (Marker) Date Sampled 27/07/20 Time Taken None Supplement (Marker) Analytical Parameter (Water Analysis) None Supplement (Marker) General Inorganics PH PH pH Units N/A 6.6 Sulphate as SO ₄ μgfl 45 27800 Sulphate as SO ₄ μgfl 0.045 27.8 Chloride mgfl 0.01 0.11 Nitrate as N mgfl 0.05 0.49 Chemical Oxygen Demand (Total) mgfl 0.05 0.49 Chemical Oxygen Demand (Total) mgfl 2 150 BOD (Biochemical Oxygen Demand) (Total) - PL mgfl 1 70 Redox Potential mV -800 -13.9 Dissolved Oxygen mgfl 1 3.9 Speciated PAHs Napthtalere μgfl 1 3.1 </th <th> 1024189</th>	1024189
Lab Sample Reference 25 Sample Reference 25 Sample Mumber None Supple None Supple 27707/20 Time Taken None Supple 27707/20 Analytical Parameter (Water Analysis) None Supple 30 General Inorganics Image: Comparison of the Comparis	1024189
Sample Number	Z5
Sample Number None Suppose No	None Supplied None Supplie
Depth (m) None Suppled Date Sampled 27/07/20 Time Taken Analytical Parameter Water Analysis) Beauty of the person of the per	None Supplied None Supplied None Supplied None Supplied 15/08/2018 04/09/2018 12/09/2018 17/09/2018 17/09/2018 17/09/2018 17/09/2018 17/09/2018 17/09/2018 17/09/2018 17/09/2018 17/09/2018 17/09/2018 17/09/2018 None Supplied None S
Date Sampled 27/07/20 Time Taken None Supl Analytical Parameter (Water Analysis) Image: Comparison of the policy of the	15/08/2018
Analytical Parameter (Water Analysis) Section Sec	6.7 6.8 6.7 6.8 00 14700 25000 19000 16700 8 14.7 25 19 16.7 0 490 420 470 530 1 0.07 0.1 0.1 0.05 9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 <1.0 130 9 16.7 165.1 34 -51.20 0 7.8 2.6 6.4 1.9
General Inorganics pH Units N/A 6.6 Sulphate as SO ₄ μg/l 45 27800 Sulphate as SO ₄ mg/l 0.045 27.8 Chloride mg/l 0.15 320 Nitrate as N mg/l 0.01 0.11 Nitrate as NO ₃ mg/l 0.01 0.11 Nitrate as NO ₃ mg/l 0.05 0.49 Chemical Oxygen Demand (Total) mg/l 2 150 BOD (Biochemical Oxygen Demand) (Total) - PL mg/l 1 70 BCOX Potential mV -800 -13.9 Dissolved Oxygen mg/l 1 3.9 Speciated PAHs Naphthalene μg/l 0.01 28.6 Heavy Metals / Metalloids mg/l 0.01 28.6 Heavy Metals / Metalloids mg/l 0.004 5.5 Fe³* mg/l 0.004 5.5 Fe³* mg/l 0.004 5.5 Fe³* mg/l 0.	00 14700 25000 19000 16700 8 14.7 25 19 16.7 0 490 420 470 530 1 0.07 0.1 0.1 0.05 9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 <1.0
General Inorganics pH Units N/A 6.6 Sulphate as SO ₄ μg/l 45 27800 Sulphate as SO ₄ mg/l 0.045 27.8 Chloride mg/l 0.15 320 Nitrate as N mg/l 0.01 0.11 Nitrate as NO ₃ mg/l 0.01 0.11 Nitrate as NO ₃ mg/l 0.05 0.49 Chemical Oxygen Demand (Total) mg/l 2 150 BOD (Biochemical Oxygen Demand) (Total) - PL mg/l 1 70 BCOX Potential mV -800 -13.9 Dissolved Oxygen mg/l 1 3.9 Speciated PAHs Naphthalene μg/l 0.01 28.6 Heavy Metals / Metalloids mg/l 0.01 28.6 Heavy Metals / Metalloids mg/l 0.004 5.5 Fe³* mg/l 0.004 5.5 Fe³* mg/l 0.004 5.5 Fe³* mg/l 0.	00 14700 25000 19000 16700 8 14.7 25 19 16.7 0 490 420 470 530 1 0.07 0.1 0.1 0.05 9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 <1.0
General Inorganics pH Units N/A 6.6 Sulphate as SO₄ μg/l 45 27800 Sulphate as SO₄ mg/l 0.045 27.8 Chloride mg/l 0.15 320 Nitrate as N mg/l 0.01 0.11 Nitrate as NO₂ mg/l 0.05 0.49 Chemical Oxygen Demand (Total) mg/l 2 150 BOD (Biochemical Oxygen Demand) (Total) - PL mg/l 1 70 Redox Potential mV -800 -13.9 Dissolved Oxygen mg/l 1 3.9 Speciated PAHs Naphthalene μg/l 0.01 28.6 Heavy Metals / Metalloids Iron (dissolved) mg/l 0.004 5.5 Fe³* mg/l 0.004 5.5 Fe³* mg/l 0.2 3.17 Fe³** mg/l 0.2 3.17 Fe³* mg/l 1 1.8 Toluene μg/l 1	00 14700 25000 19000 16700 8 14.7 25 19 16.7 0 490 420 470 530 1 0.07 0.1 0.1 0.05 9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 <1.0
General Inorganics pH Units N/A 6.6 Sulphate as SO₄ μg/l 45 27800 Sulphate as SO₄ mg/l 0.045 27.8 Chloride mg/l 0.15 320 Nitrate as N mg/l 0.01 0.11 Nitrate as NO₃ mg/l 0.05 0.49 Chemical Oxygen Demand (Total) mg/l 2 150 BOD (Biochemical Oxygen Demand) (Total) - PL mg/l 1 70 Redox Potential mV -800 1-13.9 Dissolved Oxygen mg/l 1 3.9 Speciated PAHs Naphthalene μg/l 0.01 28.6 Heavy Metals / Metalloids Iron (dissolved) mg/l 0.004 5.5 Fe³* mg/l 0.02 3.17 Fe³** mg/l 0.2 3.17 Fe³** mg/l 0.2 3.17 Te³** mg/l 1 1.8	00 14700 25000 19000 16700 8 14.7 25 19 16.7 0 490 420 470 530 1 0.07 0.1 0.1 0.05 9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 <1.0
PH	00 14700 25000 19000 16700 8 14.7 25 19 16.7 0 490 420 470 530 1 0.07 0.1 0.1 0.05 9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 <1.0
PH	00 14700 25000 19000 16700 8 14.7 25 19 16.7 0 490 420 470 530 1 0.07 0.1 0.1 0.05 9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 <1.0
Sulphate as SO ₄ μg/l 45 27800 Sulphate as SO ₄ mg/l 0.045 27.8 Chloride mg/l 0.15 320 Nitrate as N mg/l 0.01 0.11 Nitrate as NO ₃ mg/l 0.05 0.49 Chemical Oxygen Demand (Total) mg/l 1 70 Redox Potential mV -800 -13.9 Dissolved Oxygen mg/l 1 3.9 Speciated PAHs Naphthalene μg/l 0.01 28.6 Heavy Metals / Metalloids mg/l 0.2 3.17 Iron (dissolved) mg/l 0.2 3.17 Fe ²⁺ mg/l 0.2 3.17 Fe ³⁺ mg/l 0.2 2.3 Monoaromatics Benzene μg/l 1 1.8 Toluene μg/l 1 1.8 Ethylbenzene μg/l 1 1.8 pa/l 1 1.330	00 14700 25000 19000 16700 8 14.7 25 19 16.7 0 490 420 470 530 1 0.07 0.1 0.1 0.05 9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 <1.0
Chloride	0 490 420 470 530 1 0.07 0.1 0.1 0.05 9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 < 1.0
Nitrate as N	1 0.07 0.1 0.1 0.05 9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 < 1.0
Nitrate as NO₃ mg/l 0.05 0.49 Chemical Oxygen Demand (Total) mg/l 2 150 BOD (Biochemical Oxygen Demand) (Total) - PL mg/l 1 70 Redox Potential mV -800 -13.9 Dissolved Oxygen mg/l 1 3.9 Speciated PAHs Naphthalene μg/l 0.01 28.6 Heavy Metals / Metalloids Iron (dissolved) mg/l 0.004 5.5 Fe²+ mg/l 0.2 3.17 Fe³+ mg/l 0.2 2.3 Monoaromatics Benzene μg/l 1 1.8 Toluene μg/l 1 1.6 Ethylbenzene μg/l 1 1.6 e m-xylene μg/l 1 823 e-xylene μg/l 1 1.330 MTBE (Methyl Tertiary Butyl Ether) μg/l 1 <1.0	9 0.32 0.43 0.43 0.21 0 240 200 200 190 0 U/S 72 <1.0 130 9 16.7 165.1 34 -51.20 0 7.8 2.6 6.4 1.9
Chemical Oxygen Demand (Total) mg/l 2 150	0 240 200 200 190 0 U/S 72 <1.0
BOD (Biochemical Oxygen Demand) (Total) - PL mg/l 1 70 Redox Potential mV -800 -13.9 Dissolved Oxygen mg/l 1 3.9 Speciated PAHs Naphthalene µg/l 0.01 28.6 Heavy Metals / Metalloids mg/l 0.004 5.5 Fe ²⁺ mg/l 0.2 3.17 Fe ³⁺ mg/l 0.2 2.3 Monoaromatics Benzene µg/l 1 1.8 Toluene µg/l 1 1.66 p & m-xylene µg/l 1 823 o-xylene µg/l 1 3.30 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 < 1.0	U/S 72 < 1.0 130 9 16.7 165.1 34 -51.20 0 7.8 2.6 6.4 1.9
Redox Potential mV -800 -13.9	9 16.7 165.1 34 -51.20 9 7.8 2.6 6.4 1.9
Dissolved Oxygen	7.8 2.6 6.4 1.9
Speciated PAHs Page Pag	
Naphthalene µg/l 0.01 28.6 Heavy Metals / Metalloids mg/l 0.004 5.5 Fe ²⁺ mg/l 0.2 3.17 Fe ³⁺ mg/l 0.2 2.3 Monoaromatics Benzene µg/l 1 1.8 Toluene µg/l 1 104 Ethylbenzene µg/l 1 166 p & m-xylene µg/l 1 823 0-xylene µg/l 1 1330 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 <1.0	6 21.8 62.4 40.6 22.9
Heavy Metals / Metalloids mg/l 0.004 5.5 Fe ²⁺ mg/l 0.2 3.17 Fe ³⁺ mg/l 0.2 2.3 Monoaromatics mg/l 1 1.8 Toluene μg/l 1 1.66 p & m-xylene μg/l 1 1.82 α-xylene μg/l 1 1.82 α-xylene μg/l 1 1.330 MTBE (Methyl Tertiary Butyl Ether) μg/l 1 1.30 Petroleum Hydrocarbons TPH-CWG - Aliphatic >C5 - C6 μg/l 1 <1.0 TPH-CWG - Aliphatic >C12 - C16 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 <1.0 TPH-CWG - Aliphatic >C21 - C35 μg/l 10 <1.0 TPH-CWG - Aromatic >C5 - C7 μg/l 1 1.8	6 21.8 62.4 40.6 22.9
Iron (dissolved) mg/l 0.004 5.5 Fe²+ mg/l 0.2 3.17 Fe³+ mg/l 0.2 2.3 Monoaromatics Benzene µg/l 1 1.8 Toluene µg/l 1 104 Ethylbenzene µg/l 1 104 Ethylbenzene µg/l 1 823 o-xylene µg/l 1 1330 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 < 1.0	
Iron (dissolved) mg/l 0.004 5.5 Fe ²⁺ mg/l 0.2 3.17 Fe ³⁺ mg/l 0.2 2.3 Monoaromatics Benzene µg/l 1 1.8 Toluene µg/l 1 104 Ethylbenzene µg/l 1 166 p & m-xylene µg/l 1 823 o-xylene µg/l 1 1330 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 < 1.0	
Fe ²⁺ mg/l 0.2 3.17 Fe ³⁺ mg/l 0.2 2.3 Monoaromatics Benzene μg/l 1 1.8 Toluene μg/l 1 104 Ethylbenzene μg/l 1 166 p & m-xylene μg/l 1 823 o-xylene μg/l 1 1330 MTBE (Methyl Tertiary Butyl Ether) μg/l 1 < 1.0	5 8 7.5 5.6 2.3
Monoaromatics µg/l 1 1.8 Toluene µg/l 1 104 Ethylbenzene µg/l 1 106 p & m-xylene µg/l 1 823 o-xylene µg/l 1 1330 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 < 1.0	
Benzene µg/l 1 1.8 Toluene µg/l 1 104 Ethylbenzene µg/l 1 166 p & m-xylene µg/l 1 823 o-xylene µg/l 1 1330 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 < 1.0	3 7.79 7.45 4.43 < 0.20
Benzene µg/l 1 1.8 Toluene µg/l 1 104 Ethylbenzene µg/l 1 166 p & m-xylene µg/l 1 823 o-xylene µg/l 1 1330 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 < 1.0	
Toluene µg/l 1 104 Ethylbenzene µg/l 1 166 p & m-xylene µg/l 1 823 o-xylene µg/l 1 1330 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 < 1.0	3 < 1.0 2.8 2.9 3.9
Ethylbenzene µg/l 1 166 р & m-xylene µg/l 1 823 o-xylene µg/l 1 1330 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 < 1.0	
p & m-xylene µg/l 1 823 o-xylene µg/l 1 1330 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 < 1.0	
MTBE (Methyl Tertiary Butyl Ether) µg/l 1 < 1.0	
Petroleum Hydrocarbons TPH-CWG - Aliphatic >C5 - C6 µg/l 1 < 1.0	
TPH-CWG - Aliphatic >C5 - C6 µg/l 1 < 1.0	0 < 1.0 < 1.0 < 1.0 < 1.0
TPH-CWG - Aliphatic >C6 - C8 µg/l 1 < 1.0	
TPH-CWG - Aliphatic >C8 - C10 µg/l 1 < 1.0	
TPH-CWG - Aliphatic >C10 - C12 µg/l 10 < 10	
TPH-CWG - Aliphatic >C12 - C16 μg/l 10 < 10	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
TPH-CWG - Aliphatic >C21 - C35 $\mu g/l$ 10 < 10	
	10 00 00
1PH-CWG - Aromatic >C/ - Co µg/1 1 100	
TPH-CWG - Aromatic >C8 - C10 μg/l 1 7200	
TPH-CWG - Aromatic >C10 - C12 µg/l 10 2100	
TPH-CWG - Aromatic >C12 - C16 µg/l 10 2100	
TPH-CWG - Aromatic >C16 - C21 µg/l 10 140	
TPH-CWG - Aromatic >C21 - C35 μ g/l 10 < 10	0 <10 <10 <10 <10
TPH-CWG - Aliphatic (C5 - C35) μg/l 10 < 10	0 <10 <10 <10 <10
TPH-CWG - Aromatic (C5 - C35) μg/l 10 12000	00 10000 24000 15000 9800
VOCs	
1,3,5-Trimethylbenzene μg/l 1 1180	
1,2,3-Trichloropropane µg/l 1	
1,3,5-Trichlorobenzene $\mu g/l$ 1 < 1.0	< 1.0 < 1.0 < 1.0
Bromochloromethane $\mu g/l$ 1 < 1.0	< 1.0
Dichloromethane µg/l 100 200	< 1.0
Carbon disulphide µg/l 1 < 1.0	< 1.0
Dichlorodifluoromethane μg/l 1 < 1.0	< 1.0
	< 1.0
Environmental Forensics	< 1.0
Gases	< 1.0
Methane mg/l 0.1 2.8	< 1.0

Project:	Former Polycell Site						
Document Title:	Analysis summary sheet for B3	John F Hunt REMEDIATION					
Borehole Rationale:	2018 JFHR - remediation grid						
			Post Drill / Start Pump	Phase 1 Pump			
Lab Sample Number			1012501	1038826			
Sample Reference Sample Number			B3 None Supplied	B3 None Supplied			
Depth (m)			None Supplied	None Supplied			
Date Sampled			30/07/2018	04/09/2018			
Time Taken			None Supplied	None Supplied			
Analytical Parameter	_	Limit of detection					
(Water Analysis)	Units	Limit of detection					
		on st					
General Inorganics							
pH	pH Units	N/A	6.5	7.6			
Sulphate as SO ₄	µg/I	45	15500	58100			
Sulphate as SO ₄	mg/l	0.045	15.5	58.1			
Chloride	mg/l	0.15	350	320			
Nitrate as N	mg/l	0.01	0.17	0.11			
Nitrate as NO ₃ Chemical Oxygen Demand (Total)	mg/l mg/l	0.05	0.77 5200	0.48 7400			
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	730	650			
Redox Potential	mV	-800	45.5	180.4			
Dissolved Oxygen	mg/l	1	6	2			
Speciated PAHs							
Naphthalene	μg/l	0.01	67.7	54.8			
Heavy Metals / Metalloids							
Iron (dissolved) Fe ²⁺	mg/l	0.004	2.6 2.62	0.16 < 0.20			
ге Fe ³⁺	mg/l mg/l	0.2	< 0.20	< 0.20			
	mg/i	0.2	₹ 0.20	< 0.20			
Monoaromatics							
Benzene	μg/l	1	15.7	13.5			
Toluene	μg/l	1	152	178			
Ethylbenzene p & m-xylene	μg/l μg/l	1 1	193 847	318 2150			
o-xylene	μg/l	1	1060	2780			
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0			
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C8 - C10 TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C12 - C16	μg/l μg/l	10	< 10 < 10	< 10 < 10			
TPH-CWG - Aliphatic >C12 - C16 TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	< 10	< 10			
TPH-CWG - Aromatic >C5 - C7	μg/l	1	16	14			
TPH-CWG - Aromatic >C7 - C8	μg/l	1	150	180			
TPH-CWG - Aromatic >C8 - C10	μg/l	1	8000	21000			
TPH-CWG - Aromatic >C10 - C12	μg/l	10	3700	8900			
TPH-CWG - Aromatic >C12 - C16	μg/l	10	4000	3100			
TPH-CWG - Aromatic >C16 - C21 TPH-CWG - Aromatic >C21 - C35	μg/l μg/l	10	97 < 10	52 < 10			
TPH-CWG - Aromatic >C21 - C35 TPH-CWG - Aromatic (C5 - C35)	μg/l	10	16000	33000			
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	1270	3360			
1,2,3-Trichloropropane	μg/l	1	< 1.0	< 1.0			
1,3,5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0			
Bromochloromethane Dichloromethane	μg/l	100	< 1.0 18000	< 1.0 240000			
Carbon disulphide	μg/l μg/l	100	< 1.0	< 1.0			
Dichlorodifluoromethane	μg/l	1	< 1.0	< 1.0			
Environmental Forensics							
Gases							
	mg/l	0.1	25	17			
Methane	g,.						

Analysis summary John F Hunt REMEDIATION **Document Title:** sheet for B4 2018 JFHR -**Borehole Rationale:** remediation grid Start Monitoring Phase 1 Pump Phase 2 Pump Phase 2 Pump Lab Sample Number 1038818 1043121 1024187 1047979 Sample Reference B4 B4 B4 B4 None Supplied Sample Number None Supplied None Supplied None Supplied Depth (m) None Supplied None Supplied None Supplied None Supplied Date Sampled 15/08/2018 03/09/2018 10/09/2018 None Supplied None Supplied None Supplied Time Taken None Supplied Limit of detection **Analytical Parameter** Units (Water Analysis) General Inorganics pH Units N/A 6.6 6.9 6.8 7.1 Sulphate as SO₄ 17200 42700 40600 20800 μg/l Sulphate as SO₄ 0.045 17.2 42.7 40.6 20.8 mg/l Chloride mg/l 0.15 350 480 490 560 0.01 0.04 < 0.01 0.08 0.06 Nitrate as N mg/l 0.37 Nitrate as NO₃ mg/l 0.05 0.16 < 0.05 0.27 Chemical Oxygen Demand (Total) 2 1200 640 460 1800 mg/l BOD (Biochemical Oxygen Demand) (Total) - PL U/S 300 250 930 mg/l 1 Redox Potential mV -800 22.7 192.3 -82.5 -76.20 Dissolved Oxygen mg/l 1 9 1.3 2.1 1.8 Speciated PAHs Naphthalene 0.01 29.7 30.2 57.1 55.9 μg/l **Heavy Metals / Metalloids** 0.004 7.8 0.31 Iron (dissolved) 2.1 4.4 0.2 1.35 < 0.20 0.3 4.20 mg/l 6.48 < 0.20 0.2 0.25 mg/l 2.03 Monoaromatics Benzene μg/l 1 5.4 11.5 5.8 5.8 38 38.9 38.5 86.6 Toluene μg/l Ethylbenzene 63.2 77.2 131 215 μg/l 1 μg/l 1 408 440 1120 904 p & m-xylene 551 549 850 1170 o-xylene μg/l 1 < 1.0 MTBE (Methyl Tertiary Butyl Ether) μg/l < 1.0 < 1.0 < 1.0 Petroleum Hydrocarbons TPH-CWG - Aliphatic >C5 - C6 1 < 1.0 < 1.0 < 1.0 < 1.0 μg/l TPH-CWG - Aliphatic >C6 - C8 1 < 1.0 < 1.0 < 1.0 < 1.0 μg/l TPH-CWG - Aliphatic >C8 - C10 μg/l 1 < 1.0 < 1.0 < 1.0 < 1.0 TPH-CWG - Aliphatic >C10 - C12 10 < 10 < 10 < 10 600 μg/l TPH-CWG - Aliphatic >C12 - C16 10 < 10 μg/l < 10 < 10 < 10 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 < 10 < 10 < 10 < 10 TPH-CWG - Aliphatic >C21 - C35 10 < 10 < 10 < 10 < 10 μg/l TPH-CWG - Aromatic >C5 - C7 5.4 12 5.8 5.8 μg/l TPH-CWG - Aromatic >C7 - C8 38 39 39 87 μg/l 1 TPH-CWG - Aromatic >C8 - C10 μg/l 1 4500 5400 11000 15000 TPH-CWG - Aromatic >C10 - C12 10 2100 5300 2900 5200 μg/l TPH-CWG - Aromatic >C12 - C16 μg/l 10 400 1600 490 890 TPH-CWG - Aromatic >C16 - C21 μg/l 10 < 10 52 < 10 < 10 TPH-CWG - Aromatic >C21 - C35 10 μg/l < 10 < 10 < 10 < 10 TPH-CWG - Aliphatic (C5 - C35) 10 < 10 < 10 < 10 600 TPH-CWG - Aromatic (C5 - C35) 10 7000 12000 14000 22000 μg/l **VOCs** 1,3,5-Trimethylbenzene 1740 μg/l 1 585 771 2660 1,2,3-Trichloropropane μg/l 1 < 1.0 < 1.0 < 1.0 1,3,5-Trichlorobenzene < 1.0 < 1.0 < 1.0 < 1.0 μg/l < 1.0 Bromochloromethane μg/l < 1.0 < 1.0 < 1.0 Dichloromethane μg/l 100 37000 24000 12000 91000 arbon disulphide < 1.0 < 1.0 < 1.0 < 1.0 Dichlorodifluoromethane μg/l < 1.0 < 1.0 < 1.0 < 1.0 **Environmental Forensics** Methane 0.1 20 > 25 19 mg/l

Former Polycell Site

Project:

Project: Former Polycell Site

Document Title:

Analysis summary sheet for B5
2018 JFHR -

Borehole Rationale:	2018 JFHR - remediation grid	1	Т				
			Post Drill / Start Pump	Phase 1 Pump	Phase 2 Pump	Phase 2 Pump	Start Monitoring
Lab Sample Number			1012502	1024188	1038819	1043122	1047978
Sample Reference			B5	B5	B5	B5	B5
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled			30/07/2018	15/08/2018	03/09/2018	10/09/2018	17/09/2018
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter	_	Limit of detection					
(Water Analysis)	Units	nit					
(**************************************		을 약					
General Inorganics							
pH	pH Units	N/A	6.5	6.5	6.8	6.7	6.6
Sulphate as SO ₄	μg/l	45	11800	12200	48800	32800	18700
Sulphate as SO ₄	mg/l	0.045	11.8	12.2	48.8	32.8	18.7
Chloride	mg/l	0.15	780	620	650	750	900
Nitrate as N	mg/l	0.01	0.26	0.06	0.02	0.06	0.05
Nitrate as NO ₃	mg/l	0.05	1.15	0.27	0.11	0.27	0.21
Chemical Oxygen Demand (Total)	mg/l	2	3900	2000	1300	890	3300
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	820	U/S	570	360	1300
Redox Potential	mV	-800	30.8	16.1	188.6	-76.1	-67.80
Dissolved Oxygen	mg/l	1	6	8.8	1.1	1.5	2.4
Speciated PAHs							
Naphthalene	μg/l	0.01	45	47.8	165	51	16.8
Heavy Metals / Metalloids							
Iron (dissolved)	mg/l	0.004	6.1	12	1.4	0.16	8.1
Fe ²⁺	mg/l	0.2	3.23	2.72	< 0.20	< 0.20	8.00
Fe ³⁺	mg/l	0.2	2.82	9.1	1.42	< 0.20	< 0.20
Monoaromatics							
Benzene	μg/l	1	9	8.5	8.7	8.9	9.0
Toluene	μg/l	1	232	103	127	62.9	159
Ethylbenzene	μg/l	1	275	149	1010	225	272
p & m-xylene	μg/l	1	1030	905	< 1.0	747	1210
o-xylene	μg/l	1	1480	1120	1670	618	1540
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10	< 10	1600	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10	700	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
		1					
TPH-CWG - Aromatic >C5 - C7	μg/l	1	9	8.5	8.7	8.9	9.0
TPH-CWG - Aromatic >C7 - C8	μg/l	1	230	100	130	63	160
TPH-CWG - Aromatic >C8 - C10	μg/l	1	13000	8500	19000	7500	14000
TPH-CWG - Aromatic >C10 - C12	μg/l	10	2900	3100	60000	7800	2600
TPH-CWG - Aromatic >C12 - C16	μg/l	10	1800	1700	1700	4200	880
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
		1					
TRU OWO Alimber' (OF COS)	p.	10	40	10	0000	40	10
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	< 10	< 10	2300	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	18000	13000	81000	20000	18000
NOO-		1					
VOCs		4	1040	1050	2060	1170	2070
1,3,5-Trimethylbenzene	μg/l	1	1940	1250	3060	1170	2070
1,2,3-Trichloropropane	μg/l	1	< 1.0	4.0	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	20000	71000	71000	17000	290000
Carbon disulphide	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
		1					
Environmental Forensics		1					
		<u> </u>					
Gases Methane							
IN MOTO CO.	mg/l	0.1	26	22	> 25	32	19

Project: Former Polycell Site

Analysis summary sheet for B6 2018 JFHR -Document Title:

John F Hunt REMEDIATION

Borehole Rationale:

Borehole Rationale:	remediation grid											
			D I D. 111	Diversit D	Discussion of the second	Division 2 Division	Charles Marchaelta					
			Post Drill	Phase 1 Pump	Phase 2 Pump	Phase 2 Pump	Start Monitoring					
Lab Sample Number			1009742	1024182	1038820	1043123	1049515					
Sample Reference		-	B6	B6	B6	B6	B6					
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied					
Depth (m) Date Sampled			None Supplied 25/06/2018	None Supplied 14/08/2018	None Supplied 03/09/2018	None Supplied 10/09/2018	None Supplied 18/09/2018					
Time Taken		-	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied					
Time Taken		_	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied					
		۵_										
Analytical Parameter	Units	Limit of detection										
(Water Analysis)	ii ii ii ii ii ii ii ii ii ii ii ii ii	ctio										
		5 →										
			<u> </u>									
General Inorganics		NI/A	0.7	0.5	0.0	0.5	0.5					
pH Sulphate as SO ₄	pH Units	N/A	6.7	6.5	6.6	6.5	6.5					
	μg/l	45	16000	13900	14000	12600	12600					
Sulphate as SO ₄	mg/l	0.045	16	13.9	14	12.6	12.6					
Chloride	mg/l	0.15	670	650	750	810	820					
Nitrate as N	mg/l	0.01	0.06	0.13	0.06	0.05	0.11					
Nitrate as NO ₃	mg/l	0.05	0.27	0.59	0.27	0.21	0.48					
Chemical Oxygen Demand (Total)	mg/l	2	2900	1900	2100	2500	2200					
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	940	510	660	1200	500					
Redox Potential	mV	-800	52.6	30.2	189.5	-29.5	-22.60					
Dissolved Oxygen	mg/l	1	7.4	2.2	1.8	2.6	1.7					
						<u> </u>						
Speciated PAHs			 	<u> </u>		<u> </u>						
Naphthalene	μg/l	0.01	14.6	67.1	32.8	38.2	84.4					
						<u> </u>						
Heavy Metals / Metalloids		 	 	<u> </u>		<u> </u>						
Iron (dissolved)	mg/l	0.004	1.9	3.8	2.2	1.1	5.9					
Fe ²⁺	mg/l	0.2	< 0.20	1.29	0.28	1.04	2.12					
Fe ³⁺	mg/l	0.2	1.89	2.52	1.92	< 0.20	3.76					
Monoaromatics												
Benzene	μg/l	1	5.4	< 1.0	7.1	6.7	8.4					
Toluene	μg/l	1	131	19.3	112	134	201					
Ethylbenzene	μg/l	1	133	17.2	152	244	338					
p & m-xylene	μg/l	1	770	99.1	801	981	772					
o-xylene	μg/l	1	1110	180	1120	1110	964					
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
Petroleum Hydrocarbons												
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10	< 10	< 10	< 10	1400					
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10	< 10	< 10	< 10					
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10					
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10					
TPH-CWG - Aromatic >C5 - C7	μg/l	1	5.4	< 1.0	7.1	6.7	8.4					
TPH-CWG - Aromatic >C7 - C8	μg/l	1	130	19	110	130	200					
TPH-CWG - Aromatic >C8 - C10	μg/l	1	5700	980	8100	13000	9800					
TPH-CWG - Aromatic >C10 - C12	μg/l	10	1800	3600	4500	5600	17000					
TPH-CWG - Aromatic >C12 - C16	μg/l	10	340	610	3300	300	8000					
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10					
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10					
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	< 10	< 10	< 10	< 10	1400					
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	8000	5200	16000	19000	35000					
()	1.9	 	1			1222						
		+	†	1			1					
VOCs		+	†	†		1	†					
1,3,5-Trimethylbenzene	μg/l	1	947	114	1080	2520	< 1.0					
1,2,3-Trichloropropane	μg/l	1			< 1.0	< 1.0	< 1.0					
1,3,5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
Bromochloromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
Dichloromethane	μg/l	100	11000	180000	210000	31000	11000					
Carbon disulphide	μg/l	100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
		1			< 1.0 < 1.0							
Dichlorodifluoromethane	μg/l	+ '-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
		+	 	 	 	 	 					
Fording control Fording			 	<u> </u>	<u> </u>	 	 					
Environmental Forensics		+	<u> </u>									
		+	<u> </u>			 						
		1	•		1	1	i '					
Gases Methane	mg/l	0.1	14	16	17	18	21					

Project: Former Polycell Site

Document Title:

Analysis summary sheet for C2
2018 JFHR -

John F Hunt REMEDIATION

Borehole Rationale: 2018 JFHR - remediation grid

	remediation grid						
			Post Drill / Commission	Phase 1 Pump	Phase 2 Pump	Phase 2 Pump	Start Monitoring
Lab Sample Number			1011477	1024186	1038821	1043125	1047984
Sample Reference			C2	C2	C2	C2	C2
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled			27/07/2018	15/08/2018	04/09/2018	10/09/2018	18/09/2018
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
						тине обранов	тиско обранов
		Ω_					
Analytical Parameter	S	Limit of detection					
(Water Analysis)	Units	SE E					
		3 4					
General Inorganics							
Hq	pH Units	N/A	6.6	6.5	7.1	7.1	7.3
Sulphate as SO ₄	μg/l	45	13900	16800	51600	39800	49400
Sulphate as SO ₄	mg/l	0.045	13.9	16.8	51.6	39.8	49.4
Chloride	mg/l	0.15	470	450	470	500	490
Nitrate as N	mg/l	0.13	0.14	0.05	0.1	0.08	0.06
Nitrate as NO ₃							
	mg/l	0.05	0.6	0.21	0.43	0.37	0.27
Chemical Oxygen Demand (Total)	mg/l	2	630	400	690	390	220
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	95	U/S	400	130	< 1.0
Redox Potential	mV	-800	38.7	24	177.6	-75.1	29.40
Dissolved Oxygen	mg/l	1	3.6	9.3	< 1.0	1.3	6.2
Speciated PAHs							
Naphthalene	μg/l	0.01	534	66.9	128	191	73.8
1 1 1 1 1 1	r-o-	1	1 - 1				
Heavy Metals / Metalloids							
Iron (dissolved)	mg/l	0.004	3	6.3	1.8	0.52	0.057
Fe ²⁺	•		2.6	0.28			
	mg/l	0.2			< 0.20	< 0.20	< 0.20
Fe ³⁺	mg/l	0.2	0.42	6.05	1.84	0.4	< 0.20
Monoaromatics							
Benzene	μg/l	1	6.1	7.7	4.4	2.3	3.5
Toluene	μg/l	1	119	48.9	99.5	32.2	46.9
Ethylbenzene	μg/l	1	292	201	537	160	191
p & m-xylene	μg/l	1	1540	1330	3650	1360	778
o-xylene	μg/l	1	1500	1330	3860	1350	819
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	F-9··	+ -	1	1110	1110	1110	11.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
•	μg/l	1					
TPH-CWG - Aliphatic >C6 - C8	μg/l		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1 10	27	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	830	< 10	4700	800	240
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	110	< 10	790	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	6.1	7.7	4.4	2.3	3.5
TPH-CWG - Aromatic >C7 - C8	μg/l	1	120	49	100	32	47
TPH-CWG - Aromatic >C8 - C10	μg/l	1	17000	16000	140000	29000	12000
TPH-CWG - Aromatic >C10 - C12	μg/l	10	10000	1100	29000	19000	3300
TPH-CWG - Aromatic >C10 - C12 TPH-CWG - Aromatic >C12 - C16	μg/l	10	1300	55	540	1700	250
		_					
TPH-CWG - Aromatic > C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
		-					
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	970	< 10	5500	800	240
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	29000	17000	170000	50000	16000
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	2770	2340	34500	5900	2160
1,2,3-Trichloropropane	μg/l	1	=::-	==:-	< 1.0	< 1.0	< 1.0
1.3.5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
, ,		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane Diebleromethane	μg/l	_	< 1.0 7500	< 1.0 71000	< 1.0 15000	< 1.0 7100	
Dichloromethane Outloon disubstitute	μg/l	100					10000
Carbon disulphide	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Environmental Forensics							
Gases		1					
Methane	mg/l	0.1	19	20	23	21	16
modification to the state of th	mg/I	U. I	Ιΰ	20	25	۷.	10

Project:	Former Polycell Site			
i roject.	•			
Document Title:	Analysis summary sheet for C3 2018 JFHR -		ohn F I Emedia	
Borehole Rationale:	remediation grid			
			Post Drill	Start Monitoring
Lab Sample Number			1011478	1047985
Sample Reference			C3	C3
Sample Number			None Supplied	None Supplied
Depth (m) Date Sampled			None Supplied 27/07/2018	None Supplied 18/09/2018
Time Taken			None Supplied	None Supplied
Analysis of Donous stan	_	de L		
Analytical Parameter (Water Analysis)	Units	Limit of detection		
(1.4.6.7.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4	w.	g of		
General Inorganics pH	pH Units	N/A	6.4	6.8
Sulphate as SO ₄	μg/l	45	13200	29800
Sulphate as SO ₄	mg/l	0.045	13.2	29.8
Chloride	mg/l	0.15	690	490
Nitrate as N	mg/l	0.01	0.17	0.05
Nitrate as NO₃	mg/l	0.05	0.77	0.21
Chemical Oxygen Demand (Total)	mg/l	2	760	730
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	440	< 1.0
Redox Potential	mV	-800	18.9	-80.80
Dissolved Oxygen	mg/l	1	3.6	4.7
Speciated PAHs				
Naphthalene	μg/l	0.01	32	52.4
Heavy Metals / Metalloids		2 2 2 4		
Iron (dissolved)	mg/l	0.004	1.4	11
Fe ²⁺ Fe ³⁺	mg/l	0.2	1.3	10.5
Fe ⁻	mg/l	0.2	< 0.20	0.37
Managemetica				
Monoaromatics Benzene	μg/l	1	6.2	4.4
Toluene	μg/l	1	72.4	49.2
Ethylbenzene	μg/l	1	100	240
p & m-xylene	μg/l	1	666	1750
o-xylene	μg/l	1	1200	1810
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0
Petroleum Hydrocarbons				
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	< 1.0	210
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10	720
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	6.2	4.4
TPH-CWG - Aromatic >C5 - C7 TPH-CWG - Aromatic >C7 - C8	μg/l	1	72	4.4
TPH-CWG - Aromatic >C7 - C8 TPH-CWG - Aromatic >C8 - C10	μg/l	1	6600	32000
TPH-CWG - Aromatic >C10 - C12	μg/l	10	2200	3900
TPH-CWG - Aromatic >C12 - C16	μg/l	10	860	190
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	< 10	930
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	9700	36000
VOCs				
1,3,5-Trimethylbenzene	μg/l	1	901	5660
1,3,5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0
Bromochloromethane	μg/l	100	< 1.0	< 1.0
Dichloromethane	μg/l	100	10000	75000
Carbon disulphide	μg/l	1	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	< 1.0	< 1.0
Environmental Forensics				
Environmental Forensios		1		
Gases				
Methane	mg/l	0.1	23	13

Project: Former Polycell Site
Analysis summary

Document Title:

Sheet for C6

2018 JFHR
romediation grid

Methane

John F Hunt REMEDIATION

12

Borehole Rationale: remediation grid Post Drill / Commission Phase 1 Pump Phase 2 Pump Phase 2 Pump Start Monitoring Lab Sample Number 1009743 1024184 1038822 1043938 1049516 C6 C6 C6 C6 C6 Sample Reference None Supplied None Supplied Sample Number None Supplied None Supplied None Supplied Depth (m) None Supplied None Supplied None Supplied None Supplied None Supplied 12/09/2018 Date Sampled 03/09/2018 26/07/2018 14/08/2018 18/09/2018 Time Taken None Supplied None Supplied None Supplied None Supplied None Supplied Limit of detection **Analytical Parameter** (Water Analysis) General Inorganics pH Units N/A 6.6 6.4 6.5 6.4 6.4 Sulphate as SO₄ 8370 10300 7150 8820 45 8710 μg/l Sulphate as SO₄ 0.045 10.3 mg/l 8.7 8.4 7.2 8.8 Chloride mg/l 0.15 680 720 740 800 810 Nitrate as N 0.01 0.06 0.06 0.22 0.13 0.22 mg/l Nitrate as NO₃ mg/l 0.05 0.27 0.27 0.97 0.59 0.96 Chemical Oxygen Demand (Total) mg/l 2 1500 880 880 780 1200 1 280 260 430 BOD (Biochemical Oxygen Demand) (Total) - UK mg/l < 1.0 < 1.0 Redox Potential mV -800 66.4 23.3 193 33.6 -28.10 Dissolved Oxygen mg/l 2.3 9.2 1.1 Speciated PAHs Naphthalene μg/l 0.01 19.6 39.4 23.4 28.6 116 Heavy Metals / Metalloids mg/l 0.004 1.9 9.9 8.2 6.8 7.3 Iron (dissolved) Fe²⁺ 2.79 mg/l 0.2 0.66 3.1 4.2 2.66 mg/l 0.2 1.26 6.81 5.46 2.64 4.62 Monoaromatics 5.3 7.7 7.5 10.8 4.4 Benzene μg/l Toluene 68.4 138 83.5 68.6 95.9 μg/l 1 Ethylbenzene μg/l 1 89.1 144 220 140 149 p & m-xylene 1 502 856 1420 857 775 μg/l 1590 535 1970 1020 1 657 o-xylene μg/l MTBE (Methyl Tertiary Butyl Ether) μg/l 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 Petroleum Hydrocarbons TPH-CWG - Aliphatic >C5 - C6 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 μg/l TPH-CWG - Aliphatic >C6 - C8 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 μg/l TPH-CWG - Aliphatic >C8 - C10 μg/l 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 TPH-CWG - Aliphatic >C10 - C12 10 < 10 < 10 < 10 < 10 2300 μg/l TPH-CWG - Aliphatic >C12 - C16 10 < 10 μg/l < 10 < 10 < 10 < 10 TPH-CWG - Aliphatic >C16 - C21 μg/l 10 < 10 < 10 < 10 < 10 < 10 TPH-CWG - Aliphatic >C21 - C35 10 < 10 < 10 < 10 < 10 < 10 μg/l TPH-CWG - Aromatic >C5 - C7 μg/l 1 5.3 7.7 7.5 11 4.4 TPH-CWG - Aromatic >C7 - C8 96 140 69 1 68 84 μg/l TPH-CWG - Aromatic >C8 - C10 4300 5500 17000 6300 11000 μg/l 1 TPH-CWG - Aromatic >C10 - C12 μg/l 10 1700 1900 6700 3100 31000 10 3000 TPH-CWG - Aromatic >C12 - C16 < 10 210 1200 7200 μg/l TPH-CWG - Aromatic >C16 - C21 10 < 10 < 10 μg/l < 10 < 10 < 10 TPH-CWG - Aromatic >C21 - C35 10 < 10 < 10 < 10 < 10 < 10 μg/l TPH-CWG - Aliphatic (C5 - C35) 10 < 10 < 10 < 10 < 10 2300 μg/l TPH-CWG - Aromatic (C5 - C35) 10 6100 7700 27000 11000 49000 μg/l VOCs 1,3,5-Trimethylbenzene 1030 684 2850 705 4570 1,2,3-Trichloropropane 1 < 1.0 < 1.0 < 1.0 μg/l < 1.0 < 1.0 1,3,5-Trichlorobenzene μg/l 1 < 1.0 < 1.0 < 1.0 Bromochloromethane < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 μg/l Dichloromethane 100 9200 110000 250000 30000 4800 μg/l Carbon disulphide < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 Dichlorodifluoromethane 1 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 μg/l **Environmental Forensics**

mg/l

0.1

13

15

Former Polycell Site Project:

Analysis summary sheet for C7 2018 JFHR -Document Title:

John F Hunt REMEDIATION

Borehole Rationale:

Borehole Rationale:	remediation grid						
			Post Drill / Commission	Phase 1 Pump	Phase 2 Pump	Phase 2 Pump	Start Monitoring
Lab Sample Number			1009744	1024183	1038823	1043937	1049517
Sample Reference Sample Number			C7	C7	C7 None Supplied	C7	C7
Depth (m)			None Supplied None Supplied	None Supplied None Supplied	None Supplied None Supplied	None Supplied None Supplied	None Supplied None Supplied
Date Sampled			26/07/2018	14/08/2018	03/09/2018	12/09/2018	18/09/2018
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
		de L					
Analytical Parameter	Units	tect					
(Water Analysis)	ίν ·	Limit of detection					
General Inorganics		N1/A	0.0	0.4	0.0	0.4	0.5
pH Sulphata as SO	pH Units	N/A	6.6	6.4	6.6	6.4	6.5
Sulphate as SO ₄ Sulphate as SO ₄	μg/l	45	4130	5470 5.5	9290	7820 7.8	7760 7.8
Chloride	mg/l mg/l	0.045 0.15	4.1 730	760	9.3 770	7.8 810	830
Nitrate as N	mg/l	0.13	0.05	0.04	0.1	0.11	0.17
Nitrate as NO ₃	mg/l	0.05	0.22	0.16	0.43	0.48	0.75
Chemical Oxygen Demand (Total)	mg/l	2	1300	930	970	730	990
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	< 1.0	210	330	< 1.0	300
Redox Potential	mV	-800	74.3	37.9	196.3	42.9	-9.80
Dissolved Oxygen	mg/l	1	7.2	2.1	2.4	8.5	1.4
		<u> </u>					
Speciated PAHs							
Naphthalene	μg/l	0.01	14.9	48.3	25.2	26.5	62.4
Heavy Metals / Metalloids							
Iron (dissolved)	mg/l	0.004	0.72	3.9	2.3	3.8	3.8
Fe ²⁺	mg/l	0.2	< 0.20	0.77	0.72	2.4	1.99
Fe ³⁺	mg/l	0.2	0.68	3.1	1.55	1.4	1.86
	, i			-			
Monoaromatics							
Benzene	μg/l	1	16.9	7.3	7.7	16	6.1
Toluene	μg/l	1	182	87.5	128	148	102
Ethylbenzene	μg/l	1	137	139	173	271	189
p & m-xylene	μg/l	1	920	879	794	1690	766
o-xylene	μg/l	1	939	1040	1200	2140	991
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons		1					
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
TRU 01/10 1 1 0 0 0 0			47	7.0		10	0.4
TPH-CWG - Aromatic >C5 - C7 TPH-CWG - Aromatic >C7 - C8	μg/l	1	17	7.3 88	7.7	16 150	6.1
TPH-CWG - Aromatic >C7 - C8 TPH-CWG - Aromatic >C8 - C10	μg/l	1	180 6200	11000	130 11000	1500	100 7900
TPH-CWG - Aromatic >C8 - C10 TPH-CWG - Aromatic >C10 - C12	μg/l μg/l	10	1700	3800	5800	3000	8600
TPH-CWG - Aromatic >C12 - C16	μg/l	10	50	68	890	720	3300
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	8200	15000	17000	19000	20000
VOCs		+					
1,3,5-Trimethylbenzene	μg/l	1	923	1700	1590	2110	1750
1,2,3-Trichloropropane	μg/l	1	525		< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	33000	140000	310000	36000	9300
Carbon disulphide	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
		1					
Environmental Environina		+					
Environmental Forensics		+					
Gases		+					
Methane	mg/l	0.1	17	18	7.2	22	18
							-

Project: Former Polycell Site
Analysis summary

Document Title:

Borehole Rationale:

Analysis summary sheet for D2
2018 JFHR - remediation grid

John F Hunt REMEDIATION

Borehole Rationale:	2018 JFHR - remediation grid						
			Post Drill / Commission	Phase 1 Pump	Phase 2 Pump	Phase 2 Pump	Start Monitoring
Lab Sample Number			1009745	1023053	1038824	1043124	1047983
Sample Reference			D2	D2	D2	D2	D2
Sample Number			None Supplied				
Depth (m) Date Sampled			None Supplied 26/07/2018	None Supplied 13/08/2018	None Supplied 04/09/2018	None Supplied 10/09/2018	None Supplied 18/09/2018
Time Taken			None Supplied				
					.,		
Analytical Parameter (Water Analysis)	Units	Limit of detection					
General Inorganics							
pH	pH Units	N/A	6.8	6.6	7	6.8	6.8
Sulphate as SO ₄	μg/l	45	8160	17500	41700	17200	40800
Sulphate as SO ₄	mg/l	0.045	8.2	17.5	41.7	17.2	40.8
Chloride Nitrate as N	mg/l	0.15 0.01	380 < 0.01	480 0.05	440 0.07	420 0.07	390
Nitrate as N Nitrate as NO ₃	mg/l mg/l	0.01	< 0.01 < 0.05	0.05	0.07	0.07	0.06 0.27
Chemical Oxygen Demand (Total)	mg/l	2	420	180	390	240	290
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	< 1.0	46	120	46	< 1.0
Redox Potential	mV	-800	91.2	33.9	166.9	-31.4	-32.80
Dissolved Oxygen	mg/l	1	7	1.1	1.5	1.3	5.4
Speciated PAHs							
Naphthalene	μg/l	0.01	13.4	74.9	12.1	51.4	67.7
Heavy Metals / Metalloids							
Iron (dissolved)	mg/l	0.004	0.051	1.8	0.16	0.048	1.4
Fe ²⁺ Fe ³⁺	mg/l mg/l	0.2	< 0.20 < 0.20	1.77 < 0.20	< 0.20 < 0.20	< 0.20 < 0.20	1.25
16	- Ing/i	0.2	V 0.20	< 0.20	< 0.20	₹ 0.20	< 0.20
Monoaromatics							
Benzene	μg/l	1	10.1	16.5	10.7	8.9	12.2
Toluene Ethylbenzene	μg/l μg/l	1 1	33.5 79.1	40.4 157	41.7 183	36.6 117	32.7 163
p & m-xylene	μg/l	1	483	1030	859	936	917
o-xylene	μg/l	1	491	854	863	758	482
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 TPH-CWG - Aliphatic >C8 - C10	μg/l μg/l	1	< 1.0 < 1.0	< 1.0 77	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10	< 10	< 1.0	< 10	310
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	10	17	11	8.9	12
TPH-CWG - Aromatic >C7 - C8	μg/l	1	34	40	42	37	33
TPH-CWG - Aromatic >C8 - C10 TPH-CWG - Aromatic >C10 - C12	μg/l μg/l	10	4800 1300	20000 8000	14000 5600	9400 6800	9300 3800
TPH-CWG - Aromatic >C10 - C12 TPH-CWG - Aromatic >C12 - C16	μg/l μg/l	10	86	630	990	1600	250
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	< 10	77	< 10	< 10	310
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	6200	28000	20000	18000	13000
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	1020	3860	2130	1510	1610
1,2,3-Trichloropropane	μg/l	1			< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane Dichloromethane	μg/l μg/l	100	< 1.0 9900	< 1.0 27000	< 1.0 130000	< 1.0 18000	< 1.0 35000
Carbon disulphide	μg/l μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Environmental Forensics							
Conne							
Gases Methane	mg/l	0.1	18	14	> 25	25	14
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Project: Former Polycell Site
Analysis summary

Document Title:

Borehole Rationale:

Analysis summary sheet for D4
2018 JFHR -

John F Hunt REMEDIATION

Borehole Rationale:	2018 JFHR -						
	remediation grid	<u> </u>				1	1
			Post Drill / Commission	Phase 1 Pump	Phase 2 Pump	Phase 2 Pump	Start Monitoring
Lab Sample Number			1009746	1023052	1038829	1043940	1049518
Sample Reference			D4	D4	D4	D4	D4
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled Time Taken			26/07/2018	13/08/2018	04/09/2018	12/09/2018	19/09/2018
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
		<u> </u>					
Analytical Parameter	Units	Limit of detection					
(Water Analysis)	ថ	tion					
General Inorganics							
pH Sulphata as SO	pH Units	N/A	6.6	6.6	6.9	6.8	6.7
Sulphate as SO ₄ Sulphate as SO ₄	μg/l mg/l	45 0.045	10700 10.7	15200 15.2	37500 37.5	28200 28.2	24300 24.3
Chloride	mg/l	0.043	520	510	410	410	640
Nitrate as N	mg/l	0.01	< 0.01	0.08	0.11	0.08	0.08
Nitrate as NO ₃	mg/l	0.05	< 0.05	0.38	0.48	0.37	0.37
Chemical Oxygen Demand (Total)	mg/l	2	440	160	160	170	420
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	< 1.0	52	84	< 1.0	U/S
Redox Potential	mV	-800	66.4	22.1	157.5	25.3	-69.90
Dissolved Oxygen	mg/l	1	5.5	1.9	2.3	6.8	4.0
Speciated PAHs		+					1
Naphthalene	μg/l	0.01	13.9	35.3	48.5	40.7	68.7
·	1,0						
Heavy Metals / Metalloids							
Iron (dissolved)	mg/l	0.004	2.1	5.4	8.7	7.2	12
Fe ²⁺	mg/l	0.2	1.27	5.4	1.08	1.7	1.86
Fe ³⁺	mg/l	0.2	0.83	< 0.20	7.63	5.52	10.6
Monoaromatics							
Benzene	μg/l	1	5.1	3.2	3.2	2.1	1.7
Toluene	μg/l	1	34.5	28	67	20.1	23.6
Ethylbenzene	μg/l	1	80.5	55.7	171	78.3	112
p & m-xylene	μg/l	1	523	473	1050	562	844
o-xylene	μg/l	1	738	730	1390	648	1080
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons		+					
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10	< 10	< 10	< 10	190
TPH-CWG - Aliphatic >C12 - C16 TPH-CWG - Aliphatic >C16 - C21	μg/l μg/l	10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
THE STEE THE PROPERTY OF THE P	F-0'						
TPH-CWG - Aromatic >C5 - C7	μg/l	1	5.1	3.2	3.2	2.1	1.7
TPH-CWG - Aromatic >C7 - C8	μg/l	1	35	28	67	20	24
TPH-CWG - Aromatic >C8 - C10	μg/l	1	5500	8300	13000	9000	12000
TPH-CWG - Aromatic > C10 - C12	μg/l	10	1100	3600 750	5700 650	4100 450	6100
TPH-CWG - Aromatic >C12 - C16 TPH-CWG - Aromatic >C16 - C21	μg/l μg/l	10	200 < 10	750 < 10	650 < 10	450 < 10	1400 < 10
TPH-CWG - Aromatic >C16 - C21 TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
	L.O.						<u> </u>
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	< 10	< 10	< 10	< 10	190
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	6900	13000	19000	14000	20000
		+					1
VOCs		+					
1,3,5-Trimethylbenzene	μg/l	1	1080	1600	2070	1350	5320
1,2,3-Trichloropropane	μg/l	1			< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1 100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	8400	12000 < 1.0	15000 < 1.0	6800 < 1.0	3500
Carbon disulphide Dichlorodifluoromethane	μg/l μg/l	1	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0	< 1.0 < 1.0
2.3orodinacromotriano	H9/1	+ '-	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	× 1.0	· 1.0	× 1.0	` 1.0
		<u> </u>					
Environmental Forensics							
			ļ				ļ
Gases	-	0.1	10	10	24	00	17
Methane	mg/l	0.1	19	18	24	20	17

Former Polycell Site Project:

Analysis summary sheet for D5 2018 JFHR -Document Title:

John F Hunt REMEDIATION

Borehole Rationale:	remediation grid						
	- comediation give		Post Drill / Commission	Phase 1 Pump	Phase 2 Pump	Phase 2 Pump	Start Monitoring
Lab Sample Number			1009747	1023051	· ·	· ·	1049519
Sample Reference		+	D5	D5	1038825 D5	1043939 D5	D5
Sample Number		+	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)		+	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled		+	26/07/2018	13/08/2018	Deviating	12/09/2018	18/09/2018
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
			1.	- ''	''	1.	''
		e L					
Analytical Parameter	Units	Limit of detection					
(Water Analysis)	ळ	gi of					
General Inorganics							
pH	pH Units	N/A	6.8	6.5	6.7	6.7	6.6
Sulphate as SO ₄	μg/l	45	15200	11100	24900	11800	9960
Sulphate as SO ₄	mg/l	0.045	15.2	11.1	24.9	11.8	10.0
Chloride	mg/l	0.15	610	710	570	460	610
Nitrate as N	mg/l	0.01	0.02	0.1	0.13	0.1	0.11
Nitrate as NO ₃	mg/l	0.05	0.11	0.43	0.59	0.43	0.48
Chemical Oxygen Demand (Total)	mg/l	2	430	360	420	180	420
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	< 1.0	49	160	< 1.0	100
Redox Potential	mV	-800	68.3	18.9	179.9	34.6	-57.40
Dissolved Oxygen	mg/l	1	5.9	6.2	2.3	8.2	1.5
Speciated PAHs		<u> </u>					
Naphthalene	μg/l	0.01	6.24	24.3	41.7	25.1	41.5
Hoons Motole / Matellaida		+				<u> </u>	
Heavy Metals / Metalloids Iron (dissolved)		0.004	0.65	6.4	8.2	4.1	8.6
Fe ²⁺	mg/l						
Fe ³⁺	mg/l	0.2	0.24	6.2	1.17	1.4	1.92
Fe	mg/l	0.2	0.41	0.22	6.99	2.67	6.66
Monoaromatics		+				-	
Benzene	μg/l	1	4.1	6.1	13.5	6.6	2.7
Toluene	μg/l	1	28.3	26.1	91.4	27.7	28.3
Ethylbenzene	μg/l	1	48.8	52.2	258	85.9	70.0
p & m-xylene	μg/l	1	291	385	1530	558	441
o-xylene	μg/l	1	336	529	1870	647	511
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
With the control of t		+	V 1.0	V 1.0	V 1.0	V 1.0	V 1.0
Petroleum Hydrocarbons							
•							
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	< 10	< 10	< 10	< 10	140
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	4.1	6.1	14	6.6	2.7
TPH-CWG - Aromatic >C7 - C8	μg/l	1	28	26	91	28	28
TPH-CWG - Aromatic >C8 - C10	μg/l	1	2900	4800	22000	8100	4200
TPH-CWG - Aromatic >C10 - C12	μg/l	10	800	2600	8900	2400	10000
TPH-CWG - Aromatic >C12 - C16	μg/l	10	97	760	1400	850	2400
TPH-CWG - Aromatic >C16 - C21	μg/l	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	< 10	< 10	< 10	< 10	< 10
		 					
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	< 10	< 10	< 10	< 10	140
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	3800	8300	32000	11000	17000
		+	+			 	
VOCs		+	+			 	
1,3,5-Trimethylbenzene	μg/l	1	504	797	3870	1240	814
1,2,3-Trichloropropane	μg/l	1	507	101	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	9400	12000	56000	14000	3800
Carbon disulphide	μg/Ι	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/Ι	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	L.a.,	† 	1			1	1
		1					
		1					
Environmental Forensics							
Environmental Forensics							
Environmental Forensics Gases					21	17	23



Wheat Quarter Limited

Remediation Verification and Long-term Monitoring Plan (Southern Area)

Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK

Groundwater

1st June 2018

016-1512 Revision 00 October 2018





Jennifer Russell

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Analytical Report Number: 18-88733

Replaces Analytical Report Number: 18-88733, issue no. 1

Project / Site name: Former Polycell Site Samples received on: 12/06/2018

Your job number: Samples instructed on: 12/06/2018

Your order number: R-1339-7909-1005 Analysis completed by: 06/07/2018

Report Issue Number: 2 **Report issued on:** 06/07/2018

Samples Analysed: 5 water samples

Signed:

Jordan Hill Reporting Manager

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7909-1005								
Lab Sample Number				980101	980102	980103	980104	980105
Sample Reference				BH01-17	BH03-17	BH02-17	BH06d-17	BH05d-17
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				11/06/2018	11/06/2018	11/06/2018	11/06/2018	12/06/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
Sulphate as SO ₄	μg/l	45	ISO 17025	11000	263000	9120	6070	32200
Sulphate as SO ₄	mg/l	0.045	ISO 17025	11.0	263	9.1	6.1	32.2
Chloride	mg/l	0.15	ISO 17025	400	260	1300	130	180
Nitrate as N	mg/l	0.01	ISO 17025	0.13	0.10	0.08	0.11	0.12
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.58	0.42	0.37	0.48	0.53
Redox Potential	mV	-800	NONE	9.40	35.10	21.40	15.10	23.90
Dissolved Oxygen	mg/l	1	NONE	1.5	1.7	2.0	1.9	3.1
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	62.3	5.69	11.7	2.11	1.30
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	21	3.6	20	4.6	3.6
Fe ²⁺	mg/l	0.2	NONE	14.9	3.59	6.35	4.51	3.55
Fe ³⁺	mg/l	0.2	NONE	6.15	< 0.20	13.9	< 0.20	< 0.20
Monoaromatics								
Benzene	μg/l	1	ISO 17025	6.5	< 1.0	< 1.0	1.5	< 1.0
Toluene	μg/l	1	ISO 17025	63.9	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	μg/l	1	ISO 17025	119	5.1	25.9	< 1.0	2.2
p & m-xylene	μg/l	1	ISO 17025	760	299	223	4.5	2.5
o-xylene	μg/l	1	ISO 17025	668	16.2	202	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	6.5	< 1.0	< 1.0	1.5	< 1.0
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	64	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	4700	1500	3400	70	< 1.0
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	7300	2100	1600	300	130
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	860	< 10	51	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
			_					
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	13000	3600	5000	370	130





Your Order No: R-1339-7909-1005

Lab Sample Number				980101	980102	980103	980104	980105
Sample Reference				BH01-17	BH03-17	BH02-17	BH06d-17	BH05d-17
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Date Sampled				11/06/2018	11/06/2018	11/06/2018	11/06/2018	12/06/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	665	270	564	31.3	11.9
Dichloromethane	ug/l	100	NONE	< 100	< 100	40000	< 100	< 100

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	17	0.9	0.7	4.4	4.8

 $\label{eq:U/S} \text{U/S} = \text{Unsuitable Sample} \qquad \text{I/S} = \text{Insufficient Sample}$





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE
			_		

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH01-17		W	18-88733	980101	С	Dissolved Oxygen in water	L086-PL	С
BH02-17		W	18-88733	980103	С	Dissolved Oxygen in water	L086-PL	С
BH03-17		W	18-88733	980102	С	Dissolved Oxygen in water	L086-PL	С
BH06d-17		W	18-88733	980104	С	Dissolved Oxygen in water	L086-PL	С



Wheat Quarter Limited

Remediation Verification and Long-term Monitoring Plan (Southern Area)

Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK

Groundwater

2nd July 2018

016-1512 Revision 00 October 2018





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-93676

Project / Site name: Former Polycell Site Samples received on: 24/07/2018

Your job number: Samples instructed on: 24/07/2018

Your order number: 12-1339-7909-1005 **Analysis completed by:** 31/07/2018

Report Issue Number: 1 Report issued on: 31/07/2018

Samples Analysed: 3 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: 12-1339-7909-1005				1007500	1007500	1007600	г г	
Lab Sample Number				1007598	1007599	1007600		
Sample Reference				BH06d-17	BH05d-17	BH03-17		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				23/07/2018	23/07/2018	23/07/2018		
Time Taken	1	1		None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.1	7.0	6.8		
Sulphate as SO ₄	μg/l	45	ISO 17025	1860	93700	232000		
Sulphate as SO ₄	mg/l	0.045	ISO 17025	1.9	93.7	232		
Chloride	mg/l	0.15	ISO 17025	100	68	280		
Nitrate as N	mg/l	0.01	ISO 17025	0.05	3.52	0.07		
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.22	15.6	0.33		
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	15	41	44		
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	1.7	< 1.0	1.5		
Redox Potential	mV	-800	NONE	62.40	117.20	-62.60		
Dissolved Oxygen	mg/l	1	NONE	7.6	7.2	3.5		
Dissolved Oxygen	1119/1		HOHL	7.0	7.2	3.3		
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	0.82	< 0.01	19.6		
парпашене	P9/1	0.01	150 17025	0.02	1 0.01	15.0		
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	1.6	0.018	0.005		
Fe ²⁺	mg/l	0.2	NONE	< 0.20	< 0.20	< 0.20		
Fe ³⁺	mg/l	0.2	NONE	1.59	< 0.20	< 0.20		
10	ilig/i	0.2	NONE	1.55	₹ 0.20	₹ 0.20	1	
Monoaromatics								
Benzene	μg/l	1	ISO 17025	2.2	< 1.0	< 1.0		
Toluene	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	μg/l	1	ISO 17025	5.1	< 1.0	87.9		
p & m-xylene	μg/l	1	ISO 17025	2.4	< 1.0	376		
o-xylene	μg/l	1	ISO 17025	< 1.0	< 1.0	6.2		
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10		·
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10		
	1							
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	2.2	< 1.0	< 1.0		
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	39	< 1.0	4100		
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	54	< 10	920		
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	64	< 10	100		
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	<u> </u>	
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	160	< 10	5100		
	1731							





Your Order No: 12-1339-7909-1005

10di 01dci 110. 12 1333 7303 1003							
Lab Sample Number	•		·	1007598	1007599	1007600	
Sample Reference				BH06d-17	BH05d-17	BH03-17	
Sample Number				None Supplied	None Supplied	None Supplied	
Depth (m)	Depth (m)						
Date Sampled							
Time Taken				None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis) Accreditation Status Units Units							
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	4.7	< 1.0	870	
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
Dichloromethane	μg/l	100	NONE	< 100	< 100	< 100	
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	

Environmental Forensics

Gases							
Methane	mg/l	0.1	NONE	< 0.1	< 0.1	0.2	

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B	L086A-UK	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH03-17		W	18-93676	1007600	С	Biological oxygen demand (total) of water	L086A-UK	С
BH03-17		W	18-93676	1007600	С	Dissolved Oxygen in water	L086-PL	С
BH05d-17		W	18-93676	1007599	С	Biological oxygen demand (total) of water	L086A-UK	С
BH05d-17		W	18-93676	1007599	С	Dissolved Oxygen in water	L086-PL	С
BH06d-17		W	18-93676	1007598	С	Biological oxygen demand (total) of water	L086A-UK	С
BH06d-17		W	18-93676	1007598	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
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WD18 8YS



Analytical Report Number: 18-93862

Project / Site name: Former Polycell Site Samples received on: 25/07/2018

Your job number: Samples instructed on: 25/07/2018

Your order number: Analysis completed by: 01/08/2018

Report Issue Number: 1 **Report issued on:** 01/08/2018

Samples Analysed: 3 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Lab Sample Number				1008596	1008597	1008598	
Sample Reference				BH02-17	BH31/RW31	A6	
Sample Number				None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	
Date Sampled				25/07/2018	25/07/2018	25/07/2018	
Time Taken				None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
General Inorganics							
рН	pH Units	N/A	ISO 17025	6.6	6.7	6.6	
Sulphate as SO ₄	μg/l	45	ISO 17025	80200	10900	18500	
Sulphate as SO ₄	mg/l	0.045	ISO 17025	80.2	10.9	18.5	
Chloride	mg/l	0.15	ISO 17025	400	200	330	
Nitrate as N	mg/l	0.13	ISO 17025	0.04	< 0.01	< 0.01	
Nitrate as NO ₃	mg/l	0.01	ISO 17025	0.16	< 0.05	< 0.05	
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	110	150	290	
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	1.2	< 1.0	< 1.0	
Redox Potential		-800	NONE	-33.20	-50.00	-35.60	
Dissolved Oxygen	mV mg/l	-800 1	NONE	3.0	2.0	3.8	
Dissolved Oxygen	mg/l	1	INUNE	3.0	۷.۷	٥.٥	
Speciated PAHs							
Naphthalene	//	0.01	ISO 17025	F 20	12.0	21.2	
Naphunalene	μg/l	0.01	150 17025	5.38	12.9	31.2	
Heavy Metals / Metalloids							
Iron (dissolved)	mg/l	0.004	ISO 17025	4.9	2.3	2.9	
Fe ²⁺	mg/l	0.2	NONE	< 0.20	< 0.20	< 0.20	
Fe ³⁺	mg/l	0.2	NONE	4.78	2.23	2.95	
Monoaromatics			I	1.0	1.0	1.0	
Benzene	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
Toluene	μg/l	1	ISO 17025	< 1.0	19.8	31.4	
Ethylbenzene	μg/l	1	ISO 17025	< 1.0	< 1.0	49.3	
p & m-xylene	μg/l	1	ISO 17025	29.5	58.9	1090	
o-xylene	μg/l	1	ISO 17025	39.8	1310	1670	
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	
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TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025		< 1.0	< 1.0	
TPH-CWG - Aromatic > C7 - C8	μg/l	1	ISO 17025	< 1.0	20	31	
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	910	2100	6800	
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	1100	1200	1300	
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	25	120	100	
TPH-CWG - Aromatic > C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	
							,
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	2100	3400	8200	





							1	
Lab Sample Number				1008596	1008597	1008598		
Sample Reference				BH02-17	BH31/RW31	A6		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled		25/07/2018	25/07/2018	25/07/2018				
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis) Accreditation Status Units Units								
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0		
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dichloromethane	μg/l	100	NONE	< 100	< 100	< 100		
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0		
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0		

Environmental Forensics

Gases							
Methane	mg/l	0.1	NONE	0.4	7.7	2.1	

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B	L086A-UK	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.





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i2 Analytical Ltd.
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WD18 8YS



Analytical Report Number: 18-94058

Project / Site name: Former Polycell Site **Samples received on:** 26/07/2018

Your job number: Samples instructed on: 26/07/2018

Your order number: Analysis completed by: 03/08/2018

Report Issue Number: 1 **Report issued on:** 03/08/2018

Samples Analysed: 6 water samples



Jordan Hill Reporting Manager

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Lab Sample Number				1009742	1009743	1009744	1009745	1009746
Sample Reference				B6	C6	C7	D2	D4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				25/06/2018	26/07/2018	26/07/2018	26/07/2018	26/07/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
рН	pH Units	N/A	ISO 17025	6.7	6.6	6.6	6.8	6.6
Sulphate as SO ₄	μg/l	45	ISO 17025	16000	8710	4130	8160	10700
Sulphate as SO ₄	mg/l	0.045	ISO 17025	16.0	8.7	4.1	8.2	10.7
Chloride	mg/l	0.15	ISO 17025	670	680	730	380	520
Nitrate as N	mg/l	0.01	ISO 17025	0.06	0.06	0.05	< 0.01	< 0.01
Nitrate as NO ₃	mg/l	0.01	ISO 17025	0.27	0.00	0.22	< 0.05	< 0.05
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	2900	1500	1300	420	440
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	940	-	-	-	-
BOD (Biochemical Oxygen Demand) (Total) - PE BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	-	< 1.0	< 1.0	< 1.0	< 1.0
Redox Potential	mV	-800	NONE	52.60	66.40	74.30	91.20	66.40
Dissolved Oxygen	mg/l	1	NONE	7.4	6.3	74.30	7.0	5.5
Dissolved Oxygen	mg/i		NONL	7.1	0.5	7.2	7.0	5.5
Speciated PAHs								T
Naphthalene	μg/l	0.01	ISO 17025	14.6	19.6	14.9	13.4	13.9
Harris Markelle / Markelle I.d.								
Heavy Metals / Metalloids		0.004	700 47005	1.0	1.0	0.72	0.051	2.1
Iron (dissolved)	mg/l	0.004	ISO 17025	1.9	1.9	0.72	0.051	2.1
Fe ²⁺ Fe ³⁺	mg/l	0.2	NONE	< 0.20	0.66	< 0.20	< 0.20	1.27
Fe ^s	mg/l	0.2	NONE	1.89	1.26	0.68	< 0.20	0.83
Monoaromatics								
	/1	1	ISO 17025	5.4	5.3	16.9	10.1	5.1
Benzene	μg/l	1	ISO 17025		68.4			
Toluene Ethylbenzene	μg/l	1	ISO 17025	131 133	89.1	182 137	33.5 79.1	34.5 80.5
p & m-xylene	μg/l	1	ISO 17025	770	502	920	483	523
	μg/l	1	ISO 17025	1110		939	491	738
o-xylene	μg/l				535			
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	5.4	5.3	17	10	5.1
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	130	68	180	34	35
TPH-CWG - Aromatic > C8 - C10	μg/l	1	ISO 17025	5700	4300	6200	4800	5500
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	1800	1700	1700	1300	1100
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	340	< 10	50	86	200
TPH-CWG - Aromatic >C12 - C10	μg/I	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/I	10	NONE	< 10	< 10	< 10	< 10	< 10
•		•		•		•	•	•
TPH-CWG - Aliphatic (C5 - C35)	/!	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Ariphatic (C5 - C35)	μg/l	10	NONE NONE	8000	6100	8200	6200	6900
ciro Alomade (co - coo)	μg/l	10	NONL	0000	0100	0200	0200	0,00





Lab Sample Number				1009742	1009743	1009744	1009745	1009746
Sample Reference				B6	C6	C7	D2	D4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				25/06/2018	26/07/2018	26/07/2018	26/07/2018	26/07/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	947	1030	923	1020	1080
1,3,5-Trichlorobenzene	μg/l	11	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	NONE	11000	9200	33000	9900	8400
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	14	13	17	18	19

U/S = Unsuitable Sample I/S = Insufficient Sample





Lab Sample Number				1009747			
Sample Reference				D5			
Sample Number				None Supplied	1	İ	
Depth (m)				None Supplied			
Date Sampled				26/07/2018			
Time Taken				None Supplied			
			,				
		2 ∟	Accreditation Status				
Analytical Parameter	Units	Limit of detection	creditati Status				
(Water Analysis)	द्ध	tio of	tus				
		5 7	9				
			_				
General Inorganics							
pH	pH Units	N/A	ISO 17025	6.8			
Sulphate as SO ₄	μg/l	45	ISO 17025	15200			
Sulphate as SO ₄	mg/l	0.045	ISO 17025	15.2			
Chloride	mg/l	0.15	ISO 17025	610			
Nitrate as N		0.13	ISO 17025	0.02			
Nitrate as NO ₃	mg/l mg/l	0.01	ISO 17025	0.02	1		
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	430	1		
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l mg/l	1	ISO 17025 ISO 17025	- 430	1	1	
BOD (Biochemical Oxygen Demand) (Total) - PL BOD (Biochemical Oxygen Demand) (Total) - UK		1	ISO 17025 ISO 17025	< 1.0	 	 	
Redox Potential	mg/l mV	-800	NONE	68.30	1		
Dissolved Oxygen	my mg/l	-800 1	NONE	5.9	 	 	
Dissolved Oxygen	mg/i	1	NONE	5.9			
Speciated PAHs							
Naphthalene	μg/l	0.01	ISO 17025	6.24	I	I	
парпинане	μу/і	0.01	130 17023	0.24			
Heavy Metals / Metalloids							
Iron (dissolved)	mg/l	0.004	ISO 17025	0.65	ı	I	
Fe ²⁺	mg/l	0.004	NONE	0.24			
Fe ³⁺	mg/l	0.2	NONE	0.41			
ıe	IIIg/I	0.2	NONE	0.41		<u> </u>	
Monoaromatics							
Benzene	μg/l	1	ISO 17025	4.1			
Toluene	μg/I	1	ISO 17025	28.3			
Ethylbenzene	μg/I	1	ISO 17025	48.8			
p & m-xylene	μg/I	1	ISO 17025	291			
o-xylene	μg/I	1	ISO 17025	336			
MTBE (Methyl Tertiary Butyl Ether)	μg/I	1	ISO 17025	< 1.0			
PITDL (Mediyi Terdary Butyi Liner)	μ9/1		130 17023	V 1.0			
Petroleum Hydrocarbons							
i ca olculii riyurocarbons							
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	1		
TPH-CWG - Aliphatic >C6 - C8	μg/I μg/I	1	ISO 17025	< 1.0	1	1	†
TPH-CWG - Aliphatic >C8 - C10	μg/I μg/I	1	ISO 17025	< 1.0	1		
TPH-CWG - Aliphatic >C10 - C12	μg/I μg/I	10	NONE	< 1.0	1		
TPH-CWG - Aliphatic >C10 - C12 TPH-CWG - Aliphatic >C12 - C16	μg/I μg/I	10	NONE	< 10	1	1	
TPH-CWG - Aliphatic >C12 - C16 TPH-CWG - Aliphatic >C16 - C21	μg/I μg/I	10	NONE	< 10	1		
TPH-CWG - Aliphatic >C16 - C21 TPH-CWG - Aliphatic >C21 - C35		10		< 10			
TELL-CAAG - WIIhlianc >CST - COS	μg/l	10	NONE	\ 10	1	I	ı
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	4.1	I	I	I
TPH-CWG - Aromatic >C3 - C7 TPH-CWG - Aromatic >C7 - C8	μg/I μg/I	1	ISO 17025	28	†	1	
TPH-CWG - Aromatic >C8 - C10	μg/I	1	ISO 17025	2900	1		
TPH-CWG - Aromatic >Ct0 - C12	μg/I μg/I	10	NONE	800	1		
TPH-CWG - Aromatic >C10 - C12	μg/I	10	NONE	97			
TPH-CWG - Aromatic >C12 - C10 TPH-CWG - Aromatic >C16 - C21	μg/I	10	NONE	< 10	1	1	
TPH-CWG - Aromatic >C16 - C21 TPH-CWG - Aromatic >C21 - C35	μg/I μg/I	10	NONE	< 10	 	 	
Titl Gwa - Alollidic >C21 - C3	μ9/1	10	NONE	, 10	1	I	ľ
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	1		
TPH-CWG - Ariphatic (C5 - C35)	μg/I μg/I	10	NONE	3800		 	
cire Aromade (co coo)	µ9/1	10	HONL	3300	L	1	I.





Lab Camada Namaban				1000747	1	1	1
Lab Sample Number				1009747			
Sample Reference				D5			
Sample Number				None Supplied			
Depth (m)				None Supplied			
Date Sampled				26/07/2018			
Time Taken				None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	504			
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0		I	
Bromochloromethane							
	μg/l	1	ISO 17025	< 1.0			
Dichloromethane	μg/l	100	NONE	9400			
Carbon disulphide	μg/l	1	NONE	< 1.0			
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0			

Environmental Forensics

Gases						
Methane	mg/l	0.1	NONE	17		

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B	L086A-UK	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
B6		W	18-94058	1009742	С	BTEX and MTBE in water (Monoaromatics)	L073B-PL	С
B6		W	18-94058	1009742	С	Biological oxygen demand (total) of water	L086-PL	С
B6		W	18-94058	1009742	С	Chemical Oxygen Demand in Water (Total)	L065-PL	С
B6		W	18-94058	1009742	С	Chloride in water	L082-PL	С
B6		W	18-94058	1009742	С	Dissolved Oxygen in water	L086-PL	С
B6		W	18-94058	1009742	С	Iron (II) and Iron (III) in water	L079-PL	С
B6		W	18-94058	1009742	С	Metals in water by ICP-OES (dissolved)	L039-PL	С
B6		W	18-94058	1009742	С	Nitrate as N in water	L078-PL	С
B6		W	18-94058	1009742	С	Nitrate in water	L078-PL	С
B6		W	18-94058	1009742	С	Redox Potential of waters	L084-PL	С
B6		W	18-94058	1009742	С	Speciated EPA-16 PAHs in water	L102B-PL	С
B6		W	18-94058	1009742	С	Sulphate in water	L039-PL	С
B6		W	18-94058	1009742	С	TO - Gases C1-C4		С
B6		W	18-94058	1009742	С	TPHCWG (Waters)	L070-PL	С
B6		W	18-94058	1009742	С	Volatile organic compounds in water	L073B-PL	С
B6		W	18-94058	1009742	С	Volatile organic compounds in water extended	L073B-PL	С
B6	ĺ	W	18-94058	1009742	С	pH at 20oC in water (automated)	L099-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-94400

Project / Site name: Former Polycell Site Samples received on: 30/07/2018

Your job number: Samples instructed on: 30/07/2018

Your order number: R 1339 7907 1005 Analysis completed by: 07/08/2018

Report Issue Number: 1 Report issued on: 07/08/2018

Samples Analysed: 6 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.





Your O	rder No:	R 1339	7907	1005

Your Order No: R 1339 7907 1005								
Lab Sample Number				1011476	1011477	1011478	1011479	1011480
Sample Reference				A2	C2	C3	Z5	BH1-17
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				27/07/2018	27/07/2018	27/07/2018	27/07/2018	27/07/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.6	6.6	6.4	6.6	6.3
Sulphate as SO ₄	μg/l	45	ISO 17025	6960	13900	13200	27800	15000
Sulphate as SO ₄	mg/l	0.045	ISO 17025	7.0	13.9	13.2	27.8	15.0
Chloride	mg/l	0.15	ISO 17025	580	470	690	320	570
Nitrate as N	mg/l	0.01	ISO 17025	0.15	0.14	0.17	0.11	0.17
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.66	0.60	0.77	0.49	0.77
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	74	630	760	150	3200
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	59	95	440	70	830
Redox Potential	mV	-800	NONE	89.60	38.70	18.90	-13.90	21.30
Dissolved Oxygen	mg/l	1	NONE	4.3	3.6	3.6	3.9	2.4
Speciated PAHs		•						
Naphthalene	μg/l	0.01	ISO 17025	31.1	534	32.0	28.6	650
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	4.3	3.0	1.4	5.5	0.017
Fe ²⁺	mg/l	0.2	NONE	2.86	2.60	1.30	3.17	< 0.20
Fe ³⁺	mg/l	0.2	NONE	1.47	0.42	< 0.20	2.30	< 0.20
Monoaromatics								
Benzene	μg/l	1	ISO 17025	< 1.0	6.1	6.2	1.8	11.7
Toluene	μg/l	1	ISO 17025	24.0	119	72.4	104	182
Ethylbenzene	μg/l	1	ISO 17025	< 1.0	292	100	166	408
p & m-xylene	μg/l	1	ISO 17025	990	1540	666	823	9190
o-xylene	μg/l	1	ISO 17025	1120	1500	1200	1330	11200
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	27	< 1.0	< 1.0	83
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	830	< 10	< 10	66
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	110	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	< 1.0	6.1	6.2	1.8	12
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	24	120	72	100	180
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	6200	17000	6600	7200	85000
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	1400	10000	2200	2100	7600
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	1100	1300	860	2100	4000
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	140	190
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
		-	-		-		_	
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	970	< 10	< 10	150
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	8600	29000	9700	12000	97000
	rai'							





Your Order No: R 1339 7907 1005

			1011476	1011477	1011478	1011479	1011480
			A2	C2	C3	Z5	BH1-17
			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled					27/07/2018	27/07/2018	27/07/2018
Time Taken					None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis) Accreditation Status Units							
μg/l	1	ISO 17025	971	2770	901	1180	19200
μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
μg/l	100	NONE	630	7500	10000	200	11000
μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	рд/I рд/I рд/I рд/I рд/I	ру/ 1 ру/ 1 ру/ 1 ру/ 1 ру/ 1 ру/ 1 ру/ 1 ру/ 100 ру/ 1	Limit of Status A2 None Supplied None Supplied 27/07/2018 None Supplied 27/07/2018 None Supplied	A2 C2 None Supplied None Supplied None Supplied 27/07/2018 27/07/2018 27/07/2018 None Supplied None Supplied 27/07/2018 None Supplied A2 C2 C3 None Supplied None Supplied None Supplied None Supplied None Supplied None Supplied None Supplied 27/07/2018 27/07/2018 27/07/2018	A2 C2 C3 Z5 None Supplied 27/07/2018 27/07/2018 27/07/2018 27/07/2018 None Supplied No		

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	13	19	23	2.8	24





VALIE	Order	No:	R 1339	7007	1005

Your Order No: R 1339 7907 1005								
Lab Sample Number				1011481				
Sample Reference				BH 36				<u> </u>
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				27/07/2018				
Time Taken				None Supplied				
		_	Ac					
Analytical Parameter	_	de ⊑i	Sign					
(Water Analysis)	Units	nit ect	creditat Status					
(Water Analysis)	v	Limit of detection	Accreditation Status					
			ĭ					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.7				
Sulphate as SO ₄	μg/l	45	ISO 17025	30100				
Sulphate as SO ₄	mg/l	0.045	ISO 17025	30.1				
Chloride	mg/l	0.15	ISO 17025	230				
Nitrate as N	mg/l	0.01	ISO 17025	0.10				
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.44				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	300				
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	210				
Redox Potential	mV	-800	NONE	58.40				
Dissolved Oxygen	mg/l	1	NONE	3.0				
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	149				
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	1.2				
Fe ²⁺	mg/l	0.2	NONE	1.04				
Fe ³⁺	mg/l	0.2	NONE	< 0.20				
Monoaromatics		r	T		T		T	· F
Benzene	μg/l	1	ISO 17025	4.7				
Toluene	μg/l	1	ISO 17025	46.9				
Ethylbenzene	μg/l	1	ISO 17025	86.3				
p & m-xylene	μg/l	1	ISO 17025	2230				
o-xylene	μg/l	1	ISO 17025	1210				
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0				
Petroleum Hydrocarbons								
TDLL CMC Aliabatic > CE CC		-	100 17005	. 10	I	1	I	1
TPH-CWG - Aliphatic >C5 - C6 TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0		 	1	
•	μg/l	1	ISO 17025	< 1.0	1	 	1	
TPH-CWG - Aliphatic > C10	μg/l	10	ISO 17025	8.0				
TPH-CWG - Aliphatic > C10 - C12	μg/l	10	NONE	450	1	 	1	
TPH-CWG - Aliphatic > C12 - C16	μg/l	10	NONE	< 10				
TPH-CWG - Aliphatic > C16 - C21	μg/l	10	NONE	< 10		 	1	
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	I	ı	ı	ı
TDH_CWG - Aromatic >C5 - C7	ua/I	1	ISO 1702F	47				
TPH-CWG - Aromatic >C5 - C7 TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025 ISO 17025	4.7 47	1	 	1	
TPH-CWG - Aromatic >C7 - C8 TPH-CWG - Aromatic >C8 - C10	μg/l ug/l	1	ISO 17025	23000		 	1	
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	9100	1	 	1	
TPH-CWG - Aromatic >C10 - C12 TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	1100		 	1	
	μg/l					 	1	
TPH-CWG - Aromatic >C16 - C21 TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10		 	+	
TENT-CWG - AFORMACC >CZ1 - C35	μg/l	10	NONE	< 10	I	<u> </u>		<u> </u>
TDU CWC Alimbatic (CE CSE)		10	NONE	400	l	1	l	1
TPH-CWG - Aliphatic (C5 - C35) TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	460		-		
ren-cwa - Aromauc (C5 - C35)	μg/l	10	NONE	33000	I.	I		





Your Order No: R 1339 7907 1005

Tour Grace No. R 1555 7507 1505											
Lab Sample Number	•	•		1011481							
Sample Reference				BH 36							
Sample Number				None Supplied							
Depth (m)	None Supplied										
Date Sampled	27/07/2018										
Time Taken	None Supplied										
Analytical Parameter (Water Analysis) Accreditation Status Units Units											
VOCs											
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	4760							
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0							
Bromochloromethane	μg/l	1	ISO 17025	< 1.0							
Dichloromethane	μg/l	100	NONE	5400							
Carbon disulphide	μg/l	1	NONE	< 1.0							
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0							

Environmental Forensics

Gases						
Methane	mg/l	0.1	NONE	13		





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	w	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
A2		W	18-94400	1011476		Biological oxygen demand (total) of water	L086-PL	С
A2		W	18-94400	1011476	С	Dissolved Oxygen in water	L086-PL	С
A2		W	18-94400	1011476	С	Iron (II) and Iron (III) in water	L079-PL	С
A2		W	18-94400	1011476	С	Redox Potential of waters	L084-PL	С
A2		W	18-94400	1011476	С	pH at 20oC in water (automated)	L099-PL	С
BH 36		W	18-94400	1011481	С	Biological oxygen demand (total) of water	L086-PL	С
BH 36		W	18-94400	1011481	С	Dissolved Oxygen in water	L086-PL	С
BH 36		W	18-94400	1011481	С	Iron (II) and Iron (III) in water	L079-PL	С
BH 36		W	18-94400	1011481	С	Redox Potential of waters	L084-PL	С
BH 36		W	18-94400	1011481	С	pH at 20oC in water (automated)	L099-PL	С
BH1-17		W	18-94400	1011480	С	Biological oxygen demand (total) of water	L086-PL	С
BH1-17		W	18-94400	1011480	С	Dissolved Oxygen in water	L086-PL	С
BH1-17		W	18-94400	1011480	С	Iron (II) and Iron (III) in water	L079-PL	С
BH1-17		W	18-94400	1011480	С	Redox Potential of waters	L084-PL	С
BH1-17		W	18-94400	1011480	С	pH at 20oC in water (automated)	L099-PL	С
C2		W	18-94400	1011477	С	Biological oxygen demand (total) of water	L086-PL	С
C2		W	18-94400	1011477	С	Dissolved Oxygen in water	L086-PL	С
C2		W	18-94400	1011477	С	Iron (II) and Iron (III) in water	L079-PL	С
C2		W	18-94400	1011477	С	Redox Potential of waters	L084-PL	С
C2		W	18-94400	1011477	С	pH at 20oC in water (automated)	L099-PL	С
C3		W	18-94400	1011478	С	Biological oxygen demand (total) of water	L086-PL	С
C3		W	18-94400	1011478	С	Dissolved Oxygen in water	L086-PL	С
C3		W	18-94400	1011478	С	Iron (II) and Iron (III) in water	L079-PL	С
C3		W	18-94400	1011478	С	Redox Potential of waters	L084-PL	С
C3		W	18-94400	1011478	С	pH at 20oC in water (automated)	L099-PL	С
Z5		W	18-94400	1011479	С	Biological oxygen demand (total) of water	L086-PL	С
Z5		W	18-94400	1011479	С	Dissolved Oxygen in water	L086-PL	С
Z5		W	18-94400	1011479	С	Iron (II) and Iron (III) in water	L079-PL	С
Z5		W	18-94400	1011479	С	Redox Potential of waters	L084-PL	С
Z5		W	18-94400	1011479	С	pH at 20oC in water (automated)	L099-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-94561

Project / Site name: Former Polycell Site Samples received on: 31/07/2018

Your job number: Samples instructed on: 31/07/2018

Your order number: R-1339-7907-1005 Analysis completed by: 08/08/2018

Report Issue Number: 1 Report issued on: 08/08/2018

Samples Analysed: 3 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-100

Your Order No: R-1339-7907-1005								
Lab Sample Number				1012501	1012502	1012503		
Sample Reference				B3	B5	A3		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				30/07/2018	30/07/2018	30/07/2018		
Time Taken				None Supplied	None Supplied	None Supplied		
			A					
		Limit of detection	(6)					
Analytical Parameter	Units	te mi	edi					
(Water Analysis)	ढ	e of	:us					
		3 "	Accreditation Status					
	ı	<u> </u>			<u> </u>		<u>I</u>	
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.5	6.5	6.0		
Sulphate as SO ₄	μg/l	45	ISO 17025	15500	11800	6.8 8300		
Sulphate as SO ₄	mg/l	0.045	ISO 17025	15.5	11.8	8.3	1	
Chloride				350			1	
	mg/l	0.15	ISO 17025		780	180		
Nitrate as N Nitrate as NO ₃	mg/l	0.01	ISO 17025 ISO 17025	0.17 0.77	0.26 1.15	0.14 0.60		
3	mg/l		1		4		-	
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	5200	3900	370	 	
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	730	820	110	 	
Redox Potential	mV	-800	NONE	45.50	30.80	69.00	!	
Dissolved Oxygen	mg/l	1	NONE	6.0	6.0	6.2		
Speciated PAHs			I					1
Naphthalene	μg/l	0.01	ISO 17025	67.7	45.0	91.4		
Heavy Metals / Metalloids								1
Iron (dissolved)	mg/l	0.004	ISO 17025	2.6	6.1	0.079		
Fe ²⁺	mg/l	0.2	NONE	2.62	3.23	< 0.20		
Fe ³⁺	mg/l	0.2	NONE	< 0.20	2.82	< 0.20		
Monoaromatics		r		1			1	
Benzene	μg/l	1	ISO 17025	15.7	9.0	5.5		
Toluene	μg/l	1	ISO 17025	152	232	187		
Ethylbenzene	μg/l	1	ISO 17025	193	275	233		
p & m-xylene	μg/l	1	ISO 17025	847	1030	1730		
o-xylene	μg/l	1	ISO 17025	1060	1480	2500		
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	16	9.0	5.5		
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	150	230	190		
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	8000	13000	15000		
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	3700	2900	1400		
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	4000	1800	900		
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	97	< 10	< 10		
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	16000	18000	18000	1	
	F 5/						1	





Your Order No: R-1339-7907-1005

Total Order No. R-1559-7907-1005							
Lab Sample Number				1012501	1012502	1012503	
Sample Reference				B3	B5	A3	
Sample Number	Sample Number					None Supplied	
Depth (m)	None Supplied	None Supplied	None Supplied				
Date Sampled	30/07/2018	30/07/2018	30/07/2018				
Time Taken				None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	1270	1940	2260	
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
Dichloromethane	μg/l	100	NONE	18000	20000	660	
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	

Environmental Forensics

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v	as	CS	•

Gases							
Methane	mg/l	0.1	NONE	25	26	8.6	





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
A3		W	18-94561	1012503	С	Biological oxygen demand (total) of water	L086-PL	С
A3		W	18-94561	1012503	С	Dissolved Oxygen in water	L086-PL	С
B3		W	18-94561	1012501	С	Biological oxygen demand (total) of water	L086-PL	С
B3		W	18-94561	1012501	С	Dissolved Oxygen in water	L086-PL	С
B5		W	18-94561	1012502	С	Biological oxygen demand (total) of water	L086-PL	С
B5		W	18-94561	1012502	С	Dissolved Oxygen in water	L086-PL	С



Wheat Quarter Limited

Remediation Verification and Long-term Monitoring Plan (Southern Area)

Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK

Groundwater

3rd August 2018

016-1512 Revision 00 October 2018





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-95815

Project / Site name: Former Polycell Site Samples received on: 09/08/2018

Your job number: Samples instructed on: 09/08/2018

Your order number: R-1339-7907-1005 Analysis completed by: 17/08/2018

Report Issue Number: 1 **Report issued on:** 17/08/2018

Samples Analysed: 4 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-100	Your O	rder No:	R-1339-	-7907-1005
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Your Order No: R-1339-7907-1005								
Lab Sample Number				1019838	1019839	1019840	1019841	
Sample Reference				BH02-17	BH03-17	BH06d-17	BH05d-17	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				08/08/2018	08/08/2018	08/08/2018	08/08/2018	
Time Taken		1	1	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.5	6.7	6.9	7.0	
Sulphate as SO ₄	μg/l	45	ISO 17025	41400	197000	2490	92000	
Sulphate as SO ₄	mg/l	0.045	ISO 17025	41.4	197	2.5	92.0	
Chloride	mg/l	0.15	ISO 17025	630	340	110	75	
Nitrate as N	mg/l	0.01	ISO 17025	0.05	0.04	0.07	2.76	
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.22	0.16	0.33	12.2	
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	170	40	14	12	
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	19	2.5	1.6	< 1.0	
Redox Potential	mV	-800	NONE	4.50	18.90	62.40	90.90	
Dissolved Oxygen	mg/l	1	NONE	6.8	5.6	4.7	8.3	
				-	-	-	-	
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	6.49	12.0	1.17	< 0.01	
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	10	2.9	0.92	0.005	
Fe ²⁺	mg/l	0.2	NONE	8.80	2.80	0.90	< 0.20	
Fe ³⁺	mg/l	0.2	NONE	1.38	< 0.20	< 0.20	< 0.20	
Monoaromatics					_			
Benzene	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	μg/l	1	ISO 17025	< 1.0	1.6	< 1.0	< 1.0	
p & m-xylene	μg/l	1	ISO 17025	8.9	30.8	< 1.0	< 1.0	
o-xylene	μg/l	1	ISO 17025	8.1	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TRU CMC Arematics CF C7			100 1707-	.10	. 1.0	.10		
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic > C7 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic > C8 - C10	μg/l	1	ISO 17025	420	370	6.1	< 1.0	
TPH-CWG - Aromatic > C10 - C12	μg/l	10	NONE	420	160	43	< 10	
TPH-CWG - Aromatic > C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic > C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	840	530	49	< 10	
	P3/ ·							





Your Order No: R-1339-7907-1005

10di 01ddi Noi K 1999 7907 1009								
Lab Sample Number				1019838	1019839	1019840	1019841	
Sample Reference				BH02-17	BH03-17	BH06d-17	BH05d-17	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)		None Supplied	None Supplied	None Supplied	None Supplied			
Date Sampled	08/08/2018	08/08/2018	08/08/2018	08/08/2018				
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	110	81.2	6.1	< 1.0	
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Dichloromethane	μg/l	100	NONE	4900	< 100	< 100	< 100	
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	0.5	1.5	6.7	0.8	





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH02-17		W	18-95815	1019838	С	Biological oxygen demand (total) of water	L086-PL	С
BH02-17		W	18-95815	1019838	С	Dissolved Oxygen in water	L086-PL	С
BH03-17		W	18-95815	1019839	С	Biological oxygen demand (total) of water	L086-PL	С
BH03-17		W	18-95815	1019839	С	Dissolved Oxygen in water	L086-PL	С
BH05d-17		W	18-95815	1019841	С	Biological oxygen demand (total) of water	L086-PL	С
BH05d-17		W	18-95815	1019841	С	Dissolved Oxygen in water	L086-PL	С
BH06d-17		W	18-95815	1019840	С	Biological oxygen demand (total) of water	L086-PL	С
BH06d-17		W	18-95815	1019840	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-96037

Project / Site name: Former Polycell Site Samples received on: 10/08/2018

Your job number: Samples instructed on: 10/08/2018

Your order number: R-1339-7907-1005 Analysis completed by: 20/08/2018

Report Issue Number: 1 **Report issued on:** 20/08/2018

Samples Analysed: 1 water sample



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-1005				1021246							
Lab Sample Number	•										
Sample Reference				BH01-17							
Sample Number				None Supplied							
Depth (m)				None Supplied							
Date Sampled				09/08/2018							
Time Taken				None Supplied							
			A								
Analytical Dayameter	_	Limit of detection	Accreditation Status								
Analytical Parameter	Units	mit	tati								
(Water Analysis)	ស	다 of	us								
		_	9								
General Inorganics											
pH	pH Units	N/A	ISO 17025	6.6							
Sulphate as SO ₄	μg/l	45	ISO 17025	12500							
Sulphate as SO ₄	mg/l	0.045	ISO 17025	12.5							
Chloride	mg/l	0.15	ISO 17025	420]						
Nitrate as N	mg/l	0.01	ISO 17025	0.19							
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.82							
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	1200							
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	440							
Redox Potential	mV	-800	NONE	17.60							
Dissolved Oxygen	mg/l	1	NONE	1.2							
Constituted PALLS											
Speciated PAHs		0.04		24.6	ı	1	T	1			
Naphthalene	μg/l	0.01	ISO 17025	31.6			<u> </u>				
Heavy Metals / Metalloids											
Iron (dissolved)	mg/l	0.004	ISO 17025	2.1			Ι				
Fe ²⁺	mg/l	0.004	NONE	2.10							
Fe ³⁺	mg/l	0.2	NONE	< 0.20							
	mg/i	0.2	HOHE	1 0.20	I						
Monoaromatics											
Benzene	μg/l	1	ISO 17025	12.9							
Toluene	μg/l	1	ISO 17025	192							
Ethylbenzene	μg/l	1	ISO 17025	352							
p & m-xylene	μg/l	1	ISO 17025	2060							
o-xylene	μg/l	1	ISO 17025	2080							
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0							
Petroleum Hydrocarbons											
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0							
TPH-CWG - Aliphatic >C5 - C6 TPH-CWG - Aliphatic >C6 - C8		1	ISO 17025	< 1.0							
TPH-CWG - Aliphatic >C6 - C8 TPH-CWG - Aliphatic >C8 - C10	μg/l μg/l	1	ISO 17025	< 1.0							
TPH-CWG - Aliphatic >C8 - C10 TPH-CWG - Aliphatic >C10 - C12	μg/I μg/I	10	NONE	< 1.0							
TPH-CWG - Aliphatic >C10 - C12 TPH-CWG - Aliphatic >C12 - C16	μg/I μg/I	10	NONE	< 10							
TPH-CWG - Aliphatic >C12 - C10 TPH-CWG - Aliphatic >C16 - C21	μg/I μg/I	10	NONE	< 10							
TPH-CWG - Aliphatic >C10 - C21 TPH-CWG - Aliphatic >C21 - C35	μg/I	10	NONE	< 10							
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10							
	rai:				•						
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	13							
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	190							
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	16000							
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	10000							
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	1200							
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10							
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10							
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	28000							





Your Order No: R-1339-7907-1005

Your Order No: R-1339-7907-1005										
Lab Sample Number				1021246						
Sample Reference	BH01-17									
Sample Number				None Supplied						
Depth (m)	Depth (m)									
Date Sampled				09/08/2018						
Time Taken				None Supplied						
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status							
VOCs										
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	2340						
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0						
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0						
Bromochloromethane	μg/l	1	ISO 17025	< 1.0						
Dichloromethane	μg/l	100	NONE	8900						
Carbon disulphide	μg/l	1	NONE	< 1.0						
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0						

Environmental Forensics

Gases						
Methane	mg/l	0.1	NONE	33		





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH01-17		W	18-96037	1021246	С	Biological oxygen demand (total) of water	L086-PL	С
BH01-17		W	18-96037	1021246	С	Dissolved Oxygen in water	L086-PL	С
BH01-17		W	18-96037	1021246	С	Iron (II) and Iron (III) in water	L079-PL	С
BH01-17		W	18-96037	1021246	С	Redox Potential of waters	L084-PL	С
BH01-17		W	18-96037	1021246	С	pH at 20oC in water (automated)	L099-PL	С





Jennifer Russell

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i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-96359

Project / Site name: Former Polycell Site Samples received on: 14/08/2018

Your job number: Samples instructed on: 14/08/2018

Your order number: R-1339-7907-1005 Analysis completed by: 21/08/2018

Report Issue Number: 1 Report issued on: 21/08/2018

Samples Analysed: 4 water samples

Signed:

Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-100	Your O	rder No:	R-1339-	-7907-1005
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Your Order No: R-1339-7907-1005								
Lab Sample Number				1023050	1023051	1023052	1023053	
Sample Reference				A3	D5	D4	D2	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				13/08/2018	13/08/2018	13/08/2018	13/08/2018	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
PΗ	pH Units	N/A	ISO 17025	6.6	6.5	6.6	6.6	
Sulphate as SO ₄	μg/l	45	ISO 17025	7800	11100	15200	17500	
Sulphate as SO ₄	mg/l	0.045	ISO 17025	7.8	11.1	15.2	17.5	
Chloride	mg/l	0.15	ISO 17025	820	710	510	480	
Nitrate as N	mg/l	0.01	ISO 17025	0.07	0.10	0.08	0.05	
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.32	0.43	0.38	0.21	
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	70	360	160	180	
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	31	49	52	46	
Redox Potential	mV	-800	NONE	13.10	18.90	22.10	33.90	
Dissolved Oxygen	mg/l	1	NONE	1.6	6.2	1.9	1.1	
Dissolved Oxygen	mg/i		NONE	1.0	0.2	1.5	1.1	
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	50.9	24.3	35.3	74.9	
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	6.2	6.4	5.4	1.8	
Fe ²⁺	mg/l	0.2	NONE	5.80	6.20	5.40	1.77	
Fe ³⁺	mg/l	0.2	NONE	0.40	0.22	< 0.20	< 0.20	
Monoaromatics	1 "		ree 47005	.10		2.2	16.5	
Benzene	μg/l	1	ISO 17025	< 1.0	6.1	3.2	16.5	
Toluene	μg/l	1	ISO 17025	18.2	26.1	28.0	40.4	
Ethylbenzene	μg/l	1	ISO 17025	75.3	52.2	55.7	157	
p & m-xylene	μg/l	1	ISO 17025	971	385	473	1030	
o-xylene	μg/l	1	ISO 17025	1170	529	730	854	
MTBE (Methyl Tertiary Butyl Ether) Petroleum Hydrocarbons	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C5 - C6 TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C6 - C6 TPH-CWG - Aliphatic >C8 - C10	μg/I μg/I	1	ISO 17025	< 1.0	< 1.0	< 1.0	77	
TPH-CWG - Aliphatic >C6 - C10 TPH-CWG - Aliphatic >C10 - C12	μg/I μg/I	10	NONE	< 1.0	< 1.0	< 10	< 10	
TPH-CWG - Aliphatic >C10 - C12 TPH-CWG - Aliphatic >C12 - C16		10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16 TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21 TPH-CWG - Aliphatic >C21 - C35	μg/l μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	< 1.0	6.1	3.2	17	
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	18	26	28	40	
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	6500	4800	8300	20000	
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	4000	2600	3600	8000	
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	1100	760	750	630	
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	77	
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	12000	8300	13000	28000	
	-							





Your Order No: R-1339-7907-1005

Lab Sample Number		•		1023050	1023051	1023052	1023053	
Sample Reference				A3	D5	D4	D2	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied				
Date Sampled	13/08/2018	13/08/2018	13/08/2018	13/08/2018				
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	838	797	1600	3860	
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Dichloromethane	μg/l	100	NONE	1100	12000	12000	27000	
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
Dichlorodifluoromethane	ug/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	15	21	18	14	





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
A3		W	18-96359	1023050	С	Biological oxygen demand (total) of water	L086-PL	С
A3		W	18-96359	1023050	С	Dissolved Oxygen in water	L086-PL	С
D2		W	18-96359	1023053	С	Biological oxygen demand (total) of water	L086-PL	С
D2		W	18-96359	1023053	С	Dissolved Oxygen in water	L086-PL	С
D4		W	18-96359	1023052	С	Biological oxygen demand (total) of water	L086-PL	С
D4		W	18-96359	1023052	С	Dissolved Oxygen in water	L086-PL	С
D5		W	18-96359	1023051	С	Biological oxygen demand (total) of water	L086-PL	С
D5		W	18-96359	1023051	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
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Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-96359

Replaces Analytical Report Number: 18-96359, issue no. 1

Project / Site name: Former Polycell Site Samples received on: 14/08/2018

Your job number: Samples instructed on: 14/08/2018

Your order number: R-1339-7907-1005 Analysis completed by: 30/08/2018

Report Issue Number: 2 **Report issued on:** 30/08/2018

Samples Analysed: 4 water samples

Signed:

Jordan Hill Reporting Manager

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-1005								
Lab Sample Number				1023050	1023051	1023052	1023053	
Sample Reference				A2	D5	D4	D2	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied				
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied				
Date Sampled	13/08/2018	13/08/2018	13/08/2018	13/08/2018				
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.6	6.5	6.6	6.6	
Sulphate as SO ₄	μg/l	45	ISO 17025	7800	11100	15200	17500	
Sulphate as SO ₄	mg/l	0.045	ISO 17025	7.8	11.1	15.2	17.5	
Chloride	mg/l	0.15	ISO 17025	820	710	510	480	
Nitrate as N	mg/l	0.01	ISO 17025	0.07	0.10	0.08	0.05	
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.32	0.43	0.38	0.21	
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	70	360	160	180	
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	31	49	52	46	
Redox Potential	mV	-800	NONE	13.10	18.90	22.10	33.90	
Dissolved Oxygen	mg/l	1	NONE	1.6	6.2	1.9	1.1	
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	50.9	24.3	35.3	74.9	
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	6.2	6.4	5.4	1.8	
Fe ²⁺	mg/l	0.2	NONE	5.80	6.20	5.40	1.77	
Fe ³⁺	mg/l	0.2	NONE	0.40	0.22	< 0.20	< 0.20	
Monoaromatics								
Benzene	μg/l	1	ISO 17025	< 1.0	6.1	3.2	16.5	
Toluene	μg/l	1	ISO 17025	18.2	26.1	28.0	40.4	
Ethylbenzene	μg/l	1	ISO 17025	75.3	52.2	55.7	157	
p & m-xylene	μg/l	1	ISO 17025	971	385	473	1030	
o-xylene	μg/l	1	ISO 17025	1170	529	730	854	
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	





Your Order No: R-1339-7907-1005								
Lab Sample Number				1023050	1023051	1023052	1023053	
Sample Reference				A2	D5	D4	D2	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied				
Date Sampled	13/08/2018	13/08/2018	13/08/2018	13/08/2018				
Time Taken		None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	77	
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	< 1.0	6.1	3.2	17	
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	18	26	28	40	
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	6500	4800	8300	20000	
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	4000	2600	3600	8000	
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	1100	760	750	630	
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
	<u> </u>	•					•	
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	77	
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	12000	8300	13000	28000	





Your Order No: R-1339-7907-1005

Tour Order No. K-1339-7907-1003								
Lab Sample Number				1023050	1023051	1023052	1023053	
Sample Reference	A2	D5	D4	D2				
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				13/08/2018	13/08/2018	13/08/2018	13/08/2018	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	838	797	1600	3860	
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Dichloromethane	μg/l	100	NONE	1100	12000	12000	27000	
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	15	21	18	14	





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	w	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
A2		W	18-96359	1023050	С	Biological oxygen demand (total) of water	L086-PL	С
A2		W	18-96359	1023050	С	Dissolved Oxygen in water	L086-PL	С
D2		W	18-96359	1023053	С	Biological oxygen demand (total) of water	L086-PL	С
D2		W	18-96359	1023053	С	Dissolved Oxygen in water	L086-PL	С
D4		W	18-96359	1023052	С	Biological oxygen demand (total) of water	L086-PL	С
D4		W	18-96359	1023052	С	Dissolved Oxygen in water	L086-PL	С
D5		W	18-96359	1023051	С	Biological oxygen demand (total) of water	L086-PL	С
D5		W	18-96359	1023051	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

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i2 Analytical Ltd.
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Analytical Report Number: 18-96583

Project / Site name: Former Polycell Site Samples received on: 15/08/2018

Your job number: Samples instructed on: 15/08/2018

Your order number: R-1339-7907-1005 Analysis completed by: 22/08/2018

Report Issue Number: 1 Report issued on: 22/08/2018

Samples Analysed: 9 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-1005

Tour Order No: K-1559-7907-1005								
Lab Sample Number				1024181	1024182	1024183	1024184	1024185
Sample Reference				A6	В6	C7	C6	BH36
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				14/08/2018	14/08/2018	14/08/2018	14/08/2018	14/08/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.6	6.5	6.4	6.4	6.7
Sulphate as SO ₄	μg/l	45	ISO 17025	11600	13900	5470	8370	17200
Sulphate as SO ₄	mg/l	0.045	ISO 17025	11.6	13.9	5.5	8.4	17.2
Chloride	mg/l	0.15	ISO 17025	390	650	760	720	240
Nitrate as N	mg/l	0.01	ISO 17025	0.10	0.13	0.04	0.06	0.08
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.43	0.59	0.16	0.27	0.38
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	840	1900	930	880	170
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	330	510	210	280	79
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	-	-	-	-	-
Redox Potential	mV	-800	NONE	19.70	30.20	37.90	23.30	46.60
Dissolved Oxygen	mg/l	1	NONE	1.8	2.2	2.1	1.3	3.1
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	37.1	67.1	48.3	39.4	58.8
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	5.1	3.8	3.9	9.9	1.1
Fe ²⁺	mg/l	0.2	NONE	0.62	1.29	0.77	3.10	0.86
Fe ³⁺	mg/l	0.2	NONE	4.47	2.52	3.10	6.81	< 0.20
Monoaromatics								
Benzene	μg/l	1	ISO 17025	< 1.0	< 1.0	7.3	7.7	< 1.0
Toluene	μg/l	1	ISO 17025	11.5	19.3	87.5	95.9	38.6
Ethylbenzene	μg/l	1	ISO 17025	22.4	17.2	139	144	181
p & m-xylene	μg/l	1	ISO 17025	135	99.1	879	856	1570
o-xylene	μg/l	1	ISO 17025	244	180	1040	657	1030
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0





Your Order No: R-1339-7907-1005

Lab Sample Number				1024181	1024182	1024183	1024184	1024185
Sample Reference				A6	В6	C7	C6	BH36
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				14/08/2018	14/08/2018	14/08/2018	14/08/2018	14/08/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	< 1.0	< 1.0	7.3	7.7	< 1.0
TPH-CWG - Aromatic > C7 - C8	μg/l	1	ISO 17025	12	19	88	96	39
TPH-CWG - Aromatic > C8 - C10	μg/l	1	ISO 17025	930	980	11000	5500	12000
TPH-CWG - Aromatic >C10 - C12	μq/l	10	NONE	1600	3600	3800	1900	1800
TPH-CWG - Aromatic > C12 - C16	μg/l	10	NONE	1000	610	68	210	44
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	3600	5200	15000	7700	14000

Dichlorodifluoromethane Environmental Forensics

1,3,5-Trichlorobenzene

Bromochloromethane

Dichloromethane

Carbon disulphide

Gases								
Methane	mg/l	0.1	NONE	5.2	16	18	15	14

< 1.0

< 1.0

120000

< 1.0

< 1.0

< 1.0

180000

< 1.0

< 1.0

< 1.0

< 1.0

140000

< 1.0 < 1.0 < 1.0

< 1.0

110000

< 1.0 < 1.0 < 1.0

< 1.0

5400

< 1.0 < 1.0

NONE

ISO 17025

NONE

NONE

NONE

100

μg/l

μg/l

μg/l

μg/l

U/S = Unsuitable Sample I/S = Insufficient Sample





Your Order No: R-1339-7907-1005

Your Order No: R-1339-/90/-1005								
Lab Sample Number				1024186	1024187	1024188	1024189	
Sample Reference				C2	B4	B5	Z5	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				15/08/2018	15/08/2018	15/08/2018	15/08/2018	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.5	6.6	6.5	6.7	
Sulphate as SO ₄	μg/l	45	ISO 17025	16800	17200	12200	14700	
Sulphate as SO ₄	mg/l	0.045	ISO 17025	16.8	17.2	12.2	14.7	
Chloride	mg/l	0.15	ISO 17025	450	350	620	490	
Nitrate as N	mg/l	0.01	ISO 17025	0.05	0.04	0.06	0.07	
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.21	0.16	0.27	0.32	
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	400	1200	2000	240	
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	-	-	-	-	
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	U/S	U/S	U/S	U/S	
Redox Potential	mV	-800	NONE	24.00	22.70	16.10	16.70	
Dissolved Oxygen	mg/l	1	NONE	9.3	9.0	8.8	7.8	
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	66.9	29.7	47.8	21.8	
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	6.3	7.8	12	8.0	
Fe ²⁺	mg/l	0.2	NONE	0.28	1.35	2.72	0.26	
Fe ³⁺	mg/l	0.2	NONE	6.05	6.48	9.10	7.79	
Monoaromatics								
Benzene	μg/l	1	ISO 17025	7.7	5.4	8.5	< 1.0	
Toluene	μg/l	1	ISO 17025	48.9	38.0	103	68.5	
Ethylbenzene	μg/l	1	ISO 17025	201	63.2	149	87.0	
p & m-xylene	μg/l	1	ISO 17025	1330	408	905	757	
o-xylene	μg/l	1	ISO 17025	1330	551	1120	1250	
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	





Your Order No: R-1339-7907-1005

Lab Sample Number				1024186	1024187	1024188	1024189	
Sample Reference				C2	B4	B5	Z5	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				15/08/2018	15/08/2018	15/08/2018	15/08/2018	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Petroleum Hydrocarbons								
FPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	< 10	
FPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	
FPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	7.7	5.4	8.5	< 1.0	
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	49	38	100	70	
FPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	16000	4500	8500	6700	
FPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	1100	2100	3100	2300	
FPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	55	400	1700	1200	
FPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	17000	7000	13000	10000	

Environmental Forensics

Dichloromethane

Carbon disulphide

Dichlorodifluoromethane

Gases								
Methane	mg/l	0.1	NONE	20	20	22	4.5	

71000

< 1.0

37000

< 1.0

< 1.0

71000

< 1.0 < 1.0 930

< 1.0

 $\label{eq:U/S} \text{U/S} = \text{Unsuitable Sample} \qquad \text{I/S} = \text{Insufficient Sample}$

100

μg/l

μg/l

NONE

NONE

NONE





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B	L086A-UK	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	w	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
A6		W	18-96583	1024181	С	Biological oxygen demand (total) of water	L086-PL	С
A6		W	18-96583	1024181	С	Dissolved Oxygen in water	L086-PL	С
B6		W	18-96583	1024182	С	Biological oxygen demand (total) of water	L086-PL	С
B6		W	18-96583	1024182	С	Dissolved Oxygen in water	L086-PL	С
BH36		W	18-96583	1024185	С	Biological oxygen demand (total) of water	L086-PL	С
BH36		W	18-96583	1024185	С	Dissolved Oxygen in water	L086-PL	С
C6		W	18-96583	1024184	С	Biological oxygen demand (total) of water	L086-PL	С
C6		W	18-96583	1024184	С	Dissolved Oxygen in water	L086-PL	С
C7		W	18-96583	1024183	С	Biological oxygen demand (total) of water	L086-PL	С
C7		W	18-96583	1024183	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-97811

Project / Site name: Former Polycell Samples received on: 24/08/2018

Your job number: Samples instructed on: 24/08/2018

Your order number: Analysis completed by: 03/09/2018

Report Issue Number: 1 **Report issued on:** 03/09/2018

Samples Analysed: 4 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.





Sample Reference	Lab Sample Number				1031514	1031515	1031516	1031517	
None Supplied None Supplie									
Date Sampled 24/08/2018 2	Sample Number				None Supplied		None Supplied	None Supplied	
None Supplied None Supplied Supplied Supplied Supplied Supplied Supplied Supplied Supplied Supplied Supplied Supplied Supp	Depth (m)						None Supplied		
Control Cont									
Ceneral Inorganics OH OH Units N/A ISO 17025 S7.0 7.0 7.4 7.2	Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Description Description	•	Units	Limit of detection	Accreditation Status					
Ph	General Inorganics								
Suphate as SO ₄		pH Units	N/A	ISO 17025	7.0	7.0	7.4	7.2	
Chioride									
Nitrate as N mg/l 0.01 SO 17025 0.06 0.05 2.17 0.07 Nitrate as N NO; mg/l 0.05 SO 17025 0.27 0.21 9.61 0.32 Chemical Oxygen Demand (Total) mg/l 2 ISO 17025 160 43 11 19 BDD (Biochemical Oxygen Demand) (Total) - PL mg/l 1 ISO 17025 97 3.1 1.2 1.7 Redox Potential my -800 NoNE 20.43 199.10 191.80 189.70 Dissolved Oxygen mg/l 1 NONE 2.0 1.0 1.2 1.1	Sulphate as SO ₄		0.045	ISO 17025	58.7	203	116	10.0	
Nitrate as N mg/l 0.01 SO 17025 0.06 0.05 2.17 0.07 Nitrate as N NO; mg/l 0.05 SO 17025 0.27 0.21 9.61 0.32 Chemical Oxygen Demand (Total) mg/l 2 ISO 17025 160 43 11 19 BDD (Biochemical Oxygen Demand) (Total) - PL mg/l 1 ISO 17025 97 3.1 1.2 1.7 Redox Potential my -800 NoNE 20.43 199.10 191.80 189.70 Dissolved Oxygen mg/l 1 NONE 2.0 1.0 1.2 1.1	Chloride	ma/l	0.15	ISO 17025	500	330	74	97	
Nitrate as NO_ mg/l 0.05 SO 17025 0.27 0.21 9.61 0.32									
Chemical Oxygen Demand (Total) mg/l 2 ISO 17025 160 43 11 19									
Sope Sope	-								
Redox Potential									
Dissolved Oxygen									
Speciated PAHs Naphthalene pg/l 0.01 ISO 17025 5.40 10.6 < 0.01 1.95									
Naphthalene		9, .		HOHE	2.0	1.0		212	
Heavy Metals / Metalloids Iron (dissolved) mg/l 0.004 ISO 17025 6.4 0.038 0.027 0.20 Fe ²⁺ mg/l 0.2 NONE 4.25 < 0.20 < 0.20 < 0.20 < 0.20 Fe ³⁺ mg/l 0.2 NONE 2.12 < 0.20 < 0.20 < 0.20 < 0.20 < 0.20 Fe ³⁺ mg/l 0.2 NONE 2.12 < 0.20 < 0.20 < 0.20 < 0.20 < 0.20									
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Naphthalene	μg/l	0.01	ISO 17025	5.40	10.6	< 0.01	1.95	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$									
Monoaromatics Monoaromatic		mg/l		ISO 17025					
Monoaromatics Benzene μg/l 1 ISO 17025 < 1.0 < 1.0 < 1.0 < 1.0	Fe ²⁺	mg/l		NONE					
Benzene	Fe ³⁺	mg/l	0.2	NONE	2.12	< 0.20	< 0.20	< 0.20	
Toluene	Monoaromatics								
Ethylbenzene μg/l 1 ISO 17025 < 1.0 4.4 < 1.0 < 1.0 p & m-xylene μg/l 1 ISO 17025 83.0 123 < 1.0	Benzene	μg/l	1	ISO 17025		< 1.0	< 1.0	< 1.0	
p & m-xylene μg/l 1 ISO 17025 83.0 123 < 1.0 < 1.0 o-xylene μg/l 1 ISO 17025 70.6 5.6 < 1.0	Toluene	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
O-xylene μg/l 1 ISO 17025 70.6 5.6 < 1.0 < 1.0 MTBE (Methyl Tertiary Butyl Ether) μg/l 1 ISO 17025 < 1.0	Ethylbenzene	μg/l	1	ISO 17025	< 1.0	4.4	< 1.0	< 1.0	
Petroleum Hydrocarbons TPH-CWG - Aliphatic > C5 - C6 μg/l 1 ISO 17025 < 1.0	p & m-xylene	μg/l	1	ISO 17025	83.0	123	< 1.0	< 1.0	
Petroleum Hydrocarbons TPH-CWG - Aliphatic >C5 - C6 μg/l 1 ISO 17025 < 1.0	o-xylene	μg/l	1	ISO 17025	70.6	5.6	< 1.0	< 1.0	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Petroleum Hydrocarbons								
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		μg/l	1					< 1.0	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		μg/l		ISO 17025					
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		μg/l	10	NONE	< 10	< 10	< 10	< 10	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		μg/l		NONE					
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		μg/l							
TPH-CWG - Aromatic >C7 - C8 μg/l 1 ISO 17025 < 1.0 < 1.0 < 1.0 < 1.0	TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C7 - C8 μg/l 1 ISO 17025 < 1.0 < 1.0 < 1.0 < 1.0	TPH-CWG - Aromatic >C5 - C7	uc/l	1	ISO 1702F	< 1 N	< 1.0	< 1 N	< 1 N	
157									
TPH-CWG - Aromatic > C8 - C10 µg/l 1 ISO 17025 2900 1300 < 1.0 6.9									
TPH-CWG - Aromatic >C10 - C12 μg/l 10 NONE 700 320 < 10 130									
TPH-CWG - Aromatic >C12 - C16 μg/ι 10 NONE 59 190 < 10 41									
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$									
111 CHO 19011000 7021 000 Pg/1 10 HORE 110 110 110 110	THE GITS PROMISE POLICY COS	µ9/1	10	INCINE	` 10	` 10	\ 10	· 10	
,,,,,,,,,,,,								-	
TPH-CWG - Aliphatic (C5 - C35) $\mu g/l$ 10 NONE < 10 < 10 < 10 < 10									
TPH-CWG - Aromatic (C5 - C35) μg/l 10 NONE 3700 1800 < 10 180	TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	3700	1800	< 10	180	





			1	1001511	1001515	1001516	1001517	
Lab Sample Number				1031514	1031515	1031516	1031517	
Sample Reference				BH02-17	BH03-17	BH05D-17	BH06D-17	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied				
Date Sampled	24/08/2018	24/08/2018	24/08/2018	24/08/2018				
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	742	340	< 1.0	6.9	
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Dichloromethane	μg/l	100	NONE	11000	< 100	< 100	< 100	·
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	·
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	0.4	1.1	1.9	5.9	

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH02-17		W	18-97811	1031514	С	Biological oxygen demand (total) of water	L086-PL	С
BH02-17		W	18-97811	1031514	С	Dissolved Oxygen in water	L086-PL	С
BH02-17		W	18-97811	1031514	С	Iron (II) and Iron (III) in water	L079-PL	С
BH02-17		W	18-97811	1031514	С	Redox Potential of waters	L084-PL	С
BH02-17		W	18-97811	1031514	С	pH at 20oC in water (automated)	L099-PL	С
BH03-17		W	18-97811	1031515	С	Biological oxygen demand (total) of water	L086-PL	С
BH03-17		W	18-97811	1031515	С	Dissolved Oxygen in water	L086-PL	С
BH03-17		W	18-97811	1031515	С	Iron (II) and Iron (III) in water	L079-PL	С
BH03-17		W	18-97811	1031515	С	Redox Potential of waters	L084-PL	С
BH03-17		W	18-97811	1031515	С	pH at 20oC in water (automated)	L099-PL	С
BH05D-17		W	18-97811	1031516	С	Biological oxygen demand (total) of water	L086-PL	С
BH05D-17		W	18-97811	1031516	С	Dissolved Oxygen in water	L086-PL	С
BH05D-17		W	18-97811	1031516	С	Iron (II) and Iron (III) in water	L079-PL	С
BH05D-17		W	18-97811	1031516	С	Redox Potential of waters	L084-PL	С
BH05D-17		W	18-97811	1031516	С	pH at 20oC in water (automated)	L099-PL	С
BH06D-17		W	18-97811	1031517	С	Biological oxygen demand (total) of water	L086-PL	С
BH06D-17		W	18-97811	1031517	С	Dissolved Oxygen in water	L086-PL	С
BH06D-17		W	18-97811	1031517	С	Iron (II) and Iron (III) in water	L079-PL	С
BH06D-17		W	18-97811	1031517	С	Redox Potential of waters	L084-PL	С
BH06D-17		W	18-97811	1031517	С	pH at 20oC in water (automated)	L099-PL	С



Wheat Quarter Limited

Remediation Verification and Long-term Monitoring Plan (Southern Area)

Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK

Groundwater

4th September 2018

016-1512 Revision 00 October 2018





Jennifer Russell

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i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-10787-A

Project / Site name: Former Polycell Site Samples received on: 18/09/2018

Your job number: Samples instructed on: 18/09/2018

Your order number: R-1339-7907-1005 Analysis completed by: 25/09/2018

Report Issue Number: 1 **Report issued on:** 25/09/2018

Samples Analysed: 10 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-100	Your O	rder No:	R-1339-	-7907-1005
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Your Order No: R-1339-7907-1005								
Lab Sample Number				1047975	1047977	1047978	1047979	1047980
Sample Reference				A3	A5	B5	B4	Z5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				17/09/2018	17/09/2018	17/09/2018	17/09/2018	17/09/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.8	10.3	6.6	6.8	6.8
Sulphate as SO ₄	µg/l	45	ISO 17025	7900	87800	18700	20800	16700
Sulphate as SO ₄	mg/l	0.045	ISO 17025	7.9	87.8	18.7	20.8	16.7
Chloride	mg/l	0.15	ISO 17025	240	780	900	560	530
Nitrate as N		0.13	ISO 17025	0.14	0.19	0.05	0.06	0.05
Nitrate as N	mg/l mg/l	0.01	ISO 17025 ISO 17025	0.14	0.19	0.05	0.06	0.05
							4	4
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	390	1600	3300	1800	190
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	210	75	1300	930	130
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	-	-	-	-	-
Redox Potential	mV	-800	NONE	63.60	39.10	-67.80	-76.20	-51.20
Dissolved Oxygen	mg/l	1	NONE	2.7	11	2.4	1.8	1.9
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	52.2	< 0.01	16.8	55.9	22.9
raphalaiche	P9/1	0.01	150 17025	32.2	1 0.01	10.0	33.3	
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	0.83	0.11	8.1	4.4	2.3
Fe ²⁺	mg/l	0.2	NONE	0.80	< 0.20	8.00	4.20	2.12
Fe ³⁺	mg/l	0.2	NONE	< 0.20	< 0.20	< 0.20	0.25	< 0.20
i c	mg/i	0.2	NONE	₹ 0.20	₹ 0.20	₹ 0.20	0.23	₹ 0.20
Monoaromatics								
Benzene	μg/l	1	ISO 17025	6.1	7.5	9.0	5.8	3.9
Toluene	μg/I	1	ISO 17025	122	99.3	159	86.6	99.9
Ethylbenzene	μg/I μg/I	1	ISO 17025	199	203	272	215	109
•		1						
p & m-xylene	μg/l		ISO 17025	841	653	1210	904	1070
o-xylene	μg/l	1	ISO 17025	1510	1080	1540	1170	1520
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TDH_CWG_Aliphatic > C5_C6	//	1	ISO 17025	- 10	- 1 O	× 1.0		
TPH-CWG - Aliphatic > C5 - C6	μg/l			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic > C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	600	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	600	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	6.1	7.5	9.0	5.8	3.9
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	120	99	160	87	100
TPH-CWG - Aromatic > C8 - C10	μg/l	1	ISO 17025	10000	6500	14000	15000	7000
TPH-CWG - Aromatic >C10 - C12	μg/I	10	NONE	2700	2700	2600	5200	1600
TPH-CWG - Aromatic >C10 - C12 TPH-CWG - Aromatic >C12 - C16	μg/I	10	NONE	670	1200	880	890	1100
TPH-CWG - Aromatic >C12 - C10	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C21		10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l μg/l	10	NONE	14000	10000	18000	22000	9800
11 11 CHG - Albinauc (CS - CSS)	μу/і	10	NONE	14000	10000	10000	22000	5000





Your Order No: R-1339-7907-1005

Lab Sample Number		1047975	1047977	1047978	1047979	1047980		
Sample Reference				A3	A5	B5	B4	Z5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				17/09/2018	17/09/2018	17/09/2018	17/09/2018	17/09/2018
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	1210	715	2070	2660	1030
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	NONE	4900	130000	290000	91000	4800
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Environmental Forensics

Dichlorodifluoromethane

Gases								
Methane	mg/l	0.1	NONE	6.0	1.4	19	19	2.0

< 1.0

< 1.0

< 1.0

NONE

U/S = Unsuitable Sample I/S = Insufficient Sample





Your Order No: R-1339-7907-1005								
Lab Sample Number				1047981	1047982	1047983	1047984	1047985
Sample Reference				A2	BH36	D2	C2	C3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				18/09/2018	18/09/2018	18/09/2018	18/09/2018	18/09/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.7	6.7	6.8	7.3	6.8
Sulphate as SO₄	μg/l	45	ISO 17025	6360	13300	40800	49400	29800
Sulphate as SO ₄	mg/l	0.045	ISO 17025	6.4	13.3	40.8	49.4	29.8
Chloride	mg/l	0.15	ISO 17025	560	550	390	490	490
Nitrate as N	mg/l	0.01	ISO 17025	0.07	0.08	0.06	0.06	0.05
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.32	0.37	0.27	0.27	0.21
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	100	370	290	220	730
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	-	-	-	-	-
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	1.1	1.3	< 1.0	< 1.0	< 1.0
Redox Potential	mV	-800	NONE	-46.90	-32.60	-32.80	29.40	-80.80
Dissolved Oxygen	mg/l	1	NONE	7.2	5.6	5.4	6.2	4.7
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	48.2	54.4	67.7	73.8	52.4
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	3.2	1.4	1.4	0.057	11
Fe ²⁺	mg/l	0.2	NONE	3.00	1.32	1.25	< 0.20	10.5
Fe ³⁺	mg/l	0.2	NONE	< 0.20	< 0.20	< 0.20	< 0.20	0.37
Monoaromatics								
Benzene	μg/l	1	ISO 17025	2.3	10.6	12.2	3.5	4.4
Toluene	μg/l	1	ISO 17025	21.3	59.9	32.7	46.9	49.2
Ethylbenzene	μq/l	1	ISO 17025	141	280	163	191	240
p & m-xylene	μq/l	1	ISO 17025	1200	1210	917	778	1750
o-xylene	μg/l	1	ISO 17025	602	856	482	819	1810
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TDH CMC - Aliphatic > CE - CE		1	ISO 17025	~ 1 N	z 1 O	~ 1 N	z 1 O	z 1 O
TPH-CWG - Aliphatic > C5 - C6	μg/l		ISO 17025	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0	< 1.0	< 1.0 < 1.0
TPH-CWG - Aliphatic > C6 - C8	μg/l	1		< 1.0 < 1.0		< 1.0	< 1.0	
TPH-CWG - Aliphatic > C10 - C12	μg/l		ISO 17025		< 1.0	< 1.0	< 1.0	210 720
TPH-CWG - Aliphatic >C10 - C12 TPH-CWG - Aliphatic >C12 - C16	μg/l	10 10	NONE	< 10	< 10	310	240	
TPH-CWG - Aliphatic >C12 - C16 TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10
TPH-CWG - Aliphatic >C16 - C21 TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE NONE	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10
TPH-CWG - Aliphatic (C5 - C35)	μg/l μg/l	10	NONE	< 10	< 10	310	240	930
11 11 CVIG - Allphauc (C3 - C33)	µу/і	10	NONE	\ 10	< 10	310	470	930
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	2.3	11	12	3.5	4.4
TPH-CWG - Aromatic > C7 - C8	μg/I	1	ISO 17025	21	60	33	47	49
TPH-CWG - Aromatic >C7 - C6 TPH-CWG - Aromatic >C8 - C10	μg/I	1	ISO 17025	8200	13000	9300	12000	32000
TPH-CWG - Aromatic >C0 - C10 TPH-CWG - Aromatic >C10 - C12	μg/I	10	NONE	1500	1600	3800	3300	3900
TPH-CWG - Aromatic >C10 - C12 TPH-CWG - Aromatic >C12 - C16	μg/I μg/I	10	NONE	1500	180	250	250	190
TPH-CWG - Aromatic >C12 - C10	μg/I	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/I	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/I	10	NONE	9900	15000	13000	16000	36000
	P9/1			3300	10000	10000	20000	33300





Your Order No: R-1339-7907-1005

Lab Sample Number	ab Sample Number				1047982	1047983	1047984	1047985
Sample Reference				A2	BH36	D2	C2	C3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)		None Supplied	None Supplied	None Supplied	None Supplied	None Supplied		
Date Sampled	18/09/2018	18/09/2018	18/09/2018	18/09/2018	18/09/2018			
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	1250	2030	1610	2160	5660
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	NONE	4200	43000	35000	10000	75000
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	13	18	14	16	13

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B	L086A-UK	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
A3		W	18-10787	1047975	С	Biological oxygen demand (total) of water	L086-PL	С
A3		W	18-10787	1047975	С	Dissolved Oxygen in water	L086-PL	С
A5		W	18-10787	1047977	С	Biological oxygen demand (total) of water	L086-PL	С
A5		W	18-10787	1047977	С	Dissolved Oxygen in water	L086-PL	С
B4		W	18-10787	1047979	С	Biological oxygen demand (total) of water	L086-PL	С
B4		W	18-10787	1047979	С	Dissolved Oxygen in water	L086-PL	С
B5		W	18-10787	1047978	С	Biological oxygen demand (total) of water	L086-PL	С
B5		W	18-10787	1047978	С	Dissolved Oxygen in water	L086-PL	С
Z5		W	18-10787	1047980	С	Biological oxygen demand (total) of water	L086-PL	С
Z5		W	18-10787	1047980	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

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i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-10787-B

Project / Site name: Former Polycell Site Samples received on: 18/09/2018

Your job number: Samples instructed on: 18/09/2018

Your order number: R-1339-7907-1005 Analysis completed by: 25/09/2018

Report Issue Number: 1 **Report issued on:** 25/09/2018

Samples Analysed: 1 water sample



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order	No. I	0_1220_	7007_100E

Your Order No: R-1339-7907-1005							
Lab Sample Number				1047976			
Sample Reference				BH1-17			
Sample Number				None Supplied			
Depth (m)				None Supplied			
Date Sampled				17/09/2018			
Time Taken				None Supplied			
			Α				
	_	Limit of detection	Accreditation Status				
Analytical Parameter	Units	e m	ta edi				
(Water Analysis)	द्ध	g. c.	üs				
		3	9				
	1					<u>I</u>	
General Inorganics							
pH		NI/A	100 17025	0.2			
p⊓ Sulphate as SO₄	pH Units µg/l	N/A 45	ISO 17025 ISO 17025	9.3 83800			
Sulphate as SO ₄		0.045	ISO 17025	83.8			
	mg/l						
Chloride	mg/l	0.15	ISO 17025	490			
Nitrate as N Nitrate as NO ₃	mg/l	0.01	ISO 17025	0.40		1	
3	mg/l	0.05	ISO 17025	1.76		<u> </u>	
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	960	ļ	1	<u> </u>
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	520	ļ	1	<u> </u>
Redox Potential	mV	-800	NONE	57.30			
Dissolved Oxygen	mg/l	1	NONE	1.3	L	L	
Speciated PAHs							
Naphthalene	μg/l	0.01	ISO 17025	18.3			
Heavy Metals / Metalloids							
Iron (dissolved)	mg/l	0.004	ISO 17025	0.59			
Fe ²⁺	mg/l	0.2	NONE	< 0.20			
Fe ³⁺	mg/l	0.2	NONE	0.59			
Monoaromatics							
Benzene	μg/l	1	ISO 17025	6.3			
Toluene	μg/l	1	ISO 17025	85.1			
Ethylbenzene	μg/l	1	ISO 17025	176			
p & m-xylene	μg/l	1	ISO 17025	991			
o-xylene	μg/l	1	ISO 17025	1020			
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0			
	F 5/ ·						
Petroleum Hydrocarbons							
•							
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0			
TPH-CWG - Aliphatic > C6 - C8	μg/l	1	ISO 17025	< 1.0			
TPH-CWG - Aliphatic > C0 - C0	μg/l	1	ISO 17025	< 1.0			1
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	i	1	i
TPH-CWG - Aliphatic > C12 - C16	μg/l	10	NONE	< 10	i	1	1
TPH-CWG - Aliphatic >C12 - C10 TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	†	1	
TPH-CWG - Aliphatic >C10 - C21 TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10			
TPH-CWG - Aliphatic (C5 - C35)	μg/I μg/l	10	NONE	< 10		1	
CITO Amphado (CO COO)	P9/1	10	HONE	· 10			1
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	6.3		I	
TPH-CWG - Aromatic >C3 - C7 TPH-CWG - Aromatic >C7 - C8	μg/I μg/I	1	ISO 17025	85	 	 	
TPH-CWG - Aromatic > C8 - C10		1	ISO 17025	5700	1	1	
TPH-CWG - Aromatic >C8 - C10 TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	1600	 	1	
	μg/l				 	1	
TPH-CWG - Aromatic > C12 - C16	μg/l	10	NONE	390		1	
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10			
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	ļ	1	<u> </u>
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	7800			





Your Order No: R-1339-7907-1005							
Lab Sample Number				1047976			
Sample Reference				BH1-17			
Sample Number				None Supplied			
Depth (m)				None Supplied			
Date Sampled				17/09/2018			
Time Taken				None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	844			
1,2,3-Trichloropropane	μq/l	1	NONE	< 1.0		1	1
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0			
Bromochloromethane	μg/l	1	ISO 17025				
Dichloromethane	μg/l	100	NONE	47000			
Carbon disulphide	μg/l	1	NONE	< 1.0			
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0			





Your Order No: R-1339-7907-1005

Tour Order No. R-1559-7907-1005						
Lab Sample Number	1047976					
Sample Reference	nple Reference			BH1-17		
Sample Number				None Supplied		
Depth (m)	pth (m)			None Supplied		
Date Sampled				17/09/2018		
Time Taken				None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
Production and the Production						

Environmental Forensics

Gases

Guses						
Methane	mg/l	0.1	NONE	12		

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH1-17		W	18-10787	1047976	С	Biological oxygen demand (total) of water	L086-PL	С
BH1-17		W	18-10787	1047976	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



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Herts,
WD18 8YS



Analytical Report Number: 18-11067

Replaces Analytical Report Number: 18-11067, issue no. 1

Project / Site name: Former Polycell Site Samples received on: 19/09/2018

Your job number: Samples instructed on: 20/09/2018

Your order number: R-1339-7907-1005 Analysis completed by: 26/09/2018

Report Issue Number: 2 **Report issued on:** 26/09/2018

Samples Analysed: 4 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-1005

Your Order No: R-1339-7907-1005 Lab Sample Number 1049510 1049511 1049512 1049513								
Lab Sample Number					1049511	1049512	1049513	
Sample Reference	BH02-17	BH03-17	BH05d-17	BH06d-27				
Sample Number		None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)		None Supplied	None Supplied	None Supplied	None Supplied			
Date Sampled		19/09/2018	19/09/2018	19/09/2018	19/09/2018			
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.5	6.7	7.0	6.8	<u> </u>
Sulphate as SO ₄	μg/l	45	ISO 17025	40500	208000	118000	250000	
Sulphate as SO ₄	mg/l	0.045	ISO 17025	40.5	208	118	250	
Chloride	mg/l	0.15	ISO 17025	710	370	81	300	
Nitrate as N	mg/l	0.01	ISO 17025	0.14	0.08	1.20	0.12	
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.64	0.37	5.33	0.53	
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	510	46	23	71	
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	U/S	U/S	2.7	U/S	
Redox Potential	mV	-800	NONE	-35.90	-52.80	-47.50	-45.10	
Dissolved Oxygen	mg/l	1	NONE	4.4	5.4	7.3	6.8	
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	16.0	32.1	< 0.01	68.1	
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	15	4.5	0.017	2.4	
Fe ²⁺	mg/l	0.2	NONE	1.24	0.76	< 0.20	0.21	
Fe ³⁺	mg/l	0.2	NONE	14.1	3.77	< 0.20	2.20	
Monoaromatics								
Benzene	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	μg/l	1	ISO 17025	2.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	μg/l	1	ISO 17025	14.4	8.6	< 1.0	26.9	
p & m-xylene	μg/l	1	ISO 17025	130	172	< 1.0	304	
o-xylene	μg/l	1	ISO 17025	100	10.7	< 1.0	3.6	
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	





Your Order No: R-1339-7907-1005

Lab Sample Number	1049510	1049511	1049512	1049513				
Sample Reference				BH02-17	BH03-17	BH05d-17	BH06d-27	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied				
Depth (m)	None Supplied 19/09/2018	None Supplied	None Supplied	None Supplied				
Date Sampled		19/09/2018	19/09/2018	19/09/2018				
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	<u> </u>
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	
FPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
ΓPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	2.0	< 1.0	< 1.0	< 1.0	
ΓPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	3100	1800	< 1.0	3600	
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	2500	1200	< 10	3200	
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	250	260	< 10	330	
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	100	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	5900	3300	< 10	7100	
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	697	421	< 1.0	849	
.,2,3-Trichloropropane		1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
.,2,3-1 richloropropane .,3,5-Trichlorobenzene	μg/l μg/l	1	NONE NONE	< 1.0	< 1.0 < 1.0	< 1.0	< 1.0 < 1.0	
Bromochloromethane		1				< 1.0		
oromocniorometnane Dichloromethane	μg/l	100	ISO 17025 NONE	< 1.0 6400	< 1.0 110	< 1.0 1200	< 1.0 < 100	
	μg/l							
Carbon disulphide Dichlorodifluoromethane	μg/l μg/l	1	NONE NONE	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0 < 1.0	

Environmental Forensics								
Gases								
Mothano	ma/l	0.1	NONE	0.2	1.4	1.4	1.0	i

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B	L086A-UK	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.





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Analytical Report Number: 18-11068

Replaces Analytical Report Number: 18-11068, issue no. 2

Project / Site name: Former Polycell Site Samples received on: 19/09/2018

Your job number: Samples instructed on: 20/09/2018

Your order number: R-1339-7907-1005 Analysis completed by: 26/09/2018

Report Issue Number: 3 **Report issued on:** 26/09/2018

Samples Analysed: 6 water samples

Signed:

Jordan Hill Reporting Manager

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-1005

Tour Order No: K-1559-7907-1005			-									
Lab Sample Number		1049514	1049515	1049516	1049517	1049518						
Sample Reference				A6	B6	C6	C7	D4				
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied				
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied				
Date Sampled				18/09/2018	18/09/2018	18/09/2018	18/09/2018	19/09/2018				
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status									
General Inorganics												
pH	pH Units	N/A	ISO 17025	6.6	6.5	6.4	6.5	6.7				
Sulphate as SO ₄	μg/l	45	ISO 17025	11800	12600	8820	7760	24300				
Sulphate as SO₄	mg/l	0.045	ISO 17025	11.8	12.6	8.8	7.8	24.3				
Chloride	mg/l	0.15	ISO 17025	420	820	810	830	640				
Nitrate as N	mg/l	0.01	ISO 17025	0.10	0.11	0.22	0.17	0.08				
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.43	0.48	0.96	0.75	0.37				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	550	2200	1200	990	420				
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	260	500	430	300	-				
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	-	-	-	-	U/S				
Redox Potential	mV	-800	NONE	-32.50	-22.60	-28.10	-9.80	-69.90				
Dissolved Oxygen	mg/l	1	NONE	1.3	1.7	1.1	1.4	4.0				
Speciated PAHs												
Naphthalene	μg/l	0.01	ISO 17025	52.6	84.4	116	62.4	68.7				
Heavy Metals / Metalloids												
Iron (dissolved)	mg/l	0.004	ISO 17025	2.6	5.9	7.3	3.8	12				
Fe ²⁺	mg/l	0.2	NONE	1.12	2.12	2.66	1.99	1.86				
Fe ³⁺	mg/l	0.2	NONE	1.49	3.76	4.62	1.86	10.6				
Monoaromatics	-											
Benzene	μg/l	1	ISO 17025	1.7	8.4	4.4	6.1	1.7				
Toluene	μg/l	1	ISO 17025	37.0	201	68.6	102	23.6				
Ethylbenzene	μg/l	1	ISO 17025	80.5	338	149	189	112				
p & m-xylene	μg/l	1	ISO 17025	734	772	775	766	844				
o-xylene	μg/l	1	ISO 17025	944	964	1590	991	1080				
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				





Your Order No: R-1339-7907-1005

Your Order No: R-1339-7907-1005					_			
Lab Sample Number		1049514	1049515	1049516	1049517	1049518		
Sample Reference				A6	B6	C6	C7	D4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				18/09/2018	18/09/2018	18/09/2018	18/09/2018	19/09/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	1400	2300	< 10	190
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	1400	2300	< 10	190
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	1.7	8.4	4.4	6.1	1.7
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	37	200	69	100	24
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	4400	9800	11000	7900	12000
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	3600	17000	31000	8600	6100
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	3600	8000	7200	3300	1400
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	12000	35000	49000	20000	20000
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	597	< 1.0	4570	1750	5320
·								
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	NONE	4500	11000	4800	9300	3500
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Environmental Forensics

Environmental Forensies								
Cases								
Gases								
Methane	ma/l	0.1	NONE	3.9	21	12	18	17





Your Order No: R-1339-7907-1005

Your Order No: R-1339-7907-1005										
Lab Sample Number	1049519									
Sample Reference	D5									
Sample Number				None Supplied						
Depth (m)	None Supplied									
Date Sampled	18/09/2018									
Time Taken				None Supplied						
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status							
General Inorganics										
рН	pH Units	N/A	ISO 17025	6.6						
Sulphate as SO ₄	μg/l	45	ISO 17025	9960						
Sulphate as SO ₄	mg/l	0.045	ISO 17025	10.0						
Chloride	mg/l	0.15	ISO 17025	610						
Nitrate as N	mg/l	0.01	ISO 17025	0.11						
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.48						
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	420						
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	100						
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	-						
Redox Potential	mV	-800	NONE	-57.40						
Dissolved Oxygen	mg/l	1	NONE	1.5						
Speciated PAHs										
Naphthalene	μg/l	0.01	ISO 17025	41.5						
Heavy Metals / Metalloids										
Iron (dissolved)	mg/l	0.004	ISO 17025	8.6						
Fe ²⁺	mg/l	0.2	NONE	1.92						
Fe ³⁺	mg/l	0.2	NONE	6.66						
Monoaromatics										
Benzene	μg/l	1	ISO 17025	2.7		-				
Toluene	μg/l	1	ISO 17025	28.3						
Ethylbenzene	μg/l	1	ISO 17025	70.0		-				
p & m-xylene	μg/l	1	ISO 17025	441						
o-xylene	μg/l	1	ISO 17025	511						
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0						





Your Order No: R-1339-7907-1005

Your Order No: K-1339-7907-1005							
Lab Sample Number		1049519					
Sample Reference				D5			
Sample Number				None Supplied			
Depth (m)				None Supplied			
Date Sampled				18/09/2018			
Time Taken				None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
Petroleum Hydrocarbons					-		
TPH-CWG - Aliphatic >C5 - C6	μq/l	1	ISO 17025	< 1.0	T	T	1
TPH-CWG - Aliphatic >C6 - C8	μg/I	1	ISO 17025	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	µg/I	1	ISO 17025	< 1.0	1		
TPH-CWG - Aliphatic >C10 - C12	μg/I	10	NONE	140			
TPH-CWG - Aliphatic >C12 - C16	μg/I	10	NONE	< 10	1		
TPH-CWG - Aliphatic >C16 - C21	μg/I	10	NONE	< 10	1	1	1
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10			
TPH-CWG - Aliphatic (C5 - C35)	μg/I	10	NONE	140			
0.10 /pa (05 050)	P 9/·		HOHE	2.10	•		
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	2.7			
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	28			
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	4200			
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	10000			
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	2400			
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10			
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10			
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	17000			
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	814	1	1	
1,3,3-11iiiiGulyIDelizelle	μ9/1		130 1/025	017	I.	l .	<u> </u>
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0			
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0			
Bromochloromethane	μg/l	1	ISO 17025	< 1.0			
Dichloromethane	μg/l	100	NONE	3800			
Carbon disulphide	μg/l	1	NONE	< 1.0			
	μg/l	1	NONE	< 1.0			

Gases						
Mothano	ma/l	0.1	NONE	22		,





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	ter water (5 days). Accredited matrices: SW, PW, GW		L086-PL	W	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B	L086A-UK	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
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Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
A6		W	18-11068	1049514	С	Biological oxygen demand (total) of water	L086-PL	С
A6		W	18-11068	1049514	С	Dissolved Oxygen in water	L086-PL	С
B6		W	18-11068	1049515	С	Biological oxygen demand (total) of water	L086-PL	С
B6		W	18-11068	1049515	С	Dissolved Oxygen in water	L086-PL	С
C6		W	18-11068	1049516	С	Biological oxygen demand (total) of water	L086-PL	С
C6		W	18-11068	1049516	С	Dissolved Oxygen in water	L086-PL	С
C7		W	18-11068	1049517	С	Biological oxygen demand (total) of water	L086-PL	С
C7		W	18-11068	1049517	С	Dissolved Oxygen in water	L086-PL	С
D5		W	18-11068	1049519	С	Biological oxygen demand (total) of water	L086-PL	С
D5		W	18-11068	1049519	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
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Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-99008

Project / Site name: Former Polycell Site Samples received on: 05/09/2018

Your job number: Samples instructed on: 05/09/2018

Your order number: R 1339 7907 1005 Analysis completed by: 12/09/2018

Report Issue Number: 1 **Report issued on:** 12/09/2018

Samples Analysed: 4 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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	Your	Order	No:	R	1339	7907	1005
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Your Order No: R 1339 7907 1005								
Lab Sample Number				1038702	1038703	1038704	1038705	
Sample Reference				BH02-17	BH03-17	BH05-17	BH06-17	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				05/09/2018	05/09/2018	05/09/2018	05/09/2018	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics							_	
pH	pH Units	N/A	ISO 17025	6.9	7.5	7.4	7.1	
Sulphate as SO ₄	μg/l	45	ISO 17025	45700	3630	107000	217000	
Sulphate as SO ₄	mg/l	0.045	ISO 17025	45.7	3.6	107	217	
Chloride	mg/l	0.15	ISO 17025	610	110	160	300	
Nitrate as N	mg/l	0.01	ISO 17025	0.15	0.05	1.81	0.17	
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.64	0.21	8.00	0.75	
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	190	54	51	51	
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	2.1	3.4	2.6	1.7	
Redox Potential	mV	-800	NONE	164.40	148.80	154.90	163.60	
Dissolved Oxygen	mg/l	1	NONE	8.2	8.7	8.7	8.3	
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	0.88	0.19	< 0.01	13.6	
Heavy Metals / Metalloids		0.004	I-00 :	2.2	4-	0.000	0.50	-
Iron (dissolved)	mg/l	0.004	ISO 17025	2.2	1.7	0.062	0.58	
Fe ²⁺	mg/l	0.2	NONE	0.63	< 0.20	< 0.20	< 0.20	
Fe ³⁺	mg/l	0.2	NONE	1.53	1.71	< 0.20	0.58	
Monoaromatics			_		1		1	
Benzene	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	μg/l	1	ISO 17025	4.4	< 1.0	< 1.0	< 1.0	
p & m-xylene	μg/l	1	ISO 17025	45.8	< 1.0	< 1.0	104	
o-xylene	μg/l	1	ISO 17025	37.9	< 1.0	15.1	6.4	
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C3 - C7 TPH-CWG - Aromatic >C7 - C8	μg/I μg/I	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C7 - C8 TPH-CWG - Aromatic >C8 - C10	μg/I μg/I	1	ISO 17025	1500	8.8	43	1100	
TPH-CWG - Aromatic >Ct0 - C12	μg/I μg/I	10	NONE	7200	110	< 10	740	
TPH-CWG - Aromatic >C10 - C12 TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	5200	140	< 10	190	
TPH-CWG - Aromatic >C12 - C10	μg/l	10	NONE	2400	33	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	16000	290	43	2000	
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Your Order No: R 1339 7907 1005

Lab Sample Number				1038702	1038703	1038704	1038705	
Sample Reference				BH02-17	BH03-17	BH05-17	BH06-17	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)		None Supplied	None Supplied	None Supplied	None Supplied			
Date Sampled		05/09/2018	05/09/2018	05/09/2018	05/09/2018			
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	290	4.3	27.8	218	
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Dichloromethane	μg/l	100	NONE	47000	< 100	< 100	340	
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	0.6	1.9	3.2	3.3	





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B	L086A-UK	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.





Jennifer Russell

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i2 Analytical Ltd.
7 Woodshots Meadow,
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Herts,
WD18 8YS



Analytical Report Number: 18-99022

Project / Site name: Former Polycell Site Samples received on: 05/09/2018

Your job number: Samples instructed on: 05/09/2018

Your order number: R 1339 7907 1005 Analysis completed by: 12/09/2018

Report Issue Number: 1 **Report issued on:** 12/09/2018

Samples Analysed: 1 water sample



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Valir	Order	No.	D	1339	7907	1005

Your Order No: R 1339 7907 1005								
Lab Sample Number				1038810				
Sample Reference				BH36				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				04/09/2018				
Time Taken				None Supplied				
			Α					
		de L	Accreditation Status					
Analytical Parameter	Units	Limit of detection	creditat Status					
(Water Analysis)	ढ	tio	us					
		3 "	g					
	1				<u>I</u>			
General Inorganics								
рН	pH Units	N/A	ISO 17025	6.6				
Sulphate as SO ₄	μg/l	45	ISO 17025	21600				
Sulphate as SO ₄	mg/l	0.045	ISO 17025	21.6				
Chloride	mg/l	0.15	ISO 17025	630				
Nitrate as N	mg/l	0.01	ISO 17025	0.01				
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.05				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	420				
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	240				
Redox Potential	mV	-800	NONE	204.60				
Dissolved Oxygen	mg/l	1	NONE	1.6				
19					•	-	-	
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	60.6				
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	3.4				
Fe ²⁺	mg/l	0.2	NONE	0.26				
Fe ³⁺	mg/l	0.2	NONE	3.12				
Monoaromatics	1		1		ı	1		
Benzene	μg/l	1	ISO 17025	6.5				
Toluene	μg/l	1	ISO 17025	40.4				
Ethylbenzene	μg/l	1	ISO 17025	289				
p & m-xylene	μg/l	1	ISO 17025	1280				
o-xylene	μg/l	1	ISO 17025	984				
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0				
Debuglasses Undergraphene								
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0			l	
TPH-CWG - Aliphatic >C6 - C8	μg/I μg/I	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C6 - C6 TPH-CWG - Aliphatic >C8 - C10	μg/I μg/I	1	ISO 17025	< 1.0			1	
TPH-CWG - Aliphatic >C3 - C10 TPH-CWG - Aliphatic >C10 - C12	μg/I μg/I	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	μg/I	10	NONE	< 10			1	
TPH-CWG - Aliphatic > C16 - C21	μg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10			İ	
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10				
<u> </u>		-			-	-	-	-
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	6.5				
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	40				
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	9900				
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	8200				
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	330				
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	19000	_		_	





Your Order No: R 1339 7907 1005

Total Order No. R 1939 7507 1005												
Lab Sample Number	•	•	Ţ	1038810								
Sample Reference				BH36								
Sample Number		None Supplied										
Depth (m)	None Supplied											
Date Sampled				04/09/2018								
Time Taken				None Supplied								
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status									
VOCs												
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	1440								
						•						
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0								
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0								
Bromochloromethane	μg/l	1	ISO 17025	< 1.0								
Dichloromethane	μg/l	100	NONE	11000								
Carbon disulphide	μg/l	1	NONE	40								
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0								

Environmental Forensics

Gases						
Methane	mg/l	0.1	NONE	24		





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	w	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH36		W	18-99022	1038810	С	Biological oxygen demand (total) of water	L086-PL	С
BH36		W	18-99022	1038810	С	Dissolved Oxygen in water		С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-99025

Project / Site name: Former Polycell Site Samples received on: 05/09/2018

Your job number: Samples instructed on: 05/09/2018

Your order number: R 1339 7907 1005 Analysis completed by: 12/09/2018

Report Issue Number: 1 **Report issued on:** 12/09/2018

Samples Analysed: 15 water samples

Signed:

Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R 1339 7907 100	Your C	Order	No:	R	1339	7907	1005
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Your Order No: R 1339 7907 1005								
Lab Sample Number				1038815	1038816	1038817	1038818	1038819
Sample Reference				A2	A3	A6	B4	B5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				04/09/2018	04/09/2018	03/09/2018	03/09/2018	03/09/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.6	6.7	6.8	7.1	6.8
Sulphate as SO₄	μg/l	45	ISO 17025	6060	11100	18000	42700	48800
Sulphate as SO ₄	mg/l	0.045	ISO 17025	6.1	11.1	18.0	42.7	48.8
Chloride	mg/l	0.15	ISO 17025	480	260	360	480	650
Nitrate as N	mg/l	0.01	ISO 17025	< 0.01	0.07	0.01	< 0.01	0.02
Nitrate as NO ₃	mg/l	0.05	ISO 17025	< 0.05	0.32	0.05	< 0.05	0.11
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	48	430	470	640	1300
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	30	210	190	300	570
Redox Potential	mV	-800	NONE	197.50	191.10	189.30	192.30	188.60
Dissolved Oxygen	mg/l	1	NONE	3.2	1.3	1.5	1.3	1.1
	mg/i		NONE	5.2	1.5	1.5	1.5	1.1
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	35.0	114	44.5	30.2	165
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	4.1	3.9	1.6	2.1	1.4
Fe ²⁺	mg/l	0.2	NONE	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Fe ³⁺	mg/l	0.2	NONE	4.10	3.91	1.54	2.03	1.42
Monoaromatics								
Benzene	μg/l	1	ISO 17025	< 1.0	8.1	3.6	11.5	8.7
Toluene	μg/l	1	ISO 17025	< 1.0	175	44.3	38.9	127
Ethylbenzene	μg/l	1	ISO 17025	< 1.0	239	66.0	77.2	1010
p & m-xylene	μg/l	1	ISO 17025	452	1570	633	440	< 1.0
o-xylene	μg/l	1	ISO 17025	397	2370	964	549	1670
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C0 - C6 TPH-CWG - Aliphatic >C8 - C10	μg/I μg/I	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C0 - C10	μg/I μg/I	10	NONE	< 10	< 10	< 10	< 10	1600
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	700
TPH-CWG - Aliphatic >C12 - C16 TPH-CWG - Aliphatic >C16 - C21	μg/I μg/I	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 TPH-CWG - Aliphatic >C21 - C35	μg/I μg/I	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	μg/I μg/I	10	NONE	< 10	< 10	< 10	< 10 < 10	2300
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	< 1.0	8.1	3.6	12	8.7
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	< 1.0	170	44	39	130
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	4300	17000	5500	5400	19000
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	2900	12000	5400	5300	60000
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	420	5800	1400	1600	1700
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	52	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	7600	36000	12000	12000	81000
,/	1.5/		-					





Your Order No: R 1339 7907 1005

10di 01dei No. K 1555 7507 1005								
Lab Sample Number				1038815	1038816	1038817	1038818	1038819
Sample Reference				A2	A3	A6	B4	B5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	04/09/2018	04/09/2018	03/09/2018	03/09/2018	03/09/2018			
Time Taken		None Supplied	None Supplied	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	705	2790	760	771	3060
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	NONE	2600	4000	31000	24000	71000
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μq/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	21	5.2	2.7	> 25	> 25





VALIE	Order	No:	D	1220	7007	1005

Your Order No: R 1339 7907 1005								
Lab Sample Number				1038820	1038821	1038822	1038823	1038824
Sample Reference				B6	C2	C6	C7	D2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				03/09/2018	04/09/2018	03/09/2018	03/09/2018	04/09/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
		_	æ					
Analytical Parameter	_	Limit of detection	Accreditation Status					
(Water Analysis)	Units	ect nit	atu					
(Water Analysis)	y,	할 역	atic					
			š					
General Inorganics			T					
pH Sulphate as SO ₄	pH Units	N/A 45	ISO 17025 ISO 17025	6.6 14000	7.1 51600	6.5 10300	6.6 9290	7.0 41700
Sulphate as SO ₄	μg/l	0.045	ISO 17025		51.6	10.3	9290	41.7
•	mg/l		_	14.0				
Chloride	mg/l	0.15	ISO 17025	750	470	740	770	440
Nitrate as N Nitrate as NO ₃	mg/l mg/l	0.01	ISO 17025 ISO 17025	0.06 0.27	0.10 0.43	0.22 0.97	0.10 0.43	0.07 0.32
		2	ISO 17025	2100	690	880	970	390
Chemical Oxygen Demand (Total) BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025 ISO 17025	660	400	260	330	390 120
Redox Potential	mg/l mV	-800	NONE	189.50	177.60	193.00	196.30	166.90
Dissolved Oxygen	my mg/l	-800 1	NONE	1.8	< 1.0	2.3	2.4	1.5
Dissolved Oxygen	IIIg/I		NONE	1.0	< 1.0	2.3	2.7	1.3
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	32.8	128	23.4	25.2	12.1
<u> </u>		•	-		•	•	•	
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	2.2	1.8	8.2	2.3	0.16
Fe ²⁺	mg/l	0.2	NONE	0.28	< 0.20	2.79	0.72	< 0.20
Fe ³⁺	mg/l	0.2	NONE	1.92	1.84	5.46	1.55	< 0.20
Monoaromatics			I	7.4				10.7
Benzene	μg/l	1	ISO 17025	7.1	4.4	7.5	7.7	10.7
Toluene	μg/l	1	ISO 17025	112	99.5	138	128	41.7
Ethylbenzene	μg/l	1	ISO 17025	152	537	220	173	183
p & m-xylene	μg/l	1	ISO 17025	801	3650	1420	794	859
o-xylene MTBE (Methyl Tertiary Butyl Ether)	μg/l μg/l	1	ISO 17025 ISO 17025	1120 < 1.0	3860 < 1.0	1970 < 1.0	1200 < 1.0	863 < 1.0
MIDE (Methyl Tertially Butyl Ether)	μg/i		150 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	4700	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	790	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	5500	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	7.1	4.4	7.5	7.7	11
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	110	100	140	130	42
TPH-CWG - Aromatic > C8 - C10	μg/l	1	ISO 17025	8100	140000	17000	11000	14000
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	4500	29000	6700	5800	5600
TPH-CWG - Aromatic > C12 - C16	μg/l	10	NONE	3300	540	3000	890	990
TPH-CWG - Aromatic > C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10 10	NONE	< 10 16000	< 10 170000	< 10 27000	< 10 17000	< 10 20000
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	10000	1/0000	2/000	1/000	20000





Your Order No: R 1339 7907 1005

Todi Order No. K 1559 7907 1005								
Lab Sample Number				1038820	1038821	1038822	1038823	1038824
Sample Reference				B6	C2	C6	C7	D2
Sample Number	Sample Number					None Supplied	None Supplied	None Supplied
Depth (m)		None Supplied	None Supplied	None Supplied	None Supplied	None Supplied		
Date Sampled	03/09/2018	04/09/2018	03/09/2018	03/09/2018	04/09/2018			
Time Taken		None Supplied	None Supplied	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	1080	34500	2850	1590	2130
				1		1		
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	NONE	210000	15000	250000	310000	130000
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Environmental Forensics

Gases								
Methane	mg/l	0.1	NONE	17	23	6.0	7.2	> 25





Your O	rder No:	R 1339	7907	1005

Your Order No: R 1339 7907 1005								
Lab Sample Number				1038825	1038826	1038827	1038828	1038829
Sample Reference				D5	B3	Z5	A5	D4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				Deviating	04/09/2018	04/09/2018	04/09/2018	04/09/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
			A					
	1 _	Limit of detection	S					
Analytical Parameter	Units	e mi	edi					
(Water Analysis)	ढ	<u>ē</u> , e	tati					
		3	Accreditation Status					
			1					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.7	7.6	6.8	10.5	6.9
Sulphate as SO ₄	μg/l	45	ISO 17025	24900	58100	25000	87100	37500
Sulphate as SO ₄	mg/l	0.045	ISO 17025	24.9	58.1	25.0	87.1	37.5
Chloride	mg/l	0.15	ISO 17025	570	320	420	730	410
Nitrate as N	mg/l	0.01	ISO 17025	0.13	0.11	0.10	0.53	0.11
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.59	0.48	0.43	2.36	0.48
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	420	7400	200	1200	160
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	160	650	72	460	84
Redox Potential	mV	-800	NONE	179.90	180.40	165.10	123.10	157.50
Dissolved Oxygen	mg/l	1	NONE	2.3	2.0	2.6	17	2.3
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	41.7	54.8	62.4	72.4	48.5
								_
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	8.2	0.16	7.5	0.31	8.7
Fe ²⁺	mg/l	0.2	NONE	1.17	< 0.20	< 0.20	< 0.20	1.08
Fe ³⁺	mg/l	0.2	NONE	6.99	< 0.20	7.45	0.31	7.63
Management								
Monoaromatics			700 47005	12.5	12.5	2.0	F 2	2.2
Benzene	μg/l	1	ISO 17025	13.5 91.4	13.5 178	2.8 113	5.3	3.2 67.0
Toluene	μg/l		ISO 17025				144	
Ethylbenzene	μg/l	1	ISO 17025	258	318	160	301	171
p & m-xylene	μg/l	1	ISO 17025	1530	2150	1440	1940	1050
o-xylene MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	1870	2780 < 1.0	2310 < 1.0	2570	1390
MIDE (Metriyi Tertiary Butyi Etrier)	μg/l		ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	μq/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	510	< 10
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic > C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	510	< 10
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	14	14	2.8	5.3	3.2
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	91	180	110	140	67
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	22000	21000	14000	25000	13000
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	8900	8900	7200	14000	5700
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	1400	3100	2700	2000	650
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	52	31	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	32000	33000	24000	41000	19000





Your Order No: R 1339 7907 1005

Lab Sample Number				1038825	1038826	1038827	1038828	1038829
Sample Reference				D5	B3	Z5	A5	D4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Date Sampled				Deviating	04/09/2018	04/09/2018	04/09/2018	04/09/2018
Time Taken		None Supplied	None Supplied	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	3870	3360	2000	4390	2070
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	NONE	56000	240000	3700	180000	15000
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Environmental Forensics

G	ase	25	

Jases								
Methane	mg/l	0.1	NONE	21	17	3.2	1.0	24





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(AI, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom. For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
A2		W	18-99025	1038815	С	Biological oxygen demand (total) of water	L086-PL	С
A2		W	18-99025	1038815	С	Dissolved Oxygen in water	L086-PL	С
A3		W	18-99025	1038816	С	Biological oxygen demand (total) of water	L086-PL	С
A3		W	18-99025	1038816	С	Dissolved Oxygen in water	L086-PL	С
A5		W	18-99025	1038828	С	Biological oxygen demand (total) of water	L086-PL	С
A5		W	18-99025	1038828	С	Dissolved Oxygen in water	L086-PL	С
A6		W	18-99025	1038817	С	Biological oxygen demand (total) of water	L086-PL	С
A6		W	18-99025	1038817	С	Dissolved Oxygen in water	L086-PL	С
B3		W	18-99025	1038826	С	Biological oxygen demand (total) of water	L086-PL	С
B3		W	18-99025	1038826	С	Dissolved Oxygen in water	L086-PL	С
B4		W	18-99025	1038818	С	Biological oxygen demand (total) of water	L086-PL	С
B4		W	18-99025	1038818	С	Dissolved Oxygen in water	L086-PL	С
B5		W	18-99025	1038819	С	Biological oxygen demand (total) of water	L086-PL	С
B5		W	18-99025	1038819	С	Dissolved Oxygen in water	L086-PL	С
B6		W	18-99025	1038820	С	Biological oxygen demand (total) of water	L086-PL	С
B6		W	18-99025	1038820	С	Dissolved Oxygen in water	L086-PL	С
C2		W	18-99025	1038821	С	Biological oxygen demand (total) of water	L086-PL	С
C2		W	18-99025	1038821	С	Dissolved Oxygen in water	L086-PL	С
C6		W	18-99025	1038822	С	Biological oxygen demand (total) of water	L086-PL	С
C6		W	18-99025	1038822	С	Dissolved Oxygen in water	L086-PL	С
C7		W	18-99025	1038823	С	Biological oxygen demand (total) of water	L086-PL	С
C7		W	18-99025	1038823	С	Dissolved Oxygen in water	L086-PL	С
D2		W	18-99025	1038824	С	Biological oxygen demand (total) of water	L086-PL	С
D2		W	18-99025	1038824	С	Dissolved Oxygen in water	L086-PL	С
D4		W	18-99025	1038829	С	Biological oxygen demand (total) of water	L086-PL	С
D4		W	18-99025	1038829	С	Dissolved Oxygen in water	L086-PL	С
D5		W	18-99025	1038825	а			
Z5		W	18-99025	1038827	С	Biological oxygen demand (total) of water	L086-PL	С
Z5		W	18-99025	1038827	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-99027

Project / Site name: Former Polycell Site Samples received on: 05/09/2018

Your job number: Samples instructed on: 05/09/2018

Your order number: R 1339 7907 1005 Analysis completed by: 12/09/2018

Report Issue Number: 1 **Report issued on:** 12/09/2018

Samples Analysed: 1 water sample



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

soils - 4 weeks from reporting leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Valle	Ordor	No.	п	1220	7007	100E

Your Order No: R 1339 7907 1005								
Lab Sample Number				1038832				
Sample Reference	BH1-17	1	1	1				
Sample Number				None Supplied				
Depth (m)		None Supplied						
Date Sampled		03/09/2018						
Time Taken				None Supplied				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
			5					
General Inorganics			•				•	1
pH Substance SO	pH Units	N/A	ISO 17025	10.3				
Sulphate as SO ₄	μg/l	45	ISO 17025	114000				
Sulphate as SO ₄	mg/l	0.045	ISO 17025	114				
Chloride	mg/l	0.15	ISO 17025	440				
Nitrate as N	mg/l	0.01	ISO 17025	1.35				
Nitrate as NO ₃	mg/l	0.05	ISO 17025	5.96				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	1500				
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	560				
Redox Potential	mV	-800	NONE	122.80				
Dissolved Oxygen	mg/l	1	NONE	2.8				
, , ,	-				•	•	•	•
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	36.7				
	F 5/							
Heavy Metals / Metalloids								
		0.004	ISO 17025	1.4				
Iron (dissolved)	mg/l	0.004		1.4				
Fe ²⁺	mg/l	0.2	NONE	< 0.20				
Fe ³⁺	mg/l	0.2	NONE	1.41				
Monoaromatics								
Benzene	μg/l	1	ISO 17025	4.8				
Toluene	μg/l	1	ISO 17025	52.5				
Ethylbenzene	μg/l	1	ISO 17025	106				
p & m-xylene	μg/l	1	ISO 17025	592				
o-xylene	μg/l	1	ISO 17025	905				
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0				
THE (Heary Ferdary Bucy Edici)	pg/1	-	150 17025	11.0	<u> </u>	<u> </u>		<u> </u>
Petroleum Hydrocarbons								
1 Caroleani II yarocarbono								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic > C6 - C8	μg/l	1	ISO 17025	< 1.0	 	 	 	1
TPH-CWG - Aliphatic > C8 - C10	μg/l	1	ISO 17025	< 1.0			 	
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10			 	<u> </u>
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10			!	
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10			ļ	
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	4.8				
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	53				
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	5500				
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	4900			1	
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	2000	Ī	Ī	1	Ī
TPH-CWG - Aromatic > C16 - C21	μg/l	10	NONE	92	†	†	1	
TPH-CWG - Aromatic >C10 - C21 TPH-CWG - Aromatic >C21 - C35	μg/I μg/I	10	NONE	< 10	 	 	 	<u> </u>
TPH-CWG - Aromatic (C5 - C35)	μg/I μg/I	10	NONE	13000	 	 	 	1
cita Alomade (co - coo)	µ9/1	10	INCINE	13000			<u> </u>	
V00-								
VOCs					1	1	T	1
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	737			I	
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0				
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0				
Bromochloromethane	μg/l	1	ISO 17025	< 1.0				
Dichloromethane	μg/l	100	NONE	8000				
Carbon disulphide	μg/l	1	NONE	< 1.0				
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0			Ī	
	P9/1			. 1.0				





Your Order No: R 1339 7907 1005

Tour Order No: K 1339 /90/ 1005						
Lab Sample Number			1038832			
Sample Reference	ple Reference			BH1-17		
Sample Number	nple Number			None Supplied		
Depth (m)	oth (m)			None Supplied		
Date Sampled	te Sampled			03/09/2018		
me Taken			None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

Environmental Forensics

Methane mg/l 0.1 NONE 9.2	Gases						
	Methane	mg/l	0.1	NONE	9.2		





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH1-17		W	18-99027	1038832	С	Biological oxygen demand (total) of water	L086-PL	С
BH1-17		W	18-99027	1038832	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

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i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
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Herts,
WD18 8YS



Analytical Report Number: 18-99770

Project / Site name: Former Polycell Site Samples received on: 11/09/2018

Your job number: Samples instructed on: 11/09/2018

Your order number: R-1339-7907-1005 Analysis completed by: 18/09/2018

Report Issue Number: 1 **Report issued on:** 18/09/2018

Samples Analysed: 7 water samples



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-1005

Your Order No: R-1339-7907-1005											
Lab Sample Number				1043121	1043122	1043123	1043124	1043125			
Sample Reference				B4	B5	B6	D2	C2			
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Date Sampled				10/09/2018	10/09/2018	10/09/2018	10/09/2018	10/09/2018			
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status								
General Inorganics											
pH	pH Units	N/A	ISO 17025	6.9	6.7	6.5	6.8	7.1			
Sulphate as SO ₄	μg/l	45	ISO 17025	40600	32800	12600	17200	39800			
Sulphate as SO ₄	mg/l	0.045	ISO 17025	40.6	32.8	12.6	17.2	39.8			
Chloride	mg/l	0.15	ISO 17025	490	750	810	420	500			
Nitrate as N	mg/l	0.01	ISO 17025	0.08	0.06	0.05	0.07	0.08			
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.37	0.27	0.21	0.32	0.37			
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	460	890	2500	240	390			
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	250	360	1200	46	130			
Redox Potential	mV	-800	NONE	-82.50	-76.10	-29.50	-31.40	-75.10			
Dissolved Oxygen	mg/l	1	NONE	2.1	1.5	2.6	1.3	1.3			
		B .			•						
Speciated PAHs											
Naphthalene	μg/l	0.01	ISO 17025	57.1	51.0	38.2	51.4	191			
Heavy Metals / Metalloids											
Iron (dissolved)	mg/l	0.004	ISO 17025	0.31	0.16	1.1	0.048	0.52			
Fe ²⁺	mg/l	0.2	NONE	0.30	< 0.20	1.04	< 0.20	< 0.20			
Fe ³⁺	mg/l	0.2	NONE	< 0.20	< 0.20	< 0.20	< 0.20	0.40			
	1119/1	0.2	HONE	0.20	10.20	0.20	1 0.20	0.10			
Monoaromatics		-									
Benzene	μg/l	1	ISO 17025	5.8	8.9	6.7	8.9	2.3			
Toluene	μg/l	1	ISO 17025	38.5	62.9	134	36.6	32.2			
Ethylbenzene	μg/l	1	ISO 17025	131	225	244	117	160			
p & m-xylene	μg/l	1	ISO 17025	1120	747	981	936	1360			
o-xylene	μg/l	1	ISO 17025	850	618	1110	758	1350			
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
Petroleum Hydrocarbons											
				<u>-</u>		<u>-</u>					
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10	< 10	< 10	800			
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10	< 10	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10	< 10	< 10	800			
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	5.8	8.9	6.7	8.9	2.3			
TPH-CWG - Aromatic > C7 - C8	μg/I	1	ISO 17025	39	63	130	37	32			
TPH-CWG - Aromatic >C8 - C10	μg/I	1	ISO 17025	11000	7500	13000	9400	29000			
TPH-CWG - Aromatic >C10 - C12	μg/I μg/I	10	NONE	2900	7800	5600	6800	19000			
TPH-CWG - Aromatic >C10 - C12 TPH-CWG - Aromatic >C12 - C16	μg/I μg/I	10	NONE	490	4200	300	1600	1700			
TPH-CWG - Aromatic >C12 - C16 TPH-CWG - Aromatic >C16 - C21	μg/I μg/I	10	NONE	< 10	< 10	< 10	< 10	< 10			
TPH-CWG - Aromatic >C10 - C21 TPH-CWG - Aromatic >C21 - C35	μg/I	10	NONE	< 10	< 10	< 10	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	μg/I	10	NONE	14000	20000	19000	18000	50000			
TITI CITO ATOMICCICO COS)	P9/1	10	NONE	1 1000	20000	1,000	10000	30000			





Your Order No: R-1339-7907-1005

Todi Ordei No. K-1339-7907-1003								
Lab Sample Number				1043121	1043122	1043123	1043124	1043125
Sample Reference	B4	B5	B6	D2	C2			
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)		None Supplied	None Supplied	None Supplied	None Supplied	None Supplied		
Date Sampled		10/09/2018	10/09/2018	10/09/2018	10/09/2018	10/09/2018		
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	1740	1170	2520	1510	5900
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	NONE	12000	17000	31000	18000	7100
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Environmental Forensics

Gases

Gases								
Methane	mg/l	0.1	NONE	29	32	18	25	21

U/S = Unsuitable Sample I/S = Insufficient Sample





Your Order No: R-1339-7907-100	Your O	rder No:	R-1339-	-7907-1005
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Your Order No: R-1339-7907-1005							
Lab Sample Number			1043126	1043127			
Sample Reference				A2	A3		
Sample Number			None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied		
Date Sampled			10/09/2018	10/09/2018			
Time Taken				None Supplied	None Supplied		
			Α				
		Limit of detection	20,00				
Analytical Parameter	Units	tec	ed ed				
(Water Analysis)	द्ध	tio of	us				
		-	Accreditation Status				
							*
General Inorganics							
рН	pH Units	N/A	ISO 17025	6.7	6.8		
Sulphate as SO₄	μg/l	45	ISO 17025	5960	7260		
Sulphate as SO₄	mg/l	0.045	ISO 17025	6.0	7.3		
Chloride	mg/l	0.15	ISO 17025	510	260		
Nitrate as N	mg/l	0.01	ISO 17025	0.10	0.11		
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.43	0.48		
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	71	420		
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	4.9	170		
Redox Potential	mV	-800	NONE	-30.70	-16.70		
Dissolved Oxygen	mg/l	1	NONE	1.4	1.7		
Speciated PAHs							
Naphthalene	μg/l	0.01	ISO 17025	40.2	86.1		
Heavy Metals / Metalloids		0.004		1.0	0.46		
Iron (dissolved)	mg/l	0.004	ISO 17025	1.8	0.46		
Fe ²⁺	mg/l	0.2	NONE	1.80	0.22		
Fe ³⁺	mg/l	0.2	NONE	< 0.20	0.24		
Monoaromatics							
Benzene	μg/l	1	ISO 17025	1.5	5.0		
Toluene	μg/l	1	ISO 17025	14.6	118		
Ethylbenzene	μg/l	1	ISO 17025	52.4	170		
p & m-xylene	μg/l	1	ISO 17025	804	1290		
o-xylene	μg/l	1	ISO 17025	709	1800		
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0		
THE (Hearly Ferdally Bacy) Earlery	P9/1	_	150 17025	11.0	11.0		•
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	μg/l	10	NONE	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	< 10	< 10		
						-	
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	1.5	5.0		
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	15	120		
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	6100	14000		
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	4200	11000		
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	500	4800		
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10	< 10		
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	11000	30000		





Your Order No: R-1339-7907-1005

Tour Order No. K-1339-7907-1003							
Lab Sample Number		1043126	1043127				
Sample Reference		A2	A3				
Sample Number				None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied		
Date Sampled				10/09/2018	10/09/2018		
Time Taken				None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	986	2030		
	·						•
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0		
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0		
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0		
Dichloromethane	μg/l	100	NONE	2600	5100		
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0		
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0		

Environmental Forensics

G	a	s	e	s

Gases							
Methane	mg/l	0.1	NONE	18	3.6		

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
A2		W	18-99770	1043126	С	Biological oxygen demand (total) of water	L086-PL	С
A2		W	18-99770	1043126	С	Dissolved Oxygen in water	L086-PL	С
A3		W	18-99770	1043127	С	Biological oxygen demand (total) of water	L086-PL	С
A3		W	18-99770	1043127	С	Dissolved Oxygen in water	L086-PL	С
B4		W	18-99770	1043121	С	Biological oxygen demand (total) of water	L086-PL	С
B4		W	18-99770	1043121	С	Dissolved Oxygen in water	L086-PL	С
B5		W	18-99770	1043122	С	Biological oxygen demand (total) of water	L086-PL	С
B5		W	18-99770	1043122	С	Dissolved Oxygen in water	L086-PL	С
B6		W	18-99770	1043123	С	Biological oxygen demand (total) of water	L086-PL	С
B6		W	18-99770	1043123	С	Dissolved Oxygen in water	L086-PL	С
C2		W	18-99770	1043125	С	Biological oxygen demand (total) of water	L086-PL	С
C2		W	18-99770	1043125	С	Dissolved Oxygen in water	L086-PL	С
D2		W	18-99770	1043124	С	Biological oxygen demand (total) of water	L086-PL	С
D2		W	18-99770	1043124	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-99801

Project / Site name: Former Polycell Site Samples received on: 11/09/2018

Your job number: Samples instructed on: 11/09/2018

Your order number: R-1339-7907-1005 Analysis completed by: 18/09/2018

Report Issue Number: 1 **Report issued on:** 18/09/2018

Samples Analysed: 1 water sample



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.





VALLE	Ordor	No. D.	-1339-	7007_1	

Sample Reference	Your Order No: R-1339-7907-1005							
Sample Number	Lab Sample Number				1043224			
Depth (m) Dept	Sample Reference							
Date Sampled	Sample Number							
Name Supplied Name Supplie	Depth (m)							
Analytical Parameter Value	Date Sampled				10/09/2018			
Process	Time Taken				None Supplied			
Process				Α .				
Process		_	de Li	200				
Process		<u>5</u> .	e ≡	ta edi				
Process	(Water Analysis)	द्ध	e of	:us				
Process			3	g				
Description Description						ı		
Description Description	General Inorganics							
Sulphate as SO ₄		-1111-7-	NI/A	100 17025	0.0			
Sulphate as SQ ₄						1		
Chloride		_					-	
Nitrate as N mg/l 0.01 ISD 17025 0.57				_		 	1	1
Nitrate as NO						_	 	-
Chemical Daygen Demand (Total) mg/l 2 iso 17025 1500 mg/l 1 iso 17025 1400 m						 	-	
BOD (Blochemical Oxygen Demand) (Total) - PL mg/l 1 ISO 17025 1400	3					 	 	
Redox Potential						 	1	1
Dissolved Oxygen						 	1	1
Speciated PAHS Naphthalene							1	
Naphthalene	Dissolved Oxygen	mg/l	1	NONE	1.5			l
Naphthalene								
Heavy Metals / Metalloids mg/l 0.004 ISO 17025 0.39								
Iron (dissolved)	Naphthalene	μg/l	0.01	ISO 17025	7.87	1		
Iron (dissolved)								
Monoaromatics Monoaromatic	Heavy Metals / Metalloids							
Monoaromatics March Marc	Iron (dissolved)	mg/l	0.004	ISO 17025	0.39			
Monoaromatics Manoaromatics Manoaromati	Fe ²⁺	mg/l	0.2	NONE	< 0.20			
Benzene	Fe ³⁺	mg/l	0.2	NONE	0.39			
Benzene								
Toluene	Monoaromatics							
Ethylbenzene	Benzene	μg/l	1	ISO 17025	4.9			
Ethylbenzene	Toluene	μg/l	1	ISO 17025	64.4			
p & m-xylene	Ethylbenzene	μg/l	1	ISO 17025	121			
φ-xylene μg/l 1 ISO 17025 1080 MTBE (Methyl Tertiary Butyl Ether) μg/l 1 ISO 17025 < 1.0	p & m-xylene		1	ISO 17025	658			
MTBE (Methyl Tertiary Butyl Ether) µg/l 1 ISO 17025 < 1.0 Petroleum Hydrocarbons TPH-CWG - Aliphatic > C5 - C6 µg/l 1 ISO 17025 < 1.0	o-xylene		1	ISO 17025	1080			
Petroleum Hydrocarbons Petroleum Hydrocarb			1					
TPH-CWG - Aliphatic > C5 - C6	= (,, =, =,	F 5/:						
TPH-CWG - Aliphatic > C5 - C6	Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C6 - C8	•							
TPH-CWG - Aliphatic >C6 - C8	TPH-CWG - Aliphatic >C5 - C6	ца/I	1	ISO 17025	< 1.0			
TPH-CWG - Aliphatic >C8 - C10 μg/l 1 ISO 17025 < 1.0								
TPH-CWG - Aliphatic >C10 - C12 μg/l 10 NONE < 10						1	Ì	
TPH-CWG - Aliphatic >C12 - C16 μg/l 10 NONE < 10						1	Ì	1
TPH-CWG - Aliphatic >C16 - C21						1	Ì	1
TPH-CWG - Aliphatic >C21 - C35						1	1	1
TPH-CWG - Aliphatic (C5 - C35) μg/l 10 NONE < 10								
TPH-CWG - Aromatic >C5 - C7						†	1	1
TPH-CWG - Aromatic > C7 - C8 μg/l 1 ISO 17025 64 TPH-CWG - Aromatic > C8 - C10 μg/l 1 ISO 17025 6100 TPH-CWG - Aromatic > C10 - C12 μg/l 10 NONE 350 TPH-CWG - Aromatic > C12 - C16 μg/l 10 NONE 83 TPH-CWG - Aromatic > C16 - C21 μg/l 10 NONE < 10		μ <u>у</u> / ι	10	INOINL	\ 10	1	1	1
TPH-CWG - Aromatic > C7 - C8 μg/l 1 ISO 17025 64 TPH-CWG - Aromatic > C8 - C10 μg/l 1 ISO 17025 6100 TPH-CWG - Aromatic > C10 - C12 μg/l 10 NONE 350 TPH-CWG - Aromatic > C12 - C16 μg/l 10 NONE 83 TPH-CWG - Aromatic > C16 - C21 μg/l 10 NONE < 10	TPH-CWG - Aromatic >C5 - C7	ua/l	1	ISO 1702F	40			
TPH-CWG - Aromatic > C8 - C10 μg/l 1 ISO 17025 6100 TPH-CWG - Aromatic > C10 - C12 μg/l 10 NONE 350 TPH-CWG - Aromatic > C12 - C16 μg/l 10 NONE 83 TPH-CWG - Aromatic > C16 - C21 μg/l 10 NONE < 10						 	1	1
TPH-CWG - Aromatic >C10 - C12 μg/l 10 NONE 350 TPH-CWG - Aromatic >C12 - C16 μg/l 10 NONE 83 TPH-CWG - Aromatic >C16 - C21 μg/l 10 NONE < 10						-	 	1
TPH-CWG - Aromatic >C12 - C16 μg/l 10 NONE 83 TPH-CWG - Aromatic >C16 - C21 μg/l 10 NONE < 10 TPH-CWG - Aromatic >C21 - C35 μg/l 10 NONE < 10						 	1	
TPH-CWG - Aromatic >C16 - C21 μg/l 10 NONE < 10 TPH-CWG - Aromatic >C21 - C35 μg/l 10 NONE < 10						 	1	
TPH-CWG - Aromatic >C21 - C35 μg/l 10 NONE < 10						 	1	1
1.57						 	}	1
IPH-CWG - Aromatic (C5 - C35) µg/l 10 NONE 6600								
	IPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	6600			





Your Order No: R-1339-7907-1005

Your Order No: R-1339-7907-1005							
Lab Sample Number				1043224			
Sample Reference				BH1-17			
Sample Number		None Supplied					
Depth (m)				None Supplied			
Date Sampled				10/09/2018			
Time Taken				None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	1110			
						•	
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0			
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0			
Bromochloromethane	μg/l	1	ISO 17025	< 1.0			
Dichloromethane	μg/l	100	NONE	14000			
Carbon disulphide	μg/l	1	NONE	< 1.0			
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0			

Environmental Forensics

Gases						
Methane	mg/l	0.1	NONE	18		

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH1-17		W	18-99801	1043224	С	Biological oxygen demand (total) of water	L086-PL	С
BH1-17		W	18-99801	1043224	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-99834-A

Replaces Analytical Report Number: 18-99834, issue no. 1

Project / Site name: Former Polycell Site Samples received on: 11/09/2018

Your job number: Samples instructed on: 12/09/2018

Your order number: R-1339-7907-1005 Analysis completed by: 20/09/2018

Report Issue Number: 2 **Report issued on:** 21/09/2018

Samples Analysed: 1 water sample



Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Vaur Order	No. D-123	39-7907-1005

Your Order No: R-1339-7907-1005						r	T	
Lab Sample Number				1043389				
Sample Reference				BH36				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				10/09/2018				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
На	pH Units	N/A	ISO 17025	6.7				
Sulphate as SO ₄	μg/l	45	ISO 17025	10900				
Sulphate as SO ₄	mg/l	0.045	ISO 17025	10.9				
Chloride	mg/l	0.15	ISO 17025	650				
Nitrate as N	mg/l	0.01	ISO 17025	0.05				
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.21	ĺ		İ	
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	510				
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	3.0	i e	İ	İ	†
Redox Potential	mV	-800	NONE	0.80				
Dissolved Oxygen	mg/l	1	NONE	2.9				
Disserved Oxygen	1119/1		HOHE	2.5				
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	113				
	-3/	****						
Heavy Metals / Metalloids								
Iron (dissolved)	mg/l	0.004	ISO 17025	0.63				
Fe ²⁺	mg/l	0.2	NONE	0.60				
Fe ³⁺	mg/l	0.2	NONE	< 0.20				
10	1119/1	0.2	HOHE	1 0.20				
Monoaromatics								
Benzene	μg/l	1	ISO 17025	4.6				
Toluene	μg/l	1	ISO 17025	31.0				
Ethylbenzene	μg/l	1	ISO 17025	340				
p & m-xylene	μg/l	1	ISO 17025	3970				
o-xylene	μg/l	1	ISO 17025	2420				
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0				
PITEL (Mediyi Terdary Bacyr Edici)	μ9/1	-	150 17025	V 1.0	l		1	
Petroleum Hydrocarbons								
F								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	μg/l	1	ISO 17025	< 1.0	Ì			
TPH-CWG - Aliphatic >C8 - C10	μg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	220	Ì			
TPH-CWG - Aliphatic >C12 - C16	μg/l	10	NONE	250	Ì			
TPH-CWG - Aliphatic >C16 - C21	μg/l	10	NONE	< 10				
TPH-CWG - Aliphatic > C21 - C35	μg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	μg/l	10	NONE	470				
	F 31 :						•	
TPH-CWG - Aromatic >C5 - C7	μg/l	1	ISO 17025	4.6				
TPH-CWG - Aromatic >C7 - C8	μg/l	1	ISO 17025	31				
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	35000				1
TPH-CWG - Aromatic >C10 - C12	μg/I	10	NONE	5200	1	1		
TPH-CWG - Aromatic >C12 - C16	μg/I	10	NONE	220				1
TPH-CWG - Aromatic >C12 - C10	μg/l	10	NONE	< 10			1	
TPH-CWG - Aromatic >C10 - C21 TPH-CWG - Aromatic >C21 - C35	μg/I	10	NONE	< 10			1	
TPH-CWG - Aromatic (C5 - C35)	μg/I	10	NONE	40000			1	
/ (55 555)	P3/1			.0000				





Your Order No: R-1339-7907-1005

Your Order No: R-1339-7907-1005							
Lab Sample Number				1043389			
Sample Reference				BH36			
Sample Number	Sample Number						
Depth (m)				None Supplied			
Date Sampled				10/09/2018			
Time Taken				None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	5620			
						•	
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0			
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0			
Bromochloromethane	μg/l	1	ISO 17025	< 1.0			
Dichloromethane	μg/l	100	NONE	17000			
Carbon disulphide	μg/l	1	NONE	< 1.0			
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0			

Environmental Forensics

Gases						
Methane	mg/l	0.1	NONE	19		

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B	L086A-UK	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH36		W	18-99834	1043389	С	Biological oxygen demand (total) of water	L086A-UK	С
BH36		W	18-99834	1043389	С	Dissolved Oxygen in water	L086-PL	С





Jennifer Russell

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i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-99937-A

Replaces Analytical Report Number: 18-99937, issue no. 1

Project / Site name: Former Polycell Site Samples received on: 12/09/2018

Your job number: Samples instructed on: 12/09/2018

Your order number: R-1339-7907-1005 Analysis completed by: 20/09/2018

Report Issue Number: 2 **Report issued on:** 21/09/2018

Samples Analysed: 6 water samples

Signed:

Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R-1339-7907-100	rour Oraei	er no:	K-13	39-79	W/-1	UUS
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Sample Reference	Your Order No: R-1339-7907-1005								
Sample Number	Lab Sample Number				1043935	1043936	1043937	1043938	1043939
Depth (m) Dexe Sampled									
Date Sampled	Sample Number								
Second Description Parameter Page Pa	Depth (m)								
Control Cont	Date Sampled				12/09/2018	12/09/2018	12/09/2018	12/09/2018	12/09/2018
Description Description	Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Description Description	Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Sulphate as SO ₄	General Inorganics							_	
Sulphate as SO ₄	pH	pH Units							
Chloride		μg/l	45	ISO 17025			7820		11800
Nirate as N	Sulphate as SO ₄	mg/l	0.045	ISO 17025	19.0	11.9	7.8	7.2	11.8
Nilvate as NO,	Chloride	mg/l	0.15	ISO 17025	470	490	810	800	460
Nilvate as NO,	Nitrate as N		0.01	ISO 17025	0.10	0.08	0.11	0.13	0.10
Chemical Doygen Demand (Total)		_	0.05	ISO 17025	0.43	0.37	0.48	0.59	0.43
SDO (Biochemical Oxygen Demand) (Total) - UK	Chemical Oxygen Demand (Total)		2	ISO 17025	200	910	730	780	180
Redox Potential									
Dissolved Oxygen									
Speciated PAHS Naghthalene									
Naphthalene	· -	ı iig/i		HOHE	0.1	7.0	0.3	5.2	0.2
Heavy Metals / Metalloids mg/l 0.004 ISO 17025 5.6 2.0 3.8 6.8 4.1		ug/l	0.01	ICO 1702E	40.6	72.4	26.5	29.6	25.1
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	тарпилане	μg/1	0.01	150 17025	40.0	72.4	20.3	26.0	23.1
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Heavy Metals / Metalloids		0.004	I		1 20	2.0		1 44
Monoaromatics Monoaromatic									
Monoaromatics Monoaromatics Maj M	Fe ²⁺								
Benzene μg/l 1 ISO 17025 2.9 4.4 16.0 10.8 6.6 Toluene μg/l 1 ISO 17025 101 66.6 148 83.5 27.7 Ethylbenzene μg/l 1 ISO 17025 107 126 271 140 85.9 μg/l 1 ISO 17025 1170 1020 1690 857 558 μg/l 1 ISO 17025 1170 1020 1690 857 558 ωχ/lene μg/l 1 ISO 17025 1840 1370 2140 1020 647 ΜΤΒΕ (Methyl Tertiary Butyl Ether) μg/l 1 ISO 17025 1840 1370 2140 1020 647 ΜΤΒΕ (Methyl Tertiary Butyl Ether) μg/l 1 ISO 17025 1.0 < 1.0 < 1.0 < 1.0 < 1.0 Ενετοίεωπ Hydrocarbons	Fe ^{3†}	mg/l	0.2	NONE	4.43	< 0.20	1.40	2.64	2.67
Toluene	Monoaromatics								
Ethylbenzene		μg/l							
p & m-xylene μg/l 1 ISO 1702S 1170 1020 1690 857 558 o-xylene μg/l 1 ISO 1702S 1840 1370 2140 1020 647 MTBE (Methyl Tertiary Butyl Ether) μg/l 1 ISO 1702S < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0<	Toluene	μg/l	1	ISO 17025		66.6		83.5	27.7
O-xylene µg/l 1 ISO 1702S 1840 1370 2140 1020 647 MTBE (Methyl Tertiary Butyl Ether) µg/l 1 ISO 1702S < 1.0	Ethylbenzene	μg/l	1	ISO 17025					
Petroleum Hydrocarbons Petroleum Hydrocarbons Petroleum Hydrocarbons Petroleum Hydrocarbons Petroleum Hydrocarbons Petroleum Hydrocarbons Petroleum Hydrocarbons Pug/I	p & m-xylene	μg/l	1	ISO 17025	1170	1020	1690	857	558
Petroleum Hydrocarbons Petroleum Hydrocar	o-xylene	μg/l	1	ISO 17025	1840	1370	2140	1020	647
TPH-CWG - Aliphatic > C5 - C6	MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Petroleum Hydrocarbons								
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	TPH-CWG - Aliphatic >C5 - C6	ug/l	l 1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$									
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$									
TPH-CWG - Aliphatic >C12 - C16 μg/l 10 NONE < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10									
TPH-CWG - Aliphatic >C16 - C21 μg/l 10 NONE < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10									
TPH-CWG - Aliphatic >C21 - C35 µg/l 10 NONE < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 <									
TPH-CWG - Aliphatic (C5 - C35) µg/l 10 NONE < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 <									
TPH-CWG - Aromatic > C7 - C8 μg/l 1 ISO 17025 100 67 150 84 28 TPH-CWG - Aromatic > C8 - C10 μg/l 1 ISO 17025 8600 6600 15000 6300 8100 TPH-CWG - Aromatic > C10 - C12 μg/l 10 NONE 2500 5200 3000 3100 2400 TPH-CWG - Aromatic > C12 - C16 μg/l 10 NONE 3500 1600 720 1200 850 TPH-CWG - Aromatic > C16 - C21 μg/l 10 NONE 59 < 10	TPH-CWG - Aliphatic (C5 - C35)								
TPH-CWG - Aromatic > C7 - C8 μg/l 1 ISO 17025 100 67 150 84 28 TPH-CWG - Aromatic > C8 - C10 μg/l 1 ISO 17025 8600 6600 15000 6300 8100 TPH-CWG - Aromatic > C10 - C12 μg/l 10 NONE 2500 5200 3000 3100 2400 TPH-CWG - Aromatic > C12 - C16 μg/l 10 NONE 3500 1600 720 1200 850 TPH-CWG - Aromatic > C16 - C21 μg/l 10 NONE 59 < 10	TRU CIVIC Assessment of CT			1700 1700-	2.0		16		
TPH-CWG - Aromatic >C8 - C10 μg/l 1 ISO 17025 8600 6600 15000 6300 8100 TPH-CWG - Aromatic >C10 - C12 μg/l 10 NONE 2500 5200 3000 3100 2400 TPH-CWG - Aromatic >C12 - C16 μg/l 10 NONE 3500 1600 720 1200 850 TPH-CWG - Aromatic >C16 - C21 μg/l 10 NONE 59 < 10									
TPH-CWG - Aromatic >C10 - C12 µg/l 10 NONE 2500 5200 3000 3100 2400 TPH-CWG - Aromatic >C12 - C16 µg/l 10 NONE 3500 1600 720 1200 850 TPH-CWG - Aromatic >C16 - C21 µg/l 10 NONE 59 < 10									
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$									
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$									
TPH-CWG - Aromatic >C21 - C35		μg/l							
Turner and the second s		μg/l							
TPH-CWG - Aromatic (C5 - C35) μg/l 10 NONE 15000 13000 19000 11000 11000									
	TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	15000	13000	19000	11000	11000





Your Order No: R-1339-7907-1005

10ul Oldel No. K-1339-7907-1003								
Lab Sample Number				1043935	1043936	1043937	1043938	1043939
Sample Reference				Z5	A6	C7	C6	D5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				12/09/2018	12/09/2018	12/09/2018	12/09/2018	12/09/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	966	736	2110	705	1240
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	μg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	μg/l	100	NONE	4500	29000	36000	30000	14000
Carbon disulphide	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Environmental Forensics

Ga	ses

Gases								
Methane	mg/l	0.1	NONE	3.9	8.3	22	17	17

U/S = Unsuitable Sample I/S = Insufficient Sample





Valle Orda	No: R-1339	_7007_1006

Your Order No: R-1339-7907-1005								
Lab Sample Number				1043940				
Sample Reference				D4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				12/09/2018				
Time Taken				None Supplied				
Time Taken	I			Hone Supplied	1		1	
		<u>-</u> -	Accreditation Status					
Analytical Parameter	⊊	Limit of detection	Sta					
(Water Analysis)	Units	ਉ. ਜੋ	it it					
		3 4	s ti					
			3					
General Inorganics						_		_
pH	pH Units	N/A	ISO 17025	6.8				
Sulphate as SO ₄	μg/l	45	ISO 17025	28200				
Sulphate as SO₄	mg/l	0.045	ISO 17025	28.2				
Chloride	mg/l	0.15	ISO 17025	410				
Nitrate as N	mg/l	0.01	ISO 17025	0.08				
Nitrate as NO ₃	mg/l	0.05	ISO 17025	0.37				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	170				
BOD (Biochemical Oxygen Demand) (Total) - UK	mg/l	1	ISO 17025	< 1.0	1	Ì	1	Ì
Redox Potential	mV	-800	NONE	25.30	1	İ	1	İ
Dissolved Oxygen	mg/l	1	NONE	6.8	1	1	1	1
Disserved Oxygen	ilig/i		NONL	0.0	1		1	
Speciated PAHs								
Naphthalene	μg/l	0.01	ISO 17025	40.7	I	I	I	I
парпинане	μg/1	0.01	130 17023	40.7				
Heavy Metals / Metalloids								
		0.004	TOO 47005	7.0	1	ı	1	ı
Iron (dissolved)	mg/l	0.004	ISO 17025	7.2				
Fe ²⁺	mg/l	0.2	NONE	1.70				
Fe ³⁺	mg/l	0.2	NONE	5.52		l .		
Monoaromatics					1		1	
Benzene	μg/l	1	ISO 17025	2.1				
Toluene	μg/l	1	ISO 17025	20.1				
Ethylbenzene	μg/l	1	ISO 17025	78.3				
p & m-xylene	μg/l	1	ISO 17025	562				
o-xylene	μg/l	1	ISO 17025	648				
MTBE (Methyl Tertiary Butyl Ether)	μg/l	1	ISO 17025	< 1.0				
<u> </u>				_	_		_	
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	μg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	μq/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic > C8 - C10	μg/l	1	ISO 17025	< 1.0	1		1	
TPH-CWG - Aliphatic >C10 - C12	μg/l	10	NONE	< 10	1	1	1	1
TPH-CWG - Aliphatic >C10 - C12	μg/I	10	NONE	< 10	1			
TPH-CWG - Aliphatic >C12 - C16 TPH-CWG - Aliphatic >C16 - C21		10	NONE	< 10	 	 	 	1
TPH-CWG - Aliphatic >C16 - C21 TPH-CWG - Aliphatic >C21 - C35	μg/l	10			 	1	 	1
TPH-CWG - Aliphatic (C5 - C35)	μg/l μg/l	10	NONE NONE	< 10 < 10	1		1	
TETT-CAAG - Wilhilatic (CO - COO)	μg/i	10	INOINE	< 10	<u> </u>		<u> </u>	
TDH CMC Aromatics CE C7		1	100 17005	2 1	1	I	1	I
TPH-CWG - Aromatic > C5 - C7	μg/l	1	ISO 17025	2.1	 		 	
TPH-CWG - Aromatic > C7 - C8	μg/l	1	ISO 17025	20	 	ļ	!	ļ
TPH-CWG - Aromatic >C8 - C10	μg/l	1	ISO 17025	9000				
TPH-CWG - Aromatic >C10 - C12	μg/l	10	NONE	4100		<u> </u>		<u> </u>
TPH-CWG - Aromatic >C12 - C16	μg/l	10	NONE	450				
TPH-CWG - Aromatic >C16 - C21	μg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	μg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	μg/l	10	NONE	14000				
•	-							





Your Order No: R-1339-7907-1005

Your Order No: K-1339-/90/-1005							
Lab Sample Number				1043940			
Sample Reference				D4			
Sample Number				None Supplied			
Depth (m)				None Supplied			
Date Sampled				12/09/2018			
Time Taken				None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
VOCs							
1,3,5-Trimethylbenzene	μg/l	1	ISO 17025	1350			
					,	•	
1,2,3-Trichloropropane	μg/l	1	NONE	< 1.0			
1,3,5-Trichlorobenzene	μg/l	1	NONE	< 1.0			
Bromochloromethane	μg/l	1	ISO 17025	< 1.0			
Dichloromethane	μg/l	100	NONE	6800			
Carbon disulphide	μg/l	1	NONE	< 1.0			
Dichlorodifluoromethane	μg/l	1	NONE	< 1.0			

Environmental Forensics

_	_	_		_
G	а	s	е	s

Gases					 	
Methane	mg/l	0.1	NONE	20		

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B	L086A-UK	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In-house method based on BS1377 Part 3, 1990 In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L084-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TO - Gases C1-C4	Determination of volatile hydrocarbons by GC-MS Headspace.	In-house method		W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Wheat Quarter Limited

Remediation Verification and Long-term Monitoring Plan (Southern Area)

Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK

NAPLID

016-1512 Revision 00 October 2018





Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-89053

Replaces Analytical Report Number: 18-89053, issue no. 1

Project / Site name: Former Polycell Site Samples received on: 14/06/2018

Your job number: Samples instructed on: 14/06/2018

Your order number: R/1339/7909/1005 Analysis completed by: 06/07/2018

Report Issue Number: 2 **Report issued on:** 06/07/2018

Samples Analysed: 1 water sample

Signed:

Jordan Hill Reporting Manager For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Your Order No: R/1339/7909/1005

oul Ordel No. K/1539/7909/1005								
Lab Sample Number				982048				
Sample Reference	BH36							
Sample Number				None Supplied				
Depth (m)	None Supplied							
Date Sampled	13/06/2018							
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Miscellaneous Organics					
Product ID	N/A	NONE	See Attached		

U/S = Unsuitable Sample I/S = Insufficient Sample





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

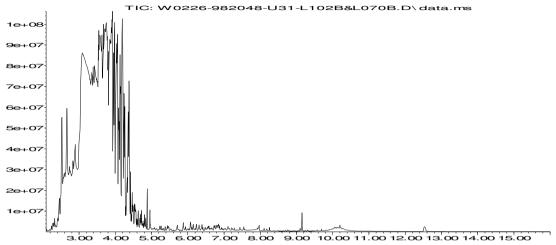
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Product ID	Determination of product ID by interpretation against standard chromatograms - Water.	In-house method	L070-PL/UK	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Abundance



Time-->

The total ion count (TIC trace) shows a carbon range from C8 to C35.

The sample TIC trace is complex, showing mainly aromatic and some aliphatic product sources.

The trace does not match the standard product profiles but is suggestive of a mixture of white spirit and kerosene.



Wheat Quarter Limited

Remediation Verification and Long-term Monitoring Plan (Southern Area)

Broadwater Road Site, Welwyn Garden City, AL8 6UN, UK

Soils

016-1512 Revision 00 October 2018





Sam Hall

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
7 Woodshots Meadow,
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Business Park,
Watford,
Herts,
WD18 8YS



Analytical Report Number: 18-88372

Replaces Analytical Report Number: 18-88372, issue no. 1

Project / Site name: Former Polycell Site Samples received on: 08/06/2018

Your job number: Samples instructed on: 08/06/2018

Your order number: R-1339-7909-1005 Analysis completed by: 06/07/2018

Report Issue Number: 2 **Report issued on:** 06/07/2018

Samples Analysed: 1 soil sample



Jordan Hill
Reporting Manager
For & on bobalf of i2 Ap

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Analytical Report Number: 18-88372 Project / Site name: Former Polycell Site Your Order No: R-1339-7909-1005

Lab Sample Number				977867				
Sample Reference				BHD02				
Sample Number	mple Number							
Depth (m)	epth (m)							
Date Sampled				08/06/2018				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	20				
Total mass of sample received	kg	0.001	NONE	0.60				
Monoaromatics	•					_	1	1
Benzene	ug/kg	1	MCERTS	< 1.0			1	
Toluene	μg/kg	1	MCERTS	< 1.0				
Ethylbenzene	μg/kg	1	MCERTS	68				
p & m-xylene	μg/kg	1	MCERTS	500				
o-xylene	μg/kg	1	MCERTS	430				
MTBE (Methyl Tertiary Butyl Ether)	ua/ka	1 1	MCERTS	< 1.0			I	

_				_
Petro	leum	Hvd	rocar	bons

Petroleum nyurocarbons						
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	13		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	13		

Miscellaneous Organics					
Product ID	N/A	NONE	See Attached		





* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
977867	BHD02	None Supplied	25.00-27.30	White clay and sand with chalk and gravel.





Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

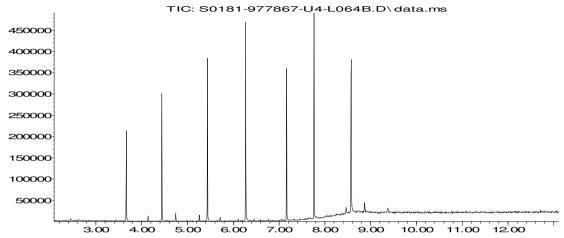
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Product ID in soil	Determination of product ID by interpretation against standard chromatograms - Soil.	In-house method	L064-PL/UK	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Abundance



Time-->

The total ion count (TIC trace) shows a carbon range from C8 to C35.
The sample TIC trace is simple, showing aromatic (below LOD) product sources.
The trace does not match the standard product profiles.



Jennifer Russell

John F. Hunt Remediation UK Europa Park London Road, Grays Essex RM20 4DB



i2 Analytical Ltd.
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WD18 8YS



Analytical Report Number: 18-89175

Replaces Analytical Report Number: 18-89175, issue no. 1

Project / Site name: Former Polycell Site Samples received on: 15/06/2018

Your job number: Samples instructed on: 15/06/2018

Your order number: Analysis completed by: 06/07/2018

Report Issue Number: 2 **Report issued on:** 06/07/2018

Samples Analysed: 1 soil sample



Jordan Hill Reporting Manager

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are : soils - 4 weeks from reporting

leachates - 2 weeks from reporting waters - 2 weeks from reporting asbestos - 6 months from reporting

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Lab Sample Number

Sample Reference				BHD04				
Sample Number				None Supplied				
Depth (m)	28.60-30.00							
Date Sampled				15/06/2018				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	22				
Total mass of sample received	kg	0.001	NONE	0.59				
General Inorganics Total Sulphate as SO ₄	mg/kg	50	NONE	430				
Water Soluble SO4 16hr extraction (2:1 Leachate		0.00135	NONE	0.015				
Equivalent)	g/l	0.00125	NONE	0.015				
Total Chloride Water Soluble Chloride (2:1)	mg/kg mg/kg	5 1	NONE NONE	180 150				
Water Soluble Chiloride (2.1)	mg/kg	1	NONE	130		I .	I	
Speciated PAHs								
Naphthalene	mg/kg	0.05	NONE	< 0.05				
Monoaromatics			NO.	.10		T		
Benzene	ug/kg	1	NONE	< 1.0				
Toluene Ethylbenzene	μg/kg	1	NONE NONE	< 1.0 4.8				
p & m-xylene	μg/kg	1	NONE	26				
o-xylene	μg/kg μg/kg	1	NONE	16				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg µg/kg	1	NONE	< 1.0				
Petroleum Hydrocarbons	Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	NONE	< 0.001				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	NONE	< 0.001				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	NONE	< 0.001				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	NONE	< 1.0				
TPH-CWG - Aliphatic > EC12 - EC16	mg/kg	2 8	NONE	< 2.0 < 8.0				
TPH-CWG - Aliphatic >EC16 - EC21 TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	NONE NONE	< 8.0 < 8.0				
TELL-CAAG - WIIhlianc >FCS1 - EC33	mg/kg	0	INUNE	< 0.0		1		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	NONE	< 0.001				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	NONE	< 0.001				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	NONE	0.30				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	NONE	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	NONE	< 2.0				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	NONE	< 10				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	NONE	< 10				
g	-		1					
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	NONE	< 10				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	NONE	< 10				
VOCs								
1,3,5-Trimethylbenzene	μg/kg	1	NONE	56				
1,2,4-Trimethylbenzene	μg/kg	1	NONE	190				
Dichloromethane	μg/kg	100	NONE	< 100	1	I	I	l l

982765



* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
982765	BHD04	None Supplied	28.60-30.00	White chalk with gravel. **

^{**} Non MCERTS matrix.



Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride in soil	Determination of acid soluble chloride in soil by extraction with nitric acid, addition of silver nitrate followed by titration against thiocyanate.	In-house method	L075-PL	D	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests. 2:1 extraction.	L082-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP- OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP- OES.	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.		L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

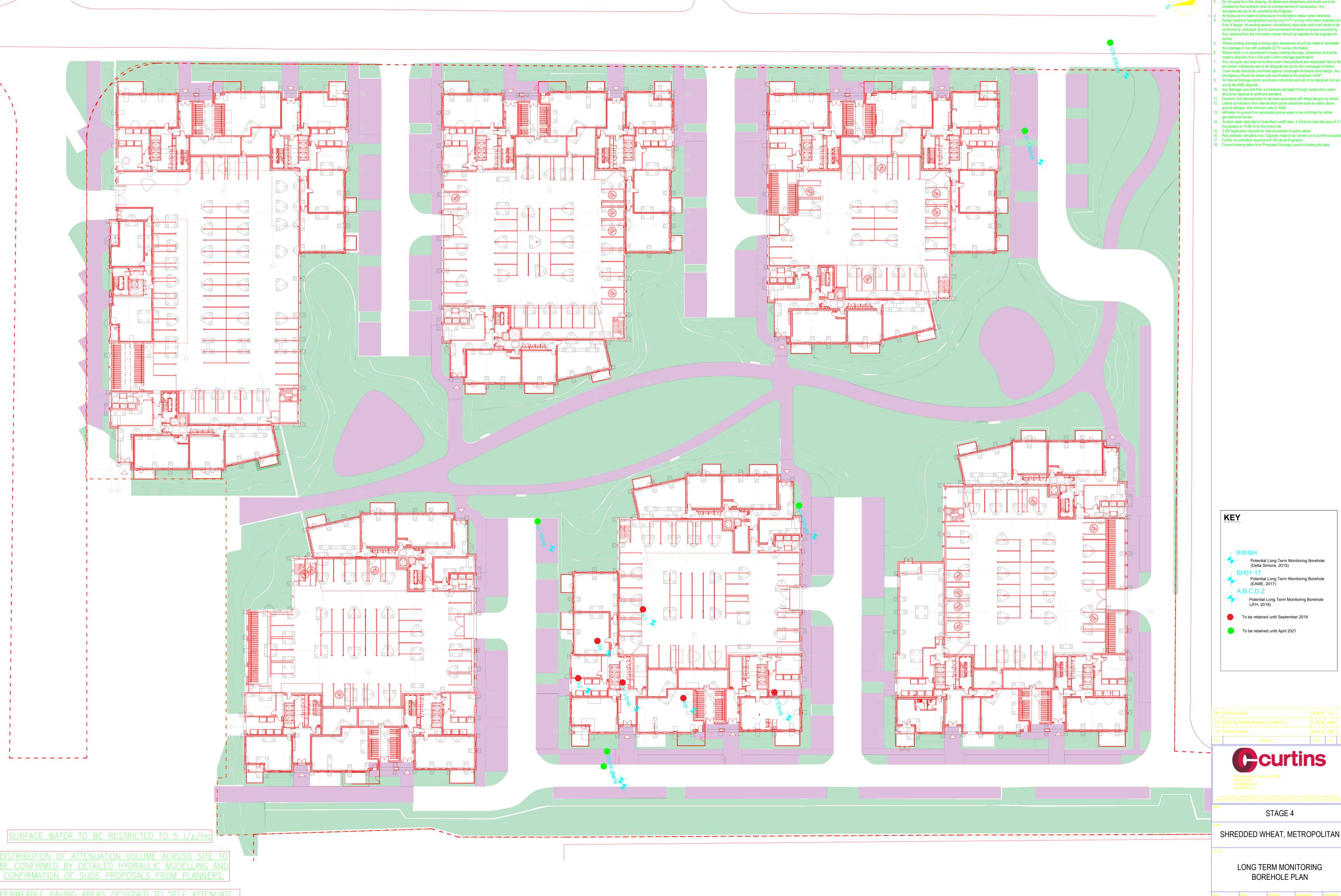
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Annex G – Post-remediation and Long-term Monitoring Plan

016-1512 Revision 02 November 2018



DUE TO UNDERLYING CHALK. YARD GULLIES IN PATIO AREAS

MY BE ABLE TO DISCHARGE TO GROUND INFILTRATION TO BE CONFIRMED BY GEO-TECHNICAL REVIEW.

This drawing is to be read in conjunction with all relevant Architects and Engineers

checked by the contractor prior to commencement of construction. Any discrepancies are to be reported to the Engineer.

All levels are in meters & dimensions in millimeters unless noted otherwise.

Design based on topographical survey and CCTV survey information available at the Any variance from the information shown should be reported to the engineer for

Lateral connections from internal drain points should be sized to match above ground designs, with minimum size of 100Ø.

15. S106 Application required for new connection to public sewer.
16. Pipe diameter indicative only. Capacity check to be carried out to confirm proposals
17. Further co-ordination required with Structural Engineers.

18. Current drawing taken from Proposed Drainage Layout including pile caps.

Potential Long Term Monitoring Borehole (Delta Simons, 2015) Potential Long Term Monitoring Borehole (EAME, 2017) Potential Long Term Monitoring Borehole (JFH, 2018)

Ccurtins

STAGE 4

SHREDDED WHEAT, METROPOLITAN

LONG TERM MONITORING BOREHOLE PLAN

W.SPRAGGS W.SPRAGGS D.HAMMOND

067358 - CUR - 00 - 00 - DR -GE- 00003 -P01