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**Aberdeen Harbour Expansion
Project**

**CEMD Appendix 1
Ground Gas and Groundwater Report
Phase II Site Investigation Risk
Assessment**

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This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 235352



Phase II Site Investigation Risk assessment: Nigg Bay Harbour Development, Aberdeen

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1 INTRODUCTION

1.1 Background

EnviroSurveying Ltd (ESL) was commissioned by Aberdeen Harbour (client) to undertake a risk assessment of data collected as part of the site investigation at Nigg Bay in 2015 and 2016 to determine whether contamination of the land has occurred and whether this would affect development works.

Aberdeen Harbour Board has recognised the need to expand the existing harbour facilities to provide increased capacity and the ability to accommodate larger vessels. Since 2012 an area at Nigg Bay has been identified as the preferred location for this. Feasibility, consultation and design studies have been taking place since then. Planning Permission in Principle was awarded in May 2016 for a National Development project to create a deep water harbour and associated infrastructure within Nigg Bay (Planning reference:151742). Due to the extensive infrastructure works that will be required for this development the need for environmental monitoring was highlighted within the EIA (Environmental Impact Assessment) published in 2015. Engineering works to assess the geotechnical and environmental challenges for the project took place in 2013 and 2015. These works included trial pitting and installation of boreholes across the whole bay area (land and sea). The boreholes and trial pits undertaken by Soil Engineering in 2015 included collection of soil samples from carefully selected locations across the site and submitted for lab analysis for a wide range of chemicals.

These locations were evenly spaced across the site and included 23 trial pits, 30 cable & percussion/rotary boreholes in 2015.

EnviroSurveying Ltd were not involved at the site investigation stage but have been contracted to risk assess the available data with regards to current contaminated land guidance to determine whether the ground poses any risk to human health for the planned commercial re-development. It was known that there was extensive lab analysis data from 31 soils. However, there was no gas or groundwater quality data. Therefore this was instructed to take place during the summer of 2016 to further facilitate risk assessment of the site.

In addition chemical analysis was undertaken from a wide range of seabed samples of material dredged from the bay itself. This was for the purposes of environmental and geotechnical assessment. The intention is to re-use a large proportion of the dredged material on the land as fill material during the construction works. The environmental impact of this material was therefore also assessed.

The investigation/interpretation is requested by the Environmental Health Department, Aberdeen City Council (the Council) due to their obligations under Part IIA of the Environment Protection Act 1990. Since the site is to be developed the site also requires to be investigated under the Town and Country Planning Act (Scotland) 1997 in order to determine "material considerations" such as that defined by PAN33 (Development of Contaminated Land) and PAN51 (Planning and Environmental Protection). PAN33 places a duty upon the Local Authority to consider the potential for contamination during review of a planning application. The proposed risk assessment will also focus on determining whether there is a significant risk that the land at the site represents a risk to sensitive site receptors. This will ensure that the site is suitable for the intended purpose and that there is no "significant harm being caused or significant possibility of significant harm being caused" (SPOSH) as defined by Part II of the Environmental Protection Act after revision in

1995. This is not necessarily defined by an exceedance of SGV values which define the level of minimum risk rather than the unacceptable intake level.

1.2 Scope of works

Works carried out by Soil Engineering under supervision of Arch Henderson (AH) in 2015 will be annotated as (SE). Works carried out to undertake gas monitoring and groundwater collection undertaken by Northern Soil Surveys under joint instruction by Aberdeen Harbour and ESL will be annotated (NSS). On-water drilling will be annotated VC/RC. Works carried out by EnviroSurveying Ltd will be annotated (ESL). The specific scope of the intrusive work was as follows:

- Dig 23 trial pits across the site, log these and collect soil samples for later analysis (SE)
- Drill 30 C&P boreholes (some then progressed deeper as Rotary boreholes) across the site at pre-agreed locations (SE)
- Install 11 boreholes with standpipe suitable for gas and groundwater monitoring (SE)
- 33 on-water boreholes to be drilled in the bay itself and samples collected for lab analysis(VC/RC)
- Specify soil analysis suite for 31 samples collected from the site, to be submitted immediately to SAL labs (SE & AH)
- Specification of gas monitoring and potential groundwater monitoring following review of logs (ESL)
- Gas monitoring of 11 boreholes installed above plus 4 Council boreholes for a minimum of 6 rounds (NSS)
- Collection of an initial round of groundwater for analysis from selected locations (NSS)
- Risk assessment of soil chemical lab data, gas monitoring data and groundwater data (ESL)
- Risk assessment of dredged material chemical data for re-use on land (ESL)
- Soil values will be compared to either Soil Guideline Values (2009 SGVs) where available or 2009 LQM CIEH GAC/ 2015 LQM S4UL's criteria (using latest EA values as available);
- Groundwater data will be assessed in accordance with WAT-PS-10-01
- Gas data will be risk assessed in accordance with CIRIA C667
- all information collected from the intrusive site works, will be presented in the form of a site investigation report which will contain the qualitative risk assessment, interpretation of risk to receptors and a site conceptual model. This should be read in conjunction with the SE 2013 and 2015 reports already provided (ESL)
- At this stage groundwater analysis is not planned unless the soils results and site conditions indicate a need for it.
- All works will be carried out to BS10175:2011 and are covered by comprehensive public liability and professional indemnity insurance cover.

1.3 Report structure

The results of all the work carried out to date are presented in this report which is structured as follows:

- Section 2, Site location;
- Section 3, Intrusive site investigation;
- Section 4, Methods for Risk assessment
- Section 5, Results of intrusive site investigation land based data;
- Section 6, Results of intrusive site investigation on-water core data;
- Section 7- ground gas risk assessment
- Section 8, groundwater risk assessment
- Section 9, Updated CSM risk assessment
- Section 10, Discussion
- Section 11, Conclusions & Recommendations
- Section 12, References
- Section 13, Disclaimer

2 SITE LOCATION

The site is located in Nigg Bay, which is bounded by Greyhope Rd and Coast Road, and starts at the east end of St. Fitticks Rd. It lies some 6km SE of the city centre, with a golf course to the north, a sewage treatment plant and fish waste processor to the west, and a closed landfill to the SW as nearest neighbours. Full details on the location and site boundary can be seen in the planning application documents submitted. Location plans for the trial pits and on-land boreholes can be seen in Appendix A, and in Appendix C for the on-water cores.

3 INTRUSIVE SITE INVESTIGATION

3.1 Site works

Soil Engineering Geoservices Ltd undertook site works between May and October 2015. These included 30 cable & percussion boreholes to 1-14.8mbgl. Some of these were then advanced by rotary drilling to depths of 10-70mbgl to determine further geological information. In addition they dug 23 trial pits around the bay. The main purpose of their investigation was geotechnical assessment of the site for the planned development. However they also sampled 31 soil samples for a full environmental chemical analysis. In addition a further 34 samples were tested to determine the concrete classification for the development. The lab reports can be seen in B. Of the 30 boreholes drilled, 11 were installed for later gas and groundwater monitoring, and an extra 3 installed for pump testing. Groundwater levels were recorded over the duration of the works.

These works are described in full in the Soil Engineering report TC7606 and this should be read in conjunction with this report.

Please note there were also significant site investigation works undertaken by Soil Engineering in 2013. These included 18 trial pits on land. The majority of the 2013 work involved on-water drilling but 5 boreholes were also drilled on land, all for geotechnical purposes. These were logged but not sampled for environmental purposes. However the logs can prove useful in characterising the site.

In addition to this on-land sampling there were 33 on-water borehole installed by Vibracore and Rigcore in early 2016. There were 9 Rigcore holes drilled and total of 105 samples recovered from these. There were a further 24 Vibracore holes drilled which had 83 samples recovered from them. The location of these can be seen in Appendix C. A total of 225 samples were lab analysed. The results can be seen in lab report SAL551705 & 555659 in Appendix B.

3.2 Sample choice

The trial pits where soil samples were obtained for analysis are named L2014- TP01 etc and there were 17 pits used for the main analysis sampling, with 31 samples tested for the full environmental suite. In addition a lesser chemical suite was tested for from 34 soil samples for concrete specification locations but that analysis has less environmental relevance and has not been specifically included here. Numerous samples were taken from throughout each hole/hand pit and those thought most relevant were then submitted for lab analysis.

In addition there were selected water samples submitted for analysis and these are also included here.

Soil samples were collected in accordance with BS10175:2011 using appropriate containers to avoid cross-contamination of samples. After collection, all samples were maintained at low temperature until being transferred to storage at 4°C while awaiting laboratory analysis. All samples were immediately submitted to Scientific Analysis Laboratories (SAL). The lab reports can be seen in Appendix B.

3.3 Analytical procedures

Laboratories and procedures are accredited by MCERTS. Soil samples were analysed for a number of species: metals, total petroleum hydrocarbons (TPH); BTEX, polycyclic aromatic hydrocarbons (PAH), phenols, asbestos fibres, cyanide, and sulphates to determine magnitude and persistence within the soil environment.

Metals were determined by aqua regia digestion, then analysis by inductively coupled plasma – optical emission spectroscopy (ICP-OES) and comparison to internal standards.

TPH and BTEX were determined by extraction from samples using a solvent extraction system suited to band size, followed by gas chromatography-flame ionisation detector (GC-FID) for C10-35 or gas chromatography - mass spectroscopy (GC-MS) with head space analysis for C8-10 and BTEX compounds, and quantified with reference to an added internal standard. PAH were extracted from the samples and the sample extracts were subject to clean-up using solid phase extraction chromatography. The United States Environment Protection Agency (USEPA) 16 PAH concentrations were determined by (GC-MS) SIR. Asbestos fibre presence/absence was determined by light microscopy. Phenols and sulphide were determined by colorimetry. Soluble sulphate was determined by ICP/OES following a 2:1 extraction. Sulphur was determined by ICP/OES directly.

The laboratory certificates are presented in Appendix B: Laboratory Results.

4 METHODS FOR RISK ASSESSMENT

The method for assessing each contaminant parameter is set out below. The intended use of the site is for a commercial harbour development. The LQM CIEH risk assessment criteria used in this report are derived using standard scenarios in CLEA 1.06. These risk assessment criteria were generated using the CLEA 1.04 model. Although the CLEA model has now been updated to 1.06 the changes within are unlikely to affect the outcome of the assessment criteria significantly. These LQM are used as an initial screening tool but where site conditions differ significantly from LQM standard conditions then any chemicals that may pose a potential risk can be modelled specifically using CLEA 1.06. All exposure pathways are valid unless specifically modelled otherwise but uptake by home-grown produce is not included in commercial assessments. This set of risk assessment limits was recently updated to the LQM CIEH S4UL (Safe for Use Levels) in late 2015. These use an updated version of the CLEA model (1.07) and have incorporated some updates in approach. The site data was also therefore assessed against these. At present they are not widely applicable to the Scottish contaminated land situation but their usage is gradually increasing as the value of them for an initial screening tool is seen.

The organic matter and pH of the soils were tested in all samples and ranged from pH 6.4 – 9.8 and 0.6 – 5.8% organic matter. This is an average pH range for Scottish soils, generally although there are a number of samples at the higher pH8-9 range. The organic matter range is also within normal ranges. Therefore samples were initially screened using the LQM criteria closest to their site specific organic matter values, with the option to carry out further risk assessment using CLEA 1.06 if required. The selection and justification of the risk assessment criteria has been further detailed in the report where required for clarity.

4.1 Soil Metals

For many of the metals (arsenic, mercury, cadmium, selenium, and nickel) the SGV is used as an initial screening tool. These are based on a sandy loam soil with an organic matter content of 6%. The SGVs therefore have value as a screening tool but are noted to be conservative in relation to the site values, which often have lower organic matter content. Should the site specific values prove to be marginally close to the SGV then further risk assessment should be undertaken. Where no SGV is available the LQM CIEH GAC has been used where available (for copper, zinc and chromium). The value for lead is the DEFRA C4SL which cannot be directly applicable to Scottish legislation but as the SGV was withdrawn 7 years ago it is the best currently available screening value based on contemporary risk assessment approaches. It is therefore being used in the meantime with caution, but as a first screen of the data.

4.2 Soil TPH

Currently, the U.K. approach for evaluating the risks from TPH is set out in the Environment Agency Science report P5-080/TR3, 2005. This document suggests a number of surrogate compounds that could be used to assess certain fractions for different pathways. However, as the guidance is not yet complete there are no official guidance criteria, and for some of these

compounds approved toxicity data is not yet available and this is likely to be the case for the foreseeable future.

An attempt to overcome the deficiency of authoritative data for TPH in the UK was made by CIEH-LQM (CIEH-LQM, 2009). This guidance was commercially produced but using the Environment Agency CLEA model, and is widely used with the updated 2009 values to assess TPH contamination in the UK. For petroleum hydrocarbons, GAC are provided for both aliphatic and aromatic petroleum hydrocarbons for all molecular carbon bands. This has then been further updated by the release of the 2015 LQM CIEH Safe For Use Levels (S4UL) and these are also referenced.

These are used as an initial screening tool but where site conditions differ significantly from LQM standard conditions then any chemicals that may pose a potential risk can be modelled specifically using CLEA 1.06. Further risk assessment to more site specific conditions can be carried out taking into consideration the intended residential use and the site specific organic matter to further refine the risk assessment.

4.3 Soil PAH

The risk assessment values for individual PAH are also from the 2009 LQM CIEH and 2015 LQM S4UL's and allow the use of specific criteria for every PAH compound commonly assessed: namely the 16 compounds known as the "USEPA 16".

4.4 Soil BTEX

BTEX compounds are assessed against the Soil Guideline Values published by the Environment Agency in 2009, and again are based on a sandy loam soil with a 6% organic matter content as an initial screen of the data. In addition the LQM CIEH S4UL screening levels for 1% OM are used.

4.5 Soil asbestos fibres

Parking of vehicles can lead to asbestos fibres in soil from brake linings. In this case the screening is for the presence/absence of fibres, with any presence of asbestos fibres a potential cause for further action/consideration.

4.6 Soil phenols

A risk assessment values for phenol can be found as an SGV for 6% organic matter for all three land use types, but it should be noted that phenol is naturally occurring, but in the wider environment is usually the result of human activities such as the distillation of coal tar or petroleum. This SGV can be used as an initial screening tool but where site conditions differ significantly from SGV standard conditions then any chemicals that may pose a potential risk can be modelled specifically using CLEA 1.06. There are also LQM CIEH GAC for phenol, and more recent LQM CIEH S4UL's for a variety of land uses and organic matter bands.

4.7 Other soil parameters

The determination of these parameters is to facilitate the generation of site specific assessment criteria where necessary, but also provides an input into the assessment of concrete specification (where this has been requested), and an insight into the potential availability and mobility of metals and ionic compounds. Organic matter content can indicate the presence of material with the potential to produce ground gases, as well as being indicative of the retention ability of the soil for chemical contaminants.

5 RESULTS OF INTRUSIVE SITE INVESTIGATION- LAND BASED SAMPLES

The results of the laboratory analysis carried out on soil samples collected during the site investigation are presented in this section. Soil samples were analysed for metals, total petroleum hydrocarbons (TPH), BTEX, polycyclic aromatic hydrocarbons (PAH), phenol, asbestos, cyanide, pH and organic matter.

5.1 Soil Metals

The concentrations of metals determined in soil collected from the site are presented in Table 1 below. Available assessment criteria are also presented in the Table. For metals, assessment criteria comprises of:

- Soil Guideline Values (SGVs) derived from the Contaminated Land Exposure and Assessment (CLEA 1.06 model) (note: for Hg the 2009 SGV value was used for inorganic mercury as an initial screening tool) (referred to as "SGV" in the tables of section 5)
- Chartered Institute for Environmental Health-Land Quality Management Generic Assessment Criteria (GAC) (CIEH-LQM, 2009). (referred to as "LQM" in the tables of section 5)

Table 1 - Concentration of metals in soil samples collected mg/kg dry matter (DM)

Location Depth mbgl	TP01 ES 001	TP01 ES 007	TP03 ES 001	TP03 ES 007	TP03 ES 013	TP04 ES 004	TP04 ES 008	TP05 ES 004	TP05 ES 011	TP08 ES 004	TP08 ES 011	TP09 ES 005	TP10 ES 004	TP10 ES 014	TP11 ES 004	TP11 ES 011	TP12 ES 005	TP13 ES 004	TP13 ES 011	TP14 ES 004	TP18 ES 004	TP18 ES 011	TP07 ES 004	TP07 ES 008	TP20 ES 004	TP20 ES 008	TP21 ES 004	TP21 ES 008	TP22 ES 004	TP22 ES 008	TP23 ES 004	LQM CIEH S4UL comm.	LQM 1% GAC/SGV
	0.15	2.25	0.3	2.5	3.8	0.5	2	0.5	3	0.5	3	1	0.5	4	0.5	3	1	0.5	3	0.5	0.5-2.15	0.5-2.15	0.5	2	0.5	2	0.5	2	0.5	1.5	0.5		
Arsenic	6	7	14	9	9	5	6	13	12	4	4	8	3	5	9	7	4	6	7	6	19	5	9	10	6	10	12	9	17	2	13	640	640
Boron	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	240000	240000	
Cadmium	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	190	230		
Chromium	36	26	21	23	19	21	29	68	39	23	17	41	18	19	23	30	19	24	26	12	27	9	34	28	24	26	23	39	19	31	22	8600	8840
Chromium VI	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	33	35		
Copper	38	81	67	44	52	49	61	280	300	46	14	31	7	12	21	25	16	51	33	15	23	4	48	21	27	22	16	14	15	11	10	68000	71700
Lead	48	120	1800	580	870	230	260	7100	1400	590	24	54	12	29	33	22	16	83	69	11	27	3	27	39	93	64	18	18	29	10	11	2330**	2300
Mercury	<1	5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	25.8 to 1100*	3600		
Nickel	21	18	23	18	16	17	19	23	21	14	11	35	12	14	17	22	11	20	23	8	22	6	24	19	16	17	11	21	10	17	12	980	1800
Zinc	80	100	650	420	420	140	170	2100	600	260	59	85	66	61	69	68	38	65	73	27	55	20	130	87	91	99	50	84	51	52	44	730000	665000
Selenium	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	12000	13000		
%Org.M.	1.5	2.8	4.4	5.6	3.4	3.5	4.1	5.1	3.2	1	0.6	1.1	1.9	0.4	1.1	0.6	0.7	0.8	1.8	<0.1	5.8	0.3	2.4	2.3	3.2	2	2.4	1.6	2.4	0.3	1.2		

In the majority of samples there were no metals found in exceedance of the guidance limits, and in most cases the metal concentrations were below the limit of detection or very low in relation to the limits. There was one single exception where lead was very elevated in TP05 from 0.5mbg, but at 3mbgl this was well below a concentration of concern.

5.2 Soil Total petroleum hydrocarbons (TPH)

The concentrations of TPH determined in soil collected from the site are presented in Table 2 below. Assessment was made initially using the 1% OM values in LQM GAC 2009 and LQM S4UL 2015

Table 2 - Concentration of TPH in trial pit soil samples collected, mg/kg DM

Location	TP01 ES 001	TP01 ES 007	TP03 ES 001	TP03 ES 007	TP03 ES 013	TP04 ES 004	TP04 ES 008	TP05 ES 004	TP05 ES 011	TP08 ES 004	TP08 ES 011	TP09 ES 005	TP10 ES 004	TP11 ES 004	TP11 ES 011	TP12 ES 005	TP13 ES 004	TP13 ES 011	TP14 ES 004	TP18 ES 004	TP18 ES 011	TP07 ES 004	TP07 ES 008	TP20 ES 004	TP20 ES 008	TP21 ES 004	TP21 ES 008	TP22 ES 004	TP22 ES 008	TP23 ES 004	LQM CIEH 1%	LQM S4UL 1%	
Depth	0.15	2.25	0.3	2.5	3.8	0.5	2	0.5	3	0.5	3	1	0.5	4	0.5	3	1	0.5	3	0.5	0.5-2.15	0.5-2.15	0.5	2	0.5	2	0.5	2	0.5	1.5	0.5	mg/kg	mg/kg
Aliphatic	C5-C6	<0.200	<0.200	<0.200	<0.200	<0.100	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	3400	3200		
	C6-C8	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	8300	7800			
	C8-C10	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	2100	2000			
	C10-C12	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<1	<10	<1	<1	<10	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	10000	9700			
	C12-C16	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<2	<2	<10	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	61000	59000				
	C16-C21	20	<10	<10	<10	<10	23	19	<10	<10	<10	<1	<1	<10	<1	<1	<10	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	1600000	1600000				
	C21-C35	210	<10	<10	<10	<10	260	220	<10	<10	<10	<10	<4	<4	<10	<4	<4	<10	<4	<10	<4	<4	<4	<4	<4	<4	<4	1600000	1600000				
	C35-C44	63	<10	<10	<10	<10	110	110	<10	<10	<10	<1	<1	<10	<1	<1	<10	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	1					
Aromatic	C6-C7	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	28000	26000			
	C7-C8	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	59000	56000				
	C8-C10	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	3700	3500				
	C10-C12	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<1	<10	<1	<1	<10	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	17000	16000				
	C12-C16	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<1	<10	<1	<1	<10	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	36000	36000				
	C16-C21	22	<10	<10	47	<10	26	16	<10	<10	<10	<10	<1	<1	<10	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	28000	28000				
	C21-C35	360	<10	<10	440	<10	410	320	280	<10	<10	<10	<1	<1	<10	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	<1	4	<1	28000	28000			
	C35-C44	150	<10	<10	170	<10	220	200	260	<10	<10	<10	<1	<1	<10	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	1	<1	28000	28000		

. There were no exceedances of the limits and the majority of samples were below the limit of detection.

5.3 Soil Polycyclic aromatic hydrocarbons (PAH)

The concentrations of PAH determined in soil samples collected from the site are presented in Table 3 below. Assessment was again made initially using 1% values in LQM 2009 and the LQM S4UL, 2015 , with further risk assessment then carried out using the sample specific organic matter content if potential risk remained..

Table 3 Concentration of PAH in trial pit soil samples collected, mg/kg DM

Location	TP01 ES 001	TP01 ES 007	TP03 ES 001	TP03 ES 007	TP03 ES 013	TP04 ES 004	TP04 ES 008	TP05 ES 004	TP05 ES 011	TP08 ES 004	TP08 ES 011	TP09 ES 005	TP10 ES 004	TP10 ES 014	TP11 ES 004	TP11 ES 011	TP12 ES 005	TP13 ES 004	TP13 ES 011	TP14 ES 004	TP18 ES 004	TP18 ES 011	TP07 ES 004	TP07 ES 008	TP20 ES 004	TP20 ES 008	TP21 ES 004	TP21 ES 008	TP22 ES 004	TP22 ES 008	TP23 ES 004	LQM GAC	LQM S4UL
	Depth mbgl	0.15	2.25	0.3	2.5	3.8	0.5	2	0.5	3	0.5	1	0.5	4	0.5	3	1	0.5	3	0.5	0.5-2.15	0.5-2.15	0.5	2	0.5	2	0.5	2	0.5	1.5	0.5	1% OM	1% OM
Naphthalene	<0.1	0.2	<0.1	<0.1	1.2	3.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	200	190	
Acenaphthylene	<0.1	0.1	0.1	<0.1	0.4	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	84000	83000		
Acenaphthene	<0.1	0.3	<0.1	<0.1	<0.1	1	1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	85000	84000		
Fluorene	<0.1	0.3	<0.1	<0.1	<0.1	1.1	1.2	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	64000	63000		
Phenanthrene	0.3	2.5	1	0.4	0.7	8.4	8.6	0.3	2.1	0.1	<0.1	<0.1	0.4	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.7	<0.1	<0.1	<0.1	<0.1	<0.1	22000	22000			
Anthracene	<0.1	0.7	0.2	<0.1	0.1	2.5	2.5	<0.1	0.5	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	530000	520000			
Fluoranthene	0.6	3.6	2.1	0.8	1.1	9.7	9.5	0.6	2.3	0.3	0.1	<0.1	<0.1	0.8	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	1.2	<0.1	<0.1	<0.1	<0.1	<0.1	23000	23000		
Pyrene	0.7	3.4	2	0.8	1	9.8	9.3	0.6	2.3	0.2	<0.1	<0.1	0.7	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	0.1	1.2	<0.1	<0.1	<0.1	<0.1	<0.1	54000	54000		
Benz(a)anthracene	0.3	1.5	0.9	0.4	0.5	4.5	4.1	0.3	1.1	0.2	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	90	170			
Chrysene	0.3	1.3	1.1	0.3	0.4	3.2	3.2	0.2	0.8	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	140	350			
Benzo(b)fluoranthene	0.5	2.1	1.9	0.3	0.5	3.2	3.2	0.3	0.8	0.2	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	100	44			
Benzo(k)fluoranthene	0.2	0.7	0.9	0.3	0.4	2.3	2.7	0.2	0.6	0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	140	1200			
Benzo(a)pyrene	0.5	1.6	1.3	0.3	0.6	3.9	4	0.4	0.9	0.2	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	14	35			
Indeno(123cd)pyrene	0.2	0.6	0.7	0.2	0.4	1.9	1.9	0.3	0.4	0.2	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	60	500			
Dibenzo(ah)anthracene	<0.1	0.2	0.2	<0.1	<0.1	0.6	0.6	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	13	3.5			
Benzo(ghi)perylene	0.3	0.7	0.9	0.3	0.5	3	2.9	0.4	0.6	0.3	0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	650	3900			
Total PAH	3.9	20	13	4	6.1	57	58	3.6	14	1.6	0.2	<0.1	<0.1	4.4	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	5.7	<0.1	<0.1	<0.1	<0.1	<0.1				

All samples were below the level of probable risk and many were below the stringent level of detection

5.4 Soil BTEX

The concentrations of BTEX and MTBE determined in soil collected from the site are presented in Table 4 below. Assessment was made initially using the SGV (2009) values and 2015 LQM S4ULs.

Table 4 - Concentration of BTEX & MTBE in soil samples collected, mg/kg DM

Location	TP01 ES 001	TP01 ES 007	TP03 ES 001	TP03 ES 007	TP03 ES 013	TP04 ES 004	TP04 ES 008	TP05 ES 004	TP05 ES 011	TP08 ES 004	TP08 ES 011	TP09 ES 005	TP10 ES 004	TP10 ES 014	TP11 ES 004	TP11 ES 011	TP12 ES 005	TP13 ES 004	TP13 ES 011	TP14 ES 004	TP18 ES 004	TP18 ES 011	TP07 ES 004	TP07 ES 008	TP20 ES 004	TP20 ES 008	TP21 ES 004	TP21 ES 008	TP22 ES 004	TP22 ES 008	TP23 ES 004	SGV	LQM CIEH
Depth(mbg)	0.15	2.25	0.3	2.5	3.8	0.5	2	0.5	3	0.5	3	1	0.5	4	0.5	3	1	0.5	3	0.5	0.5-2.15	0.5-2.15	0.5	2	0.5	2	0.5	2	0.5	1.5	0.5	mg/kg	S4UL
Benzene	<20	<20	<20	<20	<20	<10	<20	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	95	27	
Toluene	<20	<20	<20	<20	<10	<20	<20	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	4400	56000 (869)		
EthylBenzene	<20	<20	<20	<20	<10	<20	<20	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	2800	5700 (518)		
MTBE	<20	<20	<20	<20	<10	<20	<20	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	7900	na		
M/PXylene	<20	<20	<20	<20	<10	<20	<20	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	3200	5900		
O Xylene	<20	<20	<20	<20	<10	<20	<20	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	2600	6600		

All of the soil concentrations on site were below the stringent limit of detection and no further risk assessment was required.

5.5 Soil miscellaneous

A number of different factors were then screened for in these soils. This include the concentration of phenol and cyanide, the presence of asbestos fibres, and the sulphur/sulphide/soluble sulphate status of the soil for ACEC concrete classification.

Table 5 Concentration of miscellaneous chemicals in soil samples collected,

Location	TP01 ES 001	TP01 ES 007	TP03 ES 001	TP03 ES 007	TP03 ES 013	TP04 ES 004	TP04 ES 008	TP05 ES 004	TP05 ES 011	TP08 ES 004	TP08 ES 011	TP09 ES 005	TP10 ES 004	TP10 ES 014	TP11 ES 004	TP11 ES 011	TP12 ES 005	TP13 ES 004	TP13 ES 011	TP14 ES 004	TP18 ES 004	TP18 ES 011	TP07 ES 004	TP07 ES 008	TP20 ES 004	TP20 ES 008	TP21 ES 004	TP21 ES 008	TP22 ES 004	TP22 ES 008	TP23 ES 004	LQM	
Units	Depth (mbg)	0.15	2.25	0.3	2.5	3.8	0.5	2	0.5	3	0.5	3	1	0.5	4	0.5	3	1	0.5	3	0.5	0.5-2.15	0.5-2.15	0.5	2	0.5	2	0.5	2	0.5	1.5	0.5	S4UL
mg/kg	Phenol (mono)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	66		
mg/kg	Cyanide (total)	<1	<1	1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	500 (AC-1)			
mg/l	Sol. SO4	11	<10	15	410	230	<10	<10	69	57	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10				
mg/kg	Sulphide	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10				
%	Sulphur	0.02	0.02	0.11	0.18	0.08	0.04	0.05	0.1	0.64	0.04	0.03	0.01	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.04	<0.01	0.03	0.02	0.03	0.02	0.02	0.29	<0.01	<0.01		
presence	Asbestos	N.D.																															
pH		9.8	8.8	8.7	8.1	6.4	7.6	8.1	7.7	7.9	8.8	8.7	8.4	8.3	8.5	8.2	8	8.6	9.1	8.3	7.9	7.3	7.2	8.3	7.8	7.2	7.4	6.8	6.4	6.9	6.7		
%	Organic matter	1.5	2.8	4.4	5.6	3.4	3.5	4.1	5.1	3.2	1	0.6	1.1	1.9	0.4	1.1	0.6	0.7	0.8	1.8	<0.1	5.8	0.3	2.4	2.3	3.2	2	2.4	1.6	2.4	0.3	1.2	

Soluble sulphate, sulphide and sulphur were assessed to aid in concrete specification for the planned development. This was also compared to an additional 34 samples which were screened for soluble sulphate, chloride and magnesium. Soil Engineering concluded an ACEC AC-2 class concrete was most suitable for the site. There was no detectable phenol, cyanide or asbestos in the samples. The pH was largely within the normal range of pH 5-8 for Scottish soil but with some at pH 8-9 noted. The organic matter was within normal ranges.

6 RESULTS OF INTRUSIVE SITE INVESTIGATION- DREDGE SAMPLES

In 2016 a wide range of on-water drill cores were taken in order to determine the suitability of the harbour for deep dredging, and also to determine the geotechnical capacity of this dredged material for reclamation on land during the development. As part of this process a total of 225 samples were submitted for laboratory screening for a range of heavy metals, speciated PAH's, tributyl tin and PCB's. The results of this analysis can be seen in SAL lab reports SAL551705 and SAL 555659 in Appendix B. The location of these cores can be seen in Appendix C.

SAL 551705 contains 188 sample results. These derive from 105 RC-2016 Rigcore holes. There were a total of 9 Rigcore holes drilled in the bay. This report also includes 83 samples from the Vibrocore 2016 (VC-2016) cores. There were a total of 24 vibrocore holes drilled during the investigation. These results were produced during March 2016. The following lab report in early April 2016 contains a further 19 RC-2016 results, and 4 additional VC-2016.

These 225 lab results were screened against the S4UL's commercial land use values for 1% organic matter produced by LQM in 2015, as used above for the trial pit and borehole samples from on-land. The results of this screening are:

- No metals were above concentrations of concern
- There were no detectable PCB's or Tributyl tin
- Speciated PAH's were all at low concentrations and none were above the concentrations of concern.

Therefore this material can all be regarded as suitable for reclamation on land and should cause no environmental impact as a result. ESL cannot make comment on the engineering suitability of this material for re-use on land as that is not within the remit of this report.

7 GROUND GAS INVESTIGATION

Eleven boreholes were installed by Soil Engineering in 2015 for gas monitoring. These were L2014-4/6/8/13/18/19A/20/27/28/29/30. In addition Aberdeen City Council had 3 boreholes installed by the roadside at the south end of the site (named ACC1-3), monitoring gas migration from the adjacent closed Nigg Bay landfill. No gas monitoring data was available from Aberdeen City Council for these boreholes.

Northern Soil Surveys was instructed to undertake gas monitoring at all of these boreholes over the summer of 2016. This was possible at all except L2014-8 and ACC3. Borehole 8 had been installed with a tall protective cover and the gas tap sunk below ground level. As a result it was not possible to actually reach the gas tap from the top of the cover in order to remove or replace it for monitoring. After several attempts this boreholes was therefore removed from the monitoring list. ACC3 could not be found in long grass.

Risk assessments for gas are undertaken primarily to identify the short-term acute risks (explosion, asphyxiation) and the long-term chronic risks (exposure effects on human health) (Nathanail et al. 2002), for gases present at the site under consideration for development. Gas production and composition are influenced by many variables, which can change at different times of the year, including: atmospheric pressure; changes in the level of the water table and temperature. Therefore, gas monitoring should be undertaken over a sufficient time period to ensure a comprehensive gas risk assessment. It is stated in CIRIA C665 that “the monitoring period should, for a specific site, cover the “worst case” scenario. Such a “worst case” scenario will occur during falling atmospheric pressure and, in particular, weather conditions such as rainfall, frost and dry weather. The most rapid falls in atmospheric pressure occur when the pressure was initially high, for example 1010 or 1020 mb.” Due to the timing of this investigation it was not possible to carry out initial gas monitoring during periods of frost, but periods of dry weather and low pressure have been possible.

Gas monitoring at this site comprised measurement of the following parameters in each monitoring well: methane, carbon dioxide, oxygen, nitrogen, hydrogen sulphide, gas flow rate, differential pressure and water level. Assessment of risk is initially undertaken by comparison of gas levels and concentrations against values published within CIRIA C665 which contains guidance to consolidate “good practice in investigation, the collection of relevant data and monitoring programmes in a risk-based approach to gas contaminated land”.

The results of the gas monitoring can be used to determine a semi-quantitative assessment of risk by calculating a Gas Screening Value (GSV) using the procedure adopted in CIRIA 665 (Wilson et al. 2007). This document separates sites into different development types: Situation A includes all sites excluding low rise residential housing with a ventilated underfloor void (minimum 150mm). This site will therefore fit into Situation A and therefore will be assessed accordingly.

The gas screening value represents litres of gas emitted from a borehole per hour. The calculation is undertaken for both carbon dioxide and methane and the worst case value is adopted. The gas screening value (GSV) is calculated by multiplying the borehole flow rate (l/h) by the gas concentration (%). Note (GSV =Flow* by max gas concentration/100) see example. GSV for each borehole are presented in Table 6 below. The individual gas monitoring sheets from each visit can be seen in Appendix D.

Table 6 – GSV for Nigg Bay boreholes (methane and carbon dioxide)

Borehole	Response Zone (m)	Evidence of made-ground	No. of monitoring occasions	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Flow (l/hr)	Water Levels (mbeg)	Range of atmospheric pressure during monitoring round (mb)	Gas Screening Value, GSV (l/hr) (max conc x max flow)	Risk Classification
BH4	41-44	No	6	<0.1	<0.1-0.2	19.5-20.2	<0.1	2.62-3.47	997-1022	0.02	Very Low Risk (CS1)
BH6	0.5-4.0	Yes		<0.1	<0.1-0.2	20.4-20.8	<0.1	dry		0.02	Very Low Risk (CS1)
BH13	1-5	Poss. re-worked natural		<0.1	0.8-2.5	17-19.5	<0.1	3.4-3.55		0.25	Low Risk (CS2)
BH18	0.5-2.1	Re-worked natural		<0.1	1.5-7.3	15.8-20.5	<0.1	2.0-2.08		0.73	Borderline Low Risk (CS2)
BH19	31.5-41.5	No		<0.1	0.5-2.0	17.1-20.0	<0.1	2.41-3.38		0.2	Low Risk (CS2)
BH20	28.2-43.1	No		<0.1	<0.1	20.7-21.0	<0.1	2.47-3.42		<0.01	Very Low Risk (CS1)
BH27	1-37.7	No	18	<0.1	<0.1-3.5	12.8-20.9	<0.1	7.56-8.03		0.35	Low Risk (CS2)
BH28	1-34.5	No		<0.1	<0.1-2.6	18.5-20.1	<0.1	12.07-12.83		0.26	Low Risk (CS2)
BH29	1-10.75	No		<0.1	0.2-1.1	19.7-20.1	<0.1	5.08-5.16		0.11	Low Risk (CS2)
BH30	1-8.0	No		<0.1	<0.1	20.5-20.8	<0.1	3.79-3.83		<0.01	Very Low Risk (CS1)
ACC1	No info	na		<0.1	<0.1	20.7-20.8	<0.1	17.12-17.41		<0.01	Very Low Risk (CS1)
ACC2	No info	na		<0.1	<0.1	Aug 2016 18.6-20.7	<0.1	4.71-4.79		<0.01	Very Low Risk (CS1)

The risk classification for the site is ‘very low’ to “Low” The soil gas monitoring exercise has not revealed soil gas concentrations of methane and carbon dioxide at levels which would require gas protection measures to be implemented in locations 4/6/20/30 and in the ACC boreholes. However BH’s 13/18/19/27/28/29 show the presence of some carbon dioxide which takes them to CS2 or “low risk” rating. It should be noted there is no recordable flow in any of these locations and no methane however. Monitoring was also undertaken at this site in low atmospheric pressure and that did not coincide with peak gas concentrations for 4 of the 6 locations where a “low risk” was recorded.

CIRIA C665, Table 8.6 indicates :-

Site Characterisation Situation	Risk level	Scope of protective measures	No. levels of protection	Additional factors	Typical source of generation
CS 1	Very low	No special precautions	None	Typically methane <0.1% and CO2 <5%	Typical made-ground, natural soils with low organic content
CS2	Low	a) Reinforced cast <i>in situ</i> concrete floor slab with at least 1200g DPM b) Pre-cast concrete slab or beam and block floor with at least 2000g DPM/reinforced gas membrane c) Possibly underfloor venting or pressurisation with a) or b) depending on use. All joint and penetrations sealed.	1-2	Borehole flow rate not to exceed 70l/hr	Typical made-ground, natural soil with high organic content

Reference is made to of Table 8.5 of CIRIA C665, which specifies that a site with a GSV of <0.07 has a “very low risk” and is classed as a “Characteristic Situation 1” and a site with a GSV of <0.7 is “low risk” and “Characteristic Situation 2” Both of these apply to sites which have “natural soils with “typical” made-ground”.

The highest GSV recorded was for carbon dioxide from BH18 but again there was no recordable flow rate. This location only just exceeded the limit for CS2 but the next category is CS3, which is anything with a GSV of <3.5 and typically refers to old landfills or inert waste.

A cross-check was made with the drilling log for each location where a “low risk” and in all cases the ground was either natural sandy, silty, clayey, gravelly materials, or re-worked ground of the same. The only location monitored where man-made fill was present was BH6, which was very low risk and had only marginal gas presence recorded.

8 GROUNDWATER EXAMINATION

The geotechnical logs of the 11 installed boreholes were examined in detail to specifically look at the potential for made-ground to be in contact with groundwater. The measured groundwater levels during development are shown in Section 1 of the Soil Engineering report, but typically varied widely during drilling and then settled post-installation.

It was noted that only in 4 boreholes was made-ground in potential contact with groundwater. These were BH6/8/19A/20. BH8 was the borehole where the cap was too tall to allow access to the gas tap, and therefore this one was not sampled. BH6 was found to be dry at all times.

BH19A and BH20 were further considered. These two boreholes are deep installations, around 40m depth. BH19A has a response zone from 31.5-41.5mbgl in natural ground and BH20 had a response zone from 28.2-43.1mbgl. The upper depths, in contact with the re-worked natural materials which comprised the made-ground, were screened off however by solid standpipe, and the slotted section in contact with groundwater was around 35-40m depth. The logic for this is not clear at the moment but there must have been an engineering purpose to this.

9 CSM RISK ASSESSMENT

No specific conceptual site model was developed prior to these site investigations as there were no specific concerns. However the most common contaminants are always possible to find in any developed environment and at the beginning of the works all potential pathways were considered possible.

9.1 Sources

Potential sources at any uncharacterised the site could be metals, hydrocarbons (TPH, BTEX & PAH), asbestos, tributyl tin, and less common contaminants such as phenol, cyanide, PCB's. In addition ground gases were hypothesised as a potential risk from buried made-ground or migratory from Nigg Bay landfill. Only one chemical contaminant was found to be present at the site at a concentration of potential concern. This was lead in shallow surface soils (TP05 at 0.5mbgl) and no other source of contamination has been confirmed. Low concentrations of carbon dioxide were also noted which should be considered for protective action.

9.2 Pathways

Given the objectives of the site assessment, pathways that impacted upon human and ecological receptors (e.g. groundwater) are considered. Therefore, the main pathways confirmed were:

- migration of contaminants within the soil at the site to sensitive site receptors via inhalation of dust
- migration of contaminants within the soil at the site to sensitive site receptors via inhalation of vapour
- migration of contaminants within the soil at the site to sensitive site receptors via ingestion of soil
- migration of contaminants within the soil at the site to sensitive site receptors via dermal contact with soil;
- Direct contact with buildings
- Migration of contaminants to groundwater and potentially onwards to sea water

Groundwater was noted in the majority of examined locations but this is in part because boreholes were deep in most cases. Only in 4 locations was groundwater potentially in contact with made-ground. However these were all ruled out.

9.3 Receptors

For the site assessment, the receptors confirmed are:

- sensitive site receptors (human residents, visitors and site workers);

- water bodies (groundwater, seawater, potable water)
- Future buildings

Only one pollutant linkage can be confirmed

- lead in soils exposed to human receptors by dermal contact/ingestion of soil or soil dust

10 DISCUSSION

A Phase 2 intrusive site investigation was carried out at Nigg Bay, Aberdeen, in order to determine any potential impact to the planned development of a new harbour facility..

Assessment was undertaken to current British Standards and in compliance with all relevant UK and EU legislation affecting the assessment of potentially contaminated land.

The results of the soil analysis carried out are summarised below when lab results were compared to risk assessment guidance limits for impact on human health for a residential end use of the site:

Soil investigation – summary of data

- Soil metals single exceedance of lead in L2014-TP05 at 0.5mbgl
- Soil TPH - no exceedances
- Soil BTEX – no exceedances
- Soil PAH –no exceedances
- Soil cyanide – no exceedances
- Soil asbestos- none present
- Soil phenol- no exceedances
- Ground gas - very low risk or low risk.
- Dredged materials – suitable for reclamation on land based on chemistry

Analysis was undertaken of a total of 225 samples recovered from on-water boreholes, 31 soil samples from on-land trial pits, plus gas monitoring undertaken at 13 boreholes on 6 occasions under a range of conditions.

It was noted that of the extensive data sets analysed there was only a single sample where an elevated lead concentration could potentially cause an impact to human health. This was at TP05, which lies under the former road into the landfill tip at the base of the SSSI site. It lies approximately 20m south of the land-based West quay for the new development. Beach re-profiling is likely to be required here to attenuate wave action. The material in this area will therefore be excavated to 3.2mbgl and used as infill elsewhere in the development. The exact location can not been confirmed at this time. But the client undertakes that this material will be buried, covered with a capping layer which will prevent dust arising from it, and that during excavation and removal of this material dust-suppression measures will be used at all times until the capping is complete. This will therefore break the potential pathway for direct exposure to humans by dermal contact or dust ingestion. The lab testing was from 0.5mbgl and 3.5mbgl and it is acknowledged that the ground between 0.5 and 3.5 is therefore not characterised in terms of lead content. The excavation log does not reveal any reason to suspect there would be greater lead at depth and it seems likely this was exhaust deposition from landfill lorries entering the site in the past. However

the exact area impacted will be confirmed by validation sampling after excavation to ensure no elevated lead soils remain exposed.

A dust control plan is included as a mandatory part of the work schedule in this area, in order to control impact on construction staff.

The ground gas assessment took place over the summer months but did experience a wide range of atmospheric pressures. In all locations there was no recordable flow present for any gas measured. There was also no methane present at any time in any location. There were low concentrations of carbon dioxide in some areas but these were all confirmed as being natural ground and this is likely therefore to be from organic matter in the area. Interestingly low atmospheric pressure did not correspond to peak gas readings, and the one borehole where man-made fill was present had negligible gas readings, whereas other boreholes with natural materials throughout were generating some gas. No borehole had any recordable flow rate and all were recorded as being below the limit of detection for flow rate.

Of the 13 boreholes monitored there were 7 which classified as “very low risk” and required no further action.

All of the remaining 6 were “low risk” with a recommended protective action of including a 1200g DPM in *in situ* poured concrete slabs, or 2000g DPM for pre-cast floors. Please refer to Section 7 for details. However, BH18 is actually on the site boundary and is under the planned new route for Greyhope Rd, which will be diverted during construction. BH 27/28/29 are all in an area to the SW of the site boundary where there will actually be no works taking place. These are alongside the public footpath and no disturbance is planned in this area. There will also be no enclosed spaces or functional change of use in this area. BH13 and BH19 are located under the West Quay structure. This will have a long walk-through service trench running North- South along its length, but terminating at the quay ends. This is to contain a variety of services and personnel access is required. This tunnel will be subject to the mandatory operating procedures set down by Aberdeen Harbour for working in confined spaces. This requires the area to be vented before entry and states all personnel entering will be wearing personal gas monitors to prevent impact by gases..This will act as a protective measure against ground gas also and therefore this risk can be considered as remediated by that process.

No further remedial actions are recommended here.

11 CONCLUSIONS AND RECOMMENDATIONS

Risk assessment of Phase 2 investigation data was carried out by EnviroSurveying Ltd on data collected by Soil Engineering in 2015, and by Aberdeen Harbour in 2016, in relation to a planned development of a new deep water harbour facility in Nigg Bay, Aberdeen. .

There was no contamination found in any of the dredge samples tested and these were found to therefore be suitable for re-use on land from an environmental point of view. From the samples tested from on-land only one was found to have elevated lead that could pose a risk to human health.

ACTION: The soils from around TP-05 with elevated lead will be buried as fill material, with surface capping to prevent contact or dust arising, and mandatory dust control measures during construction until this material is moved and capped. Validation sampling will be detailed which will confirm that no material with elevated lead remains near the surface where exposure is possible after excavation works take place.

Gas monitoring indicated no methane, no recordable gas flow, and low or negligible concentrations of carbon dioxide. This indicated a “very low risk” at 7 of the locations monitored, requiring no protective measures; and “low risk” at the other 6 boreholes. Of these 3 were located in the south end of the bay where no development will take place (BH27-29), two were within the land-based quay area (BH13 and 19) and one was located on the headland at the far north of the development (BH18).

ACTION: mandatory Aberdeen Harbour process for working in enclosed belowground spaces to include west quay service trench to prevent hypothetical risk from gas asphyxiation.

All of these soil samples were selected to best represent site conditions. Limited remedial works are therefore recommended for this site based on the information gained from this investigation and the proposed use.

12 REFERENCES

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Environment Agency, 2005, P5-080/TR3- The UK approach for Evaluating Human Health risks from petroleum hydrocarbons in soils.

Environment Agency, 2009, SGV reports: Soil Guideline Values reports for individual soil contaminants.

10 DISCLAIMER

EnviroSurveying Ltd has prepared this report for the sole use of the Client, in accordance with generally accepted consulting practice and for the intended purpose as stated in the related contract agreement. No other warranty, expressed or implied, is made as to the professional advice included in this report.

To the best of our knowledge, information contained in this report is accurate at the date of issue; however subsurface conditions including contamination concentrations may vary spatially and with time. It should be noted, however, that this report is based on information obtained from the site investigation works. There may be conditions pertaining at the site not disclosed by these investigations, which might have a bearing on the recommendations provided if such conditions were known.

It is important that these implications be clearly recognized when the findings of this study are being interpreted

APPENDICES

APPENDIX A – location plan showing trial pit and borehole locations

ABERDEEN HARBOUR EXPANSION PROJECT
SITE INVESTIGATION LAND BOREHOLES

REF	NATIONAL GRID CO-ORDINATES	LEVEL (CHART DATUM)
EASTING	NORTHING	
L2014-1	396557.935	804881.404
L2014-2	396544.313	804881.582
L2014-3	396537.957	804786.231
L2014-4	396542.531	804704.590
L2014-5	396528.586	804625.024
L2014-5A	396527.220	804625.139
L2014-6	396525.329	804579.703
L2014-6A	396525.984	804577.879
L2014-7	396525.530	804482.884
L2014-7W	396524.118	804482.218
L2014-7Wa	396521.742	804480.305
L2014-8	396503.455	804424.415
L2014-9	396528.114	804452.258
L2014-9D	396588.000	804502.000
L2014-10	396588.454	804593.190
L2014-11	396587.976	804577.879
L2014-12	396484.920	804768.733
L2014-13	396488.359	804602.877
L2014-14	396493.535	804682.772
L2014-15	396520.293	804887.928
L2014-16	396486.521	805000.794
L2014-17	396529.784	805006.548
L2014-18	396528.045	804751.630
L2014-19	396528.454	805022.686
L2014-19A	396514.344	804689.391
L2014-19B	396515.438	804676.412
L2014-19B	396517.920	804680.644
L2014-20	396517.045	804746.350
L2014-20A	396517.599	804751.633
L2014-21B	397235.992	805323.502
L2014-22B	397238.229	805377.712
L2014-24	396518.184	804686.398
L2014-25	396516.972	804687.487
L2014-25A	396516.029	804811.172
L2014-26	396517.372	804848.481
L2014-27	396493.524	804571.594
L2014-28	396497.178	804560.444
L2015-29	396500.659	804692.737
L2015-30	396507.000	804691.000
L2015-31	396518.214	804683.517
L2014-31	396533.432	804682.191
L2014-32	396538.693	804694.419
L2014-32	396538.693	804694.419

ABERDEEN HARBOUR EXPANSION PROJECT
SITE INVESTIGATION TRIAL PITS

REF	NATIONAL GRID CO-ORDINATES	LEVEL (CHART DATUM)
EASTING	NORTHING	
L2014-TP01	396631.359	804397.023
L2014-TP02	396571.851	804458.339
L2014-TP03	396540.355	804511.274
L2014-TP04	396544.157	804550.028
L2014-TP05	396520.172	804589.385
L2014-TP06	396524.051	804671.352
L2014-TP07A	396526.502	804677.687
L2014-TP08	396503.111	804671.739
L2014-TP09	396525.935	804733.833
L2014-TP10	396532.158	804683.543
L2014-TP11	396505.035	804782.114
L2014-TP12	396537.478	804631.286
L2014-TP13	396507.005	804682.733
L2014-TP14	396565.541	804917.201
L2014-TP18	396518.026	804931.493
L2014-TP19	396536.207	804944.317
L2014-TP20	396563.244	804937.665
L2014-TP21	396598.685	804987.096
L2014-TP22	396520.898	804983.707
L2014-TP23	396494.121	804974.941

PROJECT:
ABERDEEN HARBOUR BOARD
Aberdeen Harbour Expansion Project

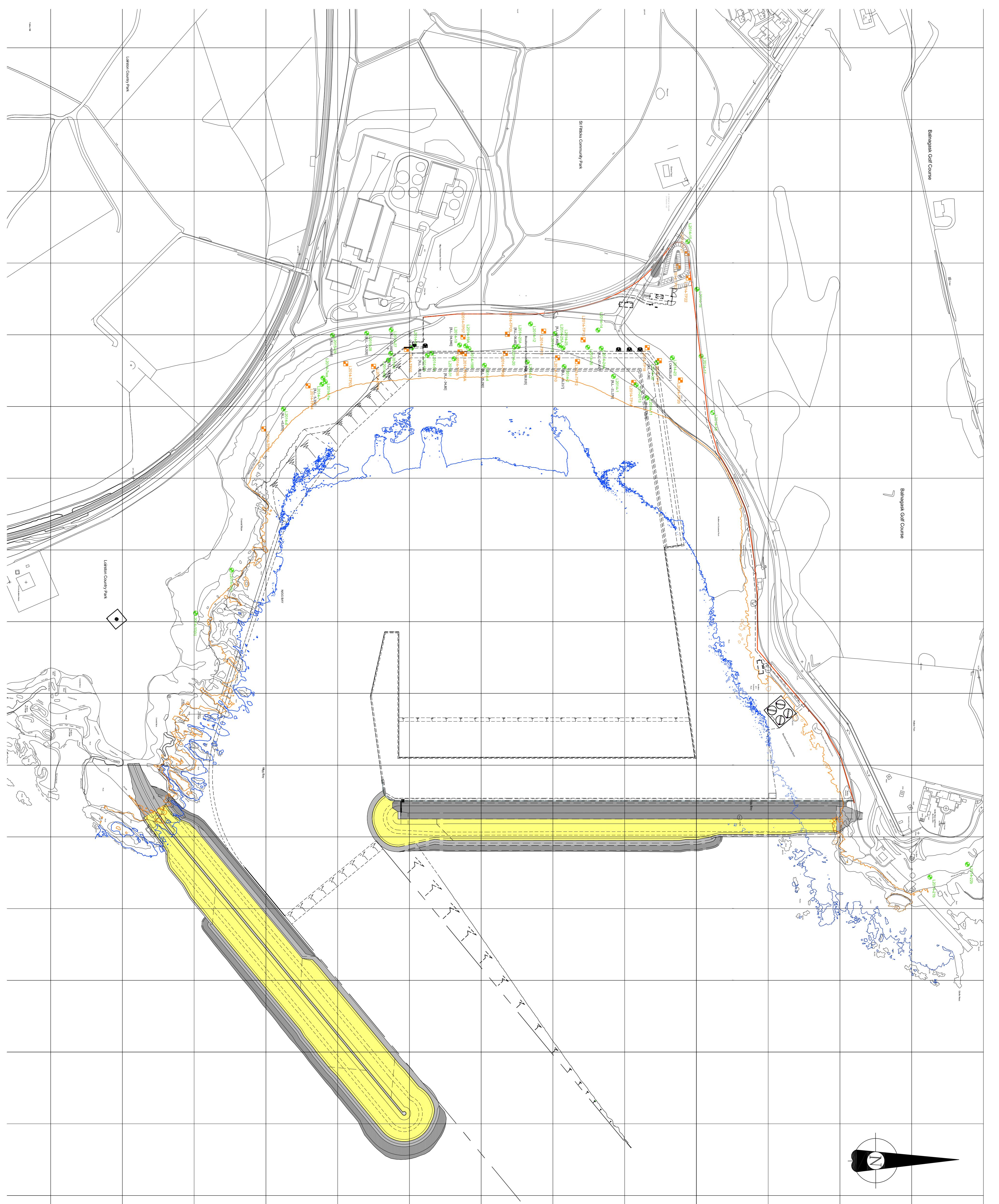
Arch HENDERSON
H
Harbour

Civil Engineers
Structural Engineers
Architects
Geotechnical Services
Environmental Services

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TITLE:
SITE INVESTIGATION - AS BUILT
LAND BOREHOLES AND TRIAL PITS

DRAWN: K.F. **DATE:** 22-07-15 **CHECKED:** I.T. **DATE:** 22-07-15
SCALE: (A1) **SPANNING STATUS:** TENDER
DRAWINGS NO.: 121106 - 2203 **REV.:** D



APPENDIX B – lab reports



Scientific Analysis Laboratories Ltd

Certificate of Analysis

Scientific Analysis Laboratories is a limited company registered in England and Wales (No 2514788) whose address is at Hadfield House, Hadfield Street, Manchester M16 9FE

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Tel : 0161 874 2400
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Report Number: 488274-1

Date of Report: 10-Jul-2015

Customer: Soil Engineering Geoservices Limited
Parkside Lane
Dewsbury Road
Leeds
West Yorkshire.
LS11 5SX

Customer Contact: Mr Jonathan Norton

Customer Job Reference: TC7606

Customer Site Reference: Bay of Nigg

Date Job Received at SAL: 18-Jun-2015

Date Analysis Started: 25-Jun-2015

Date Analysis Completed: 06-Jul-2015

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



1549



Report checked
and authorised by :
Natasha Wild
Project Manager

Issued by :
Natasha Wild
Project Manager

SAL Reference: 488274

Project Site: Bay of Nigg

Customer Reference: TC7606

Soil Analysed as Soil

MCERTS Preparation

SAL Reference		488274 001	488274 003	488274 006	488274 008	488274 010	488274 012	488274 014	488274 017	488274 020	488274 025
Customer Sample Reference		L2014- TP01 ES 001	L2014- TP01 ES 007	L2014- TP03 ES 001	L2014- TP03 ES 007	L2014- TP03 ES 013	L2014- TP04 ES 004	L2014- TP04 ES 008	L2014- TP05 ES 004	L2014- TP05 ES 011	L2014- TP08 ES 004
Bottom Depth		0.15	2.25	0.30	2.50	3.80	0.50	2.00	0.50	3.00	0.50
Date Sampled		17-JUN-2015									
Type		Sandy Soil									
Determinand	Method	Test Sample	LOD	Units							
Moisture @ 105 C	T162	AR	0.1	%	5.1	12	10	9.2	8.9	5.9	5.4
Retained on 10mm sieve	T2	M40	0.1	%	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

SAL Reference: 488274

Project Site: Bay of Nigg

Customer Reference: TC7606

Soil Analysed as Soil

MCERTS Preparation

SAL Reference		488274 028	488274 032	488274 037	488274 041	488274 044	488274 047	488274 052	488274 055	488274 058	488274 061	
Customer Sample Reference		L2014- TP08 ES 011	L2014- TP09 ES 005	L2014- TP10 ES 004	L2014- TP10 ES 014	L2014- TP11 ES 004	L2014- TP11 ES 011	L2014- TP12 ES 005	L2014- TP12 ES 011	L2014- TP13 ES 004	L2014- TP13 ES 011	L2014- TP14 ES 004
Bottom Depth		3.00	1.00	0.50	4.00	0.50	3.00	1.00	0.50	3.00	0.50	
Date Sampled		17-JUN-2015	17-JUN-2015	17-JUN-2015	17-JUN-2015	17-JUN-2015	17-JUN-2015	18-JUN-2015	18-JUN-2015	18-JUN-2015	18-JUN-2015	
Type		Sandy Soil	Clay	Sandy Soil								
Determinand	Method	Test Sample	LOD	Units								
Moisture @ 105 C	T162	AR	0.1	%	2.4	21	0.7	14	2.2	6.1	1.6	
Retained on 10mm sieve	T2	M40	0.1	%	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	

SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606													
Soil	Analysed as Soil												
Suite E													
		SAL Reference	488274 001	488274 003	488274 006	488274 008	488274 010	488274 012	488274 014	488274 017	488274 020	488274 025	
		Customer Sample Reference	L2014- TP01 ES 001	L2014- TP01 ES 007	L2014- TP03 ES 001	L2014- TP03 ES 007	L2014- TP03 ES 013	L2014- TP04 ES 004	L2014- TP04 ES 008	L2014- TP05 ES 004	L2014- TP05 ES 011	L2014- TP08 ES 004	
		Bottom Depth	0.15	2.25	0.30	2.50	3.80	0.50	2.00	0.50	3.00	0.50	
		Date Sampled	17-JUN- 2015										
		Type	Sandy Soil										
Determinand	Method	Test Sample	LOD	Units									
Asbestos ID	T27	AR			N.D.								
Arsenic	T6	M40	2	mg/kg	6	7	14	9	9	5	6	13	12
Boron (water-soluble)	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1	1	<1	<1
Chromium	T6	M40	1	mg/kg	36	26	21	23	19	21	29	68	39
Chromium VI	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	T6	M40	1	mg/kg	38	81	67	44	52	49	61	280	300
Lead	T6	M40	1	mg/kg	48	120	1800	580	870	230	260	7100	1400
Mercury	T6	M40	1	mg/kg	<1	5	<1	<1	<1	<1	<1	<1	<1
Nickel	T6	M40	1	mg/kg	21	18	23	18	16	17	19	23	21
Zinc	T6	M40	1	mg/kg	80	100	650	420	420	140	170	2100	600
pH	T7	AR			9.8	8.8	8.7	8.1	6.4	7.6	8.1	7.7	7.9
Phenols(Mono)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	T6	M40	3	mg/kg	<3	<3	<3	<3	<3	<3	<3	<3	<3
Soil Organic Matter	T287	M40	0.1	%	1.5	2.8	4.4	5.6	3.4	3.5	4.1	5.1	3.2
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	10	mg/l	11	<10	15	410	230	<10	<10	69	57
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1	1	<1	<1	<1	1	<1	<1
SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606													
Soil	Analysed as Soil												
Suite E													
		SAL Reference	488274 028	488274 032	488274 037	488274 041	488274 044	488274 047	488274 052	488274 055	488274 058	488274 061	
		Customer Sample Reference	L2014- TP08 ES 011	L2014- TP08 ES 005	L2014- TP10 ES 004	L2014- TP10 ES 014	L2014- TP11 ES 004	L2014- TP11 ES 011	L2014- TP12 ES 005	L2014- TP12 ES 011	L2014- TP13 ES 004	L2014- TP13 ES 011	L2014- TP14 ES 004
		Bottom Depth	3.00	1.00	0.50	4.00	0.50	3.00	1.00	0.50	3.00	0.50	0.50
		Date Sampled	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	18-JUN- 2015	18-JUN- 2015	18-JUN- 2015	18-JUN- 2015	18-JUN- 2015
		Type	Sandy Soil	Clay	Sandy Soil								
Determinand	Method	Test Sample	LOD	Units									
Asbestos ID	T27	AR			N.D.								
Arsenic	T6	M40	2	mg/kg	4	8	3	5	9	7	4	6	7
Boron (water-soluble)	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	14	<1	<1
Cadmium	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	T6	M40	1	mg/kg	17	41	18	19	23	30	19	24	26
Chromium VI	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	T6	M40	1	mg/kg	14	31	7	12	21	25	16	51	33
Lead	T6	M40	1	mg/kg	24	54	12	29	33	22	16	83	69
Mercury	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nickel	T6	M40	1	mg/kg	11	35	12	14	17	22	11	20	23
Zinc	T6	M40	1	mg/kg	59	85	66	61	69	68	38	65	73
pH	T7	AR			8.7	8.4	8.3	8.5	8.2	8.0	8.6	9.1	8.3
Phenols(Mono)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	T6	M40	3	mg/kg	<3	<3	<3	<3	<3	<3	<3	<3	<3
Soil Organic Matter	T287	M40	0.1	%	0.6	1.1	1.9	0.4	1.1	0.6	0.7	0.8	1.8
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	10	mg/l	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1

SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606												
Soil	Analysed as Soil											
Miscellaneous												
		SAL Reference	488274 001	488274 003	488274 006	488274 008	488274 010	488274 012	488274 014	488274 017	488274 020	488274 025
		Customer Sample Reference	L2014- TP01 ES 001	L2014- TP01 ES 007	L2014- TP03 ES 001	L2014- TP03 ES 007	L2014- TP03 ES 013	L2014- TP04 ES 004	L2014- TP04 ES 008	L2014- TP05 ES 004	L2014- TP05 ES 011	L2014- TP08 ES 004
		Bottom Depth	0.15	2.25	0.30	2.50	3.80	0.50	2.00	0.50	3.00	0.50
		Date Sampled	17-JUN- 2015									
		Type	Sandy Soil									
Determinand	Method	Test Sample	LOD	Units								
Sulphide	T4	AR	10	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10
Sulphur (total)	T6	AR	0.01	%	0.02	0.02	0.11	0.18	0.08	0.04	0.05	0.10

SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606												
Soil	Analysed as Soil											
Miscellaneous												
		SAL Reference	488274 028	488274 032	488274 037	488274 041	488274 044	488274 047	488274 052	488274 055	488274 058	488274 061
		Customer Sample Reference	L2014- TP08 ES 011	L2014- TP09 ES 005	L2014- TP10 ES 004	L2014- TP10 ES 014	L2014- TP11 ES 004	L2014- TP11 ES 011	L2014- TP12 ES 005	L2014- TP13 ES 004	L2014- TP13 ES 011	L2014- TP14 ES 004
		Bottom Depth	3.00	1.00	0.50	4.00	0.50	3.00	1.00	0.50	3.00	0.50
		Date Sampled	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	18-JUN- 2015	18-JUN- 2015	18-JUN- 2015	18-JUN- 2015	18-JUN- 2015
		Type	Sandy Soil	Clay	Sandy Soil							
Determinand	Method	Test Sample	LOD	Units								
Sulphide	T4	AR	10	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10
Sulphur (total)	T6	AR	0.01	%	0.03	0.01	0.03	0.03	0.02	0.02	0.02	<0.01

SAL Reference: 488274

Project Site: Bay of Nigg

Customer Reference: TC7606

Soil Analysed as Soil
TPH UKCWG

SAL Reference			488274 001	488274 003	488274 006	488274 008	488274 010	488274 012	488274 014	488274 017	488274 020	488274 025			
Customer Sample Reference			L2014- TP01 ES 001	L2014- TP01 ES 007	L2014- TP03 ES 001	L2014- TP03 ES 007	L2014- TP03 ES 013	L2014- TP04 ES 004	L2014- TP04 ES 008	L2014- TP05 ES 004	L2014- TP05 ES 011	L2014- TP08 ES 004			
Bottom Depth			0.15	2.25	0.30	2.50	3.80	0.50	2.00	0.50	3.00	0.50			
Date Sampled			17-JUN- 2015												
Type			Sandy Soil												
Determinand	Method	Test Sample	LOD	Units	(110,13) <20	(13,110) <20	(100,13) <20	(13,100) <20	(13,110) <20	(13)<10	(13,100) <20	(13,100) <20	(13)<10	(13)<10	
Benzene	T209	M105	10	µg/kg	(110,13) <20	(13,110) <20	(100,13) <20	(13,100) <20	(13,110) <20	(13)<10	(13,100) <20	(13,100) <20	(13)<10	(13)<10	
Toluene	T209	M105	10	µg/kg	(110)<20	(110)<20	(100)<20	(100)<20	(110)<20	<10	(100)<20	(100)<20	<10	<10	
EthylBenzene	T209	M105	10	µg/kg	(110)<20	(110)<20	(100)<20	(100)<20	(110)<20	<10	(100)<20	(100)<20	<10	<10	
Methyl tert-Butyl Ether	T209	M105	10	µg/kg	(110)<20	(110)<20	(100)<20	(100)<20	(110)<20	<10	(100)<20	(100)<20	<10	<10	
O Xylene	T209	M105	10	µg/kg	(110)<20	(110)<20	(100)<20	(100)<20	(110)<20	<10	(100)<20	(100)<20	<10	<10	
M/P Xylene	T209	M105	10	µg/kg	(110)<20	(110)<20	(100)<20	(100)<20	(110)<20	<10	(100)<20	(100)<20	<10	<10	
TPH (C5-C6 aliphatic)	T209	M105	0.100	mg/kg	(110)<0.200	(110)<0.200	(100)<0.200	(100)<0.200	(110)<0.200	<0.100	(100)<0.200	(100)<0.200	<0.100	<0.100	
TPH (C6-C8 aliphatic)	T209	M105	0.10	mg/kg	(110)<0.20	(110)<0.20	(100)<0.20	(100)<0.20	(110)<0.20	<0.10	(100)<0.20	(100)<0.20	<0.10	<0.10	
TPH (C8-C10 aliphatic)	T209	M105	0.10	mg/kg	(110)<0.20	(110)<0.20	(100)<0.20	(100)<0.20	(110)<0.20	<0.10	(100)<0.20	(100)<0.20	<0.10	<0.10	
TPH (C10-C12 aliphatic)	T206	M105	1	mg/kg	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	
TPH (C12-C16 aliphatic)	T206	M105	2	mg/kg	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	
TPH (C16-C21 aliphatic)	T206	M105	1	mg/kg	20	(9)<10	(9)<10	(9)<10	(9)<10	23	19	(9)<10	(9)<10	(9)<10	(9)<10
TPH (C21-C35 aliphatic)	T206	M105	4	mg/kg	210	(9)<10	(9)<10	(9)<10	(9)<10	260	220	(9)<10	(9)<10	(9)<10	(9)<10
TPH (C35-C44 aliphatic)	T8	M105	1	mg/kg	63	(9)<10	(9)<10	(9)<10	(9)<10	110	110	(9)<10	(9)<10	(9)<10	(9)<10
TPH (Aliphatic) total	T85	M105		mg/kg	290	N.D.	N.D.	N.D.	N.D.	390	350	N.D.	N.D.	N.D.	
TPH (C6-C7 aromatic)	T209	M105	0.10	mg/kg	(110)<0.20	(110)<0.20	(100)<0.20	(100)<0.20	(110)<0.20	<0.10	(100)<0.20	(100)<0.20	<0.10	<0.10	
TPH (C7-C8 aromatic)	T209	M105	0.10	mg/kg	(110)<0.20	(110)<0.20	(100)<0.20	(100)<0.20	(110)<0.20	<0.10	(100)<0.20	(100)<0.20	<0.10	<0.10	
TPH (C8-C10 aromatic)	T209	M105	0.10	mg/kg	(110)<0.20	(110)<0.20	(100)<0.20	(100)<0.20	(110)<0.20	<0.10	(100)<0.20	(100)<0.20	<0.10	<0.10	
TPH (C10-C12 aromatic)	T206	M105	1	mg/kg	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	
TPH (C12-C16 aromatic)	T206	M105	1	mg/kg	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	(9)<10	
TPH (C16-C21 aromatic)	T206	M105	1	mg/kg	22	(9)<10	(9)<10	47	(9)<10	26	16	(9)<10	(9)<10	(9)<10	(9)<10
TPH (C21-C35 aromatic)	T206	M105	1	mg/kg	360	(9)<10	(9)<10	440	(9)<10	410	320	280	(9)<10	(9)<10	(9)<10
TPH (C35-C44 aromatic)	T8	M105	1	mg/kg	150	(9)<10	(9)<10	170	(9)<10	220	200	260	(9)<10	(9)<10	(9)<10
TPH (Aromatic) total	T85	M105		mg/kg	530	N.D.	N.D.	660	N.D.	660	540	540	N.D.	N.D.	
TPH (Aliphatic+Aromatic) (sum)	T85	M105		mg/kg	830	N.D.	N.D.	660	N.D.	1000	880	540	N.D.	N.D.	

<p>SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606</p>													
Soil	Analysed as Soil												
TPH UKCWG													
		SAL Reference	488274 028	488274 032	488274 037	488274 041	488274 044	488274 047	488274 052	488274 055	488274 058	488274 061	
		Customer Sample Reference	L2014- TP08 ES 011	L2014- TP09 ES 005	L2014- TP10 ES 004	L2014- TP10 ES 014	L2014- TP11 ES 004	L2014- TP11 ES 011	L2014- TP12 ES 005	L2014- TP12 ES 004	L2014- TP13 ES 011	L2014- TP13 ES 004	L2014- TP14 ES 004
		Bottom Depth	3.00	1.00	0.50	4.00	0.50	3.00	1.00	0.50	3.00	0.50	0.50
		Date Sampled	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	17-JUN- 2015	18-JUN- 2015	18-JUN- 2015	18-JUN- 2015	18-JUN- 2015	18-JUN- 2015
		Type	Sandy Soil	Clay	Sandy Soil								
Determinand	Method	Test Sample	LOD	Units	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10
Benzene	T209	M105	10	µg/kg	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10
Toluene	T209	M105	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10
EthylBenzene	T209	M105	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methyl tert-Butyl Ether	T209	M105	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10
O Xylene	T209	M105	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10
M/P Xylene	T209	M105	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10
TPH (C5-C6 aliphatic)	T209	M105	0.100	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
TPH (C6-C8 aliphatic)	T209	M105	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C8-C10 aliphatic)	T209	M105	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C10-C12 aliphatic)	T206	M105	1	mg/kg	(9) <10	<1	<1	<1	<1	<1	(9) <10	<1	<1
TPH (C12-C16 aliphatic)	T206	M105	2	mg/kg	(9) <10	<2	<2	(9) <10	<2	<2	(9) <10	<2	(9) <10
TPH (C16-C21 aliphatic)	T206	M105	1	mg/kg	(9) <10	<1	<1	(9) <10	<1	<1	(9) <10	<1	(9) <10
TPH (C21-C35 aliphatic)	T206	M105	4	mg/kg	(9) <10	<4	<4	(9) <10	<4	<4	(9) <10	<4	(9) <10
TPH (C35-C44 aliphatic)	T8	M105	1	mg/kg	(9) <10	<1	<1	(9) <10	<1	<1	(9) <10	<1	(9) <10
TPH (Aliphatic) total	T85	M105		mg/kg	N.D.								
TPH (C6-C7 aromatic)	T209	M105	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C7-C8 aromatic)	T209	M105	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C8-C10 aromatic)	T209	M105	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C10-C12 aromatic)	T206	M105	1	mg/kg	(9) <10	<1	<1	(9) <10	<1	<1	(9) <10	<1	(9) <10
TPH (C12-C16 aromatic)	T206	M105	1	mg/kg	(9) <10	<1	<1	(9) <10	<1	<1	(9) <10	<1	(9) <10
TPH (C16-C21 aromatic)	T206	M105	1	mg/kg	(9) <10	<1	<1	(9) <10	<1	<1	(9) <10	<1	(9) <10
TPH (C21-C35 aromatic)	T206	M105	1	mg/kg	(9) <10	<1	<1	(9) <10	<1	<1	(9) <10	<1	(9) <10
TPH (C35-C44 aromatic)	T8	M105	1	mg/kg	(9) <10	<1	<1	(9) <10	<1	<1	(9) <10	<1	(9) <10
TPH (Aromatic) total	T85	M105		mg/kg	N.D.								
TPH (Aliphatic+Aromatic) (sum)	T85	M105		mg/kg	N.D.								

SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606												
Soil	Analysed as Soil											
PAH US EPA 16 (B and K split)												
		SAL Reference	488274 001	488274 003	488274 006	488274 008	488274 010	488274 012	488274 014	488274 017	488274 020	488274 025
		Customer Sample Reference	L2014-TP01 ES 001	L2014-TP01 ES 007	L2014-TP03 ES 001	L2014-TP03 ES 007	L2014-TP03 ES 013	L2014-TP04 ES 004	L2014-TP04 ES 008	L2014-TP05 ES 004	L2014-TP05 ES 011	L2014-TP08 ES 004
		Bottom Depth	0.15	2.25	0.30	2.50	3.80	0.50	2.00	0.50	3.00	0.50
		Date Sampled	17-JUN-2015									
		Type	Sandy Soil									
Determinand	Method	Test Sample	LOD	Units								
Naphthalene	T207	AR	0.1	mg/kg	<0.1	0.2	<0.1	<0.1	1.2	3.1	<0.1	0.4
Acenaphthylene	T207	AR	0.1	mg/kg	<0.1	0.1	0.1	<0.1	0.4	0.4	<0.1	<0.1
Acenaphthene	T207	AR	0.1	mg/kg	<0.1	0.3	<0.1	<0.1	1.0	1.0	<0.1	0.3
Fluorene	T207	AR	0.1	mg/kg	<0.1	0.3	<0.1	<0.1	1.1	1.2	<0.1	0.3
Phenanthrene	T207	AR	0.1	mg/kg	0.3	2.5	1.0	0.4	0.7	8.4	8.6	0.3
Anthracene	T207	AR	0.1	mg/kg	<0.1	0.7	0.2	<0.1	0.1	2.5	2.5	<0.1
Fluoranthene	T207	AR	0.1	mg/kg	0.6	3.6	2.1	0.8	1.1	9.7	9.5	0.6
Pyrene	T207	AR	0.1	mg/kg	0.7	3.4	2.0	0.8	1.0	9.8	9.3	0.6
Benzo(a)Anthracene	T207	AR	0.1	mg/kg	0.3	1.5	0.9	0.4	0.5	4.5	4.1	0.3
Chrysene	T207	AR	0.1	mg/kg	0.3	1.3	1.1	0.3	0.4	3.2	3.2	0.2
Benzo(b)fluoranthene	T207	AR	0.1	mg/kg	0.5	2.1	1.9	0.3	0.5	3.2	3.2	0.3
Benzo(k)fluoranthene	T207	AR	0.1	mg/kg	0.2	0.7	0.9	0.3	0.4	2.3	2.7	0.2
Benzo(a)Pyrene	T207	AR	0.1	mg/kg	0.5	1.6	1.3	0.3	0.6	3.9	4.0	0.4
Indeno(123-cd)Pyrene	T207	AR	0.1	mg/kg	0.2	0.6	0.7	0.2	0.4	1.9	1.9	0.3
Dibeno(ah)Anthracene	T207	AR	0.1	mg/kg	<0.1	0.2	0.2	<0.1	<0.1	0.6	0.6	<0.1
Benzo(ghi)Perylene	T207	AR	0.1	mg/kg	0.3	0.7	0.9	0.3	0.5	3.0	2.9	0.4
PAH(total)	T207	AR	0.1	mg/kg	3.9	20	13	4.0	6.1	57	58	3.6
												14
												1.6

SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606												
Soil	Analysed as Soil											
PAH US EPA 16 (B and K split)												
		SAL Reference	488274 028	488274 032	488274 037	488274 041	488274 044	488274 047	488274 052	488274 055	488274 058	488274 061
		Customer Sample Reference	L2014-TP08 ES 011	L2014-TP09 ES 005	L2014-TP10 ES 004	L2014-TP10 ES 014	L2014-TP11 ES 004	L2014-TP11 ES 011	L2014-TP12 ES 005	L2014-TP12 ES 004	L2014-TP13 ES 011	L2014-TP14 ES 004
		Bottom Depth	3.00	1.00	0.50	4.00	0.50	3.00	1.00	0.50	3.00	0.50
		Date Sampled	17-JUN-2015	17-JUN-2015	17-JUN-2015	17-JUN-2015	17-JUN-2015	17-JUN-2015	18-JUN-2015	18-JUN-2015	18-JUN-2015	18-JUN-2015
		Type	Sandy Soil	Clay	Sandy Soil							
Determinand	Method	Test Sample	LOD	Units								
Naphthalene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	0.1	<0.1
Anthracene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	T207	AR	0.1	mg/kg	0.1	<0.1	<0.1	0.8	<0.1	<0.1	0.2	<0.1
Pyrene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.7	<0.1	<0.1	0.1	<0.1
Benzo(a)Anthracene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1
Chrysene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1
Benzo(a)Pyrene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1
Indeno(123-cd)Pyrene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1
Dibeno(ah)Anthracene	T207	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)Perylene	T207	AR	0.1	mg/kg	0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1
PAH(total)	T207	AR	0.1	mg/kg	0.2	<0.1	<0.1	4.4	<0.1	<0.1	0.4	<0.1
												<0.1
												<0.1

SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606					
Water	Analysed as Water				
Suite F					
		SAL Reference	488274 035		
		Customer Sample Reference	L2014- TP09 EW 014		
		Bottom Depth	3.10		
		Date Sampled	17-JUN- 2015		
Determinand	Method	Test Sample	LOD	Units	
As (Dissolved)	T281	AR	0.2	µg/l	2.5
B (Dissolved)	T373	AR	0.01	mg/l	0.08
Cd (Dissolved)	T281	AR	0.02	µg/l	0.04
Chloride	T686	AR	1	mg/l	60
Cr (Dissolved)	T281	AR	1	µg/l	3
Chromium VI	T686	AR	0.003	mg/l	<0.003
Cu (Dissolved)	T281	AR	0.5	µg/l	10
Pb (Dissolved)	T281	AR	0.3	µg/l	0.7
Hg (Dissolved)	T281	AR	0.05	µg/l	<0.05
Ni (Dissolved)	T281	AR	1	µg/l	4
Se (Dissolved)	T281	AR	0.5	µg/l	1.6
Zn (Dissolved)	T281	AR	2	µg/l	4
Cyanide(Total)	T4	AR	0.05	mg/l	<0.05
Alkalinity expressed as CaCO ₃	T22	AR	10	mg/l	70
Hardness expressed as CaCO ₃	T6	AR	10	mg/l	76
Sulphate	T686	AR	0.5	mg/l	20
Total Organic Carbon	T21	AR	1	mg/l	370
Ammonia expressed as NH ₃	T686	AR	0.05	mg/l	0.15
pH	T7	AR			7.3

SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606					
Water	Analysed as Water				
Miscellaneous					
		SAL Reference	488274 035		
		Customer Sample Reference	L2014- TP09 EW 014		
		Bottom Depth	3.10		
		Date Sampled	17-JUN- 2015		
Determinand	Method	Test Sample	LOD	Units	
Phenols(Mono)	T4	AR	0.1	mg/l	<0.1
Sulphide	T4	AR	0.05	mg/l	<0.05
Sulphur (total)	T6	AR	50	mg/l	<50

SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606					
Water	Analysed as Water				
TPH UKCWG					
			SAL Reference	488274 035	
			Customer Sample Reference	L2014- TP09 EW 014	
			Bottom Depth	3.10	
			Date Sampled	17-JUN -2015	
Determinand	Method	Test Sample	LOD	Units	
Benzene	T54	AR	1	µg/l	(13) <1
EthylBenzene	T54	AR	1	µg/l	<1
M/P Xylene	T54	AR	1	µg/l	<1
Methyl tert-Butyl Ether	T54	AR	1	µg/l	<1
O Xylene	T54	AR	1	µg/l	<1
Toluene	T54	AR	1	µg/l	<1
TPH (C5-C6 aliphatic)	T215	AR	0.010	mg/l	<0.010
TPH (C6-C8 aliphatic)	T215	AR	0.010	mg/l	<0.010
TPH (C8-C10 aliphatic)	T215	AR	0.010	mg/l	<0.010
TPH DW(C10-C12 aliphatic)	T81	AR	0.01	mg/l	<0.01
TPH DW(C12-C16 aliphatic)	T81	AR	0.01	mg/l	<0.01
TPH DW(C16-C21 aliphatic)	T81	AR	0.01	mg/l	<0.01
TPH DW(C21-C35 aliphatic)	T81	AR	0.01	mg/l	<0.01
TPH (C35-C44 aliphatic)	T81	AR	0.01	mg/l	<0.01
TPH (Aliphatic) total	T85	AR		mg/l	N.D.
TPH (C6-C7 aromatic)	T215	AR	0.010	mg/l	<0.010
TPH (C7-C8 aromatic)	T215	AR	0.010	mg/l	<0.010
TPH (C8-C10 aromatic)	T215	AR	0.010	mg/l	<0.010
TPH DW(C10-C12 aromatic)	T81	AR	0.01	mg/l	<0.01
TPH DW(C12-C16 aromatic)	T81	AR	0.01	mg/l	<0.01
TPH DW(C16-C21 aromatic)	T81	AR	0.01	mg/l	<0.01
TPH DW(C21-C35 aromatic)	T81	AR	0.01	mg/l	<0.01
TPH (C35-C44 aromatic)	T81	AR	0.01	mg/l	<0.01
TPH (Aromatic) total	T85	AR		mg/l	N.D.
TPH (Aliphatic+Aromatic) (sum)	T85	AR		mg/l	N.D.
Total Petroleum Hydrocarbons (C5 - C10 aliphatic/aromatic)	T85	AR	0.010	mg/l	<0.010

<p>SAL Reference: 488274 Project Site: Bay of Nigg Customer Reference: TC7606</p> <p>Water Analysed as Water PAH US EPA 16 (B and K split) and Phenol</p>					
SAL Reference			488274 035		
Customer Sample Reference			L2014- TP09 EW 014		
Bottom Depth			3.10		
Date Sampled			17-JUN- 2015		
Determinand	Method	Test Sample	LOD	Units	
Naphthalene	T149	AR	0.01	µg/l	0.03
Acenaphthylene	T149	AR	0.01	µg/l	<0.01
Acenaphthene	T149	AR	0.01	µg/l	0.03
Fluorene	T149	AR	0.01	µg/l	0.05
Phenanthrene	T149	AR	0.01	µg/l	0.14
Anthracene	T149	AR	0.01	µg/l	0.04
Fluoranthene	T149	AR	0.01	µg/l	0.09
Pyrene	T149	AR	0.01	µg/l	0.08
Benzo(a)Anthracene	T149	AR	0.01	µg/l	0.08
Chrysene	T149	AR	0.01	µg/l	0.08
Benzo(b)fluoranthene	T149	AR	0.01	µg/l	0.22
Benzo(k)fluoranthene	T149	AR	0.01	µg/l	0.12
Benzo(a)Pyrene	T149	AR	0.01	µg/l	0.12
Indeno(123-cd)Pyrene	T149	AR	0.01	µg/l	0.10
Dibenzo(ah)Anthracene	T149	AR	0.01	µg/l	0.05
Benzo(ghi)Perylene	T149	AR	0.01	µg/l	0.14
PAH(total)	T149	AR	0.01	µg/l	1.4
Phenol	T149	AR	0.5	µg/l	<0.5

Index to symbols used in 488274-1

Value	Description
M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
AR	As Received
M40	Analysis conducted on sample assisted dried at no more than 40C. Results are reported on a dry weight basis.
N.D.	Not Detected
13	Results have been blank corrected.
100	LOD determined by sample aliquot used for analysis
110	LOD raised due to low internal standard recovery.
9	LOD raised due to dilution of sample
S	Analysis was subcontracted
M	Analysis is MCERTS accredited
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Asbestos was subcontracted to REC Asbestos

Method Index

Value	Description
T281	ICP/MS (Filtered)
T21	OX/IR
T206	GC/FID (MCERTS)
T546	Colorimetry (CF)
T4	Colorimetry
T8	GC/FID
T54	GC/MS (Headspace)
T85	Calc
T81	GC/FID (LV)
T7	Probe



Scientific Analysis Laboratories Ltd

Certificate of Analysis

Scientific Analysis Laboratories is a limited company registered in England and Wales (No 2514788) whose address is at Hadfield House, Hadfield Street, Manchester M16 9FE

Hadfield House
Hadfield Street
Cornbrook
Manchester
M16 9FE

Tel : 0161 874 2400
Fax : 0161 874 2468

Report Number: 490426-1

Date of Report: 13-Jul-2015

Customer: Soil Engineering Geoservices Limited
Parkside Lane
Dewsbury Road
Leeds
West Yorkshire.
LS11 5SX

Customer Contact: Mr Jonathan Norton

Customer Job Reference: TC7606

Customer Site Reference: Bay of Nigg Harbour Development, Nigg Bay, GI

Date Job Received at SAL: 29-Jun-2015

Date Analysis Started: 03-Jul-2015

Date Analysis Completed: 09-Jul-2015

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



1549



Report checked
and authorised by :
Natasha Wild
Project Manager

Issued by :
Natasha Wild
Project Manager

SAL Reference: 490426																																																
Project Site: Bay of Nigg Harbour Development, Nigg Bay, GI																																																
Customer Reference: TC7606																																																
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Type			Sandy Soil	Sandy Soil																																												
Determinand	Method	Test Sample	LOD	Units																																												
SO4(Total)	T6	M40	0.01	%	0.11	<0.01																																										
Sulphide	T4	AR	10	mg/kg	<10	<10																																										
Sulphur (total)	T6	M40	0.01	%	0.04	<0.01																																										
Vanadium	T6	M40	1	mg/kg	35	11																																										

SAL Reference: 490426																																																
Project Site: Bay of Nigg Harbour Development, Nigg Bay, GI																																																
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Type			Sandy Soil	Sandy Soil																																												
Determinand	Method	Test Sample	LOD	Units																																												
Retained on 10mm sieve	T2	AR	0.1	%	<0.1	<0.1																																										
Moisture @ 105 C	T162	AR	0.1	%	6.3	6.8																																										

SAL Reference: 490426																																																
Project Site: Bay of Nigg Harbour Development, Nigg Bay, GI																																																
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Date Sampled			19-JUN-2015	19-JUN-2015																																												
Type			Sandy Soil	Sandy Soil																																												
Determinand	Method	Test Sample	LOD	Units																																												
Arsenic	T6	M40	2	mg/kg	19	5																																										
Asbestos ID	T27	AR			N.D.	N.D.																																										
Boron (water-soluble)	T6	AR	1	mg/kg	<1	<1																																										
Cadmium	T6	M40	1	mg/kg	<1	<1																																										
Chromium	T6	M40	1	mg/kg	27	9																																										
Chromium VI	T6	AR	1	mg/kg	<1	<1																																										
Copper	T6	M40	1	mg/kg	23	4																																										
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1																																										
Lead	T6	M40	1	mg/kg	27	3																																										
Mercury	T6	M40	1	mg/kg	<1	<1																																										
Nickel	T6	M40	1	mg/kg	22	6																																										
pH	T7	AR			7.3	7.2																																										
Phenols(Mono)	T546	AR	1	mg/kg	<1	<1																																										
Selenium	T6	M40	3	mg/kg	<3	<3																																										
Soil Organic Matter	T287	AR	0.1	%	5.8	0.3																																										
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	10	mg/l	(13)<10	(13)<10																																										
Zinc	T6	M40	1	mg/kg	55	20																																										

SAL Reference: 490426 Project Site: Bay of Nigg Harbour Development, Nigg Bay, GI Customer Reference: TC7606						
Soil Analysed as Soil						
PAH US EPA 16 (B and K split)						
		SAL Reference	490426 002	490426 005		
		Customer Sample Reference	L2014-TP18 ES 004	L2014-TP18 ES 011		
		Bottom Depth	0.50	2.15		
		Top Depth	0.50	2.15		
		Date Sampled	19-JUN-2015	19-JUN-2015		
		Type	Sandy Soil	Sandy Soil		
Determinand	Method	Test Sample	LOD	Units		
Naphthalene	T207	M105	0.1	mg/kg	<0.1	<0.1
Acenaphthylene	T207	M105	0.1	mg/kg	<0.1	<0.1
Acenaphthene	T207	M105	0.1	mg/kg	<0.1	<0.1
Fluorene	T207	M105	0.1	mg/kg	<0.1	<0.1
Phenanthrene	T207	M105	0.1	mg/kg	0.1	<0.1
Anthracene	T207	M105	0.1	mg/kg	<0.1	<0.1
Fluoranthene	T207	M105	0.1	mg/kg	0.2	<0.1
Pyrene	T207	M105	0.1	mg/kg	0.2	<0.1
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	<0.1	<0.1
Chrysene	T207	M105	0.1	mg/kg	<0.1	<0.1
Benzo(b)fluoranthene	T207	M105	0.1	mg/kg	<0.1	<0.1
Benzo(k)fluoranthene	T207	M105	0.1	mg/kg	<0.1	<0.1
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	<0.1	<0.1
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	<0.1	<0.1
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	<0.1	<0.1
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	<0.1	<0.1
PAH(total)	T207	M105	0.1	mg/kg	0.4	<0.1

<p>SAL Reference: 490426 Project Site: Bay of Nigg Harbour Development, Nigg Bay, GI Customer Reference: TC7606</p> <p>Soil Analysed as Soil TPH UKCWG</p>					
		SAL Reference	490426 002	490426 005	
		Customer Sample Reference	L2014-TP18 ES 004	L2014-TP18 ES 011	
		Bottom Depth	0.50	2.15	
		Top Depth	0.50	2.15	
		Date Sampled	19-JUN-2015	19-JUN-2015	
		Type	Sandy Soil	Sandy Soil	
Determinand	Method	Test Sample	LOD	Units	
Benzene	T209	M105	10	µg/kg	(13) <10
Toluene	T209	M105	10	µg/kg	<10
EthylBenzene	T209	M105	10	µg/kg	<10
Methyl tert-Butyl Ether	T209	M105	10	µg/kg	<10
O Xylene	T209	M105	10	µg/kg	<10
M/P Xylene	T209	M105	10	µg/kg	<10
TPH (C5-C6 aliphatic)	T209	M105	100	µg/kg	<100
TPH (C6-C8 aliphatic)	T209	M105	100	µg/kg	<100
TPH (C8-C10 aliphatic)	T209	M105	100	µg/kg	<100
TPH (C10-C12 aliphatic)	T206	M105	1	mg/kg	<1
TPH (C12-C16 aliphatic)	T206	M105	2	mg/kg	<2
TPH (C16-C21 aliphatic)	T206	M105	1	mg/kg	<1
TPH (C21-C35 aliphatic)	T206	M105	4	mg/kg	<4
TPH (C35-C44 aliphatic)	T8	M105	1	mg/kg	<1
TPH (Aliphatic) total	T85	M105		mg/kg	N.D.
TPH (C6-C7 aromatic)	T209	M105	100	µg/kg	<100
TPH (C7-C8 aromatic)	T209	M105	100	µg/kg	<100
TPH (C8-C10 aromatic)	T209	M105	100	µg/kg	<100
TPH (C10-C12 aromatic)	T206	M105	1	mg/kg	<1
TPH (C12-C16 aromatic)	T206	M105	1	mg/kg	<1
TPH (C16-C21 aromatic)	T206	M105	1	mg/kg	<1
TPH (C21-C35 aromatic)	T206	M105	1	mg/kg	<1
TPH (C35-C44 aromatic)	T8	M105	1	mg/kg	<1
TPH (Aromatic) total	T85	M105		mg/kg	N.D.
TPH (Aliphatic+Aromatic) (sum)	T85	M105		mg/kg	N.D.

Index to symbols used in 490426-1

Value	Description
M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
AR	As Received
M40	Analysis conducted on sample assisted dried at no more than 40C. Results are reported on a dry weight basis.
N.D.	Not Detected
13	Results have been blank corrected.
S	Analysis was subcontracted
M	Analysis is MCERTS accredited
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Asbestos was subcontracted to REC Asbestos

Method Index

Value	Description
T287	Calc TOC/0.58
T242	2:1 Extraction/ICP/OES (TRL 447 T1)
T6	ICP/OES

T4	Colorimetry
T7	Probe
T8	GC/FID
T27	PLM
T162	Grav (1 Dec) (105 C)
T209	GC/MS(Head Space)(MCERTS)
T2	Grav
T85	Calc
T546	Colorimetry (CF)
T206	GC/FID (MCERTS)
T207	GC/MS (MCERTS)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
SO4(Total)	T6	M40	0.01	%	U	002,005
Sulphide	T4	AR	10	mg/kg	N	002,005
Sulphur (total)	T6	M40	0.01	%	M	002,005
Vanadium	T6	M40	1	mg/kg	M	002,005
Retained on 10mm sieve	T2	AR	0.1	%	N	002,005
Moisture @ 105 C	T162	AR	0.1	%	N	002,005
Arsenic	T6	M40	2	mg/kg	M	002,005
Asbestos ID	T27	AR			SU	002,005
Boron (water-soluble)	T6	AR	1	mg/kg	N	002,005
Cadmium	T6	M40	1	mg/kg	M	002,005
Chromium	T6	M40	1	mg/kg	M	002,005
Chromium VI	T6	AR	1	mg/kg	N	002,005
Copper	T6	M40	1	mg/kg	M	002,005
Cyanide(Total)	T4	AR	1	mg/kg	M	002,005
Lead	T6	M40	1	mg/kg	M	002,005
Mercury	T6	M40	1	mg/kg	M	002,005
Nickel	T6	M40	1	mg/kg	M	002,005
pH	T7	AR			M	002,005
Phenols(Mono)	T546	AR	1	mg/kg	M	002,005
Selenium	T6	M40	3	mg/kg	M	002,005
Soil Organic Matter	T287	AR	0.1	%	N	002,005
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	10	mg/l	N	002,005
Zinc	T6	M40	1	mg/kg	M	002,005
Naphthalene	T207	M105	0.1	mg/kg	M	002,005
Acenaphthylene	T207	M105	0.1	mg/kg	U	002,005
Acenaphthene	T207	M105	0.1	mg/kg	M	002,005
Fluorene	T207	M105	0.1	mg/kg	M	002,005
Phenanthrene	T207	M105	0.1	mg/kg	M	002,005
Anthracene	T207	M105	0.1	mg/kg	U	002,005
Fluoranthene	T207	M105	0.1	mg/kg	M	002,005
Pyrene	T207	M105	0.1	mg/kg	M	002,005
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	M	002,005
Chrysene	T207	M105	0.1	mg/kg	M	002,005
Benzo(b)fluoranthene	T207	M105	0.1	mg/kg	M	002,005
Benzo(k)fluoranthene	T207	M105	0.1	mg/kg	M	002,005
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	M	002,005
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	M	002,005
Dibenz(a,h)Anthracene	T207	M105	0.1	mg/kg	M	002,005
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	M	002,005
PAH(total)	T207	M105	0.1	mg/kg	U	002,005
Benzene	T209	M105	10	µg/kg	M	002,005
Toluene	T209	M105	10	µg/kg	M	002,005
EthylBenzene	T209	M105	10	µg/kg	M	002,005
Methyl tert-Butyl Ether	T209	M105	10	µg/kg	M	002,005
O Xylene	T209	M105	10	µg/kg	M	002,005
M/P Xylene	T209	M105	10	µg/kg	M	002,005
TPH (C5-C6 aliphatic)	T209	M105	100	µg/kg	N	002,005
TPH (C6-C8 aliphatic)	T209	M105	100	µg/kg	N	002,005
TPH (C8-C10 aliphatic)	T209	M105	100	µg/kg	N	002,005
TPH (C10-C12 aliphatic)	T206	M105	1	mg/kg	N	002,005
TPH (C12-C16 aliphatic)	T206	M105	2	mg/kg	M	002,005
TPH (C16-C21 aliphatic)	T206	M105	1	mg/kg	M	002,005
TPH (C21-C35 aliphatic)	T206	M105	4	mg/kg	M	002,005
TPH (C35-C44 aliphatic)	T8	M105	1	mg/kg	N	002,005
TPH (Aliphatic) total	T85	M105		mg/kg	N	002,005

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
TPH (C6-C7 aromatic)	T209	M105	100	µg/kg	N	002,005
TPH (C7-C8 aromatic)	T209	M105	100	µg/kg	N	002,005
TPH (C8-C10 aromatic)	T209	M105	100	µg/kg	N	002,005
TPH (C10-C12 aromatic)	T206	M105	1	mg/kg	M	002,005
TPH (C12-C16 aromatic)	T206	M105	1	mg/kg	M	002,005
TPH (C16-C21 aromatic)	T206	M105	1	mg/kg	M	002,005
TPH (C21-C35 aromatic)	T206	M105	1	mg/kg	M	002,005
TPH (C35-C44 aromatic)	T8	M105	1	mg/kg	N	002,005
TPH (Aromatic) total	T85	M105		mg/kg	N	002,005
TPH (Aliphatic+Aromatic) (sum)	T85	M105		mg/kg	N	002,005



T215	GC/MS (Headspace)(LV)
T373	ICP/OES (Filtered)
T287	Calc TOC/0.58
T22	Titration
T149	GC/MS (SIR)
T686	Discrete Analyser
T6	ICP/OES
T207	GC/MS (MCERTS)
T209	GC/MS(Head Space)(MCERTS)
T242	2:1 Extraction/ICP/OES (TRL 447 T1)
T2	Grav
T27	PLM
T162	Grav (1 Dec) (105 C)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Moisture @ 105 C	T162	AR	0.1	%	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Retained on 10mm sieve	T2	M40	0.1	%	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Asbestos ID	T27	AR			SU	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Arsenic	T6	M40	2	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Boron (water-soluble)	T6	AR	1	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Cadmium	T6	M40	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Chromium	T6	M40	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Chromium VI	T6	AR	1	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Copper	T6	M40	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Lead	T6	M40	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Mercury	T6	M40	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Nickel	T6	M40	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Zinc	T6	M40	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
pH	T7	AR			M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Phenols(Mono)	T546	AR	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Selenium	T6	M40	3	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Soil Organic Matter	T287	M40	0.1	%	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	10	mg/l	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Cyanide(Total)	T4	AR	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Sulphide	T4	AR	10	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Sulphur (total)	T6	AR	0.01	%	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Benzene	T209	M105	10	µg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Toluene	T209	M105	10	µg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
EthylBenzene	T209	M105	10	µg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Methyl tert-Butyl Ether	T209	M105	10	µg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
O Xylene	T209	M105	10	µg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
M/P Xylene	T209	M105	10	µg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C5-C6 aliphatic)	T209	M105	0.100	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C6-C8 aliphatic)	T209	M105	0.10	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C8-C10 aliphatic)	T209	M105	0.10	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C10-C12 aliphatic)	T206	M105	1	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C12-C16 aliphatic)	T206	M105	2	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C16-C21 aliphatic)	T206	M105	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
TPH (C21-C35 aliphatic)	T206	M105	4	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C35-C44 aliphatic)	T8	M105	1	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (Aliphatic) total	T85	M105		mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C6-C7 aromatic)	T209	M105	0.10	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C7-C8 aromatic)	T209	M105	0.10	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C8-C10 aromatic)	T209	M105	0.10	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C10-C12 aromatic)	T206	M105	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C12-C16 aromatic)	T206	M105	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C16-C21 aromatic)	T206	M105	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C21-C35 aromatic)	T206	M105	1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (C35-C44 aromatic)	T8	M105	1	mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (Aromatic) total	T85	M105		mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
TPH (Aliphatic+Aromatic) (sum)	T85	M105		mg/kg	N	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Naphthalene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Acenaphthylene	T207	AR	0.1	mg/kg	U	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Acenaphthene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Fluorene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Phenanthrene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Anthracene	T207	AR	0.1	mg/kg	U	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Fluoranthene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Pyrene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Benzo(a)Anthracene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Chrysene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Benzo(b)fluoranthene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Benzo(k)fluoranthene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Benzo(a)Pyrene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Indeno(123-cd)Pyrene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Dibenzo(ah)Anthracene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
Benzo(ghi)Perylene	T207	AR	0.1	mg/kg	M	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
PAH(total)	T207	AR	0.1	mg/kg	U	001,003,006,008,010,012,014,017,020,025,028,032,037,041,044,0 47,052,055,058,061
As (Dissolved)	T281	AR	0.2	µg/l	U	035
B (Dissolved)	T373	AR	0.01	mg/l	N	035
Cd (Dissolved)	T281	AR	0.02	µg/l	U	035
Chloride	T686	AR	1	mg/l	U	035
Cr (Dissolved)	T281	AR	1	µg/l	U	035
Chromium VI	T686	AR	0.003	mg/l	U	035
Cu (Dissolved)	T281	AR	0.5	µg/l	U	035
Pb (Dissolved)	T281	AR	0.3	µg/l	U	035
Hg (Dissolved)	T281	AR	0.05	µg/l	U	035
Ni (Dissolved)	T281	AR	1	µg/l	U	035
Se (Dissolved)	T281	AR	0.5	µg/l	U	035
Zn (Dissolved)	T281	AR	2	µg/l	U	035
Alkalinity expressed as CaCO ₃	T22	AR	10	mg/l	N	035
Cyanide(Total)	T4	AR	0.05	mg/l	U	035
Hardness expressed as CaCO ₃	T6	AR	10	mg/l	N	035
Sulphate	T686	AR	0.5	mg/l	U	035
Total Organic Carbon	T21	AR	1	mg/l	U	035
Ammonia expressed as NH ₃	T686	AR	0.05	mg/l	U	035
pH	T7	AR			U	035
Phenols(Mono)	T4	AR	0.1	mg/l	U	035
Sulphide	T4	AR	0.05	mg/l	N	035
Sulphur (total)	T6	AR	50	mg/l	N	035

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Benzene	T54	AR	1	µg/l	U	035
EthylBenzene	T54	AR	1	µg/l	U	035
M/P Xylene	T54	AR	1	µg/l	U	035
Methyl tert-Butyl Ether	T54	AR	1	µg/l	U	035
O Xylene	T54	AR	1	µg/l	U	035
Toluene	T54	AR	1	µg/l	U	035
TPH (C5-C6 aliphatic)	T215	AR	0.010	mg/l	N	035
TPH (C6-C8 aliphatic)	T215	AR	0.010	mg/l	N	035
TPH (C8-C10 aliphatic)	T215	AR	0.010	mg/l	N	035
TPH DW(C10-C12 aliphatic)	T81	AR	0.01	mg/l	N	035
TPH DW(C12-C16 aliphatic)	T81	AR	0.01	mg/l	N	035
TPH DW(C16-C21 aliphatic)	T81	AR	0.01	mg/l	N	035
TPH DW(C21-C35 aliphatic)	T81	AR	0.01	mg/l	N	035
TPH (C35-C44 aliphatic)	T81	AR	0.01	mg/l	N	035
TPH (Aliphatic) total	T85	AR		mg/l	N	035
TPH (C6-C7 aromatic)	T215	AR	0.010	mg/l	N	035
TPH (C7-C8 aromatic)	T215	AR	0.010	mg/l	N	035
TPH (C8-C10 aromatic)	T215	AR	0.010	mg/l	N	035
TPH DW(C10-C12 aromatic)	T81	AR	0.01	mg/l	N	035
TPH DW(C12-C16 aromatic)	T81	AR	0.01	mg/l	N	035
TPH DW(C16-C21 aromatic)	T81	AR	0.01	mg/l	N	035
TPH DW(C21-C35 aromatic)	T81	AR	0.01	mg/l	N	035
TPH (C35-C44 aromatic)	T81	AR	0.01	mg/l	N	035
TPH (Aromatic) total	T85	AR		mg/l	N	035
TPH (Aliphatic+Aromatic) (sum)	T85	AR		mg/l	N	035
Total Petroleum Hydrocarbons (C5 - C10 aliphatic/aromatic)	T85	AR	0.010	mg/l	N	035
Naphthalene	T149	AR	0.01	µg/l	U	035
Acenaphthylene	T149	AR	0.01	µg/l	U	035
Acenaphthene	T149	AR	0.01	µg/l	U	035
Fluorene	T149	AR	0.01	µg/l	U	035
Phenanthrene	T149	AR	0.01	µg/l	U	035
Anthracene	T149	AR	0.01	µg/l	U	035
Fluoranthene	T149	AR	0.01	µg/l	U	035
Pyrene	T149	AR	0.01	µg/l	U	035
Benzo(a)Anthracene	T149	AR	0.01	µg/l	U	035
Chrysene	T149	AR	0.01	µg/l	U	035
Benzo(b)fluoranthene	T149	AR	0.01	µg/l	U	035
Benzo(k)fluoranthene	T149	AR	0.01	µg/l	U	035
Benzo(a)Pyrene	T149	AR	0.01	µg/l	U	035
Indeno(123-cd)Pyrene	T149	AR	0.01	µg/l	U	035
Dibenzo(ah)Anthracene	T149	AR	0.01	µg/l	U	035
Benzo(ghi)Perylene	T149	AR	0.01	µg/l	U	035
PAH(total)	T149	AR	0.01	µg/l	U	035
Phenol	T149	AR	0.5	µg/l	U	035



Scientific Analysis Laboratories Ltd

Certificate of Analysis

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Report Number: 491352-2

Date of Report: 16-Jul-2015

Customer: Soil Engineering Geoservices Limited
Parkside Lane
Dewsbury Road
Leeds
West Yorkshire.
LS11 5SX

Customer Contact: Mr Stuart Kirk

Customer Job Reference: TC7606

Customer Site Reference: Bay of Nigg Harbour Development Ground Investigation

Date Job Received at SAL: 03-Jul-2015

Date Analysis Started: 08-Jul-2015

Date Analysis Completed: 16-Jul-2015

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

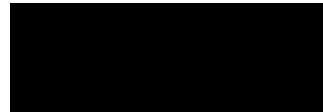
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
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Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



1549

Report checked
and authorised by :
Simi Okanlami
Project Manager

Issued by :
Simi Okanlami
Project Manager



SAL Reference: 491352 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606								
Soil	Analysed as Soil							
Miscellaneous								
SAL Reference					491352 001	491352 002	491352 003	491352 004
Customer Sample Reference					L2014-2 D006 @ 1.200m	L2014-2 D017 @ 5.000m	L2014-7W D010 @ 2.000m	L2014-12 D011 @ 1.700m
Date Sampled					30-JUN-2015	30-JUN-2015	30-JUN-2015	30-JUN-2015
Determinand	Method	Test Sample	LOD	Units				
(Water soluble) Ammonia expressed as NH4	T710	AR	0.01	g/l	<0.01	<0.01	-	<0.01
(Water soluble) Cl-	T710	A40	0.01	g/l	0.01	0.07	0.04	0.04
(Water soluble) Mg	T251	A40	1	mg/l	3	4	-	7
(Water soluble) NO3	T710	A40	0.01	g/l	<0.01	<0.01	0.08	<0.01
(Water Soluble) SO4 expressed as SO4	T242	A40	0.01	g/l	0.02	0.03	0.12	0.07
Sulphide	T4	A40	10	mg/kg	<10	<10	-	<10
pH	T7	A40			9.2	8.8	8.5	8.1
Retained on 2mm	T2	A40	0.1	%	<0.1	<0.1	<0.1	<0.1
								(32)<0.1

SAL Reference: 491352 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606								
Soil	Analysed as Soil							
Miscellaneous								
SAL Reference					491352 006	491352 007	491352 008	491352 009
Customer Sample Reference					L2014-13 D010 @ 1.200m	L2014-13 D020 @ 4.000m	L2014-14 D009 @ 1.500m	L2014-17 D011 @ 1.700m
Date Sampled					30-JUN-2015	30-JUN-2015	30-JUN-2015	30-JUN-2015
Determinand	Method	Test Sample	LOD	Units				
(Water soluble) Ammonia expressed as NH4	T710	AR	0.01	g/l	<0.01	<0.01	<0.01	<0.01
(Water soluble) Cl-	T710	A40	0.01	g/l	0.19	0.41	0.02	0.01
(Water soluble) Mg	T251	A40	1	mg/l	17	21	3	2
(Water soluble) NO3	T710	A40	0.01	g/l	<0.01	<0.01	<0.01	<0.01
Organic Matter	T258	A40	0.5	%	-	-	-	-
(Water Soluble) SO4 expressed as SO4	T242	A40	0.01	g/l	0.07	0.10	0.03	0.01
(Acid Soluble) SO4	T192	A40	0.01	%	0.03	0.04	0.02	0.02
Sulphide	T4	A40	10	mg/kg	<10	<10	<10	<10
Sulphur (total)	T6	A40	0.01	%	0.03	0.02	0.02	<0.01
pH	T7	A40			5.9	7.4	8.7	6.8
Retained on 2mm	T2	A40	0.1	%	(32)<0.1	<0.1	<0.1	<0.1
								(32)<0.1

SAL Reference: 491352 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606								
Soil	Analysed as Soil							
Miscellaneous								
SAL Reference					491352 011	491352 012	491352 013	491352 014
Customer Sample Reference					L2014-24W D034 @ 11.000m	L2014-27 D010 @ 2.200m	L2014-27 D020 @ 5.000-5.450m	L2014-27 D028 @ 9.000m
Date Sampled					30-JUN-2015	30-JUN-2015	30-JUN-2015	30-JUN-2015
Determinand	Method	Test Sample	LOD	Units				
(Water soluble) Ammonia expressed as NH4	T710	AR	0.01	g/l	<0.01	-	-	-
(Water soluble) Cl-	T710	A40	0.01	g/l	0.02	0.03	0.04	0.03
(Water soluble) Mg	T251	A40	1	mg/l	7	-	-	-
(Water soluble) NO3	T710	A40	0.01	g/l	<0.01	<0.01	<0.01	<0.01
(Water Soluble) SO4 expressed as SO4	T242	A40	0.01	g/l	0.09	0.03	0.03	0.02
(Acid Soluble) SO4	T192	A40	0.01	%	0.03	-	-	-
Sulphide	T4	A40	10	mg/kg	<10	-	-	-
Sulphur (total)	T6	A40	0.01	%	0.06	-	-	-
pH	T7	A40			7.2	7.1	7.6	7.6
Retained on 2mm	T2	A40	0.1	%	<0.1	<0.1	(32)<0.1	(32)<0.1
								(32)<0.1

SAL Reference: 491352

Project Site: Bay of Nigg Harbour Development Ground Investigation

Customer Reference: TC7606

Soil Analysed as Soil
Miscellaneous

SAL Reference			491352 016	491352 017	491352 018	491352 019	491352 020
Customer Sample Reference			L2014-28 D017 @ 3.200-3.650m	L2014-28 D026 @ 6.700-7.150m	L2014-29 D005 @ 0.500m	L2014-29 D013 @ 3.000m	L2014-29 D020 @ 6.200m
Date Sampled			30-JUN-2015	30-JUN-2015	30-JUN-2015	30-JUN-2015	30-JUN-2015
Determinand	Method	Test Sample	LOD	Units			
(Water soluble) Cl-	T710	A40	0.01	g/l	<0.01	0.04	0.01
(Water soluble) NO3	T710	A40	0.01	g/l	<0.01	<0.01	<0.01
(Water Soluble) SO4 expressed as SO4	T242	A40	0.01	g/l	0.01	0.02	0.02
pH	T7	A40			8.2	7.6	6.6
Retained on 2mm	T2	A40	0.1	%	(32) <0.1	(32) <0.1	<0.1
							<0.1

SAL Reference: 491352

Project Site: Bay of Nigg Harbour Development Ground Investigation

Customer Reference: TC7606

Water Analysed as Water
Miscellaneous

SAL Reference			491352 021
Customer Sample Reference			L2014-14 W020 @ 4.000m
Date Sampled			18-MAY-2015
Determinand	Method	Test Sample	LOD
Ammonia expressed as NH4	T686	F	0.05
Aggressive CO2	T512	AR	10
Chloride	T686	F	1
Magnesium	T6	F	0.1
Nitrate	T686	F	0.5
Sulphate	T686	F	0.5
Total Dissolved Solids	T118	F	10
pH	T7	F	
			7.0

Index to symbols used in 491352-2

Value	Description
AR	As Received
F	Filtered
A40	Assisted dried < 40C
32	Whole sample was crushed
IS	Insufficient Sample
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Carbon Dioxide (021) - No result due to insufficient amount of sample

Method Index

Value	Description
T4	Colorimetry
T118	Grav (4 Sig)(II)
T512	Titration (BS13577)
T686	Discrete Analyser
T251	2:1 Extraction/ICP/OES
T2	Grav
T258	Titration (Dichromate)
T242	2:1 Extraction/ICP/OES (TRL 447 T1)
T192	HCl Extraction/ICP/OES (TRL 447 T2)
T710	2:1 Extraction / Discrete Analyser

T6	ICP/OES
T7	Probe

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
(Water soluble) Ammonia expressed as NH4	T710	AR	0.01	g/l	N	001-002,004-011
(Water soluble) Cl-	T710	A40	0.01	g/l	N	001-020
(Water soluble) Mg	T251	A40	1	mg/l	N	001-002,004-011
(Water soluble) NO3	T710	A40	0.01	g/l	N	001-020
Organic Matter	T258	A40	0.5	%	N	010
(Water Soluble) SO4 expressed as SO4	T242	A40	0.01	g/l	U	001-020
(Acid Soluble) SO4	T192	A40	0.01	%	U	006-011
Sulphide	T4	A40	10	mg/kg	N	001-002,004-011
Sulphur (total)	T6	A40	0.01	%	U	006-011
pH	T7	A40			U	001-020
Retained on 2mm	T2	A40	0.1	%	N	001-020
Ammonia expressed as NH4	T686	F	0.05	mg/l	U	021
Aggressive CO2	T512	AR	10	mg/l	N	021
Chloride	T686	F	1	mg/l	U	021
Magnesium	T6	F	0.1	mg/l	U	021
Nitrate	T686	F	0.5	mg/l	U	021
Sulphate	T686	F	0.5	mg/l	U	021
Total Dissolved Solids	T118	F	10	mg/l	N	021
pH	T7	F			U	021



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Scientific Analysis Laboratories Ltd

Certificate of Analysis

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Report Number: 492021-1

Date of Report: 21-Jul-2015

Customer: Soil Engineering Geoservices Limited
Parkside Lane
Dewsbury Road
Leeds
West Yorkshire.
LS11 5SX

Customer Contact: Mr Andrew De Joux

Customer Job Reference: TC7606

Customer Site Reference: Bay of Nigg Harbour Development Ground Investigation

Date Job Received at SAL: 01-Jul-2015

Date Analysis Started: 09-Jul-2015

Date Analysis Completed: 20-Jul-2015

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



1549



Report checked
and authorised by :
Natasha Wild
Project Manager

Issued by :
Natasha Wild
Project Manager



<p>SAL Reference: 492021 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606</p> <p>Soil Analysed as Soil Moisture</p>													
SAL Reference			492021 002	492021 004	492021 006	492021 008	492021 010	492021 012	492021 015	492021 017	492021 020		
Customer Sample Reference			L2014- TP07 ES 004	L2014- TP07 ES 008	L2014- TP20 ES 004	L2014- TP20 ES 008	L2014- TP21 ES 004	L2014- TP21 ES 008	L2014- TP22 ES 004	L2014- TP22 ES 008	L2014- TP23 ES 004		
Bottom Depth			0.50	2.00	0.50	2.00	0.50	2.00	0.50	1.50	0.50		
Top Depth			0.50	2.00	0.50	2.00	0.50	2.00	0.50	1.50	0.50		
Date Sampled			30-JUN- 2015	30-JUN- 2015	29-JUN- 2015	29-JUN- 2015	30-JUN- 2015	30-JUN- 2015	29-JUN- 2015	29-JUN- 2015	29-JUN- 2015		
Type			Sandy Soil										
Determinand	Method	Test Sample	LOD	Units									
Moisture @ 105 C	T162	AR	0.1	%	8.8	6.4	16	3.5	13	11	9.1	14	5.8

<p>SAL Reference: 492021 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606</p> <p>Soil Analysed as Soil Miscellaneous</p>											
SAL Reference			492021 002	492021 004	492021 006	492021 008	492021 010	492021 012	492021 015	492021 017	492021 020
Customer Sample Reference			L2014- TP07 ES 004	L2014- TP07 ES 008	L2014- TP20 ES 004	L2014- TP20 ES 008	L2014- TP21 ES 004	L2014- TP21 ES 008	L2014- TP22 ES 004	L2014- TP22 ES 008	L2014- TP23 ES 004
Bottom Depth			0.50	2.00	0.50	2.00	0.50	2.00	0.50	1.50	0.50
Top Depth			0.50	2.00	0.50	2.00	0.50	2.00	0.50	1.50	0.50
Date Sampled			30-JUN- 2015	30-JUN- 2015	29-JUN- 2015	29-JUN- 2015	30-JUN- 2015	30-JUN- 2015	29-JUN- 2015	29-JUN- 2015	29-JUN- 2015
Type			Sandy Soil								
Determinand	Method	Test Sample	LOD	Units							
Retained on 10mm sieve	T2	M40	0.1	%	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SO4(Total)	T6	M40	0.01	%	0.06	0.04	0.05	0.04	0.05	0.04	0.07
Sulphide	T4	M40	10	mg/kg	<10	<10	<10	<10	<10	<10	<10
Sulphur (total)	T6	M40	0.01	%	0.03	0.02	0.03	0.03	0.02	0.02	0.29
Vanadium	T6	M40	1	mg/kg	36	34	33	31	36	48	30

<p>SAL Reference: 492021 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606</p>													
Soil	Analysed as Soil												
Suite E													
		SAL Reference	492021 002	492021 004	492021 006	492021 008	492021 010	492021 012	492021 015	492021 017	492021 020		
Customer Sample Reference			L2014- TP07 ES 004	L2014- TP07 ES 008	L2014- TP20 ES 004	L2014- TP20 ES 008	L2014- TP21 ES 004	L2014- TP21 ES 008	L2014- TP22 ES 004	L2014- TP22 ES 008	L2014- TP23 ES 004		
Bottom Depth			0.50	2.00	0.50	2.00	0.50	2.00	0.50	1.50	0.50		
Top Depth			0.50	2.00	0.50	2.00	0.50	2.00	0.50	1.50	0.50		
Date Sampled			30-JUN-2015	30-JUN-2015	29-JUN-2015	29-JUN-2015	30-JUN-2015	30-JUN-2015	29-JUN-2015	29-JUN-2015	29-JUN-2015		
Type			Sandy Soil										
Determinand	Method	Test Sample	LOD	Units	9	10	6	10	12	9	17	2	13
Arsenic	T6	M40	2	mg/kg	9	10	6	10	12	9	17	2	13
Asbestos ID	T27	AR			N.D.	N.D.	N.D.						
Boron (water-soluble)	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	T6	M40	1	mg/kg	34	28	24	26	23	39	19	31	22
Chromium VI	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	T6	M40	1	mg/kg	48	21	27	22	16	14	15	11	10
Cyanide(Total)	T4	M40	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead	T6	M40	1	mg/kg	27	39	93	64	18	18	29	10	11
Mercury	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nickel	T6	M40	1	mg/kg	24	19	16	17	11	21	10	17	12
pH	T7	AR			8.3	7.8	7.2	7.4	6.8	6.8	6.4	6.9	6.7
Phenols(Mono)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	T6	M40	3	mg/kg	<3	<3	<3	<3	<3	<3	<3	<3	<3
Soil Organic Matter	T287	AR	0.1	%	2.4	2.3	3.2	2.0	2.4	1.6	2.4	0.3	1.2
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	10	mg/l	<10	<10	<10	<10	<10	<10	<10	<10	<10
Zinc	T6	M40	1	mg/kg	130	87	91	99	50	84	51	52	44

<p>SAL Reference: 492021 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606</p>												
Soil	Analysed as Soil											
TPH UKCWG												
		SAL Reference	492021 002	492021 004	492021 006	492021 008	492021 010	492021 012	492021 015	492021 017	492021 020	
		Customer Sample Reference	L2014- TP07 ES 004	L2014- TP07 ES 008	L2014- TP20 ES 004	L2014- TP20 ES 008	L2014- TP21 ES 004	L2014- TP21 ES 008	L2014- TP22 ES 004	L2014- TP22 ES 008	L2014- TP23 ES 004	
		Bottom Depth	0.50	2.00	0.50	2.00	0.50	2.00	0.50	1.50	0.50	
		Top Depth	0.50	2.00	0.50	2.00	0.50	2.00	0.50	1.50	0.50	
		Date Sampled	30-JUN- 2015	30-JUN- 2015	29-JUN- 2015	29-JUN- 2015	30-JUN- 2015	30-JUN- 2015	29-JUN- 2015	29-JUN- 2015	29-JUN- 2015	
		Type	Sandy Soil									
Determinand	Method	Test Sample	LOD	Units	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10
Benzene	T209	M105	10	µg/kg	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10	(13) <10
Toluene	T209	M105	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10
EthylBenzene	T209	M105	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10
Methyl tert-Butyl Ether	T209	M105	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10
O Xylene	T209	M105	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10
M/P Xylene	T209	M105	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10
TPH (C5-C6 aliphatic)	T209	M105	0.100	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
TPH (C6-C8 aliphatic)	T209	M105	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C8-C10 aliphatic)	T209	M105	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C10-C12 aliphatic)	T206	M105	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
TPH (C12-C16 aliphatic)	T206	M105	2	mg/kg	<2	<2	<2	<2	<2	<2	<2	<2
TPH (C16-C21 aliphatic)	T206	M105	1	mg/kg	<1	<1	2	<1	<1	2	<1	2
TPH (C21-C35 aliphatic)	T206	M105	4	mg/kg	<4	<4	<4	<4	<4	<4	<4	<4
TPH (C35-C44 aliphatic)	T8	M105	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
TPH (Aliphatic) total	T85	M105		mg/kg	N.D.	N.D.	2.0	N.D.	N.D.	2.0	N.D.	N.D.
TPH (C6-C7 aromatic)	T209	M105	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C7-C8 aromatic)	T209	M105	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C8-C10 aromatic)	T209	M105	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C10-C12 aromatic)	T206	M105	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
TPH (C12-C16 aromatic)	T206	M105	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
TPH (C16-C21 aromatic)	T206	M105	1	mg/kg	<1	<1	1	<1	<1	<1	<1	<1
TPH (C21-C35 aromatic)	T206	M105	1	mg/kg	<1	<1	4	<1	<1	<1	<1	<1
TPH (C35-C44 aromatic)	T8	M105	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
TPH (Aromatic) total	T85	M105		mg/kg	N.D.	N.D.	5.0	N.D.	N.D.	N.D.	N.D.	N.D.
TPH (Aliphatic+Aromatic) (sum)	T85	M105		mg/kg	N.D.	N.D.	7.0	N.D.	N.D.	2.0	N.D.	N.D.

SAL Reference: 492021

Project Site: Bay of Nigg Harbour Development Ground Investigation

Customer Reference: TC7606

Soil Analysed as Soil

PAH US EPA 16 (B and K split)

SAL Reference		492021 002	492021 004	492021 006	492021 008	492021 010	492021 012	492021 015	492021 017	492021 020
Customer Sample Reference		L2014- TP07 ES 004	L2014- TP07 ES 008	L2014- TP20 ES 004	L2014- TP20 ES 008	L2014- TP21 ES 004	L2014- TP21 ES 008	L2014- TP22 ES 004	L2014- TP22 ES 008	L2014- TP23 ES 004
Bottom Depth		0.50	2.00	0.50	2.00	0.50	2.00	0.50	1.50	0.50
Top Depth		0.50	2.00	0.50	2.00	0.50	2.00	0.50	1.50	0.50
Date Sampled		30-JUN- 2015	30-JUN- 2015	29-JUN- 2015	29-JUN- 2015	30-JUN- 2015	30-JUN- 2015	29-JUN- 2015	29-JUN- 2015	29-JUN- 2015
Type		Sandy Soil								
Naphthalene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	T207	M105	0.1	mg/kg	<0.1	<0.1	0.7	<0.1	<0.1	<0.1
Anthracene	T207	M105	0.1	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
Fluoranthene	T207	M105	0.1	mg/kg	<0.1	<0.1	1.2	<0.1	<0.1	<0.1
Pyrene	T207	M105	0.1	mg/kg	<0.1	<0.1	1.2	<0.1	<0.1	<0.1
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	<0.1	<0.1	0.5	<0.1	<0.1	<0.1
Chrysene	T207	M105	0.1	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	T207	M105	0.1	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	T207	M105	0.1	mg/kg	<0.1	<0.1	0.3	<0.1	<0.1	<0.1
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1	<0.1
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
PAH(total)	T207	M105	0.1	mg/kg	<0.1	<0.1	5.7	<0.1	<0.1	<0.1

Index to symbols used in 492021-1

Value	Description
M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
AR	As Received
M40	Analysis conducted on sample assisted dried at no more than 40C. Results are reported on a dry weight basis.
N.D.	Not Detected
13	Results have been blank corrected.
S	Analysis was subcontracted
M	Analysis is MCERTS accredited
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Asbestos was subcontracted to REC Asbestos.

Method Index

Value	Description
T8	GC/FID
T27	PLM
T287	Calc TOC/0.58
T4	Colorimetry
T242	2:1 Extraction/ICP/OES (TRL 447 T1)
T7	Probe
T206	GC/FID (MCERTS)
T209	GC/MS(Head Space)(MCERTS)
T546	Colorimetry (CF)
T85	Calc

T162	Grav (1 Dec) (105 C)
T207	GC/MS (MCERTS)
T6	ICP/OES
T2	Grav

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Retained on 10mm sieve	T2	M40	0.1	%	N	002,004,006,008,010,012,015,017,020
SO4(Total)	T6	M40	0.01	%	U	002,004,006,008,010,012,015,017,020
Sulphide	T4	M40	10	mg/kg	N	002,004,006,008,010,012,015,017,020
Sulphur (total)	T6	M40	0.01	%	M	002,004,006,008,010,012,015,017,020
Vanadium	T6	M40	1	mg/kg	M	002,004,006,008,010,012,015,017,020
Arsenic	T6	M40	2	mg/kg	M	002,004,006,008,010,012,015,017,020
Asbestos ID	T27	AR			SU	002,004,006,008,010,012,015,017,020
Boron (water-soluble)	T6	AR	1	mg/kg	N	002,004,006,008,010,012,015,017,020
Cadmium	T6	M40	1	mg/kg	M	002,004,006,008,010,012,015,017,020
Chromium	T6	M40	1	mg/kg	M	002,004,006,008,010,012,015,017,020
Chromium VI	T6	AR	1	mg/kg	N	002,004,006,008,010,012,015,017,020
Copper	T6	M40	1	mg/kg	M	002,004,006,008,010,012,015,017,020
Cyanide(Total)	T4	M40	1	mg/kg	M	002,004,006,008,010,012,015,017,020
Lead	T6	M40	1	mg/kg	M	002,004,006,008,010,012,015,017,020
Mercury	T6	M40	1	mg/kg	M	002,004,006,008,010,012,015,017,020
Nickel	T6	M40	1	mg/kg	M	002,004,006,008,010,012,015,017,020
pH	T7	AR			M	002,004,006,008,010,012,015,017,020
Phenols(Mono)	T546	AR	1	mg/kg	M	002,004,006,008,010,012,015,017,020
Selenium	T6	M40	3	mg/kg	M	002,004,006,008,010,012,015,017,020
Soil Organic Matter	T287	AR	0.1	%	N	002,004,006,008,010,012,015,017,020
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	10	mg/l	N	002,004,006,008,010,012,015,017,020
Zinc	T6	M40	1	mg/kg	M	002,004,006,008,010,012,015,017,020
Naphthalene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Acenaphthylene	T207	M105	0.1	mg/kg	U	002,004,006,008,010,012,015,017,020
Acenaphthene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Fluorene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Phenanthrone	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Anthracene	T207	M105	0.1	mg/kg	U	002,004,006,008,010,012,015,017,020
Fluoranthene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Pyrene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Chrysene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Benzo(b)fluoranthene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Benzo(k)fluoranthene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	M	002,004,006,008,010,012,015,017,020
PAH(total)	T207	M105	0.1	mg/kg	U	002,004,006,008,010,012,015,017,020
Benzene	T209	M105	10	µg/kg	M	002,004,006,008,010,012,015,017,020
Toluene	T209	M105	10	µg/kg	M	002,004,006,008,010,012,015,017,020
EthylBenzene	T209	M105	10	µg/kg	M	002,004,006,008,010,012,015,017,020
Methyl tert-Butyl Ether	T209	M105	10	µg/kg	M	002,004,006,008,010,012,015,017,020
O Xylene	T209	M105	10	µg/kg	M	002,004,006,008,010,012,015,017,020
M/P Xylene	T209	M105	10	µg/kg	M	002,004,006,008,010,012,015,017,020
TPH (C5-C6 aliphatic)	T209	M105	0.100	mg/kg	N	002,004,006,008,010,012,015,017,020
TPH (C6-C8 aliphatic)	T209	M105	0.10	mg/kg	N	002,004,006,008,010,012,015,017,020
TPH (C8-C10 aliphatic)	T209	M105	0.10	mg/kg	N	002,004,006,008,010,012,015,017,020
TPH (C10-C12 aliphatic)	T206	M105	1	mg/kg	N	002,004,006,008,010,012,015,017,020
TPH (C12-C16 aliphatic)	T206	M105	2	mg/kg	M	002,004,006,008,010,012,015,017,020
TPH (C16-C21 aliphatic)	T206	M105	1	mg/kg	M	002,004,006,008,010,012,015,017,020
TPH (C21-C35 aliphatic)	T206	M105	4	mg/kg	M	002,004,006,008,010,012,015,017,020
TPH (C35-C44 aliphatic)	T8	M105	1	mg/kg	N	002,004,006,008,010,012,015,017,020
TPH (Aliphatic) total	T85	M105		mg/kg	N	002,004,006,008,010,012,015,017,020
TPH (C6-C7 aromatic)	T209	M105	0.10	mg/kg	N	002,004,006,008,010,012,015,017,020
TPH (C7-C8 aromatic)	T209	M105	0.10	mg/kg	N	002,004,006,008,010,012,015,017,020
TPH (C8-C10 aromatic)	T209	M105	0.10	mg/kg	N	002,004,006,008,010,012,015,017,020
TPH (C10-C12 aromatic)	T206	M105	1	mg/kg	M	002,004,006,008,010,012,015,017,020
TPH (C12-C16 aromatic)	T206	M105	1	mg/kg	M	002,004,006,008,010,012,015,017,020
TPH (C16-C21 aromatic)	T206	M105	1	mg/kg	M	002,004,006,008,010,012,015,017,020
TPH (C21-C35 aromatic)	T206	M105	1	mg/kg	M	002,004,006,008,010,012,015,017,020
TPH (C35-C44 aromatic)	T8	M105	1	mg/kg	N	002,004,006,008,010,012,015,017,020

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
TPH (Aromatic) total	T85	M105		mg/kg	N	002,004,006,008,010,012,015,017,020
TPH (Aliphatic+Aromatic) (sum)	T85	M105		mg/kg	N	002,004,006,008,010,012,015,017,020
Moisture @ 105 C	T162	AR	0.1	%	N	002,004,006,008,010,012,015,017,020





Scientific Analysis Laboratories Ltd

Certificate of Analysis

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Tel : 0161 874 2400
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Report Number: 500238-2

Date of Report: 20-Aug-2015

Customer: Soil Engineering Geoservices Limited
Parkside Lane
Dewsbury Road
Leeds
West Yorkshire.
LS11 5SX

Customer Contact: Mr Jonathan Norton

Customer Job Reference: TC7606

Customer Site Reference: Bay of Nigg Harbour Development Ground Investigation

Date Job Received at SAL: 18-Jun-2015

Date Analysis Started: 11-Aug-2015

Date Analysis Completed: 20-Aug-2015

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



1549



Report checked
and authorised by :
Natasha Wild
Project Manager

Issued by :
Natasha Wild
Project Manager



SAL Reference: 500238 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606						
Soil	Analysed as Soil					
Moisture						
		SAL Reference	500238 001	500238 002		
		Customer Sample Reference	L2014-TP02-ES-04	L2014-TP02-ES-10		
		Top Depth	-1.15	-3.05		
		Date Sampled	Deviating	Deviating		
		Bottom Depth	1.15	3.05		
		Type	Sandy Soil	Sandy Soil		
Determinand	Method	Test Sample	LOD	Units		
Moisture @ 105 C	T162	AR	0.1	%	12	11

SAL Reference: 500238 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606						
Soil	Analysed as Soil					
Miscellaneous						
		SAL Reference	500238 001	500238 002		
		Customer Sample Reference	L2014-TP02-ES-04	L2014-TP02-ES-10		
		Top Depth	-1.15	-3.05		
		Date Sampled	Deviating	Deviating		
		Bottom Depth	1.15	3.05		
		Type	Sandy Soil	Sandy Soil		
Determinand	Method	Test Sample	LOD	Units		
Retained on 10mm sieve	T2	M40	0.1	%	<0.1	<0.1
SO4(Total)	T6	M40	0.01	%	0.07	0.07
Sulphide	T4	AR	10	mg/kg	(13) <10	(13) <10
Sulphur (total)	T6	M40	0.01	%	0.03	0.03
Vanadium	T6	M40	1	mg/kg	46	39

SAL Reference: 500238 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606						
Soil	Analysed as Soil					
Suite E						
		SAL Reference	500238 001	500238 002		
		Customer Sample Reference	L2014-TP02-ES-04	L2014-TP02-ES-10		
		Top Depth	-1.15	-3.05		
		Date Sampled	Deviating	Deviating		
		Bottom Depth	1.15	3.05		
		Type	Sandy Soil	Sandy Soil		
Determinand	Method	Test Sample	LOD	Units		
Arsenic	T6	M40	2	mg/kg	8	9
Asbestos ID	T27	AR			N.D.	N.D.
Boron (water-soluble)	T6	AR	1	mg/kg	<1	<1
Cadmium	T6	M40	1	mg/kg	<1	<1
Chromium	T6	M40	1	mg/kg	26	23
Chromium VI	T6	AR	1	mg/kg	<1	<1
Copper	T6	M40	1	mg/kg	62	52
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1
Lead	T6	M40	1	mg/kg	140	150
Mercury	T6	M40	1	mg/kg	<1	<1
Nickel	T6	M40	1	mg/kg	20	17
pH	T7	AR			8.3	8.4
Phenols(Mono)	T546	AR	1	mg/kg	<1	<1
Selenium	T6	M40	3	mg/kg	<3	<3
Soil Organic Matter	T287	M40	0.1	%	4.4	3.6
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	10	mg/l	60	31
Zinc	T6	M40	1	mg/kg	130	110

SAL Reference: 500238 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606						
Soil Analysed as Soil						
TPH UKCWG						
		SAL Reference	500238 001	500238 002		
		Customer Sample Reference	L2014-TP02-ES-04	L2014-TP02-ES-10		
		Top Depth	-1.15	-3.05		
		Date Sampled	Deviating	Deviating		
		Bottom Depth	1.15	3.05		
		Type	Sandy Soil	Sandy Soil		
Determinand	Method	Test Sample	LOD	Units		
Benzene	T209	AR	10	µg/kg	(13) <10	(13) <10
Toluene	T209	AR	10	µg/kg	(13) <10	(13) <10
EthylBenzene	T209	AR	10	µg/kg	<10	<10
Methyl tert-Butyl Ether	T209	AR	10	µg/kg	<10	<10
O Xylene	T209	AR	10	µg/kg	<10	<10
M/P Xylene	T209	AR	10	µg/kg	<10	<10
TPH (C5-C6 aliphatic)	T209	AR	0.100	mg/kg	<0.100	<0.100
TPH (C6-C8 aliphatic)	T209	AR	0.10	mg/kg	<0.10	<0.10
TPH (C8-C10 aliphatic)	T209	AR	0.10	mg/kg	<0.10	<0.10
TPH (C10-C12 aliphatic)	T206	AR	1	mg/kg	(9) <10	(9) <10
TPH (C12-C16 aliphatic)	T206	AR	2	mg/kg	(9) <10	(9) <10
TPH (C16-C21 aliphatic)	T206	AR	1	mg/kg	53	37
TPH (C21-C35 aliphatic)	T206	AR	4	mg/kg	530	280
TPH (C35-C44 aliphatic)	T8	AR	1	mg/kg	130	88
TPH (Aliphatic) total	T85	AR		mg/kg	710	130
TPH (C6-C7 aromatic)	T209	AR	0.10	mg/kg	<0.10	<0.10
TPH (C7-C8 aromatic)	T209	AR	0.10	mg/kg	<0.10	<0.10
TPH (C8-C10 aromatic)	T209	AR	0.10	mg/kg	<0.10	<0.10
TPH (C10-C12 aromatic)	T206	AR	1	mg/kg	(9) <10	(9) <10
TPH (C12-C16 aromatic)	T206	AR	1	mg/kg	(9) <10	(9) <10
TPH (C16-C21 aromatic)	T206	AR	1	mg/kg	110	160
TPH (C21-C35 aromatic)	T206	AR	1	mg/kg	780	610
TPH (C35-C44 aromatic)	T8	AR	1	mg/kg	230	160
TPH (Aromatic) total	T85	AR		mg/kg	1100	930
TPH (Aliphatic+Aromatic) (sum)	T85	AR		mg/kg	1800	1100

SAL Reference: 500238 Project Site: Bay of Nigg Harbour Development Ground Investigation Customer Reference: TC7606						
Soil Analysed as Soil						
PAH US EPA 16 (B and K split)						
		SAL Reference	500238 001	500238 002		
		Customer Sample Reference	L2014-TP02-ES-04	L2014-TP02-ES-10		
		Top Depth	-1.15	-3.05		
		Date Sampled	Deviating	Deviating		
		Bottom Depth	1.15	3.05		
		Type	Sandy Soil	Sandy Soil		
Determinand	Method	Test Sample	LOD	Units		
Naphthalene	T207	M105	0.1	mg/kg	0.5	<0.1
Acenaphthylene	T207	M105	0.1	mg/kg	<0.1	<0.1
Acenaphthene	T207	M105	0.1	mg/kg	0.7	0.2
Fluorene	T207	M105	0.1	mg/kg	0.7	0.1
Phenanthrene	T207	M105	0.1	mg/kg	4.8	1.5
Anthracene	T207	M105	0.1	mg/kg	1.3	0.7
Fluoranthene	T207	M105	0.1	mg/kg	3.2	1.9
Pyrene	T207	M105	0.1	mg/kg	2.9	1.7
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	2.3	1.1
Chrysene	T207	M105	0.1	mg/kg	2.2	1.7
Benzo(b)fluoranthene	T207	M105	0.1	mg/kg	1.8	1.0
Benzo(k)fluoranthene	T207	M105	0.1	mg/kg	1.2	0.9
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	2.3	1.2
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	1.6	1.0
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	0.4	0.3
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	2.6	1.3
PAH(total)	T207	M105	0.1	mg/kg	28	15

Index to symbols used in 500238-2

Value	Description
AR	As Received
M40	Analysis conducted on sample assisted dried at no more than 40C. Results are reported on a dry weight basis.
M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
N.D.	Not Detected
13	Results have been blank corrected.
9	LOD raised due to dilution of sample
S	Analysis was subcontracted
M	Analysis is MCERTS accredited
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Asbestos was subcontracted to REC Asbestos
The date of sampling has not been provided and therefore the time from sampling to analysis is unknown. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T242	2:1 Extraction/ICP/OES (TRL 447 T1)
T207	GC/MS (MCERTS)
T546	Colorimetry (CF)
T287	Calc TOC/0.58
T206	GC/FID (MCERTS)
T27	PLM
T85	Calc
T209	GC/MS(Head Space)(MCERTS)
T6	ICP/OES
T7	Probe

T162	Grav (1 Dec) (105 C)
T4	Colorimetry
T8	GC/FID
T2	Grav

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Retained on 10mm sieve	T2	M40	0.1	%	N	001-002
SO4(Total)	T6	M40	0.01	%	N	001-002
Sulphide	T4	AR	10	mg/kg	N	001-002
Sulphur (total)	T6	M40	0.01	%	N	001-002
Vanadium	T6	M40	1	mg/kg	M	001-002
Arsenic	T6	M40	2	mg/kg	M	001-002
Asbestos ID	T27	AR			SU	001-002
Boron (water-soluble)	T6	AR	1	mg/kg	N	001-002
Cadmium	T6	M40	1	mg/kg	M	001-002
Chromium	T6	M40	1	mg/kg	M	001-002
Chromium VI	T6	AR	1	mg/kg	N	001-002
Copper	T6	M40	1	mg/kg	M	001-002
Cyanide(Total)	T4	AR	1	mg/kg	M	001-002
Lead	T6	M40	1	mg/kg	M	001-002
Mercury	T6	M40	1	mg/kg	M	001-002
Nickel	T6	M40	1	mg/kg	M	001-002
pH	T7	AR			M	001-002
Phenols(Mono)	T546	AR	1	mg/kg	M	001-002
Selenium	T6	M40	3	mg/kg	M	001-002
Soil Organic Matter	T287	M40	0.1	%	N	001-002
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	10	mg/l	N	001-002
Zinc	T6	M40	1	mg/kg	M	001-002
Naphthalene	T207	M105	0.1	mg/kg	M	001-002
Acenaphthylene	T207	M105	0.1	mg/kg	U	001-002
Acenaphthene	T207	M105	0.1	mg/kg	M	001-002
Fluorene	T207	M105	0.1	mg/kg	M	001-002
Phenanthrone	T207	M105	0.1	mg/kg	M	001-002
Anthracene	T207	M105	0.1	mg/kg	U	001-002
Fluoranthene	T207	M105	0.1	mg/kg	M	001-002
Pyrene	T207	M105	0.1	mg/kg	M	001-002
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	M	001-002
Chrysene	T207	M105	0.1	mg/kg	M	001-002
Benzo(b)fluoranthene	T207	M105	0.1	mg/kg	M	001-002
Benzo(k)fluoranthene	T207	M105	0.1	mg/kg	M	001-002
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	M	001-002
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	M	001-002
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	M	001-002
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	M	001-002
PAH(total)	T207	M105	0.1	mg/kg	U	001-002
Benzene	T209	AR	10	µg/kg	M	001-002
Toluene	T209	AR	10	µg/kg	M	001-002
EthylBenzene	T209	AR	10	µg/kg	M	001-002
Methyl tert-Butyl Ether	T209	AR	10	µg/kg	M	001-002
O Xylene	T209	AR	10	µg/kg	M	001-002
M/P Xylene	T209	AR	10	µg/kg	M	001-002
TPH (C5-C6 aliphatic)	T209	AR	0.100	mg/kg	N	001-002
TPH (C6-C8 aliphatic)	T209	AR	0.10	mg/kg	N	001-002
TPH (C8-C10 aliphatic)	T209	AR	0.10	mg/kg	N	001-002
TPH (C10-C12 aliphatic)	T206	AR	1	mg/kg	N	001-002
TPH (C12-C16 aliphatic)	T206	AR	2	mg/kg	M	001-002
TPH (C16-C21 aliphatic)	T206	AR	1	mg/kg	M	001-002
TPH (C21-C35 aliphatic)	T206	AR	4	mg/kg	M	001-002
TPH (C35-C44 aliphatic)	T8	AR	1	mg/kg	N	001-002
TPH (Aliphatic) total	T85	AR		mg/kg	N	001-002
TPH (C6-C7 aromatic)	T209	AR	0.10	mg/kg	N	001-002
TPH (C7-C8 aromatic)	T209	AR	0.10	mg/kg	N	001-002
TPH (C8-C10 aromatic)	T209	AR	0.10	mg/kg	N	001-002
TPH (C10-C12 aromatic)	T206	AR	1	mg/kg	M	001-002
TPH (C12-C16 aromatic)	T206	AR	1	mg/kg	M	001-002
TPH (C16-C21 aromatic)	T206	AR	1	mg/kg	M	001-002
TPH (C21-C35 aromatic)	T206	AR	1	mg/kg	M	001-002
TPH (C35-C44 aromatic)	T8	AR	1	mg/kg	N	001-002

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
TPH (Aromatic) total	T85	AR		mg/kg	N	001-002
TPH (Aliphatic+Aromatic) (sum)	T85	AR		mg/kg	N	001-002
Moisture @ 105 C	T162	AR	0.1	%	N	001-002





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Scientific Analysis Laboratories Ltd

Certificate of Analysis

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Report Number: 517853-2

Date of Report: 03-Nov-2015

Customer: Soil Engineering Geoservices Limited
Parkside Lane
Dewsbury Road
Leeds
West Yorkshire.
LS11 5SX

Customer Contact: Mr Malcolm Townsley

Customer Job Reference: TC7606

Customer Site Reference: Nigg Bay

Date Job Received at SAL: 08-Oct-2015

Date Analysis Started: 28-Oct-2015

Date Analysis Completed: 03-Nov-2015

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



1549

Report checked
and authorised by :
Natasha Wild
Project Manager

Issued by :
Natasha Wild
Project Manager

SAL Reference: 517853 Project Site: Nigg Bay Customer Reference: TC7606							
Water	Analysed as Water						
Miscellaneous							
SAL Reference			517853 001	517853 002	517853 003		
Customer Sample Reference			L2014-5W EW	L2014-7W EW	L2014-24W EW		
Date Sampled			30-SEP-2015	06-OCT-2015	05-OCT-2015		
Determinand	Method	Test Sample	LOD	Units			
Total Dissolved Solids	T2	AR	100	mg/l	1500	1900	1800

SAL Reference: 517853 Project Site: Nigg Bay Customer Reference: TC7606							
Water	Analysed as Water						
Water suite							
SAL Reference			517853 001	517853 002	517853 003		
Customer Sample Reference			L2014-5W EW	L2014-7W EW	L2014-24W EW		
Date Sampled			30-SEP-2015	06-OCT-2015	05-OCT-2015		
Determinand	Method	Test Sample	LOD	Units			
Alkalinity expressed as CaCO ₃	T22	AR	10	mg/l	370	540	160
Aluminium	T6	AR	0.02	mg/l	<0.02	<0.02	<0.02
Ammonia expressed as NH ₄	T686	AR	0.05	mg/l	<0.05	0.91	0.07
Calcium	T6	AR	0.1	mg/l	190	190	190
Chloride	T686	AR	1	mg/l	430	640	560
Colour	T4	AR	5	Hazen	<5	9	<5
Copper	T6	AR	0.01	mg/l	<0.01	0.01	<0.01
Dry Residue	T2	AR	10	mg/l	1492	1965	1875
Electrical Conductivity	T7	AR	10	µS/cm	2100	3200	2200
Faecal coliforms	T34	AR	1	cfu/100ml	<1	<1	<1
Fluoride	T686	AR	0.05	mg/l	0.18	<0.05	<0.05
Hardness expressed as CaCO ₃	T6	AR	10	mg/l	790	870	840
Iron	T6	AR	0.01	mg/l	<0.01	<0.01	<0.01
Lead	T6	AR	0.03	mg/l	<0.03	<0.03	<0.03
Magnesium	T6	AR	0.1	mg/l	74	95	88
Manganese	T6	AR	0.01	mg/l	3.0	6.8	0.01
Nitrate	T686	AR	0.5	mg/l	<0.5	<0.5	<0.5
Nitrite	T686	AR	0.1	mg/l	<0.1	<0.1	<0.1
Oxidisability	T4	AR	5	mg/l	48	67	14
pH	T7	AR			7.3	6.4	8.1
Potassium	T6	AR	0.1	mg/l	15	41	18
Sodium	T6	AR	0.1	mg/l	140	300	98
Sulphate	T686	AR	0.5	mg/l	33	38	50
Total coliforms	T34	AR	1	cfu/100ml	<1	<1	4
Total Petroleum Hydrocarbons	T81	AR	0.01	mg/l	0.11	0.25	<0.01
TVC at 37 C	T34	AR	10	cfu/ml	<10	<10	<10
Turbidity	T4	AR	1	NTUs	7	3	2
Zinc	T6	AR	0.01	mg/l	<0.01	0.03	<0.01

Index to symbols used in 517853-2

Value	Description
AR	As Received
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Microbiological analysis was transferred to SAL Northern Ireland.

Method Index

Value	Description
T7	Probe
T81	GC/FID (LV)
T2	Grav
T4	Colorimetry
T6	ICP/OES
T686	Discrete Analyser
T22	Titration
T34	Micro

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Total Dissolved Solids	T2	AR	100	mg/l	N	001-003
Alkalinity expressed as CaCO ₃	T22	AR	10	mg/l	N	001-003
Aluminium	T6	AR	0.02	mg/l	U	001-003
Ammonia expressed as NH ₄	T686	AR	0.05	mg/l	U	001-003
Calcium	T6	AR	0.1	mg/l	N	001-003
Chloride	T686	AR	1	mg/l	U	001-003
Colour	T4	AR	5	Hazen	N	001-003
Copper	T6	AR	0.01	mg/l	U	001-003
Dry Residue	T2	AR	10	mg/l	N	001-003
Electrical Conductivity	T7	AR	10	µS/cm	N	001-003
Faecal coliforms	T34	AR	1	cfu/100ml	N	001-003
Fluoride	T686	AR	0.05	mg/l	U	001-003
Hardness expressed as CaCO ₃	T6	AR	10	mg/l	N	001-003
Iron	T6	AR	0.01	mg/l	U	001-003
Lead	T6	AR	0.03	mg/l	U	001-003
Magnesium	T6	AR	0.1	mg/l	N	001-003
Manganese	T6	AR	0.01	mg/l	U	001-003
Nitrate	T686	AR	0.5	mg/l	U	001-003
Nitrite	T686	AR	0.1	mg/l	U	001-003
Oxidisability	T4	AR	5	mg/l	N	001-003
pH	T7	AR			U	001-003
Potassium	T6	AR	0.1	mg/l	N	001-003
Sodium	T6	AR	0.1	mg/l	N	001-003
Sulphate	T686	AR	0.5	mg/l	U	001-003
Total coliforms	T34	AR	1	cfu/100ml	N	001-003
Total Petroleum Hydrocarbons	T81	AR	0.01	mg/l	U	001-003
TVC at 37 C	T34	AR	10	cfu/ml	N	001-003
Turbidity	T4	AR	1	NTUs	N	001-003
Zinc	T6	AR	0.01	mg/l	U	001-003



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Scientific Analysis Laboratories Ltd

Certificate of Analysis

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Report Number: 551705-3

Date of Report: 29-Mar-2016

Customer: Aberdeen Harbour
16 Regent Quay
Aberdeen
AB11 5SS

Customer Contact: Mr Ian Taylor

Customer Job Reference: N152012U

Customer Purchase Order: WN73846

Customer Site Reference: Nigg Bay

Date Job Received at SAL: 01-Mar-2016

Date Analysis Started: 15-Mar-2016

Date Analysis Completed: 29-Mar-2016

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

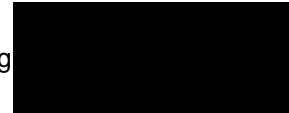
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



1549

Report checked
and authorised by :
Bianca Prince
Customer Service Manager

Issued by :
Bianca Prince
Customer Service Manager



<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Recovery Suite								
		SAL Reference		551705 263		551705 264		551705 265
		Customer Sample Reference		Matrix Spike 1		Matrix Spike 2	Matrix Spike 3	Matrix Spike 4
								Matrix Spike 5
Determinand	Method	Test Sample	LOD	Units				
As Recovery	T750	AR	1	%	110	100	110	110
Cd Recovery	T750	AR	1	%	100	100	100	100
Cr Recovery	T750	AR	1	%	110	110	110	110
Cu Recovery	T750	AR	1	%	110	110	110	110
Pb Recovery	T750	AR	1	%	110	100	110	100
Hg Recovery	T751	AR	1	%	110	90	85	91
Ni Recovery	T750	AR	1	%	100	100	110	100
Zn Recovery	T432	AR	1	%	100	98	100	99
Acenaphthene Recovery	T434	AR	1	%	100	100	100	110
Acenaphthylene Recovery	T434	AR	1	%	110	99	100	100
Anthracene Recovery	T434	AR	1	%	110	110	100	100
Benzo(a)Anthracene Recovery	T434	AR	1	%	110	100	110	99
Benzo(a)Pyrene Recovery	T434	AR	1	%	100	95	110	120
Benzo(b/k)Fluoranthene Recovery	T434	AR	1	%	110	100	100	110
Benzo(ghi)Perylene Recovery	T434	AR	1	%	110	100	110	95
Chrysene Recovery	T434	AR	1	%	94	110	110	110
Dibenzo(ah)Anthracene Recovery	T434	AR	1	%	110	110	110	97
Fluoranthene Recovery	T434	AR	1	%	110	120	110	110
Fluorene Recovery	T434	AR	1	%	110	100	110	110
Indeno(123-cd)Pyrene Recovery	T434	AR	1	%	110	100	110	95
Naphthalene Recovery	T434	AR	1	%	110	100	110	100
Phenanthrene Recovery	T434	AR	1	%	110	110	110	100
Pyrene Recovery	T434	AR	1	%	100	100	99	100
Tributyl tin Recovery	T429	AR	1	%	100	100	98	100
PCB BZ#52 Recovery	T434	AR	1	%	110	100	100	110
PCB BZ#28 Recovery	T434	AR	1	%	110	86	82	110
PCB BZ#101 Recovery	T434	AR	1	%	100	96	96	100
PCB BZ#118 Recovery	T434	AR	1	%	100	100	96	110
PCB BZ#138 Recovery	T434	AR	1	%	110	100	100	100
PCB BZ#153 Recovery	T434	AR	1	%	110	110	98	96
PCB BZ#180 Recovery	T434	AR	1	%	110	100	100	110
PCB (Total Tri-Hepta) Recovery	T434	AR	1	%	110	100	97	100

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Recovery Suite								
		SAL Reference		551705 268		551705 269		551705 270
		Customer Sample Reference		Matrix Spike 6		Matrix Spike 7	Matrix Spike 8	Matrix Spike 9
								Matrix Spike 10
Determinand	Method	Test Sample	LOD	Units				
As Recovery	T750	AR	1	%	110	110	110	110
Cd Recovery	T750	AR	1	%	110	110	110	110
Cr Recovery	T750	AR	1	%	110	110	110	110
Cu Recovery	T750	AR	1	%	110	110	100	100
Pb Recovery	T750	AR	1	%	100	110	110	100
Hg Recovery	T751	AR	1	%	78	86	89	89
Ni Recovery	T750	AR	1	%	110	110	110	110
Zn Recovery	T432	AR	1	%	100	100	100	100
Acenaphthene Recovery	T434	AR	1	%	110	110	100	91
Acenaphthylene Recovery	T434	AR	1	%	110	110	110	100
Anthracene Recovery	T434	AR	1	%	110	110	110	110
Benzo(a)Anthracene Recovery	T434	AR	1	%	110	110	110	110
Benzo(a)Pyrene Recovery	T434	AR	1	%	110	110	110	110
Benzo(b/k)Fluoranthene Recovery	T434	AR	1	%	120	120	120	120
Benzo(ghi)Perylene Recovery	T434	AR	1	%	110	100	100	110
Chrysene Recovery	T434	AR	1	%	120	120	110	110
Dibenzo(ah)Anthracene Recovery	T434	AR	1	%	110	100	100	110
Fluoranthene Recovery	T434	AR	1	%	120	120	110	110
Fluorene Recovery	T434	AR	1	%	110	110	110	110
Indeno(123-cd)Pyrene Recovery	T434	AR	1	%	110	100	100	110
Naphthalene Recovery	T434	AR	1	%	110	120	110	110
Phenanthrene Recovery	T434	AR	1	%	120	120	110	120
Pyrene Recovery	T434	AR	1	%	120	110	110	120
Tributyl tin Recovery	T429	AR	1	%	98	100	110	100
PCB BZ#52 Recovery	T434	AR	1	%	92	92	110	100
PCB BZ#28 Recovery	T434	AR	1	%	94	90	100	96
PCB BZ#101 Recovery	T434	AR	1	%	88	86	100	100
PCB BZ#118 Recovery	T434	AR	1	%	92	90	100	100
PCB BZ#138 Recovery	T434	AR	1	%	96	90	100	100
PCB BZ#153 Recovery	T434	AR	1	%	90	94	100	100
PCB BZ#180 Recovery	T434	AR	1	%	94	92	100	100
PCB (Total Tri-Hepta) Recovery	T434	AR	1	%	94	94	110	110

SAL Reference: 551705
Project Site: Nigg Bay
Customer Reference: N152012U

Marine Sediment Analysed as Marine Sediment
Marine Scotland Recovery Suite

					SAL Reference	551705 273
					Customer Sample Reference	Matrix Spike 11
Determinand	Method	Test Sample	LOD	Units		
As Recovery	T750	AR	1	%	110	
Cd Recovery	T750	AR	1	%	110	
Cr Recovery	T750	AR	1	%	110	
Cu Recovery	T750	AR	1	%	110	
Pb Recovery	T750	AR	1	%	110	
Hg Recovery	T751	AR	1	%	88	
Ni Recovery	T750	AR	1	%	110	
Zn Recovery	T432	AR	1	%	100	
Acenaphthene Recovery	T434	AR	1	%	110	
Acenaphthylene Recovery	T434	AR	1	%	110	
Anthracene Recovery	T434	AR	1	%	110	
Benzo(a)Anthracene Recovery	T434	AR	1	%	120	
Benzo(a)Pyrene Recovery	T434	AR	1	%	120	
Benzo(b/k)Fluoranthene Recovery	T434	AR	1	%	120	
Benzo(ghi)Perylene Recovery	T434	AR	1	%	99	
Chrysene Recovery	T434	AR	1	%	110	
Dibenz(a,h)Anthracene Recovery	T434	AR	1	%	110	
Fluoranthene Recovery	T434	AR	1	%	120	
Fluorene Recovery	T434	AR	1	%	110	
Indeno(123-cd)Pyrene Recovery	T434	AR	1	%	100	
Naphthalene Recovery	T434	AR	1	%	110	
Phenanthrene Recovery	T434	AR	1	%	110	
Pyrene Recovery	T434	AR	1	%	110	
Tributyl tin Recovery	T429	AR	1	%	100	
PCB BZ#52 Recovery	T434	AR	1	%	110	
PCB BZ#28 Recovery	T434	AR	1	%	98	
PCB BZ#101 Recovery	T434	AR	1	%	100	
PCB BZ#118 Recovery	T434	AR	1	%	100	
PCB BZ#138 Recovery	T434	AR	1	%	110	
PCB BZ#153 Recovery	T434	AR	1	%	100	
PCB BZ#180 Recovery	T434	AR	1	%	110	
PCB (Total Tri-Hepta) Recovery	T434	AR	1	%	110	

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 001	551705 002	551705 003	551705 004	551705 005	
		Customer Sample Reference	RC-2016-10 MS26	RC-2016-10 MS28	RC-2016-10 MS32	RC-2016-10 MS34	RC-2016-10 MS36	
		Bottom Depth	5.20	6.00	6.50	7.00	7.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	4.5	9.8	9.7	9.1
As (Total)	T301	AR	1.0	mg/kg	3.0	2.9	2.0	2.5
Cd (Total)	T301	AR	0.05	mg/kg	0.21	0.21	0.20	0.19
Cr (Total)	T301	AR	0.2	mg/kg	34	38	33	37
Cu (Total)	T301	AR	0.1	mg/kg	31	29	23	29
Pb (Total)	T301	AR	0.2	mg/kg	21	20	20	17
Mercury	T355	AR	0.01	mg/kg	0.02	0.01	<0.01	0.01
Ni (Total)	T301	AR	0.2	mg/kg	22	24	22	24
Zn (Total)	T303	AR	2.0	mg/kg	80	77	73	74
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	7.1	6.2	6.9	4.9
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	3.8	<2.0	3.9	3.1
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	2.5	2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	3.4	2.3	3.7	2.6
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	1.7	0.9	1.4	1.4
Fluoranthene	T1	AR	2.0	µg/kg	2.7	<2.0	3.3	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	2.5	2.5	<2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	6.0	<2.0	6.7	2.1
Pyrene	T1	AR	2.0	µg/kg	2.1	<2.0	2.7	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 006	551705 007	551705 008	551705 009	551705 010	
		Customer Sample Reference	RC-2016-10 MS39	RC-2016-10 MS42	RC-2016-10 MS46	RC-2016-10 MS24	RC-2016-17 MS28	
		Bottom Depth	8.00	8.50	9.00	5.00	5.15	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	7.4	8.6	8.4	8.1
As (Total)	T301	AR	1.0	mg/kg	1.7	1.5	1.6	2.5
Cd (Total)	T301	AR	0.05	mg/kg	0.18	0.21	0.19	0.19
Cr (Total)	T301	AR	0.2	mg/kg	31	28	32	27
Cu (Total)	T301	AR	0.1	mg/kg	21	19	20	29
Pb (Total)	T301	AR	0.2	mg/kg	19	17	20	18
Mercury	T355	AR	0.01	mg/kg	0.01	<0.01	0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	22	20	23	23
Zn (Total)	T303	AR	2.0	mg/kg	62	61	64	75
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	3.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	9.5	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	5.9	4.8	6.1	11
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	3.4	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	2.8	2.3	2.0	2.8
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	2.4	<2.0	2.0	2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	<0.5	1.6	1.1	1.9
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	<2.0	19	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	2.3	<2.0	2.0	2.0
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	11	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 011	551705 012	551705 013	551705 014	551705 015	
		Customer Sample Reference	RC-2016-17 MS36	RC-2016-17 MS20	RC-2016-17 MS23	RC-2016-17 MS09	RC-2016-17 MS22	
		Bottom Depth	7.00	3.50	4.15	1.50	4.00	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	2.1	14	9.0	13
As (Total)	T301	AR	1.0	mg/kg	1.3	2.1	2.4	3.3
Cd (Total)	T301	AR	0.05	mg/kg	0.11	0.20	0.18	0.17
Cr (Total)	T301	AR	0.2	mg/kg	15	30	25	33
Cu (Total)	T301	AR	0.1	mg/kg	13	21	20	23
Pb (Total)	T301	AR	0.2	mg/kg	3.9	19	14	17
Mercury	T355	AR	0.01	mg/kg	0.01	<0.01	<0.01	0.01
Ni (Total)	T301	AR	0.2	mg/kg	18	21	18	21
Zn (Total)	T303	AR	2.0	mg/kg	17	67	67	57
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	5.6	6.2	7.0	6.0
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	2.8	2.3	2.7
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	<2.0	3.1	2.2	2.1
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	0.5	<0.5	0.9	1.1
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	2.3	2.8	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	2.0	3.1	4.8	2.5
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.5	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>									
Marine Sediment	Analysed as Marine Sediment								
Marine Scotland Suite									
		SAL Reference	551705 016	551705 017	551705 018	551705 019	551705 020		
		Customer Sample Reference	RC-2016-17 MS17	RC-2016-17 MS26	RC-2016-17 MS31	RC-2016-17 MS05	RC-2016-17 MS39		
		Bottom Depth	3.00	4.50	6.00	0.00	8.50		
Determinand	Method	Test Sample	LOD	Units					
Moisture @105C	T162	AR	0.1	%	6.9	8.1	1.4	16	0.9
As (Total)	T301	AR	1.0	mg/kg	2.0	2.2	<1.0	6.2	1.9
Cd (Total)	T301	AR	0.05	mg/kg	0.13	0.17	0.05	0.06	0.08
Cr (Total)	T301	AR	0.2	mg/kg	23	26	7.8	5.0	18
Cu (Total)	T301	AR	0.1	mg/kg	15	19	3.2	2.3	8.5
Pb (Total)	T301	AR	0.2	mg/kg	12	15	2.1	5.8	3.5
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	16	18	5.4	2.8	15
Zn (Total)	T303	AR	2.0	mg/kg	43	61	61	14	35
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	2.0	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	10	5.7	5.4	12	5.8
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	2.7	<2.0	<2.0	7.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	7.9	2.3	2.2	16	<2.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	6.8	<2.0
Chrysene	T1	AR	2.0	µg/kg	9.3	<2.0	<2.0	7.2	2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	<0.5	0.5	0.7	1.6	0.8
Fluoranthene	T1	AR	2.0	µg/kg	16	<2.0	<2.0	13	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	6.9	<2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	7.9	3.8	4.3	6.2	<2.0
Pyrene	T1	AR	2.0	µg/kg	12	<2.0	<2.0	12	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 021	551705 022	551705 023	551705 024	551705 025	
		Customer Sample Reference	RC-2016-17 MS07	RC-2016-17 MS34	RC-2016-17 MS38	RC-2016-17 MS37	RC-2016-17 MS06	
		Bottom Depth	1.00	6.50	8.00	7.50	0.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	6.5	1.0	1.7	0.5
As (Total)	T301	AR	1.0	mg/kg	3.3	8.2	<1.0	1.2
Cd (Total)	T301	AR	0.05	mg/kg	0.13	0.06	0.08	0.07
Cr (Total)	T301	AR	0.2	mg/kg	21	9.5	6.0	10
Cu (Total)	T301	AR	0.1	mg/kg	15	11	6.0	11
Pb (Total)	T301	AR	0.2	mg/kg	13	3.7	3.1	3.5
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	14	17	8.9	7.4
Zn (Total)	T303	AR	2.0	mg/kg	41	24	23	34
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	8.8	4.8	4.7	4.7
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	3.0	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	7.7	<2.0	<2.0	<2.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	5.6	<2.0	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	1.4	0.8	<0.5	0.6
Fluoranthene	T1	AR	2.0	µg/kg	6.3	<2.0	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	5.4	<2.0	2.4	<2.0
Pyrene	T1	AR	2.0	µg/kg	6.8	<2.0	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 026	551705 027	551705 028	551705 029	551705 030	
		Customer Sample Reference	RC-2016-17 MS30	RC-2016-14 MS44	RC-2016-14 MS46	RC-2016-14 MS49	RC-2016-14 MS53	
		Bottom Depth	5.50	7.00	7.50	8.00	8.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	12	7.9	9.8	11
As (Total)	T301	AR	1.0	mg/kg	2.7	2.5	2.4	2.1
Cd (Total)	T301	AR	0.05	mg/kg	0.15	0.18	0.15	0.15
Cr (Total)	T301	AR	0.2	mg/kg	24	38	32	31
Cu (Total)	T301	AR	0.1	mg/kg	20	32	25	26
Pb (Total)	T301	AR	0.2	mg/kg	14	17	14	13
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	17	25	21	21
Zn (Total)	T303	AR	2.0	mg/kg	60	74	74	79
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	5.2	4.6	6.0	5.2
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	2.9	<2.0	2.2	2.6
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	2.6	2.1	3.3	2.6
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	0.7	<0.5	0.6	0.6
Fluoranthene	T1	AR	2.0	µg/kg	2.5	<2.0	4.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.4	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	7.9	3.4	6.6	2.1
Pyrene	T1	AR	2.0	µg/kg	2.0	<2.0	3.2	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 031	551705 032	551705 033	551705 037	551705 038	
		Customer Sample Reference	RC-2016-14 MS55	RC-2016-14 MS58	RC-2016-14 MS61	RC-2016-05 MS38	RC-2016-05 MS41	
		Bottom Depth	9.00	9.50	9.95	7.00	7.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	2.6	10	11	9.9
As (Total)	T301	AR	1.0	mg/kg	3.6	3.3	1.8	3.6
Cd (Total)	T301	AR	0.05	mg/kg	0.20	0.17	0.16	0.17
Cr (Total)	T301	AR	0.2	mg/kg	34	32	28	39
Cu (Total)	T301	AR	0.1	mg/kg	33	29	20	29
Pb (Total)	T301	AR	0.2	mg/kg	18	16	18	14
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	23	21	19	29
Zn (Total)	T303	AR	2.0	mg/kg	83	84	66	78
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	5.1	5.5	4.4	3.8
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	2.6	2.5	2.1	<2.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.2	2.2
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	1.1	1.3	1.2	0.7
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	2.6	<2.0	<2.0
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 040	551705 041	551705 042	551705 044	551705 045	
		Customer Sample Reference	RC-2016-05 MS44	RC-2016-05 MS47	RC-2016-05 MS49	RC-2016-05 MS53	RC-2016-05 MS21	
		Bottom Depth	8.00	8.50	9.00	9.50	3.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	14	8.1	8.7	8.7
As (Total)	T301	AR	1.0	mg/kg	3.1	2.8	3.1	3.1
Cd (Total)	T301	AR	0.05	mg/kg	0.18	0.17	0.18	0.14
Cr (Total)	T301	AR	0.2	mg/kg	41	36	37	36
Cu (Total)	T301	AR	0.1	mg/kg	33	26	28	27
Pb (Total)	T301	AR	0.2	mg/kg	16	12	13	8.3
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	31	27	28	18
Zn (Total)	T303	AR	2.0	mg/kg	75	80	72	45
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	4.5	4.2	5.2	4.4
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	5.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	2.4
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	<0.5	0.6	0.7	0.9
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.1	<2.0
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>									
Marine Sediment	Analysed as Marine Sediment								
Marine Scotland Suite									
		SAL Reference	551705 046	551705 048	551705 049	551705 050	551705 051		
		Customer Sample Reference	RC-2016-05 MS23	RC-2016-05 MS35	RC-2016-05 MS06	RC-2016-05 MS30	RC-2016-05 MS28		
		Bottom Depth	4.00	6.50	1.00	5.50	5.00		
Determinand	Method	Test Sample	LOD	Units					
Moisture @105C	T162	AR	0.1	%	14	9.2	4.7	11	9.5
As (Total)	T301	AR	1.0	mg/kg	3.4	3.2	3.0	3.1	2.7
Cd (Total)	T301	AR	0.05	mg/kg	0.09	0.17	0.05	0.10	0.13
Cr (Total)	T301	AR	0.2	mg/kg	22	41	16	33	32
Cu (Total)	T301	AR	0.1	mg/kg	22	30	14	27	26
Pb (Total)	T301	AR	0.2	mg/kg	5.8	16	5.2	13	12
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	19	31	13	23	22
Zn (Total)	T303	AR	2.0	mg/kg	58	85	37	75	73
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	5.0	3.3	8.5	5.4	5.4
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.1	<2.0	5.9
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	<2.0	3.1	<2.0	<2.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	2.2	3.2	<2.0	<2.0	2.4
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	0.9	0.8	2.2	0.9	0.6
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	<2.0	3.6	3.1	2.3
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	2.3	4.2	9.4	2.4
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	3.1	2.1	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
SAL Reference			551705 052	551705 053	551705 054	551705 055	551705 056	
Customer Sample Reference			RC-2016-05 MS32	RC-2016-05 MS02	RC-2016-05 MS25	RC-2016-05 MS13	RC-2016-05 MS05	
Bottom Depth			6.00	0.00	4.50	2.00	0.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	9.0	2.0	7.1	1.3
As (Total)	T301	AR	1.0	mg/kg	2.7	4.0	3.6	4.4
Cd (Total)	T301	AR	0.05	mg/kg	0.17	<0.05	0.11	0.09
Cr (Total)	T301	AR	0.2	mg/kg	34	25	32	31
Cu (Total)	T301	AR	0.1	mg/kg	27	22	50	25
Pb (Total)	T301	AR	0.2	mg/kg	16	7.8	13	7.2
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	24	19	27	24
Zn (Total)	T303	AR	2.0	mg/kg	75	49	65	52
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	5.5	5.3	5.6	5.2
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	6.7	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	4.9	<2.0	<2.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	3.2
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	<0.5	2.6	0.9	<0.5
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 058	551705 059	551705 060	551705 061	551705 062	
		Customer Sample Reference	RC-2016-05 MS17	RC-2016-05 MS15	RC-2016-05 MS07	RC-2016-14 MS06	RC-2016-14 MS21	
		Bottom Depth	3.00	2.50	1.10	1.00	3.00	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	13	8.4	1.8	21
As (Total)	T301	AR	1.0	mg/kg	3.4	3.6	4.1	7.1
Cd (Total)	T301	AR	0.05	mg/kg	0.05	0.06	0.06	<0.05
Cr (Total)	T301	AR	0.2	mg/kg	25	22	30	5.9
Cu (Total)	T301	AR	0.1	mg/kg	18	18	29	2.3
Pb (Total)	T301	AR	0.2	mg/kg	5.8	5.6	7.3	6.5
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	19	18	23	3.0
Zn (Total)	T303	AR	2.0	mg/kg	44	40	55	15
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	4.7	5.2	4.6	14
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	7.3	3.2
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	<2.0	18	7.3
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	7.8	2.8
Chrysene	T1	AR	2.0	µg/kg	<2.0	3.1	<2.0	9.6
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	<0.5	1.0	1.2	2.1
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	3.1	<2.0	14
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	5.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	9.3	<2.0	5.1
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	13
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 063	551705 064	551705 065	551705 067	551705 069	
		Customer Sample Reference	RC-2016-14 MS18	RC-2016-14 MS10	RC-2016-14 MS19	RC-2016-14 MS36	RC-2016-14 MS38	
		Bottom Depth	2.00	1.50	2.50	5.50	6.00	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	18	19	9.7	8.5
As (Total)	T301	AR	1.0	mg/kg	4.9	6.9	4.1	2.4
Cd (Total)	T301	AR	0.05	mg/kg	0.10	<0.05	0.16	0.14
Cr (Total)	T301	AR	0.2	mg/kg	20	5.4	39	41
Cu (Total)	T301	AR	0.1	mg/kg	17	2.5	33	30
Pb (Total)	T301	AR	0.2	mg/kg	12	6.2	17	18
Mercury	T355	AR	0.01	mg/kg	0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	13	3.1	27	26
Zn (Total)	T303	AR	2.0	mg/kg	39	13	76	73
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	5.7	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	11	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	11	27	7.1	6.5
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	5.3	23	2.1	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	11	37	5.0	2.9
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	4.9	19	2.3	<2.0
Chrysene	T1	AR	2.0	µg/kg	4.9	17	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	2.6	3.4	1.4	1.3
Fluoranthene	T1	AR	2.0	µg/kg	7.8	43	2.3	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	5.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	7.1	21	4.0	3.6
Naphthalene	T1	AR	2.0	µg/kg	<2.0	2.1	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	6.8	38	2.4	2.1
Pyrene	T1	AR	2.0	µg/kg	6.6	40	2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 070	551705 071	551705 073	551705 074	551705 075	
		Customer Sample Reference	RC-2016-14 MS42	RC-2016-14 MS34	RC-2016-14 MS25	RC-2016-14 MS27	RC-2016-14 MS29	
		Bottom Depth	6.50	5.00	3.50	4.00	4.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	11	11	9.2	8.8
As (Total)	T301	AR	1.0	mg/kg	2.2	3.1	2.3	2.5
Cd (Total)	T301	AR	0.05	mg/kg	0.17	0.17	0.15	0.16
Cr (Total)	T301	AR	0.2	mg/kg	40	42	38	41
Cu (Total)	T301	AR	0.1	mg/kg	30	41	29	33
Pb (Total)	T301	AR	0.2	mg/kg	20	20	17	20
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	26	30	25	27
Zn (Total)	T303	AR	2.0	mg/kg	68	78	72	75
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	6.4	6.3	6.2	6.1
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	3.0	3.3	3.0	2.3
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	2.4
Chrysene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	1.3	1.0	1.2	1.2
Fluoranthene	T1	AR	2.0	µg/kg	2.2	<2.0	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	3.6	3.1	3.5	3.4
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	3.2	2.4	<2.0	<2.0
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	2.6
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 076	551705 077	551705 078	551705 079	551705 080	
		Customer Sample Reference	RC-2016-10 MS01	RC-2016-10 MS04	RC-2016-10 MS08	RC-2016-10 MS09	RC-2016-10 MS13	
		Bottom Depth	0.00	0.50	1.50	2.00	2.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	5.6	7.6	9.6	8.7
As (Total)	T301	AR	1.0	mg/kg	5.0	5.4	3.5	2.3
Cd (Total)	T301	AR	0.05	mg/kg	0.06	<0.05	0.13	0.14
Cr (Total)	T301	AR	0.2	mg/kg	22	12	32	37
Cu (Total)	T301	AR	0.1	mg/kg	19	9.8	32	28
Pb (Total)	T301	AR	0.2	mg/kg	8.9	8.6	14	14
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	16	8.6	24	41
Zn (Total)	T303	AR	2.0	mg/kg	37	24	67	73
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	2.5	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	12	8.2	6.0	6.2
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	5.7	3.1	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	9.8	6.0	2.8	2.7
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	5.0	3.6	2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	5.5	2.1	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	2.1	1.1	1.3	1.2
Fluoranthene	T1	AR	2.0	µg/kg	10	4.6	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	6.7	5.4	3.8	3.3
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	10	3.0	<2.0	2.5
Pyrene	T1	AR	2.0	µg/kg	11	4.1	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 081	551705 082	551705 083	551705 084	551705 085	
		Customer Sample Reference	RC-2016-10 MS14	RC-2016-10 MS16	RC-2016-10 MS20	RC-2016-10 MS21	RC-2016-01 MS44	
		Bottom Depth	3.00	3.50	4.00	4.50	8.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	7.5	9.1	10	9.2
As (Total)	T301	AR	1.0	mg/kg	2.7	3.2	2.4	2.3
Cd (Total)	T301	AR	0.05	mg/kg	0.13	0.17	0.12	0.15
Cr (Total)	T301	AR	0.2	mg/kg	35	42	32	36
Cu (Total)	T301	AR	0.1	mg/kg	28	32	26	28
Pb (Total)	T301	AR	0.2	mg/kg	18	21	16	21
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	24	27	21	24
Zn (Total)	T303	AR	2.0	mg/kg	71	81	72	71
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	7.4	6.1	6.9	8.1
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	2.6	<2.0	2.7	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	4.9	2.2	3.3	5.4
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	3.5	<2.0	2.8	<2.0
Chrysene	T1	AR	2.0	µg/kg	12	<2.0	2.1	2.5
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	2.4	1.1	1.2	1.7
Fluoranthene	T1	AR	2.0	µg/kg	4.0	<2.0	2.5	4.1
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	5.5	3.2	3.6	4.8
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	14	<2.0	3.1	2.9
Pyrene	T1	AR	2.0	µg/kg	3.4	<2.0	2.1	3.3
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 086	551705 087	551705 088	551705 089	551705 091	
		Customer Sample Reference	RC-2016-01 MS46	RC-2016-01 MS38	RC-2016-01 MS36	RC-2016-01 MS28	RC-2016-14 MS09	
		Bottom Depth	9.00	7.50	7.00	4.50	1.10	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	12	7.4	7.4	9.2
As (Total)	T301	AR	1.0	mg/kg	3.4	2.8	5.6	5.3
Cd (Total)	T301	AR	0.05	mg/kg	0.16	0.22	0.10	0.11
Cr (Total)	T301	AR	0.2	mg/kg	40	42	36	41
Cu (Total)	T301	AR	0.1	mg/kg	32	32	39	31
Pb (Total)	T301	AR	0.2	mg/kg	20	22	13	11
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	28	29	36	34
Zn (Total)	T303	AR	2.0	mg/kg	71	74	65	<2.0
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	6.3	6.1	6.1	6.3
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	7.4	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	2.2	2.2	2.1
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	1.1	1.1	1.1	1.0
Fluoranthene	T1	AR	2.0	µg/kg	2.6	<2.0	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	3.5	3.2	3.2	3.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	2.5	<2.0	<2.0	<2.0
Pyrene	T1	AR	2.0	µg/kg	2.1	<2.0	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 092	551705 108	551705 109	551705 110	551705 112	
		Customer Sample Reference	RC-2016-14 MS04	VC-2016-04 MS20	VC-2016-04 MS22	VC-2016-04 MS24	VC-2016-12 MS01	
		Bottom Depth	0.50	3.50	4.00	4.50	0.00	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	30	8.9	6.3	13
As (Total)	T301	AR	1.0	mg/kg	7.4	3.1	2.7	2.6
Cd (Total)	T301	AR	0.05	mg/kg	<0.05	0.16	0.20	0.15
Cr (Total)	T301	AR	0.2	mg/kg	5.9	44	39	43
Cu (Total)	T301	AR	0.1	mg/kg	3.2	34	30	35
Pb (Total)	T301	AR	0.2	mg/kg	6.4	20	17	17
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	3.6	30	26	27
Zn (Total)	T303	AR	2.0	mg/kg	14	72	79	73
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	10	6.4	6.2	5.8
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	5.8	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	11	2.9	<2.0	<2.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	6.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	4.9	<2.0	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	1.7	1.1	1.0	0.9
Fluoranthene	T1	AR	2.0	µg/kg	7.5	2.1	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	8.0	3.4	3.0	3.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	5.1	2.9	2.2	<2.0
Pyrene	T1	AR	2.0	µg/kg	7.4	<2.0	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 113	551705 114	551705 116	551705 118	551705 119	
		Customer Sample Reference	VC-2016-12 MS04	VC-2016-12 MS06	VC-2016-12 MS09	VC-2016-12 MS12	VC-2016-12 MS15	
		Bottom Depth	0.50	1.00	1.50	2.00	2.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	20	23	17	9.2
As (Total)	T301	AR	1.0	mg/kg	7.1	6.6	7.3	4.0
Cd (Total)	T301	AR	0.05	mg/kg	<0.05	<0.05	<0.05	0.14
Cr (Total)	T301	AR	0.2	mg/kg	9.4	11	8.1	36
Cu (Total)	T301	AR	0.1	mg/kg	3.7	4.6	2.4	27
Pb (Total)	T301	AR	0.2	mg/kg	8.2	9.1	7.3	15
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	0.02
Ni (Total)	T301	AR	0.2	mg/kg	5.5	6.1	4.4	24
Zn (Total)	T303	AR	2.0	mg/kg	19	19	16	62
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	4.8	<2.0	3.9	<2.0
Anthracene	T1	AR	2.0	µg/kg	5.7	<2.0	3.6	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	21	9.6	17	5.9
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	41	8.1	23	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	69	15	26	2.2
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	30	7.2	20	<2.0
Chrysene	T1	AR	2.0	µg/kg	9.4	3.2	7.1	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	4.9	1.6	4.1	0.9
Fluoranthene	T1	AR	2.0	µg/kg	23	5.2	13	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	35	9.0	23	3.0
Naphthalene	T1	AR	2.0	µg/kg	3.4	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	12	3.8	5.8	<2.0
Pyrene	T1	AR	2.0	µg/kg	44	8.1	17	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

Marine Sediment									Analysed as Marine Sediment	
Marine Scotland Suite										
SAL Reference				551705 120	551705 122	551705 123	551705 124	551705 126		
Customer Sample Reference				VC-2016-12 MS17	VC-2016-12 MS19	VC-2016-12 MS22	VC-2016-12 MS24	RC-2016-02 MS09		
Bottom Depth				3.00	3.50	4.00	4.50	3.50		
Determinand	Method	Test Sample	LOD	Units						
Moisture @105C	T162	AR	0.1	%	10	8.6	11	10		
As (Total)	T301	AR	1.0	mg/kg	3.2	3.4	3.8	3.5		
Cd (Total)	T301	AR	0.05	mg/kg	0.10	0.28	0.17	0.12		
Cr (Total)	T301	AR	0.2	mg/kg	40	40	40	39		
Cu (Total)	T301	AR	0.1	mg/kg	30	31	29	28		
Pb (Total)	T301	AR	0.2	mg/kg	13	13	13	12		
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01		
Ni (Total)	T301	AR	0.2	mg/kg	31	31	32	32		
Zn (Total)	T303	AR	2.0	mg/kg	73	71	72	69		
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0		
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0		
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0		
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	5.9	6.1	6.4	6.3		
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0		
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.7	3.0		
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0		
Chrysene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0		
Dibenzo(ah)Anthracene	T1	AR	0.5	µg/kg	0.7	0.8	1.1	1.4		
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	2.3	<2.0	<2.0		
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0		
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	2.7	2.6	3.2	3.5		
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0		
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	2.5	<2.0	<2.0		
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0		
Trityl tin	T16	AR	10	µg/kg	<10	<10	<10	<10		
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1		
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1		
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1		
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1		
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1		
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1		
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	0.1		
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4		
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7		

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 127	551705 128	551705 129	551705 130	551705 131	
		Customer Sample Reference	RC-2016-02 MS07	RC-2016-02 MS04	RC-2016-02 MS21	VC-2016-06 MS07	VC-2016-06 MS14	
		Bottom Depth	3.00	1.30	5.50	1.00	2.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	2.5	4.0	15	11
As (Total)	T301	AR	1.0	mg/kg	4.1	4.1	3.5	4.6
Cd (Total)	T301	AR	0.05	mg/kg	0.15	0.08	0.32	0.15
Cr (Total)	T301	AR	0.2	mg/kg	34	35	48	40
Cu (Total)	T301	AR	0.1	mg/kg	26	27	37	31
Pb (Total)	T301	AR	0.2	mg/kg	15	8.6	26	11
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	0.04	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	26	28	31	30
Zn (Total)	T303	AR	2.0	mg/kg	60	72	110	71
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	6.1	6.7	6.2	8.1
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	2.5	2.8	2.3	3.6
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	1.2	1.1	1.0	1.1
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	3.8	<2.0	7.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	3.2	3.2	3.2	3.6
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	6.7	2.7	9.0
Pyrene	T1	AR	2.0	µg/kg	<2.0	2.5	<2.0	4.8
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>									
Marine Sediment	Analysed as Marine Sediment								
Marine Scotland Suite									
		SAL Reference	551705 132	551705 133	551705 135	551705 136	551705 140		
		Customer Sample Reference	VC-2016-04 MS15	VC-2016-04 MS18	VC-2016-06 MS39	VC-2016-06 MS41	VC-2016-06 MS46		
		Bottom Depth	2.50	3.00	7.00	7.50	6.50		
Determinand	Method	Test Sample	LOD	Units					
Moisture @105C	T162	AR	0.1	%	9.7	8.9	2.0	10	8.3
As (Total)	T301	AR	1.0	mg/kg	2.5	2.4	2.5	2.7	2.5
Cd (Total)	T301	AR	0.05	mg/kg	0.08	0.10	0.12	0.13	0.11
Cr (Total)	T301	AR	0.2	mg/kg	38	39	34	37	33
Cu (Total)	T301	AR	0.1	mg/kg	27	29	27	29	25
Pb (Total)	T301	AR	0.2	mg/kg	18	17	15	18	14
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	26	26	23	26	23
Zn (Total)	T303	AR	2.0	mg/kg	72	70	69	69	68
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	5.9	6.8	6.0	5.7	6.1
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	3.3	<2.0	<2.0	<2.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	2.2	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	0.8	1.6	0.9	0.8	1.1
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	2.1	<2.0	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	2.8	3.8	2.8	2.8	3.3
Naphthalene	T1	AR	2.0	µg/kg	<2.0	2.1	<2.0	<2.0	2.1
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	2.4	<2.0	<2.0	2.7
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 146	551705 147	551705 148	551705 149	551705 150	
		Customer Sample Reference	RC-2016-01 MS52	RC-2016-01 MS41	RC-2016-01 MS54	RC-2016-01 MS31	RC-2016-01 MS34	
		Bottom Depth	10.00	8.00	10.50	6.00	6.70	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	12	6.6	12	7.2
As (Total)	T301	AR	1.0	mg/kg	2.8	3.2	2.6	4.1
Cd (Total)	T301	AR	0.05	mg/kg	0.14	0.14	0.14	0.09
Cr (Total)	T301	AR	0.2	mg/kg	38	38	33	29
Cu (Total)	T301	AR	0.1	mg/kg	30	35	26	21
Pb (Total)	T301	AR	0.2	mg/kg	18	19	17	9.6
Mercury	T355	AR	0.01	mg/kg	0.02	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	26	27	24	24
Zn (Total)	T303	AR	2.0	mg/kg	71	76	79	60
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	6.6	5.6	6.1	8.6
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	2.0	<2.0	<2.0	5.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	1.1	0.8	0.8	1.3
Fluoranthene	T1	AR	2.0	µg/kg	2.0	<2.0	<2.0	7.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	3.4	2.6	2.6	4.6
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	2.9	<2.0	<2.0	5.9
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	5.5
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	(2)<0.3	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	(2)<0.3	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	(2)<0.3	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	(2)<0.3	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	(2)<0.3	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	(2)<0.3	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	(2)<0.3	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	(2)<2.1	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	(2)<2.1	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 151	551705 153	551705 154	551705 155	551705 156	
		Customer Sample Reference	VC-2016-06 MS17	VC-2016-06 MS01	RC-2016-02 MS14	VC-2016-12 MS28	VC-2016-12 MS31	
		Bottom Depth	3.00	0.00	4.50	5.00	5.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	11	5.3	8.5	9.1
As (Total)	T301	AR	1.0	mg/kg	3.2	4.7	1.9	3.1
Cd (Total)	T301	AR	0.05	mg/kg	0.10	<0.05	0.23	0.12
Cr (Total)	T301	AR	0.2	mg/kg	36	12	33	37
Cu (Total)	T301	AR	0.1	mg/kg	27	18	22	25
Pb (Total)	T301	AR	0.2	mg/kg	13	6.6	22	11
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	27	11	23	32
Zn (Total)	T303	AR	2.0	mg/kg	67	24	62	68
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	17	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	13	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	40	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	6.3	72	6.8	6.8
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	73	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	120	2.2	<2.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	52	<2.0	<2.0
Chrysene	T1	AR	2.0	µg/kg	<2.0	57	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	1.0	7.2	0.6	0.9
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	150	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	18	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	3.0	56	2.9	2.8
Naphthalene	T1	AR	2.0	µg/kg	<2.0	13	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	120	<2.0	<2.0
Pyrene	T1	AR	2.0	µg/kg	<2.0	150	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 157	551705 159	551705 161	551705 162	551705 163	
		Customer Sample Reference	VC-2016-12 MS34	VC-2016-08 MS01	VC-2016-08 MS04	VC-2016-08 MS06	VC-2016-08 MS08	
		Bottom Depth	6.00	0.00	0.50	1.00	1.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	9.9	22	23	23
As (Total)	T301	AR	1.0	mg/kg	3.1	4.7	4.5	5.1
Cd (Total)	T301	AR	0.05	mg/kg	0.19	0.09	0.10	0.09
Cr (Total)	T301	AR	0.2	mg/kg	42	11	10	11
Cu (Total)	T301	AR	0.1	mg/kg	32	3.9	3.8	4.5
Pb (Total)	T301	AR	0.2	mg/kg	22	11	12	8.4
Mercury	T355	AR	0.01	mg/kg	<0.01	0.01	0.02	0.01
Ni (Total)	T301	AR	0.2	mg/kg	29	5.9	6.1	5.8
Zn (Total)	T303	AR	2.0	mg/kg	75	24	25	20
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	60	89	32
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	52	12	14
Anthracene	T1	AR	2.0	µg/kg	<2.0	180	250	73
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	6.2	480	720	120
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	510	600	130
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	840	1100	200
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	310	330	82
Chrysene	T1	AR	2.0	µg/kg	<2.0	360	590	99
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	0.8	53	51	13
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	920	1800	240
Fluorene	T1	AR	2.0	µg/kg	<2.0	78	54	36
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	2.7	330	410	89
Naphthalene	T1	AR	2.0	µg/kg	<2.0	110	5.7	19
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	510	720	230
Pyrene	T1	AR	2.0	µg/kg	<2.0	990	1400	250
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 164	551705 165	551705 166	551705 168	551705 169	
		Customer Sample Reference	VC-2016-08 MS13	RC-2016-02 MS01	VC-2016-06 MS12	VC-2016-06 MS21	VC-2016-07 MS09	
		Bottom Depth	2.00	1.00	2.00	3.50	1.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	22	10	9.1	8.9
As (Total)	T301	AR	1.0	mg/kg	4.6	4.6	3.2	2.3
Cd (Total)	T301	AR	0.05	mg/kg	0.06	0.06	<0.05	0.07
Cr (Total)	T301	AR	0.2	mg/kg	10	30	27	28
Cu (Total)	T301	AR	0.1	mg/kg	3.4	21	25	25
Pb (Total)	T301	AR	0.2	mg/kg	8.3	9.1	10	11
Mercury	T355	AR	0.01	mg/kg	0.01	<0.01	<0.01	0.03
Ni (Total)	T301	AR	0.2	mg/kg	6.1	26	24	23
Zn (Total)	T303	AR	2.0	mg/kg	23	67	58	64
Acenaphthene	T1	AR	2.0	µg/kg	2.8	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	3.7	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	9.8	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	39	8.1	6.5	6.7
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	44	2.4	<2.0	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	78	5.0	3.4	4.8
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	29	2.4	2.1	2.7
Chrysene	T1	AR	2.0	µg/kg	32	3.1	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	4.5	0.9	1.1	1.6
Fluoranthene	T1	AR	2.0	µg/kg	58	6.0	2.0	2.0
Fluorene	T1	AR	2.0	µg/kg	3.1	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	34	3.9	3.5	4.3
Naphthalene	T1	AR	2.0	µg/kg	3.7	<2.0	2.7	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	28	4.1	2.6	<2.0
Pyrene	T1	AR	2.0	µg/kg	76	5.2	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 170	551705 171	551705 172	551705 173	551705 174	
		Customer Sample Reference	VC-2016-07 MS13	VC-2016-07 MS19	VC-2016-07 MS21	VC-2016-07 MS01	VC-2016-07 MS26	
		Bottom Depth	2.00	3.00	3.50	0.00	4.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	21	14	10	21
As (Total)	T301	AR	1.0	mg/kg	5.7	4.0	4.3	5.7
Cd (Total)	T301	AR	0.05	mg/kg	<0.05	0.10	0.07	<0.05
Cr (Total)	T301	AR	0.2	mg/kg	5.5	33	34	6.2
Cu (Total)	T301	AR	0.1	mg/kg	1.9	27	26	2.4
Pb (Total)	T301	AR	0.2	mg/kg	5.6	13	13	6.6
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	3.2	28	27	3.7
Zn (Total)	T303	AR	2.0	mg/kg	16	70	68	21
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	2.7	<2.0	<2.0	12
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	13	6.8	6.7	38
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	12	<2.0	<2.0	49
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	22	4.1	3.6	81
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	11	2.3	<2.0	40
Chrysene	T1	AR	2.0	µg/kg	6.1	<2.0	<2.0	30
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	2.0	1.0	0.6	6.2
Fluoranthene	T1	AR	2.0	µg/kg	13	3.7	5.7	61
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	5.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	14	3.7	3.3	45
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	3.0
Phenanthrene	T1	AR	2.0	µg/kg	6.3	2.0	6.1	40
Pyrene	T1	AR	2.0	µg/kg	17	3.1	4.5	64
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 175	551705 176	551705 177	551705 178	551705 179	
		Customer Sample Reference	VC-2016-07 MS24	VC-2016-07 MS32	VC-2016-07 MS33	VC-2016-07 MS30	VC-2016-07 MS06	
		Bottom Depth	4.20	5.50	6.00	5.00	1.00	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	12	8.0	11	9.9
As (Total)	T301	AR	1.0	mg/kg	3.0	2.7	2.6	5.9
Cd (Total)	T301	AR	0.05	mg/kg	0.25	0.14	0.12	0.14
Cr (Total)	T301	AR	0.2	mg/kg	34	34	31	35
Cu (Total)	T301	AR	0.1	mg/kg	27	27	24	27
Pb (Total)	T301	AR	0.2	mg/kg	20	19	14	17
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	25	24	22	25
Zn (Total)	T303	AR	2.0	mg/kg	81	75	70	72
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	2.3
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	2.7
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	7.4
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	10	9.3	10	8.9
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	7.5	7.4	7.8	7.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	16	16	15	15
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	7.4	7.7	7.6	8.0
Chrysene	T1	AR	2.0	µg/kg	6.8	5.7	5.0	5.4
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	4.0	4.1	1.7	4.0
Fluoranthene	T1	AR	2.0	µg/kg	4.9	3.1	4.6	3.9
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	2.7
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	9.6	10	9.6	10
Naphthalene	T1	AR	2.0	µg/kg	5.3	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	6.2	3.6	5.3	2.8
Pyrene	T1	AR	2.0	µg/kg	4.1	2.9	3.9	3.5
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>									
Marine Sediment	Analysed as Marine Sediment								
Marine Scotland Suite									
		SAL Reference	551705 180	551705 181	551705 182	551705 183	551705 184		
		Customer Sample Reference	VC-2016-04 MS06	VC-2016-04 MS01	VC-2016-03 MS01	VC-2016-03 MS34	VC-2016-03 MS29		
		Bottom Depth	1.00	0.00	0.00	5.00	4.50		
Determinand	Method	Test Sample	LOD	Units					
Moisture @105C	T162	AR	0.1	%	23	22	30	11	8.2
As (Total)	T301	AR	1.0	mg/kg	5.0	4.4	6.4	2.8	2.4
Cd (Total)	T301	AR	0.05	mg/kg	0.05	<0.05	<0.05	0.35	0.19
Cr (Total)	T301	AR	0.2	mg/kg	6.8	7.8	7.8	41	43
Cu (Total)	T301	AR	0.1	mg/kg	2.7	2.7	2.2	33	32
Pb (Total)	T301	AR	0.2	mg/kg	8.7	9.2	7.1	23	15
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	4.2	4.3	3.8	28	27
Zn (Total)	T303	AR	2.0	mg/kg	17	17	15	82	66
Acenaphthene	T1	AR	2.0	µg/kg	11	11	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	7.3	8.1	3.6	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	32	31	4.2	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	71	62	21	7.6	7.0
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	79	69	29	5.9	4.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	150	120	55	12	8.2
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	52	47	26	7.2	5.1
Chrysene	T1	AR	2.0	µg/kg	67	50	14	3.4	2.6
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	8.3	7.4	3.5	2.2	1.9
Fluoranthene	T1	AR	2.0	µg/kg	140	110	18	2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	15	14	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	64	55	30	9.4	7.0
Naphthalene	T1	AR	2.0	µg/kg	4.5	12	2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	95	86	9.5	2.5	2.6
Pyrene	T1	AR	2.0	µg/kg	160	130	28	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 185	551705 186	551705 187	551705 188	551705 189	
		Customer Sample Reference	VC-2016-03 MS36	VC-2016-03 MS20	VC-2016-03 MS09	VC-2016-03 MS27	VC-2016-03 MS24	
		Bottom Depth	5.50	3.00	1.50	4.00	3.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	20	4.4	21	14
As (Total)	T301	AR	1.0	mg/kg	3.3	5.9	5.5	2.8
Cd (Total)	T301	AR	0.05	mg/kg	0.26	<0.05	<0.05	0.15
Cr (Total)	T301	AR	0.2	mg/kg	43	6.8	7.4	40
Cu (Total)	T301	AR	0.1	mg/kg	31	2.6	2.8	31
Pb (Total)	T301	AR	0.2	mg/kg	27	6.5	7.9	22
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	31	4.0	3.9	28
Zn (Total)	T303	AR	2.0	mg/kg	99	16	17	85
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	4.0	15	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	2.6	2.5	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	5.4	21	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	6.8	25	46	7.8
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	4.6	24	41	3.3
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	9.6	46	76	6.3
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	5.6	19	31	3.4
Chrysene	T1	AR	2.0	µg/kg	2.9	17	36	2.4
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	2.2	3.7	4.9	1.8
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	26	85	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	2.4	12	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	7.7	24	34	5.7
Naphthalene	T1	AR	2.0	µg/kg	<2.0	2.1	8.6	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	2.1	14	66	<2.0
Pyrene	T1	AR	2.0	µg/kg	<2.0	30	94	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 190	551705 191	551705 192	551705 193	551705 194	
		Customer Sample Reference	VC-2016-03 MS15	VC-2016-03 MS04	VC-2016-04 MS13	VC-2016-04 MS04	VC-2016-04 MS09	
		Bottom Depth	2.50	0.50	2.00	0.50	1.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	22	25	24	31
As (Total)	T301	AR	1.0	mg/kg	5.9	6.3	5.1	5.3
Cd (Total)	T301	AR	0.05	mg/kg	<0.05	<0.05	0.07	0.05
Cr (Total)	T301	AR	0.2	mg/kg	7.7	7.7	10	8.1
Cu (Total)	T301	AR	0.1	mg/kg	2.8	2.3	3.4	2.9
Pb (Total)	T301	AR	0.2	mg/kg	8.3	6.9	11	8.8
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	4.1	4.0	5.5	4.0
Zn (Total)	T303	AR	2.0	mg/kg	16	15	22	19
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	2.3	3.9	3.7
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	4.1	7.6	6.9
Anthracene	T1	AR	2.0	µg/kg	<2.0	14	12	9.5
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	13	48	57	39
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	15	49	53	46
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	27	77	89	76
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	14	35	38	34
Chrysene	T1	AR	2.0	µg/kg	6.3	36	41	31
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	3.0	6.0	8.0	7.0
Fluoranthene	T1	AR	2.0	µg/kg	8.4	79	91	60
Fluorene	T1	AR	2.0	µg/kg	<2.0	3.2	4.5	4.7
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	19	44	49	43
Naphthalene	T1	AR	2.0	µg/kg	<2.0	2.5	2.9	3.7
Phenanthrene	T1	AR	2.0	µg/kg	4.2	37	38	49
Pyrene	T1	AR	2.0	µg/kg	13	84	100	72
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

SAL Reference: 551705

Project Site: Nigg Bay

Customer Reference: N152012U

Marine Sediment

Analysed as Marine Sediment

Marine Scotland Suite

		SAL Reference	551705 195	551705 196	551705 197	551705 198	551705 199	
		Customer Sample Reference	VC-2016-06 MS04	VC-2016-06 MS09	RC-2016-02 MS20	RC-2016-02 MS12	RC-2016-02 MS05	
		Bottom Depth	0.50	1.50	5.00	4.00	2.40	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	23	11	9.6	12
As (Total)	T301	AR	1.0	mg/kg	6.2	5.4	2.1	2.4
Cd (Total)	T301	AR	0.05	mg/kg	<0.05	0.12	0.14	0.16
Cr (Total)	T301	AR	0.2	mg/kg	8.0	42	33	37
Cu (Total)	T301	AR	0.1	mg/kg	2.3	34	21	25
Pb (Total)	T301	AR	0.2	mg/kg	7.2	11	20	20
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	4.3	32	23	24
Zn (Total)	T303	AR	2.0	mg/kg	<2.0	68	64	68
Acenaphthene	T1	AR	2.0	µg/kg	2.6	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	6.2	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	8.1	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	35	6.9	6.9	6.3
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	56	3.7	3.1	2.5
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	83	6.9	5.6	4.7
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	40	4.6	4.1	3.6
Chrysene	T1	AR	2.0	µg/kg	25	<2.0	<2.0	<2.0
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	6.7	2.0	2.0	1.7
Fluoranthene	T1	AR	2.0	µg/kg	40	<2.0	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	2.7	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	51	6.7	6.4	5.8
Naphthalene	T1	AR	2.0	µg/kg	2.5	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	23	<2.0	<2.0	<2.0
Pyrene	T1	AR	2.0	µg/kg	46	<2.0	<2.0	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 200	551705 201	551705 202	551705 204	551705 205	
		Customer Sample Reference	RC-2016-17 MS14	VC-2016-08 MS14	VC-2016-08 MS17	VC-2016-08 MS20	VC-2016-08 MS23	
		Bottom Depth	2.50	2.50	3.00	3.50	4.00	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	9.3	22	22	17
As (Total)	T301	AR	1.0	mg/kg	4.1	4.6	4.6	3.8
Cd (Total)	T301	AR	0.05	mg/kg	0.06	<0.05	<0.05	<0.05
Cr (Total)	T301	AR	0.2	mg/kg	17	11	11	15
Cu (Total)	T301	AR	0.1	mg/kg	84	3.2	3.0	10
Pb (Total)	T301	AR	0.2	mg/kg	14	5.7	9.4	5.9
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	18	6.1	5.9	11
Zn (Total)	T303	AR	2.0	mg/kg	28	19	19	27
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	6.6	2.9
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	3.9	5.5	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	6.6	25	16
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	12	27	57	25
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	8.6	31	51	20
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	18	60	97	32
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	11	32	48	18
Chrysene	T1	AR	2.0	µg/kg	6.0	17	39	16
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	3.4	5.3	7.1	4.6
Fluoranthene	T1	AR	2.0	µg/kg	6.6	29	79	40
Fluorene	T1	AR	2.0	µg/kg	<2.0	2.6	7.3	4.6
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	8.8	24	35	14
Naphthalene	T1	AR	2.0	µg/kg	<2.0	3.8	5.5	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	3.5	18	64	38
Pyrene	T1	AR	2.0	µg/kg	8.0	35	88	38
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment Analysed as Marine Sediment								
Marine Scotland Suite								
		SAL Reference	551705 206	551705 208	551705 209	551705 210	551705 211	
		Customer Sample Reference	VC-2016-13 MS01	VC-2016-13 MS04	VC-2016-13 MS06	RC-2016-01 MS10	RC-2016-01 MS01	
		Bottom Depth	0.00	0.50	1.00	1.50	0.00	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	25	27	26	19
As (Total)	T301	AR	1.0	mg/kg	5.9	5.8	5.9	11
Cd (Total)	T301	AR	0.05	mg/kg	0.12	0.15	0.12	<0.05
Cr (Total)	T301	AR	0.2	mg/kg	13	15	15	37
Cu (Total)	T301	AR	0.1	mg/kg	5.2	14	5.5	20
Pb (Total)	T301	AR	0.2	mg/kg	14	25	22	9.7
Mercury	T355	AR	0.01	mg/kg	0.02	0.04	0.03	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	7.2	8.3	8.1	31
Zn (Total)	T303	AR	2.0	mg/kg	26	28	27	56
Acenaphthene	T1	AR	2.0	µg/kg	14	15	18	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	5.1	7.8	27	<2.0
Anthracene	T1	AR	2.0	µg/kg	33	41	55	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	58	130	160	8.3
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	61	120	160	2.9
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	110	200	260	6.4
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	50	96	130	6.3
Chrysene	T1	AR	2.0	µg/kg	44	95	120	2.2
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	9.8	13	24	2.9
Fluoranthene	T1	AR	2.0	µg/kg	100	200	290	5.8
Fluorene	T1	AR	2.0	µg/kg	13	18	20	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	38	70	99	5.4
Naphthalene	T1	AR	2.0	µg/kg	5.3	10	8.7	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	91	150	180	5.2
Pyrene	T1	AR	2.0	µg/kg	110	210	290	5.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	1.5	(2)<1.7	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

SAL Reference: 551705

Project Site: Nigg Bay

Customer Reference: N152012U

Marine Sediment

Analysed as Marine Sediment

Marine Scotland Suite

SAL Reference		551705 212		551705 213		551705 214		551705 215		551705 216	
Customer Sample Reference		RC-2016-01 MS04		RC-2016-01 MS07		RC-2016-01 MS50		RC-2016-01 MS17		RC-2016-01 MS12	
		Bottom Depth		0.50		1.00		9.50		3.00	
Determinand	Method	Test Sample	LOD	Units							
Moisture @105C	T162	AR	0.1	%	3.2	16	11	20	20		
As (Total)	T301	AR	1.0	mg/kg	5.7	8.7	3.2	5.6	10		
Cd (Total)	T301	AR	0.05	mg/kg	<0.05	<0.05	0.15	0.05	<0.05		
Cr (Total)	T301	AR	0.2	mg/kg	25	32	41	28	34		
Cu (Total)	T301	AR	0.1	mg/kg	20	33	31	19	18		
Pb (Total)	T301	AR	0.2	mg/kg	8.4	10	21	9.7	8.8		
Mercury	T355	AR	0.01	mg/kg	0.04	<0.01	<0.01	<0.01	<0.01		
Ni (Total)	T301	AR	0.2	mg/kg	22	30	28	26	28		
Zn (Total)	T303	AR	2.0	mg/kg	41	46	80	61	57		
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0		
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0		
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0		
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	7.5	5.5	5.9	10	8.6		
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	4.4	<2.0	<2.0	4.2	3.7		
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	6.5	3.3	3.4	10	8.4		
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	6.0	4.4	4.6	4.9	4.5		
Chrysene	T1	AR	2.0	µg/kg	3.0	<2.0	<2.0	5.4	3.8		
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	2.4	2.2	2.5	3.8	3.9		
Fluoranthene	T1	AR	2.0	µg/kg	5.0	<2.0	<2.0	5.6	<2.0		
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0		
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	4.9	3.7	4.0	5.4	4.9		
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0		
Phenanthrene	T1	AR	2.0	µg/kg	4.0	2.6	2.9	4.4	<2.0		
Pyrene	T1	AR	2.0	µg/kg	4.7	<2.0	<2.0	5.6	<2.0		
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10	<10		
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4	<1.4		
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7	<0.7		

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 224	551705 225	551705 226	551705 227	551705 228	
		Customer Sample Reference	VC-2016-06 MS30	VC-2016-06 MS33	VC-2016-06 MS44	VC-2016-06 MS27	VC-2016-06 MS36	
		Bottom Depth	5.00	5.50	8.00	4.50	6.00	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	12	9.5	10	9.9
As (Total)	T301	AR	1.0	mg/kg	3.5	2.9	2.7	3.2
Cd (Total)	T301	AR	0.05	mg/kg	0.10	0.12	0.14	0.07
Cr (Total)	T301	AR	0.2	mg/kg	34	35	35	34
Cu (Total)	T301	AR	0.1	mg/kg	27	26	30	22
Pb (Total)	T301	AR	0.2	mg/kg	12	16	18	10
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	27	24	25	22
Zn (Total)	T303	AR	2.0	mg/kg	63	71	68	54
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	7.3	8.2	6.4	12
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	2.5	2.6	<2.0	3.6
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	5.9	6.7	4.6	9.7
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	3.3	3.7	3.2	4.5
Chrysene	T1	AR	2.0	µg/kg	3.0	2.7	<2.0	7.4
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	2.9	3.2	2.9	3.5
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	3.5	<2.0	18
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	3.8	4.3	3.7	5.1
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	3.9	<2.0	13
Pyrene	T1	AR	2.0	µg/kg	<2.0	2.7	<2.0	13
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 229	551705 230	551705 231	551705 233	551705 234	
		Customer Sample Reference	VC-2016-06 MS23	VC-2016-13 MS09	VC-2016-13 MS13	VC-2016-13 MS15	VC-2016-13 MS18	
		Bottom Depth	4.00	1.50	2.00	2.50	3.00	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	12	23	23	11
As (Total)	T301	AR	1.0	mg/kg	1.9	6.0	5.9	5.4
Cd (Total)	T301	AR	0.05	mg/kg	0.09	<0.05	<0.05	0.05
Cr (Total)	T301	AR	0.2	mg/kg	18	11	9.9	15
Cu (Total)	T301	AR	0.1	mg/kg	16	2.9	2.6	8.2
Pb (Total)	T301	AR	0.2	mg/kg	9.6	5.8	6.5	7.9
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	14	6.1	5.4	9.9
Zn (Total)	T303	AR	2.0	mg/kg	62	18	17	25
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	7.9	22	6.5
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	5.5	2.3	5.3
Anthracene	T1	AR	2.0	µg/kg	<2.0	25	40	22
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	6.3	83	78	47
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	2.2	64	60	35
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	5.4	120	110	61
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	4.0	48	48	30
Chrysene	T1	AR	2.0	µg/kg	2.3	65	70	39
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	3.1	15	8.4	7.7
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	160	150	100
Fluorene	T1	AR	2.0	µg/kg	<2.0	10	20	8.2
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	4.3	40	37	23
Naphthalene	T1	AR	2.0	µg/kg	<2.0	5.7	7.0	6.0
Phenanthrene	T1	AR	2.0	µg/kg	<2.0	93	160	81
Pyrene	T1	AR	2.0	µg/kg	<2.0	140	150	99
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

<p>SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U</p>								
Marine Sediment	Analysed as Marine Sediment							
Marine Scotland Suite								
		SAL Reference	551705 235	551705 236	551705 237	551705 245	551705 247	
		Customer Sample Reference	VC-2016-13 MS20	VC-2016-13 MS24	VC-2016-13 MS25	VC-2016-03 MS38	VC-2016-03 MS42	
		Bottom Depth	3.50	4.00	4.50	6.00	6.50	
Determinand	Method	Test Sample	LOD	Units				
Moisture @105C	T162	AR	0.1	%	14	3.9	8.4	13
As (Total)	T301	AR	1.0	mg/kg	3.4	3.0	3.2	2.3
Cd (Total)	T301	AR	0.05	mg/kg	0.17	0.23	0.15	0.08
Cr (Total)	T301	AR	0.2	mg/kg	37	39	41	47
Cu (Total)	T301	AR	0.1	mg/kg	28	31	31	33
Pb (Total)	T301	AR	0.2	mg/kg	19	27	21	17
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	26	28	28	29
Zn (Total)	T303	AR	2.0	mg/kg	68	70	75	71
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	3.3	<2.0	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	12	7.2	7.8	9.0
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	5.7	<2.0	3.6	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	12	4.3	8.1	5.1
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	7.0	3.4	5.5	3.1
Chrysene	T1	AR	2.0	µg/kg	5.6	<2.0	2.5	2.8
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	4.0	2.8	3.5	2.8
Fluoranthene	T1	AR	2.0	µg/kg	13	<2.0	3.4	7.1
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	6.4	3.8	5.5	3.8
Naphthalene	T1	AR	2.0	µg/kg	3.2	<2.0	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	13	<2.0	3.9	8.0
Pyrene	T1	AR	2.0	µg/kg	12	<2.0	3.5	4.9
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7

SAL Reference: 551705 Project Site: Nigg Bay Customer Reference: N152012U						
Marine Sediment	Analysed as Marine Sediment					
Marine Scotland Suite						
		SAL Reference	551705 248	551705 253	551705 258	
		Customer Sample Reference	VC-2016-03 MS44	RC-2016-05 MS09	RC-2016-14 MS02	
		Bottom Depth	7.00	1.50	0.00	
Determinand	Method	Test Sample	LOD	Units		
Moisture @105C	T162	AR	0.1	%	14	3.4
As (Total)	T301	AR	1.0	mg/kg	3.2	3.8
Cd (Total)	T301	AR	0.05	mg/kg	0.19	0.07
Cr (Total)	T301	AR	0.2	mg/kg	45	33
Cu (Total)	T301	AR	0.1	mg/kg	30	24
Pb (Total)	T301	AR	0.2	mg/kg	30	7.5
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	31	25
Zn (Total)	T303	AR	2.0	mg/kg	98	50
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	8.3	7.0
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	3.5	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	7.2	3.9
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	5.6	2.9
Chrysene	T1	AR	2.0	µg/kg	2.8	2.1
Dibenz(a,h)Anthracene	T1	AR	0.5	µg/kg	3.7	2.4
Fluoranthene	T1	AR	2.0	µg/kg	4.1	3.6
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	5.4	3.5
Naphthalene	T1	AR	2.0	µg/kg	4.0	5.3
Phenanthrene	T1	AR	2.0	µg/kg	6.3	5.5
Pyrene	T1	AR	2.0	µg/kg	3.3	2.6
Tributyl tin	T16	AR	10	µg/kg	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7

Index to symbols used in 551705-3

Value	Description
AR	As Received
2	LOD Raised Due to Matrix Interference
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T85	Calc
T750	ICP/MS (Recovery)
T355	CVAFS
T1	GC/MS (HR)
T162	Grav (1 Dec) (105 C)
T429	GC/MS (Recovery)
T434	GC/MS (HR) (Recovery)
T751	CVAFS (Recovery)
T301	ICP/MS (Total)
T303	ICP-OES (Total)

T16	GC/MS
T432	ICP/OES (Recovery)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
As Recovery	T750	AR	1	%	N	0263-0273
Cd Recovery	T750	AR	1	%	N	0263-0273
Cr Recovery	T750	AR	1	%	N	0263-0273
Cu Recovery	T750	AR	1	%	N	0263-0273
Pb Recovery	T750	AR	1	%	N	0263-0273
Hg Recovery	T751	AR	1	%	N	0263-0273
Ni Recovery	T750	AR	1	%	N	0263-0273
Zn Recovery	T432	AR	1	%	N	0263-0273
Acenaphthene Recovery	T434	AR	1	%	N	0263-0273
Acenaphthylene Recovery	T434	AR	1	%	N	0263-0273
Anthracene Recovery	T434	AR	1	%	N	0263-0273
Benz(a)Anthracene Recovery	T434	AR	1	%	N	0263-0273
Benz(a)Pyrene Recovery	T434	AR	1	%	N	0263-0273
Benz(b/k)Fluoranthene Recovery	T434	AR	1	%	N	0263-0273
Benzo(ghi)Perylene Recovery	T434	AR	1	%	N	0263-0273
Chrysene Recovery	T434	AR	1	%	N	0263-0273
Dibenzo(ah)Anthracene Recovery	T434	AR	1	%	N	0263-0273
Fluoranthene Recovery	T434	AR	1	%	N	0263-0273
Fluorene Recovery	T434	AR	1	%	N	0263-0273
Indeno(123-cd)Pyrene Recovery	T434	AR	1	%	N	0263-0273
Naphthalene Recovery	T434	AR	1	%	N	0263-0273
Phenanthrene Recovery	T434	AR	1	%	N	0263-0273
Pyrene Recovery	T434	AR	1	%	N	0263-0273
Tributyl tin Recovery	T429	AR	1	%	N	0263-0273
PCB BZ#52 Recovery	T434	AR	1	%	N	0263-0273
PCB BZ#28 Recovery	T434	AR	1	%	N	0263-0273
PCB BZ#101 Recovery	T434	AR	1	%	N	0263-0273
PCB BZ#118 Recovery	T434	AR	1	%	N	0263-0273
PCB BZ#138 Recovery	T434	AR	1	%	N	0263-0273
PCB BZ#153 Recovery	T434	AR	1	%	N	0263-0273
PCB BZ#180 Recovery	T434	AR	1	%	N	0263-0273
PCB (Total Tri-Hepta) Recovery	T434	AR	1	%	N	0263-0273
Moisture @ 105C	T162	AR	0.1	%	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258
As (Total)	T301	AR	1.0	mg/kg	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258
Cd (Total)	T301	AR	0.05	mg/kg	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258
Cr (Total)	T301	AR	0.2	mg/kg	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258
Cu (Total)	T301	AR	0.1	mg/kg	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258
Pb (Total)	T301	AR	0.2	mg/kg	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258
Mercury	T355	AR	0.01	mg/kg	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258
Ni (Total)	T301	AR	0.2	mg/kg	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258
Zn (Total)	T303	AR	2.0	mg/kg	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258
Acenaphthene	T1	AR	2.0	µg/kg	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258
Acenaphthylene	T1	AR	2.0	µg/kg	N	001-033-037-038,040-042,044-046,048-056,058-065,067,069-071,073-089,091-092,0108-0110,0112-0114,0116,0118-0120,0122-0124,0126-0133,0135-0136,0140,0146-0151,0153-0157,0159,0161-0166,0168-0202,0204-0206,0208-0216,0224-0231,0233-0237,0245,0247-0248,0253,0258



Scientific Analysis Laboratories is a limited company registered in England and Wales (No 2514788) whose address is at Hadfield House, Hadfield Street, Manchester M16 9FE

Scientific Analysis Laboratories Ltd

Certificate of Analysis

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Tel : 0161 874 2400
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Report Number: Supplemental to 555659-2

Date of Report: 20-Apr-2016

Customer: Aberdeen Harbour
16 Regent Quay
Aberdeen
AB11 5SS

Customer Contact: Mr Ian Taylor

Customer Job Reference: N152012U

Customer Purchase Order: AHEP/ I Taylor/ K Young

Customer Site Reference: Nigg Bay

Date Job Received at SAL: 16-Mar-2016

Date Analysis Started: 17-Mar-2016

Date Analysis Completed: 04-Apr-2016

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

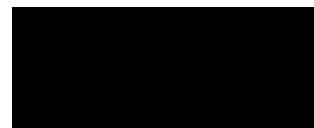
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



1549

Report checked
and authorised by :
Daniel Preston
Land Laboratory Manager

Issued by :
Mr Richard Wong
Project Manager



SAL Reference: 555659 Project Site: Nigg Bay Customer Reference: N152012U														
Marine Sediment Analysed as Marine Sediment														
Marine Scotland Suite														
SAL Reference			555659 001	555659 002	555659 003	555659 004	555659 005	555659 006	555659 007	555659 008	555659 009	555659 010		
Customer Sample Reference			VC-2016-3 MS06	RC-2016- 01 MS25	RC-2016- 01 MS23	RC-2016- 01 MS14	RC-2016- 17 MS12	VC-2016- 03 MS13	VC-2016- 07 MS16	VC-2016- 07 MS04	RC-2016- 16 MS26	RC-2016- 16 MS17		
Depth			1.00	4.00	3.50	2.50	2.00	2.00	2.70	0.50	4.50	3.00		
Date Sampled			08-MAR- 2016	08-MAR- 2016	08-MAR- 2016	08-MAR- 2016	08-MAR- 2016	08-MAR- 2016	08-MAR- 2016	08-MAR- 2016	05-MAR- 2016	05-MAR- 2016		
Determinand	Method	Test Sample	LOD	Units										
Moisture @105C	T162	AR	0.1	%	22	14	22	19	14	26	14	22	22	8.4
As (Total)	T301	AR	1.0	mg/kg	8.3	21	18	12	5.7	6.8	9.5	9.1	8.2	4.5
Cd (Total)	T301	AR	0.05	mg/kg	1.0	0.81	0.62	0.65	0.33	0.53	0.79	0.46	0.98	0.62
Cr (Total)	T301	AR	0.2	mg/kg	21	85	110	77	34	17	71	21	22	75
Cu (Total)	T301	AR	0.1	mg/kg	64	120	63	110	<0.1	57	150	30	180	85
Pb (Total)	T301	AR	0.2	mg/kg	240	230	240	230	220	240	250	300	260	290
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	8.8	44	52	43	18	12	46	17	22	52
Zn (Total)	T303	AR	2.0	mg/kg	(64) 46	(64) 120	(64) 67	(64) 66	(64) <2.0	(64) <2.0	(64) 100	(64) <2.0	(64) 120	(64) 72
Naphthalene	T1	AR	2.0	µg/kg	3.6	<2.0	<2.0	<2.0	<2.0	2.3	2.7	2.4	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	5.1	<2.0	<2.0
Acenaphthene	T1	AR	2.0	µg/kg	6.4	<2.0	<2.0	<2.0	<2.0	9.6	2.3	2.5	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	5.7	<2.0	<2.0	<2.0	<2.0	7.4	<2.0	3.6	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	43	5.7	3.6	3.3	4.9	80	5.3	53	6.2	2.8
Anthracene	T1	AR	2.0	µg/kg	16	<2.0	<2.0	<2.0	<2.0	29	<2.0	30	<2.0	<2.0
Fluoranthene	T1	AR	2.0	µg/kg	48	6.4	2.7	2.4	4.0	140	<2.0	150	5.5	<2.0
Pyrene	T1	AR	2.0	µg/kg	60	5.3	2.3	2.2	3.4	120	<2.0	140	4.7	<2.0
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	27	8.7	5.7	5.8	6.7	78	5.7	86	7.8	5.2
Chrysene	T1	AR	2.0	µg/kg	18	3.7	3.1	3.7	3.3	52	4.3	55	2.8	<2.0
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	44	5.8	3.6	3.1	3.5	87	2.3	140	3.4	<2.0
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	23	2.3	<2.0	<2.0	<2.0	41	<2.0	75	<2.0	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	17	3.4	2.8	2.8	2.8	25	2.1	53	2.6	2.0
Dibenzo(ah)Anthracene	T1	AR	0.5	µg/kg	3.7	2.3	0.9	1.1	1.3	8.8	1.7	8.7	1.7	0.8
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	23	3.1	2.7	2.2	2.5	34	<2.0	71	2.8	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4

SAL Reference: 555659 Project Site: Nigg Bay Customer Reference: N152012U												
Marine Sediment Analysed as Marine Sediment												
Marine Scotland Suite												
SAL Reference			555659 011	555659 012	555659 013	555659 014	555659 015	555659 016	555659 017	555659 018	555659 019	555659 020
Customer Sample Reference			RC-2016- 16 MS15	RC-2016- 16 MS20	RC-2016- 16 MS11	RC-2016- 16 MS23	RC-2016- 16 MS08	M2015-04 MS33	M2015-04 MS35	M2015-04 MS37	M2015-04 MS41	RC-2016- 16 MS36
Depth			2.50	3.50	2.00	4.00	1.50	5.00	5.50	6.00	6.50	6.50
Date Sampled			05-MAR- 2016	05-MAR- 2016	05-MAR- 2016	05-MAR- 2016	04-MAR- 2016	04-MAR- 2016	04-MAR- 2016	04-MAR- 2016	04-MAR- 2016	02-MAR- 2016
Determinand	Method	Test Sample	LOD	Units								
Moisture @105C	T162	AR	0.1	%	9.2	8.3	9.3	17	9.3	8.6	5.1	9.5
As (Total)	T301	AR	1.0	mg/kg	4.5	5.3	5.3	6.8	4.6	6.6	6.9	6.1
Cd (Total)	T301	AR	0.05	mg/kg	0.97	0.67	0.42	0.89	1.4	2.0	2.6	2.1
Cr (Total)	T301	AR	0.2	mg/kg	70	70	99	23	75	72	77	71
Cu (Total)	T301	AR	0.1	mg/kg	180	110	1.5	23	46	19	61	37
Pb (Total)	T301	AR	0.2	mg/kg	270	290	320	320	21	20	22	22
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	48	50	61	44	26	24	27	24
Zn (Total)	T303	AR	2.0	mg/kg	(64) 150	(64) 81	(64) <2.0	(64) <2.0	(64) 140	(64) 12	(64) 24	(64) <2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.3	<2.0	57	<2.0	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	17	<2.0	<2.0	<2.0
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	140	<2.0	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	140	2.2	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	2.9	3.4	16	3.9	1000	26	6.3	4.8
Anthracene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.2	<2.0	180	6.9	<2.0	<2.0
Fluoranthene	T1	AR	2.0	µg/kg	<2.0	2.5	22	3.7	840	22	8.7	4.7
Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	20	3.2	860	28	7.3	3.9
Benz(a)Anthracene	T1	AR	2.0	µg/kg	5.7	5.3	15	6.5	420	14	9.4	8.3
Chrysene	T1	AR	2.0	µg/kg	<2.0	<2.0	8.2	3.9	280	11	4.5	5.6
Benz(b/k)Fluoranthene	T1	AR	2.0	µg/kg	<2.0	<2.0	17	4.2	500	13	4.4	6.3
Benz(a)Pyrene	T1	AR	2.0	µg/kg	<2.0	<2.0	9.2	<2.0	320	7.7	<2.0	2.5
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	2.0	2.2	7.1	3.2	180	6.1	2.3	3.9
Dibenzo(ah)Anthracene	T1	AR	0.5	µg/kg	0.8	1.1	2.6	2.3	32	1.5	0.6	2.4
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	<2.0	<2.0	8.7	2.8	230	8.4	<2.0	3.6
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4

<p>SAL Reference: 555659 Project Site: Nigg Bay Customer Reference: N152012U</p>												
Marine Sediment Analysed as Marine Sediment												
Marine Scotland Suite												
SAL Reference			555659 021	555659 022	555659 023	555659 024	555659 031	555659 033	555659 036	555659 037	555659 038	555659 041
Customer Sample Reference			M2015-04 MS08	M2015-04 MS09	M2015-04 MS13	M2015-04 MS15	M2015-04 MS01	M2015-04 MS04	RC-2016- 16 MS29	RC-2016- 16 MS31	RC-2016- 16 MS34	RC-2016- 16 MS39
Depth			1.00	1.50	2.00	2.50	0.00	0.50	5.00	5.50	6.00	7.00
Date Sampled			04-MAR- 2016	04-MAR- 2016	04-MAR- 2016	04-MAR- 2016	04-MAR- 2016	04-MAR- 2016	02-MAR- 2016	02-MAR- 2016	02-MAR- 2016	02-MAR- 2016
Determinand	Method	Test Sample	LOD	Units								
Moisture @105C	T162	AR	0.1	%	32	29	16	23	35	32	8.7	9.6
As (Total)	T301	AR	1.0	mg/kg	6.6	6.0	6.8	4.3	7.5	6.8	3.0	5.8
Cd (Total)	T301	AR	0.05	mg/kg	1.1	1.3	1.4	0.71	1.4	1.2	0.07	0.75
Cr (Total)	T301	AR	0.2	mg/kg	29	25	28	19	31	22	51	87
Cu (Total)	T301	AR	0.1	mg/kg	13	42	73	4.4	60	44	21	17
Pb (Total)	T301	AR	0.2	mg/kg	14	27	20	18	35	30	28	42
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	2.7	2.0	2.2	<0.2	3.6	0.3	26	33
Zn (Total)	T303	AR	2.0	mg/kg	(64) <2.0	(64) 18	(64) 12	(64) <2.0	(64) 14	(64) <2.0	(64) 40	(64) <2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.0	2.1	29	42	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	14	27	<2.0	<2.0
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.9	<2.0	30	66	<2.0	<2.0
Fluorene	T1	AR	2.0	µg/kg	4.0	<2.0	4.8	<2.0	32	80	<2.0	<2.0
Phenanthrene	T1	AR	2.0	µg/kg	49	19	44	10	280	580	5.3	3.0
Anthracene	T1	AR	2.0	µg/kg	20	5.3	13	3.9	77	150	<2.0	<2.0
Fluoranthene	T1	AR	2.0	µg/kg	70	22	45	15	580	720	5.9	2.8
Pyrene	T1	AR	2.0	µg/kg	65	23	47	17	580	730	4.8	2.2
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	32	15	22	13	330	370	7.4	6.6
Chrysene	T1	AR	2.0	µg/kg	31	10	18	7.0	190	210	4.2	2.3
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	40	17	29	12	460	470	5.1	<2.0
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	20	7.3	13	5.2	270	290	2.3	<2.0
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	14	6.9	12	4.9	160	170	3.4	<2.0
Dibenzo(ah)Anthracene	T1	AR	0.5	µg/kg	5.2	3.5	5.9	2.4	26	29	1.8	1.0
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	17	8.8	15	5.4	190	220	3.1	<2.0
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4

SAL Reference: 555659 Project Site: Nigg Bay Customer Reference: N152012U									
Marine Sediment Analysed as Marine Sediment									
Marine Scotland Suite									
SAL Reference			555659 042	555659 043	555659 044	555659 049	555659 050	555659 051	555659 052
Customer Sample Reference			RC-2016- 16 MS01	RC-2016- 16 MS04	RC-2016- 16 MS06	M2015-04 MS21	M2015-04 MS25	M2015-04 MS26	M2015-04 MS29
Depth			0.00	0.50	1.00	3.00	3.50	4.00	4.50
Date Sampled			28-FEB- 2016	28-FEB- 2016	28-FEB- 2016	04-MAR- 2016	04-MAR- 2016	04-MAR- 2016	04-MAR- 2016
Determinand	Method	Test Sample	LOD	Units					
Moisture @105C	T162	AR	0.1	%	22	22	25	17	15
As (Total)	T301	AR	1.0	mg/kg	7.8	7.6	7.1	6.0	3.9
Cd (Total)	T301	AR	0.05	mg/kg	0.36	1.2	0.60	0.80	0.47
Cr (Total)	T301	AR	0.2	mg/kg	13	15	12	38	21
Cu (Total)	T301	AR	0.1	mg/kg	<0.1	41	16	67	<0.1
Pb (Total)	T301	AR	0.2	mg/kg	44	67	62	57	50
Mercury	T355	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Ni (Total)	T301	AR	0.2	mg/kg	<0.2	<0.2	<0.2	12	1.1
Zn (Total)	T303	AR	2.0	mg/kg	(64) <2.0	(64) <2.0	(64) <2.0	(64) 31	(64) <2.0
Naphthalene	T1	AR	2.0	µg/kg	<2.0	<2.0	2.6	<2.0	<2.0
Acenaphthylene	T1	AR	2.0	µg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Acenaphthene	T1	AR	2.0	µg/kg	<2.0	2.2	5.4	<2.0	2.3
Fluorene	T1	AR	2.0	µg/kg	2.1	3.1	7.4	<2.0	4.9
Phenanthrene	T1	AR	2.0	µg/kg	23	21	65	9.5	41
Anthracene	T1	AR	2.0	µg/kg	8.1	10	23	2.4	15
Fluoranthene	T1	AR	2.0	µg/kg	65	42	57	12	44
Pyrene	T1	AR	2.0	µg/kg	63	38	80	11	41
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	31	25	39	9.9	19
Chrysene	T1	AR	2.0	µg/kg	20	15	31	6.0	16
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	49	34	50	8.4	21
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	23	17	29	4.2	11
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	18	13	18	4.1	7.7
Dibenzo(ah)Anthracene	T1	AR	0.5	µg/kg	2.6	4.3	6.6	2.3	3.6
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	22	17	26	4.5	9.1
Tributyl tin	T16	AR	10	µg/kg	<10	<10	<10	<10	<10
PCB BZ#28	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#52	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#101	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#118	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#153	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#138	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB BZ#180	T1	AR	0.1	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	<0.7	<0.7	<0.7	<0.7	<0.7
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	<1.4	<1.4	<1.4	<1.4	<1.4

SAL Reference: 555659 Project Site: Nigg Bay Customer Reference: N152012U						
Marine Sediment	Analysed as Marine Sediment					
Marine Scotland Recovery Suite						
Determinand	Method	Test Sample	LOD	Units	SAL Reference	Customer Sample Reference
					555659 054	Matrix Spike 1
					555659 055	Matrix Spike 2
As Recovery	T750	AR	1	%	120	110
Cd Recovery	T750	AR	1	%	87	90
Cr Recovery	T750	AR	1	%	110	85
Cu Recovery	T750	AR	1	%	94	100
Pb Recovery	T750	AR	1	%	120	110
Hg Recovery	T751	AR	1	%	87	89
Ni Recovery	T750	AR	1	%	95	88
Zn Recovery	T432	AR	1	%	100	120
Naphthalene Recovery	T434	AR	1	%	100	110
Acenaphthylene Recovery	T434	AR	1	%	99	94
Acenaphthene Recovery	T434	AR	1	%	100	94
Fluorene Recovery	T434	AR	1	%	110	100
Phenanthrene Recovery	T434	AR	1	%	110	110
Fluoranthene Recovery	T434	AR	1	%	110	120
Anthracene Recovery	T434	AR	1	%	100	110
Pyrene Recovery	T434	AR	1	%	110	110
Benzo(a)Anthracene Recovery	T434	AR	1	%	110	100
Chrysene Recovery	T434	AR	1	%	110	100
Benzo(b/k)Fluoranthene Recovery	T434	AR	1	%	110	110
Benzo(a)Pyrene Recovery	T434	AR	1	%	110	110
Indeno(123-cd)Pyrene Recovery	T434	AR	1	%	110	100
Dibenz(a,h)Anthracene Recovery	T434	AR	1	%	110	110
Benzo(ghi)Perylene Recovery	T434	AR	1	%	97	97
Tributyl tin Recovery	T429	AR	1	%	100	120
PCB BZ#28 Recovery	T434	AR	1	%	96	98
PCB BZ#52 Recovery	T434	AR	1	%	100	100
PCB BZ#101 Recovery	T434	AR	1	%	98	98
PCB BZ#118 Recovery	T434	AR	1	%	100	100
PCB BZ#153 Recovery	T434	AR	1	%	100	100
PCB BZ#138 Recovery	T434	AR	1	%	100	100
PCB BZ#180 Recovery	T434	AR	1	%	96	100
PCB (Total Tri-Hepta) Recovery	T434	AR	1	%	100	100

Index to symbols used in Supplemental to 555659-2

Value	Description
AR	As Received
64	Analysis was performed by an alternative technique
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Supplemental report with amended ICP-MS metals results for sample RC-2016-16 MS29 (5.00m)

Method Index

Value	Description
T1	GC/MS (HR)
T162	Grav (1 Dec) (105 C)
T301	ICP/MS (Total)
T85	Calc
T429	GC/MS (Recovery)
T434	GC/MS (HR) (Recovery)
T303	ICP-OES (Total)
T750	ICP/MS (Recovery)
T751	CVAFS (Recovery)

T16	GC/MS
T432	ICP/OES (Recovery)
T355	CVAFS

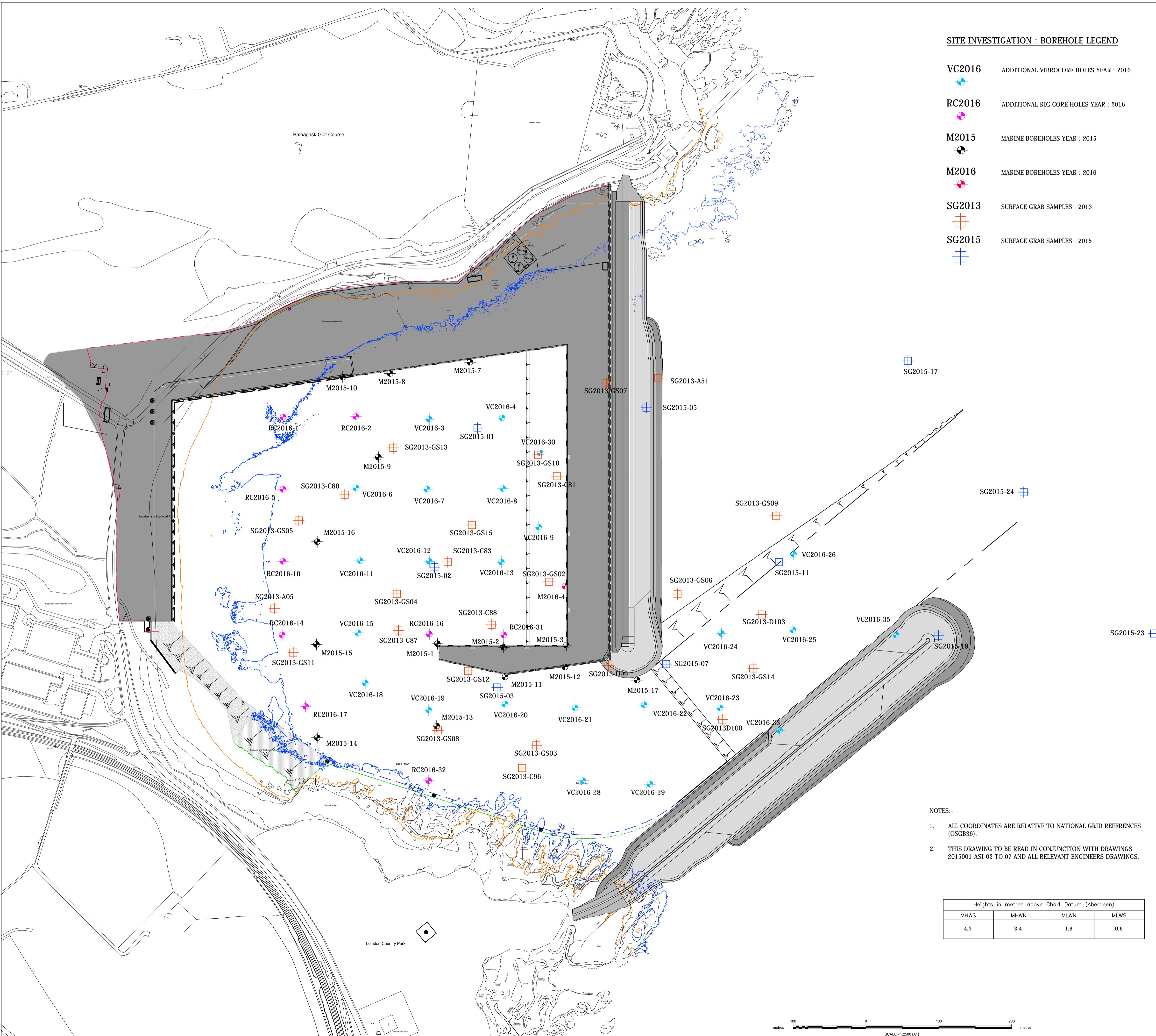
Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Moisture @105C	T162	AR	0.1	%	N	001-024,031,033,036-038,041-044,049-052
As (Total)	T301	AR	1.0	mg/kg	N	001-024,031,033,036-038,041-044,049-052
Cd (Total)	T301	AR	0.05	mg/kg	N	001-024,031,033,036-038,041-044,049-052
Cr (Total)	T301	AR	0.2	mg/kg	N	001-024,031,033,036-038,041-044,049-052
Cu (Total)	T301	AR	0.1	mg/kg	N	001-024,031,033,036-038,041-044,049-052
Pb (Total)	T301	AR	0.2	mg/kg	N	001-024,031,033,036-038,041-044,049-052
Mercury	T355	AR	0.01	mg/kg	N	001-024,031,033,036-038,041-044,049-052
Ni (Total)	T301	AR	0.2	mg/kg	N	001-024,031,033,036-038,041-044,049-052
Zn (Total)	T303	AR	2.0	mg/kg	N	001-024,031,033,036-038,041-044,049-052
Naphthalene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Acenaphthylene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Acenaphthene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Fluorene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Phenanthrene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Anthracene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Fluoranthene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Pyrene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Benzo(a)Anthracene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Chrysene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Benzo(b/k)Fluoranthene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Benzo(a)Pyrene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Indeno(123-cd)Pyrene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Dibenzo(ah)Anthracene	T1	AR	0.5	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Benzo(ghi)Perylene	T1	AR	2.0	µg/kg	N	001-024,031,033,036-038,041-044,049-052
Tributyl tin	T16	AR	10	µg/kg	N	001-024,031,033,036-038,041-044,049-052
PCB BZ#28	T1	AR	0.1	µg/kg	U	001-024,031,033,036-038,041-044,049-052
PCB BZ#52	T1	AR	0.1	µg/kg	U	001-024,031,033,036-038,041-044,049-052
PCB BZ#101	T1	AR	0.1	µg/kg	U	001-024,031,033,036-038,041-044,049-052
PCB BZ#118	T1	AR	0.1	µg/kg	U	001-024,031,033,036-038,041-044,049-052
PCB BZ#153	T1	AR	0.1	µg/kg	U	001-024,031,033,036-038,041-044,049-052
PCB BZ#138	T1	AR	0.1	µg/kg	U	001-024,031,033,036-038,041-044,049-052
PCB BZ#180	T1	AR	0.1	µg/kg	U	001-024,031,033,036-038,041-044,049-052
PCB EC7 (Sum)	T85	AR	0.7	µg/kg	N	001-024,031,033,036-038,041-044,049-052
PCB (Total Tri-Hepta)	T1	AR	1.4	µg/kg	U	001-024,031,033,036-038,041-044,049-052
As Recovery	T750	AR	1	%	N	054-055
Cd Recovery	T750	AR	1	%	N	054-055
Cr Recovery	T750	AR	1	%	N	054-055
Cu Recovery	T750	AR	1	%	N	054-055
Pb Recovery	T750	AR	1	%	N	054-055
Hg Recovery	T751	AR	1	%	N	054-055
Ni Recovery	T750	AR	1	%	N	054-055
Zn Recovery	T432	AR	1	%	N	054-055
Naphthalene Recovery	T434	AR	1	%	N	054-055
Acenaphthylene Recovery	T434	AR	1	%	N	054-055
Acenaphthene Recovery	T434	AR	1	%	N	054-055
Fluorene Recovery	T434	AR	1	%	N	054-055
Phenanthrene Recovery	T434	AR	1	%	N	054-055
Anthracene Recovery	T434	AR	1	%	N	054-055
Fluoranthene Recovery	T434	AR	1	%	N	054-055
Pyrene Recovery	T434	AR	1	%	N	054-055
Benzo(a)Anthracene Recovery	T434	AR	1	%	N	054-055
Chrysene Recovery	T434	AR	1	%	N	054-055
Benzo(b/k)Fluoranthene Recovery	T434	AR	1	%	N	054-055
Benzo(a)Pyrene Recovery	T434	AR	1	%	N	054-055
Indeno(123-cd)Pyrene Recovery	T434	AR	1	%	N	054-055
Dibenzo(ah)Anthracene Recovery	T434	AR	1	%	N	054-055
Benzo(ghi)Perylene Recovery	T434	AR	1	%	N	054-055
Tributyl tin Recovery	T429	AR	1	%	N	054-055
PCB BZ#28 Recovery	T434	AR	1	%	N	054-055
PCB BZ#52 Recovery	T434	AR	1	%	N	054-055
PCB BZ#101 Recovery	T434	AR	1	%	N	054-055
PCB BZ#118 Recovery	T434	AR	1	%	N	054-055
PCB BZ#153 Recovery	T434	AR	1	%	N	054-055

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
PCB BZ#138 Recovery	T434	AR	1	%	N	054-055
PCB BZ#180 Recovery	T434	AR	1	%	N	054-055
PCB (Total Tri-Hepta) Recovery	T434	AR	1	%	N	054-055



APPENDIX C- On-water coring location plan



RIG CORE & VIBROCORE BOREHOLE CO-ORDINATES				
BOREHOLE No.	NATIONAL GRID CO-ORDINATES (OSGB36)	SURFACE LEVEL (m : A.C.D)	PROPOSED DREDGE LVL	
RC2016-1	396700.000	804899.000	+0.36	-9.00
RC2016-2	396800.000	804900.000	-3.40	-9.00
RC2016-5	396700.000	804800.000	-0.70	-9.00
RC2016-10	396700.000	804701.000	-0.70	-9.00
RC2016-14	396699.000	804600.000	-0.10	-9.00
RC2016-16	396901.000	804601.000	-3.70	-9.00
RC2016-17	396731.000	804502.000	-0.75	-9.00
RC2016-31	397003.000	804600.000	-4.63	-9.00
RC2016-32	396900.000	804400.000	-1.19	-9.00
VC2016-3	396901.000	804896.000	-3.30	-9.00
VC2016-4	397001.000	804898.000	-5.75	-9.00
VC2016-6	396800.000	804802.000	-2.84	-9.00
VC2016-7	396898.000	804800.000	-3.30	-9.00
VC2016-8	397002.000	804801.000	-5.40	-9.00
VC2016-9	397051.000	804748.000	-5.08	-10.50
VC2016-11	396806.000	804702.000	-2.09	-9.00
VC2016-12	396901.000	804701.000	-3.75	-9.00
VC2016-13	397000.000	804700.000	-5.25	-9.00
VC2016-15	396803.000	804603.000	-2.14	-9.00
VC2016-18	396813.000	804534.000	-1.78	-9.00
VC2016-19	396900.000	804497.000	-2.70	-9.00
VC2016-20	397005.000	804505.000	-4.46	-9.00
VC2016-21	397101.000	804500.000	-5.90	-9.00
VC2016-22	397196.000	804504.000	-7.39	-9.00
VC2016-23	397300.000	804500.000	-8.80	-10.50
VC2016-24	397302.000	804602.000	-7.71	-10.50
VC2016-25	397400.000	804607.000	-9.20	-10.50
VC2016-26	397401.000	804711.000	-8.59	-10.50
VC2016-28	397112.000	804400.000	-5.54	-9.00
VC2016-29	397204.000	804395.000	-7.87	-9.00
VC2016-30	397053.000	804850.000	-4.97	-10.50
VC2016-33	397382.000	804469.000	-10.21	-14.00
VC2016-35	397542.000	804600.000	-11.40	-14.00

MARINE BOREHOLE CO-ORDINATES		
BOREHOLE No.	NATIONAL GRID CO-ORDINATES (OSGB36)	SURFACE LEVEL (m : A.C.D)
M2015-1&1A	396912.000	804588.000
M2015-2	397003.000	804583.000
M2015-3	397089.000	804586.000
M2015-7	396957.000	804974.000
M2015-8	396847.000	804959.000
M2015-9	396831.000	804844.000
M2015-10	396782.000	804954.000
M2015-11	397005.000	804542.000
M2015-12&12A	397087.000	804566.000
M2015-13	396911.000	804475.000
M2015-14	396747.000	804459.000
M2015-15	396746.000	804587.000
M2015-16	396747.000	804728.000
M2015-17	397186.000	804538.000
M2016-4	397087.000	804667.000

Title: ADDITIONAL SITE INVESTIGATION HOLES
2016 - AS BUILT

Date: FEB 16	Designed by: JW	Drawing Number: 2015001-ASI-01
Drawn by: JW		
Scale(s): 1:2500	Checked by: KH	
Approved by: KY		

APPENDIX D- Gas monitoring data sheets

Date	09/08/2016												
Location	BH4	BH6	BH8	BH13	BH18	BH19	BH20	BH27	BH28	BH29	BH30	ACC1	ACC2
Water level (m)	3.43	dry	-	3.40	2.08	3.18	3.27	8.02	12.66	5.08	3.79	17.12	4.71
Atmospheric Pressure (mb)	1021	2021	-	1020	1020	1021	1021	1021	1021	1021	1021	1021	1021
Air Temperature (°C)	11.2	11.9	-	12.3	12.0	11.6	11.6	12.4	12.6	11.9	12.3	11.4	12.1
H ₂ S (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Differential Pressure (Pa)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ (%) Peak	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Peak	0.3	<0.1	-	2.1	4.7	0.9	<0.1	3.5	<0.1	0.2	<0.1	<0.1	<0.1
O ₂ (%) Peak	19.5	20.8	-	17.9	18.2	18.8	21.0	12.8	21.0	20.1	20.8	20.7	20.7
CH ₄ (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Steady State	0.3	<0.1	-	2.1	4.7	0.9	<0.1	3.5	<0.1	0.2	<0.1	<0.1	<0.1
O ₂ (%) Steady State	19.5	20.8	-	17.9	18.2	18.8	21.0	12.8	21.0	20.1	20.8	20.7	20.7

Date	15/08/2016												
Location	BH4	BH6	BH8	BH13	BH18	BH19	BH20	BH27	BH28	BH29	BH30	ACC1	ACC2
Water level (m)	3.45	dry	-	3.43	2.03	3.20	3.27	8.03	12.69	5.08	3.80	17.17	4.72
Atmospheric Pressure (mb)	1022	1022	-	1022	1022	1022	1022	1022	1022	1022	1022	1022	1022
Air Temperature (°C)	17.3	17.7	-	17.1	17.3	17.3	17.4	17.7	17.2	17.0	17.4	17.1	16.8
H ₂ S (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Differential Pressure (Pa)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ (%) Peak	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Peak	0.1	<0.1	-	0.8	1.5	1.1	<0.1	0.3	<0.1	0.4	<0.1	<0.1	<0.1
O ₂ (%) Peak	20.2	20.8	-	19.4	19.1	18.5	20.8	20.3	20.7	19.9	20.7	20.7	20.7
CH ₄ (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Steady State	0.1	<0.1	-	0.8	1.5	1.1	<0.1	0.3	<0.1	0.4	<0.1	<0.1	<0.1
O ₂ (%) Steady State	20.2	20.8	-	19.4	19.1	18.5	20.8	20.3	20.7	19.9	20.7	20.7	20.7

Date	20/08/2016												
Location	BH4	BH6	BH8	BH13	BH18	BH19	BH20	BH27	BH28	BH29	BH30	ACC1	ACC2
Water level (m)	3.46	dry	-	3.50	2.00	3.22	3.30	8.02	12.01	5.08	3.83	17.16	4.75
Atmospheric Pressure (mb)	997	997	-	997	997	997	997	997	997	997	997	997	997
Air Temperature (°C)	15.3	15.0	-	15.8	14.9	15.2	14.6	16.1	15.4	15.8	15.1	15.0	14.7
H ₂ S (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Differential Pressure (Pa)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ (%) Peak	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Peak	0.2	<0.1	-	2.5	6.2	1.2	<0.1	0.7	2.6	1.1	<0.1	<0.1	<0.1
O ₂ (%) Peak	20.2	20.8	-	17.0	16.1	18.3	20.8	18.9	18.4	19.3	20.8	20.7	20.7
CH ₄ (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Steady State	0.2	<0.1	-	2.5	6.2	1.2	<0.1	0.7	2.6	1.1	<0.1	<0.1	<0.1
O ₂ (%) Steady State	20.2	21.8	-	17.0	16.1	18.3	20.8	18.9	18.4	19.3	20.8	20.7	20.7

Date	27/08/2016												
Location	BH4	BH6	BH8	BH13	BH18	BH19	BH20	BH27	BH28	BH29	BH30	ACC1	ACC2
Water level (m)	3.47	dry	-	3.53	2.01	3.23	3.28	8.01	12.04	5.09	3.83	17.36	4.79
Atmospheric Pressure (mb)	1018	1018	-	1019	1019	1018	2018	1019	1019	1019	1018	1019	1019
Air Temperature ($^{\circ}$ C)	17.2	16.4	-	17.3	16.2	16.0	15.7	16.3	15.4	17.3	16.2	16.7	17.0
H ₂ S (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Differential Pressure (Pa)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ (%) Peak	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Peak	0.1	<0.1	-	1.1	7.3	2.0	<0.1	<0.1	2.2	1.0	<0.1	<0.1	2.0
O ₂ (%) Peak	20.0	20.6	-	19.5	15.8	17.1	20.7	20.9	18.7	19.7	20.8	20.8	18.6
CH ₄ (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Steady State	0.1	<0.1	-	1.1	7.3	2.0	<0.1	<0.1	2.2	1.0	<0.1	<0.1	2.0
O ₂ (%) Steady State	20.0	20.6	-	19.5	15.8	17.1	20.7	20.9	18.7	19.7	20.8	20.8	18.6

Date	03/09/2016												
Location	BH4	BH6	BH8	BH13	BH18	BH19	BH20	BH27	BH28	BH29	BH30	ACC1	ACC2
Water level (m)	2.59	dry	-	3.55	2.03	3.38	3.42	8.03	12.83	5.14	3.83	17.40	4.79
Atmospheric Pressure (mb)	1008	1008	-	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008
Air Temperature ($^{\circ}$ C)	13.7	14.2	-	14.9	14.0	15.3	13.8	15.4	15.0	14.3	15.0	14.5	15.2
H ₂ S (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Differential Pressure (Pa)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ (%) Peak	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Peak	0.1	<0.1	-	0.8	2.1	0.5	<0.1	<0.1	1.4	0.7	<0.1	<0.1	0.5
O ₂ (%) Peak	20.2	20.8	-	18.3	19.8	20.0	20.7	20.6	18.9	19.8	20.8	20.7	20.1
CH ₄ (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Steady State	0.1	<0.1	-	0.8	2.1	0.5	<0.1	<0.1	1.4	0.7	<0.1	<0.1	0.5
O ₂ (%) Steady State	20.2	20.8	-	18.3	19.8	20.0	20.7	20.6	18.9	19.8	20.8	20.7	20.1

Date	13/09/2016												
Location	BH4	BH6	BH8	BH13	BH18	BH19	BH20	BH27	BH28	BH29	BH30	ACC1	ACC2
Water level (m)	2.62	dry	-	3.55	2.04	2.41	2.47	7.56	12.07	5.16	3.81	17.41	4.79
Atmospheric Pressure (mb)	1014	1014	-	1014	1014	1014	1014	1014	1014	1014	1014	1014	1014
Air Temperature ($^{\circ}$ C)	16.2	14.7	-	15.6	16.0	15.7	16.1	16.4	15.2	15.2	15.8	16.0	15.5
H ₂ S (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Differential Pressure (Pa)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Flow (litres/hour)	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CH ₄ (%) Peak	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Peak	0.3	0.2	-	1.4	1.8	0.9	<0.1	0.1	2.4	0.9	0.1	<0.1	2.1
O ₂ (%) Peak	20.0	20.4	-	19.5	20.5	20.0	20.6	20.7	18.5	19.7	20.5	20.7	18.8
CH ₄ (%) Steady State	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CO ₂ (%) Steady State	0.3	0.2	-	1.4	1.8	0.3	<0.1	0.1	2.4	0.9	0.1	<0.1	2.1
O ₂ (%) Steady State	20.0	20.4	-	19.5	20.5	20.0	20.6	20.7	18.5	19.7	20.5	20.7	18.8

Water Monitoring (29/08/16)

Location	BH6	BH8	BH19	BH20
pH	n/a	-	7.07	7.25
Temperature ($^{\circ}$ C)	n/a	-	10.5	10.9
Conductivity (μ S/cm ⁻¹)	n/a	-	1006	567
Disolved Oxygen (%)	n/a	-	14.3	8.9

Note* BH6 dry, BH8 unavailable (cannot access).