



RVA GROUP

Decommissioning,  
decontamination,  
dismantling and demolition  
consulting engineers

## **Decommissioning Plan**

**For the Enemalta Corporation**

**Delimara Power Station**

**at Delimara, Malta**



# **Delimara Power Station, Delimara, Marsaxlokk**

## **Decommissioning Plan**

### **SCP Phase 1**





## **Executive Summary**

Laboratory analysis of soil samples from Delimara has identified low concentrations of metals in all samples. Low concentrations of polycyclic aromatic hydrocarbons (PAHs), volatile and semi-volatile organic compounds (VOCs and SVOCs), and extractable petroleum hydrocarbons (EPH) were identified in localised areas. All concentrations of contaminants did not exceed Generic Assessment Criteria (GACs) for a commercial/industrial end use.

Elevated concentrations of petroleum hydrocarbons (i.e. above method detection limit of 35mg/kg) were identified in the natural mudstone between depths of 1.8m and 3.0m bgl at BH08, which suggests there may be localised leakage from a sump. The pollution prevention measures may be inadequate in this area. Concentrations of petroleum hydrocarbons were assessed against the relevant Generic Assessment Criteria and were not found to exceed the values.

The likelihood of their being significant contamination of the land was assessed and no present risk was identified.

As a result of the initial findings of the land investigation in relation to contamination, it is recommended that as a minimum an additional soil monitoring investigation is undertaken immediately prior to the IPPC permit surrender. The investigation should be at least equal in detail to the current investigation, but should also take into account any polluting incidents.

The dismantling of the Phase 1 Power Generating Plant will not have any effect on the original conclusions of the Outline Decommissioning Plan.

It is understood that MEPA has agreed that the IPPC permit will not require surrender at this stage and the boundary of the permit will not change. For this reason, there is no requirement at this stage to undertake remediation of Phase 1 Area; remediation will be undertaken for Phase 1 as part of the whole site when the IPPC permit is surrendered.

It is anticipated that no sub-surface ground excavation will be undertaken during the Phase 1 decommissioning works. However, should these Phase 1 decommissioning works involve excavation of the sub-surface, then in accordance with best practice guidance, a 'watching brief' should be implemented during the programme, whereby unusual or 'out-of-character' materials (if identified) can be assessed or stockpiled/contained until such assessment can be undertaken. If hazardous



materials such as asbestos containing materials etc are identified, these should be subject to site contingency plans, health & safety risk assessment and outline method statements/procedures for their identification, handling, removal and disposal. All remedial activities would be validated and a completion report generated.



**ENEMALTA CORPORATION**  
**DELIMARA POWER STATION, DELIMARA, MARSAXLOKK**  
**DECOMMISSIONING PLAN**

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## **Introduction**

From the requirements of the Integrated Pollution Prevention and Control Regulations (LN 10 of 2013) Delimara Power Station (DPS) operates under an IPPC Environmental Permit (EP), number IP 0002/07/E.

As part of the requirements of this EP there is a need to provide an Outline Decommissioning Plan (ODP) for the site – Condition 2.16.1 of the EP – which needs to be reviewed and updated during the operational life of the site.

RVA has been appointed to produce this revised Decommissioning Plan (DP) (an update of the ODP) on behalf of the Enemalta Corporation (Enemalta), who have in turn appointed ENVIRON to assist in the execution and production of a report associated with the ground conditions at the site.

The requirement for an updated DP is due to the proposal to dismantle the Phase 1 Power Generating Plant and hence to assess the effects of these works on the conclusions of the ODP.

This DP covers the following requirements of the EP (note the number of the Conditions mirrors that in the EP):

- 2.16.3            The operator shall submit to the Authority a report by a qualified geologist on the likelihood of their being a significant contamination of the land on the site by any of the pollutants in Schedule 9. Should it result that the land is likely to contain environmentally significant amounts of these pollutants, this report shall contain as a minimum the measured concentrations of the substances specified in Schedule 9:
  - 2.16.3.1        This monitoring programme shall amongst other things include the location of the points for the sampling of land, information on the sampling methods, the handling of the samples, the pretreatment/extraction of the analytes (where applicable) and the methods used in order to analyse the samples.
  - 2.16.3.2        Samples should be analysed to the relevant EN or EN ISO standards or equivalent.



- 2.16.3.3 Samples shall be managed by a lab accredited (or in the process of accreditation, as confirmed by the National Accreditation Body (NAB-Malta) or equivalent) to at least EN ISO 17025:2005/Cor 1:2006 and preferably accredited for each and every analysis
- 2.16.3.4 Land monitoring shall be repeated at least every four years, and results included in the AER
- 2.16.5 The operator shall submit to the Authority for review a full Decommissioning Plan. This full Decommissioning Plan shall at least include the following information:
  - 2.16.5.1 A detailed monitoring programme which will illustrate how the operator will measure the current levels of various pollutants in the land:
    - 2.16.5.1.1 The list of the pollutants to be monitored for shall be as per Schedule 9.
    - 2.16.5.1.2 The monitoring programme shall amongst other things include the location of the points for the sampling of land, the sampling methods, the handling of the samples, the pretreatment/extraction of the analytes (where applicable) and the methods used in order to analyse the samples.
    - 2.16.5.1.3 Samples should be analysed to the relevant EN or EN ISO standards or equivalent.
    - 2.16.5.1.4 Samples shall be managed by a lab accredited (or in the process of accreditation, as confirmed by the National Accreditation Body (NAB-Malta) or equivalent) to at least EN ISO 17025:2005/Cor 1:2006 and preferably accredited for each and every analysis





2.16.5.4 A Waste Management Plan which shall include:

- 2.16.5.4.1 The identification and characterisation of sources, types and quantities of waste (including equipment, fuels, by-products such as ash, etc.);
- 2.16.5.4.2 Criteria for segregation of wastes;
- 2.16.5.4.3 Proposed treatment, conditioning, transport, storage and disposal/recovery methods;
- 2.16.5.4.4 Potential reuse/recycling of such wastes.

2.16.5.5 The identification of potential sources of emissions to the atmosphere, land and water (both seawater and groundwater) pollution which might arise from the decontamination process and corresponding mitigation measures to minimise the likelihood of such emissions.

Both Enemalta and RVA (including ENVIRON) place EHS excellence as prime business drivers and this philosophy has been taken as the base criteria for the compilation of this document.

**Terms of reference**

DPS is located to the south of the island of Malta on the edge of Marsaxlokk Bay, on the west side of the Delimara Peninsula. The site is constructed on flat ground that has been formed by cutting the cliff and constructing a platform that protrudes into the bay. This has resulted in the majority of the major plant being built on rock while the support network systems (cooling water intake and network, diesel storage tanks, etc.) are constructed on made land.

The site contains several different power generating plants:

**Phase 1**

This was the initial construction phase which was commissioned in 1992 and included two steam units each with a generating capacity of 60MW. Each unit comprise of:

- 260t/hr Waagner-Biro steam raising boiler (110barA at 513degrees Celsius, firing Heavy Fuel Oil [HFO])
- GHEL fully condensing steam turbine (87bar, 510 degrees Celsius)



- 75MW (60MW at 0.8pF) BHEL generator, generating at 11kV, stepped up to 132kV

These steam units utilise the following ancillary equipment and systems:

- Cooling water intake, outlet, and distribution network
- Water treatment plant, including storage
- Heavy Fuel Oil (HFO) storage tanks and distribution network
- Outgoing substation

Also as part of this phase the support structures built included:

- Gatehouse
- Administration building
- Workshop and storage
- Laboratory and fire station
- Quay

The Phase 1 Power Generating Plant dismantling includes the removal of:

- 2no. Waagner Biro Steam Boilers rated at 260T/H steam flow fired by Heavy Fuel Oil
- 2no. BHEL Steam turbines/Generators rated at 60MW output with all auxiliary equipment found inside the Turbine Hall.
- Phase 1 chimney, (consisting of chimneys D1A and D1B 150m high with concrete wind shield).

The Turbine Hall structure and site service electrical systems (including the pipebridge between the boilers and the Turbine Hall) are not included in the removal works.

### Phase 2A

This phase was commissioned in 1995 and is an open cycle gas turbine (OCGT). The system comprises of:

- 2x John Brown (JBE) (GE) MS6001B gas turbines
- 2x 47MVA (37.5MW at 0.8pF) Brush generators, generating at 11KV, stepped up to 33Kv.



The OCGT's utilise sections of the Phase 1 ancillary equipment, systems and support buildings, however in addition the following was built to support their operation:

- 4xgas/diesel oil (GDO) storage tanks and distribution network

### Phase 2B

This phase was commissioned in 1999 and is a combined cycle gas turbine (CCGT). The system comprises of:

- 2x NP (GE) MS6001B gas turbines
- 1x GE fully condensing steam turbine (sliding pressure 17-50barA, 504 degrees Celsius)
- 2x 65t/hr Stork Ketel heat recovery steam raising boilers (50barA at 504 degrees Celsius, unfired)
- 3x 55MVA (44MW at 0.8pF) Brush generators, generating at 13.8kV, stepped up to 132kV

Again this phase utilises the systems and support buildings from the previous phases however the following additional was built to support the site network:

- New site control room
- Additional treated water storage tanks

### Phase 3

This phase was commissioned in 2012. The plant consists of:

- 8x Wartsila 18V46 medium speed diesel engines
- 8x Wartsila AMG generators
- 8x selective catalytic reduction (SCR) units
- 8x exhaust waste heat recovery boilers
- 4x de-sulphurisation units
- 1x fully condensing steam turbine
- 1x 13MW generator



As the previous phases this one utilises existing site systems and support buildings but in addition this phase includes:

- Fuel treatment facility
- Urea plant
- Flue gas desulphurisation reagent and waste handling plant

### **Layout of decommissioning plan**

The two main sections of this report – Site Condition Report and Waste Management Plan – are two separate stand alone documents.

#### **Site Condition Report**

A Site Condition Report describes and records the condition of the land and groundwater at a site; it enables the operator to demonstrate that they have protected land and groundwater during the lifetime of the site's permitted activities and it is in a satisfactory state when they plan to surrender the permit.

The Site Condition Report provides a point of reference at the start of operations or at the time the permit is issued so that when it time to surrender the permit, it can decide whether there has been any additional contamination of the site during the operation and ensure that the condition of the land and groundwater are in a “satisfactory state” when they apply to surrender of the permit.

Therefore a Site Condition Report has three stages; an Application Site Condition Report (Application Site Report) - issued to define a point of reference; an Operational Site Condition Report (Site Protection and Monitoring Plan) - which is used during the operational life of the plant; and a Surrender Site Condition Report (Closure Site Report) – which details the work required to surrender the EP.

#### **Site Waste Management Plan**

It is intended that the Waste Management Plan will be maintained and then utilised as the base estimate document for the actual decommissioning and demolition activities – whenever they may be.



## **Section 1 – Site Condition Report**

Covering EP Conditions: 2.16.3  
2.16.5.1  
2.16.5.5



## Site Condition Report (SCR)



Delimara Power Station  
Delimara  
Marsaxlokk  
MXK 1320  
Malta

Prepared for:  
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# 1 Introduction

## 1.1 Background to the Site Condition Report

This document has been prepared by ENVIRON UK Limited (ENVIRON) in support of the requirements for land monitoring data and an Outline Decommissioning Plan under Regulation 7 of Industrial Emissions (Integrated Pollution Prevention and Control) Regulations (LN 10 of 2013), which transpose the EU Industrial Emissions (IPPC) Directive (2010/75/EU) into Maltese law.

An Environmental Permit (EP) is required where an operator carries out certain prescribed activities, namely installations that undertake Schedule 1 activities, a waste operation or a mobile plant (carrying out either one of the Schedule 1 activities or a waste operation). Enemalta Corporation carry out activities covered in Section 1.1 of the IPPC regulations, comprising:

- Combustion installations with a rated thermal input exceeding 50 MW

Where the main activity of the installation is as follows:

- Generation of electrical energy through the combustion of heavy fuel oil (HFO) and gasoil.

In the absence of Maltese guidance, ENVIRON was commissioned by the RVA Group to undertake the production of the SCR in accordance with the Environment Agency of England and Wales (EA) Guidance Document H5 Site Condition Reports Guidance and Templates (Version 080328). The EA regulate IPPC permitting in the United Kingdom under EU IPPC Directive (2008/1/EC). Since Version 1 of the SCR was issued, an update to the H5 Site Condition Reports Guidance and Templates has been released in April 2013 (LIT 8001 Version 3.0).

## 1.2 Revisions to the Site Condition Report

This document represents an update to Version 1 of the Site Condition Report (SCR) (reference RUK22-16873 dated August 2011) which formed part of a package that was submitted to the IPPC Committee of the Competent Authority by Enemalta Corporation ('the Operator') to satisfy the requirements of the Improvement Programme of IPPC permit number IP 0002/07/A dated March 2010, specified in Condition 1.5.1. The Programme required the submission of land monitoring data (as per Condition 2.16.1) of the permit and an Outline Decommissioning Plan (as per condition 2.16) within three and six months respectively of issue of the IPPC permit.

This document, Version 2 of the SCR has been produced in response to the proposed decommissioning / demolition of the Phase 1 Power Generating plant and equipment (only) of Delimara Power Station, and resultant change in activities, discussed further in Section 5.0 of this report. The decommissioning will be performed on the completion of the commissioning, and commencement of operations, of the proposed new Gas Plant at Delimara Power Station.

No revisions to the figures have been made since the last issue of the report reference RUK22-16873 dated August 2011.

No soil monitoring or sampling has been undertaken by ENVIRON since the Phase II Intrusive Investigation completed in July 2014.

### 1.3 Updates to the Environmental Permit

The original permit, reference IP 0002/07/A issued March 2010, has been varied on four occasions since the first version of this report was generated in August 2011. The latest permit is referenced IP 0002/07/E dated 1<sup>st</sup> April 2014; ENVIRON have not considered Versions B to D inclusive. The requirements of the Improvement Programme (Condition 1.5) of the latest IPPC permit have been extended from the original version to include the following items relating to land condition:

- Reference 12: Submission of land and groundwater monitoring proposal in conformity with Articles 16(2) and 22 of the Industrial Emissions Directive, 2010/75/EU. To be submitted by the end of January 2013.

As far as ENVIRON are aware, the proposal will be completed by the issue of this document.

The permit requirements have also been extended; Condition 2.16.3.4 states 'land monitoring shall be repeated at least every four years, and results included in the Annual Environmental Report (AER)'.

## 2 Location of the Installation

<b>Name of Installation</b>	Delimara Power Station
<b>Permit Number</b>	IP 0002/07/E
<b>Date, Reference and Version of SCR</b>	Version 02: RUK22-20354_ August 2014

Delimara Power Station (DPS) is located on the Delimara Peninsula in Marsaxlokk Bay, on the south east coast of Malta (Figure 1). The site is located at an elevation of between 1.8m and approximately 6.0m metres above local sea level (ALSL). The majority of the installation boundary comprises relatively flat topography ranging from approximately 1.85m to 3.4m ALSL, the exceptions being the bunded storage tanks and adjacent area in the south of site which are located on a manmade platform at approximately 5.6m ALSL and the residual fuel oil (RFO) tanks 1 to 3 located in the east of site which are elevated on the Peninsula at approximately 15m ALSL.

Commissioned in 1992, DPS was excavated into the cliff face to create an even platform on which to situate the facility. The most western portion of the site closest to the coast extends beyond the natural coastline and has been constructed on land reclaimed from the sea. The IPPC permitted boundary includes all the facility.

Immediately off-site to the south (external to the Permit boundary) the land is raised and forms a mound approximately 20m in height, which anecdotally comprises excess waste rock.

The site comprises operational plant in the centre and south of site, and a workshop, administration buildings and a medical centre in the north of site.

Surrounding land uses are detailed in Table 2.1.

<b>Table 2.1: Surrounding Land Uses</b>			
<b>Direction</b>	<b>Description</b>	<b>Company Name</b>	<b>Distance</b>
To the North	Agricultural land and agricultural-type properties	N/A	Immediately north
To the South	Agricultural land and agricultural-type properties	N/A	Immediately south
To the East	Agricultural land	N/A	Adjacent to site
	Residential house	N/A	40 m south east
To the West	Marsaxlokk Bay	N/A	Immediately west.

Plans showing the location of installation and the installation boundary are provided in Annex A (Ref. RUK2220354\_DPS\_02 Figure 1 Site Location and RUK2220354\_DPS\_02 Figure 2 Installation Boundary).

## 2.1 Site Operations

Permitted activities in accordance with Schedule 1 of the IPPC regulations are listed in Table 2.2 (taken from Table 1.1.1 of the IPPC permit):

<b>Table 2.2: Site Operations</b>		
<b>Activity / Associated Activity</b>	<b>Description</b>	<b>Limits of activity</b>
Combustion installations with a rated thermal input exceeding 50 MW	Generation of electrical energy through the combustion of heavy fuel oil and gas oil	From receipt of fuel to delivery of utility
Associated activity of fuel handling and storage	Handling and storage of heavy fuel oil and gas oil	From receipt of the fuel to combustion in the combustion plant
Associated activity of utilities	Sea water pre-treatment plant	From intake of sea water to delivery of utility.
Associated activity of storage, treatment and disposal / recycling of waste materials	Handling, storage, treatment and disposal / recovery of wastes from installation	From generation of waste to disposal or recycling on site or off site
Associated activity of maintenance	Maintenance carried out in any workshop in the installation	From maintenance activity to appropriate recovery / disposal of any wastes created.

Delimara Power Station was commissioned in three phases between 1992 and 1999 (Phase 1, 2a and 2b). An extension to the power station was completed in 2012 to increase the power output into the electrical network. The extension was within the original IPPC boundary. Operational plant at DPS is listed in Table 2.3 (taken from Table B1.3.1: Plant Listing of Delimara Power Station in Part B of the Supporting Document submitted in support of the IPPC permit).

<b>Table 2.3: Plant of Delimara Power Station</b>				
<b>Phase of Installation</b>	<b>Plant</b>	<b>Details</b>	<b>Fuel</b>	<b>Year Commissioned</b>
Phase 1 Power Generating plant and equipment (only)	Steam unit x 2	Each comprise a boiler, a steam turbine and a 60MW capacity generator.	HFO	1992
Phase 2a	Gas Turbine x 2	Open cycle 37.5 MW gas turbine / generator units.	Gas oil	1994

<b>Table 2.3: Plant of Delimara Power Station</b>				
<b>Phase of Installation</b>	<b>Plant</b>	<b>Details</b>	<b>Fuel</b>	<b>Year Commissioned</b>
Phase 2b	Combined cycle gas turbine x 2	Form the combined cycle gas turbine block with associated generators with a total capacity of 110 MW.	Gas oil	1999
	Heat recovery steam generators x 2 and steam turbine		Recover heat from the exhaust of the gas turbines to generate power steam to drive the steam turbine.	1999
Phase 3	<p>Diesel engines x 8, exhaust heat recovery, a steam generator, a steam turbine and necessary ancillary plant.</p> <p>Emission abatement equipment, including a Selective Catalytic Reducer and a Flue Gas Desulphurisation unit will be installed to reduce emissions of nitrogen oxide, sulphur oxides and dust.</p>	Engine and steam turbine plant with a generation capacity of 144MW.	Gas oil or HFO	2012

Phase 1 Power Generating plant and equipment is to be decommissioned on the commissioning and operation of a proposed new Gas Plant at Delimara Power Station.

Within the IPPC permitted boundary the site also comprises an administration building, mechanical workshop and medical centre in the north east of site. The operational facilities are concentrated in centre and southern portions of site.

## **2.2 Condition of the Land at Permit Application**

### **2.2.1 Geology**

According to the soil geology map (Geological Map of the Maltese Islands, Sheet 1 Malta, 1:25,000), the central portion of DPS orientated north to south is directly underlain by solid geology of Middle Globigerina Limestone Member, the thickness of which ranges from 15m to 38m. The description states that the limestone comprises a planktonic foraminifera-rich sequence of massive, white, soft carbonate mudstones locally passing into pale-grey marl mudstones.

The western and central portions of site located closest to the coast line, on which several of the operational plant are situated, is constructed on a man-made platform reclaimed from the sea by cut and fill activities.

The eastern portion of the site is underlain by the natural Delimara Peninsula formed from Upper Globigerina Limestone member comprising a tripartite, fine grained planktonic foraminiferal limestone sequence comprised of a lower cream coloured wakestone, central pale grey marl and an upper pale cream coloured wakestone.

### **2.2.2 Hydrogeology**

According to the Malta Resources Authority (2004), the Globigerina Limestone functions as an aquifer where it is highly fractured.

The groundwater body underlying the site is classified as Malta Main Mean Sea Level Groundwater Body, sustained in the Lower Coralline limestone aquifer which is present beneath the Globigerina Limestone. The aquifer is in free contact with sea-water, and is described as 'a lens-shaped body of freshwater floating on more saline water, with a thickness of freshwater below sea level approximately thirty-six times its piezometric height above sea level'. The Malta Main Mean Sea Level Groundwater Body is classed as 'waters used for the abstraction of drinking water'.

Where the land has been reclaimed from the sea in the west of site, the groundwater is likely to exist as a sea-level aquifer.

According to MEPA's report Establishing Drinking Water Protection Areas under the Water Policy Framework Regulations 2004, the site is not located in a Groundwater Protected Zone. Groundwater Protection Zones have a radii of approximately 300m from a potable abstraction point in order to preserve the quality of the drinking water obtained from the Lower Coralline Limestone aquifer.

### **2.2.3 Hydrology**

According to MEPA<sup>1</sup>, the nearest water body to Delimara Power Station is Il-Port ta' Marsaxlokk (Marsaxlokk Bay), a coastal water body located immediately off-site to the west.

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<sup>1</sup> Article 5 Summary Reports for Surface Water, Malta. Water Framework Directive CD 2000/60/EC. Prepared by Maltese Environment and Planning Authority, 2005.

MEPA have classified the water body as a Category 1 (Water bodies at risk), for which it is already relatively clear that the objectives of the WFD will be failed due to diffuse source pollution and morphological alterations.

According to Form IPPC Part B2, four waste streams are discharged to the sea at Hofra z-Zghira Bay located approximately 300m east across Delimara Peninsula via a tunnel.; cooling water, brine discharged from the seawater evaporator, surface water run-off from buildings and roads and boiler blow down.

According to the Environmental Impact Statement for the proposed Local Generating Capacity at Delimara Power Station (prepared by AIS Environmental Ltd, October 2009 reference ENV/3260/A/08 PA 03152/05) the bay of Hofra z-Zghira may also be affected by thermal effluent discharged from the extension to the power station, once complete.

#### **2.2.4 Any additional sensitive issues e.g. Protected Habitats**

All of Malta was designated as a nitrate vulnerable zone under L.N. 233 of 2004.

The land surrounding the installation to the east and south is classified as an Area of Ecological Importance; an area encompassing habitats of conservation value and its associated buffer zone(s). Areas of Ecological Importance (AEIs) are designated to regulate their conservation in accordance with Section 46 of the Development Planning Act 1992. The area has been awarded the status due to the globigerina limestone cliff formations.

Approximately 150m north of the installation boundary is a Special Area of Conservation – International Importance / Bird Sanctuary.

The site of il-Ballut ta' Marsaxlokk located approximately 750m north of DPS is classified as a Special Area of importance. The site comprises a coastal salt marsh located off Xatt is-Sajjieda, limits of Marsaxlokk. The salt marsh at Il-Ballut provides a habitat for a number of rare species.

### **2.3 Pollution History**

There is no known history of pollution at Delimara Power Station.

#### **2.3.1 Pollution Incidents at the Site**

There are no known incidents of pollution at the site.

#### **2.3.2 Historical Land Uses and Associated Contaminants**

The site history prior to Enemalta occupying the site is unknown.

#### **2.3.3 Visual or Olfactory Evidence of Existing Contamination**

A site surveillance visit was undertaken in 2011. During the visit no visual and/or olfactory evidence of significant existing contamination was identified.

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<sup>2</sup> IPPC Permit Part B (Supporting Documents) prepared by Enemalta dated January 2007



ENVIRON have not revisited the site since 2011; however were provided with a record of environmental incidents at the site as part of an Environmental Management System (EMS) maintained by DPS as a condition of the IPPC Permit. Since the Phase II intrusive investigation was completed in 2011, a number of minor leaks and spills were recorded. ENVIRON understands that these were contained and have not resulted in contamination of the land.

### **2.3.4 Evidence of Damage to Pollution Prevention Measures**

During the site surveillance in 2011 there was no generic evidence of damage to pollution prevention measures (i.e. bunds, concrete, and interceptors).

ENVIRON have not revisited the site since 2011; however were provided with the Annual Environmental Report (AER) for Delimara Power Station, dated 2011, 2012 and 2013. Weekly visual inspections of bunds, flanges, valves and overground pipes was undertaken in line with Condition 2.5.4.4 (with the exception of in 2011 when inspections were less than weekly). A number of minor faults were identified, generally surface cracks. According to the AER, all faults were rectified, or are undergoing rectification. Cleaning and inspection of the four oil interceptors present on-site is undertaken twice annually. Records of pressure testing of HFO and diesel unloading lines and the flexible fuel line for HFO dated 2013 were provided to ENVIRON. Lines tested were found to be in a satisfactory condition.

### **2.3.5 Baseline Intrusive Data**

Detailed baseline data were not submitted to the Authority in support of the IPPC permit application. The Environmental Impact Statement<sup>3</sup> for the extension to the power station (Phase III) includes the following reports relating to the assessment of ground conditions and contamination:

1. Sub-Surface Geological Investigation Report prepared by Terracore Geo Services dated November 2008;
  2. Report on the Environmental Baseline Survey for Water and Land Contamination prepared by Dr George Peplow on behalf of AIS Environmental dated 27th June 2009.
- 
1. Sub-Surface Geological Investigation Report prepared by Terracore Geo Services dated November 2008

Intrusive investigation was undertaken comprising four (4) boreholes drilled by rotary open hole and closed hole techniques to depths of between 6.0m and 23.0m below ground level (bgl). The boreholes were located in the footprint of the extension to the power station. A borehole location plan is presented in Figure 4 of Annex A. Approximately 3.0m of continuous rock core was recovered in each borehole. Strata was logged and photographed. Samples of rock core were submitted for geological testing. No laboratory testing for contamination was undertaken.

The strata recorded on geological borehole logs in two (2) of the four (4) boreholes comprised topsoil / fill (described as 'overburden') to depths ranging between 2.5m and 15.0m bgl. Underlying the

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<sup>3</sup> for the Proposed Local Generating Capacity at Delimara Power Station, prepared by AIS Environmental Ltd (Volume II, Reference ENV/3260/A/08 PA 03152/05 dated August 2009)

overburden was natural solid geology Middle Globigerina Limestone comprising grey fine bedded moderately weak marl.

In one (1) location, the overburden was logged as grey waste globigerina and brown soil to a depth of 2.9m bgl overlying Middle Globigerina Limestone. At the remaining location, the solid geology of Middle Globigerina Limestone was found directly underlying the concrete hard standing, to a maximum depth of 6.0m bgl.

All boreholes were terminated in Middle Globigerina Limestone.

2. Report on the Environmental Baseline Survey for Water and Land Contamination prepared by Dr George Peplow on behalf of AIS Environmental dated 27<sup>th</sup> June 2009.

The investigation comprised five (5) exploratory hole locations, of which three were drilled within the IPPC boundary for Delimara Power Station and the remaining two (2) were positioned off-site to the north west on the Delimara Peninsula. One (1) sample was obtained from the upper 3m of strata at each location and tested for a limited suite of metals (Cr, Ni, Pb and Va), polycyclic aromatic hydrocarbons (PAHs); BTEX compounds (benzene, toluene, ethyl benzene and xylene) and inorganic parameters (nitrates, carbonates, sulphates, hydroxides, pH and salinity).

Concentrations of BTEX compounds and PAHs did not exceed laboratory detection limits (0.1 mg/kg and 0.05 mg/kg respectively). Low concentrations of metals were detected in all five soil samples. The report considers the concentrations to be 'within the levels normally found in environmental soil samples', on Malta.

In addition to the soil samples, the following groundwater, sea water and sediment sampling was undertaken:

- Two (2) groundwater samples were collected; one from a point immediately off-site to the north, and a second off-site to the North West. No details of the methods by which the groundwater samples were collected are provided in the report.
- Four (4) sea water samples were obtained from four locations; immediately inshore to Ras il-Fniek point; at the central part of the il-Hofra z-Zghira Bay; immediately onshore to the entry gate of the power station and immediately inshore to the Kalanka l-Fonda.
- Five (5) sediment samples were obtained from the sea bed near to DPS.

The groundwater, sea water and sediment samples were analysed for the same suite of contaminants as the soil samples (metals, PAHs, BTEX and inorganic compounds). Concentrations of contaminants analysed did not exceed laboratory method detection limits, with the exception of metals, where low concentrations were detected in all five (5) sediment samples.

The report concluded:

- 'No contamination from the measured parameters was observed, and can therefore be considered to comply with local legal notices and EU Directives.'

### 3 Conceptual Site Model

The preliminary conceptual site model is a simplified representation of the environmental conditions and potential risks that exist at and in the vicinity of the site. It is based on the presentation and interpretation of information gathered during the environmental review presented in Sections 2.0 to 2.4. This allows for the identification of potential pollutant linkages and, therefore, an interpretation of the potential risk to receptors in relation to site operational activities. The principal sources of contamination, receptors and potential pollutant linkages have been assessed using a qualitative source-pathway-receptor approach in line with current guidance.

Information obtained during the environmental site investigation, described in the following sections of this report, is further used to refine and update the conceptual model. The refined conceptual site model is presented in Section 7.10.

#### 3.1 Environmental Receptor Summary

A summary of environmental receptors is presented in Table 3.1.

<b>Table 3.1: Summary of Receptors</b>	
<b>Receptor</b>	<b>Description</b>
Human health	Site workers Site visitors Construction workers Neighbours
Land	Middle / Upper Globigerina Limestone
Water	Malta Main Mean Sea Level, the Lower Coralline Limestone Aquifer across Malta is a Drinking Water Safeguard Zone. Coastal Water (Marsaxlokk Bay and Il-Hofra z-Zghira. The whole of Malta is a Nitrate Vulnerable Zone.
Nearby industry e.g. Control of Major Accident Hazards (COMAH) sites	DPS is a registered COMAH site as the quantity of gas oil exceeds the threshold for an upper tier site. The site is located in a predominantly agricultural setting with some residential properties
Sensitive land uses	The site does not lie in a habitat protected zone. The surrounding area is classified as an Area of Ecological Importance Approximately 150m north is a Special Area of Conservation – International Importance / Bird Sanctuary. Il-Ballut ta' Marsaxlokk (salt marsh) is located approximately 750m north of DPS and is classified as a Special Area of importance.
Coastal/estuarine areas	Marsaxlokk Bay.

**Table 3.1: Summary of Receptors**

Receptor	Description
Drainage systems/sewers	<p>The site discharges surface water and process water into Il-Hofra z-Zghira. Prior to discharge, water is treated or passes through a separator and/or an oil interceptor, where required.</p> <p>Foul water from personnel toilets discharges into the main municipal sewer.</p>

### 3.2 Potential Sources of Contamination

Potentially polluting materials located within the installation are presented in Table 3.2

**Table 3.2: Potentially Polluting Materials Located Within the Installation**

Process	Activity	Potential Polluting Activity	Potential Polluting Substances
Fuel System Operations	Storage and intermediate transfer via pipelines and pump bays of fuel oil and solid, liquid or sludge waste from fuel oil spillage.	Potential for leaks and spills from primary and secondary containment to occur or have occurred.	Hydrocarbon mixtures may be paraffinic, naphthenic or aromatic, potentially containing sulphur compounds and sulphides, nitrogen compounds, trace metals such as nickel, iron, vanadium, salts such as magnesium chloride or sodium chloride, may contain naphthenic acid.
	Filing of bulk process tanks.	Potential for overflow, blockages causing sumps to backup; and potential for leakage or seepage from any discontinuities to the surrounding soils and/or seawater.	Various chemicals including fuel oil additives (magnesium oxide slurry emulsifier), treatment chemicals, fuel sediments and suspended organic compounds.
	Cleaning operations.		Toxic, oxidising, corrosive, carcinogenic or ozone-depleting substances which may affect the aquatic or non-aquatic environment.
Boiler Water Preparation and Treatment	Discharge of brine and chemical treatment deposits in evaporators	Potential for release of chemicals deposits to occur or have occurred.	Water treatment chemical deposits including Tri Sodium Phosphate and Ammonia Solution.
	Liquid waste generated from make-up water demineralisation	Potential for leakage or seepage from any discontinuities to the surrounding soils and/or seawater.	Chemical Regeneration Effluent – inorganic salts, suspended solids, trace metals and oils.  May affect the aquatic or non-aquatic environment.

**Table 3.2: Potentially Polluting Materials Located Within the Installation**

Process	Activity	Potential Polluting Activity	Potential Polluting Substances
Boiler Operation and Cleaning	Dust and gaseous emissions generated from combustion of fuels for boiler /s and gas turbine plant	Potential for release of contaminant emissions and dust to occur or have occurred.	Dust and gaseous emissions generated include particulate matter (fly ash), oxides of sulphur, nitrogen, carbon, organic compounds and traces of oil.
	Fireside boiler/s maintenance and cleaning operations.	Potential for leaks and spills from primary, secondary or intermediate containment, or from pipework to occur or have occurred.	Solid, sludge and liquid wastes generated include bottom ash and boiler slag, unburnt fuel deposits. These potentially have elevated hydrocarbons, treatment chemicals, anti-scaling chemicals, acids and trace metals.
	Waterside boiler/s cleaning and blowdown		
	Fuel oil filtration		
Cooling Systems Operations	Sea water cooling systems.	Potential for leaks or spillage of chemicals.	Liquid waste or contaminants from sea water cooling include treatment chemicals (chlorine dioxide among others).
Plant Maintenance	Changeover of lubricating oils used in stationary and mobile plant	Potential for release of contaminant, from effluent discharge or emissions and dust to occur or have occurred.	Hydrocarbons, other organic compounds (PCBs) generated from renewing oils.
	Changeover of transformer / switchgear oils.		
	General plant maintenance and repair work	Potential for leaks and spills from primary, secondary or intermediate containment, or from pipework to occur or have occurred.	Other wastes generated include metals, plastics and detergents.

**Table 3.2: Potentially Polluting Materials Located Within the Installation**

Process	Activity	Potential Polluting Activity	Potential Polluting Substances
Storm Water Collection	Liquid waste from surface water runoff at oil interceptors	Potential for overflow, blockages causing sumps to backup; and potential for leakage or seepage from any discontinuities to the surrounding soils and/or seawater.	Effluent – oil, oily water containing hydrocarbons, inorganic salts, suspended solids, trace metals.
Administrative Operations	General solid waste generated from administrative work and use of electrical / non-electrical equipment	Potential for leaks and/or leaching from primary and secondary containment to occur or have occurred.	General cleaning chemicals, toner (printer inks), and electrical components.

### 3.3 Initial Conceptual Site Model

The initial conceptual site model is presented in Table 3.3.

The conceptual site model is based on the site remaining in a commercial/industrial use.

**Table 3.3: Initial Source-Pathway-Receptor Risk Assessment**

Pollutant Linkage	Description	Receptor(s)	Discussion	Pathway Status	Risk Ranking
PL1	Dermal Contact & Ingestion	Humans – Site maintenance workers	There is potential for site maintenance workers to come into contact with contaminated soils, if present (for example during excavation works). However, the use of appropriate risk assessments and control measures will mitigate the potential risks associated with short term maintenance works.	Active	Low based on mitigation measures
PL2	Inhalation – dust, particulates and asbestos fibres	Site visitors		Active	Low based on mitigation measures
PL3	Inhalation - vapours			Active	Low based on mitigation measures

Table 3.3: Initial Source-Pathway-Receptor Risk Assessment					
Pollutant Linkage	Description	Receptor(s)	Discussion	Pathway Status	Risk Ranking
PL4	Leaching and migration of contaminants in unsaturated zone to groundwater	Controlled Waters (Malta Mean Groundwater Body, Marsaxlokk Bay and Il-Hofra z-Zghira Bay)	Potential for leaching of contaminants into the groundwater body and surface water. Infiltration is limited in areas covered by hardstanding but not in areas where hardstanding is absent. The geology beneath comprises of limestone which has a low effective porosity, groundwater flow is commonly restricted to fractures and discontinuities.	Active	Moderate
PL5	Migration of contaminated perched water off-site via the surface water drain.	Controlled Waters (Marsaxlokk Bay and Il-Hofra z-Zghira Bay)	Surface water drains are at a shallow depth, and typically are laid directly into the limestone. There is potential for any shallow contaminated to travel along conduits created during the construction of the drains. However, all surface water on-site passes through oil interceptors before discharge to the sea. These are regularly inspected and maintained by site operatives.	Active	Low
PL6	Vertical migration of groundwater to groundwater body	Controlled Waters (Malta Mean Groundwater Body)	There is potential for contaminants to migrate vertically. Foundations and footings of buildings, plant and sumps may create a vertical pathway for contaminants. Migration is limited to the horizontal bedding planes. Vertical migration is limited in the limestone to fractures and fissures.	Active	Low
PL7	Migration of land gases into buildings and structures.	Built Environment	There is a small risk from the generation of land gases and volatile gases from hydrocarbons in soil and/or groundwater. However, the majority of the hydrocarbons used on-site are heavy end and less volatile.	Active	Low

## 4 Dangerous Substances Associated with Permitted Activities

The permitted operations will encompass the use, storage, treatment and/or disposal of a wide-range of materials. The main material categories are outlined within Table 4.0.

Where a material is specifically listed under Schedule 1 Part 2 (Named Substances) of The Control of Major Accident Hazards Regulations 2003 (COMAH) (Legal Notice (L.N. 37), and amendments (L.N. 6, 2005 and L.N 4, 2014) this has been indicated within the Table 4.0. The regulations transpose into Maltese law the overarching EU Seveso II Directive enforced by the Council Directive 96/82/EC and extended by the Directive 2003/105/EC and the Seveso III Directive 2012/18/EU which is to be implemented by Member States by 1st June 2015.

The gas oil storage capacity at DPS exceeds the threshold level for an upper tier site, thus DPS is classified as a COMAH site.

<b>Table 4.1: Potentially Polluting Materials Located Within the Installation</b>		
<b>Material Type</b>	<b>Additional Information</b>	<b>COMAH Listed Substance</b>
Heavy Fuel Oil	With maximum sulphur content of 1% and low ash	No
Gas Oil	With maximum sulphur content of 0.2%	Yes
Fuel oil additives	Magnesium Oxide (MgO) slurry emulsifier	No
Sea water treatment chemicals	Chemical to generate Chlorine Dioxide in situ (Biocaf 1320)	No
Boiler water intake treatment chemical	Tri Sodium Phosphate	No
Evaporators chemical treatments	Anti-scaling chemical, sulfamic acid and corrosion inhibitor	No
Demineralisation plant regeneration chemicals	Sulphuric acid 98% and caustic soda flakes	No
Gas turbine compressor cleaning	Industrial detergent (Zok 27)	No
Acid Spills	Sodium bicarbonate (acid neutraliser)	No



## 5 Changes to the Activity

There are no known changes to the permitted activity boundary since the first IPPC permit issue in March 2010.

This document, Version 2 of the Site Condition Report has been produced in response to the proposed decommissioning / demolition of Phase 1 Power Generating plant and equipment is to be decommissioned on the commissioning and operation of a proposed new Gas Plant at Delimara Power Station, and resultant change in activities. The estimated timescale for Phase 1 generating units to be shut down is in the first quarter of 2016.

Decommissioning of Phase I will cover the following equipment only:

1. 2 in no. Waagner Biro Steam Boilers rated at 260T/H steam flow fired by Heavy Fuel Oil
2. 2 in no. BHEL Steam turbines/Generators rated at 60MW output with all auxiliary equipment found inside the Turbine hall.
3. Phase 1 chimney, (consisting of chimneys D1A and D1B 150m high with concrete wind shield).

Some associated services such as demin water, steam and air control piping and electrical cables currently situated on a pipe trestle between the Boiler and Turbine Hall are to be retained.

The decommissioning works will comprise the following activities:

- Removal and transfer as necessary of fuel stock and other materials in stores.
- Waste oil removal from oil tank farm and turbines
- Dismantling of all mechanical equipment connected with Boiler and Turbines operations of Phase 1 generating units
- Dismantling of all electrical plant and equipment associated strictly with phase 1 operations only
- Dismantling of and removal of Boiler structural steel works
- Dismantling and removal of Phase 1 chimney structure
- Dismantling and removal of Phase 1 steam turbine civil work structures.

It is understood that MEPA has agreed that the IPPC permit will not require surrender at this stage and the boundary of the permit will not change. For this reason, there is no requirement at this stage to undertake remediation of Phase I area; remediation will be undertaken for Phase I as part of the whole site when the IPPC permit is surrendered.

This report represents an update to the Conceptual Site Model (Section 7.1) and the Monitoring and Decommissioning Plan (Section 8) in response to the above activities relating to decommissioning / demolition of Phase I.

## 6 Measures Taken to Protect Land

Operational conditions are specified by the IPPC to control the release of substances to the environment. Records are to be maintained and either submitted as part of the Annual Environmental Report (AER) or held to be made available for inspection.

Annual Environmental Reports (AER) are submitted to MEPA as a requirement of Condition 4.1 of the permit. AERs from 2009 to 2013 have been provided to ENVIRON. The following parameters are monitored and recorded as part of the AER:

- Complaints concerning effects on the environment
- Plant and equipment and its maintenance
- Non-compliance with the operating procedures
- Waste management practices and control measures
- Waste oil storage including quantities, nature, manner and date of dispatch of the oil.
- Laboratory analyses of emissions to water.
- Laboratory analyses of discharges to water.
- Results of the laboratory analysis of effluent samples arising from process water and non-process water (surface drainage, fuel bunds drainage etc)
- Daily visual examination of the surface water discharge
- Inspection Reports and Certification by Approved Auditors for:
  - Testing of bunds;
  - Pipes, pumps, valves and flanges for fuel delivery from delivery ship to tank farm;
  - Other flanges, valves and over-ground pipes on site; and
  - Oil interceptors including a log of monthly monitoring and interceptor waste removal.

In addition, the IPPC permit specifies the requirements for physical pollution prevention measures including bunds and high level liquid alarms on pump sumps. In the event of accidental contamination of land or observations of surface water indicate contamination has taken place, the permit requires for the operator to notify the Authority immediately and submit and implement a decommissioning plan within one week of the event.

## 7 Soil Quality Monitoring

### 7.1 Intrusive Investigation

#### 7.1.1 Objectives

Condition 1.5.1 of the initial IPPC permit (version IP 0002/07/A dated March 2010) specifically required for the operator to submit land monitoring data to the Authority within three months of issue of the permit as part of the Improvement Programme (Condition 1.5.1) of the installation. The condition also required for an Outline Decommissioning Plan to be submitted within six months of permit issue.

The objectives of the intrusive investigation were:

- to collect sufficient data on the potentially polluting substances identified in Schedule 9 of the IPPC Permit in order to set Reference Data for the site;
- to collect data to assess the likelihood of their being significant contamination of the land on the site by any of the pollutants specified in Schedule 9 of the permit and thus reduce the uncertainties in the conceptual model presented as Section 4 of this report;

The investigation was undertaken in accordance with conditions 2.16.3 (covered in Section 7.0-7.10), 2.16.5.1 (covered in Section 8.0), 2.16.5.4 (not covered in this report) and 2.16.5.5 (covered in Section 8.1) of the IPPC permit.

Independent to the soil monitoring investigation for the IPPC permit, MEPA requested that the mound ('landfill') outside (and to the south) of the IPPC permit is investigated to characterise ground conditions and take samples for analysis of contamination.

### 7.2 Investigation and Sampling Strategy

#### 7.2.1 General

ENVIRON UK Limited undertook and managed an intrusive site investigation on behalf of Enemalta Corporation in order to collect the site reference data. This involved the use of suitable third parties (i.e. drilling contractors etc.). All contractors used are vetted and approved and agree to ENVIRON's site protocols and health and safety (H&S) requirements.

The main site investigation was undertaken between the 2<sup>nd</sup> June and the 28<sup>th</sup> June 2011. All subcontractors were employed under contract and supervision of ENVIRON. All soil sampling was undertaken directly by ENVIRON.

Sample locations were positioned to provide general coverage across the site and to target known current potential sources of contamination. Potential sampling locations were restricted to some degree by the location of current buildings and infrastructure (including foul/surface water drains, cables and cable ducts, and pipelines, as well as access for equipment and plant).

The scope of works comprised the following:

- Service clearance undertaken on 2nd June 2011 by qualified utility surveyors to ensure the drilling locations were clear of services prior to drilling.

- Drilling of twenty (20) boreholes within the IPPC permit boundary to depths of 5m to 10m using solid stem auger rotary drilling techniques to allow the sampling of the soil. The drilling works were undertaken between 4th and 28th June 2011.
- Drilling of three (3) boreholes on an area of 'landfill' outside (and south of) the IPPC permit boundary to prove the base of the 'landfill'. The boreholes were drilled to depths of between 19.0m bgl and 42.0m bgl using solid stem auger to 6.0m bgl, continued to depth using rotary open hole drilling. One (1) metre of rock core sample was taken at one (1) location (LF02) for identification and sampling of the geology. The drilling was undertaken between 9th and 11th June 2011.
- On site screening for hydrocarbon vapours using a portable handheld photo ionization detector (PID) to assist the selection for laboratory analysis by experienced ENVIRON field personnel.
- Analysis of up to thirty two (32) soil samples for a range of determinands specified in Schedule 9 of the IPPC permit, including a suite of metals, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), volatile and semi-volatile organic compounds, polychlorinated biphenyls (PCBs) and asbestos. The analytical suite is presented in Table 7.7. Analysis of samples in accordance with the relevant British Standards.

## **7.3 Constraints on Investigations**

### **7.3.1 Health and Safety**

All work was undertaken in accordance with ENVIRON Safe Working Procedure #2, Underground/Overhead Services, which controls risk through a safe system of work by using service location plans for the site, where available, contracted utility surveyors and trained site investigation staff that are competent using cable avoidance tools (CAT & GENNY).

Prior to commencing the intrusive works, each of the boring locations were agreed between ENVIRON and Enemalta. Enemalta undertook an initial utility screening check, and subsequently some of the locations were moved nearby to avoid underground services. As part of ENVIRON's H&S procedures a specialist utility clearance team (an approved ENVIRON contractor) undertook a utility survey of each location. As a final check each location was scanned by ENVIRON personnel using a Cable Avoidance Tool (CAT) immediately prior to the excavation. Due to the presence of underground services in a number of proposed borehole locations, boreholes were relocated to a 'safe' location free of services, ensuring that the borehole location rationale provided in Table 7.5 was still applicable.

### **7.3.2 Drilling Techniques**

The justification for the drilling technique selected for the investigation, rotary solid stem auger, is presented in Section 7.4.2. The constraints of using this technique were:

- Arising's returned from the auger were effectively 'disturbed'; caused when the soil removed from the base of the borehole travels up the flights and emerges at the ground surface. As such, the quality of the sample taken is reduced. The disturbance may result in some loss of volatile contaminants. However, for the purposes of the investigation the benefits of the technique were considered to outweigh the detriment of a 'disturbed sample'.

- The use of one set of drilling equipment (primarily rods) at each location provided the potential for cross contamination. As such, a 'wash down' area was established and drilling rods were thoroughly washed with a jet spray after use at each location. Waste water drained into the surface drainage system which was served by an oil / water interceptor. In the eventuality of contamination being identified in boreholes, the equipment would be rinsed with a decontamination solution (Decon 90) prior to jet spraying.
- The auger is unable to penetrate reinforced concrete at depth, which resulted in one boring location being abandoned.

### 7.3.3 Minimisation of Disruption to Site

Borehole locations were positioned to minimize disruption to the site. Areas of soft landscaping or soft rock were selected over areas of concrete or gravel hard standing, where it was possible to do so without compromising the quality of the sampling rationale in Table 7.5. Additionally, locations were positioned to minimize disruption to site traffic.

## 7.4 Soil Investigation and Sampling Techniques and Protocols

### 7.4.1 Concrete Coring

Prior to soil sampling, drilling locations positioned on concrete were 'cored'; the concrete corer unit allowed samples of surface concrete 150mm in diameter and up to 300mm thick to be recovered.

This method also allows the surface to be successfully reinstated on completion of the sampling.

### 7.4.2 Rotary Techniques

#### *Solid Stem Auger*

Solid stem continuous flight auger is a fast method of drilling to the depths required in this investigation. As the auger is rotated and pushed downwards the soil removed from the base of the borehole travels up the flights and emerges at the ground surface. The boreholes drilled using this method are circa 150mm to 200mm in diameter, depending on the size of rods used to drill the hole.

The drilling rig used was a Beretta T44; a tracked drilling rig with reducible tracks enabling it to move over soft ground and width restricted areas with minimal damage.

Solid stem augers have the ability to drill into soft rock, which makes it suitable for this investigation given the geology of Middle Globigerina Limestone. The soil and rock recovered allows for a detailed inspection and logging of the ground conditions encountered and the recovery of disturbed soil samples. As such it is an appropriate and widely used method for investigating shallow soils.

#### *Open Hole & Continuous Rock Coring*

Due to the elevation of locations on the landfill, the boreholes need to be drilled to >15m bgl which is not possible using the solid stem continuous flight augers. The most appropriate technique was to use open hole rotary drilling.

Open hole drilling involves the rotation of a drill-pipe and bit to cut the rock. A water flush is pumped down the drill-pipe to flush out the debris. The technique allows rapid progression through solid rock, however there is no sample recovery. In order to take a sample from the upper strata and from the strata from the lower strata (approximately level with base of underground station), continuous rock coring was undertaken. This involves using rotary flush to penetrate the rock with a hollow tube; the

tube is drilled to a known depth then withdrawn. A continuous rock core can then be logged and sampled. This technique is much slower than open hole drilling but allows for detailed logging of the rock and sample collection.

The drilling rig used was a Beretta T44; a tracked drilling rig with reducible tracks enabling it to move over soft ground and width restricted areas with minimal damage.

## 7.5 Sample Locations

Sample locations were positioned to provide general coverage across the site and to target potential sources of contamination. Sampling locations were restricted due to location of current buildings and underground services (including foul/surface water drains, oil/water interceptors, gas, electric and water mains etc.). Sample locations for the site are shown on Figure 4 of Annex A.

Samples are referenced using the following classification system:

Investigation Method + Unique ID
<i>i.e.</i> BH1 (Borehole One) or WS1 (Window Sample One)

Sample locations were approved in principal by MEPA prior to undertaking the investigation. MEPA also confirmed that the sample locations could be relocated on site, to avoid underground services etc., providing the justification in Table 7.5 was applicable.

The sample location rationale for Delimara Power Station is shown in Table 7.5. The proposed sample locations are presented in Figure 3 Annex A and the actual sample locations as drilled are presented in Figure 4 Annex A. The reference to Phase 1, Phase 2A and Phase 2B are the stages of development when the power station was constructed.

Table 7.5: Delimara Sampling Rationale				
Proposed Location ID	Location ID	Location		Rationale for Sample Location
B	BH01	-	Temporary storage compound	General site coverage (reclaimed land)
C	BH02	Phase 2A	West of Open Cycle Gas Turbines (OCGT)	OCGT and general site coverage (reclaimed land)
R	BH03	Phase 1	South entrance to CCGT	CCGT general site coverage (reclaimed land)
K	BH04	Phase 1	West of pump house	Pump house
J	BH05	Phase 1	Adjacent to pump house, fuel oil interceptor pit and pipelines.	Oil pit and pipelines
L	BH06	Phase 1	Outside bund wall of RFO tanks, at a level approximately 10m lower.	Integrity of RFO bund

Table 7.5: Delimara Sampling Rationale				
Proposed Location ID	Location ID	Location		Rationale for Sample Location
A	BH07	-	Entrance of waste storage compound	Waste storage compound and general site coverage (reclaimed land)
N	BH08	Phase 1	Adjacent to Boiler No2	Boiler Power Plant and general site coverage (natural land)
D	SB01	Phase 1	Adjacent to oily water pipe	Drainage system, and down hydraulic gradient of turbine house.
T	SB02	-	Adjacent to extra high voltage building	Extra high voltage building and general site coverage (reclaimed land)
Q	SB03	Phase 2B	Adjacent to fuel tanks	Fuel tanks
M	SB04	Phase 2B	Adjacent to Chimney D5A	Combine Cycle Gas Turbine (CCGT)
S	SB05	-	Adjacent to temporary contractors storage yard for Phase 3 construction	Storage yard and general site coverage (reclaimed land)
I	SB06 /SB06A	Phase 2B	Adjacent to interceptor	Oil interceptor
O	SB07	Phase 2B	Adjacent to Chimney D4B	CCGT
E	SB08	Phase 2B	Adjacent to cooling water intake	Cooling water intake
P	SB09	Phase 1	Adjacent to Chimney D1	Main chimney stack, location of temporary drum storage and general site coverage (natural land)
H	SB10	Phase 2A	Bulk diesel tank / pipelines	Integrity of bulk diesel tank bund and pipelines
G	SB11	Phase 2A	Bulk diesel tank	Integrity of bulk diesel tank bund
F	SB12	Phase 2B	Bulk diesel tank	Integrity of bulk diesel tank bund

All borehole locations except SB03 (Q) were positioned within 3m of the proposed location. Due to the presence of a high voltage power cable, SB03 was relocated approximately 5m east. The proposed sample location plan is presented in Figure 3 of Annex A. The actual sample location plan is presented in Figure 4 of Annex A

The three (3) boreholes on the 'raised land' outside of the IPPC permit boundary were positioned to provide a general assessment of the tipped materials.

## 7.6 Sampling Techniques

Soil samples were obtained from the boreholes by ENVIRON personnel at regular intervals. The soil samples were placed in containers appropriate to the type of analysis to be undertaken. The samples were stored in cool boxes and/or a refrigerator to maintain an appropriate temperature prior to being couriered to the local DHL depot and air freighted to an approved laboratory in the UK.

## 7.7 Analytical Strategy

Conditions 2.16.3 and 2.16.5.1.1 of the IPPC permit requires monitoring of the substances specified in Schedule 9 of the permit. The analytical strategy was devised in accordance with Schedule 9 and presented in Table 7.7.

Table 7.7: Analytical Strategy				
Analytical Suite	Determinand			Qty
Metals	Arsenic	Mercury	Vanadium	31
	Cadmium	Nickel	Cobalt	
	Chromium	Tin	Thallium	
	Copper	Antimony	Manganese	
	Lead	Selenium	Zinc	
Inorganic compounds	pH	Sulphate	Sulphide	31
Polycyclic Aromatic Hydrocarbon (PAHs) (US EPA Priority 16 Speciated)	Naphthalene	Fluoranthene	Benzo(a)pyrene	31
	Acenaphthylene	Pyrene	Indeno(123cd)pyrene	
	Acenaphthene	Benz(a)anthracene	Dibenzo(ah)anthracen	
	Fluorene	Chrysene	Benzo(ghi)perylene	
	Phenanthrene	Benzo(b)fluoranthene	PAH 16 Total	
	Anthracene	Benzo(k)fluoranthene		
BTEX Compounds (analysed as Volatile Organic Compounds (VOCs))	Benzene	Ethyl Benzene	m/p-xylene	10
	Toluene	o-xylene		
Total Petroleum Hydrocarbons/mineral	EPH >C8-C10	EPH >C20-C30	EPH >C8-C40	31
	EPH >C10-C20	EPH >C30-C40		
Polychlorinated biphenyls (PCBs)	PCB 28	PCB 118	PCB 153	9
	PCB 52	PCB 138	PCB 180	
	PCB 101			
Alkyl benzenes (Volatile organic compounds (VOCs) and tentatively identified VOCs)	Dichlorodifluoromethane	Benzene	1,1,2,2-Tetrachloroethane	10
	Methyl Tertiary Butyl	Trichloroethene	Bromobenzene	
	Chloromethane	1,2-Dichloropropane	1,2,3-Trichloropropane	
	Vinyl Chloride	Dibromomethane	Propylbenzene	
	Bromomethane	Bromodichloromethane	2-Chlorotoluene	
	Chloroethane	cis-1-3-Dichloropropene	1,3,5-Trimethylbenzene	
	Trichlorofluoromethane	Toluene	4-Chlorotoluene	



Table 7.7: Analytical Strategy				
Analytical Suite	Determinand			Qty
	Chloroethane	trans-1-3-Dichloropropene	tert-Butylbenzene	
	Trichlorofluoromethane	1,1,2-Trichloroethane	1,2,4-Trimethylbenzene	
	1,1-Dichloroethene	Tetrachloroethene	sec-Butylbenzene	
	Dichloromethane	1,3-Dichloropropane	4-Isopropyltoluene	
	trans-1-2-Dichloroethene	Dibromochloromethane	1,3-Dichlorobenzene	
	1,1-Dichloroethane	1,2-Dibromoethane	1,4-Dichlorobenzene	
	cis-1-2-Dichloroethene	Chlorobenzene	n-Butylbenzene	
	2,2-Dichloropropane	1,1,1,2-Tetrachloroethane	1,2-Dichlorobenzene	
	Bromochloromethane	Ethylbenzene	1,2-Dibromo-3-chloropropane #	
	Chloroform	p/m-Xylene	1,2,4-Trichlorobenzene	
	1,1,1-Trichloroethane	o-Xylene	Hexachlorobutadiene	
	1,1-Dichloropropene	Styrene	Naphthalene	
	Carbon tetrachloride	Bromoform	1,2,3-Trichlorobenzene	
	1,2-Dichloroethane	Isopropylbenzene		
Cycloalkanes Semi-volatile Organic Compounds (SVOC) and Tentatively Identified Compounds (SVOC TICs).	2-Chlorophenol	Dimethyl phthalate	Hexachlorocyclopentadiene	10
	2-Methylphenol	1,2-Dichlorobenzene	Hexachloroethane	
	2-Nitrophenol	1,2,4-Trichlorobenzene	Isophorone	
	2,4-Dichlorophenol	1,3-Dichlorobenzene	N-nitrosodi-n-propylamine	
	2,4-Dimethylphenol	1,4-Dichlorobenzene	Nitrobenzene	
	2,4,5-Trichlorophenol	2-Nitroaniline	Benzenesulfonamide, N-ethyl-2-methyl-	
	2,4,6-Trichlorophenol	2,4-Dinitrotoluene	Benzenesulfonamide, N-ethyl-4-methyl-	
	4-Chloro-3-methylphenol	2,6-Dinitrotoluene	Cyclic octatomic sulfur	
	4-Methylphenol	3-Nitroaniline	Dodecane, 2,6,11-trimethyl-	

Table 7.7: Analytical Strategy				
Analytical Suite	Determinand			Qty
	4-Nitrophenol	4-Bromophenylphenylether	Eicosane	
	Pentachlorophenol	4-Chloroaniline	Heneicosane	
	Phenol	4-Chlorophenylphenylether	Heptadecane	
	2-Chloronaphthalene	4-Nitroaniline	Hexadecane	
	2-Methylnaphthalene	Azobenzene	Hexadecane, 2,6,10,14-tetramethyl-	
	Bis(2-ethylhexyl) phthalate	Bis(2-chloroethoxy)methane	Methoxyacetic acid, 4-tetradecyl ester	
	Butylbenzyl phthalate	Bis(2-chloroethyl)ether	Nonadecane	
	Di-n-butyl phthalate	Carbazole	Octadecane	
	Di-n-Octyl phthalate	Dibenzofuran	Pentadecane	
	Diethyl phthalate	Hexachlorobenzene	Phenol, 2,4-bis(1,1-dimethylethyl)-	
		Hexachlorobutadiene	9-Octadecenamide, (Z)-	
Asbestos Screen	N/A			10

One sample from the upper 5.0m of strata was taken from each of the three (3) boreholes drilled into the mound outside of the IPPC permit. Each sample was tested for metals, polycyclic aromatic hydrocarbons (PAHs), EPH and inorganics as per the specification in Table 7.7.

### 7.7.1 Justification of Analytical Suites

Where specific compounds were not specified in Schedule 9 of the permit, justification for the testing criteria selected is as follows:

- Cycloalkanes – there is no specification for any individual compounds in this group. ENVIRON recommends that analysis be undertaken for semi-volatile organic compounds (SVOCs) to cover this group of compounds.
- Alkyl-benzenes – whilst the common alkyl benzene are listed (methyl benzene – toluene, ethyl benzene, xylene), there is no specification for which others are required in the analysis. ENVIRON therefore recommend that analysis be undertaken for volatile organic compounds (VOCs) to cover this group of compounds.
- Straight chain alkane C10-C70 – whilst heavy fuel oil used on site can contain hydrocarbons up to C70, analysis is only common for C10 to C40 carbon banding groups, and this would address the key hydrocarbons used on the facility. Analysis has also been requested for 'mineral oil' which is essentially duplicating this analysis.

### 7.7.2 Justification of Analytical Field Techniques and Detection Limits

No field testing of samples occurred beyond the screening of soil gas headspace using a Photo-ionisation Detector (PID).

Substances have been analysed in soil phase only.

### 7.7.3 Laboratory Accreditation / Quality Assurance and Quality Control

Conditions 2.16.3.2 and 2.16.3.3 of the IPPC permit require for samples to be analysed to the relevant EN or EN ISO standards or equivalent, and for samples to be tested by a lab accredited by the National Accreditation Body (NAB-Malta or equivalent) or at least EN ISO 17025:2005 / Cor 1:2006.

Analytical testing was contracted to Jones Environmental Laboratory (Jones); an ENVIRON approved ISO 17025 and MCERTS accredited laboratory, working to a recognised international standard and a Quality Management System (QMS). ISO/IEC 17025 specifies the general requirements for the competence to carry out tests and/or calibrations, including sampling. It covers testing and calibration performed using standard methods, non-standard methods and laboratory-developed methods. MCERTS is the Monitoring Certification Scheme established by the UK Environment Agency to deliver high quality environmental measurements. It provides for product certification of instruments, competency certification of personnel and the accreditation of laboratories based on international standards. MCERTS requires laboratories to first be accredited to the current version of the European and international standard ISO/IEC 17025. MCERTS requires a more stringent level of control for laboratory practices. In the UK the Environment Agency will only accept analytical data from laboratories who are accredited under the MCERTS Chemical Testing of Soil scheme.

ISO/IEC 17025 requires laboratories to validate non-standard methods, laboratory-designed/developed methods, standard methods used outside their intended scope and amplifications and modifications of standard methods, to confirm the methods are fit for the intended use. All but one of the below methods are accredited to ISO/IEC 17025 as a minimum, the SVOC method is included in the laboratories ongoing validation plan, but is based on USEPA 8270.

The analytical testing method, accreditation and limits of detection are presented in Table 7.7.3.

Table 7.7.3 Analytical Methods and Accreditations						
Test Method	Code	SOILS	Sampling Method	ISO 17025	MCERTS	MDL
005S	EPH	Total EPH (C8-40) by GC-FID (calibrated against diesel and lube oil )	Determination of Extractable Petroleum Hydrocarbons by GC-FID. Following extraction of as-received sample with hexane/acetone. Extraction using end/end, orbital shaker or soxhlet. Calibrated against diesel and lube oil.	Y	Y	30mg/kg
004S	PAH 16/17	Total PAH 16 by GC-MS	Determination of Polynuclear Aromatic Hydrocarbons by GC-MS. End/end extraction using DCM on as received sample. In house method modified USEPA 8270.	Y	Y	0.02-0.07mg/kg
015S	VOC	VOC target list (inc BTEX/MTBE) by GC-MS	VOC target list by Headspace GC-MS - modified USEPA 8260	Y	N	2-27/100ug/kg
016S	SVOC	SVOC target list including PAHs, phenol and chlorinated phenols by GC-MS	SVOC target list by GC-MS - modified USEPA 8270 on as received sample extracted with DCM or hexane acetone	N	N	10/100ug/kg
086S	PCB 7	PCB 7 congeners	7 congeners (101,118,138,153,180,28,52) by GC-ECD - modified USEPA 8250/625	Y	N	5ug/kg (per cong)
030S	Short CLEA metals	Short CLEA metals (excluding WSB, Cr III, Cr VI): As(0.5), Ba(10), Be(0.5), Cd(0.1), Cr(0.5), Cu(1), Hg(0.1), Ni(0.7), Pb(5), Se(1), V(1), Zn(5)	ICP-OES	Y	Y	Various (mg/kg)
074S	WSB	Water Soluble Boron	ICP-OES	Y	Y	1mg/kg

## 7.8 Findings of the Ground Investigation

### 7.8.1 General Observations

The majority of the site surface comprises concrete hard standing, of thickness varying from approximately 100mm to 400mm. The concrete was reinforced with metal bars at SB07. In roads the surface generally comprised tarmac, thickness varying between 150mm and 200mm. In peripheral areas and surrounding the tanks in the east of site the surface was found to be 'soft rock' of reworked globigerina limestone.

At SB08 adjacent to the cooling water intake, the presence of a reinforced concrete slab at 2.5m bgl resulted in the borehole being terminated. The 'spare' location that had been cleared for services by ENVIRON's subcontracted utility surveyor was subsequently drilled and a concrete slab was encountered at the same depth. As such a borehole was not progressed adjacent to the cooling water intake.

### 7.8.2 Geology

Made ground was encountered immediately beneath the surface at ten (10) of the twenty (20) locations drilled. Made ground generally comprised gravelly sand / sandy gravel with secondary constituents of clay, ground limestone and silt. The made ground was encountered to a depths of between 0.3m bgl (SB07 and BH07) and 1.25m bgl (SB06a/b).

At the remaining ten (10) locations, the geology beneath the surface comprised reworked mudstone with frequent to occasional gravel of tarmac and concrete at some locations, and frequent to occasional fragments of plaster, metal strips (c. 5cm in length) and plastic. Fibrous plant remains (sea grass) were encountered at BH03, BH04, and BH05 from a minimum depth of 3.75m bgl to a maximum depth of 6.0m bgl (the termination depth). Reworked material was proven to a maximum depth of 8.0m bgl in SB10, SB11 and SB12. Reworked material was encountered in the western and central portions of the site adjacent to the coast line and is likely to represent the man-made platform reclaimed from the sea.

Of the nineteen (19) boreholes successfully progressed to depth, thirteen (13) of these were terminated in reworked natural material between 3.0m bgl and 12.0m bgl.

Natural geology was encountered in five (5) boreholes and comprised green-brown grey mudstone, recovered as clay and gravel. Mudstone was encountered at depths of between 0.5m and 1.2m bgl and proven to a maximum depth of 6.5m bgl in SB04. One (1) borehole (BH06) was progressed to from 6.0m bgl to 12.0m bgl using rotary open hole techniques. The arising's were not returned to the surface, but based on the drilling progress it is likely that the geology was mudstone.

Boreholes in which natural material was encountered (SB03, SB04, SB07, BH06 and BH08) were located in the east of site, adjacent to the cliffs and are likely to represent the natural platform cut into the Delimara Peninsula on which DPS is situated. Made ground was encountered in one borehole in this area (SB09). Given the location of this borehole, it was anticipated that natural material would be identified, however the borehole was terminated at 6.0m bgl in made ground and no natural material was encountered. Bedrock encountered is consistent with the geological description for the site of Middle Globigerina Limestone.

'Soft rock' comprising mudstone and limestone, was recorded in the three (3) samples drilled into the 'mound' outside of the IPPC permit boundary to depths of between 15.3m to 23m bgl. Small pieces of electrical components, wires, casing was encountered up to 6.0m bgl in LF03. Drilling progress indicated that the rock comprised gravel, cobbles and boulders. At depths of between 15.3m and 23m the rock became generally 'hard' which possibly indicated boulders of limestone, with a smaller proportion of mudstone. In borehole LF02 a core was taken from 25.4m bgl to 26.4 m bgl. The core comprised sub-rounded gravel of cream limestone and grey mudstone. LF02 was continued to 42m bgl; marine deposits comprising fine gravel and shell debris were encountered at 33m bgl, indicating the natural sea bed.

### 7.8.3 Hydrology

Groundwater was encountered in ten (10) of the twenty (20) borehole locations between depths of 1.8m and 3.42m bgl (0.056m and -0.116m ALSL respectively), all of which were located in the man-made platform in the centre and west of site. The strata were found to be 'damp' but not wet in a further five (5) boreholes in the west of site. Groundwater was not encountered in the five (5) of the six (6) boreholes located in the eastern portion of site, where natural mudstone (and made ground in SB09) was encountered. In one of the boreholes (BH08), groundwater was encountered at 2.2m bgl in the natural mudstone. This is not consistent with the hydrology of nearby boreholes, and may indicate a local seepage, for example from the nearby sump.

Groundwater was encountered in one (1) of the three (3) boreholes on the 'landfill' at a depth of 19.7m bgl.

### 7.8.4 Evidence of Contamination

No visual or olfactory evidence of hydrocarbon contamination was identified in the soil during the investigation. Concentrations of volatile organic compounds detected using the photo ionization detector (PID) were very low and did not exceed 10ppm by volume. The maximum concentration was 2.7ppm, identified in SB08 (1.8m to 2.0m). The PID readings do not indicate the presence of volatile hydrocarbon contamination. PID readings are presented on the exploratory borehole logs in Annex B1.

## 7.9 Chemical Analyses

### 7.9.1 Criteria for Assessment

In the absence of current Maltese guidance, the UK risk-based approach to contaminated land has been adopted. In accordance with UK statutory guidance and based on the principles of risk assessment, ENVIRON has derived generic criteria (ENVIRON Generic Assessment Criteria – ENVIRON GAC) for the assessment of soil. The assessment of chemical data from an intrusive investigation is undertaken in a tiered approach, and the first stage is a Generic Quantitative Risk Assessment (GQRA). The ENVIRON GACs are considered to be threshold based screening concentrations, at which a significant risk is not considered to be present to the relevant receptors.

The ENVIRON GACs for soil assessment are based on the generic scenarios outlined in the Contaminated Land Exposure Assessment (CLEA) methodology and guidance documents, and include inhalation, ingestion, dermal contact of soil and dust as pathways for commercial and residential scenarios; as well as ingestion of vegetables for residential with gardens scenario. A commercial / industrial scenario has been selected for comparison as it is most applicable for the continued use of the Delimara Power Station site. These have been calculated by use of two

proprietary risk assessment models (CLEA Version 1.06 and the ASTM RBCA4 Tool Kit Version 2.5 for Chemical Releases) which have been amended, where necessary, to reflect the current UK approach to human health risk assessment as set out in the Contaminated Land Report (CLR) 11 and the CLEA guidance documents (incorporating Science Reports SC050021/SR2, SR3 and SR4 published in January 2009). The physiochemical data has been taken from or derived using the methodology detailed in SR7 (November 2008), where feasible. The toxicology data has been taken from the current published EA toxicology documents.

## 7.9.2 Results of Intrusive Investigation

Results of the soil laboratory analyses are summarised in Annex C and the full analytical results are presented in the original laboratory reports in Annex D. The key analytical findings from the investigation within the IPPC permit boundary are summarized as follows:

### Metals:

- Concentrations of arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, tin, vanadium and zinc exceeded laboratory method detection limits in all of the thirty one (31) samples analysed.
- Concentrations of antimony, beryllium and thallium did not exceed laboratory method detection limits in any of the samples analysed.
- Where concentrations were detected, they were found to be low. The maximum concentration identified was 95 mg/kg of manganese detected in SB05 (2.5 – 3.0m bgl).
- The concentrations of metals in all soil samples did not exceed the respective ENVIRON guideline limits (GAC's) for industrial/commercial land use.

### Inorganics:

- pH ranged from 7.82 in SB01 (2.5 – 3.0) to 11.15 in SB12 (0.8 – 1.0).
- Sulphide ranged from below laboratory method detection limits to a maximum of 1.7 mg/kg in SB03 (0.5 – 1.0)
- Total sulphate ranged from 915 mg/kg in BH07 (0 – 0.5m) to 5213 mg/kg in BH03 (0 – 0.5m).
- Asbestos fibres were not detected in any of the ten (10) samples analysed.

### Polycyclic Aromatic Hydrocarbons (PAHs)

- Concentrations of PAHs were detected above method detection limits in four (4) of the thirty one (31) samples analysed. All four samples were taken from the made ground / reworked natural material. In two (2) of the four samples (BH07 0.0 – 0.5m bgl and SB06 0.0 – 0.5m bgl), concentrations of phenanthrene, fluoranthene, pyrene, benz(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno (1,2,3)pyrene, dibenzo(a,h) anthracene and benzo(g,h,i)perylene exceeded method detection limits. The maximum concentration was

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<sup>4</sup> American Society for Testing and Materials Risk Based Corrective Action Model.

0.11mg/kg of benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene detected in BH07 (0.0-0.5m bgl).

- In two samples (BH04 3.0 – 3.5m bgl and BH05 0.0 – 0.5m bgl), only chrysene was found to exceed detection limits at a maximum concentration of 0.04mg/kg in BH04 (3.0 – 3.5m bgl).
- In the four samples where individual PAHs were detected above method detection limits, concentrations of total PAHs were detected in two of the samples (BH07 0.0 – 0.5m bgl and SB06 0.0 – 0.5m bgl). The maximum concentration was 0.9mg/kg detected in BH07 (0.0 – 0.5m bgl).
- Concentrations of individual and total PAHs did not exceed ENVIRON's generic assessment criteria.

#### Total Petroleum Hydrocarbons (TPHs)

- Thirty one (31) samples were tested for extractable petroleum hydrocarbons (EPH) with aliphatic and aromatic banding. Concentrations of EPH were detected above laboratory method detection limits in eight (8) samples (BH01 0.5m, BH02 0.5m, BH04 0.0 - 0.5m, BH08 1.8 – 2.0m, BH08 2.8 – 3.0m, SB01 0.0 - 0.5m, SB04 0.5 – 1.0m, SB11 0.3 – 0.5m), all except BH08 are located in the man-made platform in the west of site. BH08 is located on the natural Delimara Platform in the east of site. All samples with the exception of the two samples taken from BH08 comprise made ground. The maximum concentration of total EPH detected was 739mg/kg at BH08 1.8m – 2.0m bgl which does not exceed the ENVIRON GAC of 5,000mg/kg for total TPH.
- The samples at depths of 1.8m – 2.0m and 2.8m – 3.0m in BH08 both comprised natural mudstone according to the geological borehole logs. EPH were identified in the bands C10-C20 and C20-C30 in both samples. The maximum concentrations were 408 mg/kg for C10-C20 and 331 mg/kg for C20-C30, both in the sample taken from 1.8m – 2.0m. No ENVIRON GACs are available for the hydrocarbon bands. The total EPH did not exceed the ENVIRON GAC in either sample.
- Of the extractable petroleum hydrocarbon bands detected, concentrations were in the ranges EPH>C20-C30 and EPH>C30-C40 for BH01, BH02, BH04, SB01 and SB11. Petroleum hydrocarbons were detected in the ranges EPH>C10-C20 and EPH C20-C30 for BH08, SB01 and SB04.
- The greatest concentration of EPH banding was 549 mg/kg of EPH>C30-40 detected in SB01.
- No GACs are available for hydrocarbon banding. All concentrations of total EPH did not exceed the ENVIRON's GAC of 5,000 mg/kg.

#### Volatile Organic Compounds

- Concentrations of Volatile Organic Compounds (VOCs) were less than detection limits in seven (7) of the ten (10) samples analysed. In the remaining three samples (SB03 0.5 – 1.0m, SB05 0.5 – 1.0m and SB09 0.3 – 0.5m) only ethylbenzene was found to exceed



detection limits, at a maximum concentration of 0.018mg/kg detected in SB03, which does not exceed the ENVIRON GAC.

#### Semi-Volatile Organic Compounds

- Of the ten (10) samples analysed for semi-volatile organic compounds, concentrations were detected above detection limits in three (3) of the samples. In BH08 (1.8 – 2.0m), 2-methylnaphthalene was detected at 0.057mg/kg. In SB04 (0.5 – 1.0m) and SB05 (0.5 – 1.0m) diethyl phthalate was found at 0.092mg/kg and 0.061mg/kg respectively. The concentrations identified did not exceed the ENVIRON GACs.
- Of the ten (10) samples analysed for tentatively identified compounds (TICs), SVOCs were detected in three (3) of the samples. In SB03 (0.5 – 1.0m), two TICs were identified, the maximum concentration was 0.209mg/kg of cyclic octaatomic sulphur. Eleven TICs were detected in SB04 (0.5 – 1.0m), the maximum concentration being N-ethyl-2-methyl-Benzenesulfonamide, detected at a concentration of 0.490mg/kg. Four (4) TICs were identified in SB05 (0.5 – 1.0m), the greatest being (Z)- 9-Octadecenamide at a concentration of 1.308 mg/kg. No ENVIRON GACs are available for TICs.

#### Polychlorinated Biphenyls (PCBs)

- Concentrations of polychlorinated biphenyls (PCBs) were below laboratory detection limits in all nine (9) samples analysed.

#### 'Landfilled mound'

Of the three (3) samples taken from the mound to the south of the permit boundary, the following was identified:

- Low concentrations of metals were identified in all samples. Concentrations did not exceed relevant ENVIRON GACs.
- PAHs were not identified above laboratory method detection limits.
- Low concentrations of EPH in the bands C10-C20, C20-C30 and C30-C40 were identified in one (1) sample taken from LF01 (0.0m – 0.5m). The maximum concentration of banded hydrocarbons was in the band C20-C30 at 90mg/kg. The concentration of total EPH was 198 mg/kg which is less than the ENVIRON GAC. EPH were not identified above detection limits in the remaining two (2) samples.
- An asbestos screen was undertaken on all samples. Asbestos fibres were not detected.
- pH ranged from 7.87 to 8.69.
- Total sulphate ranged from 1169 mg/kg in LF02 to 7110 mg/kg in LF03.
- Suphide ranged from less than detection limits to 0.8 mg/kg in LF03.

### 7.9.3 Summary of Results

Low concentrations of metals were identified site wide. Low concentrations of PAHs, VOCs, SVOCs and EPH were identified in localised areas.

EPH were identified above detection limits in two samples of natural material in BH08, located in close proximity to a sump associated with Boiler No2, approximately 2.0 – 2.5m bgl in depth. The borehole logs identify that water was encountered at 2.2m bgl at this location which is not consistent with the geological logs from boreholes located in natural mudstone on the Delimara Peninsula. The presence of water may indicate a local seepage, for example from the nearby sump, which is a potential source of hydrocarbon contamination. The presence of petroleum hydrocarbons suggests that the pollution prevention measures may be inadequate in this area.

### 7.10 Refined Conceptual Site Model

Condition 2.16.3 of the initial permit version IP 0002/07/A required for an assessment of the likelihood of their being significant contamination of the land on the site by the pollutants specified in Schedule 9. Given the findings of the investigation, the initial conceptual model can be refined conceptual model, and it is presented in Table 7.10. The proposed decommissioning / demolition of Phase I is also considered as part of the refined conceptual model. The refined conceptual site model is presented in diagrammatic format in Figure 5 Annex A.

Table 7.10: Refined Source-Pathway-Receptor Risk Assessment					
Pollutant Linkage	Description	Receptor(s)	Discussion	Pathway Status	Risk Ranking
PL1	Dermal Contact & Ingestion	Humans – Site maintenance workers Site visitors	No evidence of contamination was identified in the site investigation. No contamination was identified above ENVIRON Generic Assessment Criteria (GACs).	Inactive	Low
PL2	Inhalation – dust, particulates and asbestos fibres			Inactive	Low
PL3	Inhalation - vapours			Inactive	Low
PL4	Leaching and migration of contaminants in unsaturated zone to groundwater and surface water.	Controlled Waters (Malta Mean Groundwater Body, Marsaxlokk Bay and Il-Hofra z-Zghira Bay)	No evidence of contamination was identified in the site investigation. Petroleum hydrocarbons were identified in the natural mudstone at one location (BH08). No contamination was identified above ENVIRON Generic Assessment Criteria (GACs) and the risk is considered low.	Inactive	Low
PL5	Migration of contaminated perched water off-site via the surface water drain.	Controlled Waters (Marsaxlokk Bay and Il-Hofra z-Zghira)	No evidence of contamination was identified in the site investigation. No contamination was identified above ENVIRON Generic Assessment Criteria (GACs).	Inactive	Low
PL6	Migration of groundwater in Limestone Aquifer	Controlled Waters (Malta Mean Groundwater Body)	No evidence of contamination was identified in the site investigation. No contamination was identified above ENVIRON Generic Assessment Criteria (GACs). Malta Mean Groundwater Body was not encountered during drilling.	Inactive	Low
PL7	Migration of land gases into buildings and structures.	Built Environment	Migration of gases is likely to be limited by clay. Volatile compounds were not detected at concentrations exceeding the ENVIRON GAC therefore the risk is deemed low.	Inactive	Low

## 8 Monitoring Programme and Decommissioning

It is a requirement of the IPPC permit that two years prior to the overall decommissioning of Delimara Power Station that the operator must submit a Site Closure Report as part of the Decommissioning plan, to the Regulator. The report should provide detail of the soil quality to determine whether any contamination has had an impact on the land during the operational stage of the permitted activities.

Land monitoring is to be repeated at least every four years (Condition 2.16.3.4) and results included in the Annual Environmental Report (AER). A review of the outline Decommissioning Plan is also to be completed every four years (Condition 2.16.7). If contamination is identified as a result of the permitted activities, the land (site) must be returned to an agreed 'satisfactory state' prior to the permit surrendered.

The outputs of the refined conceptual model (refer Section 7.10) do not identify a significant pollution risk from the concentrations of contaminants measured in soil and rock samples during the initial land investigation. The potential sources, pathways and receptors associated with the proposed decommissioning / demolition of Phase I have been considered within the Conceptual Site Model. No additional pollutant linkages were identified.

During the 2011 investigation, sampling locations were limited by the presence of infrastructure and equipment. It is recommended, following decommissioning / demolition of Phase I additional monitoring locations are positioned in the footprint of the infrastructure / equipment to assess ground conditions in previously inaccessible areas.

As a result of the initial findings of the land investigation in relation to contamination, it was recommended that as a minimum, a soil monitoring investigation is undertaken immediately prior to the permit surrender. However, as a requirement of the latest Permit version (E), Condition 2.16.3.4, land monitoring is required at least every four years. The investigation should be at least equal in detail to the current investigation, but should also take into account any potential polluting incidents, with the scope modified accordingly in order to satisfy Condition 2.16.2 of the IPPC permit. The investigation is used to determine whether soil contamination has taken place during the operation of the permitted activity in the intervening period. Operational conditions specified within the permit are required to control the release of substances to the environment, with records to be maintained. Such records are required to be submitted as part of the Annual Environmental Review, maintained within the EMS and to be made available for inspection, by the Regulator; however they can also be used to determine the scope of the pre surrender investigation.

There is no requirement for an investigation of the hydrogeological conditions at the site; nor is there a requirement for the installation of monitoring wells or for groundwater sampling and analysis. However a detailed monitoring plan would typically consider groundwater monitoring to assess the potential impacts from site activities, especially in areas of raw material, chemical storage and handling. Generally, a 'decontamination plan' would be expected to address the risk of impacts to all potential receptors, i.e., sensitive water bodies. By excluding a groundwater assessment from this initial study, the risk assessment process may result in uncertainty when fully developing the decontamination plans.

Installation of groundwater wells at selected permanent borehole locations at the initial stage, with an appropriate sampling and testing regime allows for a more robust site monitoring programme to be put

in place. By assessing on-going impacts to groundwater during the 'lifetime' of the permitted activities allows for more informed decision making with regard to decommissioning planning.

Should significant contamination be identified as a consequence of the operation of the permitted activities, ENVIRON recommend that land is 'decontaminated' so that concentrations of substances specified in Schedule 8 of the IPPC Permit are below those identified within ENVIRON's Generic Assessment Criteria (GACs) for a generic commercial / industrial land use scenario (unless an alternative land use is identified at the time of surrender). These GACs represent those minimal risk levels, below which there is no perceived risk to human health receptors (GACs are presented in Annex E). Concentrations exceeding the GACs may be considered 'acceptable', however use of such concentrations for risk assessment purposes would require a further detailed assessment and consultation with MEPA.

## 8.1 Decontamination Plans

During the decontamination process there is the potential for 'contaminative emissions' to impact the atmosphere, land and water (groundwater and sea water). In accordance with Condition 2.16.5.5 of the IPPC Permit, the potential sources of emissions and corresponding mitigation measures required to minimize the likelihood of the emissions, during any generic decontamination process, are summarized in Table 8.1.

Table 8.1: Potential Sources of Emissions and Mitigation Measures		
Environmental Media	Potential Sources	Mitigation Measures
Land	Spillage of potentially polluting substances listed in Table 4.0 during removal of soil / rock, storage containers (e.g. tanks and sumps) and equipment.	Preparation of method statements, management plans, health and safety plans prior to undertaking decontamination, including an emergency response plan.
		Loading of vehicles in an organised manner so as to prevent the spread of substances. Sheeting and cleaning vehicles prior to leaving site, if required. All reasonable and applicable measures taken to prevent the escape of material during transportation.
		Storage of liquids and solids of a potentially hazardous nature (e.g. diesel fuel, oils, solvents) in designated areas, for example on surfaced areas, with appropriate containment measures (e.g. bunding) in place during the decontamination process.
		To prevent cross contamination, segregation of substances (including chemicals, contaminated soil/rock, materials, equipment) into hazardous and non-hazardous.
Water	Spillage of potentially polluting substances listed in	Preparation of method statements, management plans, health and safety plans prior to undertaking

Table 8.1: Potential Sources of Emissions and Mitigation Measures		
Environmental Media	Potential Sources	Mitigation Measures
	Table 4.1 and migration or leaching to groundwater and coastal water	decontamination, including an emergency response plan.
		Loading of tankers in an organised manner so as to prevent the spread of contaminants. Sheeting and cleaning vehicles if required, prior to leaving site. All reasonable and applicable measures taken to prevent the escape of material during transportation.
		Where drains are not served by an interceptor, suitable 'drain stops' should be employed to intercept direct run-off from any disturbed areas, or to seal off ingress points to the system, thereby stopping any potential impact to the overall drainage system, and discharge points.
		Storage of liquids and solids of a potentially hazardous nature (e.g. diesel fuel, oils, solvents) in designated areas, for example on surfaced areas, with appropriate containment measures (e.g. bunding) in place during the decontamination process. Use of dedicated spill kits.
		To prevent cross contamination, segregation of substances (including chemicals, contaminated soil/rock, materials, equipment) into hazardous and non-hazardous.
Atmosphere	Dust generated by the movement of soil.	Appropriate Personal Protective Equipment (PPE) (e.g. dust masks).
		Continuous monitoring of the quality of the atmospheric environment, both on site and at the site boundary.
		Provision of appropriate dust suppression infrastructure (i.e. water sprinklers and sprayers)
		Use of covered trucks for the movement of materials.
	Vapours that may be present in chemical storage	Appropriate Personal Protective Equipment (PPE) (e.g. personal vapour alarms).

Table 8.1: Potential Sources of Emissions and Mitigation Measures		
Environmental Media	Potential Sources	Mitigation Measures
	containers (i.e. tanks, sumps) and released to the atmosphere when disturbed.	Releasing vapours into open air rather than confined spaces. Ensuring vapour release occurs away from personnel and buildings in a controlled manner.
	Noise	Continuous monitoring of noise, where required and identification of dedicated noise control areas, where standards are exceeded. Provision of appropriate PPE.

## 9 Options Appraisal

A requirement for a full decommissioning plan has not been identified at this stage.

It is understood that MEPA has agreed that the IPPC permit will not require surrender at this stage and the boundary of the permit will not change. For this reason, there is no requirement at this stage to undertake remediation of Phase I area; remediation will be undertaken for Phase I as part of the whole site when the IPPC permit is surrendered.

It is anticipated that no sub-surface ground excavation will be undertaken during the Phase I decommissioning works. However, should these Phase I decommissioning works involve excavation of the sub-surface, then in accordance with best practice guidance, a 'watching brief' should be implemented during the programme, whereby unusual or 'out-of-character' materials (if identified) can be assessed or stockpiled/contained until such assessment can be undertaken. If hazardous materials such as asbestos containing materials etc are identified, these should be subject to site contingency plans, health & safety and risk assessment and method statements/procedures for their identification, handling, removal and disposal. All remedial activities would be validated and a completion report generated.



## **10 Reference Data and Remediation**

Reference Data for the site has been collected by this report and these are presented in summary in Annex C. The laboratory testing certificates are presented in Annex D.

## 11 Statement of Site Condition

ENVIRON undertook a soil monitoring investigation in 2011 to satisfy Conditions 1.5.1, 2.16.1, 2.16.3, 2.16.5 (Points 1, 4 and 5) of the original IPPC permit (version reference IP 0002/07/A dated March 2010). The land investigation comprised the advancement of twenty (20) boreholes to depths of 5m to 10m using solid stem auger rotary drilling techniques to allow the sampling of the soil. Soil samples were tested for the range of substances in Schedule 9 of the original IPPC permit.

Laboratory analysis identified low concentrations of metals in all samples. Low concentrations of PAHs, VOCs, SVOCs and EPH were identified in localised areas. All concentrations of contaminants did not exceed ENVIRON's Generic Assessment Criteria (GACs) for a commercial / industrial end use.

Elevated concentrations of petroleum hydrocarbons (i.e. above method detection limit of 35mg/kg) were identified in the natural mudstone between depths of 1.8m and 3.0m bgl at BH08, which suggests there may be localised leakage from a sump. The pollution prevention measures may be inadequate in this area. Concentrations of petroleum hydrocarbons were assessed against the relevant ENVIRON Generic Assessment Criteria and were not found to exceed the values.

At that time, the likelihood of their being significant contamination of the land was assessed and no present risk was identified. ENVIRON has subsequently reviewed the Annual Environmental Reports (AER) from 2011 to 2013 produced by Enemalta and submitted to MEPA. Records indicate that no substantial deterioration of the land condition has occurred. ENVIRON has not revisited the site since 2011.

The potential sources, pathways and receptors associated with the proposed decommissioning / demolition of Phase I have been considered within the Conceptual Site Model. No additional pollutant linkages were identified.

As a result of the initial findings of the land investigation in relation to contamination, it is recommended that as a minimum, a soil monitoring investigation is repeated every four years, and prior to permit surrender. The investigation should be at least equal in detail to the current investigation, and consider the recommendations made in Section 8 of this report. It should also take into account any potential polluting incidents, with the scope modified accordingly in order to satisfy Condition 2.16.2 of the IPPC permit. The investigation is used to determine whether soil contamination has taken place during the operation of the permitted activity in the intervening period. Operational conditions specified within the permit are required to control the release of substances to the environment, with records to be maintained. Such records are required to be submitted as part of the Annual Environmental Review, maintained within the EMS and to be made available for inspection, by the Regulator; however they can also be used to determine the scope of the pre surrender investigation.

## **Annex A: Figures and Plans**

### **Figure 1: Site Location**

### **Figure 2: Installation Boundary and Layout**

### **Figure 3: Proposed Sample Location Plan**

### **Figure 4: Actual Sample Location Plan**

### **Figure 5: Conceptual Site Model**

## **Annex B: Records of Investigation Findings**

### **Annex B.1: Borehole Logs**

### **Annex B.2: Photographs**

**Project No:** UK22-20345

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:** 2.11m AOD

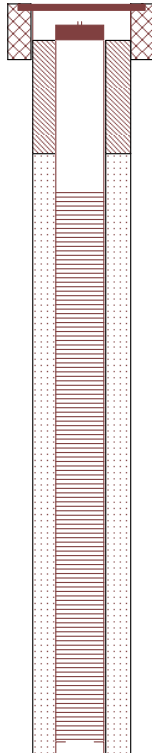
**Window Sample:** BH01

**Date:** 8th June 2011

**Plant Used:** Beretta T44

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1			 Dipped water level during drilling
		<b>MADE GROUND</b> Beige slightly silty sandy limestone (recovered as gravel and powder)				2.00	
1.0		<b>MADE GROUND</b> Greyey brown slightly gravelly Mudstone (recovered as clay) .Gravel is fine to medium, angular of mudstone.	-1.00			1.40	
2.0		<b>MADE GROUND</b> Grey greeny brown gravelly slightly silty Mudstone (recovered as clay).  Strata wet at 3.5m bgl.	-2.00	2		1.30	
3.0						0.90	
4.0						0.60	
5.0		<b>MADE GROUND</b> Greeny grey brown coarse angular gravel of mudstone.	-5.00			2.20	
		5.5 m bgl	-5.50				
6.0							

Remarks:

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:** 3.294m ASL

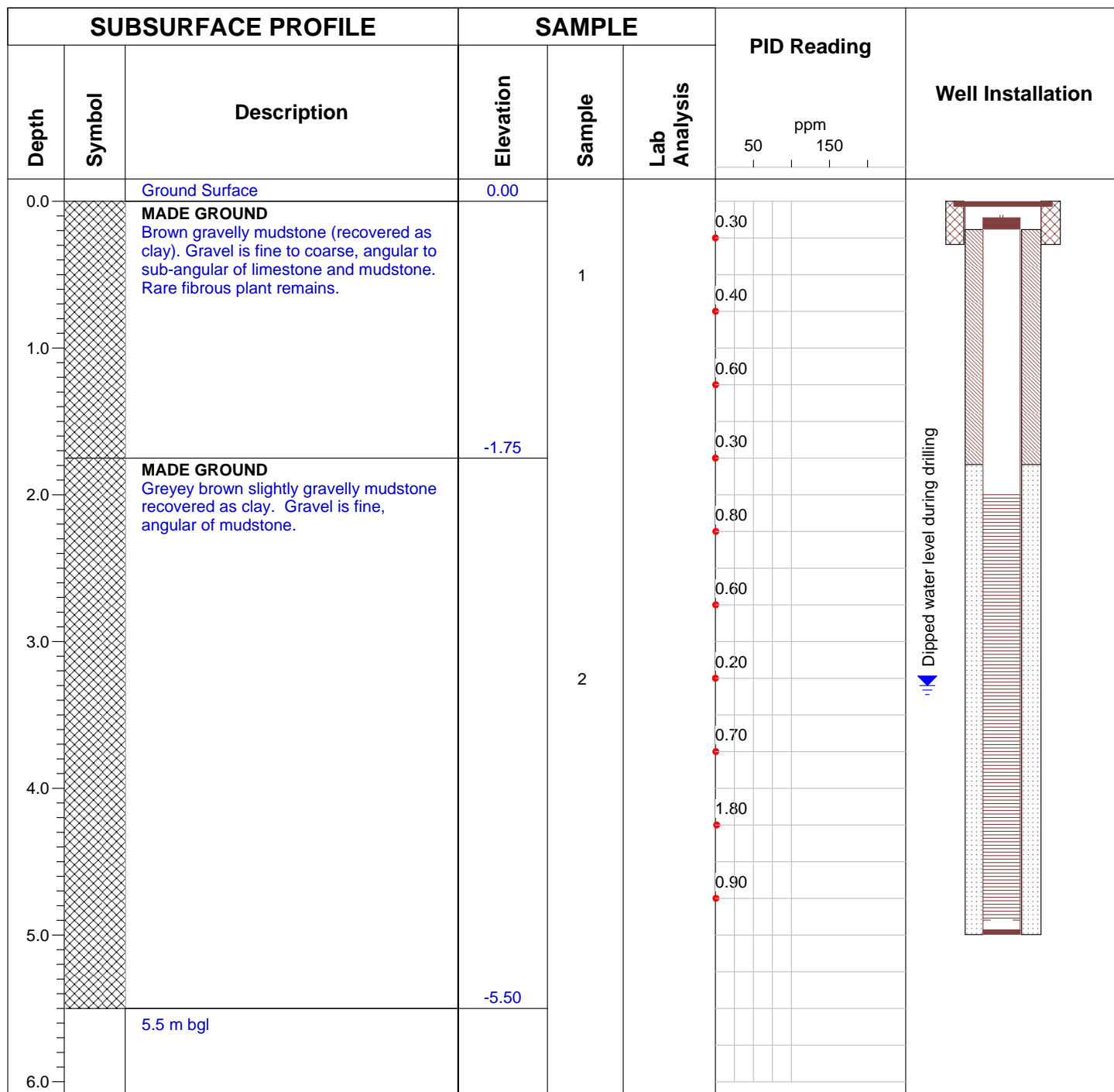
**Window Sample:** BH02

**Date:** 8th July 2011

**Plant Used:** Beretta T44

**Logged by:** KW

**ENVIRON**



Remarks:

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Sheet: 1 of 1

**Project No:** UK22-20354

**Window Sample:** BH03

**Client:** Enemalta

**Date:** 13th June 2011

**Location:** Delimara Power Station

**Plant Used:** Beretta T44

**Datum:** 3.21m ASL

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1			Borehole backfilled with arisings
		MADE GROUND Concrete	-0.16				
1.0		MADE GROUND Beige becoming greeny brown gravelly clay. Gravel is fine to coarse, angular to sub-rounded of mudstone. Occasional fibrous plant remains.		2		0.00	Dipped water level during drilling
2.0						0.00	
3.0		MADE GROUND Damp beigey brown silty gravelly clay. Gravel is fine to medium, angular to sub-rounded of mudstone.	-2.50			0.20	
4.0						0.50	
5.0		MADE GROUND Beigy brown very silty clay with frequent fibrous plant remains (seagrass). Strong organic odour.	-4.00			0.30	
6.0						0.00	
		5.5 m bgl	-5.50			0.00	

Remarks:

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Sheet: 1 of 1

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:** 3.32m ASL

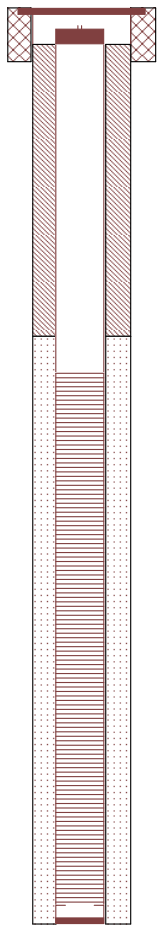
**Window Sample:** BH04

**Date:** 13th June 2011

**Plant Used:** Beretta T44

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1			 Dipped water level during drilling
		MADE GROUND Concrete	-0.17				
		MADE GROUND Light brown silty gravelly clay. Gravel s fine to coarse, angular to sub-angular of mudstone and limestone.	-0.50			0.10	
1.0		MADE GROUND Brown gravelly silty CLAY. Gravel is fine to coarse, angular to sub-angular of mudstone.				0.10	
		1.0...clay becoming damp.				0.50	
2.0		2.0...concrete slab (0.05m thick).				0.50	
		2.5...clay is also cream and silty.				0.10	
3.0				2		0.10	
			-3.50			0.10	
		MADE GROUND Concrete.	-3.65			1.20	
4.0		MADE GROUND Dry brown silty gravelly clay.					
		4.2...becoming damp.					
5.0		MADE GROUND Wet greyey brown slightly gravelly silty clay. Frequent fibrous plant remains (seagrass).	-4.75			1.00	
			-6.00			1.10	
6.0		6 m bgl					

Remarks:

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Sheet: 1 of 1



**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:** 3.153m ASL

**Window Sample:** BH05

**Date:** 13th June 2011

**Plant Used:** Beretta T44

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1			Borehole backfilled with arisings
		<b>MADE GROUND</b> Light brown gravelly silty clay (mudstone) and limestone (recovered as powder) Gravel is fine to coarse, angular to sub-rounded of mudstone and limestone.	-0.30			1.90	
			-0.50			0.20	
1.0		<b>MADE GROUND</b> Limestone boulder.	-1.00			0.00	
		<b>MADE GROUND</b> Light brown gravelly silty clay and limestone (recovered as powder). Gravel is fine to coarse, angular to sub-rounded of mudstone and limestone.		2		0.20	Dipped water level during drilling
2.0		<b>MADE GROUND</b> Greeny brown gravelly clay (mudstone).				1.60	
		2.0...becoming damp.				1.30	
		3.75...frequent fine organic fibres (likely sea grass).				1.50	
3.0		4.0...clay is saturated.				1.40	
		6.0...limestone boulder (thickness approx 0.5m)					
4.0							
5.0							
6.0			-6.00				
		6 m bgl					

Remarks:

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Sheet: 1 of 1

**Project No:** UK22-20354

**Window Sample:** BH06

**Client:** Enemalta

**Date:** 14th June 2011

**Location:** Delimara Power Station

**Plant Used:** Beretta T44

**Datum:** 3.38m ASL

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1		0.30	Borehole backfilled with arisings
		<b>MADE GROUND</b> Beige becoming yellowish light brown slightly sandy slightly silty gravelly clay. Gravel is fine to coarse, angular to sub-angular of limestone and mudstone.	-0.70				
1.0		<b>MIDDLE GLOBIGERINA LIMESTONE FORMATION</b> Greenish brownish grey MUDSTONE (recovered as clay and gravel).		2		0.50	
2.0						0.90	
3.0						0.70	
4.0						0.50	
5.0						0.50	
6.0						0.80	
		<b>LIKELY MIDDLE GLOBIGERINA LIMESTONE FORMATION</b> No returns to due rotary open hole drilling with water flush.	-6.00				
7.0							
8.0							
9.0							
10.0			-10.00				
		10 m bgl					

Remarks: No groundwater encountered during drilling

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:**

**Window Sample:** BH07

**Date:** 14th June 2011

**Plant Used:** Beretta T44

**Logged by:** MH

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1		0.50	Borehole backfilled with arisings
		MADE GROUND	-0.15				
		Concrete.	-0.30				
		MADE GROUND		2		0.70	
		Cream and brown sandy gravel of limestone. Occasional concrete cobble.					
1.0		REWORKED MUDSTONE				0.00	
		Soft brown sandy very gravelly CLAY. Gravel is fine to coarse, angular to sub-angular of mudstone, limestone and fragments of tarmac and concrete. Occasional organic material including fibrous plant remains and wood.				0.80	
2.0		Strata becoming damp at 1.5m bgl.	-2.25			0.30	
		REWORKED MUDSTONE				0.60	
		Beige and yellowish brown very gravelly CLAY. Strata wet at 4.5 m bgl.				0.90	
3.0							
4.0							
5.0							
6.0							
		6.5 m bgl	-6.50				

Remarks: Standing groundwater level encountered at 2.27m bgl.

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:** 3.20m ASL

**Window Sample:** BH08

**Date:** 27th June 2011

**Plant Used:** Beretta T44

**Logged by:** MH

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1			Backfilled with arisings
		MADE GROUND Tarmac	-0.20				
		MADE GROUND Hardcore	-0.40				
		REWORKED MUDSTONE Soft brown CLAY. Gravel is fine to coarse, angular to sub-angular of mudstone.				0.00	
1.0						0.00	
			-1.50			0.40	Water encountered during drilling
		Middle Globigerina Limestone Formation Grey Mudstone.				2.70	
2.0		Drill rods struggled to penetrate wet rock.				2.60	
						2.60	
3.0			-3.00				
		3 m bgl					

Remarks: Hand dug pit to 1.0m bgl. Water encountered at 2.2m bgl (possible leakage from local sump).

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:**

**Window Sample:** LF01

**Date:** 9th June 2011

**Plant Used:** Beretta T44

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00			0.40	
1.0		<b>MADE GROUND</b> Cream and brown gravelly $\text{CaCO}_3$ . Gravel is fine to coarse, angular to sub-rounded of limestone with rare gravel sized fragments of wood and plastic.	-1.75			0.10	
2.0		<b>MADE GROUND</b> Cream medium to coarse angular to sub-rounded gravel of limestone. Rare electronic equipment, cables, plastic, fine metal wire.				0.30	
3.0						0.90	
4.0						0.50	
5.0			-5.75				
6.0		<b>MADE GROUND</b> Cream medium to coarse angular to sub-rounded gravel of limestone. Occasional fragments of fine wood and plant fibres.	-6.50				
7.0							
8.0		<b>MADE GROUND</b> No returns due to rotary open hole technique. Strata is soft material, possibly limestone and mudstone fill.					
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							
16.0			-16.00				
17.0		<b>MADE GROUND</b> No returns due to rotary open hole technique. Strata is hard, possibly limestone cobble / boulders.					
18.0							
19.0			-19.30				
20.0		19.3 m bgl					

Remarks: Presence of groundwater not confirmed due to use of water flush during rotary drilling.

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Window Sample:** LF02

**Client:** Enemalta

**Date:** 9th to 11th June 2011

**Location:** Delimara Power Station

**Plant Used:** Beretta T44

**Datum:**

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
						50      ppm      150	
0.0		Ground Surface	0.00	1		1.00	Borehole backfilled with arisings
1.0		MADE GROUND Light grey brown limestone and mudstone (recovered as ground calcium carbonate, clay and gravel). Occasional to rare fragments of plaster.	-2.50			0.70	
2.0						1.20	
3.0		0.5...becoming light brown with no fragments of plaster.				1.90	
4.0						2.30	
5.0		MADE GROUND Cream limestone (recovered as ground calcium carbonate and gravel).	-5.00	2		1.20	
6.0		LIKELY MADE GROUND No recovery	-6.00			1.40	
7.0		LIKELY MADE GROUND No returns due to rotary open hole drilling technique used. Material is soft (possibly limestone and mudstone fill)				0.90	
8.0							
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							
16.0							
17.0							
18.0							
19.0							
20.0							
21.0							
22.0							

Remarks:

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Sheet: 1 of 2

**Project No:** UK22-20354

**Window Sample:** LF02

**Client:** Enemalta

**Date:** 9th to 11th June 2011

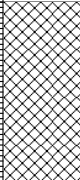
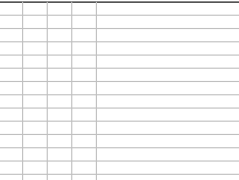

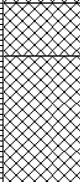
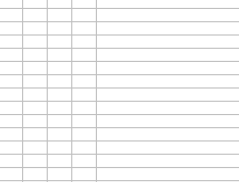

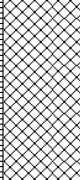
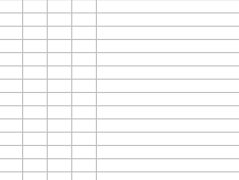

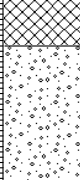
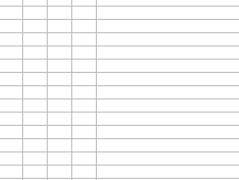

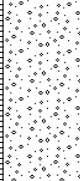
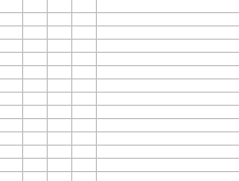

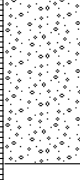
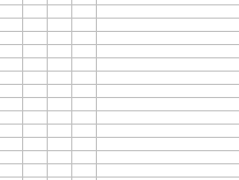

**Location:** Delimara Power Station

**Plant Used:** Beretta T44

**Datum:**

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
23.0						<div>50      ppm      150</div> 	
24.0							
25.0			-25.40				
26.0		<b>MADE GROUND</b> Core taken: recovery comprised coarse, sub-rounded gravel of cream limestone and grey mudstone.	-26.40				
27.0		<b>POSSIBLE MADE GROUND</b> No returns					
28.0							
29.0							
30.0							
31.0							
32.0							
33.0			-33.00				
34.0		<b>MARINE DEPOSITS</b> Grey fine to coarse GRAVEL and shell debris.					
35.0							
36.0							
37.0							
38.0							
39.0							
40.0							
41.0							
42.0			-42.00				
43.0		42 m bgl					
44.0							

Borehole collapsed at base

Remarks:

Checked by:

Sheet: 2 of 2

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:**

**Window Sample:** LF03

**Date:** 10th June 2011

**Plant Used:** Beretta T44

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1		0.80	Borehole backfilled with arisings
1.0		<b>MADE GROUND</b> Brown mudstone (recovered as clay and gravel). Rare gravel-sized concrete..				0.10	
2.0			-2.50	2		0.40	
3.0		<b>MADE GROUND</b> Greeny brown silty mudstone (recovered as gravel and clay nodules)				0.50	
4.0						0.90	
5.0						0.80	
6.0			-6.00			1.10	
7.0		<b>LIKELY MADE GROUND</b> No returns due to rotary open hole drilling technique used. Material is soft (possibly limestone and mudstone fill)				1.10	
8.0						0.60	
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0			-15.30				
16.0		<b>LIKELY MADE GROUND</b> No returns. Material is 'hard' (possible limestone boulders)					
17.0							
18.0							
19.0			-19.00				
		19 m bgl					

Remarks: Presence of water not confirmed due to use of water flush during rotary drilling.

Checked by:

Sheet: 1 of 1



**Project No:** UK22-20354

**Window Sample:** SB01

**Client:** Enemalta

**Date:** 8th July 2011

**Location:** Delimara Power Station

**Plant Used:** Beretta T44

**Datum:** 3.14m ASL

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1			Backfilled with arisings  Dipped water level during drilling
		MADE GROUND Concrete				1.10	
		MADE GROUND Greyey brown black and beige gravel with nodules of clay. Gravel is medium, angular of limestone, tarmac and mudstone.	-0.40			0.90	
			-0.70				
1.0		MADE GROUND Beige medium sub-angular gravel of limestone (Hardcore)	-1.00	2		1.50	
		MADE GROUND Cream limestone (recovered as gravel and powder).				1.50	
2.0		MADE GROUND Greeny grey gravelly CLAY. Gravel is fine, angular of mudstone and occasional limestone. Rare fragments of rubber.	-2.25			1.40	
		MADE GROUND Greeny browny grey gravelly CLAY (recovered as nodules). Gravel is fine to medium, angular of mudstone. Rare fragments of rubber.				2.10	
3.0						1.30	
		Strata becoming wet at 3.75m bgl.				1.80	
		Gravel becoming coarse between 3.75m and 4.0m bgl.				1.10	
4.0							
5.0							
6.0		5.5 m bgl	-5.50				

Remarks:

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:** 3.30m ASL

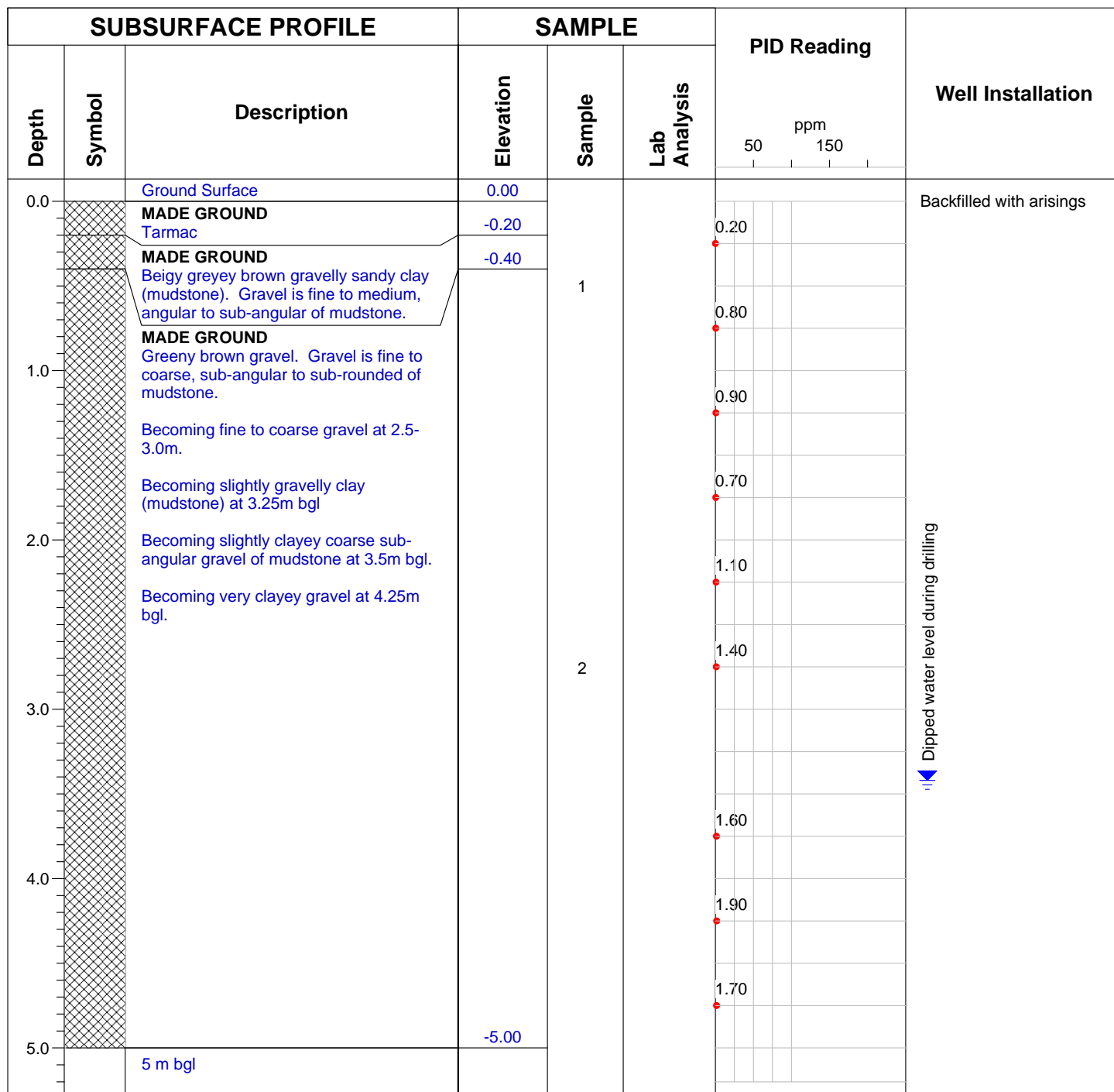
**Window Sample:** SB02

**Date:** 8th July 2011

**Plant Used:** Beretta T44

**Logged by:** KW

**ENVIRON**



Remarks:

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Window Sample:** SB03

**Client:** Enemalta

**Date:** 8th July 2011

**Location:** Delimara Power Station

**Plant Used:** Beretta T44

**Datum:** 3.26m ASL

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1			Backfilled with arisings  Dipped water level during drilling
		MADE GROUND Tarmac	-0.20			0.20	
		MADE GROUND Beigy greyey brown gravelly calcareous clay. Gravel is fine to medium,angular to sub-angular of limestone and mudstone.	-0.40			0.80	
1.0		MADE GROUND Greeny brown clayey gravel of mudstone. Gravel is fine to coarse, sub-angular of mudstone.		2		0.90	
		3.25...becoming damp slightly gravelly clay (recovered as nodules).				0.70	
2.0		3.5...becoming coarse sub-angular gravel of mudstone.				1.10	
		4.25...becoming very clayey gravel of mudstone.				1.40	
3.0						1.60	
4.0						1.90	
5.0						1.70	
		5 m bgl	-5.00				
6.0							

Remarks:

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Window Sample:** SB04

**Client:** Enemalta

**Date:** 9th June 2011

**Location:** Delimara Power Station

**Plant Used:** Beretta T44

**Datum:** 3.424m ASL

**Logged by:** KW



SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1			Backfilled with arisings
		MADE GROUND	-0.15			0.30	
		Concrete					
		MADE GROUND	-0.50	2		0.70	
		Light greeny grey sandy slightly gravelly CLAY. Gravel is fine to medium, angular of limestone and mudstone.	-1.00			0.40	
1.0		POSSIBLY REWORKED MUDSTONE				1.40	
		Light greeny grey sandy slightly gravelly CLAY. Gravel is fine to medium, angular of mudstone				2.50	
		MIDDLE GLOBIGERINA LIMESTONE FORMATION				1.40	
2.0		Greeny grey weathered mudstone (recovered as clay and gravel).				1.40	
3.0						1.00	
4.0						1.80	
5.0						1.00	
6.0							
			-6.50				
		6.5 m bgl					
7.0							

Remarks: No groundwater encountered during drilling

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:** 3.15m ASL

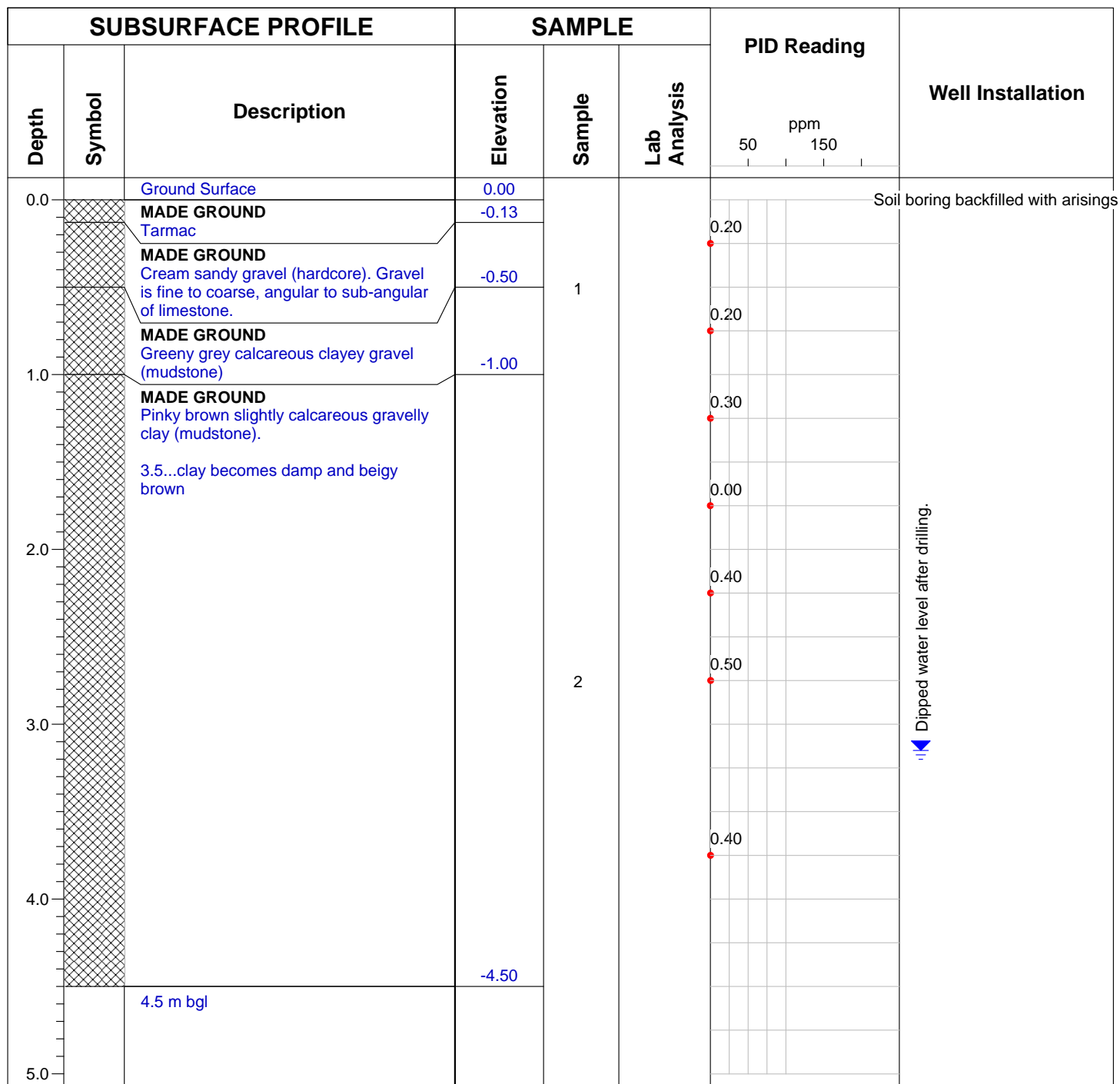
**Window Sample:** SB05

**Date:** 9th June 2011

**Plant Used:** Beretta T44

**Logged by:** KW

**ENVIRON**



Remarks: No groundwater encountered during drilling

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Window Sample:** SB06A

**Client:** Enemalta

**Date:** 9th June 2011

**Location:** Delimara Power Station

**Plant Used:** Beretta T44

**Datum:**

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00				Backfilled with arisings
		<b>MADE GROUND</b> Beige becoming brown calcareous gravelly SAND. Gravel is fine to coarse, angular to sub-rounded of limestone and concrete.				0.40	
						0.10	
1.0						0.30	
		<b>MADE GROUND</b> Greeny grey gravelly clay (likely reworked mudstone).  Becoming slightly damp at 2.5 m bgl.  Limestone obstruction at 2.75m bgl. Borehole abandoned.	-1.25			0.90	
2.0						0.50	
			-2.75				
		2.75 m bgl					
3.0							

Remarks:

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Window Sample:** SB06B

**Client:** Enemalta

**Date:** 9th June 2011

**Location:** Delimara Power Station

**Plant Used:** Beretta T44

**Datum:**

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00	1		0.40	Backfilled with arisings
		<b>MADE GROUND</b> Beige becoming brown calcareous gravelly SAND. Gravel is fine to coarse, angular to sub-rounded of limestone and concrete.					
1.0							
			-1.25				
2.0		<b>MADE GROUND</b> Greeny grey gravelly clay (likely reworked mudstone).  Becoming slightly damp at 2.5 m bgl.  Strata wet at 3.75m bgl.		2		0.60	
3.0							
						0.30	
4.0							
5.0							
			-5.50				
		5.5 m bgl					

Remarks:

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Window Sample:** SB07

**Client:** Enemalta

**Date:** 13th June 2011

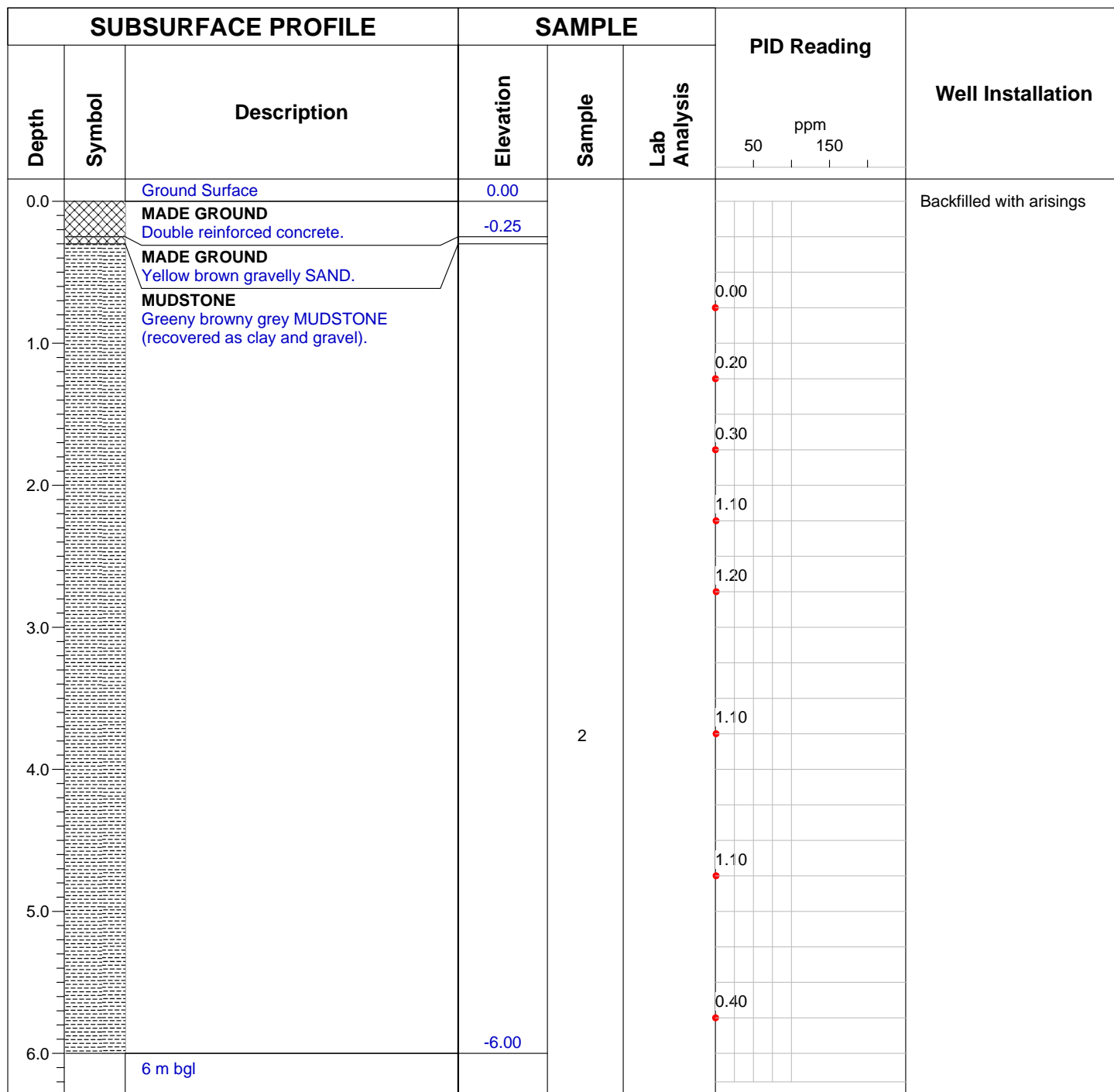
**Location:** Delimara Power Station

**Plant Used:** Beretta T44 Continuous Flight Auger Rig

**Datum:** 3.41m ASL

**Logged by:** KW

**ENVIRON**



Remarks: No groundwater encountered.

Hand dug service pit excavated to 1.0m bgl.

Checked by:

Sheet: 1 of 1





**Project No:** UK22-20354

**Window Sample:** SB08B

**Client:** Enemalta

**Date:** 13th June 2011

**Location:** Delimara Power Station

**Plant Used:** Beretta T44

**Datum:** 3.44m ASL

**Logged by:** KW

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00				Backfilled with arisings
		MADE GROUND	-0.10				
		Cream fine to coarse gravel of limestone					
		MADE GROUND					
		Greeny brownish grey gravelly silty clay.					
		Gravel is fine to coarse, angular to sub-					
		rounded of mudstone. Occasional strips					
		of metal (c. 5cm in length) and rare					
		plastic.					
		1.5...clay becoming damp.					
1.0							
2.0							
			-2.50				
		MADE GROUND					
		Reinforced concrete obstruction					
		(thickness not proven). Borehole					
		terminated.					
		2.5 m bgl					
3.0							

Remarks: Borehole terminated at 2.5m bgl due to reinforced concrete obstruction. No groundwater encountered. Checked by:

**Project No:** UK22-20354

**Window Sample:** SB09

**Client:** Enemalta

**Date:** 27th June 2011

**Location:** Delimara Power Station

**Plant Used:** Beretta T44 Continuous Flight Auger Rig

**Datum:**

**Logged by:** MH

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00				Backfilled with arisings
		<b>MADE GROUND</b> Grey sandy gravel of mudstone and limestone. Gravel is fine to coarse, sub-angular to sub-rounded.	-0.50			0.20	
		<b>MUDSTONE</b> Greeny brownish grey MUDSTONE (recovered as clay and gravel).				1.70	
1.0						2.30	
						1.20	
2.0							
						2.20	
3.0							
						1.80	
4.0							
						0.90	
5.0							
						1.70	
6.0		6 m bgl	-6.00				

Remarks: No groundwater encountered.

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:**

**Window Sample:** SB10

**Date:** 28th June 2011

**Plant Used:** Beretta T44 Continuous Flight Auger Rig

**Logged by:** MH

**ENVIRON**

SUBSURFACE PROFILE			SAMPLE			PID Reading ppm 50 150	Well Installation
Depth	Symbol	Description	Elevation	Sample	Lab Analysis		
0.0		Ground Surface	0.00				Backfilled with arisings
		<b>REWORKED MUDSTONE AND LIMESTONE</b> Cream reworked fine-grained limestone and grey fine and coarse gravel of mudstone.				0.00	
		Becoming brown at 0.3m bgl.	-1.00			0.10	
1.0		<b>REWORKED MUDSTONE</b> Rewoked greeny brown mudstone.				0.10	
		Damp at 2.1m bgl. Mudstone recovered as clay.				0.20	
2.0		Wet at 6.3m bgl.				0.40	
						0.00	
3.0						0.30	
4.0						0.10	
5.0						0.10	
6.0		6 m bgl	-6.00			0.10	

Remarks:

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:**

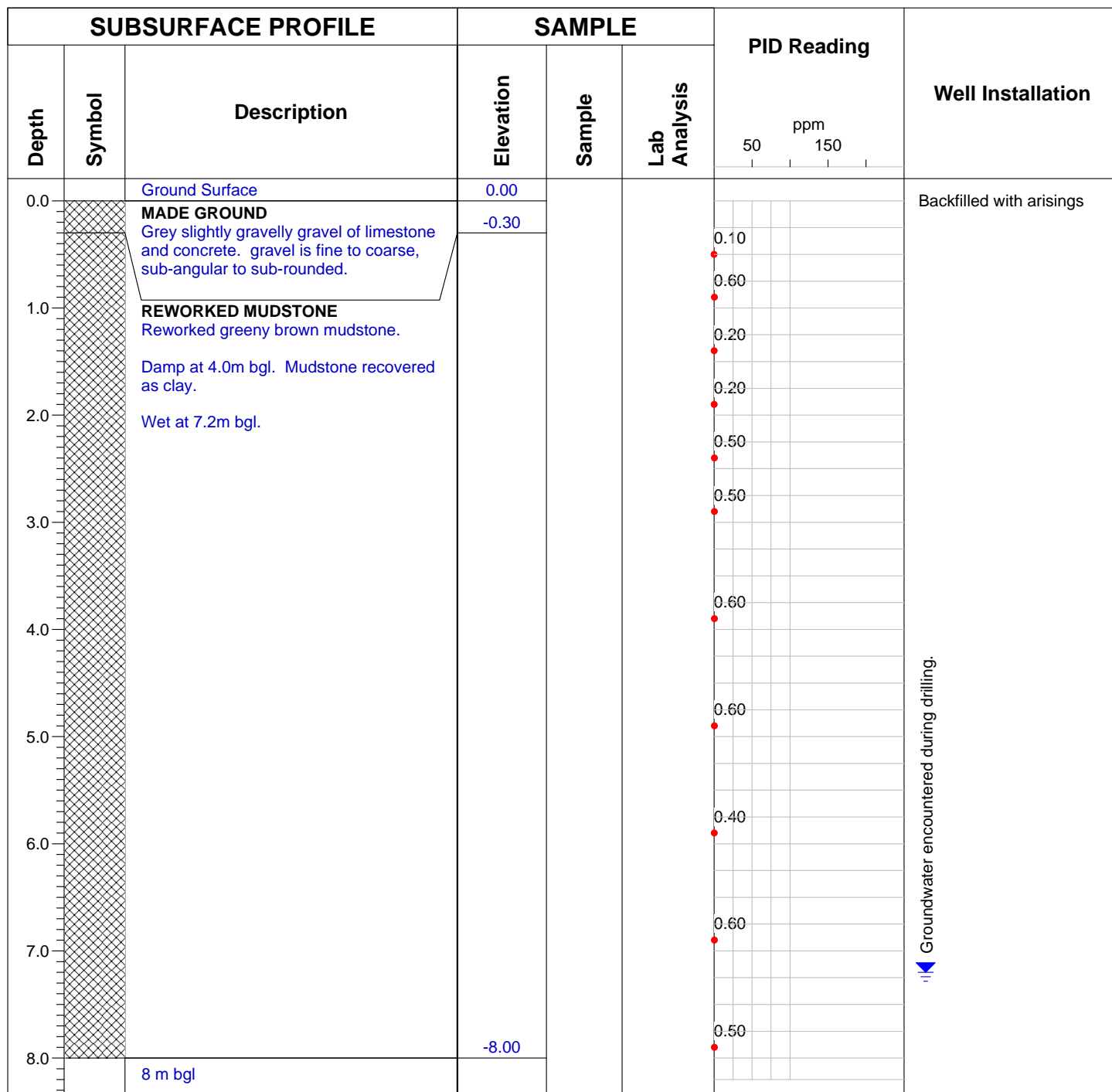
**Window Sample:** SB11

**Date:** 28th June 2011

**Plant Used:** Beretta T44 Continuous Flight Auger Rig

**Logged by:** MH

**ENVIRON**



Remarks:

Checked by:

Sheet: 1 of 1

**Project No:** UK22-20354

**Client:** Enemalta

**Location:** Delimara Power Station

**Datum:**

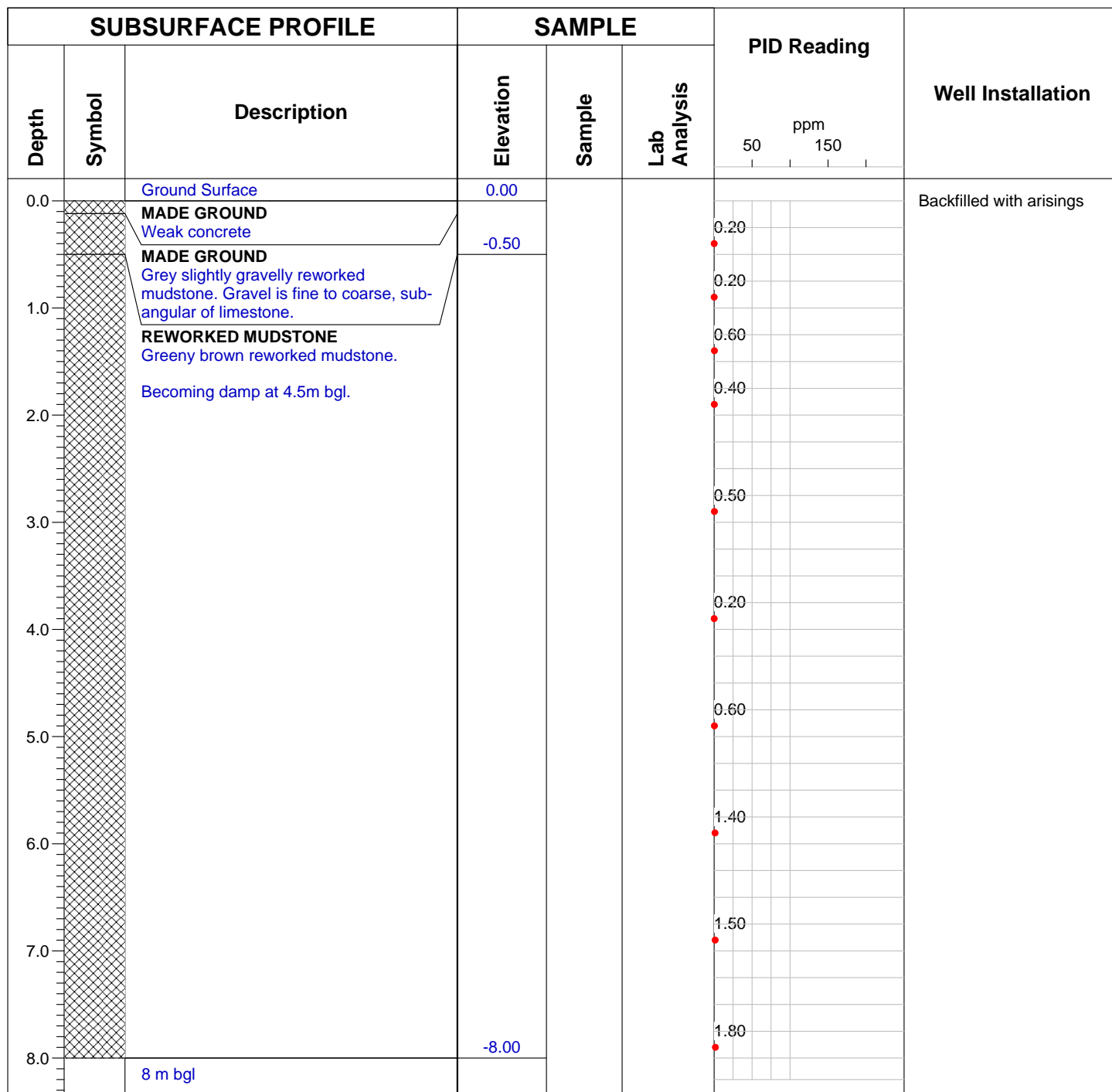
**Window Sample:** SB11

**Date:** 28th June 2011

**Plant Used:** Beretta T44 Continuous Flight Auger Rig

**Logged by:** MH

**ENVIRON**



Remarks:

Checked by:

Sheet: 1 of 1



Photo 1.  
General View of Delimara Power Station  
(Looking North)



Photo 2.  
BH07 – Proposed Location



Photo 3.  
SB04 – Proposed Location



Photo 4.  
SB09 – Proposed Location



Photo 5.  
SB10 - Proposed Location



Photo 6.  
SB12 – Proposed location

**Site:** Delimara Power Station, Malta

**Date:** August 2011

**Client:** Enemalta

**Document Version:** 1





Photo 7.  
Beretta T44 Drilling Rig



Photo 8.  
Beretta T44 Drilling Rig.



Photo 9.  
Arisings from SB02 (0.0 – 5.0m bgl)



Photo 10.  
Arisings from SB04 (0.0m – 2.5m bgl).



Photo 11.  
Arisings from SB04 (0.0m – 6.5m bgl).



Photo 12.  
Arisings from SB05 (0.0m – 4.5m bgl)

**Site:** Delimara Power Station, Malta

**Date:** August 2011

**Client:** Enemalta

**Document Version:** 1





Photo 13.  
Arisings from SB06B (0.0m – 5.5m bgl)



Photo 14.  
SB07 Hand dug service pit to 0.9m bgl



Photo 15.  
Arisings from BH01 (3.0m bgl)



Photo 16  
Arisings from BH01 (5.5m bgl).



Photo 17.  
Arisings from BH02 (0.0m-0.5m bgl)



Photo 18.  
Arisings from LF01 (0.0 – 6.5m bgl)

**Site:** Delimara Power Station, Malta

**Date:** August 2011

**Client:** Enemalta

**Document Version:** 1



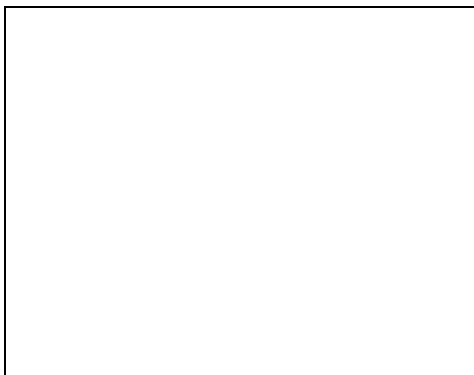
Photo 19.  
Arisings from LF02 (0.0 – 6.0m bgl)



Photo 20.  
Arisings from LF02 (25.4m bgl)



Photo 21.  
Arisings from LF03 (0.0-6.0m bgl)



<b>Site:</b> Delimara Power Station, Malta	<b>Date:</b> August 2011
<b>Client:</b> Enemalta	<b>Document Version:</b> 1

## **Annex C: Summary of Analytical Results**

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-SB01	DPS-SB01	DPS-SB02	DPS-SB03
			DEPTH (m)	0-0.5	2.5-3.0	0-0.5	0.5-1.0
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	08/06/2011	08/06/2011	08/06/2011	08/06/2011
Metals		Method	Units				
Antimony	7,550	TM30/PM15	mg/kg	<1	<1	<1	<1
Arsenic	635	TM30/PM15	mg/kg	1.2	2.4	2.3	1.9
Cadmium	230	TM30/PM15	mg/kg	0.2	0.4	0.3	0.4
Chromium	35	TM30/PM15	mg/kg	7.8	20	20	19.8
Cobalt	NG	TM30/PM15	mg/kg	0.9	2.6	2.6	2
Copper	71,700	TM30/PM15	mg/kg	12	16	17	18
Lead	750	TM30/PM15	mg/kg	<5	<5	<5	<5
Manganese	NG	TM30/PM15	mg/kg	40	70	71	56
Mercury	3,640	TM30/PM15	mg/kg	0.4	0.3	0.4	0.5
Nickel	1,790	TM30/PM15	mg/kg	6.6	23.2	21.8	24.7
Selenium	13,000	TM30/PM15	mg/kg	<1	1	<1	2
Thallium	NG	TM30/PM15	mg/kg	<1	<1	<1	<1
Tin	NG	TM30/PM15	mg/kg	<1	<1	<1	<1
Vanadium	3,160	TM30/PM15	mg/kg	13	17	18	20
Zinc	665,000	TM30/PM15	mg/kg	17	56	55	53
Inorganics							
Asbestos Screen	N/A	-	Subcontracted	NAD	-	NAD	NAD
pH	N/A	pH units	TM73/PM11	8.35	7.82	8.01	7.97
Total Sulphate	N/A	mg/kg	TM50/PM15	2248	4721	4916	2190
Fraction Organic Carbon	N/A	None	TM21/PM24	-	-	-	0.012
Sulphide	N/A	mg/kg	Subcontracted	<0.5	<0.5	<0.5	1.7
PAHs							
Naphthalene	75	mg/kg	TM4/PM8	<0.40	<0.04	<0.04	<0.04
Acenaphthylene	162	mg/kg	TM4/PM8	<0.30	<0.03	<0.03	<0.03
Acenaphthene	56.7	mg/kg	TM4/PM8	<0.50	<0.05	<0.05	<0.05
Fluorene	160	mg/kg	TM4/PM8	<0.40	<0.04	<0.04	<0.04
Phenanthrene	21,900	mg/kg	TM4/PM8	<0.30	<0.03	<0.03	<0.03
Anthracene	522,000	mg/kg	TM4/PM8	<0.40	<0.04	<0.04	<0.04
Fluoranthene	22,600	mg/kg	TM4/PM8	<0.30	<0.03	<0.03	<0.03
Pyrene	54,300	mg/kg	TM4/PM8	<0.30	<0.03	<0.03	<0.03
Benz(a)anthracene	91	mg/kg	TM4/PM8	<0.60	<0.06	<0.06	<0.06
Chrysene	140.0	mg/kg	TM4/PM8	<0.20	<0.02	<0.02	<0.02
Benzo(bk)fluoranthene	102	mg/kg	TM4/PM8	<0.70	<0.07	<0.07	<0.07
Benzo(a)pyrene	14	mg/kg	TM4/PM8	<0.40	<0.04	<0.04	<0.04
Indeno(123cd)pyrene	61.0	mg/kg	TM4/PM8	<0.40	<0.04	<0.04	<0.04
Dibenzo(ah)anthracene	13	mg/kg	TM4/PM8	<0.40	<0.04	<0.04	<0.04
Benzo(ghi)perylene	658	mg/kg	TM4/PM8	<0.40	<0.04	<0.04	<0.04
PAH 16 Total	NG	mg/kg	TM4/PM8	<6.0	<0.6	<0.6	<0.6
Benzo(b)fluoranthene	102	mg/kg	TM4/PM8	<0.50	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	143	mg/kg	TM4/PM8	<0.20	<0.02	<0.02	<0.02
PAH Surrogate % Recovery	N/A	%	TM4/PM8	101	109	106	100
Hydrocarbons							
EPH >C8-C10	N/A	mg/kg	TM5/PM8	<5	<5	<5	<5
EPH >C10-C20	N/A	mg/kg	TM5/PM8	<10	<10	<10	<10
EPH >C20-C30	N/A	mg/kg	TM5/PM8	88	<10	<10	<10
EPH >C30-C40	N/A	mg/kg	TM5/PM8	549	<10	<10	<10
EPH >C8-C40	5,000	mg/kg	TM5/PM8	637	<35	<35	<35
PCBs							
PCB 28	240.0	ug/kg	TM86/PM8	-	-	-	<5
PCB 52	240.0	ug/kg	TM86/PM8	-	-	-	<5
PCB 101	240.0	ug/kg	TM86/PM8	-	-	-	<5
PCB 118	240.0	ug/kg	TM86/PM8	-	-	-	<5
PCB 138	240.0	ug/kg	TM86/PM8	-	-	-	<5
PCB 153	240.0	ug/kg	TM86/PM8	-	-	-	<5
PCB 180	240.0	ug/kg	TM86/PM8	-	-	-	<5
Total 7 PCBs	240	ug/kg	TM86/PM8	-	-	-	<35
SVOCs							
2-Chlorophenol	3,590,000	ug/kg	TM16/PM8	-	-	-	<10
2-Methylphenol	14,200,000	ug/kg	TM16/PM8	-	-	-	<10
2-Nitrophenol	910,597	ug/kg	TM16/PM8	-	-	-	<10
2,4-Dichlorophenol	3,530,000	ug/kg	TM16/PM8	-	-	-	<10
2,4-Dimethylphenol	1,330,000	ug/kg	TM16/PM8	-	-	-	<10
2,4,5-Trichlorophenol	2,300,000	ug/kg	TM16/PM8	-	-	-	<10
2,4,6-Trichlorophenol	848,000	ug/kg	TM16/PM8	-	-	-	<10
4-Chloro-3-methylphenol	8,333,156	ug/kg	TM16/PM8	-	-	-	<10
4-Methylphenol	25,800,000	ug/kg	TM16/PM8	-	-	-	<10
4-Nitrophenol	1,000,000	ug/kg	TM16/PM8	-	-	-	<10
Pentachlorophenol	1,230,000	ug/kg	TM16/PM8	-	-	-	<10
Phenol	3,200,000	ug/kg	TM16/PM8	-	-	-	<10
2-Chloronaphthalene	113,000	ug/kg	TM16/PM8	-	-	-	<10

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-SB03	DPS-SB04	DPS-SB05	DPS-SB05
			DEPTH (m)	2.0-2.5	0.5-1.0	0.5-1.0	2.5-3.0
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	08/06/2011	08/06/2011	08/06/2011	08/06/2011
Metals		Method	Units				
Antimony	7,550	TM30/PM15	mg/kg	<1	<1	<1	<1
Arsenic	635	TM30/PM15	mg/kg	2.4	2	2.4	4
Cadmium	230	TM30/PM15	mg/kg	0.4	0.5	0.3	0.3
Chromium	35	TM30/PM15	mg/kg	22.6	19.2	15.9	17.1
Cobalt	NG	TM30/PM15	mg/kg	2.4	1	2.2	3
Copper	71,700	TM30/PM15	mg/kg	21	8	12	13
Lead	750	TM30/PM15	mg/kg	<5	<5	<5	<5
Manganese	NG	TM30/PM15	mg/kg	62	61	68	95
Mercury	3,640	TM30/PM15	mg/kg	0.3	0.4	0.4	0.4
Nickel	1,790	TM30/PM15	mg/kg	28.4	10.7	18.5	18.5
Selenium	13,000	TM30/PM15	mg/kg	2	<1	<1	<1
Thallium	NG	TM30/PM15	mg/kg	<1	<1	<1	<1
Tin	NG	TM30/PM15	mg/kg	<1	<1	<1	<1
Vanadium	3,160	TM30/PM15	mg/kg	22	11	14	21
Zinc	665,000	TM30/PM15	mg/kg	62	30	41	41
Inorganics							
Asbestos Screen	N/A	-	Subcontracted	-	NAD	NAD	-
pH	N/A	pH units	TM73/PM11	8.22	8.52	8.15	8.28
Total Sulphate	N/A	mg/kg	TM50/PM15	2333	1186	5384	1937
Fraction Organic Carbon	N/A	None	TM21/PM24	0.014	-	-	-
Sulphide	N/A	mg/kg	Subcontracted	1.0	0.6	<0.5	<0.5
PAHs							
Naphthalene	75	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Acenaphthylene	162	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Acenaphthene	56.7	mg/kg	TM4/PM8	<0.05	<0.05	<0.05	<0.05
Fluorene	160	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Phenanthrene	21,900	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Anthracene	522,000	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Fluoranthene	22,600	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Pyrene	54,300	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Benz(a)anthracene	91	mg/kg	TM4/PM8	<0.06	<0.06	<0.06	<0.06
Chrysene	140.0	mg/kg	TM4/PM8	<0.02	<0.02	<0.02	<0.02
Benzo(bk)fluoranthene	102	mg/kg	TM4/PM8	<0.07	<0.07	<0.07	<0.07
Benzo(a)pyrene	14	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Indeno(123cd)pyrene	61.0	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Dibenzo(ah)anthracene	13	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Benzo(ghi)perylene	658	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
PAH 16 Total	NG	mg/kg	TM4/PM8	<0.6	<0.6	<0.6	<0.6
Benzo(b)fluoranthene	102	mg/kg	TM4/PM8	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	143	mg/kg	TM4/PM8	<0.02	<0.02	<0.02	<0.02
PAH Surrogate % Recovery	N/A	%	TM4/PM8	112	118	124	121
Hydrocarbons							
EPH >C8-C10	N/A	mg/kg	TM5/PM8	<5	<5	<5	<5
EPH >C10-C20	N/A	mg/kg	TM5/PM8	<10	168	<10	<10
EPH >C20-C30	N/A	mg/kg	TM5/PM8	<10	50	<10	<10
EPH >C30-C40	N/A	mg/kg	TM5/PM8	<10	<10	<10	<10
EPH >C8-C40	5,000	mg/kg	TM5/PM8	<35	218	<35	<35
PCBs							
PCB 28	240.0	ug/kg	TM86/PM8	-	<5	<5	-
PCB 52	240.0	ug/kg	TM86/PM8	-	<5	<5	-
PCB 101	240.0	ug/kg	TM86/PM8	-	<5	<5	-
PCB 118	240.0	ug/kg	TM86/PM8	-	<5	<5	-
PCB 138	240.0	ug/kg	TM86/PM8	-	<5	<5	-
PCB 153	240.0	ug/kg	TM86/PM8	-	<5	<5	-
PCB 180	240.0	ug/kg	TM86/PM8	-	<5	<5	-
Total 7 PCBs	240	ug/kg	TM86/PM8	-	<35	<35	-
SVOCs							
2-Chlorophenol	3,590,000	ug/kg	TM16/PM8	-	<10	<10	-
2-Methylphenol	14,200,000	ug/kg	TM16/PM8	-	<10	<10	-
2-Nitrophenol	910,597	ug/kg	TM16/PM8	-	<10	<10	-
2,4-Dichlorophenol	3,530,000	ug/kg	TM16/PM8	-	<10	<10	-
2,4-Dimethylphenol	1,330,000	ug/kg	TM16/PM8	-	<10	<10	-
2,4,5-Trichlorophenol	2,300,000	ug/kg	TM16/PM8	-	<10	<10	-
2,4,6-Trichlorophenol	848,000	ug/kg	TM16/PM8	-	<10	<10	-
4-Chloro-3-methylphenol	8,333,156	ug/kg	TM16/PM8	-	<10	<10	-
4-Methylphenol	25,800,000	ug/kg	TM16/PM8	-	<10	<10	-
4-Nitrophenol	1,000,000	ug/kg	TM16/PM8	-	<10	<10	-
Pentachlorophenol	1,230,000	ug/kg	TM16/PM8	-	<10	<10	-
Phenol	3,200,000	ug/kg	TM16/PM8	-	<10	<10	-
2-Chloronaphthalene	113,000	ug/kg	TM16/PM8	-	<10	<10	-



Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-SB06	DPS-SB07	DPS-SB08	SB-09
			DEPTH (m)	0-0.5	0.4	2.0-2.5	0.3-0.5
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	08/06/2011	13/06/2011	13/06/2011	27/06/2011
Metals		Method	Units				
Antimony	7,550	TM30/PM15	mg/kg	1	<1	<1	<1
Arsenic	635	TM30/PM15	mg/kg	6.1	2.1	3	2.6
Cadmium	230	TM30/PM15	mg/kg	0.5	0.4	0.4	0.4
Chromium	35	TM30/PM15	mg/kg	17.8	19.1	20.5	19.5
Cobalt	NG	TM30/PM15	mg/kg	3	2.5	2.1	2.6
Copper	71,700	TM30/PM15	mg/kg	17	15	14	15
Lead	750	TM30/PM15	mg/kg	<5	<5	<5	<5
Manganese	NG	TM30/PM15	mg/kg	82	65	77	68
Mercury	3,640	TM30/PM15	mg/kg	0.3	0.4	0.4	0.4
Nickel	1,790	TM30/PM15	mg/kg	24.1	24.4	21.8	34.3
Selenium	13,000	TM30/PM15	mg/kg	2	1	<1	<1
Thallium	NG	TM30/PM15	mg/kg	<1	<1	<1	<1
Tin	NG	TM30/PM15	mg/kg	<1	1	2	<1
Vanadium	3,160	TM30/PM15	mg/kg	19	17	17	53
Zinc	665,000	TM30/PM15	mg/kg	55	53	48	52
Inorganics							
Asbestos Screen	N/A	-	Subcontracted	NAD	-	-	-
pH	N/A	pH units	TM73/PM11	8.03	8.38	8.06	7.96
Total Sulphate	N/A	mg/kg	TM50/PM15	4505	1802	5607	-
Fraction Organic Carbon	N/A	None	TM21/PM24	-	-	-	-
Sulphide	N/A	mg/kg	Subcontracted	<0.5	<0.5	<0.5	<0.5
PAHs							
Naphthalene	75	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Acenaphthylene	162	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Acenaphthene	56.7	mg/kg	TM4/PM8	<0.05	<0.05	<0.05	<0.05
Fluorene	160	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Phenanthrene	21,900	mg/kg	TM4/PM8	0.03	<0.03	<0.03	<0.03
Anthracene	522,000	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Fluoranthene	22,600	mg/kg	TM4/PM8	0.05	<0.03	<0.03	<0.03
Pyrene	54,300	mg/kg	TM4/PM8	0.05	<0.03	<0.03	<0.03
Benz(a)anthracene	91	mg/kg	TM4/PM8	0.07	<0.06	<0.06	<0.06
Chrysene	140.0	mg/kg	TM4/PM8	0.07	<0.02	<0.02	<0.02
Benzo(bk)fluoranthene	102	mg/kg	TM4/PM8	0.17	<0.07	<0.07	<0.07
Benzo(a)pyrene	14	mg/kg	TM4/PM8	0.07	<0.04	<0.04	<0.04
Indeno(123cd)pyrene	61.0	mg/kg	TM4/PM8	0.06	<0.04	<0.04	<0.04
Dibenzo(ah)anthracene	13	mg/kg	TM4/PM8	0.06	<0.04	<0.04	<0.04
Benzo(ghi)perylene	658	mg/kg	TM4/PM8	0.09	<0.04	<0.04	<0.04
PAH 16 Total	NG	mg/kg	TM4/PM8	0.7	<0.6	<0.6	<0.6
Benzo(b)fluoranthene	102	mg/kg	TM4/PM8	0.12	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	143	mg/kg	TM4/PM8	0.05	<0.02	<0.02	<0.02
PAH Surrogate % Recovery	N/A	%	TM4/PM8	117	86	97	103
Hydrocarbons							
EPH >C8-C10	N/A	mg/kg	TM5/PM8	<5	<5	<5	<5
EPH >C10-C20	N/A	mg/kg	TM5/PM8	<10	<10	<10	<10
EPH >C20-C30	N/A	mg/kg	TM5/PM8	<10	<10	<10	<10
EPH >C30-C40	N/A	mg/kg	TM5/PM8	<10	<10	<10	<10
EPH >C8-C40	5,000	mg/kg	TM5/PM8	<35	<35	<35	<35
PCBs							
PCB 28	240.0	ug/kg	TM86/PM8	-	<5	-	-
PCB 52	240.0	ug/kg	TM86/PM8	-	<5	-	-
PCB 101	240.0	ug/kg	TM86/PM8	-	<5	-	-
PCB 118	240.0	ug/kg	TM86/PM8	-	<5	-	-
PCB 138	240.0	ug/kg	TM86/PM8	-	<5	-	-
PCB 153	240.0	ug/kg	TM86/PM8	-	<5	-	-
PCB 180	240.0	ug/kg	TM86/PM8	-	<5	-	-
Total 7 PCBs	240	ug/kg	TM86/PM8	-	<35	-	-
SVOCs							
2-Chlorophenol	3,590,000	ug/kg	TM16/PM8	-	-	-	<10
2-Methylphenol	14,200,000	ug/kg	TM16/PM8	-	-	-	<10
2-Nitrophenol	910,597	ug/kg	TM16/PM8	-	-	-	<10
2,4-Dichlorophenol	3,530,000	ug/kg	TM16/PM8	-	-	-	<10
2,4-Dimethylphenol	1,330,000	ug/kg	TM16/PM8	-	-	-	<10
2,4,5-Trichlorophenol	2,300,000	ug/kg	TM16/PM8	-	-	-	<10
2,4,6-Trichlorophenol	848,000	ug/kg	TM16/PM8	-	-	-	<10
4-Chloro-3-methylphenol	8,333,156	ug/kg	TM16/PM8	-	-	-	<10
4-Methylphenol	25,800,000	ug/kg	TM16/PM8	-	-	-	<10
4-Nitrophenol	1,000,000	ug/kg	TM16/PM8	-	-	-	<10
Pentachlorophenol	1,230,000	ug/kg	TM16/PM8	-	-	-	<10
Phenol	3,200,000	ug/kg	TM16/PM8	-	-	-	<10
2-Chloronaphthalene	113,000	ug/kg	TM16/PM8	-	-	-	<10

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	SB-09	SB-10	SB-10-DS	SB-11
			DEPTH (m)	1.3-1.5	2.3-2.5	2.3-2.5	0.3-0.5
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	27/06/2011	28/06/2011	28/06/2011	28/06/2011
Metals		Method	Units				
Antimony	7,550	TM30/PM15	mg/kg	<1	<1	<1	<1
Arsenic	635	TM30/PM15	mg/kg	2.3	2.9	2.4	2.4
Cadmium	230	TM30/PM15	mg/kg	0.4	0.4	0.4	0.2
Chromium	35	TM30/PM15	mg/kg	20.7	14.9	13.3	9.8
Cobalt	NG	TM30/PM15	mg/kg	3	2.3	1.8	1.1
Copper	71,700	TM30/PM15	mg/kg	16	12	10	9
Lead	750	TM30/PM15	mg/kg	<5	13	<5	<5
Manganese	NG	TM30/PM15	mg/kg	66	57	50	54
Mercury	3,640	TM30/PM15	mg/kg	0.3	0.4	0.4	0.4
Nickel	1,790	TM30/PM15	mg/kg	23.8	17.1	13.7	10.5
Selenium	13,000	TM30/PM15	mg/kg	<1	<1	<1	<1
Thallium	NG	TM30/PM15	mg/kg	<1	<1	<1	<1
Tin	NG	TM30/PM15	mg/kg	<1	<1	<1	4
Vanadium	3,160	TM30/PM15	mg/kg	17	16	14	8
Zinc	665,000	TM30/PM15	mg/kg	58	43	31	29
Inorganics							
Asbestos Screen	N/A	-	Subcontracted	-	-	-	-
pH	N/A	pH units	TM73/PM11	8.49	8.14	8.15	8.61
Total Sulphate	N/A	mg/kg	TM50/PM15	-	-	-	-
Fraction Organic Carbon	N/A	None	TM21/PM24	-	-	-	-
Sulphide	N/A	mg/kg	Subcontracted	<0.5	<0.5	<0.5	<0.5
PAHs							
Naphthalene	75	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Acenaphthylene	162	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Acenaphthene	56.7	mg/kg	TM4/PM8	<0.05	<0.05	<0.05	<0.05
Fluorene	160	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Phenanthrene	21,900	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Anthracene	522,000	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Fluoranthene	22,600	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Pyrene	54,300	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Benz(a)anthracene	91	mg/kg	TM4/PM8	<0.06	<0.06	<0.06	<0.06
Chrysene	140.0	mg/kg	TM4/PM8	<0.02	<0.02	<0.02	<0.02
Benzo(bk)fluoranthene	102	mg/kg	TM4/PM8	<0.07	<0.07	<0.07	<0.07
Benzo(a)pyrene	14	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Indeno(123cd)pyrene	61.0	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Dibenzo(ah)anthracene	13	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Benzo(ghi)perylene	658	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
PAH 16 Total	NG	mg/kg	TM4/PM8	<0.6	<0.6	<0.6	<0.6
Benzo(b)fluoranthene	102	mg/kg	TM4/PM8	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	143	mg/kg	TM4/PM8	<0.02	<0.02	<0.02	<0.02
PAH Surrogate % Recovery	N/A	%	TM4/PM8	113	106	102	105
Hydrocarbons							
EPH >C8-C10	N/A	mg/kg	TM5/PM8	<5	<5	<5	<5
EPH >C10-C20	N/A	mg/kg	TM5/PM8	<10	<10	<10	76
EPH >C20-C30	N/A	mg/kg	TM5/PM8	<10	<10	<10	42
EPH >C30-C40	N/A	mg/kg	TM5/PM8	<10	<10	<10	23
EPH >C8-C40	5,000	mg/kg	TM5/PM8	<35	<35	<35	141
PCBs							
PCB 28	240.0	ug/kg	TM86/PM8	<5	<5	-	-
PCB 52	240.0	ug/kg	TM86/PM8	<5	<5	-	-
PCB 101	240.0	ug/kg	TM86/PM8	<5	<5	-	-
PCB 118	240.0	ug/kg	TM86/PM8	<5	<5	-	-
PCB 138	240.0	ug/kg	TM86/PM8	<5	<5	-	-
PCB 153	240.0	ug/kg	TM86/PM8	<5	<5	-	-
PCB 180	240.0	ug/kg	TM86/PM8	<5	<5	-	-
Total 7 PCBs	240	ug/kg	TM86/PM8	<35	<35	-	-
SVOCs							
2-Chlorophenol	3,590,000	ug/kg	TM16/PM8	-	<10	-	-
2-Methylphenol	14,200,000	ug/kg	TM16/PM8	-	<10	-	-
2-Nitrophenol	910,597	ug/kg	TM16/PM8	-	<10	-	-
2,4-Dichlorophenol	3,530,000	ug/kg	TM16/PM8	-	<10	-	-
2,4-Dimethylphenol	1,330,000	ug/kg	TM16/PM8	-	<10	-	-
2,4,5-Trichlorophenol	2,300,000	ug/kg	TM16/PM8	-	<10	-	-
2,4,6-Trichlorophenol	848,000	ug/kg	TM16/PM8	-	<10	-	-
4-Chloro-3-methylphenol	8,333,156	ug/kg	TM16/PM8	-	<10	-	-
4-Methylphenol	25,800,000	ug/kg	TM16/PM8	-	<10	-	-
4-Nitrophenol	1,000,000	ug/kg	TM16/PM8	-	<10	-	-
Pentachlorophenol	1,230,000	ug/kg	TM16/PM8	-	<10	-	-
Phenol	3,200,000	ug/kg	TM16/PM8	-	<10	-	-
2-Chloronaphthalene	113,000	ug/kg	TM16/PM8	-	<10	-	-

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	SB-12
			DEPTH (m)	0.8-1.0
			LOCATION	DPS
			SAMPLE DATE	28/06/2011
Metals		Method	Units	
Antimony	7,550	TM30/PM15	mg/kg	<1
Arsenic	635	TM30/PM15	mg/kg	2.8
Cadmium	230	TM30/PM15	mg/kg	0.3
Chromium	35	TM30/PM15	mg/kg	20.6
Cobalt	NG	TM30/PM15	mg/kg	2.8
Copper	71,700	TM30/PM15	mg/kg	14
Lead	750	TM30/PM15	mg/kg	<5
Manganese	NG	TM30/PM15	mg/kg	77
Mercury	3,640	TM30/PM15	mg/kg	0.3
Nickel	1,790	TM30/PM15	mg/kg	22.2
Selenium	13,000	TM30/PM15	mg/kg	4
Thallium	NG	TM30/PM15	mg/kg	<1
Tin	NG	TM30/PM15	mg/kg	<1
Vanadium	3,160	TM30/PM15	mg/kg	17
Zinc	665,000	TM30/PM15	mg/kg	51
Inorganics				
Asbestos Screen	N/A	-	Subcontracted	-
pH	N/A	pH units	TM73/PM11	11.15
Total Sulphate	N/A	mg/kg	TM50/PM15	-
Fraction Organic Carbon	N/A	None	TM21/PM24	-
Sulphide	N/A	mg/kg	Subcontracted	<0.5
PAHs				
Naphthalene	75	mg/kg	TM4/PM8	<0.04
Acenaphthylene	162	mg/kg	TM4/PM8	<0.03
Acenaphthene	56.7	mg/kg	TM4/PM8	<0.05
Fluorene	160	mg/kg	TM4/PM8	<0.04
Phenanthrene	21,900	mg/kg	TM4/PM8	<0.03
Anthracene	522,000	mg/kg	TM4/PM8	<0.04
Fluoranthene	22,600	mg/kg	TM4/PM8	<0.03
Pyrene	54,300	mg/kg	TM4/PM8	<0.03
Benz(a)anthracene	91	mg/kg	TM4/PM8	<0.06
Chrysene	140.0	mg/kg	TM4/PM8	<0.02
Benzo(bk)fluoranthene	102	mg/kg	TM4/PM8	<0.07
Benzo(a)pyrene	14	mg/kg	TM4/PM8	<0.04
Indeno(123cd)pyrene	61.0	mg/kg	TM4/PM8	<0.04
Dibenzo(ah)anthracene	13	mg/kg	TM4/PM8	<0.04
Benzo(ghi)perylene	658	mg/kg	TM4/PM8	<0.04
PAH 16 Total	NG	mg/kg	TM4/PM8	<0.6
Benzo(b)fluoranthene	102	mg/kg	TM4/PM8	<0.05
Benzo(k)fluoranthene	143	mg/kg	TM4/PM8	<0.02
PAH Surrogate % Recovery	N/A	%	TM4/PM8	109
Hydrocarbons				
EPH >C8-C10	N/A	mg/kg	TM5/PM8	<5
EPH >C10-C20	N/A	mg/kg	TM5/PM8	<10
EPH >C20-C30	N/A	mg/kg	TM5/PM8	<10
EPH >C30-C40	N/A	mg/kg	TM5/PM8	<10
EPH >C8-C40	5,000	mg/kg	TM5/PM8	<35
PCBs				
PCB 28	240.0	ug/kg	TM86/PM8	<5
PCB 52	240.0	ug/kg	TM86/PM8	<5
PCB 101	240.0	ug/kg	TM86/PM8	<5
PCB 118	240.0	ug/kg	TM86/PM8	<5
PCB 138	240.0	ug/kg	TM86/PM8	<5
PCB 153	240.0	ug/kg	TM86/PM8	<5
PCB 180	240.0	ug/kg	TM86/PM8	<5
Total 7 PCBs	240	ug/kg	TM86/PM8	<35
SVOCs				
2-Chlorophenol	3,590,000	ug/kg	TM16/PM8	<10
2-Methylphenol	14,200,000	ug/kg	TM16/PM8	<10
2-Nitrophenol	910,597	ug/kg	TM16/PM8	<10
2,4-Dichlorophenol	3,530,000	ug/kg	TM16/PM8	<10
2,4-Dimethylphenol	1,330,000	ug/kg	TM16/PM8	<10
2,4,5-Trichlorophenol	2,300,000	ug/kg	TM16/PM8	<10
2,4,6-Trichlorophenol	848,000	ug/kg	TM16/PM8	<10
4-Chloro-3-methylphenol	8,333,156	ug/kg	TM16/PM8	<10
4-Methylphenol	25,800,000	ug/kg	TM16/PM8	<10
4-Nitrophenol	1,000,000	ug/kg	TM16/PM8	<10
Pentachlorophenol	1,230,000	ug/kg	TM16/PM8	<10
Phenol	3,200,000	ug/kg	TM16/PM8	<10
2-Chloronaphthalene	113,000	ug/kg	TM16/PM8	<10



Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-SB01	DPS-SB01	DPS-SB02	DPS-SB03
			DEPTH (m)	0-0.5	2.5-3.0	0-0.5	0.5-1.0
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	08/06/2011	08/06/2011	08/06/2011	08/06/2011
Metals		Method	Units				
2-Methylnaphthalene	7,148,111	ug/kg	TM16/PM8	-	-	-	<10
Bis(2-ethylhexyl) phthalate	85,400,000	ug/kg	TM16/PM8	-	-	-	<10
Butylbenzyl phthalate	942,000,000	ug/kg	TM16/PM8	-	-	-	<10
Di-n-butyl phthalate	12,900	ug/kg	TM16/PM8	-	-	-	<10
Di-n-Octyl phthalate	89,100,000	ug/kg	TM16/PM8	-	-	-	<10
Diethyl phthalate	109,000	ug/kg	TM16/PM8	-	-	-	<10
Dimethyl phthalate	275,000	ug/kg	TM16/PM8	-	-	-	<10
1,2-Dichlorobenzene	562,000	ug/kg	TM16/PM8	-	-	-	<10
1,2,4-Trichlorobenzene	123,000	ug/kg	TM16/PM8	-	-	-	<10
1,3-Dichlorobenzene	177,000	ug/kg	TM16/PM8	-	-	-	<10
1,4-Dichlorobenzene	221,000	ug/kg	TM16/PM8	-	-	-	<10
2-Nitroaniline	651,305	ug/kg	TM16/PM8	-	-	-	<10
2,4-Dinitrotoluene	3,750,000	ug/kg	TM16/PM8	-	-	-	<10
2,6-Dinitrotoluene	1,860,000	ug/kg	TM16/PM8	-	-	-	<10
3-Nitroaniline	200,000	ug/kg	TM16/PM8	-	-	-	<10
4-Bromophenylphenylether	982.8	ug/kg	TM16/PM8	-	-	-	<10
4-Chloroaniline	2,300,000	ug/kg	TM16/PM8	-	-	-	<10
4-Chlorophenylphenylether	378.3	ug/kg	TM16/PM8	-	-	-	<10
4-Nitroaniline	170,000	ug/kg	TM16/PM8	-	-	-	<10
Azobenzene	151,511	ug/kg	TM16/PM8	-	-	-	<10
Bis(2-chloroethoxy)methane	1,301.7	ug/kg	TM16/PM8	-	-	-	<10
Bis(2-chloroethyl)ether	273.6	ug/kg	TM16/PM8	-	-	-	<10
Carbazole	897,000	ug/kg	TM16/PM8	-	-	-	<10
Dibenzofuran	6,666,492	ug/kg	TM16/PM8	-	-	-	<10
Hexachlorobenzene	199	ug/kg	TM16/PM8	-	-	-	<10
Hexachlorobutadiene	17,600	ug/kg	TM16/PM8	-	-	-	<10
Hexachlorocyclopentadiene	1,091.3	ug/kg	TM16/PM8	-	-	-	<10
Hexachloroethane	8,130	ug/kg	TM16/PM8	-	-	-	<10
Isophorone	887,232	ug/kg	TM16/PM8	-	-	-	<10
N-nitrosodi-n-propylamine	1,904.9	ug/kg	TM16/PM8	-	-	-	<10
Nitrobenzene	131,262	ug/kg	TM16/PM8	-	-	-	<10
VOCs							
Dichlorodifluoromethane	1,500,000	ug/kg	TM15/PM10	-	-	-	<2
Methyl Tertiary Butyl Ether	-	ug/kg	TM15/PM10	-	-	-	<2
Chloromethane	593	ug/kg	TM15/PM10	-	-	-	<3
Vinyl Chloride	40.3	ug/kg	TM15/PM10	-	-	-	<2
Bromomethane	27,046	ug/kg	TM15/PM10	-	-	-	<1
Chloroethane	567,000	ug/kg	TM15/PM10	-	-	-	<2
Trichlorofluoromethane	2,200,000	ug/kg	TM15/PM10	-	-	-	<2
1,1-Dichloroethene	-	ug/kg	TM15/PM10	-	-	-	<6
Dichloromethane	-	ug/kg	TM15/PM10	-	-	-	<7
trans-1-2-Dichloroethene	12,300	ug/kg	TM15/PM10	-	-	-	<3
1,1-Dichloroethane	148,000	ug/kg	TM15/PM10	-	-	-	<3
cis-1-2-Dichloroethene	-	ug/kg	TM15/PM10	-	-	-	<3
2,2-Dichloropropane	20,460	ug/kg	TM15/PM10	-	-	-	<4
Bromochloromethane	-	ug/kg	TM15/PM10	-	-	-	<3
Chloroform	-	ug/kg	TM15/PM10	-	-	-	<3
1,1,1-Trichloroethane	391,511	ug/kg	TM15/PM10	-	-	-	<3
1,1-Dichloropropene	12,853	ug/kg	TM15/PM10	-	-	-	<3
Carbon tetrachloride	1,740	ug/kg	TM15/PM10	-	-	-	<4
1,2-Dichloroethane	356	ug/kg	TM15/PM10	-	-	-	<4
Benzene	15,826	ug/kg	TM15/PM10	-	-	-	<3
Trichloroethene	6,611	ug/kg	TM15/PM10	-	-	-	<3
1,2-Dichloropropane	1,720	ug/kg	TM15/PM10	-	-	-	<6
Dibromomethane	-	ug/kg	TM15/PM10	-	-	-	<3
Bromodichloromethane	1,100	ug/kg	TM15/PM10	-	-	-	<3
cis-1-3-Dichloropropene	19,358	ug/kg	TM15/PM10	-	-	-	<4
Toluene	835,000	ug/kg	TM15/PM10	-	-	-	<3
trans-1-3-Dichloropropene	12,853	ug/kg	TM15/PM10	-	-	-	<3
1,1,2-Trichloroethane	51,100	ug/kg	TM15/PM10	-	-	-	<3
Tetrachloroethene	72,200	ug/kg	TM15/PM10	-	-	-	<3
1,3-Dichloropropane	12,853	ug/kg	TM15/PM10	-	-	-	<3
Dibromochloromethane	-	ug/kg	TM15/PM10	-	-	-	<3
1,2-Dibromoethane	-	ug/kg	TM15/PM10	-	-	-	<3
Chlorobenzene	32,800	ug/kg	TM15/PM10	-	-	-	<3
1,1,1,2-Tetrachloroethane	62,718	ug/kg	TM15/PM10	-	-	-	<3
Ethylbenzene	508,000	ug/kg	TM15/PM10	-	-	-	18
p/m-Xylene	564,000	ug/kg	TM15/PM10	-	-	-	<6
o-Xylene	467,000	ug/kg	TM15/PM10	-	-	-	<3
Styrene	607,000	ug/kg	TM15/PM10	-	-	-	<3

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-SB03	DPS-SB04	DPS-SB05	DPS-SB05
				DEPTH (m)	0.5-1.0	0.5-1.0	2.5-3.0
				LOCATION	DPS	DPS	DPS
				SAMPLE DATE	08/06/2011	08/06/2011	08/06/2011
Metals		Method	Units				
2-Methylnaphthalene	7,148,111	ug/kg	TM16/PM8	-	<10	<10	-
Bis(2-ethylhexyl) phthalate	85,400,000	ug/kg	TM16/PM8	-	<10	<10	-
Butylbenzyl phthalate	942,000,000	ug/kg	TM16/PM8	-	<10	<10	-
Di-n-butyl phthalate	12,900	ug/kg	TM16/PM8	-	<10	<10	-
Di-n-Octyl phthalate	89,100,000	ug/kg	TM16/PM8	-	<10	<10	-
Diethyl phthalate	109,000	ug/kg	TM16/PM8	-	92	61	-
Dimethyl phthalate	275,000	ug/kg	TM16/PM8	-	<10	<10	-
1,2-Dichlorobenzene	562,000	ug/kg	TM16/PM8	-	<10	<10	-
1,2,4-Trichlorobenzene	123,000	ug/kg	TM16/PM8	-	<10	<10	-
1,3-Dichlorobenzene	177,000	ug/kg	TM16/PM8	-	<10	<10	-
1,4-Dichlorobenzene	221,000	ug/kg	TM16/PM8	-	<10	<10	-
2-Nitroaniline	651,305	ug/kg	TM16/PM8	-	<10	<10	-
2,4-Dinitrotoluene	3,750,000	ug/kg	TM16/PM8	-	<10	<10	-
2,6-Dinitrotoluene	1,860,000	ug/kg	TM16/PM8	-	<10	<10	-
3-Nitroaniline	200,000	ug/kg	TM16/PM8	-	<10	<10	-
4-Bromophenylphenylether	982.8	ug/kg	TM16/PM8	-	<10	<10	-
4-Chloroaniline	2,300,000	ug/kg	TM16/PM8	-	<10	<10	-
4-Chlorophenylphenylether	378.3	ug/kg	TM16/PM8	-	<10	<10	-
4-Nitroaniline	170,000	ug/kg	TM16/PM8	-	<10	<10	-
Azobenzene	151,511	ug/kg	TM16/PM8	-	<10	<10	-
Bis(2-chloroethoxy)methane	1,301.7	ug/kg	TM16/PM8	-	<10	<10	-
Bis(2-chloroethyl)ether	273.6	ug/kg	TM16/PM8	-	<10	<10	-
Carbazole	897,000	ug/kg	TM16/PM8	-	<10	<10	-
Dibenzofuran	6,666,492	ug/kg	TM16/PM8	-	<10	<10	-
Hexachlorobenzene	199	ug/kg	TM16/PM8	-	<10	<10	-
Hexachlorobutadiene	17,600	ug/kg	TM16/PM8	-	<10	<10	-
Hexachlorocyclopentadiene	1,091.3	ug/kg	TM16/PM8	-	<10	<10	-
Hexachloroethane	8,130	ug/kg	TM16/PM8	-	<10	<10	-
Isophorone	887,232	ug/kg	TM16/PM8	-	<10	<10	-
N-nitrosodi-n-propylamine	1,904.9	ug/kg	TM16/PM8	-	<10	<10	-
Nitrobenzene	131,262	ug/kg	TM16/PM8	-	<10	<10	-
VOCs							
Dichlorodifluoromethane	1,500,000	ug/kg	TM15/PM10	-	<2	<2	-
Methyl Tertiary Butyl Ether	-	ug/kg	TM15/PM10	-	<2	<2	-
Chloromethane	593	ug/kg	TM15/PM10	-	<3	<3	-
Vinyl Chloride	40.3	ug/kg	TM15/PM10	-	<2	<2	-
Bromomethane	27,046	ug/kg	TM15/PM10	-	<1	<1	-
Chloroethane	567,000	ug/kg	TM15/PM10	-	<2	<2	-
Trichlorofluoromethane	2,200,000	ug/kg	TM15/PM10	-	<2	<2	-
1,1-Dichloroethene	-	ug/kg	TM15/PM10	-	<6	<6	-
Dichloromethane	-	ug/kg	TM15/PM10	-	<7	<7	-
trans-1-2-Dichloroethene	12,300	ug/kg	TM15/PM10	-	<3	<3	-
1,1-Dichloroethane	148,000	ug/kg	TM15/PM10	-	<3	<3	-
cis-1-2-Dichloroethene	-	ug/kg	TM15/PM10	-	<3	<3	-
2,2-Dichloropropane	20,460	ug/kg	TM15/PM10	-	<4	<4	-
Bromochloromethane	-	ug/kg	TM15/PM10	-	<3	<3	-
Chloroform	-	ug/kg	TM15/PM10	-	<3	<3	-
1,1,1-Trichloroethane	391,511	ug/kg	TM15/PM10	-	<3	<3	-
1,1-Dichloropropene	12,853	ug/kg	TM15/PM10	-	<3	<3	-
Carbon tetrachloride	1,740	ug/kg	TM15/PM10	-	<4	<4	-
1,2-Dichloroethane	356	ug/kg	TM15/PM10	-	<4	<4	-
Benzene	15,826	ug/kg	TM15/PM10	-	<3	<3	-
Trichloroethene	6,611	ug/kg	TM15/PM10	-	<3	<3	-
1,2-Dichloropropane	1,720	ug/kg	TM15/PM10	-	<6	<6	-
Dibromomethane	-	ug/kg	TM15/PM10	-	<3	<3	-
Bromodichloromethane	1,100	ug/kg	TM15/PM10	-	<3	<3	-
cis-1-3-Dichloropropene	19,358	ug/kg	TM15/PM10	-	<4	<4	-
Toluene	835,000	ug/kg	TM15/PM10	-	<3	<3	-
trans-1-3-Dichloropropene	12,853	ug/kg	TM15/PM10	-	<3	<3	-
1,1,2-Trichloroethane	51,100	ug/kg	TM15/PM10	-	<3	<3	-
Tetrachloroethene	72,200	ug/kg	TM15/PM10	-	<3	<3	-
1,3-Dichloropropane	12,853	ug/kg	TM15/PM10	-	<3	<3	-
Dibromochloromethane	-	ug/kg	TM15/PM10	-	<3	<3	-
1,2-Dibromoethane	-	ug/kg	TM15/PM10	-	<3	<3	-
Chlorobenzene	32,800	ug/kg	TM15/PM10	-	<3	<3	-
1,1,1,2-Tetrachloroethane	62,718	ug/kg	TM15/PM10	-	<3	<3	-
Ethylbenzene	508,000	ug/kg	TM15/PM10	-	<3	14	-
p/m-Xylene	564,000	ug/kg	TM15/PM10	-	<6	<6	-
o-Xylene	467,000	ug/kg	TM15/PM10	-	<3	<3	-
Styrene	607,000	ug/kg	TM15/PM10	-	<3	<3	-

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-SB06	DPS-SB07	DPS-SB08	SB-09
			DEPTH (m)	0-0.5	0.4	2.0-2.5	0.3-0.5
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	08/06/2011	13/06/2011	13/06/2011	27/06/2011
Metals		Method	Units				
2-Methylnaphthalene	7,148,111	ug/kg	TM16/PM8	-	-	-	<10
Bis(2-ethylhexyl) phthalate	85,400,000	ug/kg	TM16/PM8	-	-	-	<10
Butylbenzyl phthalate	942,000,000	ug/kg	TM16/PM8	-	-	-	<10
Di-n-butyl phthalate	12,900	ug/kg	TM16/PM8	-	-	-	<10
Di-n-Octyl phthalate	89,100,000	ug/kg	TM16/PM8	-	-	-	<10
Diethyl phthalate	109,000	ug/kg	TM16/PM8	-	-	-	<10
Dimethyl phthalate	275,000	ug/kg	TM16/PM8	-	-	-	<10
1,2-Dichlorobenzene	562,000	ug/kg	TM16/PM8	-	-	-	<10
1,2,4-Trichlorobenzene	123,000	ug/kg	TM16/PM8	-	-	-	<10
1,3-Dichlorobenzene	177,000	ug/kg	TM16/PM8	-	-	-	<10
1,4-Dichlorobenzene	221,000	ug/kg	TM16/PM8	-	-	-	<10
2-Nitroaniline	651,305	ug/kg	TM16/PM8	-	-	-	<10
2,4-Dinitrotoluene	3,750,000	ug/kg	TM16/PM8	-	-	-	<10
2,6-Dinitrotoluene	1,860,000	ug/kg	TM16/PM8	-	-	-	<10
3-Nitroaniline	200,000	ug/kg	TM16/PM8	-	-	-	<10
4-Bromophenylphenylether	982.8	ug/kg	TM16/PM8	-	-	-	<10
4-Chloroaniline	2,300,000	ug/kg	TM16/PM8	-	-	-	<10
4-Chlorophenylphenylether	378.3	ug/kg	TM16/PM8	-	-	-	<10
4-Nitroaniline	170,000	ug/kg	TM16/PM8	-	-	-	<10
Azobenzene	151,511	ug/kg	TM16/PM8	-	-	-	<10
Bis(2-chloroethoxy)methane	1,301.7	ug/kg	TM16/PM8	-	-	-	<10
Bis(2-chloroethyl)ether	273.6	ug/kg	TM16/PM8	-	-	-	<10
Carbazole	897,000	ug/kg	TM16/PM8	-	-	-	<10
Dibenzofuran	6,666,492	ug/kg	TM16/PM8	-	-	-	<10
Hexachlorobenzene	199	ug/kg	TM16/PM8	-	-	-	<10
Hexachlorobutadiene	17,600	ug/kg	TM16/PM8	-	-	-	<10
Hexachlorocyclopentadiene	1,091.3	ug/kg	TM16/PM8	-	-	-	<10
Hexachloroethane	8,130	ug/kg	TM16/PM8	-	-	-	<10
Isophorone	887,232	ug/kg	TM16/PM8	-	-	-	<10
N-nitrosodi-n-propylamine	1,904.9	ug/kg	TM16/PM8	-	-	-	<10
Nitrobenzene	131,262	ug/kg	TM16/PM8	-	-	-	<10
VOCs							
Dichlorodifluoromethane	1,500,000	ug/kg	TM15/PM10	-	-	-	<2
Methyl Tertiary Butyl Ether	-	ug/kg	TM15/PM10	-	-	-	<2
Chloromethane	593	ug/kg	TM15/PM10	-	-	-	<3
Vinyl Chloride	40.3	ug/kg	TM15/PM10	-	-	-	<2
Bromomethane	27,046	ug/kg	TM15/PM10	-	-	-	<1
Chloroethane	567,000	ug/kg	TM15/PM10	-	-	-	<2
Trichlorofluoromethane	2,200,000	ug/kg	TM15/PM10	-	-	-	<2
1,1-Dichloroethene	-	ug/kg	TM15/PM10	-	-	-	<6
Dichloromethane	-	ug/kg	TM15/PM10	-	-	-	<7
trans-1-2-Dichloroethene	12,300	ug/kg	TM15/PM10	-	-	-	<3
1,1-Dichloroethane	148,000	ug/kg	TM15/PM10	-	-	-	<3
cis-1-2-Dichloroethene	-	ug/kg	TM15/PM10	-	-	-	<3
2,2-Dichloropropane	20,460	ug/kg	TM15/PM10	-	-	-	<4
Bromochloromethane	-	ug/kg	TM15/PM10	-	-	-	<3
Chloroform	-	ug/kg	TM15/PM10	-	-	-	<3
1,1,1-Trichloroethane	391,511	ug/kg	TM15/PM10	-	-	-	<3
1,1-Dichloropropene	12,853	ug/kg	TM15/PM10	-	-	-	<3
Carbon tetrachloride	1,740	ug/kg	TM15/PM10	-	-	-	<4
1,2-Dichloroethane	356	ug/kg	TM15/PM10	-	-	-	<4
Benzene	15,826	ug/kg	TM15/PM10	-	-	-	<3
Trichloroethene	6,611	ug/kg	TM15/PM10	-	-	-	<3
1,2-Dichloropropane	1,720	ug/kg	TM15/PM10	-	-	-	<6
Dibromomethane	-	ug/kg	TM15/PM10	-	-	-	<3
Bromodichloromethane	1,100	ug/kg	TM15/PM10	-	-	-	<3
cis-1-3-Dichloropropene	19,358	ug/kg	TM15/PM10	-	-	-	<4
Toluene	835,000	ug/kg	TM15/PM10	-	-	-	<3
trans-1-3-Dichloropropene	12,853	ug/kg	TM15/PM10	-	-	-	<3
1,1,2-Trichloroethane	51,100	ug/kg	TM15/PM10	-	-	-	<3
Tetrachloroethene	72,200	ug/kg	TM15/PM10	-	-	-	<3
1,3-Dichloropropane	12,853	ug/kg	TM15/PM10	-	-	-	<3
Dibromochloromethane	-	ug/kg	TM15/PM10	-	-	-	<3
1,2-Dibromoethane	-	ug/kg	TM15/PM10	-	-	-	<3
Chlorobenzene	32,800	ug/kg	TM15/PM10	-	-	-	<3
1,1,1,2-Tetrachloroethane	62,718	ug/kg	TM15/PM10	-	-	-	<3
Ethylbenzene	508,000	ug/kg	TM15/PM10	-	-	-	7
p/m-Xylene	564,000	ug/kg	TM15/PM10	-	-	-	16+
o-Xylene	467,000	ug/kg	TM15/PM10	-	-	-	<3+
Styrene	607,000	ug/kg	TM15/PM10	-	-	-	<3

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	SB-09	SB-10	SB-10-DS	SB-11
				DEPTH (m)	2.3-2.5	2.3-2.5	0.3-0.5
				LOCATION	DPS	DPS	DPS
				SAMPLE DATE	27/06/2011	28/06/2011	28/06/2011
Metals		Method	Units				
2-Methylnaphthalene	7,148,111	ug/kg	TM16/PM8	-	<10	-	-
Bis(2-ethylhexyl) phthalate	85,400,000	ug/kg	TM16/PM8	-	<10	-	-
Butylbenzyl phthalate	942,000,000	ug/kg	TM16/PM8	-	<10	-	-
Di-n-butyl phthalate	12,900	ug/kg	TM16/PM8	-	<10	-	-
Di-n-Octyl phthalate	89,100,000	ug/kg	TM16/PM8	-	<10	-	-
Diethyl phthalate	109,000	ug/kg	TM16/PM8	-	<10	-	-
Dimethyl phthalate	275,000	ug/kg	TM16/PM8	-	<10	-	-
1,2-Dichlorobenzene	562,000	ug/kg	TM16/PM8	-	<10	-	-
1,2,4-Trichlorobenzene	123,000	ug/kg	TM16/PM8	-	<10	-	-
1,3-Dichlorobenzene	177,000	ug/kg	TM16/PM8	-	<10	-	-
1,4-Dichlorobenzene	221,000	ug/kg	TM16/PM8	-	<10	-	-
2-Nitroaniline	651,305	ug/kg	TM16/PM8	-	<10	-	-
2,4-Dinitrotoluene	3,750,000	ug/kg	TM16/PM8	-	<10	-	-
2,6-Dinitrotoluene	1,860,000	ug/kg	TM16/PM8	-	<10	-	-
3-Nitroaniline	200,000	ug/kg	TM16/PM8	-	<10	-	-
4-Bromophenylphenylether	982.8	ug/kg	TM16/PM8	-	<10	-	-
4-Chloroaniline	2,300,000	ug/kg	TM16/PM8	-	<10	-	-
4-Chlorophenylphenylether	378.3	ug/kg	TM16/PM8	-	<10	-	-
4-Nitroaniline	170,000	ug/kg	TM16/PM8	-	<10	-	-
Azobenzene	151,511	ug/kg	TM16/PM8	-	<10	-	-
Bis(2-chloroethoxy)methane	1,301.7	ug/kg	TM16/PM8	-	<10	-	-
Bis(2-chloroethyl)ether	273.6	ug/kg	TM16/PM8	-	<10	-	-
Carbazole	897,000	ug/kg	TM16/PM8	-	<10	-	-
Dibenzofuran	6,666,492	ug/kg	TM16/PM8	-	<10	-	-
Hexachlorobenzene	199	ug/kg	TM16/PM8	-	<10	-	-
Hexachlorobutadiene	17,600	ug/kg	TM16/PM8	-	<10	-	-
Hexachlorocyclopentadiene	1,091.3	ug/kg	TM16/PM8	-	<10	-	-
Hexachloroethane	8,130	ug/kg	TM16/PM8	-	<10	-	-
Isophorone	887,232	ug/kg	TM16/PM8	-	<10	-	-
N-nitrosodi-n-propylamine	1,904.9	ug/kg	TM16/PM8	-	<10	-	-
Nitrobenzene	131,262	ug/kg	TM16/PM8	-	<10	-	-
VOCs							
Dichlorodifluoromethane	1,500,000	ug/kg	TM15/PM10	-	<2	-	-
Methyl Tertiary Butyl Ether	-	ug/kg	TM15/PM10	-	<2	-	-
Chloromethane	593	ug/kg	TM15/PM10	-	<3	-	-
Vinyl Chloride	40.3	ug/kg	TM15/PM10	-	<2	-	-
Bromomethane	27,046	ug/kg	TM15/PM10	-	<1	-	-
Chloroethane	567,000	ug/kg	TM15/PM10	-	<2	-	-
Trichlorofluoromethane	2,200,000	ug/kg	TM15/PM10	-	<2	-	-
1,1-Dichloroethene	-	ug/kg	TM15/PM10	-	<6	-	-
Dichloromethane	-	ug/kg	TM15/PM10	-	<7	-	-
trans-1-2-Dichloroethene	12,300	ug/kg	TM15/PM10	-	<3	-	-
1,1-Dichloroethane	148,000	ug/kg	TM15/PM10	-	<3	-	-
cis-1-2-Dichloroethene	-	ug/kg	TM15/PM10	-	<3	-	-
2,2-Dichloropropane	20,460	ug/kg	TM15/PM10	-	<4	-	-
Bromochloromethane	-	ug/kg	TM15/PM10	-	<3	-	-
Chloroform	-	ug/kg	TM15/PM10	-	<3	-	-
1,1,1-Trichloroethane	391,511	ug/kg	TM15/PM10	-	<3	-	-
1,1-Dichloropropene	12,853	ug/kg	TM15/PM10	-	<3	-	-
Carbon tetrachloride	1,740	ug/kg	TM15/PM10	-	<4	-	-
1,2-Dichloroethane	356	ug/kg	TM15/PM10	-	<4	-	-
Benzene	15,826	ug/kg	TM15/PM10	-	<3	-	-
Trichloroethene	6,611	ug/kg	TM15/PM10	-	<3	-	-
1,2-Dichloropropane	1,720	ug/kg	TM15/PM10	-	<6	-	-
Dibromomethane	-	ug/kg	TM15/PM10	-	<3	-	-
Bromodichloromethane	1,100	ug/kg	TM15/PM10	-	<3	-	-
cis-1-3-Dichloropropene	19,358	ug/kg	TM15/PM10	-	<4	-	-
Toluene	835,000	ug/kg	TM15/PM10	-	<3	-	-
trans-1-3-Dichloropropene	12,853	ug/kg	TM15/PM10	-	<3	-	-
1,1,2-Trichloroethane	51,100	ug/kg	TM15/PM10	-	<3	-	-
Tetrachloroethene	72,200	ug/kg	TM15/PM10	-	<3	-	-
1,3-Dichloropropane	12,853	ug/kg	TM15/PM10	-	<3	-	-
Dibromochloromethane	-	ug/kg	TM15/PM10	-	<3	-	-
1,2-Dibromoethane	-	ug/kg	TM15/PM10	-	<3	-	-
Chlorobenzene	32,800	ug/kg	TM15/PM10	-	<3	-	-
1,1,1,2-Tetrachloroethane	62,718	ug/kg	TM15/PM10	-	<3	-	-
Ethylbenzene	508,000	ug/kg	TM15/PM10	-	<3	-	-
p/m-Xylene	564,000	ug/kg	TM15/PM10	-	<6+	-	-
o-Xylene	467,000	ug/kg	TM15/PM10	-	<3+	-	-
Styrene	607,000	ug/kg	TM15/PM10	-	<3	-	-

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	SB-12
			DEPTH (m)	0.8-1.0
			LOCATION	DPS
			SAMPLE DATE	28/06/2011
Metals		Method	Units	
2-Methylnaphthalene	7,148,111	ug/kg	TM16/PM8	<10
Bis(2-ethylhexyl) phthalate	85,400,000	ug/kg	TM16/PM8	<10
Butylbenzyl phthalate	942,000,000	ug/kg	TM16/PM8	<10
Di-n-butyl phthalate	12,900	ug/kg	TM16/PM8	<10
Di-n-Octyl phthalate	89,100,000	ug/kg	TM16/PM8	<10
Diethyl phthalate	109,000	ug/kg	TM16/PM8	<10
Dimethyl phthalate	275,000	ug/kg	TM16/PM8	<10
1,2-Dichlorobenzene	562,000	ug/kg	TM16/PM8	<10
1,2,4-Trichlorobenzene	123,000	ug/kg	TM16/PM8	<10
1,3-Dichlorobenzene	177,000	ug/kg	TM16/PM8	<10
1,4-Dichlorobenzene	221,000	ug/kg	TM16/PM8	<10
2-Nitroaniline	651,305	ug/kg	TM16/PM8	<10
2,4-Dinitrotoluene	3,750,000	ug/kg	TM16/PM8	<10
2,6-Dinitrotoluene	1,860,000	ug/kg	TM16/PM8	<10
3-Nitroaniline	200,000	ug/kg	TM16/PM8	<10
4-Bromophenylphenylether	982.8	ug/kg	TM16/PM8	<10
4-Chloroaniline	2,300,000	ug/kg	TM16/PM8	<10
4-Chlorophenylphenylether	378.3	ug/kg	TM16/PM8	<10
4-Nitroaniline	170,000	ug/kg	TM16/PM8	<10
Azobenzene	151,511	ug/kg	TM16/PM8	<10
Bis(2-chloroethoxy)methane	1,301.7	ug/kg	TM16/PM8	<10
Bis(2-chloroethyl)ether	273.6	ug/kg	TM16/PM8	<10
Carbazole	897,000	ug/kg	TM16/PM8	<10
Dibenzofuran	6,666,492	ug/kg	TM16/PM8	<10
Hexachlorobenzene	199	ug/kg	TM16/PM8	<10
Hexachlorobutadiene	17,600	ug/kg	TM16/PM8	<10
Hexachlorocyclopentadiene	1,091.3	ug/kg	TM16/PM8	<10
Hexachloroethane	8,130	ug/kg	TM16/PM8	<10
Isophorone	887,232	ug/kg	TM16/PM8	<10
N-nitrosodi-n-propylamine	1,904.9	ug/kg	TM16/PM8	<10
Nitrobenzene	131,262	ug/kg	TM16/PM8	<10
<b>VOCs</b>				
Dichlorodifluoromethane	1,500,000	ug/kg	TM15/PM10	<2
Methyl Tertiary Butyl Ether	-	ug/kg	TM15/PM10	<2
Chloromethane	593	ug/kg	TM15/PM10	<3
Vinyl Chloride	40.3	ug/kg	TM15/PM10	<2
Bromomethane	27,046	ug/kg	TM15/PM10	<1
Chloroethane	567,000	ug/kg	TM15/PM10	<2
Trichlorofluoromethane	2,200,000	ug/kg	TM15/PM10	<2
1,1-Dichloroethene	-	ug/kg	TM15/PM10	<6
Dichloromethane	-	ug/kg	TM15/PM10	<7
trans-1-2-Dichloroethene	12,300	ug/kg	TM15/PM10	<3
1,1-Dichloroethane	148,000	ug/kg	TM15/PM10	<3
cis-1-2-Dichloroethene	-	ug/kg	TM15/PM10	<3
2,2-Dichloropropane	20,460	ug/kg	TM15/PM10	<4
Bromochloromethane	-	ug/kg	TM15/PM10	<3
Chloroform	-	ug/kg	TM15/PM10	<3
1,1,1-Trichloroethane	391,511	ug/kg	TM15/PM10	<3
1,1-Dichloropropene	12,853	ug/kg	TM15/PM10	<3
Carbon tetrachloride	1,740	ug/kg	TM15/PM10	<4
1,2-Dichloroethane	356	ug/kg	TM15/PM10	<4
Benzene	15,826	ug/kg	TM15/PM10	<3
Trichloroethene	6,611	ug/kg	TM15/PM10	<3
1,2-Dichloropropane	1,720	ug/kg	TM15/PM10	<6
Dibromomethane	-	ug/kg	TM15/PM10	<3
Bromodichloromethane	1,100	ug/kg	TM15/PM10	<3
cis-1-3-Dichloropropene	19,358	ug/kg	TM15/PM10	<4
Toluene	835,000	ug/kg	TM15/PM10	<3
trans-1-3-Dichloropropene	12,853	ug/kg	TM15/PM10	<3
1,1,2-Trichloroethane	51,100	ug/kg	TM15/PM10	<3
Tetrachloroethene	72,200	ug/kg	TM15/PM10	<3
1,3-Dichloropropane	12,853	ug/kg	TM15/PM10	<3
Dibromochloromethane	-	ug/kg	TM15/PM10	<3
1,2-Dibromoethane	-	ug/kg	TM15/PM10	<3
Chlorobenzene	32,800	ug/kg	TM15/PM10	<3
1,1,1,2-Tetrachloroethane	62,718	ug/kg	TM15/PM10	<3
Ethylbenzene	508,000	ug/kg	TM15/PM10	<3
p/m-Xylene	564,000	ug/kg	TM15/PM10	<6+
o-Xylene	467,000	ug/kg	TM15/PM10	<3+
Styrene	607,000	ug/kg	TM15/PM10	<3

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-SB01	DPS-SB01	DPS-SB02	DPS-SB03
			DEPTH (m)	0-0.5	2.5-3.0	0-0.5	0.5-1.0
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	08/06/2011	08/06/2011	08/06/2011	08/06/2011
Metals		Method	Units				
Bromoform	417,000	ug/kg	TM15/PM10	-	-	-	<3
Isopropylbenzene	753,000	ug/kg	TM15/PM10	-	-	-	<3
1,1,2,2-Tetrachloroethane	156,089	ug/kg	TM15/PM10	-	-	-	<3
Bromobenzene	-	ug/kg	TM15/PM10	-	-	-	<2
1,2,3-Trichloropropane	3143	ug/kg	TM15/PM10	-	-	-	<4
Propylbenzene	399000.0	ug/kg	TM15/PM10	-	-	-	<4
2-Chlorotoluene	-	ug/kg	TM15/PM10	-	-	-	<3
1,3,5-Trimethylbenzene	-	ug/kg	TM15/PM10	-	-	-	<3
4-Chlorotoluene	1,418	ug/kg	TM15/PM10	-	-	-	<3
tert-Butylbenzene	440,000	ug/kg	TM15/PM10	-	-	-	<5
1,2,4-Trimethylbenzene	-	ug/kg	TM15/PM10	-	-	-	<6
sec-Butylbenzene	1,300,000	ug/kg	TM15/PM10	-	-	-	<4
4-Isopropyltoluene	388,000	ug/kg	TM15/PM10	-	-	-	<4
1,3-Dichlorobenzene	17,700	ug/kg	TM15/PM10	-	-	-	<4
1,4-Dichlorobenzene	221,000	ug/kg	TM15/PM10	-	-	-	<4
n-Butylbenzene	430,000	ug/kg	TM15/PM10	-	-	-	<4
1,2-Dichlorobenzene	562,000	ug/kg	TM15/PM10	-	-	-	<4
1,2-Dibromo-3-chloropropane	1,037	ug/kg	TM15/PM10	-	-	-	<4
1,2,4-Trichlorobenzene	123,000	ug/kg	TM15/PM10	-	-	-	<7
Hexachlorobutadiene	17,600	ug/kg	TM15/PM10	-	-	-	<4
Naphthalene	75,000	ug/kg	TM15/PM10	-	-	-	<27
1,2,3-Trichlorobenzene	56,800	ug/kg	TM15/PM10	-	-	-	<7

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-SB03	DPS-SB04	DPS-SB05	DPS-SB05
			DEPTH (m)	2.0-2.5	0.5-1.0	0.5-1.0	2.5-3.0
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	08/06/2011	08/06/2011	08/06/2011	08/06/2011
Metals		Method	Units				
Bromoform	417,000	ug/kg	TM15/PM10	-	<3	<3	-
Isopropylbenzene	753,000	ug/kg	TM15/PM10	-	<3	<3	-
1,1,2,2-Tetrachloroethane	156,089	ug/kg	TM15/PM10	-	<3	<3	-
Bromobenzene	-	ug/kg	TM15/PM10	-	<2	<2	-
1,2,3-Trichloropropane	3143	ug/kg	TM15/PM10	-	<4	<4	-
Propylbenzene	399000.0	ug/kg	TM15/PM10	-	<4	<4	-
2-Chlorotoluene	-	ug/kg	TM15/PM10	-	<3	<3	-
1,3,5-Trimethylbenzene	-	ug/kg	TM15/PM10	-	<3	<3	-
4-Chlorotoluene	1,418	ug/kg	TM15/PM10	-	<3	<3	-
tert-Butylbenzene	440,000	ug/kg	TM15/PM10	-	<5	<5	-
1,2,4-Trimethylbenzene	-	ug/kg	TM15/PM10	-	<6	<6	-
sec-Butylbenzene	1,300,000	ug/kg	TM15/PM10	-	<4	<4	-
4-Isopropyltoluene	388,000	ug/kg	TM15/PM10	-	<4	<4	-
1,3-Dichlorobenzene	17,700	ug/kg	TM15/PM10	-	<4	<4	-
1,4-Dichlorobenzene	221,000	ug/kg	TM15/PM10	-	<4	<4	-
n-Butylbenzene	430,000	ug/kg	TM15/PM10	-	<4	<4	-
1,2-Dichlorobenzene	562,000	ug/kg	TM15/PM10	-	<4	<4	-
1,2-Dibromo-3-chloropropane	1,037	ug/kg	TM15/PM10	-	<4	<4	-
1,2,4-Trichlorobenzene	123,000	ug/kg	TM15/PM10	-	<7	<7	-
Hexachlorobutadiene	17,600	ug/kg	TM15/PM10	-	<4	<4	-
Naphthalene	75,000	ug/kg	TM15/PM10	-	<27	<27	-
1,2,3-Trichlorobenzene	56,800	ug/kg	TM15/PM10	-	<7	<7	-



Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-SB06	DPS-SB07	DPS-SB08	SB-09
			DEPTH (m)	0-0.5	0.4	2.0-2.5	0.3-0.5
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	08/06/2011	13/06/2011	13/06/2011	27/06/2011
Metals		Method	Units				
Bromoform	417,000	ug/kg	TM15/PM10	-	-	-	<3
Isopropylbenzene	753,000	ug/kg	TM15/PM10	-	-	-	<3
1,1,2,2-Tetrachloroethane	156,089	ug/kg	TM15/PM10	-	-	-	<3
Bromobenzene	-	ug/kg	TM15/PM10	-	-	-	<2
1,2,3-Trichloropropane	3143	ug/kg	TM15/PM10	-	-	-	<4
Propylbenzene	399000.0	ug/kg	TM15/PM10	-	-	-	<4+
2-Chlorotoluene	-	ug/kg	TM15/PM10	-	-	-	<3
1,3,5-Trimethylbenzene	-	ug/kg	TM15/PM10	-	-	-	<3
4-Chlorotoluene	1,418	ug/kg	TM15/PM10	-	-	-	<3
tert-Butylbenzene	440,000	ug/kg	TM15/PM10	-	-	-	<5
1,2,4-Trimethylbenzene	-	ug/kg	TM15/PM10	-	-	-	<6
sec-Butylbenzene	1,300,000	ug/kg	TM15/PM10	-	-	-	<4
4-Isopropyltoluene	388,000	ug/kg	TM15/PM10	-	-	-	<4
1,3-Dichlorobenzene	17,700	ug/kg	TM15/PM10	-	-	-	<4
1,4-Dichlorobenzene	221,000	ug/kg	TM15/PM10	-	-	-	<4
n-Butylbenzene	430,000	ug/kg	TM15/PM10	-	-	-	<4
1,2-Dichlorobenzene	562,000	ug/kg	TM15/PM10	-	-	-	<4
1,2-Dibromo-3-chloropropane	1,037	ug/kg	TM15/PM10	-	-	-	<4
1,2,4-Trichlorobenzene	123,000	ug/kg	TM15/PM10	-	-	-	<7
Hexachlorobutadiene	17,600	ug/kg	TM15/PM10	-	-	-	<4
Naphthalene	75,000	ug/kg	TM15/PM10	-	-	-	<27
1,2,3-Trichlorobenzene	56,800	ug/kg	TM15/PM10	-	-	-	<7



Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	SB-09	SB-10	SB-10-DS	SB-11
			DEPTH (m)	1.3-1.5	2.3-2.5	2.3-2.5	0.3-0.5
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	27/06/2011	28/06/2011	28/06/2011	28/06/2011
Metals		Method	Units				
Bromoform	417,000	ug/kg	TM15/PM10	-	<3	-	-
Isopropylbenzene	753,000	ug/kg	TM15/PM10	-	<3	-	-
1,1,2,2-Tetrachloroethane	156,089	ug/kg	TM15/PM10	-	<3	-	-
Bromobenzene	-	ug/kg	TM15/PM10	-	<2	-	-
1,2,3-Trichloropropane	3143	ug/kg	TM15/PM10	-	<4	-	-
Propylbenzene	399000.0	ug/kg	TM15/PM10	-	<4+	-	-
2-Chlorotoluene	-	ug/kg	TM15/PM10	-	<3	-	-
1,3,5-Trimethylbenzene	-	ug/kg	TM15/PM10	-	<3	-	-
4-Chlorotoluene	1,418	ug/kg	TM15/PM10	-	<3	-	-
tert-Butylbenzene	440,000	ug/kg	TM15/PM10	-	<5	-	-
1,2,4-Trimethylbenzene	-	ug/kg	TM15/PM10	-	<6	-	-
sec-Butylbenzene	1,300,000	ug/kg	TM15/PM10	-	<4	-	-
4-Isopropyltoluene	388,000	ug/kg	TM15/PM10	-	<4	-	-
1,3-Dichlorobenzene	17,700	ug/kg	TM15/PM10	-	<4	-	-
1,4-Dichlorobenzene	221,000	ug/kg	TM15/PM10	-	<4	-	-
n-Butylbenzene	430,000	ug/kg	TM15/PM10	-	<4	-	-
1,2-Dichlorobenzene	562,000	ug/kg	TM15/PM10	-	<4	-	-
1,2-Dibromo-3-chloropropane	1,037	ug/kg	TM15/PM10	-	<4	-	-
1,2,4-Trichlorobenzene	123,000	ug/kg	TM15/PM10	-	<7	-	-
Hexachlorobutadiene	17,600	ug/kg	TM15/PM10	-	<4	-	-
Naphthalene	75,000	ug/kg	TM15/PM10	-	<27	-	-
1,2,3-Trichlorobenzene	56,800	ug/kg	TM15/PM10	-	<7	-	-

Delimara Power Station Soil Boring Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	SB-12
			DEPTH (m)	0.8-1.0
			LOCATION	DPS
			SAMPLE DATE	28/06/2011
Metals		Method	Units	
Bromoform	417,000	ug/kg	TM15/PM10	<3
Isopropylbenzene	753,000	ug/kg	TM15/PM10	<3
1,1,2,2-Tetrachloroethane	156,089	ug/kg	TM15/PM10	<3
Bromobenzene	-	ug/kg	TM15/PM10	<2
1,2,3-Trichloropropane	3143	ug/kg	TM15/PM10	<4
Propylbenzene	399000.0	ug/kg	TM15/PM10	<4+
2-Chlorotoluene	-	ug/kg	TM15/PM10	<3
1,3,5-Trimethylbenzene	-	ug/kg	TM15/PM10	<3
4-Chlorotoluene	1,418	ug/kg	TM15/PM10	<3
tert-Butylbenzene	440,000	ug/kg	TM15/PM10	<5
1,2,4-Trimethylbenzene	-	ug/kg	TM15/PM10	<6
sec-Butylbenzene	1,300,000	ug/kg	TM15/PM10	<4
4-Isopropyltoluene	388,000	ug/kg	TM15/PM10	<4
1,3-Dichlorobenzene	17,700	ug/kg	TM15/PM10	<4
1,4-Dichlorobenzene	221,000	ug/kg	TM15/PM10	<4
n-Butylbenzene	430,000	ug/kg	TM15/PM10	<4
1,2-Dichlorobenzene	562,000	ug/kg	TM15/PM10	<4
1,2-Dibromo-3-chloropropane	1,037	ug/kg	TM15/PM10	<4
1,2,4-Trichlorobenzene	123,000	ug/kg	TM15/PM10	<7
Hexachlorobutadiene	17,600	ug/kg	TM15/PM10	<4
Naphthalene	75,000	ug/kg	TM15/PM10	<27
1,2,3-Trichlorobenzene	56,800	ug/kg	TM15/PM10	<7

Delimara Power Station Borehole Analytical Results - Landfill Samples	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-LF01	DPS-LF02	DPS-LF03
			DEPTH (m)	0-0.5	4.5-5.0	0.5-1.0
			LOCATION	DPS	DPS	DPS
			SAMPLE DATE	15/06/2011	15/06/2011	15/06/2011
Metals		Units	Method			
Antimony	7,550	mg/kg	TM30/PM15	<1	<1	<1
Arsenic	635	mg/kg	TM30/PM15	2.9	5.4	2.8
Cadmium	230	mg/kg	TM30/PM15	0.4	0.3	0.3
Chromium	35	mg/kg	TM30/PM15	19.1	16.9	16.4
Cobalt	NG	mg/kg	TM30/PM15	2.2	1.9	2.4
Copper	71,700	mg/kg	TM30/PM15	19	10	14
Lead	750	mg/kg	TM30/PM15	12	6	7
Manganese	NG	mg/kg	TM30/PM15	84	73	66
Mercury	3,640	mg/kg	TM30/PM15	0.3	0.5	0.4
Nickel	1,790	mg/kg	TM30/PM15	51.5	15.7	20.1
Selenium	13,000	mg/kg	TM30/PM15	<1	<1	<1
Thallium	NG	mg/kg	TM30/PM15	<1	<1	<1
Tin	NG	mg/kg	TM30/PM15	<1	<1	<1
Vanadium	3,160	mg/kg	TM30/PM15	166	26	16
Zinc	665,000	mg/kg	TM30/PM15	92	44	49
Inorganics						
Asbestos Screen	N/A	-	Subcontracted	NAD	NAD	NAD
pH	N/A	pH units	TM73/PM11	7.87	8.69	7.99
Total Sulphate	N/A	mg/kg	TM50/PM15	2911	1169	7110
Fraction of Organic Carbon	N/A	None	TM21/PM24	-	-	-
Sulphide	N/A	mg/kg	Subcontracted	<0.5	<0.5	0.8
PAHs						
Naphthalene	75	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Acenaphthylene	162	mg/kg	TM4/PM8	<0.03	<0.03	<0.03
Acenaphthene	56.7	mg/kg	TM4/PM8	<0.05	<0.05	<0.05
Fluorene	160	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Phenanthrene	21,900	mg/kg	TM4/PM8	<0.03	<0.03	<0.03
Anthracene	522,000	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Fluoranthene	22,600	mg/kg	TM4/PM8	<0.03	<0.03	<0.03
Pyrene	54,300	mg/kg	TM4/PM8	<0.03	<0.03	<0.03
Benz(a)anthracene	91	mg/kg	TM4/PM8	<0.06	<0.06	<0.06
Chrysene	140.0	mg/kg	TM4/PM8	<0.02	<0.02	<0.02
Benzo(bk)fluoranthene	102	mg/kg	TM4/PM8	<0.07	<0.07	<0.07
Benzo(a)pyrene	14	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Indeno(123cd)pyrene	61.0	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Dibenzo(ah)anthracene	13	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Benzo(ghi)perylene	658	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
PAH 16 Total	NG	mg/kg	TM4/PM8	<0.6	<0.6	<0.6
Benzo(b)fluoranthene	102	mg/kg	TM4/PM8	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	143	mg/kg	TM4/PM8	<0.02	<0.02	<0.02
PAH Surrogate % Recovery	N/A	%	TM4/PM8	93	87	84
Hydrocarbons						
EPH >C8-C10	N/A	mg/kg	TM5/PM8	<5	<5	<5
EPH >C10-C20	N/A	mg/kg	TM5/PM8	21	<10	<10
EPH >C20-C30	N/A	mg/kg	TM5/PM8	90	<10	<10
EPH >C30-C40	N/A	mg/kg	TM5/PM8	87	<10	<10
EPH >C8-C40	5,000	mg/kg	TM5/PM8	198	<35	<35

Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH01	DPS-BH02	DPS-BH02	DPS-BH03
			DEPTH (m)	0.5	0.5	3.0-3.5	0-0.5
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	08/06/2011	08/06/2011	08/06/2011	13/06/2011
Metals		Units	Method				
Antimony	7,550	mg/kg	TM30/PM15	<1	<1	-	<1
Arsenic	635	mg/kg	TM30/PM15	1.4	3	-	2.5
Cadmium	230	mg/kg	TM30/PM15	0.2	0.3	-	0.3
Chromium	35	mg/kg	TM30/PM15	10.5	14.8	-	15.3
Cobalt	NG	mg/kg	TM30/PM15	1.3	2	-	2.1
Copper	71,700	mg/kg	TM30/PM15	10	15	-	12
Lead	750	mg/kg	TM30/PM15	<5	<5	-	9
Manganese	NG	mg/kg	TM30/PM15	42	67	-	60
Mercury	3,640	mg/kg	TM30/PM15	0.4	0.4	-	0.4
Nickel	1,790	mg/kg	TM30/PM15	12.6	15.1	-	15
Selenium	13,000	mg/kg	TM30/PM15	<1	<1	-	<1
Thallium	NG	mg/kg	TM30/PM15	<1	<1	-	<1
Tin	NG	mg/kg	TM30/PM15	<1	<1	-	<1
Vanadium	3,160	mg/kg	TM30/PM15	11	15	-	15
Zinc	665,000	mg/kg	TM30/PM15	31	49	-	52
Inorganics							
Asbestos Screen	N/A	-	Subcontracted	NAD	-	-	NAD
pH	N/A	pH units	TM73/PM11	8.08	8.41	-	8.05
Total Sulphate	N/A	mg/kg	TM50/PM15	2992	3340	-	5213
Fraction of Organic Carbon	N/A	None	TM21/PM24	-	0.01	0.01	-
Sulphide	N/A	mg/kg	Subcontracted	<0.5	<0.5	-	<0.5
PAHs							
Naphthalene	75	mg/kg	TM4/PM8	<0.04	<0.04	-	<0.04
Acenaphthylene	162	mg/kg	TM4/PM8	<0.03	<0.03	-	<0.03
Acenaphthene	56.7	mg/kg	TM4/PM8	<0.05	<0.05	-	<0.05
Fluorene	160	mg/kg	TM4/PM8	<0.04	<0.04	-	<0.04
Phenanthrene	21,900	mg/kg	TM4/PM8	<0.03	<0.03	-	<0.03
Anthracene	522,000	mg/kg	TM4/PM8	<0.04	<0.04	-	<0.04
Fluoranthene	22,600	mg/kg	TM4/PM8	<0.03	<0.03	-	<0.03
Pyrene	54,300	mg/kg	TM4/PM8	<0.03	<0.03	-	<0.03
Benz(a)anthracene	91	mg/kg	TM4/PM8	<0.06	<0.06	-	<0.06
Chrysene	140.0	mg/kg	TM4/PM8	<0.02	<0.02	-	<0.02
Benzo(bk)fluoranthene	102	mg/kg	TM4/PM8	<0.07	<0.07	-	<0.07
Benzo(a)pyrene	14	mg/kg	TM4/PM8	<0.04	<0.04	-	<0.04
Indeno(123cd)pyrene	61.0	mg/kg	TM4/PM8	<0.04	<0.04	-	<0.04
Dibenzo(ah)anthracene	13	mg/kg	TM4/PM8	<0.04	<0.04	-	<0.04
Benzo(ghi)perylene	658	mg/kg	TM4/PM8	<0.04	<0.04	-	<0.04
PAH 16 Total	NG	mg/kg	TM4/PM8	<0.6	<0.6	-	<0.6
Benzo(b)fluoranthene	102	mg/kg	TM4/PM8	<0.05	<0.05	-	<0.05
Benzo(k)fluoranthene	143	mg/kg	TM4/PM8	<0.02	<0.02	-	<0.02
PAH Surrogate % Recovery	N/A	%	TM4/PM8	93	98	-	104
Hydrocarbons							
EPH >C8-C10	N/A	mg/kg	TM5/PM8	<5	<5	-	<5
EPH >C10-C20	N/A	mg/kg	TM5/PM8	<10	<10	-	<10
EPH >C20-C30	N/A	mg/kg	TM5/PM8	36	79	-	<10
EPH >C30-C40	N/A	mg/kg	TM5/PM8	36	226	-	<10
EPH >C8-C40	5,000	mg/kg	TM5/PM8	72	305	-	<35
PCBs							
PCB 28	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 52	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 101	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 118	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 138	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 153	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 180	240.0	ug/kg	TM86/PM8	-	-	-	-
Total 7 PCBs	240	ug/kg	TM86/PM8	-	-	-	-
SVOCs							
2-Chlorophenol	3,590,000	ug/kg	TM16/PM8	-	-	-	-
2-Methylphenol	14,200,000	ug/kg	TM16/PM8	-	-	-	-
2-Nitrophenol	910,597	ug/kg	TM16/PM8	-	-	-	-
2,4-Dichlorophenol	3,530,000	ug/kg	TM16/PM8	-	-	-	-
2,4-Dimethylphenol	1,330,000	ug/kg	TM16/PM8	-	-	-	-
2,4,5-Trichlorophenol	2,300,000	ug/kg	TM16/PM8	-	-	-	-
2,4,6-Trichlorophenol	848,000	ug/kg	TM16/PM8	-	-	-	-

Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH03	DPS-BH04	DPS-BH04	DPS-BH05
				DEPTH (m)	0-0.5	3.0-3.5	0-0.5
				LOCATION	DPS	DPS	DPS
				SAMPLE DATE	13/06/2011	13/06/2011	14/06/2011
Metals		Units	Method				
Antimony	7,550	mg/kg	TM30/PM15	<1	<1	<1	<1
Arsenic	635	mg/kg	TM30/PM15	2.5	4.1	2.1	3.3
Cadmium	230	mg/kg	TM30/PM15	0.3	0.6	0.4	0.4
Chromium	35	mg/kg	TM30/PM15	23.8	20.4	23.7	15.9
Cobalt	NG	mg/kg	TM30/PM15	3.5	2.2	2.4	2.8
Copper	71,700	mg/kg	TM30/PM15	16	16	17	15
Lead	750	mg/kg	TM30/PM15	5	11	<5	<5
Manganese	NG	mg/kg	TM30/PM15	87	63	66	72
Mercury	3,640	mg/kg	TM30/PM15	0.4	0.4	0.5	0.4
Nickel	1,790	mg/kg	TM30/PM15	29.2	26.1	25.4	18.7
Selenium	13,000	mg/kg	TM30/PM15	<1	<1	2	<1
Thallium	NG	mg/kg	TM30/PM15	<1	<1	<1	<1
Tin	NG	mg/kg	TM30/PM15	1	2	<1	<1
Vanadium	3,160	mg/kg	TM30/PM15	22	25	19	18
Zinc	665,000	mg/kg	TM30/PM15	59	59	64	48
Inorganics							
Asbestos Screen	N/A	-	Subcontracted	-	-	-	-
pH	N/A	pH units	TM73/PM11	8.51	8.81	7.97	8.26
Total Sulphate	N/A	mg/kg	TM50/PM15	1795	1454	5144	2545
Fraction of Organic Carbon	N/A	None	TM21/PM24	-	-	-	-
Sulphide	N/A	mg/kg	Subcontracted	<0.5	<0.5	<0.5	<0.5
PAHs							
Naphthalene	75	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Acenaphthylene	162	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Acenaphthene	56.7	mg/kg	TM4/PM8	<0.05	<0.05	<0.05	<0.05
Fluorene	160	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Phenanthrene	21,900	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Anthracene	522,000	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Fluoranthene	22,600	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Pyrene	54,300	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Benz(a)anthracene	91	mg/kg	TM4/PM8	<0.06	<0.06	<0.06	<0.06
Chrysene	140.0	mg/kg	TM4/PM8	<0.02	<0.02	0.04	0.02
Benzo(bk)fluoranthene	102	mg/kg	TM4/PM8	<0.07	<0.07	<0.07	<0.07
Benzo(a)pyrene	14	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Indeno(123cd)pyrene	61.0	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Dibenzo(ah)anthracene	13	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Benzo(ghi)perylene	658	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
PAH 16 Total	NG	mg/kg	TM4/PM8	<0.6	<0.6	<0.6	<0.6
Benzo(b)fluoranthene	102	mg/kg	TM4/PM8	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	143	mg/kg	TM4/PM8	<0.02	<0.02	<0.02	<0.02
PAH Surrogate % Recovery	N/A	%	TM4/PM8	96	96	94	96
Hydrocarbons							
EPH >C8-C10	N/A	mg/kg	TM5/PM8	<5	<5	<5	<5
EPH >C10-C20	N/A	mg/kg	TM5/PM8	<10	<10	<10	<10
EPH >C20-C30	N/A	mg/kg	TM5/PM8	<10	85	<10	<10
EPH >C30-C40	N/A	mg/kg	TM5/PM8	<10	64	<10	<10
EPH >C8-C40	5,000	mg/kg	TM5/PM8	<35	149	<35	<35
PCBs							
PCB 28	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 52	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 101	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 118	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 138	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 153	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 180	240.0	ug/kg	TM86/PM8	-	-	-	-
Total 7 PCBs	240	ug/kg	TM86/PM8	-	-	-	-
SVOCs							
2-Chlorophenol	3,590,000	ug/kg	TM16/PM8	-	-	<10	-
2-Methylphenol	14,200,000	ug/kg	TM16/PM8	-	-	<10	-
2-Nitrophenol	910,597	ug/kg	TM16/PM8	-	-	<10	-
2,4-Dichlorophenol	3,530,000	ug/kg	TM16/PM8	-	-	<10	-
2,4-Dimethylphenol	1,330,000	ug/kg	TM16/PM8	-	-	<10	-
2,4,5-Trichlorophenol	2,300,000	ug/kg	TM16/PM8	-	-	<10	-
2,4,6-Trichlorophenol	848,000	ug/kg	TM16/PM8	-	-	<10	-

Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH05	DPS-BH06	DPS-BH06	DPS-BH07
				DEPTH (m)	0-0.5	3.5-4.0	0-0.5
				LOCATION	DPS	DPS	DPS
				SAMPLE DATE	14/06/2011	14/06/2011	14/06/2011
Metals		Units	Method				
Antimony	7,550	mg/kg	TM30/PM15	1	<1	<1	<1
Arsenic	635	mg/kg	TM30/PM15	5.3	3.2	2.2	1
Cadmium	230	mg/kg	TM30/PM15	0.3	0.3	0.4	0.4
Chromium	35	mg/kg	TM30/PM15	20.5	17	21.7	9.3
Cobalt	NG	mg/kg	TM30/PM15	2.8	1.9	2.5	0.6
Copper	71,700	mg/kg	TM30/PM15	17	9	18	5
Lead	750	mg/kg	TM30/PM15	<5	<5	<5	<5
Manganese	NG	mg/kg	TM30/PM15	73	64	69	32
Mercury	3,640	mg/kg	TM30/PM15	0.3	0.4	0.4	0.4
Nickel	1,790	mg/kg	TM30/PM15	22.9	16.1	25.9	4.8
Selenium	13,000	mg/kg	TM30/PM15	1	<1	2	<1
Thallium	NG	mg/kg	TM30/PM15	<1	<1	<1	<1
Tin	NG	mg/kg	TM30/PM15	<1	<1	<1	<1
Vanadium	3,160	mg/kg	TM30/PM15	23	16	20	10
Zinc	665,000	mg/kg	TM30/PM15	55	39	64	13
Inorganics							
Asbestos Screen	N/A	-	Subcontracted	-	-	-	NAD
pH	N/A	pH units	TM73/PM11	8.26	8.39	8.33	8.77
Total Sulphate	N/A	mg/kg	TM50/PM15	1973	1697	1343	915
Fraction of Organic Carbon	N/A	None	TM21/PM24	-	0.003	0.011	-
Sulphide	N/A	mg/kg	Subcontracted	0.8	<0.5	<0.5	<0.5
PAHs							
Naphthalene	75	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Acenaphthylene	162	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	<0.03
Acenaphthene	56.7	mg/kg	TM4/PM8	<0.05	<0.05	<0.05	<0.05
Fluorene	160	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Phenanthrene	21,900	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	0.03
Anthracene	522,000	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	<0.04
Fluoranthene	22,600	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	0.05
Pyrene	54,300	mg/kg	TM4/PM8	<0.03	<0.03	<0.03	0.05
Benz(a)anthracene	91	mg/kg	TM4/PM8	<0.06	<0.06	<0.06	0.09
Chrysene	140.0	mg/kg	TM4/PM8	<0.02	<0.02	<0.02	0.1
Benzo(bk)fluoranthene	102	mg/kg	TM4/PM8	<0.07	<0.07	<0.07	0.18
Benzo(a)pyrene	14	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	0.09
Indeno(123cd)pyrene	61.0	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	0.11
Dibenzo(ah)anthracene	13	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	0.09
Benzo(ghi)perylene	658	mg/kg	TM4/PM8	<0.04	<0.04	<0.04	0.11
PAH 16 Total	NG	mg/kg	TM4/PM8	<0.6	<0.6	<0.6	0.9
Benzo(b)fluoranthene	102	mg/kg	TM4/PM8	<0.05	<0.05	<0.05	0.13
Benzo(k)fluoranthene	143	mg/kg	TM4/PM8	<0.02	<0.02	<0.02	0.05
PAH Surrogate % Recovery	N/A	%	TM4/PM8	96	103	101	100
Hydrocarbons							
EPH >C8-C10	N/A	mg/kg	TM5/PM8	<5	<5	<5	<5
EPH >C10-C20	N/A	mg/kg	TM5/PM8	<10	<10	<10	<10
EPH >C20-C30	N/A	mg/kg	TM5/PM8	<10	<10	<10	<10
EPH >C30-C40	N/A	mg/kg	TM5/PM8	<10	<10	<10	<10
EPH >C8-C40	5,000	mg/kg	TM5/PM8	<35	<35	<35	<35
PCBs							
PCB 28	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 52	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 101	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 118	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 138	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 153	240.0	ug/kg	TM86/PM8	-	-	-	-
PCB 180	240.0	ug/kg	TM86/PM8	-	-	-	-
Total 7 PCBs	240	ug/kg	TM86/PM8	-	-	-	-
SVOCs							
2-Chlorophenol	3,590,000	ug/kg	TM16/PM8	<10	-	-	-
2-Methylphenol	14,200,000	ug/kg	TM16/PM8	<10	-	-	-
2-Nitrophenol	910,597	ug/kg	TM16/PM8	<10	-	-	-
2,4-Dichlorophenol	3,530,000	ug/kg	TM16/PM8	<10	-	-	-
2,4-Dimethylphenol	1,330,000	ug/kg	TM16/PM8	<10	-	-	-
2,4,5-Trichlorophenol	2,300,000	ug/kg	TM16/PM8	<10	-	-	-
2,4,6-Trichlorophenol	848,000	ug/kg	TM16/PM8	<10	-	-	-

Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH08	BH-08	BH-08
			DEPTH (m)	0-0.5	1.8-2.0	2.8-3.0
			LOCATION	DPS	DPS	DPS
			SAMPLE DATE	14/06/2011	27/06/2011	27/06/2011
Metals		Units	Method			
Antimony	7,550	mg/kg	TM30/PM15	<1	<1	<1
Arsenic	635	mg/kg	TM30/PM15	3.5	4.9	3.5
Cadmium	230	mg/kg	TM30/PM15	0.4	0.4	0.4
Chromium	35	mg/kg	TM30/PM15	18.3	16.6	19.1
Cobalt	NG	mg/kg	TM30/PM15	1.7	1.8	2.6
Copper	71,700	mg/kg	TM30/PM15	10	12	14
Lead	750	mg/kg	TM30/PM15	5	<5	<5
Manganese	NG	mg/kg	TM30/PM15	79	79	72
Mercury	3,640	mg/kg	TM30/PM15	0.3	0.3	0.3
Nickel	1,790	mg/kg	TM30/PM15	20.2	16.9	22
Selenium	13,000	mg/kg	TM30/PM15	<1	<1	<1
Thallium	NG	mg/kg	TM30/PM15	<1	<1	<1
Tin	NG	mg/kg	TM30/PM15	<1	<1	<1
Vanadium	3,160	mg/kg	TM30/PM15	31	16	17
Zinc	665,000	mg/kg	TM30/PM15	54	41	57
Inorganics						
Asbestos Screen	N/A	-	Subcontracted	NAD	-	-
pH	N/A	pH units	TM73/PM11	8.45	8.41	9.04
Total Sulphate	N/A	mg/kg	TM50/PM15	1159	-	-
Fraction of Organic Carbon	N/A	None	TM21/PM24	-	-	-
Sulphide	N/A	mg/kg	Subcontracted	<0.5	0.6	<0.5
PAHs						
Naphthalene	75	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Acenaphthylene	162	mg/kg	TM4/PM8	<0.03	<0.03	<0.03
Acenaphthene	56.7	mg/kg	TM4/PM8	<0.05	<0.05	<0.05
Fluorene	160	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Phenanthrene	21,900	mg/kg	TM4/PM8	<0.03	<0.03	<0.03
Anthracene	522,000	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Fluoranthene	22,600	mg/kg	TM4/PM8	<0.03	<0.03	<0.03
Pyrene	54,300	mg/kg	TM4/PM8	<0.03	<0.03	<0.03
Benz(a)anthracene	91	mg/kg	TM4/PM8	<0.06	<0.06	<0.06
Chrysene	140.0	mg/kg	TM4/PM8	<0.02	<0.02	<0.02
Benzo(bk)fluoranthene	102	mg/kg	TM4/PM8	<0.07	<0.07	<0.07
Benzo(a)pyrene	14	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Indeno(123cd)pyrene	61.0	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Dibenzo(ah)anthracene	13	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
Benzo(ghi)perylene	658	mg/kg	TM4/PM8	<0.04	<0.04	<0.04
PAH 16 Total	NG	mg/kg	TM4/PM8	<0.6	<0.6	<0.6
Benzo(b)fluoranthene	102	mg/kg	TM4/PM8	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	143	mg/kg	TM4/PM8	<0.02	<0.02	<0.02
PAH Surrogate % Recovery	N/A	%	TM4/PM8	100	108	119
Hydrocarbons						
EPH >C8-C10	N/A	mg/kg	TM5/PM8	<5	<5	<5
EPH >C10-C20	N/A	mg/kg	TM5/PM8	<10	—	63
EPH >C20-C30	N/A	mg/kg	TM5/PM8	<10	331	41
EPH >C30-C40	N/A	mg/kg	TM5/PM8	<10	<10	<10
EPH >C8-C40	5,000	mg/kg	TM5/PM8	<35	739	104
PCBs						
PCB 28	240.0	ug/kg	TM86/PM8	-	<5	<5
PCB 52	240.0	ug/kg	TM86/PM8	-	<5	<5
PCB 101	240.0	ug/kg	TM86/PM8	-	<5	<5
PCB 118	240.0	ug/kg	TM86/PM8	-	<5	<5
PCB 138	240.0	ug/kg	TM86/PM8	-	<5	<5
PCB 153	240.0	ug/kg	TM86/PM8	-	<5	<5
PCB 180	240.0	ug/kg	TM86/PM8	-	<5	<5
Total 7 PCBs	240	ug/kg	TM86/PM8	-	<35	<35
SVOCs						
2-Chlorophenol	3,590,000	ug/kg	TM16/PM8	-	<10	<10
2-Methylphenol	14,200,000	ug/kg	TM16/PM8	-	<10	<10
2-Nitrophenol	910,597	ug/kg	TM16/PM8	-	<10	<10
2,4-Dichlorophenol	3,530,000	ug/kg	TM16/PM8	-	<10	<10
2,4-Dimethylphenol	1,330,000	ug/kg	TM16/PM8	-	<10	<10
2,4,5-Trichlorophenol	2,300,000	ug/kg	TM16/PM8	-	<10	<10
2,4,6-Trichlorophenol	848,000	ug/kg	TM16/PM8	-	<10	<10



Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH01	DPS-BH02	DPS-BH02	DPS-BH03
				DEPTH (m)	0.5	3.0-3.5	0-0.5
				LOCATION	DPS	DPS	DPS
				SAMPLE DATE	08/06/2011	08/06/2011	13/06/2011
Metals		Units	Method				
4-Chloro-3-methylphenol	8,333,156	ug/kg	TM16/PM8	-	-	-	-
4-Methylphenol	25,800,000	ug/kg	TM16/PM8	-	-	-	-
4-Nitrophenol	1,000,000	ug/kg	TM16/PM8	-	-	-	-
Pentachlorophenol	1,230,000	ug/kg	TM16/PM8	-	-	-	-
Phenol	3,200,000	ug/kg	TM16/PM8	-	-	-	-
2-Chloronaphthalene	113,000	ug/kg	TM16/PM8	-	-	-	-
2-Methylnaphthalene	7,148,111	ug/kg	TM16/PM8	-	-	-	-
Bis(2-ethyl-hexyl) phthalate	85,400,000	ug/kg	TM16/PM8	-	-	-	-
Butylbenzyl phthalate	942,000,000	ug/kg	TM16/PM8	-	-	-	-
Di-n-butyl phthalate	12,900	ug/kg	TM16/PM8	-	-	-	-
Di-n-Octyl phthalate	89,100,000	ug/kg	TM16/PM8	-	-	-	-
Diethyl phthalate	109,000	ug/kg	TM16/PM8	-	-	-	-
Dimethyl phthalate	275,000	ug/kg	TM16/PM8	-	-	-	-
1,2-Dichlorobenzene	562,000	ug/kg	TM16/PM8	-	-	-	-
1,2,4-Trichlorobenzene	123,000	ug/kg	TM16/PM8	-	-	-	-
1,3-Dichlorobenzene	177,000	ug/kg	TM16/PM8	-	-	-	-
1,4-Dichlorobenzene	221,000	ug/kg	TM16/PM8	-	-	-	-
2-Nitroaniline	651,305	ug/kg	TM16/PM8	-	-	-	-
2,4-Dinitrotoluene	3,750,000	ug/kg	TM16/PM8	-	-	-	-
2,6-Dinitrotoluene	1,860,000	ug/kg	TM16/PM8	-	-	-	-
3-Nitroaniline	200,000	ug/kg	TM16/PM8	-	-	-	-
4-Bromophenylphenylether	982.8	ug/kg	TM16/PM8	-	-	-	-
4-Chloroaniline	2,300,000	ug/kg	TM16/PM8	-	-	-	-
4-Chlorophenylphenylether	378.3	ug/kg	TM16/PM8	-	-	-	-
4-Nitroaniline	170,000	ug/kg	TM16/PM8	-	-	-	-
Azobenzene	151,511	ug/kg	TM16/PM8	-	-	-	-
Bis(2-chloro-ethoxy)methane	1,301.7	ug/kg	TM16/PM8	-	-	-	-
Bis(2-chloro-ethyl)ether	273.6	ug/kg	TM16/PM8	-	-	-	-
Carbazole	897,000	ug/kg	TM16/PM8	-	-	-	-
Dibenzofuran	6,666,492	ug/kg	TM16/PM8	-	-	-	-
Hexachlorobenzene	199	ug/kg	TM16/PM8	-	-	-	-
Hexachlorobutadiene	17,600	ug/kg	TM16/PM8	-	-	-	-
Hexachlorocyclopentadiene	1,091.3	ug/kg	TM16/PM8	-	-	-	-
Hexachloroethane	8,130	ug/kg	TM16/PM8	-	-	-	-
Isophorone	887,232	ug/kg	TM16/PM8	-	-	-	-
N-nitrosodi-n-propylamine	1,904.9	ug/kg	TM16/PM8	-	-	-	-
Nitrobenzene	131,262	ug/kg	TM16/PM8	-	-	-	-
VOCs							
Dichlorodifluoromethane	1,500,000	ug/kg	TM15/PM10	-	-	-	-
Methyl Tertiary Butyl Ether	-	ug/kg	TM15/PM10	-	-	-	-
Chloromethane	593	ug/kg	TM15/PM10	-	-	-	-
Vinyl Chloride	40.3	ug/kg	TM15/PM10	-	-	-	-
Bromomethane	27,046	ug/kg	TM15/PM10	-	-	-	-
Chloroethane	567,000	ug/kg	TM15/PM10	-	-	-	-
Trichlorofluoromethane	2,200,000	ug/kg	TM15/PM10	-	-	-	-
1,1-Dichloroethene	-	ug/kg	TM15/PM10	-	-	-	-
Dichloromethane	-	ug/kg	TM15/PM10	-	-	-	-
trans-1-2-Dichloroethene	12,300	ug/kg	TM15/PM10	-	-	-	-
1,1-Dichloroethane	148,000	ug/kg	TM15/PM10	-	-	-	-
cis-1-2-Dichloroethene	-	ug/kg	TM15/PM10	-	-	-	-
2,2-Dichloropropane	20,460	ug/kg	TM15/PM10	-	-	-	-
Bromochloromethane	-	ug/kg	TM15/PM10	-	-	-	-
Chloroform	-	ug/kg	TM15/PM10	-	-	-	-
1,1,1-Trichloroethane	391,511	ug/kg	TM15/PM10	-	-	-	-
1,1-Dichloropropene	12,853	ug/kg	TM15/PM10	-	-	-	-
Carbon tetrachloride	1,740	ug/kg	TM15/PM10	-	-	-	-
1,2-Dichloroethane	356	ug/kg	TM15/PM10	-	-	-	-
Benzene	15,826	ug/kg	TM15/PM10	-	-	-	-
Trichloroethene	6,611	ug/kg	TM15/PM10	-	-	-	-
1,2-Dichloropropane	1,720	ug/kg	TM15/PM10	-	-	-	-
Dibromomethane	-	ug/kg	TM15/PM10	-	-	-	-
Bromodichloromethane	1,100	ug/kg	TM15/PM10	-	-	-	-
cis-1-3-Dichloropropene	19,358	ug/kg	TM15/PM10	-	-	-	-
Toluene	835,000	ug/kg	TM15/PM10	-	-	-	-



Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH03	DPS-BH04	DPS-BH04	DPS-BH05
				DEPTH (m)	0-0.5	3.0-3.5	0-0.5
				LOCATION	DPS	DPS	DPS
				SAMPLE DATE	13/06/2011	13/06/2011	14/06/2011
Metals		Units	Method				
4-Chloro-3-methylphenol	8,333,156	ug/kg	TM16/PM8	-	-	<10	-
4-Methylphenol	25,800,000	ug/kg	TM16/PM8	-	-	<10	-
4-Nitrophenol	1,000,000	ug/kg	TM16/PM8	-	-	<10	-
Pentachlorophenol	1,230,000	ug/kg	TM16/PM8	-	-	<10	-
Phenol	3,200,000	ug/kg	TM16/PM8	-	-	<10	-
2-Chloronaphthalene	113,000	ug/kg	TM16/PM8	-	-	<10	-
2-Methylnaphthalene	7,148,111	ug/kg	TM16/PM8	-	-	<10	-
Bis(2-ethyl-hexyl) phthalate	85,400,000	ug/kg	TM16/PM8	-	-	<10	-
Butylbenzyl phthalate	942,000,000	ug/kg	TM16/PM8	-	-	<10	-
Di-n-butyl phthalate	12,900	ug/kg	TM16/PM8	-	-	<10	-
Di-n-Octyl phthalate	89,100,000	ug/kg	TM16/PM8	-	-	<10	-
Diethyl phthalate	109,000	ug/kg	TM16/PM8	-	-	<10	-
Dimethyl phthalate	275,000	ug/kg	TM16/PM8	-	-	<10	-
1,2-Dichlorobenzene	562,000	ug/kg	TM16/PM8	-	-	<10	-
1,2,4-Trichlorobenzene	123,000	ug/kg	TM16/PM8	-	-	<10	-
1,3-Dichlorobenzene	177,000	ug/kg	TM16/PM8	-	-	<10	-
1,4-Dichlorobenzene	221,000	ug/kg	TM16/PM8	-	-	<10	-
2-Nitroaniline	651,305	ug/kg	TM16/PM8	-	-	<10	-
2,4-Dinitrotoluene	3,750,000	ug/kg	TM16/PM8	-	-	<10	-
2,6-Dinitrotoluene	1,860,000	ug/kg	TM16/PM8	-	-	<10	-
3-Nitroaniline	200,000	ug/kg	TM16/PM8	-	-	<10	-
4-Bromophenylphenylether	982.8	ug/kg	TM16/PM8	-	-	<10	-
4-Chloroaniline	2,300,000	ug/kg	TM16/PM8	-	-	<10	-
4-Chlorophenylphenylether	378.3	ug/kg	TM16/PM8	-	-	<10	-
4-Nitroaniline	170,000	ug/kg	TM16/PM8	-	-	<10	-
Azobenzene	151,511	ug/kg	TM16/PM8	-	-	<10	-
Bis(2-chloro-ethoxy)methane	1,301.7	ug/kg	TM16/PM8	-	-	<10	-
Bis(2-chloro-ethyl)ether	273.6	ug/kg	TM16/PM8	-	-	<10	-
Carbazole	897,000	ug/kg	TM16/PM8	-	-	<10	-
Dibenzofuran	6,666,492	ug/kg	TM16/PM8	-	-	<10	-
Hexachlorobenzene	199	ug/kg	TM16/PM8	-	-	<10	-
Hexachlorobutadiene	17,600	ug/kg	TM16/PM8	-	-	<10	-
Hexachlorocyclopentadiene	1,091.3	ug/kg	TM16/PM8	-	-	<10	-
Hexachloroethane	8,130	ug/kg	TM16/PM8	-	-	<10	-
Isophorone	887,232	ug/kg	TM16/PM8	-	-	<10	-
N-nitrosodi-n-propylamine	1,904.9	ug/kg	TM16/PM8	-	-	<10	-
Nitrobenzene	131,262	ug/kg	TM16/PM8	-	-	<10	-
VOCs							
Dichlorodifluoromethane	1,500,000	ug/kg	TM15/PM10	-	-	<2	-
Methyl Tertiary Butyl Ether	-	ug/kg	TM15/PM10	-	-	<2	-
Chloromethane	593	ug/kg	TM15/PM10	-	-	<3	-
Vinyl Chloride	40.3	ug/kg	TM15/PM10	-	-	<2	-
Bromomethane	27,046	ug/kg	TM15/PM10	-	-	<1	-
Chloroethane	567,000	ug/kg	TM15/PM10	-	-	<2	-
Trichlorofluoromethane	2,200,000	ug/kg	TM15/PM10	-	-	<2	-
1,1-Dichloroethene	-	ug/kg	TM15/PM10	-	-	<6	-
Dichloromethane	-	ug/kg	TM15/PM10	-	-	<7	-
trans-1-2-Dichloroethene	12,300	ug/kg	TM15/PM10	-	-	<3	-
1,1-Dichloroethane	148,000	ug/kg	TM15/PM10	-	-	<3	-
cis-1-2-Dichloroethene	-	ug/kg	TM15/PM10	-	-	<3	-
2,2-Dichloropropane	20,460	ug/kg	TM15/PM10	-	-	<4	-
Bromochloromethane	-	ug/kg	TM15/PM10	-	-	<3	-
Chloroform	-	ug/kg	TM15/PM10	-	-	<3	-
1,1,1-Trichloroethane	391,511	ug/kg	TM15/PM10	-	-	<3	-
1,1-Dichloropropene	12,853	ug/kg	TM15/PM10	-	-	<3	-
Carbon tetrachloride	1,740	ug/kg	TM15/PM10	-	-	<4	-
1,2-Dichloroethane	356	ug/kg	TM15/PM10	-	-	<4	-
Benzene	15,826	ug/kg	TM15/PM10	-	-	<3	-
Trichloroethene	6,611	ug/kg	TM15/PM10	-	-	<3	-
1,2-Dichloropropane	1,720	ug/kg	TM15/PM10	-	-	<6	-
Dibromomethane	-	ug/kg	TM15/PM10	-	-	<3	-
Bromodichloromethane	1,100	ug/kg	TM15/PM10	-	-	<3	-
cis-1-3-Dichloropropene	19,358	ug/kg	TM15/PM10	-	-	<4	-
Toluene	835,000	ug/kg	TM15/PM10	-	-	<3	-

Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH05	DPS-BH06	DPS-BH06	DPS-BH07
				DEPTH (m)	0-0.5	3.5-4.0	0-0.5
				LOCATION	DPS	DPS	DPS
				SAMPLE DATE	14/06/2011	14/06/2011	14/06/2011
Metals		Units	Method				
4-Chloro-3-methylphenol	8,333,156	ug/kg	TM16/PM8	<10	-	-	-
4-Methylphenol	25,800,000	ug/kg	TM16/PM8	<10	-	-	-
4-Nitrophenol	1,000,000	ug/kg	TM16/PM8	<10	-	-	-
Pentachlorophenol	1,230,000	ug/kg	TM16/PM8	<10	-	-	-
Phenol	3,200,000	ug/kg	TM16/PM8	<10	-	-	-
2-Chloronaphthalene	113,000	ug/kg	TM16/PM8	<10	-	-	-
2-Methylnaphthalene	7,148,111	ug/kg	TM16/PM8	<10	-	-	-
Bis(2-ethyl-hexyl) phthalate	85,400,000	ug/kg	TM16/PM8	<10	-	-	-
Butylbenzyl phthalate	942,000,000	ug/kg	TM16/PM8	<10	-	-	-
Di-n-butyl phthalate	12,900	ug/kg	TM16/PM8	<10	-	-	-
Di-n-Octyl phthalate	89,100,000	ug/kg	TM16/PM8	<10	-	-	-
Diethyl phthalate	109,000	ug/kg	TM16/PM8	<10	-	-	-
Dimethyl phthalate	275,000	ug/kg	TM16/PM8	<10	-	-	-
1,2-Dichlorobenzene	562,000	ug/kg	TM16/PM8	<10	-	-	-
1,2,4-Trichlorobenzene	123,000	ug/kg	TM16/PM8	<10	-	-	-
1,3-Dichlorobenzene	177,000	ug/kg	TM16/PM8	<10	-	-	-
1,4-Dichlorobenzene	221,000	ug/kg	TM16/PM8	<10	-	-	-
2-Nitroaniline	651,305	ug/kg	TM16/PM8	<10	-	-	-
2,4-Dinitrotoluene	3,750,000	ug/kg	TM16/PM8	<10	-	-	-
2,6-Dinitrotoluene	1,860,000	ug/kg	TM16/PM8	<10	-	-	-
3-Nitroaniline	200,000	ug/kg	TM16/PM8	<10	-	-	-
4-Bromophenylphenylether	982.8	ug/kg	TM16/PM8	<10	-	-	-
4-Chloroaniline	2,300,000	ug/kg	TM16/PM8	<10	-	-	-
4-Chlorophenylphenylether	378.3	ug/kg	TM16/PM8	<10	-	-	-
4-Nitroaniline	170,000	ug/kg	TM16/PM8	<10	-	-	-
Azobenzene	151,511	ug/kg	TM16/PM8	<10	-	-	-
Bis(2-chloro-ethoxy)methane	1,301.7	ug/kg	TM16/PM8	<10	-	-	-
Bis(2-chloro-ethyl)ether	273.6	ug/kg	TM16/PM8	<10	-	-	-
Carbazole	897,000	ug/kg	TM16/PM8	<10	-	-	-
Dibenzofuran	6,666,492	ug/kg	TM16/PM8	<10	-	-	-
Hexachlorobenzene	199	ug/kg	TM16/PM8	<10	-	-	-
Hexachlorobutadiene	17,600	ug/kg	TM16/PM8	<10	-	-	-
Hexachlorocyclopentadiene	1,091.3	ug/kg	TM16/PM8	<10	-	-	-
Hexachloroethane	8,130	ug/kg	TM16/PM8	<10	-	-	-
Isophorone	887,232	ug/kg	TM16/PM8	<10	-	-	-
N-nitrosodi-n-propylamine	1,904.9	ug/kg	TM16/PM8	<10	-	-	-
Nitrobenzene	131,262	ug/kg	TM16/PM8	<10	-	-	-
VOCs							
Dichlorodifluoromethane	1,500,000	ug/kg	TM15/PM10	<2	-	-	-
Methyl Tertiary Butyl Ether	-	ug/kg	TM15/PM10	<2	-	-	-
Chloromethane	593	ug/kg	TM15/PM10	<3	-	-	-
Vinyl Chloride	40.3	ug/kg	TM15/PM10	<2	-	-	-
Bromomethane	27,046	ug/kg	TM15/PM10	<1	-	-	-
Chloroethane	567,000	ug/kg	TM15/PM10	<2	-	-	-
Trichlorofluoromethane	2,200,000	ug/kg	TM15/PM10	<2	-	-	-
1,1-Dichloroethene	-	ug/kg	TM15/PM10	<6	-	-	-
Dichloromethane	-	ug/kg	TM15/PM10	<7	-	-	-
trans-1-2-Dichloroethene	12,300	ug/kg	TM15/PM10	<3	-	-	-
1,1-Dichloroethane	148,000	ug/kg	TM15/PM10	<3	-	-	-
cis-1-2-Dichloroethene	-	ug/kg	TM15/PM10	<3	-	-	-
2,2-Dichloropropane	20,460	ug/kg	TM15/PM10	<4	-	-	-
Bromochloromethane	-	ug/kg	TM15/PM10	<3	-	-	-
Chloroform	-	ug/kg	TM15/PM10	<3	-	-	-
1,1,1-Trichloroethane	391,511	ug/kg	TM15/PM10	<3	-	-	-
1,1-Dichloropropene	12,853	ug/kg	TM15/PM10	<3	-	-	-
Carbon tetrachloride	1,740	ug/kg	TM15/PM10	<4	-	-	-
1,2-Dichloroethane	356	ug/kg	TM15/PM10	<4	-	-	-
Benzene	15,826	ug/kg	TM15/PM10	<3	-	-	-
Trichloroethene	6,611	ug/kg	TM15/PM10	<3	-	-	-
1,2-Dichloropropane	1,720	ug/kg	TM15/PM10	<6	-	-	-
Dibromomethane	-	ug/kg	TM15/PM10	<3	-	-	-
Bromodichloromethane	1,100	ug/kg	TM15/PM10	<3	-	-	-
cis-1-3-Dichloropropene	19,358	ug/kg	TM15/PM10	<4	-	-	-
Toluene	835,000	ug/kg	TM15/PM10	<3	-	-	-

Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH08	BH-08	BH-08
				DEPTH (m)	1.8-2.0	2.8-3.0
				LOCATION	DPS	DPS
				SAMPLE DATE	14/06/2011	27/06/2011
Metals		Units	Method			
4-Chloro-3-methylphenol	8,333,156	ug/kg	TM16/PM8	-	<10	<10
4-Methylphenol	25,800,000	ug/kg	TM16/PM8	-	<10	<10
4-Nitrophenol	1,000,000	ug/kg	TM16/PM8	-	<10	<10
Pentachlorophenol	1,230,000	ug/kg	TM16/PM8	-	<10	<10
Phenol	3,200,000	ug/kg	TM16/PM8	-	<10	<10
2-Chloronaphthalene	113,000	ug/kg	TM16/PM8	-	<10	<10
2-Methylnaphthalene	7,148,111	ug/kg	TM16/PM8	-	57	<10
Bis(2-ethyl-hexyl) phthalate	85,400,000	ug/kg	TM16/PM8	-	<10	<10
Butylbenzyl phthalate	942,000,000	ug/kg	TM16/PM8	-	<10	<10
Di-n-butyl phthalate	12,900	ug/kg	TM16/PM8	-	<10	<10
Di-n-Octyl phthalate	89,100,000	ug/kg	TM16/PM8	-	<10	<10
Diethyl phthalate	109,000	ug/kg	TM16/PM8	-	<10	<10
Dimethyl phthalate	275,000	ug/kg	TM16/PM8	-	<10	<10
1,2-Dichlorobenzene	562,000	ug/kg	TM16/PM8	-	<10	<10
1,2,4-Trichlorobenzene	123,000	ug/kg	TM16/PM8	-	<10	<10
1,3-Dichlorobenzene	177,000	ug/kg	TM16/PM8	-	<10	<10
1,4-Dichlorobenzene	221,000	ug/kg	TM16/PM8	-	<10	<10
2-Nitroaniline	651,305	ug/kg	TM16/PM8	-	<10	<10
2,4-Dinitrotoluene	3,750,000	ug/kg	TM16/PM8	-	<10	<10
2,6-Dinitrotoluene	1,860,000	ug/kg	TM16/PM8	-	<10	<10
3-Nitroaniline	200,000	ug/kg	TM16/PM8	-	<10	<10
4-Bromophenylphenylether	982.8	ug/kg	TM16/PM8	-	<10	<10
4-Chloroaniline	2,300,000	ug/kg	TM16/PM8	-	<10	<10
4-Chlorophenylphenylether	378.3	ug/kg	TM16/PM8	-	<10	<10
4-Nitroaniline	170,000	ug/kg	TM16/PM8	-	<10	<10
Azobenzene	151,511	ug/kg	TM16/PM8	-	<10	<10
Bis(2-chloro-ethoxy)methane	1,301.7	ug/kg	TM16/PM8	-	<10	<10
Bis(2-chloro-ethyl)ether	273.6	ug/kg	TM16/PM8	-	<10	<10
Carbazole	897,000	ug/kg	TM16/PM8	-	<10	<10
Dibenzofuran	6,666,492	ug/kg	TM16/PM8	-	<10	<10
Hexachlorobenzene	199	ug/kg	TM16/PM8	-	<10	<10
Hexachlorobutadiene	17,600	ug/kg	TM16/PM8	-	<10	<10
Hexachlorocyclopentadiene	1,091.3	ug/kg	TM16/PM8	-	<10	<10
Hexachloroethane	8,130	ug/kg	TM16/PM8	-	<10	<10
Isophorone	887,232	ug/kg	TM16/PM8	-	<10	<10
N-nitrosodi-n-propylamine	1,904.9	ug/kg	TM16/PM8	-	<10	<10
Nitrobenzene	131,262	ug/kg	TM16/PM8	-	<10	<10
VOCs						
Dichlorodifluoromethane	1,500,000	ug/kg	TM15/PM10	-	<2	<2
Methyl Tertiary Butyl Ether	-	ug/kg	TM15/PM10	-	<2	<2
Chloromethane	593	ug/kg	TM15/PM10	-	<3	<3
Vinyl Chloride	40.3	ug/kg	TM15/PM10	-	<2	<2
Bromomethane	27,046	ug/kg	TM15/PM10	-	<1	<1
Chloroethane	567,000	ug/kg	TM15/PM10	-	<2	<2
Trichlorofluoromethane	2,200,000	ug/kg	TM15/PM10	-	<2	<2
1,1-Dichloroethene	-	ug/kg	TM15/PM10	-	<6	<6
Dichloromethane	-	ug/kg	TM15/PM10	-	<7	<7
trans-1-2-Dichloroethene	12,300	ug/kg	TM15/PM10	-	<3	<3
1,1-Dichloroethane	148,000	ug/kg	TM15/PM10	-	<3	<3
cis-1-2-Dichloroethene	-	ug/kg	TM15/PM10	-	<3	<3
2,2-Dichloropropane	20,460	ug/kg	TM15/PM10	-	<4	<4
Bromochloromethane	-	ug/kg	TM15/PM10	-	<3	<3
Chloroform	-	ug/kg	TM15/PM10	-	<3	<3
1,1,1-Trichloroethane	391,511	ug/kg	TM15/PM10	-	<3	<3
1,1-Dichloropropene	12,853	ug/kg	TM15/PM10	-	<3	<3
Carbon tetrachloride	1,740	ug/kg	TM15/PM10	-	<4	<4
1,2-Dichloroethane	356	ug/kg	TM15/PM10	-	<4	<4
Benzene	15,826	ug/kg	TM15/PM10	-	<3	<3
Trichloroethene	6,611	ug/kg	TM15/PM10	-	<3	<3
1,2-Dichloropropane	1,720	ug/kg	TM15/PM10	-	<6	<6
Dibromomethane	-	ug/kg	TM15/PM10	-	<3	<3
Bromodichloromethane	1,100	ug/kg	TM15/PM10	-	<3	<3
cis-1-3-Dichloropropene	19,358	ug/kg	TM15/PM10	-	<4	<4
Toluene	835,000	ug/kg	TM15/PM10	-	<3	<3

Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH01	DPS-BH02	DPS-BH02	DPS-BH03
			DEPTH (m)	0.5	0.5	3.0-3.5	0-0.5
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	08/06/2011	08/06/2011	08/06/2011	13/06/2011
Metals		Units	Method				
trans-1-3-Dichloropropene	12,853	ug/kg	TM15/PM10	-	-	-	-
1,1,2-Trichloroethane	51,100	ug/kg	TM15/PM10	-	-	-	-
Tetrachloroethene	72,200	ug/kg	TM15/PM10	-	-	-	-
1,3-Dichloropropane	12,853	ug/kg	TM15/PM10	-	-	-	-
Dibromochloromethane	-	ug/kg	TM15/PM10	-	-	-	-
1,2-Dibromoethane	-	ug/kg	TM15/PM10	-	-	-	-
Chlorobenzene	32,800	ug/kg	TM15/PM10	-	-	-	-
1,1,1,2-Tetrachloroethane	62,718	ug/kg	TM15/PM10	-	-	-	-
Ethylbenzene	508,000	ug/kg	TM15/PM10	-	-	-	-
p/m-Xylene	564,000	ug/kg	TM15/PM10	-	-	-	-
o-Xylene	467,000	ug/kg	TM15/PM10	-	-	-	-
Styrene	607,000	ug/kg	TM15/PM10	-	-	-	-
Bromoform	417,000	ug/kg	TM15/PM10	-	-	-	-
Isopropylbenzene	753,000	ug/kg	TM15/PM10	-	-	-	-
1,1,2,2-Tetrachloroethane	156,089	ug/kg	TM15/PM10	-	-	-	-
Bromobenzene	-	ug/kg	TM15/PM10	-	-	-	-
1,2,3-Trichloropropane	3143	ug/kg	TM15/PM10	-	-	-	-
Propylbenzene	399000.0	ug/kg	TM15/PM10	-	-	-	-
2-Chlorotoluene	-	ug/kg	TM15/PM10	-	-	-	-
1,3,5-Trimethylbenzene	-	ug/kg	TM15/PM10	-	-	-	-
4-Chlorotoluene	1,418	ug/kg	TM15/PM10	-	-	-	-
tert-Butylbenzene	440,000	ug/kg	TM15/PM10	-	-	-	-
1,2,4-Trimethylbenzene	-	ug/kg	TM15/PM10	-	-	-	-
sec-Butylbenzene	1,300,000	ug/kg	TM15/PM10	-	-	-	-
4-Isopropyltoluene	388,000	ug/kg	TM15/PM10	-	-	-	-
1,3-Dichlorobenzene	17,700	ug/kg	TM15/PM10	-	-	-	-
1,4-Dichlorobenzene	221,000	ug/kg	TM15/PM10	-	-	-	-
n-Butylbenzene	430,000	ug/kg	TM15/PM10	-	-	-	-
1,2-Dichlorobenzene	562,000	ug/kg	TM15/PM10	-	-	-	-
1,2-Dibromo-3-chloropropane	1,037	ug/kg	TM15/PM10	-	-	-	-
1,2,4-Trichlorobenzene	123,000	ug/kg	TM15/PM10	-	-	-	-
Hexachlorobutadiene	17,600	ug/kg	TM15/PM10	-	-	-	-
Naphthalene	75,000	ug/kg	TM15/PM10	-	-	-	-
1,2,3-Trichlorobenzene	56,800	ug/kg	TM15/PM10	-	-	-	-

Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH03	DPS-BH04	DPS-BH04	DPS-BH05
			DEPTH (m)	2.5-3.0	0.-0.5	3.0-3.5	0-0.5
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	13/06/2011	13/06/2011	13/06/2011	14/06/2011
Metals		Units	Method				
trans-1-3-Dichloropropene	12,853	ug/kg	TM15/PM10	-	-	<3	-
1,1,2-Trichloroethane	51,100	ug/kg	TM15/PM10	-	-	<3	-
Tetrachloroethene	72,200	ug/kg	TM15/PM10	-	-	<3	-
1,3-Dichloropropane	12,853	ug/kg	TM15/PM10	-	-	<3	-
Dibromochloromethane	-	ug/kg	TM15/PM10	-	-	<3	-
1,2-Dibromoethane	-	ug/kg	TM15/PM10	-	-	<3	-
Chlorobenzene	32,800	ug/kg	TM15/PM10	-	-	<3	-
1,1,1,2-Tetrachloroethane	62,718	ug/kg	TM15/PM10	-	-	<3	-
Ethylbenzene	508,000	ug/kg	TM15/PM10	-	-	<3	-
p/m-Xylene	564,000	ug/kg	TM15/PM10	-	-	<6	-
o-Xylene	467,000	ug/kg	TM15/PM10	-	-	<3	-
Styrene	607,000	ug/kg	TM15/PM10	-	-	<3	-
Bromoform	417,000	ug/kg	TM15/PM10	-	-	<3	-
Isopropylbenzene	753,000	ug/kg	TM15/PM10	-	-	<3	-
1,1,2,2-Tetrachloroethane	156,089	ug/kg	TM15/PM10	-	-	<3	-
Bromobenzene	-	ug/kg	TM15/PM10	-	-	<2	-
1,2,3-Trichloropropane	3143	ug/kg	TM15/PM10	-	-	<4	-
Propylbenzene	399000.0	ug/kg	TM15/PM10	-	-	<4	-
2-Chlorotoluene	-	ug/kg	TM15/PM10	-	-	<3	-
1,3,5-Trimethylbenzene	-	ug/kg	TM15/PM10	-	-	<3	-
4-Chlorotoluene	1,418	ug/kg	TM15/PM10	-	-	<3	-
tert-Butylbenzene	440,000	ug/kg	TM15/PM10	-	-	<5	-
1,2,4-Trimethylbenzene	-	ug/kg	TM15/PM10	-	-	<6	-
sec-Butylbenzene	1,300,000	ug/kg	TM15/PM10	-	-	<4	-
4-Isopropyltoluene	388,000	ug/kg	TM15/PM10	-	-	<4	-
1,3-Dichlorobenzene	17,700	ug/kg	TM15/PM10	-	-	<4	-
1,4-Dichlorobenzene	221,000	ug/kg	TM15/PM10	-	-	<4	-
n-Butylbenzene	430,000	ug/kg	TM15/PM10	-	-	<4	-
1,2-Dichlorobenzene	562,000	ug/kg	TM15/PM10	-	-	<4	-
1,2-Dibromo-3-chloropropane	1,037	ug/kg	TM15/PM10	-	-	<4	-
1,2,4-Trichlorobenzene	123,000	ug/kg	TM15/PM10	-	-	<7	-
Hexachlorobutadiene	17,600	ug/kg	TM15/PM10	-	-	<4	-
Naphthalene	75,000	ug/kg	TM15/PM10	-	-	<27	-
1,2,3-Trichlorobenzene	56,800	ug/kg	TM15/PM10	-	-	<7	-

Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH05	DPS-BH06	DPS-BH06	DPS-BH07
			DEPTH (m)	3.0-3.5	0-0.5	3.5-4.0	0-0.5
			LOCATION	DPS	DPS	DPS	DPS
			SAMPLE DATE	14/06/2011	14/06/2011	14/06/2011	14/06/2011
Metals		Units	Method				
trans-1-3-Dichloropropene	12,853	ug/kg	TM15/PM10	<3	-	-	-
1,1,2-Trichloroethane	51,100	ug/kg	TM15/PM10	<3	-	-	-
Tetrachloroethene	72,200	ug/kg	TM15/PM10	<3	-	-	-
1,3-Dichloropropane	12,853	ug/kg	TM15/PM10	<3	-	-	-
Dibromochloromethane	-	ug/kg	TM15/PM10	<3	-	-	-
1,2-Dibromoethane	-	ug/kg	TM15/PM10	<3	-	-	-
Chlorobenzene	32,800	ug/kg	TM15/PM10	<3	-	-	-
1,1,1,2-Tetrachloroethane	62,718	ug/kg	TM15/PM10	<3	-	-	-
Ethylbenzene	508,000	ug/kg	TM15/PM10	<3	-	-	-
p/m-Xylene	564,000	ug/kg	TM15/PM10	<6	-	-	-
o-Xylene	467,000	ug/kg	TM15/PM10	<3	-	-	-
Styrene	607,000	ug/kg	TM15/PM10	<3	-	-	-
Bromoform	417,000	ug/kg	TM15/PM10	<3	-	-	-
Isopropylbenzene	753,000	ug/kg	TM15/PM10	<3	-	-	-
1,1,2,2-Tetrachloroethane	156,089	ug/kg	TM15/PM10	<3	-	-	-
Bromobenzene	-	ug/kg	TM15/PM10	<2	-	-	-
1,2,3-Trichloropropane	3143	ug/kg	TM15/PM10	<4	-	-	-
Propylbenzene	399000.0	ug/kg	TM15/PM10	<4	-	-	-
2-Chlorotoluene	-	ug/kg	TM15/PM10	<3	-	-	-
1,3,5-Trimethylbenzene	-	ug/kg	TM15/PM10	<3	-	-	-
4-Chlorotoluene	1,418	ug/kg	TM15/PM10	<3	-	-	-
tert-Butylbenzene	440,000	ug/kg	TM15/PM10	<5	-	-	-
1,2,4-Trimethylbenzene	-	ug/kg	TM15/PM10	<6	-	-	-
sec-Butylbenzene	1,300,000	ug/kg	TM15/PM10	<4	-	-	-
4-Isopropyltoluene	388,000	ug/kg	TM15/PM10	<4	-	-	-
1,3-Dichlorobenzene	17,700	ug/kg	TM15/PM10	<4	-	-	-
1,4-Dichlorobenzene	221,000	ug/kg	TM15/PM10	<4	-	-	-
n-Butylbenzene	430,000	ug/kg	TM15/PM10	<4	-	-	-
1,2-Dichlorobenzene	562,000	ug/kg	TM15/PM10	<4	-	-	-
1,2-Dibromo-3-chloropropane	1,037	ug/kg	TM15/PM10	<4	-	-	-
1,2,4-Trichlorobenzene	123,000	ug/kg	TM15/PM10	<7	-	-	-
Hexachlorobutadiene	17,600	ug/kg	TM15/PM10	<4	-	-	-
Naphthalene	75,000	ug/kg	TM15/PM10	<27	-	-	-
1,2,3-Trichlorobenzene	56,800	ug/kg	TM15/PM10	<7	-	-	-

Delimara Power Station Borehole Analytical Results	ENVIRON GAC (Commercial)		SAMPLE ID	DPS-BH08	BH-08	BH-08
			DEPTH (m)	0-0.5	1.8-2.0	2.8-3.0
			LOCATION	DPS	DPS	DPS
			SAMPLE DATE	14/06/2011	27/06/2011	27/06/2011
Metals		Units	Method			
trans-1-3-Dichloropropene	12,853	ug/kg	TM15/PM10	-	<3	<3
1,1,2-Trichloroethane	51,100	ug/kg	TM15/PM10	-	<3	<3
Tetrachloroethene	72,200	ug/kg	TM15/PM10	-	<3	<3
1,3-Dichloropropane	12,853	ug/kg	TM15/PM10	-	<3	<3
Dibromochloromethane	-	ug/kg	TM15/PM10	-	<3	<3
1,2-Dibromoethane	-	ug/kg	TM15/PM10	-	<3	<3
Chlorobenzene	32,800	ug/kg	TM15/PM10	-	<3	<3
1,1,1,2-Tetrachloroethane	62,718	ug/kg	TM15/PM10	-	<3	<3
Ethylbenzene	508,000	ug/kg	TM15/PM10	-	<3	<3
p/m-Xylene	564,000	ug/kg	TM15/PM10	-	<6+	<6+
o-Xylene	467,000	ug/kg	TM15/PM10	-	<3+	<3+
Styrene	607,000	ug/kg	TM15/PM10	-	<3	<3
Bromoform	417,000	ug/kg	TM15/PM10	-	<3	<3
Isopropylbenzene	753,000	ug/kg	TM15/PM10	-	<3	<3
1,1,2,2-Tetrachloroethane	156,089	ug/kg	TM15/PM10	-	<3	<3
Bromobenzene	-	ug/kg	TM15/PM10	-	<2	<2
1,2,3-Trichloropropane	3143	ug/kg	TM15/PM10	-	<4	<4
Propylbenzene	399000.0	ug/kg	TM15/PM10	-	<4+	<4+
2-Chlorotoluene	-	ug/kg	TM15/PM10	-	<3	<3
1,3,5-Trimethylbenzene	-	ug/kg	TM15/PM10	-	<3	<3
4-Chlorotoluene	1,418	ug/kg	TM15/PM10	-	<3	<3
tert-Butylbenzene	440,000	ug/kg	TM15/PM10	-	<5	<5
1,2,4-Trimethylbenzene	-	ug/kg	TM15/PM10	-	<6	<6
sec-Butylbenzene	1,300,000	ug/kg	TM15/PM10	-	<4	<4
4-Isopropyltoluene	388,000	ug/kg	TM15/PM10	-	<4	<4
1,3-Dichlorobenzene	17,700	ug/kg	TM15/PM10	-	<4	<4
1,4-Dichlorobenzene	221,000	ug/kg	TM15/PM10	-	<4	<4
n-Butylbenzene	430,000	ug/kg	TM15/PM10	-	<4	<4
1,2-Dichlorobenzene	562,000	ug/kg	TM15/PM10	-	<4	<4
1,2-Dibromo-3-chloropropane	1,037	ug/kg	TM15/PM10	-	<4	<4
1,2,4-Trichlorobenzene	123,000	ug/kg	TM15/PM10	-	<7	<7
Hexachlorobutadiene	17,600	ug/kg	TM15/PM10	-	<4	<4
Naphthalene	75,000	ug/kg	TM15/PM10	-	<27	<27
1,2,3-Trichlorobenzene	56,800	ug/kg	TM15/PM10	-	<7	<7

## **Annex D: Laboratory Analytical Certificates**





# Jones Environmental Laboratory

Environ  
Sterling House  
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No.4225

<b>Attention :</b>	Michael Hazlehurst
<b>Date :</b>	8th July, 2011
<b>Your reference :</b>	UK22-16873
<b>Our reference :</b>	Test Report 11/5009 Batch 1
<b>Location :</b>	DPS
<b>Date samples received :</b>	1st July, 2011
<b>Status :</b>	Final report
<b>Issue :</b>	1

Eleven samples were received for analysis on 1st July, 2011, which was completed on 8th July 2011. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

**J W Farrell- Jones CChem FRSC**  
**Chartered Chemist**

# **Jones Environmental Laboratory**

**Client Name:** Environ

**Report : Solid**

**Reference:** UK22-16873

**Location:** DPS

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

**Contact:** Michael Hazlehurst

**JE Job No.:** 11/5009

J E Sample No.	1-2	3-4	5-7	8-9	13-14	15-16	17-18	21-22			Please see attached notes for all abbreviations and acronyms		
Sample ID	BH-08	BH-08	SB-09	SB-09	SB-10	SB-10-DS	SB-11	SB-12					
Depth	1.8-2.0	2.8-3.0	0.3-0.5	1.3-1.5	2.3-2.5	2.3-2.5	0.3-0.5	0.8-1.0					
COC No / misc													
Containers	V	V	VB	V	V	V	V	V					
Sample Date	27/06/2011	27/06/2011	27/06/2011	27/06/2011	28/06/2011	28/06/2011	28/06/2011	28/06/2011					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	01/07/2011	01/07/2011	01/07/2011	01/07/2011	01/07/2011	01/07/2011	01/07/2011	01/07/2011			LOD	Units	Method No.
Antimony	<1	<1	<1	<1	<1	<1	<1	<1			<1	mg/kg	TM30/PM15
Arsenic <sup>#</sup>	4.9	3.5	2.6	2.3	2.9	2.4	2.4	2.8			<0.5	mg/kg	TM30/PM15
Cadmium <sup>#</sup>	0.4	0.4	0.4	0.4	0.4	0.4	0.2	0.3			<0.1	mg/kg	TM30/PM15
Chromium <sup>#</sup>	16.6	19.1	19.5	20.7	14.9	13.3	9.8	20.6			<0.5	mg/kg	TM30/PM15
Cobalt <sup>#</sup>	1.8	2.6	2.6	3.0	2.3	1.8	1.1	2.8			<0.5	mg/kg	TM30/PM15
Copper <sup>#</sup>	12	14	15	16	12	10	9	14			<1	mg/kg	TM30/PM15
Lead <sup>#</sup>	<5	<5	<5	<5	13	<5	<5	<5			<5	mg/kg	TM30/PM15
Manganese <sup>#</sup>	79	72	68	66	57	50	54	77			<1	mg/kg	TM30/PM15
Mercury <sup>#</sup>	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.3			<0.1	mg/kg	TM30/PM15
Nickel <sup>#</sup>	16.9	22.0	34.3	23.8	17.1	13.7	10.5	22.2			<0.7	mg/kg	TM30/PM15
Selenium <sup>#</sup>	<1	<1	<1	<1	<1	<1	<1	4			<1	mg/kg	TM30/PM15
Thallium	<1	<1	<1	<1	<1	<1	<1	<1			<1	mg/kg	TM30/PM15
Tin	<1	<1	<1	<1	<1	<1	4	<1			<1	mg/kg	TM30/PM15
Vanadium	16	17	53	17	16	14	8	17			<1	mg/kg	TM30/PM15
Zinc <sup>#</sup>	41	57	52	58	43	31	29	51			<5	mg/kg	TM30/PM15
<b>PAH MS</b>													
Naphthalene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Acenaphthene <sup>#</sup>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM4/PM8
Fluorene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Phenanthrene <sup>#</sup>	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Anthracene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Fluoranthene <sup>#</sup>	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Pyrene <sup>#</sup>	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Benz(a)anthracene <sup>#</sup>	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06			<0.06	mg/kg	TM4/PM8
Chrysene <sup>#</sup>	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02			<0.02	mg/kg	TM4/PM8
Benzo(b)fluoranthene <sup>#</sup>	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07			<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene <sup>#</sup>	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6			<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02			<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	108	119	103	113	106	102	105	109			<0	%	TM4/PM8
EPH >C8-C10 <sup>#</sup>	<5	<5	<5	<5	<5	<5	<5	<5			<5	mg/kg	TM5/PM8
EPH >C10-C20 <sup>#</sup>	408	63	<10	<10	<10	<10	76	<10			<10	mg/kg	TM5/PM8
EPH >C20-C30 <sup>#</sup>	331	41	<10	<10	<10	<10	42	<10			<10	mg/kg	TM5/PM8
EPH >C30-C40 <sup>#</sup>	<10	<10	<10	<10	<10	<10	23	<10			<10	mg/kg	TM5/PM8
EPH >C8-C40 <sup>#</sup>	739	104	<35	<35	<35	<35	141	<35			<35	mg/kg	TM5/PM8
Sulphate as SO4 (2:1 Ext) <sup>#</sup>	0.2052	0.1462	1.8795	0.1728	0.6094	0.8984	0.2526	1.5808			<0.0015	g/l	TM38/PM20

**Client Name:** Environ  
**Reference:** UK22-16873  
**Location:** DPS  
**Contact:** Michael Hazlehurst  
**JE Job No.:** 11/5009

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

Client Name: Environ

SVOC Report : Solid

Reference: UK22-16873

Location: DPS

Contact: Michael Hazlehurst

JE Job No.: 11/5009

J E Sample No.	1-2	3-4	8-9	13-14	21-22						Please see attached notes for all abbreviations and acronyms		
Sample ID	BH-08	BH-08	SB-09	SB-10	SB-12								
Depth	1.8-2.0	2.8-3.0	1.3-1.5	2.3-2.5	0.8-1.0								
COC No / misc													
Containers	V	V	V	V	V								
Sample Date	27/06/2011	27/06/2011	27/06/2011	28/06/2011	28/06/2011								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	01/07/2011	01/07/2011	01/07/2011	01/07/2011	01/07/2011						LOD	Units	Method No.
<b>SVOC MS</b>													
Phenols													
2-Chlorophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,4-Dichlorophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Phenol	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2-Methylnaphthalene	57	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Butylbenzyl phthalate	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Di-n-butyl phthalate	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Diethyl phthalate	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Dimethyl phthalate	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Bromophenylphenylether	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Azobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Carbazole	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Dibenzofuran	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Hexachlorobutadiene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Isophorone	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8
Nitrobenzene	<10	<10	<10	<10	<10						<10	ug/kg	TM16/PM8

# Jones Environmental Laboratory

**Client Name:** Environ  
**Reference:** UK22-16873  
**Location:** DPS  
**Contact:** Michael Hazlehurst  
**JE Job No.:** 11/5009

**VOC Report :** Solid

J E Sample No.	1-2	3-4	8-9	13-14	21-22								
Sample ID	BH-08	BH-08	SB-09	SB-10	SB-12								
Depth	1.8-2.0	2.8-3.0	1.3-1.5	2.3-2.5	0.8-1.0								
COC No / misc													
Containers	V	V	V	V	V								
Sample Date	27/06/2011	27/06/2011	27/06/2011	28/06/2011	28/06/2011								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	01/07/2011	01/07/2011	01/07/2011	01/07/2011	01/07/2011								
											LOD	Units	Method No.
Please see attached notes for all abbreviations and acronyms													
<b>VOC MS</b>													
Dichlorodifluoromethane	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether <sup>#</sup>	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
Chloromethane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1						<1	ug/kg	TM15/PM10
Chloroethane <sup>#</sup>	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
Trichlorofluoromethane <sup>#</sup>	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
1,1-Dichloroethene <sup>#</sup>	<6	<6	<6	<6	<6						<6	ug/kg	TM15/PM10
Dichloromethane <sup>#</sup>	<7	<7	<7	<7	<7						<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1-Dichloroethane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
Bromochloromethane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Chloroform <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1-Dichloropropene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Carbon tetrachloride <sup>#</sup>	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,2-Dichloroethane <sup>#</sup>	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
Benzene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Trichloroethene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,2-Dichloropropane <sup>#</sup>	<6	<6	<6	<6	<6						<6	ug/kg	TM15/PM10
Dibromomethane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Bromodichloromethane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
Toluene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Tetrachloroethene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,3-Dichloropropane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Dibromochloromethane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,2-Dibromoethane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Chlorobenzene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Ethylbenzene <sup>#</sup>	<3	<3	7	<3	<3						<3	ug/kg	TM15/PM10
p/m-Xylene <sup>#</sup>	<6 <sup>+</sup>	<6 <sup>+</sup>	16 <sup>+</sup>	<6 <sup>+</sup>	<6 <sup>+</sup>						<6	ug/kg	TM15/PM10
o-Xylene <sup>#</sup>	<3 <sup>+</sup>	<3 <sup>+</sup>	<3 <sup>+</sup>	<3 <sup>+</sup>	<3 <sup>+</sup>						<3	ug/kg	TM15/PM10
Styrene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Bromoform <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Isopropylbenzene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane <sup>#</sup>	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
Propylbenzene <sup>#</sup>	<4 <sup>+</sup>	<4 <sup>+</sup>	<4 <sup>+</sup>	<4 <sup>+</sup>	<4 <sup>+</sup>						<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene <sup>#</sup>	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM10
tert-Butylbenzene <sup>#</sup>	<5	<5	<5	<5	<5						<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene <sup>#</sup>	<6	<6	<6	<6	<6						<6	ug/kg	TM15/PM10
sec-Butylbenzene <sup>#</sup>	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
4-Isopropyltoluene <sup>#</sup>	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene <sup>#</sup>	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene <sup>#</sup>	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
n-Butylbenzene <sup>#</sup>	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene <sup>#</sup>	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane <sup>#</sup>	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene <sup>#</sup>	<7	<7	<7	<7	<7						<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4	<4	<4						<4	ug/kg	TM15/PM10
Naphthalene	<27	<27	<27	<27	<27						<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene <sup>#</sup>	<7	<7	<7	<7	<7						<7	ug/kg	TM15/PM10

## NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

### SOILS

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

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

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

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. If we are instructed to keep samples, a storage charge of £1 (1.5 Euros) per sample per month will be applied until we are asked to dispose of them.

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

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

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C

Asbestos screens where requested will be undertaken by a UKAS accredited laboratory.

### WATERS

Please note we are not a Drinking Water Inspectorate (DWI) Approved Laboratory. It is important that detection limits are carefully considered when requesting water analysis.

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

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples. All samples are treated as groundwaters and analysis performed on settled samples unless we are instructed otherwise.

### DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any analysis that may be compromised highlighted on your schedule/ report by the use of a symbol.

*The use of any of the following symbols indicates that the sample was deviating and the test result may be unreliable:*

\$	Sample temperature on receipt considered inappropriate for analysis requested.
^	Samples exceeding recommended holding times.
&	Samples received in inappropriate containers (e.g. volatile samples not submitted in VOC jars/vials).
~	No sampling date given, unable to confirm if samples are with acceptable holding times.

### SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130%. Results are not surrogate corrected.

### AQCs

Where AQC's fall outside UKAS/MCERTS criteria analysis is repeated if possible.

### NOTE

Data is only accredited when all the requirements of our Quality System have been met. In certain circumstances where the requirements have not been met, the laboratory may issue the data in its final report if it believes that the validity of the data has not been compromised but will remove the accreditation. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

## ABBREVIATIONS and ACRONYMS USED

#	UKAS accredited.
M	MCERTS accredited.
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
SS	Calibrated against a single substance.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
W	Results expressed on as received basis.
+	Accreditation has been removed from this result see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
DR	Dilution required.

[illegible]





# Jones Environmental Laboratory

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LS1 5EQ

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No.4225

<b>Attention :</b>	Michael Hazlehurst
<b>Date :</b>	24th June, 2011
<b>Your reference :</b>	UK22-16873
<b>Our reference :</b>	Test Report 11/4615 Batch 3
<b>Location :</b>	DPS
<b>Date samples received :</b>	16th June, 2011
<b>Status :</b>	Final report
<b>Issue :</b>	1

Ten samples were received for analysis on 16th June, 2011, which was completed on 24th June 2011. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

**J W Farrell- Jones CChem FRSC**  
**Chartered Chemist**

# **Jones Environmental Laboratory**

**Client Name:** Environ

**Report : Solid**

**Reference:** UK22-16873

**Location:** DPS

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

**Contact:** Michael Hazlehurst

**JE Job No.:** 11/4615

J E Sample No.	72-73	74-75	76-77	78-79	80-81	84-85					Please see attached notes for all abbreviations and acronyms		
Sample ID	DPS-BH05	DPS-BH05	DPS-BH06	DPS-BH06	DPS-BH07	DPS-BH08							
Depth	0-0.5	3.0-3.5	0-0.5	3.5-4.0	0-0.5	0-0.5							
COC No / misc													
Containers	V	V	V	V	V	V							
Sample Date	14/06/2011	14/06/2011	14/06/2011	14/06/2011	14/06/2011	14/06/2011							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	3	3	3	3	3	3							
Date of Receipt	16/06/2011	16/06/2011	16/06/2011	16/06/2011	16/06/2011	16/06/2011					LOD	Units	Method No.
Antimony	<1	1	<1	<1	<1	<1					<1	mg/kg	TM30/PM15
Arsenic #	3.3	5.3	3.2	2.2	1.0	3.5					<0.5	mg/kg	TM30/PM15
Barium #	23	21	12	19	6	14					<1	mg/kg	TM30/PM15
Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	mg/kg	TM30/PM15
Cadmium #	0.4	0.3	0.3	0.4	0.4	0.4					<0.1	mg/kg	TM30/PM15
Chromium #	15.9	20.5	17.0	21.7	9.3	18.3					<0.5	mg/kg	TM30/PM15
Cobalt #	2.8	2.8	1.9	2.5	0.6	1.7					<0.5	mg/kg	TM30/PM15
Copper #	15	17	9	18	5	10					<1	mg/kg	TM30/PM15
Lead #	<5	<5	<5	<5	<5	5					<5	mg/kg	TM30/PM15
Manganese #	72	73	64	69	32	79					<1	mg/kg	TM30/PM15
Mercury #	0.4	0.3	0.4	0.4	0.4	0.3					<0.1	mg/kg	TM30/PM15
Nickel #	18.7	22.9	16.1	25.9	4.8	20.2					<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	<1	2	<1	<1					<1	mg/kg	TM30/PM15
Thallium	<1	<1	<1	<1	<1	<1					<1	mg/kg	TM30/PM15
Tin	<1	<1	<1	<1	<1	<1					<1	mg/kg	TM30/PM15
Total Sulphate	2545	1973	1697	1343	915	1159					<50	mg/kg	TM50/PM15
Vanadium	18	23	16	20	10	31					<1	mg/kg	TM30/PM15
Zinc #	48	55	39	64	13	54					<5	mg/kg	TM30/PM15
<b>PAH MS</b>													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03					<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05					<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	0.03	<0.03					<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04					<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	<0.03	0.05	<0.03					<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	<0.03	0.05	<0.03					<0.03	mg/kg	TM4/PM8
Benz(a)anthracene #	<0.06	<0.06	<0.06	<0.06	0.09	<0.06					<0.06	mg/kg	TM4/PM8
Chrysene #	0.02	<0.02	<0.02	<0.02	0.10	<0.02					<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	0.18	<0.07					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	0.09	<0.04					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	0.11	<0.04					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	0.09	<0.04					<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	0.11	<0.04					<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	<0.6	<0.6	0.9	<0.6					<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	0.13	<0.05					<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	0.05	<0.02					<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	96	96	103	101	100	100					<0	%	TM4/PM8
VOC TICs	-	ND	-	-	-	-						None	TM15/PM10
SVOC TICs	-	ND	-	-	-	-							TM10/PM8

**Client Name:** Environ  
**Reference:** UK22-16873  
**Location:** DPS  
**Contact:** Michael Hazlehurst  
**JE Job No.:** 11/4615

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms



# Jones Environmental Laboratory

**Client Name:** Environ  
**Reference:** UK22-16873  
**Location:** DPS  
**Contact:** Michael Hazlehurst  
**JE Job No.:** 11/4615

**VOC Report :** Solid

J E Sample No.	74-75												
Sample ID	DPS-BH05												
Depth	3.0-3.5												
COC No / misc													
Containers	V												
Sample Date	14/06/2011												
Sample Type	Soil												
Batch Number	3												
Date of Receipt	16/06/2011												
											LOD	Units	Method No.
Please see attached notes for all abbreviations and acronyms													
<b>VOC MS</b>													
Dichlorodifluoromethane	<2										<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether <sup>#</sup>	<2										<2	ug/kg	TM15/PM10
Chloromethane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Vinyl Chloride	<2										<2	ug/kg	TM15/PM10
Bromomethane	<1										<1	ug/kg	TM15/PM10
Chloroethane <sup>#</sup>	<2										<2	ug/kg	TM15/PM10
Trichlorofluoromethane <sup>#</sup>	<2										<2	ug/kg	TM15/PM10
1,1-Dichloroethene <sup>#</sup>	<6										<6	ug/kg	TM15/PM10
Dichloromethane <sup>#</sup>	<7										<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
1,1-Dichloroethane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4										<4	ug/kg	TM15/PM10
Bromochloromethane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Chloroform <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
1,1-Dichloropropene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Carbon tetrachloride <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
1,2-Dichloroethane <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
Benzene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Trichloroethene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
1,2-Dichloropropane <sup>#</sup>	<6										<6	ug/kg	TM15/PM10
Dibromomethane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Bromodichloromethane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4										<4	ug/kg	TM15/PM10
Toluene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3										<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Tetrachloroethene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
1,3-Dichloropropane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Dibromochloromethane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
1,2-Dibromoethane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Chlorobenzene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3										<3	ug/kg	TM15/PM10
Ethylbenzene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
p/m-Xylene <sup>#</sup>	<6										<6	ug/kg	TM15/PM10
o-Xylene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Styrene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Bromoform <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Isopropylbenzene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
Bromobenzene	<2										<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
Propylbenzene <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene <sup>#</sup>	<3										<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3										<3	ug/kg	TM15/PM10
tert-Butylbenzene <sup>#</sup>	<5										<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene <sup>#</sup>	<6										<6	ug/kg	TM15/PM10
sec-Butylbenzene <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
4-Isopropyltoluene <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
n-Butylbenzene <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane <sup>#</sup>	<4										<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene <sup>#</sup>	<7										<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4										<4	ug/kg	TM15/PM10
Naphthalene	<27										<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene <sup>#</sup>	<7										<7	ug/kg	TM15/PM10

## NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

### SOILS

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

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

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

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. If we are instructed to keep samples, a storage charge of £1 (1.5 Euros) per sample per month will be applied until we are asked to dispose of them.

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

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

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C

Asbestos screens where requested will be undertaken by a UKAS accredited laboratory.

### WATERS

Please note we are not a Drinking Water Inspectorate (DWI) Approved Laboratory. It is important that detection limits are carefully considered when requesting water analysis.

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

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples. All samples are treated as groundwaters and analysis performed on settled samples unless we are instructed otherwise.

### DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any analysis that may be compromised highlighted on your schedule/ report by the use of a symbol.

*The use of any of the following symbols indicates that the sample was deviating and the test result may be unreliable:*

\$	Sample temperature on receipt considered inappropriate for analysis requested.
^	Samples exceeding recommended holding times.
&	Samples received in inappropriate containers (e.g. volatile samples not submitted in VOC jars/vials).
~	No sampling date given, unable to confirm if samples are with acceptable holding times.

### SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130%. Results are not surrogate corrected.

### AQCs

Where AQC's fall outside UKAS/MCERTS criteria analysis is repeated if possible.

### NOTE

Data is only accredited when all the requirements of our Quality System have been met. In certain circumstances where the requirements have not been met, the laboratory may issue the data in its final report if it believes that the validity of the data has not been compromised but will remove the accreditation. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

## ABBREVIATIONS and ACRONYMS USED

#	UKAS accredited.
M	MCERTS accredited.
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
SS	Calibrated against a single substance.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
W	Results expressed on as received basis.
+	Accreditation has been removed from this result see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
DR	Dilution required.

[illegible]





# Jones Environmental Laboratory

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No.4225

<b>Attention :</b>	Michael Hazlehurst
<b>Date :</b>	24th June, 2011
<b>Your reference :</b>	UK22-16873
<b>Our reference :</b>	Test Report 11/4615 Batch 2
<b>Location :</b>	DPS
<b>Date samples received :</b>	15th June, 2011
<b>Status :</b>	Final report
<b>Issue :</b>	1

Fourteen samples were received for analysis on 15th June, 2011, which was completed on 24th June 2011. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

**J W Farrell- Jones CChem FRSC**  
**Chartered Chemist**

# **Jones Environmental Laboratory**

**Client Name:** Environ

**Report : Solid**

**Reference:** UK22-16873

**Location:** DPS

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

**Contact:** Michael Hazlehurst

**JE Job No.:** 11/4615

J E Sample No.	40-42	48-49	50-52	55-56	61-62	63-64	65-66	67-69	70-71		Please see attached notes for all abbreviations and acronyms		
Sample ID	DPS-LF01	DPS-LF02	DPS-LF03	DPS-SB07	DPS-SB08	DPS-BH04	DPS-BH04	DPS-BH03	DPS-BH03				
Depth	0-0.5	4.5-5.0	0.5-1.0	0.4	2.0-2.5	0.-0.5	3.0-3.5	0-0.5	2.5-3.0				
COC No / misc													
Containers	V B	V	V B	V	V	V	V	V B	V				
Sample Date	09/06/2011	09/06/2011	10/06/2011	13/06/2011	13/06/2011	13/06/2011	13/06/2011	13/06/2011	13/06/2011				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	2	2	2	2	2	2	2	2	2				
Date of Receipt	15/06/2011	15/06/2011	15/06/2011	15/06/2011	15/06/2011	15/06/2011	15/06/2011	15/06/2011	15/06/2011		LOD	Units	Method No.
Antimony	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	mg/kg	TM30/PM15
Arsenic #	2.9	5.4	2.8	2.1	3.0	4.1	2.1	2.5	2.5		<0.5	mg/kg	TM30/PM15
Barium #	41	22	21	9	16	14	24	24	22		<1	mg/kg	TM30/PM15
Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.6	<0.5	0.7		<0.5	mg/kg	TM30/PM15
Cadmium #	0.4	0.3	0.3	0.4	0.4	0.6	0.4	0.3	0.3		<0.1	mg/kg	TM30/PM15
Chromium #	19.1	16.9	16.4	19.1	20.5	20.4	23.7	15.3	23.8		<0.5	mg/kg	TM30/PM15
Cobalt #	2.2	1.9	2.4	2.5	2.1	2.2	2.4	2.1	3.5		<0.5	mg/kg	TM30/PM15
Copper #	19	10	14	15	14	16	17	12	16		<1	mg/kg	TM30/PM15
Lead #	12	6	7	<5	<5	11	<5	9	5		<5	mg/kg	TM30/PM15
Manganese #	84	73	66	65	77	63	66	60	87		<1	mg/kg	TM30/PM15
Mercury #	0.3	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4		<0.1	mg/kg	TM30/PM15
Nickel #	51.5	15.7	20.1	24.4	21.8	26.1	25.4	15.0	29.2		<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	1	<1	<1	2	<1	<1		<1	mg/kg	TM30/PM15
Thallium	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	mg/kg	TM30/PM15
Tin	<1	<1	<1	1	2	2	<1	<1	1		<1	mg/kg	TM30/PM15
Total Sulphate	2911	1169	7110	1802	5607	1454	5144	5213	1795		<50	mg/kg	TM50/PM15
Vanadium	166	26	16	17	17	25	19	15	22		<1	mg/kg	TM30/PM15
Zinc #	92	44	49	53	48	59	64	52	59		<5	mg/kg	TM30/PM15
<b>PAH MS</b>													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Benz(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06		<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02		<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	93	87	84	86	97	96	94	104	96		<0	%	TM4/PM8
VOC TICs	-	-	-	-	-	-	ND	-	-			None	TM15/PM10
SVOC TICs	-	-	-	-	-	-	ND	-	-				TM10/PM8

**Client Name:** Environ  
**Reference:** UK22-16873  
**Location:** DPS  
**Contact:** Michael Hazlehurst  
**JE Job No.:** 11/4615

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

**Client Name:** Environ  
**Reference:** UK22-16873  
**Location:** DPS  
**Contact:** Michael Hazlehurst  
**JE Job No.:** 11/4615

**SVOC Report : Solid**

Please see attached notes for all abbreviations and acronyms

J E Sample No.	65-66										Please see attached notes for all abbreviations and acronyms		
Sample ID	DPS-BH04												
Depth	3.0-3.5												
COC No / misc Containers	V												
Sample Date	13/06/2011												
Sample Type	Soil												
Batch Number	2												
Date of Receipt	15/06/2011										LOD	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol	<10										<10	ug/kg	TM16/PM8
2-Methylphenol	<10										<10	ug/kg	TM16/PM8
2-Nitrophenol	<10										<10	ug/kg	TM16/PM8
2,4-Dichlorophenol	<10										<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10										<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10										<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10										<10	ug/kg	TM16/PM8
4-Methylphenol	<10										<10	ug/kg	TM16/PM8
4-Nitrophenol	<10										<10	ug/kg	TM16/PM8
Pentachlorophenol	<10										<10	ug/kg	TM16/PM8
Phenol	<10										<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene	<10										<10	ug/kg	TM16/PM8
2-Methylnaphthalene	<10										<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<10										<10	ug/kg	TM16/PM8
Butylbenzyl phthalate	<10										<10	ug/kg	TM16/PM8
Di-n-butyl phthalate	<10										<10	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<10										<10	ug/kg	TM16/PM8
Diethyl phthalate	<10										<10	ug/kg	TM16/PM8
Dimethyl phthalate	<10										<10	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10										<10	ug/kg	TM16/PM8
2-Nitroaniline	<10										<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10										<10	ug/kg	TM16/PM8
3-Nitroaniline	<10										<10	ug/kg	TM16/PM8
4-Bromophenylphenylether	<10										<10	ug/kg	TM16/PM8
4-Chloroaniline	<10										<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10										<10	ug/kg	TM16/PM8
4-Nitroaniline	<10										<10	ug/kg	TM16/PM8
Azobenzene	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10										<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10										<10	ug/kg	TM16/PM8
Carbazole	<10										<10	ug/kg	TM16/PM8
Dibenzofuran	<10										<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10										<10	ug/kg	TM16/PM8
Hexachlorobutadiene	<10										<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10										<10	ug/kg	TM16/PM8
Hexachloroethane	<10										<10	ug/kg	TM16/PM8
Isophorone	<10										<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine	<10										<10	ug/kg	TM16/PM8
Nitrobenzene	<10										<10	ug/kg	TM16/PM8

QF-PM 3.1.4 v9

## NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

### SOILS

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

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

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

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. If we are instructed to keep samples, a storage charge of £1 (1.5 Euros) per sample per month will be applied until we are asked to dispose of them.

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

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

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C

Asbestos screens where requested will be undertaken by a UKAS accredited laboratory.

### WATERS

Please note we are not a Drinking Water Inspectorate (DWI) Approved Laboratory. It is important that detection limits are carefully considered when requesting water analysis.

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

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples. All samples are treated as groundwaters and analysis performed on settled samples unless we are instructed otherwise.

### DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any analysis that may be compromised highlighted on your schedule/ report by the use of a symbol.

*The use of any of the following symbols indicates that the sample was deviating and the test result may be unreliable:*

\$	Sample temperature on receipt considered inappropriate for analysis requested.
^	Samples exceeding recommended holding times.
&	Samples received in inappropriate containers (e.g. volatile samples not submitted in VOC jars/vials).
~	No sampling date given, unable to confirm if samples are with acceptable holding times.

### SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130%. Results are not surrogate corrected.

### AQCs

Where AQC's fall outside UKAS/MCERTS criteria analysis is repeated if possible.

### NOTE

Data is only accredited when all the requirements of our Quality System have been met. In certain circumstances where the requirements have not been met, the laboratory may issue the data in its final report if it believes that the validity of the data has not been compromised but will remove the accreditation. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

## ABBREVIATIONS and ACRONYMS USED

#	UKAS accredited.
M	MCERTS accredited.
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
SS	Calibrated against a single substance.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
W	Results expressed on as received basis.
+	Accreditation has been removed from this result see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
DR	Dilution required.

[illegible]





## Jones Environmental Laboratory

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No.4225

<b>Attention :</b>	Michael Hazlehurst
<b>Date :</b>	24th June, 2011
<b>Your reference :</b>	UK22-16873
<b>Our reference :</b>	Test Report 11/4615 Batch 1
<b>Location :</b>	DPS
<b>Date samples received :</b>	13th June, 2011
<b>Status :</b>	Final report
<b>Issue :</b>	1

Sixteen samples were received for analysis on 13th June, 2011, which was completed on 24th June 2011. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

**J W Farrell- Jones CChem FRSC**  
**Chartered Chemist**

# **Jones Environmental Laboratory**

**Client Name:** Environ

**Report : Solid**

**Reference:** UK22-16873

**Location:** DPS

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

**Contact:** Michael Hazlehurst

**JE Job No.:** 11/4615

J E Sample No.	1-3	6-7	8-9	10-12	13-14	15-17	20-22	23-24	25-27	30-32	Please see attached notes for all abbreviations and acronyms		
Sample ID	DPS-BH01	DPS-BH02	DPS-BH02	DPS-SB01	DPS-SB01	DPS-SB02	DPS-SB03	DPS-SB03	DPS-SB04	DPS-SB05			
Depth	0.5	0.5	3.0-3.5	0-0.5	2.5-3.0	0-0.5	0.5-1.0	2.0-2.5	0.5-1.0	0.5-1.0			
COC No / misc													
Containers	V B	V	V	V B	V	V B	V B	V	V B	V B			
Sample Date	08/06/2011	08/06/2011	08/06/2011	08/06/2011	08/06/2011	08/06/2011	08/06/2011	08/06/2011	08/06/2011	08/06/2011			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	13/06/2011	13/06/2011	13/06/2011	13/06/2011	13/06/2011	13/06/2011	13/06/2011	13/06/2011	13/06/2011	13/06/2011	LOD	Units	Method No.
Antimony	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM30/PM15
Arsenic #	1.4	3.0	-	1.2	2.4	2.3	1.9	2.4	2.0	2.4	<0.5	mg/kg	TM30/PM15
Barium #	18	24	-	14	15	35	24	22	9	14	<1	mg/kg	TM30/PM15
Beryllium	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	mg/kg	TM30/PM15
Cadmium #	0.2	0.3	-	0.2	0.4	0.3	0.4	0.4	0.5	0.3	<0.1	mg/kg	TM30/PM15
Chromium #	10.5	14.8	-	7.8	20.0	20.0	19.8	22.6	19.2	15.9	<0.5	mg/kg	TM30/PM15
Cobalt #	1.3	2.0	-	0.9	2.6	2.6	2.0	2.4	1.0	2.2	<0.5	mg/kg	TM30/PM15
Copper #	10	15	-	12	16	17	18	21	8	12	<1	mg/kg	TM30/PM15
Lead #	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	mg/kg	TM30/PM15
Manganese #	42	67	-	40	70	71	56	62	61	68	<1	mg/kg	TM30/PM15
Mercury #	0.4	0.4	-	0.4	0.3	0.4	0.5	0.3	0.4	0.4	<0.1	mg/kg	TM30/PM15
Nickel #	12.6	15.1	-	6.6	23.2	21.8	24.7	28.4	10.7	18.5	<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	-	<1	1	<1	2	2	<1	<1	<1	mg/kg	TM30/PM15
Thallium	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM30/PM15
Tin	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM30/PM15
Total Sulphate	2992	3340	-	2248	4721	4916	2190	2333	1186	5384	<50	mg/kg	TM50/PM15
Vanadium	11	15	-	13	17	18	20	22	11	14	<1	mg/kg	TM30/PM15
Zinc #	31	49	-	17	56	55	53	62	30	41	<5	mg/kg	TM30/PM15
<b>PAH MS</b>													
Naphthalene #	<0.04	<0.04	-	<0.40	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	-	<0.30	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	-	<0.50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	-	<0.40	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	-	<0.30	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	-	<0.40	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	-	<0.30	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	-	<0.30	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benz(a)anthracene #	<0.06	<0.06	-	<0.60	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	-	<0.20	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	-	<0.70	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	-	<0.40	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	-	<0.40	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	-	<0.40	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	-	<0.40	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	-	<6.0	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	-	<0.50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	-	<0.20	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	93	98	-	101	109	106	100	112	118	124	<0	%	TM4/PM8
VOC TICs	-	-	-	-	-	-	ND	-	ND	ND		None	TM15/PM10
SVOC TICs	-	-	-	-	-	-	See Attached	-	See Attached	See Attached			TM10/PM8



# **Jones Environmental Laboratory**

**Client Name:** Environ  
**Reference:** UK22-16873  
**Location:** DPS  
**Contact:** Michael Hazlehurst  
**JE Job No.:** 11/4615

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	33-34	35-37									Please see attached notes for all abbreviations and acronyms		
Sample ID	DPS-SB05	DPS-SB06											
Depth	2.5-3.0	0-0.5											
COC No / misc													
Containers	V	V B											
Sample Date	08/06/2011	08/06/2011											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	13/06/2011	13/06/2011									LOD	Units	Method No.
Antimony	<1	1									<1	mg/kg	TM30/PM15
Arsenic #	4.0	6.1									<0.5	mg/kg	TM30/PM15
Barium #	30	14									<1	mg/kg	TM30/PM15
Beryllium	0.5	<0.5									<0.5	mg/kg	TM30/PM15
Cadmium #	0.3	0.5									<0.1	mg/kg	TM30/PM15
Chromium #	17.1	17.8									<0.5	mg/kg	TM30/PM15
Cobalt #	3.0	3.0									<0.5	mg/kg	TM30/PM15
Copper #	13	17									<1	mg/kg	TM30/PM15
Lead #	<5	<5									<5	mg/kg	TM30/PM15
Manganese #	95	82									<1	mg/kg	TM30/PM15
Mercury #	0.4	0.3									<0.1	mg/kg	TM30/PM15
Nickel #	18.5	24.1									<0.7	mg/kg	TM30/PM15
Selenium #	<1	2									<1	mg/kg	TM30/PM15
Thallium	<1	<1									<1	mg/kg	TM30/PM15
Tin	<1	<1									<1	mg/kg	TM30/PM15
Total Sulphate	1937	4505									<50	mg/kg	TM50/PM15
Vanadium	21	19									<1	mg/kg	TM30/PM15
Zinc #	41	55									<5	mg/kg	TM30/PM15
<b>PAH MS</b>													
Naphthalene #	<0.04	<0.04									<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03									<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05									<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04									<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	0.03									<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04									<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	0.05									<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	0.05									<0.03	mg/kg	TM4/PM8
Benz(a)anthracene #	<0.06	0.07									<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	0.07									<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	0.17									<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	0.07									<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	0.06									<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	0.06									<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	0.09									<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	0.7									<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	0.12									<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	0.05									<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	121	117									<0	%	TM4/PM8
VOC TICs	-	-										None	TM15/PM10
SVOC TICs	-	-											TM10/PM8

**Client Name:** Environ  
**Reference:** UK22-16873  
**Location:** DPS  
**Contact:** Michael Hazlehurst  
**JE Job No.:** 11/4615

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

6 of 13

# Jones Environmental Laboratory

**Client Name:** Environ  
**Reference:** UK22-16873  
**Location:** DPS  
**Contact:** Michael Hazlehurst  
**JE Job No.:** 11/4615

**VOC Report :** Solid

J E Sample No.	20-22	25-27	30-32								Please see attached notes for all abbreviations and acronyms		
Sample ID	DPS-SB03	DPS-SB04	DPS-SB05										
Depth	0.5-1.0	0.5-1.0	0.5-1.0										
COC No / misc													
Containers	V B	V B	V B										
Sample Date	08/06/2011	08/06/2011	08/06/2011										
Sample Type	Soil	Soil	Soil										
Batch Number	1	1	1										
Date of Receipt	13/06/2011	13/06/2011	13/06/2011								LOD	Units	Method No.
<b>VOC MS</b>													
Dichlorodifluoromethane	<2	<2	<2								<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether <sup>#</sup>	<2	<2	<2								<2	ug/kg	TM15/PM10
Chloromethane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2								<2	ug/kg	TM15/PM10
Bromomethane	<1	<1	<1								<1	ug/kg	TM15/PM10
Chloroethane <sup>#</sup>	<2	<2	<2								<2	ug/kg	TM15/PM10
Trichlorofluoromethane <sup>#</sup>	<2	<2	<2								<2	ug/kg	TM15/PM10
1,1-Dichloroethene <sup>#</sup>	<6	<6	<6								<6	ug/kg	TM15/PM10
Dichloromethane <sup>#</sup>	<7	<7	<7								<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
1,1-Dichloroethane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4								<4	ug/kg	TM15/PM10
Bromochloromethane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Chloroform <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
1,1-Dichloropropene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Carbon tetrachloride <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
1,2-Dichloroethane <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
Benzene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Trichloroethene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
1,2-Dichloropropane <sup>#</sup>	<6	<6	<6								<6	ug/kg	TM15/PM10
Dibromomethane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Bromodichloromethane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4	<4								<4	ug/kg	TM15/PM10
Toluene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Tetrachloroethene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
1,3-Dichloropropane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Dibromochloromethane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
1,2-Dibromoethane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Chlorobenzene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3	<3	<3								<3	ug/kg	TM15/PM10
Ethylbenzene <sup>#</sup>	18	<3	14								<3	ug/kg	TM15/PM10
p/m-Xylene <sup>#</sup>	<6	<6	<6								<6	ug/kg	TM15/PM10
o-Xylene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Styrene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Bromoform <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Isopropylbenzene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2								<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
Propylbenzene <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3								<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene <sup>#</sup>	<3	<3	<3								<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3								<3	ug/kg	TM15/PM10
tert-Butylbenzene <sup>#</sup>	<5	<5	<5								<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene <sup>#</sup>	<6	<6	<6								<6	ug/kg	TM15/PM10
sec-Butylbenzene <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
4-Isopropyltoluene <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
n-Butylbenzene <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane <sup>#</sup>	<4	<4	<4								<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene <sup>#</sup>	<7	<7	<7								<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4								<4	ug/kg	TM15/PM10
Naphthalene	<27	<27	<27								<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene <sup>#</sup>	<7	<7	<7								<7	ug/kg	TM15/PM10

***Jones Environmental Laboratory***

### SVOCs - Tentatively Identified Compounds (TICs)

<b>Job number:</b>	11/4615
<b>Sample number:</b>	22
<b>Sample identity:</b>	DPS-SB03
<b>Sample depth:</b>	0.5-1.0
<b>Sample Type:</b>	Soil
<b>Units:</b>	ug/kg

**Method**      **TM16/PM8**

**note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.**

Tentative Compound Identification (>80% match)	Retention Time (minutes)	Concentration
Benzenesulfonamide, N-ethyl-2-methyl-	9.57	138
Cyclic octaatomic sulfur	11.16	209



**SVOCs - Tentatively Identified Compounds (TICs)**

**Job number:** 11/4615  
**Sample number:** 27  
**Sample identity:** DPS-SB04  
**Sample depth:** 0.5-1.0  
**Sample Type:** Soil  
**Units:** ug/kg

**Method** TM16/PM8

**note:** Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

Tentative Compound Identification (>80% match)	Retention Time (minutes)	Concentration
Dodecane, 2,6,11-trimethyl-	8.83	200
Pentadecane	9.05	198
Benzenesulfonamide, N-ethyl-2-methyl-	9.56	490
Hexadecane	9.63	284
Methoxyacetic acid, 4-tetradecyl ester	9.91	325
Heptadecane	10.16	305
Octadecane	10.63	241
Hexadecane, 2,6,10,14-tetramethyl-	10.69	538
Nonadecane	11.06	408
Eicosane	11.46	202
Heneicosane	11.84	152

***Jones Environmental Laboratory***

### SVOCs - Tentatively Identified Compounds (TICs)

<b>Job number:</b>	11/4615
<b>Sample number:</b>	32
<b>Sample identity:</b>	DPS-SB05
<b>Sample depth:</b>	0.5-1.0
<b>Sample Type:</b>	Soil
<b>Units:</b>	ug/kg

**Method**      **TM16/PM8**

**note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.**

Tentative Compound Identification (>80% match)	Retention Time (minutes)	Concentration
Phenol, 2,4-bis(1,1-dimethylethyl)-	9.01	142
Benzenesulfonamide, N-ethyl-2-methyl-	9.56	615
Benzenesulfonamide, N-ethyl-4-methyl-	9.88	295
9-Octadecenamide, (Z)-	13.86	1308

## NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

### SOILS

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

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

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

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. If we are instructed to keep samples, a storage charge of £1 (1.5 Euros) per sample per month will be applied until we are asked to dispose of them.

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

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

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C

Asbestos screens where requested will be undertaken by a UKAS accredited laboratory.

### WATERS

Please note we are not a Drinking Water Inspectorate (DWI) Approved Laboratory. It is important that detection limits are carefully considered when requesting water analysis.

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

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples. All samples are treated as groundwaters and analysis performed on settled samples unless we are instructed otherwise.

### DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any analysis that may be compromised highlighted on your schedule/ report by the use of a symbol.

*The use of any of the following symbols indicates that the sample was deviating and the test result may be unreliable:*

\$	Sample temperature on receipt considered inappropriate for analysis requested.
^	Samples exceeding recommended holding times.
&	Samples received in inappropriate containers (e.g. volatile samples not submitted in VOC jars/vials).
~	No sampling date given, unable to confirm if samples are with acceptable holding times.

### SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130%. Results are not surrogate corrected.

### AQCs

Where AQC's fall outside UKAS/MCERTS criteria analysis is repeated if possible.

### NOTE

Data is only accredited when all the requirements of our Quality System have been met. In certain circumstances where the requirements have not been met, the laboratory may issue the data in its final report if it believes that the validity of the data has not been compromised but will remove the accreditation. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

**ABBREVIATIONS and ACRONYMS USED**

#	UKAS accredited.
M	MCERTS accredited.
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
SS	Calibrated against a single substance.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
W	Results expressed on as received basis.
+	Accreditation has been removed from this result see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
DR	Dilution required.

[illegible]

## **Annex E: ENVIRON Generic Assessment Criteria**

ANALYTE	ENVIRON GAC (Commercial)	UNIT
<b>Metals</b>		
Antimony	7,550	mg/kg
Arsenic	635	mg/kg
Barium	22,100	mg/kg
Beryllium	417	mg/kg
Cadmium	230	mg/kg
Chromium	35	mg/kg
Cobalt	NC	mg/kg
Copper	71,700	mg/kg
Lead	750	mg/kg
Manganese	NC	mg/kg
Mercury	4.3	mg/kg
Nickel	1,790	mg/kg
Selenium	13,000	mg/kg
Thallium	NC	mg/kg
Tin	NC	mg/kg
Total Sulphate	N/A	mg/kg
Vanadium	3,160	mg/kg
Zinc	665,000	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
<b>PAHs</b>		
Naphthalene	75	mg/kg
Acenaphthylene	162	mg/kg
Acenaphthene	56.7	mg/kg
Fluorene	160	mg/kg
Phenanthrene	21,900	mg/kg
Anthracene	522,000	mg/kg
Fluoranthene	22,600	mg/kg
Pyrene	54,300	mg/kg
Benz(a)anthracene	91	mg/kg
Chrysene	140.0	mg/kg
Benzo(bk)fluoranthene	102	mg/kg
Benzo(a)pyrene	14	mg/kg
Indeno(123cd)pyrene	61.0	mg/kg
Dibenzo(ah)anthracene	13	mg/kg
Benzo(ghi)perylene	658	mg/kg
PAH 16 Total	NC	mg/kg
Benzo(b)fluoranthene	102	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
Benzo(k)fluoranthene	143	mg/kg
PAH Surrogate % Recovery	NC	%

ANALYTE	ENVIRON GAC (Commercial)	UNIT
<b>Hydrocarbons</b>		
EPH >C8-C10	NC	mg/kg
EPH >C10-C20	NC	mg/kg
EPH >C20-C30	NC	mg/kg
EPH >C30-C40	NC	mg/kg
EPH >C8-C40	5,000	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
<b>PCBs</b>		
PCB 28	NC	mg/kg
PCB 52	NC	mg/kg
PCB 101	NC	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
PCB 118	NC	mg/kg
PCB 138	NC	mg/kg
PCB 153	NC	mg/kg
PCB 180	NC	mg/kg
Total 7 PCBs	0.24	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
<b>Others</b>		
Asbestos Screen	NC	
pH	NC	pH units
Sulphide	NC	mg/kg
Sulphate as SO <sub>4</sub> (2:1 Ext)	NC	g/l



ANALYTE	ENVIRON GAC (Commercial)	UNIT
<b>SVOCs</b>		
2-Chlorophenol	3,590	mg/kg
2-Methylphenol	14,200	mg/kg
2-Nitrophenol	910	mg/kg
2,4-Dichlorophenol	3,530	mg/kg
2,4-Dimethylphenol	1,330	mg/kg
2,4,5-Trichlorophenol	2,300	mg/kg
2,4,6-Trichlorophenol	848	mg/kg
4-Chloro-3-methylphenol	8,333	mg/kg
4-Methylphenol	25,800	mg/kg
4-Nitrophenol	1,000	mg/kg
Pentachlorophenol	1,230	mg/kg
Phenol	3,200	mg/kg
2-Chloronaphthalene	113	mg/kg
2-Methylnaphthalene	7,148	mg/kg
Bis(2-ethyl-hexyl) phthalate	85,400	mg/kg
Butylbenzyl phthalate	942,000	mg/kg
Di-n-butyl phthalate	12.9	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
Di-n-Octyl phthalate	89,100	mg/kg
Diethyl phthalate	109	mg/kg
Dimethyl phthalate	275	mg/kg
1,2-Dichlorobenzene	562	mg/kg
1,2,4-Trichlorobenzene	123	mg/kg
1,3-Dichlorobenzene	177	mg/kg
1,4-Dichlorobenzene	221	mg/kg
2-Nitroaniline	651	mg/kg
2,4-Dinitrotoluene	3,750	mg/kg
2,6-Dinitrotoluene	1,860	mg/kg
3-Nitroaniline	200	mg/kg
4-Bromophenylphenylether	0.9	mg/kg
4-Chloroaniline	2,300	mg/kg
4-Chlorophenylphenylether	0.3	mg/kg
4-Nitroaniline	170	mg/kg
Azobenzene	151	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
<b>SVOCs (continued)</b>		
Bis(2-chloro-ethoxy)methane	1.3	mg/kg
Bis(2-chloro-ethyl)ether	0.2	mg/kg
Carbazole	897	mg/kg
Dibenzofuran	6,666	mg/kg
Hexachlorobenzene	0.1	mg/kg
Hexachlorobutadiene	17.6	mg/kg
Hexachlorocyclopentadiene	1	mg/kg
Hexachloroethane	8.1	mg/kg
Isophorone	887	mg/kg
N-nitrosodi-n-propylamine	1.9	mg/kg
Nitrobenzene	131	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
<b>VOCs</b>		

ANALYTE	ENVIRON GAC (Commercial)	UNIT
1,1,1,2-Tetrachloroethane	62.7	mg/kg
1,1,1-Trichloroethane	391	mg/kg
1,1,2,2-Tetrachloroethane	156	mg/kg
1,1,2-Trichloroethane	51.1	mg/kg
1,1-Dichloroethane	148	mg/kg
1,1-Dichloroethene	NC	mg/kg
1,1-Dichloropropene	12.8	mg/kg
1,2,3-Trichlorobenzene	56.8	mg/kg
1,2,3-Trichloropropane	3.14	mg/kg
1,2,4-Trichlorobenzene	123	mg/kg
1,2,4-Trimethylbenzene	NC	mg/kg
1,2-Dibromo-3-chloropropane	1.03	mg/kg
1,2-Dibromoethane	NC	mg/kg
1,2-Dichlorobenzene	562	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
1,2-Dichloroethane	0.35	mg/kg
1,2-Dichloropropane	1.72	mg/kg
<b>VOCs (continued)</b>		
1,3,5-Trimethylbenzene	1.28	mg/kg
1,3-Dichlorobenzene	17.7	mg/kg
1,3-Dichloropropane	12.8	mg/kg
1,4-Dichlorobenzene	221	mg/kg
2,2-Dichloropropane	20.4	mg/kg
2-Chlorotoluene	NC	mg/kg
4-Chlorotoluene	1.41	mg/kg
4-Isopropyltoluene	388	mg/kg
Benzene	15.8	mg/kg
Bromobenzene	NC	mg/kg
Bromochloromethane	1.10	mg/kg
Bromodichloromethane	1.10	mg/kg
Bromoform	417	mg/kg
Bromomethane	27.0	mg/kg
Carbon tetrachloride	1.74	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
Chlorobenzene	32.8	mg/kg
Chloroethane	567	mg/kg
Chloroform	57.3	mg/kg
Chloromethane	0.5	mg/kg
cis-1-2-Dichloroethene	7.74	mg/kg
cis-1-3-Dichloropropene	19.3	mg/kg
Dibromochloromethane	264	mg/kg
Dibromomethane	NC	mg/kg
Dichlorodifluoromethane	1,500	mg/kg
Dichloromethane	NC	mg/kg
Ethylbenzene	508	mg/kg
Hexachlorobutadiene	17.6	mg/kg
Isopropylbenzene	753	mg/kg
Methyl Tertiary Butyl Ether	NC	mg/kg
Naphthalene	75.0	mg/kg
n-Butylbenzene	430	mg/kg

ANALYTE	ENVIRON GAC (Commercial)	UNIT
o-Xylene	467	mg/kg
p/m-Xylene	564	mg/kg
<b>VOCs (continued)</b>		
Propylbenzene	399	mg/kg
sec-Butylbenzene	1,300	mg/kg
Styrene	607	mg/kg
tert-Butylbenzene	440	mg/kg
Tetrachloroethene	72.2	mg/kg
Toluene	835	mg/kg
trans-1-2- Dichloroethene	12.3	mg/kg
trans-1-3- Dichloropropene	12.8	mg/kg
Trichloroethene	6.61	mg/kg
Trichlorofluorometha ne	2,200	mg/kg
Vinyl Chloride	0.04	mg/kg

Note: GACS presented were applicable in August 2011.



## **Section 2 – Waste Management Plan**

Covering EP Conditions: 2.16.5.4



RVA GROUP

Decommissioning,  
decontamination,  
dismantling and demolition  
consulting engineers

## **Site Waste Management Plan**

**For the Enemalta Corporation**

**Delimara Power Station  
at Delimara, Malta**



## **Delimara Power Station, Delimara, Marsaxlokk**

## DOCUMENT ISSUE/AMENDMENT CERTIFICATE

Date	Author	Checker	Revision	Amendment
22/08/2011	M Taylor	I Wharton	000	Draft
04/09/2014	M Taylor	I Wharton	001	For Phase 1 Dismantling



**ENEMALTA CORPORATION**  
**DELIMARA POWER STATION, DELIMARA, MARSAXLOKK**

**WASTE MANAGEMENT PLAN**

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<b>Client:</b>	Enemalta Corporation
<b>Person Drafting this SWMP:</b>	Mark Taylor
<b>Site Location:</b>	Delimara Power Station, Delimara, Marsaxlokk, Malta
<b>Description of Proposed Works:</b>	Waste Estimates for Demolition, Dismantling, Clearance of Process Plant structures, Buildings, Equipment, and Foundation Removal at Delimara Power Station to Support the Station Outline Decommissioning Plan
<b>Estimated Cost of Project:</b>	N/A for this version

### **Introduction**

This Site Waste Management Plan (SWMP) applies to all demolition activities for the Delimara Power Station (DPS) but excludes the proposed new Gas Plant and Gas Reception Facility

DPS is situated in the south easterly part of the island and was first commissioned in 1992, and consists of the following units:

	Units	Commissioned
Phase 1	2 x 60MW Conventional Steam Boiler/Turbine units	1992
Phase 2a	2 x 37MW Open Cycle Gas Turbines	1994
Phase 2b	1 x 110MW Combined-Cycle Plant. 2 x 37MW Gas Turbines, 2 x Heat Recovery Steam Generators, 1 x 36MW Steam Turbine	1999
Phase 3	8 x Diesel Engines, 1 x 13MW Steam Turbine unit	Due 2012

The final total generation capacity of this station stands at 448MW.

Phase 1 consists of 2 steam units each consisting of a boiler, a steam turbine and a generator with a capacity of 60 MW. The fuel is Heavy Fuel Oil (HFO). The plant runs

at base load. It is proposed that the Power Generating plant of Phase 1 is removed in the near future. The following is the list of the plant which will be removed:

1. 2no. Waagner Biro Steam Boilers rated at 260T/H steam flow fired by Heavy Fuel Oil
2. 2no. BHEL Steam Turbines/Generators rated at 60MW output with all auxiliary equipment found inside the Turbine Hall.
3. Phase 1 Chimney, (consisting of chimneys D1A and D1B 150m high with concrete wind shield).

The Turbine Hall structure and site service electrical systems (including the pipebridge between the Boilers and the Turbine Hall) are not included in the removal works. The values in brackets in the SWMP are those for the Phase 1 Power Generating plant which is proposed to be removed – these need to be subtracted from the none bracketed values once the work has been executed.

Phase 2a consists of 2 open cycle gas turbine / generator units each rated at 37.5 MW. The fuel is gas oil and the plant is used for peak loads. This plant may also be used for synchronous compensation.

Phase 2b consists of a combined cycle gas turbine block consisting of 2 gas turbines, 2 heat recovery steam generators and a steam turbine and associated generators with a total capacity of 110 MW. The fuel is gas oil and the plant is used for mid-range loads.

Phase 3 consist of 8 Wartsila 18V46 medium speed diesel engines capable of burning HFO and gas oil, and a 13MW steam turbine which is operated by steam generated by boilers which recover heat from the exhaust of the diesel engines. The power plant incorporates 8 Selective Catalytic Reduction units (SCR), and 4 de-sulphurisation units.

### **Terms of Reference**

The SWMP assumes that all decommissioning and decontamination work has been completed and that all chemicals and process material has been removed under the existing site operating and maintenance procedures.

On the section of the site that has been constructed on the made land to the west, foundation removal quantities include for the ground slabs and shallow foundations (up to 1m deep). This SWMP assumes that the quay structure remains.

Where foundations have been constructed onto the natural rock strata (to the east of the site) then the foundation removal quantities only include for the ground slabs and the top 0.5m of the foundations. This is standard industry practice unless there is a defined future use of the site that requires the full removal of the foundations. Any remaining buried structures will need to be documented and recorded.

### **Waste and the Waste Hierarchy**

Waste is defined in Article 1 (1) (a) of the Waste Framework Directive (2008/98/EC) and means.... "any substance or object ....which the holder discards or intends or is required to discard". All waste that falls within the scope of this definition will be recorded in the Site Waste Management Plan.

Waste is widely defined and includes excess unwanted materials, effluents, unwanted surplus substances arising from the application of any process and any substance or article which is broken, worn out, contaminated or otherwise damaged. Waste becomes controlled by legislation when it is discarded by the holder. Materials sold for re-use or re-cycling are still classified as waste and subject to all the statutory controls, including Duty of Care.

The European Commission Decision 2000/532/EC1 established a list of wastes. The list of waste has been used to determine what wastes are considered as hazardous waste. A substance or object has only been considered as waste if it conformed to the definition in regulation 4 of the Waste Regulations 2011 (L.N.184 of 2011).

All waste on DPS will be dealt with in accordance with the waste Duty of Care which is a legal requirement under regulation 12 of Waste Regulations 2011 (L.N.184 of 2011) and states that materials will be handled efficiently to minimise wastage and that all waste arising from the site will be managed appropriately.

The Waste Hierarchy has been applied when formulating this Site Waste Management Plan:

- Prevention
- Reuse

- Recycle
- Recovery
- Disposal

Where practical waste has been selected for reuse and recycling. Only when all other routes had been exhausted has waste been designated for landfill.

### **Waste Types**

The waste types that have been identified and documented in Table 1 for the Delimara Power Station are those which are expected to be produced during the demolition of the site. Table 2 further breaks these figures down into geographical areas (see Appendix A). This is to give greater knowledge and understanding of the site and to also allow for better detailed planning depending on demolition scheduling. Each identified waste has a European Waste Catalogue Code (EWC).

### **Waste Segregation**

The waste streams will be segregated along the lines of the waste item and not the code as some items share the same code but require different treatment/conditioning/disposal options. All waste will be segregated at the workplace or in a processing area and will then be stockpiled. Types of stockpiling can range from clearly labelled containers (bins, skips, buildings), to open fenced areas. The majority of any processing done on site will be solely to enable segregation and to aid transportation. The only exception to this will be materials to be re-cycled for use on site (see below). Therefore any treatment, conditioning, or recovery will be performed off-site either on Malta or abroad (see Table 1).

### **Processing, Transportation, and Disposal (Recovery)**

The concrete/brickwork will be re-cycled on site by utilising a mobile crushing machine to process it to an engineering grade fill, a typical example is crushed and sieved material of maximum size 75mm. This fill will be utilised to fill voids and hollows on the site.

All waste disposed off on Malta will be transported and disposed of by appropriate licensed entities as described in the Waste Regulations 2011 (L.N.184 of 2011). All waste to be shipped off the island will also follow the requirements of the regulations

but will either be shipped from existing ports or for bulk material directly from the Delimara quay.

### **Definitions**

“Waste Holder” means “the producer of the waste or the natural or legal person who is in possession of it”. It rests, in the first place, with the producer or holder of a substance or object to decide whether it is being discarded and is waste.

“Carrier” means the person who collects and carries out the transport.

“Consignment note” means a note that is to accompany the consignment of hazardous or non-hazardous waste.

“Disposal” means any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy.

“Non Hazardous Waste” means all waste that does not display one or more of the hazardous properties listed in Schedule 3 of the Waste Regulations 2011 (L.N.184 of 2011). Examples can include paper, plastic, wood, domestic waste, metal and glass.

“Hazardous Waste” means waste which displays one or more of the hazardous properties listed in Schedule 3 of the Waste Regulations 2011 (L.N.184 of 2011).

“Inert” means material of an insoluble mineral nature i.e. glass, concrete, brick, stone, tiles, ceramics, glass fibre material, some soils.

“Recovery” means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

“Recycling” means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

“Re-use” means any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

“Treatment” means recovery or disposal operations, including preparation prior to recovery or disposal.

“Waste Producer” means anyone whose activities produce waste (original waste producer) or anyone who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of this waste.



## DPS Waste Totals

TABLE 1													
Type of material	Materials						Schedule 2 Coding	Reuse, Re-manufacturing, Recycling and Energy Recovery					Disposal/Carrier
	EWC Code	Estimates		Inert	Hazardous	Non-Hazardous		On-site Reuse and Recycling		Off-site Reuse, Recycling or Recovery			Specify the type of landfill and disposal company
		m <sup>3</sup>	Tonnes					Specify the process	Quantity	Specify the process	Quantity	Location	Specify the waste license carrier.
<b>Soft Strip</b>													
Glass	17 02 02	19 (1)		Y		Y	R5			Re-cycle	19	Abroad	
Plasterboard	17 08 02	58				Y	D1 R5			Re-cycle	58	Abroad	Otherwise Landfill Malta (e.g. Ghallis)
Suspended Ceilings (alumin. tiles,etc.) & Floor Tiles	17 09 04	58				Y	D1 R5			Re-cycle	58	Abroad	Otherwise Landfill Malta (e.g. Ghallis)
Timber (incl. furniture)	17 02 01	403				Y	R3			Re-cycle	453	Abroad	
Paper and Cardboard	20 01 01	0				Y	R3			Re-cycle	0	Abroad	





TABLE 1													
Type of material	Materials						Schedule 2 Coding	Reuse, Re-manufacturing, Recycling and Energy Recovery					Disposal/Carrier
	EWC Code	Estimates		Inert	Hazardous	Non-Hazardous		On-site Reuse and Recycling		Off-site Reuse, Recycling or Recovery			Specify the type of landfill and disposal company
		m <sup>3</sup>	Tonnes					Specify the process	Quantity	Specify the process	Quantity	Location	Specify the waste license carrier.
Lights	20 01 21*	28 (2)			Y		R3 R4			Re-cycle	38	Abroad	
Waste Electrical & Electronic Equipment	16 02 14	23 (4)				Y	R4			Recovery	23	Abroad	
<b>Demolition Waste</b>													
Cable	17 04 11		166 (60)			Y	R4			Recovery	166	Abroad	
Cable – Oil Filled	17 04 10*		40		Y		R4 R9			Recovery & Re-cycle	40	Abroad	
Transformer Oils	13 03 10*		373 (68)		Y		R9			Re-use	373	Abroad	
Waste Oils	13 02 08* 13 07 01*		546 (23)		Y		R9			Re-cycle & Re-use	546	Abroad	



TABLE 1													
Type of material	Materials						Schedule 2 Coding	Reuse, Re-manufacturing, Recycling and Energy Recovery					Disposal/Carrier
	EWC Code	Estimates		Inert	Hazardous	Non-Hazardous		On-site Reuse and Recycling		Off-site Reuse, Recycling or Recovery			Specify the type of landfill and disposal company
		m <sup>3</sup>	Tonnes					Specify the process	Quantity	Specify the process	Quantity	Location	Specify the waste license carrier.
Batteries	16 06 01*	2055 No.			Y		R4 R6			Re-cycle	2055 No.	Abroad	
Insulation/Mineral wool	17 06 04	5614 (1600)				Y	R5 D1			Re-cycle	5614	Abroad	Otherwise Landfill Malta (e.g. Ghallis)
Calcium Silicate	17 06 03	50 (50)			Y		D1					Abroad	Otherwise Landfill Malta (e.g. Ghallis)
Ceramic Fibres	17 06 03*		0.8		Y		D1						Landfill Malta (e.g. Ghallis)
Refractory	16 11 06	30 (20)				Y	R5			Re-cycle	30	Abroad	
Ash and Coal Dust (Waste Hydrocarbon Solids)	10 01 04*	0			Y		D9						Abroad
Urea	16 10 02	0				Y	R3			Re-use	0	Abroad	



TABLE 1													
Type of material	Materials						Schedule 2 Coding	Reuse, Re-manufacturing, Recycling and Energy Recovery					Disposal/Carrier
	EWC Code	Estimates		Inert	Hazardous	Non-Hazardous		On-site Reuse and Recycling		Off-site Reuse, Recycling or Recovery			Specify the type of landfill and disposal company
		m <sup>3</sup>	Tonnes					Specify the process	Quantity	Specify the process	Quantity	Location	Specify the waste license carrier.
Plastics	17 02 03	20 (3)				Y	R5			Re-cycle	20	Abroad	
Fibreglass	10 11 03	0		Y		Y	D1						Landfill Malta (e.g. Ghallis)
Metal Cladding	17 04 05		280			Y	R4			Recovery	280	Abroad	
Foam insulation (CFC, HCFC, Propane)	17 06 03*	561			Y		D9						Abroad
Sand/Bitumen	17 03 01*	100			Y		D1						Landfill Malta (e.g. Ghallis)
Stone	17 01 02	800		Y		Y	R5			Recovery	800	Malta	
Concrete/Brick work	17 01 07	11102 (2900)		Y		Y	R5	Re-cycle (graded crush)	11102				



TABLE 1													
Type of material	Materials						Schedule 2 Coding	Reuse, Re-manufacturing, Recycling and Energy Recovery					Disposal/Carrier
	EWC Code	Estimates		Inert	Hazardous	Non-Hazardous		On-site Reuse and Recycling		Off-site Reuse, Recycling or Recovery			Specify the type of landfill and disposal company
		m <sup>3</sup>	Tonnes					Specify the process	Quantity	Specify the process	Quantity	Location	Specify the waste license carrier.
<b>Scrap Metal</b>													
Carbon Steel	17 04 05		18523 (4000)			Y	R4			Recovery	18523	Abroad	
Stainless Steel	17 04 05		27 (60)			Y	R4			Recovery	27	Abroad	
Copper	17 04 01		455 (160)			Y	R4			Recovery	385	Abroad	
Admiralty Brass	17 04 01		69 (69)			Y	R4			Recovery	92	Abroad	
Muntz Metal (Cu/Zn - 60/40)	17 04 01		40			Y	R4			Recovery	40	Abroad	
Aluminium	17 04 02		55 (38)			Y	R4			Recovery	22	Abroad	
Titanium	17 04 07		20			Y	R4			Recovery	20	Abroad	



TABLE 1													
Type of material	Materials						Schedule 2 Coding	Reuse, Re-manufacturing, Recycling and Energy Recovery					Disposal/Carrier
	EWC Code	Estimates		Inert	Hazardous	Non-Hazardous		On-site Reuse and Recycling		Off-site Reuse, Recycling or Recovery			Specify the type of landfill and disposal company
		m <sup>3</sup>	Tonnes					Specify the process	Quantity	Specify the process	Quantity	Location	Specify the waste license carrier.
High Nickel Alloys	17 04 07		3.4 (3)			Y	R4			Recovery	0.4	Abroad	
Foundations													
Concrete	17 01 01	17505		Y		Y	R5	Re-cycle (graded crush)	17505				
Steel	17 04 05		201			Y	R4			Recovery	201	Abroad	
Tarmac	17 03 01*	2652			Y		R3			Re-cycle	2652	Abroad	



## **DPS Area Totals**

<b>TABLE 2</b>					
Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
<b>AREA 1</b>					
<b><i>Soft Strip</i></b>					
Glass	8		Y		Y
Plasterboard	25				Y
Suspended Ceilings & Floor Tiles	16				Y
Timber (incl furniture)	50				Y
Lights	6			Y	
Waste Electrical & Electronic Equipment	10				Y
<b><i>Demolition Waste</i></b>					
Cable		4			Y
Transformer Oils		0.2		Y	
Waste Oils		0.1		Y	
Insulation/Mineral wool	5				Y
Plastics	5				Y
Cladding		40			Y
Foam insulation (CFC, HCFC, propane)	120			Y	
Stone	540		Y		Y
Concrete/Brickwork/Porcelain	2240		Y		Y
<b><i>Scrap Metal</i></b>					
Carbon Steel		115			Y
<b><i>Foundations</i></b>					



TABLE 2					
Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
Concrete	2552		Y		Y
Steel		40			Y
Tarmac	600			Y	
<b>AREA 2</b>					
<b><i>Soft Strip</i></b>					
Glass	4		Y		Y
Plasterboard	18				Y
Suspended Ceilings & Floor Tiles	32				Y
Timber (incl furniture)	80				Y
Lights	3			Y	
Waste Electrical & Electronic Equipment	2				Y
<b><i>Demolition Waste</i></b>					
Cable		35			Y
Cable Oil Filled		40		Y	
Transformer Oils		67		Y	
Waste Oils		0.25		Y	
Batteries	226 No.			Y	
Insulation/Mineral wool	44				Y
Plastics	2				Y
Cladding		36			Y
Foam insulation (CFC, HCFC, propane)	106			Y	
Stone	130		Y		Y


**TABLE 2**

Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
Concrete/Brickwork/Porcelain	730		Y		Y
<b>Scrap Metal</b>					
Carbon Steel		1800			Y
Stainless Steel		10			Y
Copper		54			Y
<b>Foundations</b>					
Concrete	1100		Y		Y
Steel		18			Y
Tarmac	140			Y	
<b>AREA 3</b>					
<b>Soft Strip</b>					
Glass	4 (1)		Y		Y
Plasterboard	8				Y
Suspended Ceilings & Floor Tiles	6				Y
Timber (incl furniture)	80				Y
Lights	15 (2)			Y	
Waste Electrical & Electronic Equipment	8 (4)				Y
<b>Demolition Waste</b>					
Cable		60 (5)			Y
Transformer Oils		98 (68)		Y	
Waste Oils		23 (23)		Y	
Batteries	528 No.			Y	




**TABLE 2**

Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
Insulation/Mineral wool	1800 (1600)				Y
Calcium Silicate	50 (50)			Y	
Refractory	20 (20)				Y
Plastics	5 (3)				Y
Cladding		70			Y
Foam insulation (CFC, HCFC, propane)	220			Y	
Stone	100		Y		Y
Concrete/Brickwork/Porcelain	3232 (2900)		Y		Y
<b>Scrap Metal</b>					
Carbon Steel		4900 (4000)			Y
Copper		180 (160)			Y
Admiralty. Brass		69 (69)			Y
Aluminum		40 (38)			Y
Stainless Steel		60 (60)			Y
High Nickel Alloy		3 (3)			Y
<b>Foundations</b>					
Concrete	5000		Y		Y
Steel		30			Y
Tarmac	550			Y	
<b>AREA 4</b>					
<b>Soft Strip</b>					
Glass	1		Y		Y


**TABLE 2**

Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
Plasterboard	2				Y
Suspended Ceilings & Floor Tiles	1				Y
Timber (incl furniture)	25				Y
Lights	2			Y	
Waste Electrical & Electronic Equipment	1				Y
<b>Demolition Waste</b>					
Cable		20			Y
Transformer Oils		59		Y	
Waste Oils		36		Y	
Batteries	472 No.			Y	
Insulation/Mineral wool	350				Y
Ceramic Fibres		0.4		Y	
Refractory	10				Y
Plastics	4				Y
Cladding		17			Y
Foam insulation (CFC, HCFC, propane)	115			Y	
Concrete/Brickwork/Porcelain	300		Y		Y
<b>Scrap Metal</b>					
Carbon Steel		1992			Y
Stainless Steel		15			Y
Copper		50			Y
Muntz metal (Cu/Zn – 60/40)		40			Y



TABLE 2					
Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
Aluminum		3			Y
High Nickel Alloys		0.2			Y
<b>Foundations</b>					
Concrete	1053		Y		Y
Steel		10			Y
Tarmac	500			Y	
<b>AREA 5</b>					
<b>Soft Strip</b>					
Glass	1		Y		Y
Plasterboard	2				Y
Suspended Ceilings & Floor Tiles	1				Y
Timber (incl furniture)	50				Y
Lights	4			Y	
Waste Electrical & Electronic Equipment	1				Y
<b>Demolition Waste</b>					
Cable		40			Y
Transformer Oils		114		Y	
Waste Oils		60		Y	
Batteries	356 No.			Y	
Insulation/Mineral wool	3250				Y
Plastics	2				Y
Cladding		120			Y



TABLE 2					
Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
Concrete/Brickwork/Porcelain	1300		Y		Y
<b>Scrap Metal</b>					
Carbon Steel		6500			Y
Copper		123			Y
Titanium		20			Y
Aluminum		10			Y
<b>Foundations</b>					
Concrete	3230		Y		Y
Steel		50			Y
Tarmac	272			Y	
<b>AREA 6</b>					
<b>Soft Strip</b>					
Glass	0.5		Y		Y
Plasterboard	2				Y
Suspended Ceilings & Floor Tiles	1				Y
Timber (incl furniture)	10				Y
Lights	0.5			Y	
Waste Electrical & Electronic Equipment	0.5				Y
<b>Demolition Waste</b>					
Cable		4			Y
Transformer Oils		33		Y	
Waste Oils		17		Y	


**TABLE 2**

Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
Batteries	149 No.			Y	
Insulation/Mineral wool	15				Y
Ceramic Fibres		0.4		Y	
Concrete/Brickwork/Porcelain	100		Y		Y
<b>Scrap Metal</b>					
Carbon Steel		530			Y
Copper		39			Y
High Nickel Alloys		0.2			Y
<b>Foundations</b>					
Concrete	470		Y		Y
Steel		7			Y
Tarmac	190			Y	
<b>AREA 7</b>					
<b>Soft Strip</b>					
Plasterboard	1				Y
Suspended Ceilings & Floor Tiles	1				Y
Timber (incl furniture)	5				Y
Lights	0.5			Y	
<b>Demolition Waste</b>					
Cable		1			Y
Transformer Oils		0.1		Y	
Waste Oils		0.5		Y	



TABLE 2					
Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
Batteries	54 No.			Y	
Cladding		7			Y
Stone	30		Y		Y
Concrete/Brickwork/Porcelain	100		Y		Y
<b>Scrap Metal</b>					
Carbon Steel		216			Y
Copper		4			Y
<b>Foundations</b>					
Concrete	600		Y		Y
Steel		8			Y
Tarmac	220			Y	
<b>AREA 8</b>					
<b>Soft Strip</b>					
Timber (incl furniture)	10				Y
Lights	0.5			Y	
Waste Electrical & Electronic Equipment	1				Y
<b>Demolition Waste</b>					
Cable		1			Y
Transformer Oils		0.1		Y	
Waste Oils		8		Y	
Insulation/Mineral wool	150				Y
Plastics	2				Y


**TABLE 2**

Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
Concrete/Brickwork/Porcelain	500		Y		Y
<b>Scrap Metal</b>					
Carbon Steel		250			Y
Stainless Steel		2			Y
Copper		4			Y
Aluminium		2			Y
<b>Foundations</b>					
Concrete	400		Y		Y
Steel		5			Y
Tarmac	180			Y	
<b>AREA 9</b>					
<b>Demolition Waste</b>					
Cable		0.5			Y
Waste Oils		400		Y	
Sand/bitumen	100			Y	
Concrete/Brickwork/Porcelain	200		Y		Y
<b>Scrap Metal</b>					
Carbon Steel		1000			Y
<b>Foundations</b>					
Concrete	200		Y		Y
Steel		3			Y
Tarmac	0			Y	



TABLE 2					
Type of material	Materials				
	Estimates		Inert	Hazardous	Non-Hazardous
	m <sup>3</sup>	Tonnes			
<b>AREA 10</b>					
<b><i>Demolition Waste</i></b>					
Cable		0.5			Y
Transformer Oils		1.4		Y	
Waste Oils		1		Y	
Batteries	270 No.			Y	
Concrete/Brickwork/Porcelain	1600		Y		Y
<b><i>Scrap Metal</i></b>					
Carbon Steel		1220			Y
Copper		1			Y
<b><i>Foundations</i></b>					
Concrete	2900		Y		Y
Steel		30			Y





## APPENDIX A – DPS Area Plan

