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BEHAN'S LAND RESTORATION LTD.
SOIL RECOVERY FACILITY,
BLACKHALL, NAAS, CO. KILDARE

Annual Environmental Report 2013

Waste Licence Ref. No. W0247-01

April 2014
SLR Ref: 140405 501.0004.00026. Rev0

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1.0 INTRODUCTION

This Annual Environmental Report (AER) is prepared for the Blackhall Soil Recovery Facility operated by Behans Land Restoration Limited (BLR) at Blackhall, Punchestown, Naas, County Kildare. The Waste Licence for the facility (Ref. No. W0247-01) was issued by the Environmental Protection Agency (EPA) on the 24th June 2009. This AER covers the reporting period from January 2013 to December 2013.

The content of this Annual Environmental Report complies with the requirements set out in on Schedule F of Waste Licence W0247-01 and follows recommended guidelines in the publication '*Guidance Note for Annual Environmental Reports*' published by the Agency.

2.0 SITE DESCRIPTION

2.1 Facility Location and Layout

The waste recovery facility is located in the townland of Blackhall, approximately 4 km south east of Naas, County Kildare. The site is accessed via a local road running from the R410 Regional Road at Beggars End Crossroads toward Walshestown townland; refer to the site location plan reproduced in Figure 1. The existing site layout includes the following facilities a security office, paved access road at entrance, a wheel bath, a weighbridge, a construction and demolition waste recovery area, a paved waste inspection and quarantine area and a surface water interceptor. The site office and welfare facilities are located at the adjoining residence of one of the company directors.

The waste licence area comprises a worked out quarry of approximately 38.1 hectares (91.7 acres). The south-eastern quadrant of the former quarry has been almost completely backfilled to former ground level using inert natural soils, in accordance with waste permits which were previously issued by Kildare County Council under the Waste Management (Permit) Regulations 1998 (SI No. 165 of 1998).

Only partial backfilling has been undertaken to date in the south-western quadrant and central western area. No backfilling has been undertaken in the large deep open void in the north-western and north-eastern quadrants; refer to Figure 2 (Site Layout Plan).

2.2 Waste Types and Volume

Waste Licence W0247-01 regulates the backfilling and restoration of a former sand and gravel quarry using imported inert soils and stones and the recycling of inert construction and demolition waste.

The amount of inert material to be imported and placed at the facility over 15- year period is approximately 4 million tonnes. Following completion of the backfilling operations, the site will be restored to improved agricultural grassland, in keeping with the general land use and character of the surrounding area.

Inert construction and demolition waste is recycled at the facility using crushing and screening equipment to generate recycled (or secondary) aggregates. Secondary aggregates are re-used at the facility for construction of temporary haul roads and infilling of groundwater ponds. They are also sold to third parties for used as low grade granular fill on off-site construction works sites and developments.

The Blackhall Soil Recovery facility is classified as a natural soils recovery facility, with the principal activity classified as Class R5 activity according to the Fourth Schedule to the Waste Management Acts 1996 to 2011 (*recycling or reclamation of other inorganic*

materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials).

2.3 Waste Activities

The following are the licensed Waste Activities undertaken at the site, as per the Fourth Schedule of the Waste Management Acts 1996 to 2011 granted in the waste licence:

- Recycling and reclamation of other inorganic materials (Class R4) (Principal Activity) (subsequently reclassified as Class R5 by the European Communities (Waste Directive) Regulations 2011 – S.I. No. 126 of 2011).

- Storage of waste intended for submission to any activity referred to in a preceding paragraph of this schedule, other than temporary storage, pending collection, on the premises where such waste is produced (Class R13).

3.0 MANAGEMENT OF THE FACILITY

3.1 Site Management Structure

Behans Land Restoration Ltd. currently employs 1 person on a full time basis. The organisation and management structure in Blackhall Soil Recovery Facility is provided below.

Mr. John Behan, the facility manager and director of Behans Land Restoration is responsible for the day to day operation of the facility.

Table 3-1 Organisation Structure

Staff	Role
John Behan	Facility Manager / Owner
Jason Griffith	Site Foreman
Occasional	Site Machine Operators

3.2 Environmental Management System

In accordance with Condition 2.2.1, Behans Land Restoration Ltd. has prepared and documented a basic Environmental Management System for its Blackhall Soil Recovery Facility at Blackhall.

3.3 Environmental Management Programme

The Environmental Management Programme for 2013 was implemented by the company at its Blackhall Soil Recovery Facility. The principal monitoring works undertaken were monitoring of groundwater at existing site wells, noise monitoring and dust deposition monitoring and installation of some infrastructure required by the terms of the waste licence. It is hoped to extend the scope of the environmental monitoring programme at the facility in 2014.

3.3.1 Schedule of Objectives and Targets 2013

The Schedule of Objectives and Targets was set by BLR for 2013 are outlined in Table 3-2 below.

Table 3-2 Schedule of Objectives and Targets for 2013 / Environmental Management Programme 2013

No	Objective	Target	Timescale	Responsibility	Progress
1	Environmental Management System	Close out and agree waste handling and acceptance procedures with EPA	31/12/2013	JB	Plan submitted Yet to close out with Agency
2	Environmental Management Plan	Install 1 No. additional groundwater monitoring well Commence soil / waste monitoring Extend scope of environmental monitoring	31/12/2013	JB	3 No. groundwater wells installed in March 2014.
3	Environmental Training and Awareness	Identify suitable training opportunities for site operatives	31/12/2013	JB	No suitable course identified
4	Environmental Compliance	Review of waste licence conditions	31/12/2013	JB	Ongoing
5	Specified Engineering Works	Commission waste inspection and quarantine areas Test, commission and maintain weighbridge Commission and maintain interceptor and SW drainage infrastructure.	31/12/2013	JB	Waste quarantine and inspection area constructed. Weighbridge installed SW drainage interceptor installed.

3.3.2 Schedule of Objectives and Targets 2014

The Schedule of Objectives and Targets set by BLR for 2014 are outlined in Table 3-3 overleaf.

3.4 Staff Awareness and Training

No staff training was carried out in 2013.

3.5 Public Communications Programme

Records available for public inspection at the site office include:

- Copy of Waste Licence W0247-01
- Monitoring records
- Complaints file
- Incidents file
- EPA Correspondence file

Visits to the Blackhall Soil Recovery Facility can be arranged in advance by calling John Behan at 086 398 8374.

Table 3-3 Schedule of Objectives and Targets for 2013 / Environmental Management Programme 2015

No	Objective	Target	Timescale	Responsibility
1	Environmental Management System	Close out and agree waste handling and acceptance procedures with EPA	31/12/2014	JB
2	Environmental Management Plan	Commence soil / waste monitoring Extend scope of environmental monitoring (GW)	31/12/2014	JB
3	Environmental Training and Awareness	Continue efforts to identify suitable training opportunities for site management / operatives	31/12/2014	JB
4	Environmental Compliance	Review of waste licence conditions	31/12/2014	JB
5	Specified Engineering Works	Maintain interceptor and SW drainage infrastructure.	31/12/2014	JB

4.0 ENVIRONMENTAL MONITORING

An Environmental Monitoring programme is required at the facility to assess the significance of emissions from site activities. Schedule C of Waste Licence W0247–01 specifies the required level of monitoring at the Blackhall Soil Recovery facility. All of the monitoring locations are shown on Figure 2 (Site Layout Plan) of this AER.

4.1 Noise Monitoring

Noise monitoring was carried out in 2013. Noise measurements were taken at three monitoring locations (N01, N02, and N03) during daytime hours. During the survey observations of noise sources that influenced the noise levels were noted. A summary of results and discussion is presented below.

Table 4-1 Summary of Measured Noise Levels Noise Locations, free-field, dB,

Location	Date	Time	Measured Noise Levels – dB(A)		
			$L_{Aeq,T}$	$L_{A10,T}$	$L_{A90,T}$
N1	25/06/13	11:59 – 12:39	42	47	31
N2	25/06/13	13:03 -13:33	47 (tonal adjustment 44+3)	43	32
N3	25/06/13	10:12 -10:42	44	46	26

N1

The noise monitoring location N1 is positioned on the side of the local road at the residence adjoining the site to the north-west of the site entrance. At the time of survey noise levels at this location were influenced by intermittent traffic flow along the local road and natural noise such as the breeze through the trees and birds singing. Site activities audible at this location.

N2

The noise monitoring location N2 is positioned on the side of the local lane at the residence to south-east of site entrance. At the time of survey noise levels at this location were influenced by intermittent traffic movements along the local road and natural noise such as the breeze through the trees and birds singing. Site activities audible at this location.

N3

The noise monitoring location N3 is positioned at the side of the local road at the residence at the north end of the site. At the time of survey noise levels at this location were influenced by intermittent traffic movement s along the local road and natural noise such as the breeze through the trees and birds singing. Site activities audible at this location.

Tonal Analysis Results

British Standard 7445:1991 – Description and measurement of environmental noise gives guidance on tonality, and suggests that where a single 1/3rd-octave band level is at least 5 dB higher than the level in both of the two adjacent bands, then tonal character may be present. There were no observed changes in activity at the site during the monitoring periods.

On examination of the 1/3 Octave Band Noise Spectra recorded on 25th June 2013, one tonal component was identified within the measured range (6.3 Hz to 20 kHz) at 50 Hz at location N2 (See Figure 3, Figure 4 and Figure 5 below).

ISO 1996-2 'Acoustics – Description and measurement of environmental noise – Part 2: Acquisition of data pertinent to land use' states

'If tonal components are clearly audible and their presence can be detected by a one-third octave analysis, the adjustment may be 5 to 6 dB. If the components are only just detectable by the observer and demonstrated by narrow-band analysis, an adjustment of 2 to 3 dB may be appropriate'.

In this instance, the observer did not detect any tonal or impulsive components but tonal component was identified by one-third octave analysis at location N2. In such circumstances 3dB adjustment of the measured noise levels is warranted.

Figure 3
N1 1/3rdOctave Band Analysis

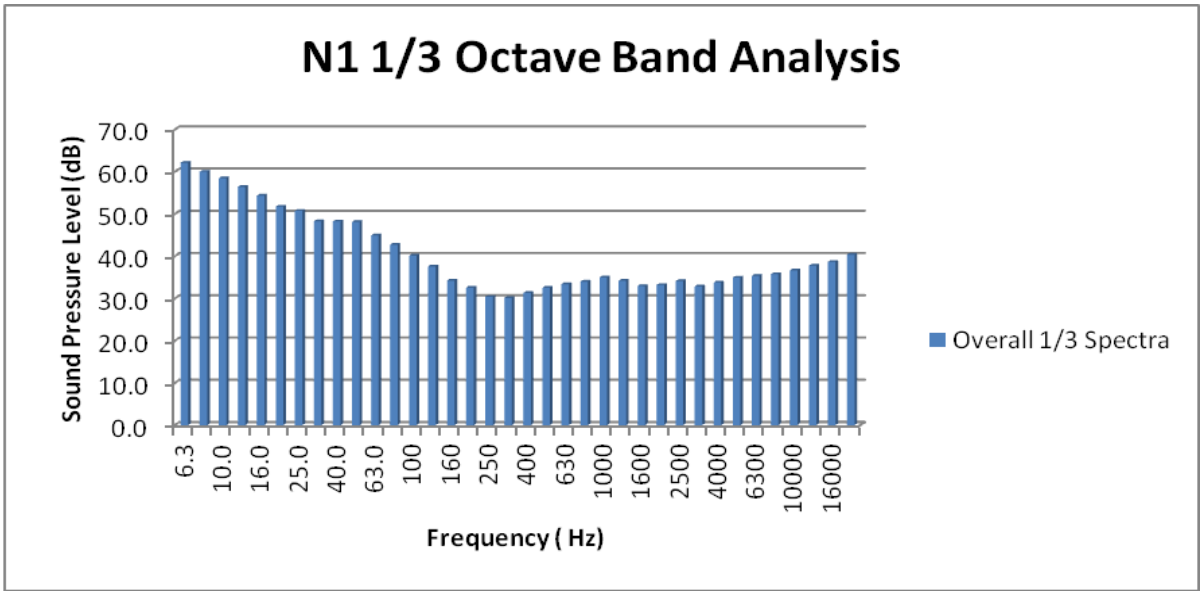


Figure 4
N2 1/3rd Octave Band Analysis

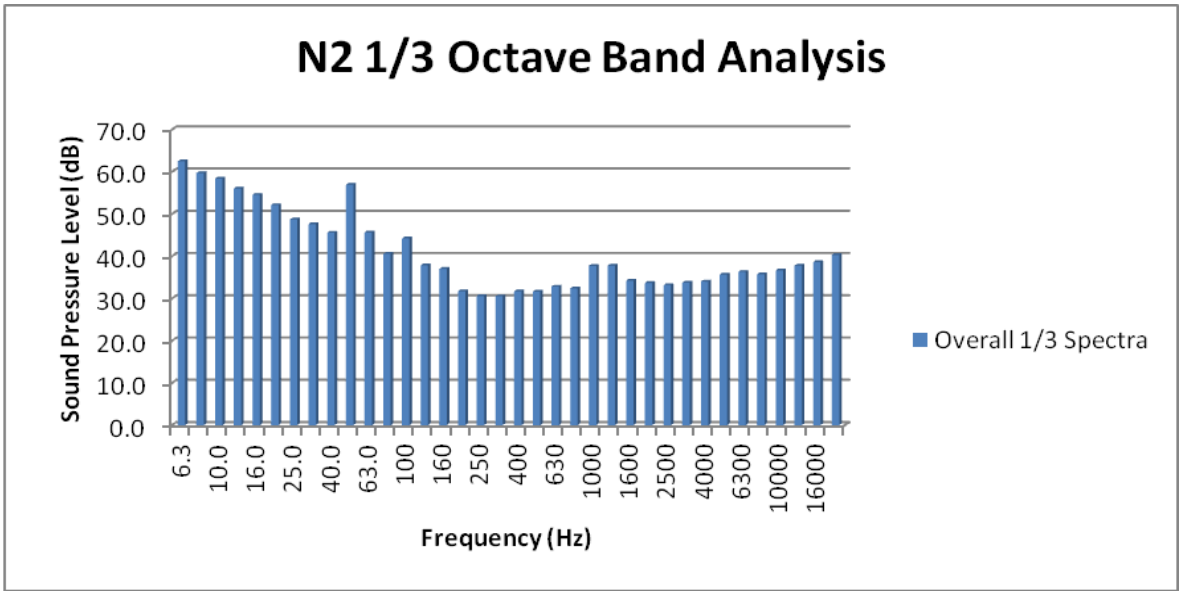
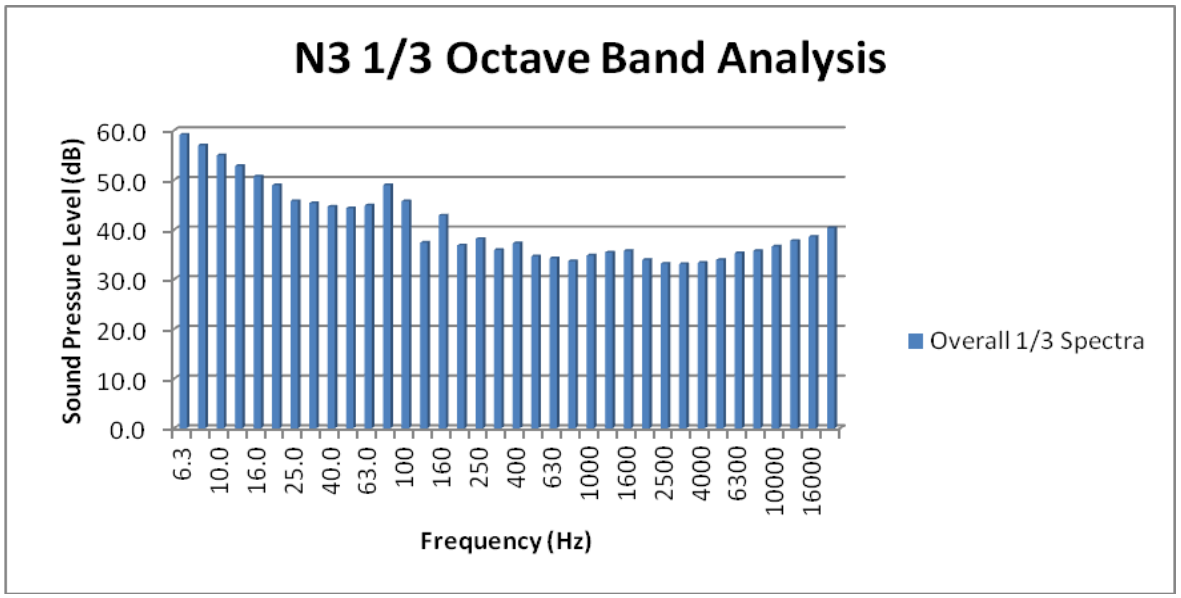


Figure 5
N3 1/3rd Octave Band Analysis



4.2 Dust Monitoring

Dust deposition monitoring was carried out in 2013. Dust monitoring stations have been established at three locations (D1, D2, and D3). The results are as follows: -

Table 4-2 Summary of Dust Monitoring Results

Period		Deposition (mg/m²/day)			Deposition Limit
From	To	D1	D2	D3	mg/m^2/day
25/9/12	31/10/12	131	1	<1	350
25/9/12	31/10/12	131	1	<1	350

The dust monitoring results are comfortably below the dust emission limits of 350 milligrams per square metre per day (averaged over 30 days) specified by its Waste Licence (Ref. No. W0247-01), the measured dust deposition levels are in compliance with the limits set out by its Waste Licence.

4.3 Groundwater Quality Monitoring

4.3.1 Groundwater Ponds

Monitoring of water quality in groundwater ponds monitoring was carried out on a quarterly basis in 2013 (20th March, 25th June, 20th September and 20th November). Samples were taken at two locations (SW2, SW3). A summary of results is presented below in Tables 4-3 and Table 4-4. Full copy of groundwater ponds testing results and results discussion is presented monitoring reports in Appendix A.

Table 4-3 Summary of Chemical Analysis at SW2

Parameter	Units	Screening Value*	Detection Limits	SW2 20/03/2013	SW2 25/06/2013	SW2 20/09/2013	SW2 20/11/2013
Temperature	T^{O}C			6.1	16.39	12	4.9
pH		4.5-9.0 ≤100 mg/lCaCO3 6.0-9.0 >100 mg/lCaCO3		7.8	8.38	8.56	8.17
Electrical conductivity	mScm^{-1}			0.321	0.475	0.317	0.334
Dissolved Oxygen	mg/l			11.44	7.11	1.37	9.11
Dissolved Oxygen	%			91.2	73	12.9	73.9
Chloride as Cl	mg/l		<2	12.6	13.3	13.9	19.8
Sulphate as SO4	mg/l		<2	12.5	13	15.4	43.4
Ammoniacal Nitrogen	mg/l	High status ≤ 0.040 (mean) or ≤ 0.090 (95%ile) Good Status ≤ 0.065 (mean) or ≤ 0.140 (95%ile)	<0.01	0.197	0.0625	0.0718	0.0621
Phosphate	mg/l	High status ≤ 0.025 (mean) or ≤ 0.045 (95%ile) Good Status ≤ 0.035 (mean) or ≤ 0.075 (95%ile)	<0.05 as PO4				<0.016 as P

Parameter	Units	Screening Value*	Detection Limits	SW2 20/03/2013	SW2 25/06/2013	SW2 20/09/2013	SW2 20/11/2013
Total Dissolved Solids	mg/l		<5				319
Total Hardness	mg/l		<1				247
Total Alkalinity	mg/l		<2				205
Aluminium	mg/l		<0.0029				<0.0029
Antimony	mg/l		<0.00016				0.00143
Arsenic	mg/l		<0.00012				0.00146
Barium	mg/l		<0.00003				0.0544
Beryllium	mg/l		<0.00007				<0.00007
Boron	mg/l		<0.009				0.0142
Cadmium	mg/l		<0.0001				<0.0001
Chromium	mg/l		<0.00022				0.00201
Cobalt	mg/l		<0.00006				0.0002
Cooper	mg/l		<0.00085				0.000906
Lead	mg/l		<0.00002				0.000067
Manganese	mg/l		<0.00001				0.00238
Molybdenum	mg/l		<0.00024				0.00102
Nickel	mg/l		<0.00015				0.00251
Selenium	mg/l		<0.00039				0.000576
Strontium	mg/l		<0.00005				0.339
Thallium	mg/l		<0.00096				<0.00096
Tin	mg/l		<0.00036				<0.00036
Vanadium	mg/l		<0.00024				0.000912
Zinc	mg/l		<0.00041				0.00601
Mercury	mg/l		<0.00001				<0.00001
Iron	mg/l		<0.019				<0.019
Nitrate	mg/l		<0.3				4.96
Calcium	mg/l		<0.012				77.7
Sodium	mg/l		<0.076				12.80
Magnesium	mg/l		<0.036				8.55
Potassium	mg/l		<1				1.43
SVOC	mg/l		<0.001				<0.001
VOC	mg/l		<0.001	<0.001			<0.001
EPH Band >C10-C12 (aq)	µg/l		<10				<10
EPH Band >C12-C16 (aq)	µg/l		<10				<10
EPH Band >C16-C21 (aq)	µg/l		<10				<10
EPH Band >C21-C28 (aq)	µg/l		<10				<10
EPH Band >C28-C35 (aq)	µg/l		<10				<10
EPH Band >C35-C40 (aq)	µg/l		<10				<10
EPH Range >C10-C40 (aq)	µg/l		<46				<46
Acenaphthene (aq)	µg/l	0.1	<0.015				<0.015
Acenaphthylene (aq)	µg/l		<0.011				<0.011
Anthracene (aq)	µg/l		<0.015				<0.015

Parameter	Units	Screening Value*	Detection Limits	SW2 20/03/2013	SW2 25/06/2013	SW2 20/09/2013	SW2 20/11/2013
Benzo(a)anthracene (aq)	µg/l		<0.017				<0.017
Benzo(a)pyrene (aq)	µg/l		<0.009				<0.009
Benzo(b)fluoranthene (aq)	µg/l		<0.023				<0.023
Benzo(g,h,i)perylene (aq)	µg/l		<0.016				<0.016
Benzo(k)fluoranthene (aq)	µg/l		<0.027				<0.027
Chrysene (aq)	µg/l		<0.013				<0.013
Dibenzo(a,h)anthracene (aq)	µg/l		<0.016				<0.016
Fluoranthene (aq)	µg/l		<0.017				<0.017
Fluorene (aq)	µg/l		<0.014				<0.014
Indeno(1,2,3-cd)pyrene (aq)	µg/l		<0.014				<0.014
Naphthalene (aq)	µg/l		<0.1				<0.1
PAH, Total Detected USEPA 16 (aq)	µg/l		<0.247				<0.247
Phenanthrene (aq)	µg/l		<0.022				<0.022
Pyrene (aq)	µg/l		<0.015				<0.015

Table 4-4 Summary of Chemical Analysis at SW3

Parameter	Units	Screening Value*	Detection Limits	SW3 20/03/2013	SW3 25/06/2013	SW3 20/09/2013	SW3 20/11/2013
Temperature	$T^{O}C$			5.9	21.14	14.1	5.5
pH		4.5-9.0 ≤100 mg/lCaCO3 6.0-9.0 >100 mg/lCaCO3		8.46	9	8.55	8.22
Electrical conductivity	$mScm^{-1}$			0.344	0.670	1.269	0.583
Dissolved Oxygen	mg/l			11.22	5.3	3.15	7.22
Dissolved Oxygen	%			90.4	61.2	31	58.2
Chloride as Cl	mg/l		<2	19.1	20.7	19.8	17.9
Sulphate as SO4	mg/l		<2	89.9	135	820	299
Ammoniacal Nitrogen	mg/l	High status ≤ 0.040 (mean) or ≤ 0.090 (95%ile) Good Status ≤ 0.065 (mean) or ≤ 0.140 (95%ile)	<0.01	1.54	0.0594	0.144	0.0257
Phosphate	mg/l	High status ≤ 0.025 (mean) or ≤ 0.045 (95%ile) Good Status ≤ 0.035 (mean) or ≤ 0.075 (95%ile)	<0.05 as PO4				<0.016 as P

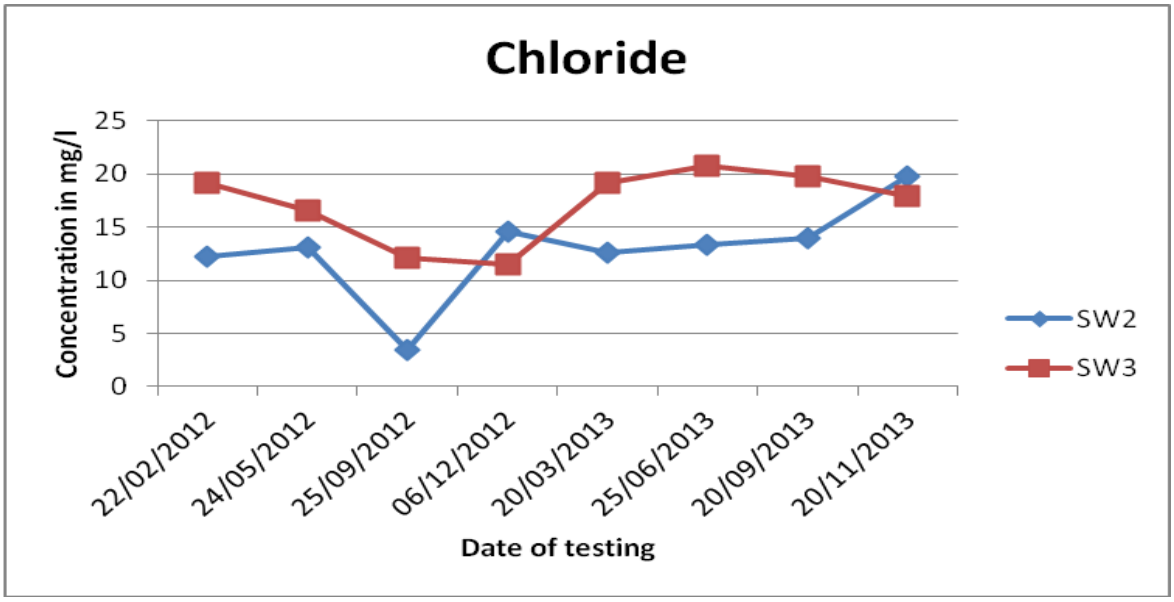
Parameter	Units	Screening Value*	Detection Limits	SW3 20/03/2013	SW3 25/06/2013	SW3 20/09/2013	SW3 20/11/2013
Total Dissolved Solids	mg/l		<5				701
Total Hardness	mg/l		<1				474
Total Alkalinity	mg/l		<2				170
Aluminium	mg/l		<0.0029				<0.0029
Antimony	mg/l		<0.00016				0.00786
Arsenic	mg/l		<0.00012				0.00208
Barium	mg/l		<0.00003				0.0453
Beryllium	mg/l		<0.00007				<0.00007
Boron	mg/l		<0.009				0.0363
Cadmium	mg/l		<0.0001				<0.0001
Chromium	mg/l		<0.00022				0.00164
Cobalt	mg/l		<0.00006				0.000323
Cooper	mg/l		<0.00085				0.00627
Lead	mg/l		<0.00002				0.0001
Manganese	mg/l		<0.00001				0.00136
Molybdenum	mg/l		<0.00024				0.00735
Nickel	mg/l		<0.00015				0.00476
Selenium	mg/l		<0.00039				0.00177
Strontium	mg/l		<0.00005				0.659
Thallium	mg/l		<0.00096				<0.00096
Tin	mg/l		<0.00036				<0.00036
Vanadium	mg/l		<0.00024				0.00234
Zinc	mg/l		<0.00041				0.00237
Mercury	mg/l		<0.00001				<0.00001
Iron	mg/l		<0.019				0.0299
Nitrate	mg/l		<0.3				<0.3
Calcium	mg/l		<0.012				156.0
Sodium	mg/l		<0.076				16.3
Magnesium	mg/l		<0.036				10.4
Potassium	mg/l		<1				7.67
SVOC	mg/l		<0.001	<0.001			<0.001
VOC	mg/l		<0.001	<0.001			<0.001
EPH Band >C10-C12 (aq)	µg/l		<10				<10
EPH Band >C12-C16 (aq)	µg/l		<10				<10
EPH Band >C16-C21 (aq)	µg/l		<10				20.8
EPH Band >C21-C28 (aq)	µg/l		<10				27.7
EPH Band >C28-C35 (aq)	µg/l		<10				24.1
EPH Band >C35-C40 (aq)	µg/l		<10				18
EPH Range >C10 - C40 (aq)	µg/l	0.1	<46				90.6
Acenaphthene (aq)	µg/l		<0.015				<0.015
Acenaphthylene (aq)	µg/l		<0.011				<0.011
Anthracene (aq)	µg/l		<0.015				<0.015
Benzo(a)anthracene (aq)	µg/l		<0.017				<0.017

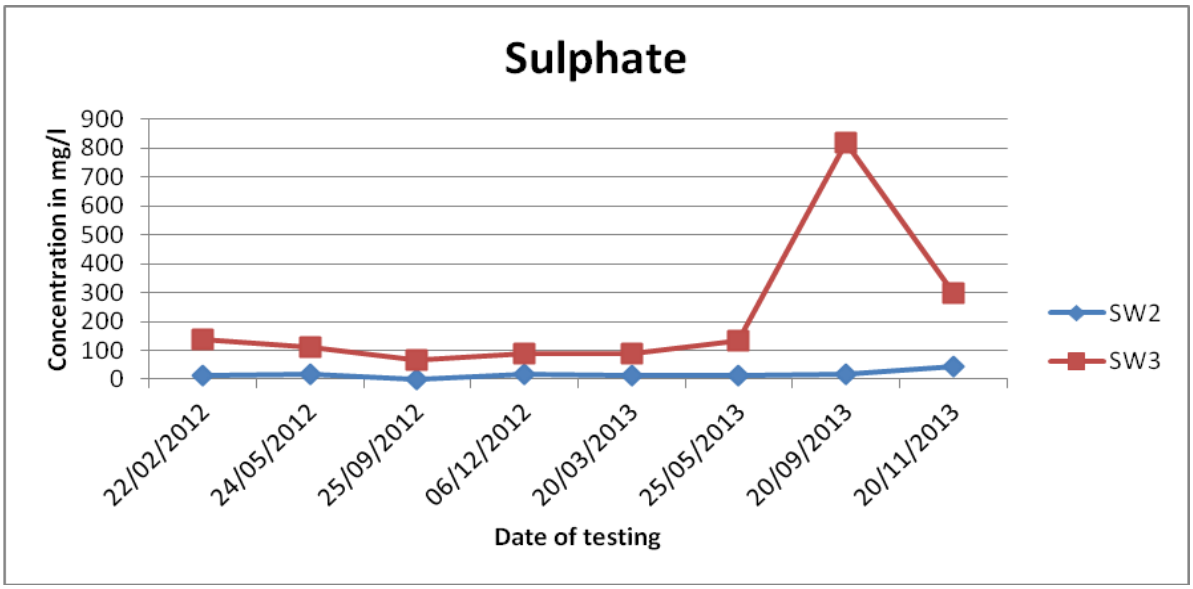
Parameter	Units	Screening Value*	Detection Limits	SW3 20/03/2013	SW3 25/06/2013	SW3 20/09/2013	SW3 20/11/2013
Benzo(a)pyrene (aq)	µg/l		<0.009				0.0139
Benzo(b)fluoranthene (aq)	µg/l		<0.023				<0.023
Benzo(g,h,i)perylene (aq)	µg/l		<0.016				<0.016
Benzo(k)fluoranthene (aq)	µg/l		<0.027				<0.027
Chrysene (aq)	µg/l		<0.013				<0.013
Dibenzo(a,h)anthracene (aq)	µg/l		<0.016				<0.016
Fluoranthene (aq)	µg/l		<0.017				<0.017
Fluorene (aq)	µg/l		<0.014				<0.014
Indeno(1,2,3-cd)pyrene (aq)	µg/l		<0.014				<0.014
Naphthalene (aq)	µg/l		<0.1				<0.1
PAH, Total Detected USEPA 16 (aq)	µg/l		<0.247				<0.247
Phenanthrene (aq)	µg/l		<0.022				<0.022
Pyrene (aq)	µg/l		<0.015				0.0158

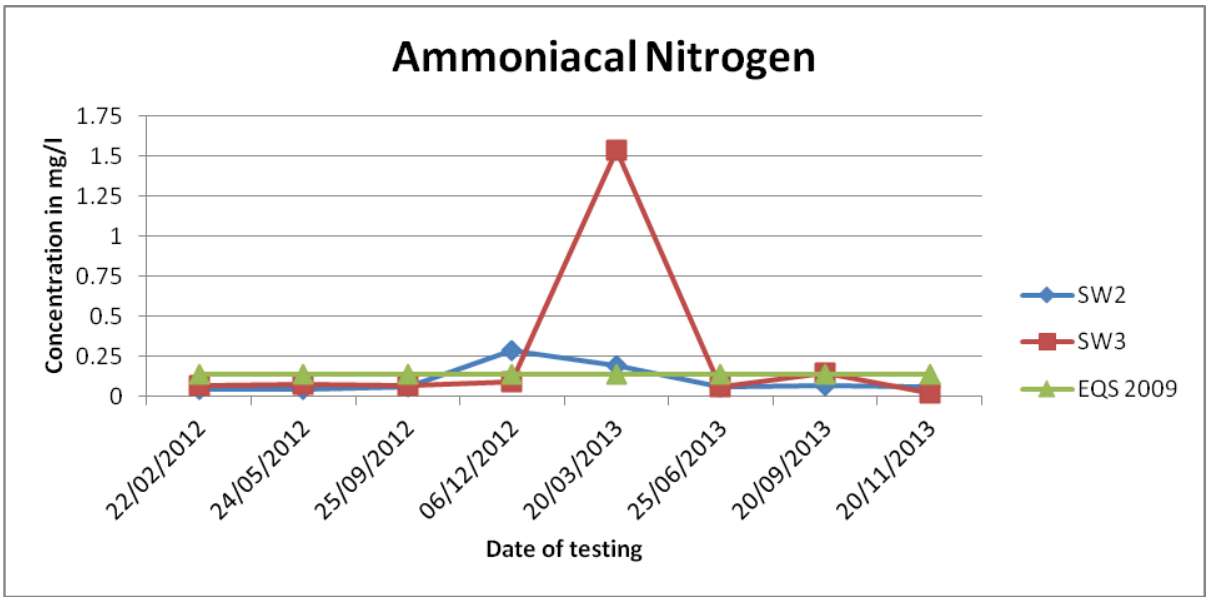
**European Communities Environmental Objectives (Surface Waters) Regulations 2009, S.I. No. 272 of 2009*

4.3.2 Variation and trends in Surface Water Quality

The plots provided below show variations and trends in surface water quality for monitored parameters (Chloride, Sulphate, Ammoniacal Nitrogen) from the beginning of 2012. Plots show no indication of sustained increase of monitored parameters concentration over the time.







4.3.3 Groundwater Quality

Groundwater monitoring was carried out in 2013 on quarterly basis (20th March, 25th June, 20th September and 20th November). Samples were taken at five locations (GW1, GW2, GW3, Well 1, and Well 2). A summary of results is presented below in Tables 4-5 to Table 4-10. Full copy of groundwater testing results and results discussion is presented monitoring reports in Appendix A.

Table 4-5 Summary of Chemical Analysis at GW1

Parameter	Unit	Screening Value*	Detection Limits	GW1 20/03/2013	GW1 25/06/2013	GW1 20/09/2013	GW1 20/11/2013
Temperature	T°C			9.9	9.53	9.5	10
pH				7.39	6.61	7.64	8.08
Electrical conductivity	$mScm^{-1}$	1.875		0.357	0.667	0.374	0.366
Dissolved Oxygen	mg/l			6.44	6.15	1.1	2.14

Parameter	Unit	Screening Value*	Detection Limits	GW1 20/03/2013	GW1 25/06/2013	GW1 20/09/2013	GW1 20/11/2013
Dissolved Oxygen	%			57.1	54.1	9.7	19
Chloride as Cl	mg/l	187.5	<2	11	11.3	11.3	11.1
Sulphate as SO4	mg/l	187.5	<2	8.2	8.6	7.5	7.5
Ammoniacal Nitrogen	mg/l	0.175	<0.01	0.19	0.0255	0.0227	0.014
Total Suspended Solids	mg/l		<2				36.5
Total Dissolved Solids	mg/l		<5				312
Total Hardness	mg/l		<1				270
Total Alkalinity	mg/l		<2				260
Aluminium	mg/l	0.150	<0.0029				<0.0029
Antymony	mg/l		<0.00016				0.00138
Arsenic	mg/l	0.0075	<0.00012				0.000188
Barium	mg/l		<0.00003				0.0447
Beryllium	mg/l		<0.00007				<0.00007
Boron	mg/l	0.750	<0.0094				<0.0094
Cadmium	mg/l	0.00375	<0.0001				<0.0001
Chromium	mg/l	0.0375	<0.00022				0.00281
Cobalt	mg/l		<0.00006				0.000132
Cooper	mg/l	1.5	<0.00085				<0.00085
Lead	mg/l	0.01875	<0.00002				<0.00002
Manganese	mg/l		<0.00004				0.000051
Molybdenum	mg/l		<0.00024				0.000462
Nickel	mg/l	0.015	<0.00015				0.00111
Selenium	mg/l		<0.00039				0.000407
Strontium	mg/l		<0.00005				0.247
Thallium	mg/l		<0.00096				<0.00096
Tin	mg/l		<0.00036				<0.00036
Vanadium	mg/l		<0.00024				0.000623
Zinc	mg/l		<0.00041				0.00129
Mercury	mg/l	0.00075	<0.00001				<0.00001
Iron	mg/l		<0.019				<0.019
Phosphate as PO4	mg/l		<0.05				<0.05
Nitrate as NO3	mg/l	37.5	<0.3				9.24
Calcium	mg/l		<0.012				86.4
Sodium	mg/l	187.5	<0.076				7.43
Magnesium	mg/l		<0.036				8.41
Potassium	mg/l		<1				<1
SVOC	mg/l		<0.001				<0.001
VOC	mg/l		<0.001				<0.001
EPH Band >C10-C12 (aq)	µg/l		<10				<10
EPH Band >C12-C16 (aq)	µg/l		<10				<10
EPH Band >C16-C21 (aq)	µg/l		<10				<10
EPH Band >C21-C28 (aq)	µg/l		<10				<10

Parameter	Unit	Screening Value*	Detection Limits	GW1 20/03/2013	GW1 25/06/2013	GW1 20/09/2013	GW1 20/11/2013
EPH Band >C28-C35 (aq)	µg/l		<10				<10
EPH Band >C35-C40 (aq)	µg/l		<10				<10
EPH Range >C10 - C40 (aq)	µg/l		<46				<46
Acenaphthene (aq)	µg/l		<0.015				<0.015
Acenaphthylene (aq)	µg/l		<0.011				<0.011
Anthracene (aq)	µg/l		<0.015				<0.015
Benzo(a)anthracene (aq)	µg/l		<0.017				<0.017
Benzo(a)pyrene (aq)	µg/l		<0.009				<0.009
Benzo(b)fluoranthene (aq)	µg/l		<0.023				<0.023
Benzo(g,h,i)perylene (aq)	µg/l		<0.016				<0.016
Benzo(k)fluoranthene (aq)	µg/l		<0.027				<0.027
Chrysene (aq)	µg/l		<0.013				<0.013
Dibenzo(a,h)anthracene (aq)	µg/l		<0.016				<0.016
Fluoranthene (aq)	µg/l		<0.017				<0.017
Fluorene (aq)	µg/l		<0.014				<0.014
Indeno(1,2,3-cd)pyrene (aq)	µg/l		<0.014				<0.014
Naphthalene (aq)	µg/l		<0.1				<0.1
PAH, Total Detected USEPA 16 (aq)	µg/l		<0.247				<0.247
Phenanthrene (aq)	µg/l		<0.022				<0.022
Pyrene (aq)	µg/l		<0.015				<0.015

Table 4-6 Summary of Chemical Analysis at GW2

Parameter	Unit	Screening Value*	Detection Limits	GW2 20/03/2013	GW2 25/06/2013	GW2 20/09/2013	GW2 20/11/2013
Temperature	$T^{O}C$			10.4	12.01	10.9	9.5
pH				7.59	7.57	8.01	7.6
Electrical conductivity	$mScm^{-1}$	1.875		0.377	0.598	0.333	0.369
Dissolved Oxygen	mg/l			3.23	5.19	2.23	4.97
Dissolved Oxygen	%			29.1	50.1	20.1	43.6
Chloride as Cl	mg/l	187.5	<2	13.8	13.8	14	14.4
Sulphate as SO4	mg/l	187.5	<2	26.9	37.8	41.5	37.4
Ammoniacal Nitrogen	mg/l	0.175	<0.01	0.172	0.0448	0.0185	0.0165
Total Suspended Solids	mg/l		<2				59
Total Dissolved Solids	mg/l		<5				307

Parameter	Unit	Screening Value*	Detection Limits	GW2 20/03/2013	GW2 25/06/2013	GW2 20/09/2013	GW2 20/11/2013
Total Hardness	mg/l		<1				265
Total Alkalinity	mg/l		<2				210
Aluminium	mg/l	0.150	<0.0029				<0.0029
Antymony	mg/l		<0.00016				0.000178
Arsenic	mg/l	0.0075	<0.00012				0.000393
Barium	mg/l		<0.00003				0.046
Beryllium	mg/l		<0.00007				<0.00007
Boron	mg/l	0.750	<0.0094				<0.0094
Cadmium	mg/l	0.00375	<0.0001				<0.0001
Chromium	mg/l	0.0375	<0.00022				0.00273
Cobalt	mg/l		<0.00006				0.000117
Cooper	mg/l	1.5	<0.00085				<0.00085
Lead	mg/l	0.01875	<0.00002				<0.00002
Manganese	mg/l		<0.00004				0.0142
Molybdenum	mg/l		<0.00024				0.00115
Nickel	mg/l	0.015	<0.00015				0.000769
Selenium	mg/l		<0.00039				0.00121
Strontium	mg/l		<0.00005				0.173
Thallium	mg/l		<0.00096				<0.00096
Tin	mg/l		<0.00036				0.000433
Vanadium	mg/l		<0.00024				0.000739
Zinc	mg/l		<0.00041				0.00235
Mercury	mg/l	0.00075	<0.00001				<0.00001
Iron	mg/l		<0.019				<0.019
Phosphate as PO4	mg/l		<0.05				0.063
Nitrate as NO3	mg/l	37.5	<0.3				9.13
Calcium	mg/l		<0.012				78.1
Sodium	mg/l	187.5	<0.076				12
Magnesium	mg/l		<0.036				8.28
Potassium	mg/l		<1				<1
SVOC	mg/l		<0.001				<0.001
VOC	mg/l		<0.001				<0.001
EPH Band >C10-C12 (aq)	µg/l		<10				<10
EPH Band >C12-C16 (aq)	µg/l		<10				<10
EPH Band >C16-C21 (aq)	µg/l		<10				<10
EPH Band >C21-C28 (aq)	µg/l		<10				<10
EPH Band >C28-C35 (aq)	µg/l		<10				<10
EPH Band >C35-C40 (aq)	µg/l		<10				<10
EPH Range >C10 - C40 (aq)	µg/l		<46				<46
Acenaphthene (aq)	µg/l		<0.015				<0.015
Acenaphthylene (aq)	µg/l		<0.011				<0.011
Anthracene (aq)	µg/l		<0.015				<0.015
Benzo(a)anthracene (aq)	µg/l		<0.017				<0.017

Parameter	Unit	Screening Value*	Detection Limits	GW2 20/03/2013	GW2 25/06/2013	GW2 20/09/2013	GW2 20/11/2013
Benzo(a)pyrene (aq)	µg/l		<0.009				<0.009
Benzo(b)fluoranthene (aq)	µg/l		<0.023				<0.023
Benzo(g,h,i)perylene (aq)	µg/l		<0.016				<0.016
Benzo(k)fluoranthene (aq)	µg/l		<0.027				<0.027
Chrysene (aq)	µg/l		<0.013				<0.013
Dibenzo(a,h)anthracene (aq)	µg/l		<0.016				<0.016
Fluoranthene (aq)	µg/l		<0.017				<0.017
Fluorene (aq)	µg/l		<0.014				<0.014
Indeno(1,2,3-cd)pyrene (aq)	µg/l		<0.014				<0.014
Naphthalene (aq)	µg/l		<0.1				<0.1
PAH, Total Detected USEPA 16 (aq)	µg/l		<0.247				<0.247
Phenanthrene (aq)	µg/l		<0.022				<0.022
Pyrene (aq)	µg/l		<0.015				<0.015

Table 4-7 Summary of Chemical Analysis at GW3

Parameter	Unit	Screening Value*	Detection Limits	GW3 20/03/2013	GW3 25/06/2013	GW3 20/09/2013	GW3 20/11/2013
Temperature	$T^{O}C$			6.9	12.47	11.8	9.6
pH				7.63	6.84	7.55	7.62
Electrical conductivity	$mScm^{-1}$	1.875		0.342	0.794	0.443	0.434
Dissolved Oxygen	mg/l			8.42	9.64	1.29	4.86
Dissolved Oxygen	%			69.6	53.2	12	42.7
Chloride as Cl	mg/l	187.5	<2	13.3	15.5	14.7	15.9
Sulphate as SO4	mg/l	187.5	<2	12.6	12.3	12.4	22.7
Ammoniacal Nitrogen	mg/l	0.175	<0.01	0.714	0.0335	0.0433	0.0378
Total Suspended Solids	mg/l		<2				1520
Total Dissolved Solids	mg/l		<5				359
Total Hardness	mg/l		<1				814
Total Alkalinity	mg/l		<2				585
Aluminium	mg/l	0.150	<0.0029				<0.0029
Antymony	mg/l		<0.00016				<0.00016
Arsenic	mg/l	0.0075	<0.00012				0.000467
Barium	mg/l		<0.00003				0.0562
Beryllium	mg/l		<0.00007				<0.00007
Boron	mg/l	0.750	<0.0094				<0.0094
Cadmium	mg/l	0.00375	<0.0001				<0.0001
Chromium	mg/l	0.0375	<0.00022				0.00338

Parameter	Unit	Screening Value*	Detection Limits	GW3 20/03/2013	GW3 25/06/2013	GW3 20/09/2013	GW3 20/11/2013
Cobalt	mg/l		<0.00006				0.000136
Cooper	mg/l	1.5	<0.00085				<0.00085
Lead	mg/l	0.01875	<0.00002				<0.00002
Manganese	mg/l		<0.00004				0.000111
Molybdenum	mg/l		<0.00024				0.000518
Nickel	mg/l	0.015	<0.00015				0.001
Selenium	mg/l		<0.00039				0.00107
Strontium	mg/l		<0.00005				0.249
Thallium	mg/l		<0.00096				<0.00096
Tin	mg/l		<0.00036				<0.00036
Vanadium	mg/l		<0.00024				0.000833
Zinc	mg/l		<0.00041				0.000981
Mercury	mg/l	0.00075	<0.00001				<0.00001
Iron	mg/l		<0.019				0.00024
Phosphate as PO4	mg/l		<0.05				0.092
Nitrate as NO3	mg/l	37.5	<0.3				19.6
Calcium	mg/l		<0.012				106
Sodium	mg/l	187.5	<0.076				9.27
Magnesium	mg/l		<0.036				9.4
Potassium	mg/l		<1				1.32
SVOC	mg/l		<0.001				<0.001
VOC	mg/l		<0.001				<0.001
EPH Band >C10-C12 (aq)	µg/l		<10				<10
EPH Band >C12-C16 (aq)	µg/l		<10				<10
EPH Band >C16-C21 (aq)	µg/l		<10				<10
EPH Band >C21-C28 (aq)	µg/l		<10				<10
EPH Band >C28-C35 (aq)	µg/l		<10				<10
EPH Band >C35-C40 (aq)	µg/l		<10				<10
EPH Range >C10 - C40 (aq)	µg/l		<46				<46
Acenaphthene (aq)	µg/l		<0.015				<0.015
Acenaphthylene (aq)	µg/l		<0.011				<0.011
Anthracene (aq)	µg/l		<0.015				<0.015
Benzo(a)anthracene (aq)	µg/l		<0.017				<0.017
Benzo(a)pyrene (aq)	µg/l		<0.009				<0.009
Benzo(b)fluoranthene (aq)	µg/l		<0.023				<0.023
Benzo(g,h,i)perylene (aq)	µg/l		<0.016				<0.016
Benzo(k)fluoranthene (aq)	µg/l		<0.027				<0.027
Chrysene (aq)	µg/l		<0.013				<0.013
Dibenzo(a,h)anthracene (aq)	µg/l		<0.016				<0.016
Fluoranthene (aq)	µg/l		<0.017				<0.017

Parameter	Unit	Screening Value*	Detection Limits	GW3 20/03/2013	GW3 25/06/2013	GW3 20/09/2013	GW3 20/11/2013
Fluorene (aq)	µg/l		<0.014				<0.014
Indeno(1,2,3-cd)pyrene (aq)	µg/l		<0.014				<0.014
Naphthalene (aq)	µg/l		<0.1				<0.1
PAH, Total Detected USEPA 16 (aq)	µg/l		<0.247				<0.247
Phenanthrene (aq)	µg/l		<0.022				<0.022
Pyrene (aq)	µg/l		<0.015				<0.015

Table 4-8 Summary of Chemical Analysis at Well1

Parameter	Unit	Screening Value*	Detection Limits	Well 1 20/03/2013	Well 1 25/06/2013	Well 1 20/09/2013	Well 1 20/11/2013
Temperature	$T^{O}C$			8.4	10.96	11.4	10.2
pH				7.61	7.17	8.65	8.22
Electrical conductivity	$mScm^{-1}$	1.875		0.486	0.938	0.528	0.402
Dissolved Oxygen	mg/l			6.61	7.11	3.75	4.07
Dissolved Oxygen	%			56.5	65.1	32.8	30.6
Chloride as Cl	mg/l	187.5	<2	14.4	16.6	14.3	11.4
Sulphate as SO4	mg/l	187.5	<2	61.3	48.2	30.1	18.7
Ammoniacal Nitrogen	mg/l	0.175	<0.01	0.653	0.289	0.048	0.0404
Total Suspended Solids	mg/l		<2				212
Total Dissolved Solids	mg/l		<5				328
Total Hardness	mg/l		<1				314
Total Alkalinity	mg/l		<2				280
Aluminium	mg/l	0.150	<0.0029				<0.0029
Antymony	mg/l		<0.00016				<0.00016
Arsenic	mg/l	0.0075	<0.00012				0.000379
Barium	mg/l		<0.00003				0.040
Beryllium	mg/l		<0.00007				<0.00007
Boron	mg/l	0.750	<0.0094				0.015
Cadmium	mg/l	0.00375	<0.0001				<0.0001
Chromium	mg/l	0.0375	<0.00022				0.00274
Cobalt	mg/l		<0.00006				0.000107
Cooper	mg/l	1.5	<0.00085				<0.00085
Lead	mg/l	0.01875	<0.00002				<0.00002
Manganese	mg/l		<0.00004				0.000385
Molybdenum	mg/l		<0.00024				0.000829
Nickel	mg/l	0.015	<0.00015				0.000849
Selenium	mg/l		<0.00039				<0.00039
Strontium	mg/l		<0.00005				0.304
Thallium	mg/l		<0.00096				<0.00096
Tin	mg/l		<0.00036				<0.00036

Parameter	Unit	Screening Value*	Detection Limits	Well 1 20/03/2013	Well 1 25/06/2013	Well 1 20/09/2013	Well 1 20/11/2013
Vanadium	mg/l		<0.00024				0.000618
Zinc	mg/l		<0.00041				0.000466
Mercury	mg/l	0.00075	<0.00001				<0.00001
Iron	mg/l		<0.019				<0.019
Phosphate as PO4	mg/l		<0.05				<0.05
Nitrate as NO3	mg/l	37.5	<0.3				2
Calcium	mg/l		<0.012				85.4
Sodium	mg/l	187.5	<0.076				11.2
Magnesium	mg/l		<0.036				11.9
Potassium	mg/l		<1				1.79
SVOC	mg/l		<0.001				<0.001
VOC	mg/l		<0.001				<0.001
EPH Band >C10-C12 (aq)	µg/l		<10				<10
EPH Band >C12-C16 (aq)	µg/l		<10				<10
EPH Band >C16-C21 (aq)	µg/l		<10				<10
EPH Band >C21-C28 (aq)	µg/l		<10				<10
EPH Band >C28-C35 (aq)	µg/l		<10				<10
EPH Band >C35-C40 (aq)	µg/l		<10				<10
EPH Range >C10 - C40 (aq)	µg/l		<46				<46
Acenaphthene (aq)	µg/l		<0.015				<0.015
Acenaphthylene (aq)	µg/l		<0.011				<0.011
Anthracene (aq)	µg/l		<0.015				<0.015
Benzo(a)anthracene (aq)	µg/l		<0.017				<0.017
Benzo(a)pyrene (aq)	µg/l		<0.009				<0.009
Benzo(b)fluoranthene (aq)	µg/l		<0.023				<0.023
Benzo(g,h,i)perylene (aq)	µg/l		<0.016				<0.016
Benzo(k)fluoranthene (aq)	µg/l		<0.027				<0.027
Chrysene (aq)	µg/l		<0.013				<0.013
Dibenzo(a,h)anthracene (aq)	µg/l		<0.016				<0.016
Fluoranthene (aq)	µg/l		<0.017				<0.017
Fluorene (aq)	µg/l		<0.014				<0.014
Indeno(1,2,3-cd)pyrene (aq)	µg/l		<0.014				<0.014
Naphthalene (aq)	µg/l		<0.1				<0.1
PAH, Total Detected USEPA 16 (aq)	µg/l		<0.247				<0.247
Phenanthrene (aq)	µg/l		<0.022				<0.022
Pyrene (aq)	µg/l		<0.015				<0.015

Table 4-9 Summary of Chemical Analysis at Well 2

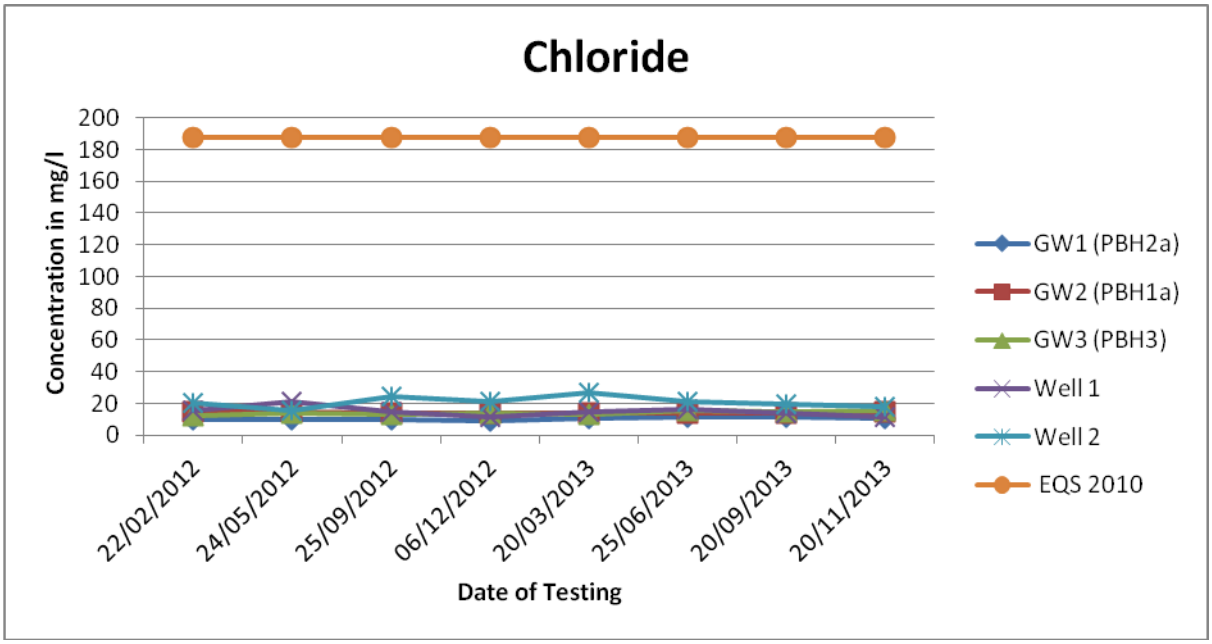
Parameter	Unit	Screening Value*	Detection Limits	Well 2 20/03/2013	Well 2 25/06/2013	Well 2 20/11/2013	Well 2 20/11/2013
Temperature	$T^{O}C$			10.2	10.97	10.3	9.7
pH				7.7	6.79	7.42	7.46
Electrical conductivity	$mScm^{-1}$	1.875		0.570	1.003	0.539	0.612
Dissolved Oxygen	mg/l			4	5.69	1.21	4.22
Dissolved Oxygen	%			35.8	51	10.8	37.2
Chloride as Cl	mg/l	187.5	<2	27.1	21.6	19.5	17.8
Sulphate as SO4	mg/l	187.5	<2	15.4	19.1	13.1	12.9
Ammoniacal Nitrogen	mg/l	0.175	<0.01	0.132	0.0446	0.0108	0.0154
Total Suspended Solids	mg/l		<2				552
Total Dissolved Solids	mg/l		<5				438
Total Hardness	mg/l		<1				587
Total Alkalinity	mg/l		<2				380
Aluminium	mg/l	0.150	<0.0029				<0.0029
Antymony	mg/l		<0.00016				<0.00016
Arsenic	mg/l	0.0075	<0.00012				0.00024
Barium	mg/l		<0.00003				0.0577
Beryllium	mg/l		<0.00007				<0.00007
Boron	mg/l	0.750	<0.0094				<0.0094
Cadmium	mg/l	0.00375	<0.0001				<0.0001
Chromium	mg/l	0.0375	<0.00022				0.00475
Cobalt	mg/l		<0.00006				0.000113
Cooper	mg/l	1.5	<0.00085				<0.00085
Lead	mg/l	0.01875	<0.00002				<0.00002
Manganese	mg/l		<0.00004				0.000051
Molybdenum	mg/l		<0.00024				<0.00024
Nickel	mg/l	0.015	<0.00015				0.00094
Selenium	mg/l		<0.00039				0.00144
Strontium	mg/l		<0.00005				0.254
Thallium	mg/l		<0.00096				<0.00096
Tin	mg/l		<0.00036				<0.00036
Vanadium	mg/l		<0.00024				0.00116
Zinc	mg/l		<0.00041				0.0011
Mercury	mg/l	0.00075	<0.00001				<0.00001
Iron	mg/l		<0.019				<0.019
Phosphate as PO4	mg/l		<0.05				0.058
Nitrate as NO3	mg/l	37.5	<0.3				20.1
Calcium	mg/l		<0.012				118
Sodium	mg/l	187.5	<0.076				9.86
Magnesium	mg/l		<0.036				16.8
Potassium	mg/l		<1				<1
SVOC	mg/l		<0.001				<0.001
VOC	mg/l		<0.001	<0.001			<0.001

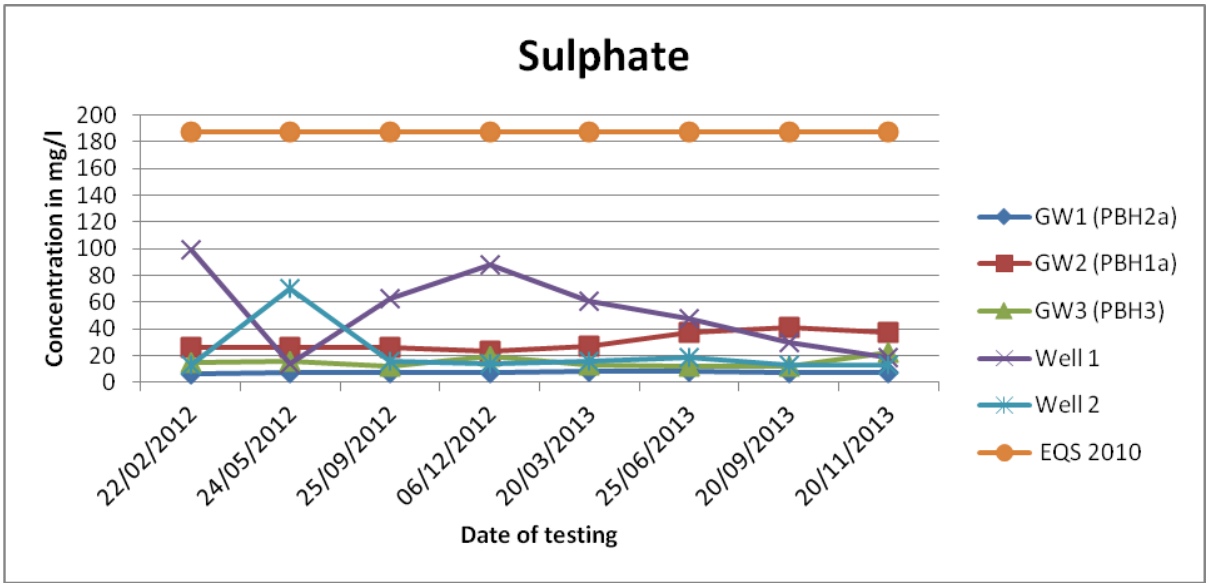
Parameter	Unit	Screening Value*	Detection Limits	Well 2 20/03/2013	Well 2 25/06/2013	Well 2 20/11/2013	Well 2 20/11/2013
EPH Band >C10-C12 (aq)	µg/l		<10				<10
EPH Band >C12-C16 (aq)	µg/l		<10				<10
EPH Band >C16-C21 (aq)	µg/l		<10				<10
EPH Band >C21-C28 (aq)	µg/l		<10				<10
EPH Band >C28-C35 (aq)	µg/l		<10				<10
EPH Band >C35-C40 (aq)	µg/l		<10				<10
EPH Range >C10 - C40 (aq)	µg/l		<46				<46
Acenaphthene (aq)	µg/l		<0.015				<0.015
Acenaphthylene (aq)	µg/l		<0.011				<0.011
Anthracene (aq)	µg/l		<0.015				<0.015
Benzo(a)anthracene (aq)	µg/l		<0.017				<0.017
Benzo(a)pyrene (aq)	µg/l		<0.009				<0.009
Benzo(b)fluoranthene (aq)	µg/l		<0.023				<0.023
Benzo(g,h,i)perylene (aq)	µg/l		<0.016				<0.016
Benzo(k)fluoranthene (aq)	µg/l		<0.027				<0.027
Chrysene (aq)	µg/l		<0.013				<0.013
Dibenzo(a,h)anthracene (aq)	µg/l		<0.016				<0.016
Fluoranthene (aq)	µg/l		<0.017				<0.017
Fluorene (aq)	µg/l		<0.014				<0.014
Indeno(1,2,3-cd)pyrene (aq)	µg/l		<0.014				<0.014
Naphthalene (aq)	µg/l		<0.1				<0.1
PAH, Total Detected USEPA 16 (aq)	µg/l		<0.247				<0.247
Phenanthrene (aq)	µg/l		<0.022				<0.022
Pyrene (aq)	µg/l		<0.015				<0.015

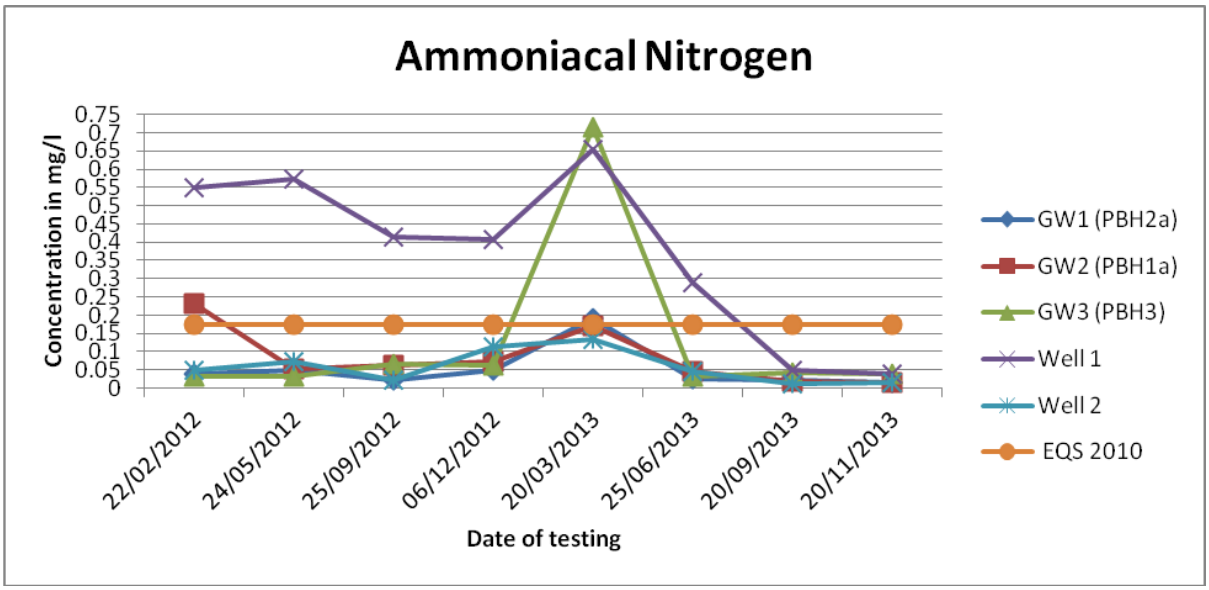
**European Communities Environmental Objectives (Groundwater) Regulations 2010, S.I No. 9 of 2010*

4.3.4 Variation and trends in Groundwater Water Quality

The plots provided below show variations and trends in groundwater water quality for monitored parameters (Chloride, Sulphate, Ammoniacal Nitrogen) from the beginning of 2012. Plots show no indication of sustained increase of monitored parameters concentration over the time.


Chloride
Concentration in mg/l
200
180
160
140
120
100
80
60
40
20
0
22/02/2012
24/05/2012
25/09/2012
06/12/2012
20/03/2013
25/06/2013
20/09/2013
20/11/2013
Date of Testing
GW1 (PBH2a)
GW2 (PBH1a)
GW3 (PBH3)
Well 1
Well 2
EQS 2010


Sulphate
Concentration in mg/l
200
180
160
140
120
100
80
60
40
20
0
22/02/2012
24/05/2012
25/09/2012
06/12/2012
20/03/2013
25/06/2013
20/09/2013
20/11/2013
Date of testing
GW1 (PBH2a)
GW2 (PBH1a)
GW3 (PBH3)
Well 1
Well 2
EQS 2010


Ammoniacal Nitrogen
Concentration in mg/l
0.75
0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
22/02/2012
24/05/2012
25/09/2012
06/12/2012
20/03/2013
25/06/2013
20/09/2013
20/11/2013
Date of testing
GW1 (PBH2a)
GW2 (PBH1a)
GW3 (PBH3)
Well 1
Well 2
EQS 2010

4.4 Topographical Monitoring

No topographical monitoring was carried out in 2013. Therefore it is not possible to provide any definitive estimation of remaining void to be filled. While the rate of recovery and site infilling has been markedly slower than envisaged at the time the waste licence application was submitted, given the uncertain economic climate prevailing at the present time, no definitive site closure / completion date is available.

4.5 Pollutant Release and Transfer Register

No PRTR Electronic Reporting workbook was submitted for Blackhall Soil Recovery Facility for 2013. Blackhall Soil Recovery facility is excluded from the PRTR reporting under the PRTR Regulations (S.I. No. 649 of 2011). Emissions to air, soil and groundwater at the facility are however likely to be minimal and to present a low risk to the environment. No complaints registered in respect of emissions from the facility were registered in 2013.

5.0 NUISANCE CONTROL

5.1 Mud, Dust, Litter

Nuisance controls at the facility include inspections of the facility and amenities immediate to the facility boundary for mud, dust and litter. These are documented in the waste licence application submitted to the Agency in 2008.

6.0 SITE DEVELOPMENTS WORKS

6.1 Engineering Works

Engineering Works carried out in 2013 included installation of waste quarantine and inspection area, weighbridge and surface water drainage run-off (interceptor) tank and 3 No. of groundwater monitoring wells (in March 2014). The Agency will be notified of future engineering works as per Condition 3.3.1 of the waste licence.

6.2 Tanks and Pipeline Testing and Inspection Report

There were no storage tanks and pipelines within the waste site at Blackhall for most of the 2013 calendar year. Therefore no testing of tanks and pipelines was carried out.

6.3 Stability Assessment

No stability monitoring was carried out in 2013.

7.0 RESOURCE USE AND ENERGY EFFICIENCY

7.1 Energy Efficiency Audit

No energy efficiency audit was carried out in 2013. The principal energy use at the facility is in the form of diesel fuel for site plant and machinery and electricity supply to the security office at the gate. It is likely that energy consumption at the Blackhall Soil Recovery Facility in 2013 was relatively low given the limited volume of waste recovered over the year.

7.2 Resource Consumption Summary

Table 7-1 presents an estimate of resources used on-site from January to December 2013.

Table 7-1 Resource Consumption Summary

Energy Stream	Annual Quantity	Units	Period
Electricity	5882	kWh	2013
Diesel	47474	Litres	2013

7.3 Efficiency Assessment

Given the relatively low tech nature of the waste recovery activities undertaken at the facility and the limited scope to introduce innovation or alternative methods of recovery, no efficiency assessment has been undertaken for this facility in 2013.

8.0 WASTE RECEIVED AND CONSIGNED FROM FACILITY

8.1 Waste Management Records

Table 8-1 shows the total quantities of waste received at the waste facility in 2013. A breakdown of the waste types is provided in accordance with the European Waste Catalogue and Hazardous Waste List. The total of quantity of inert soil / construction and demolition waste accepted at the facility between January 2013 and December 2013 was 172040 tonnes.

Table 8-1 Waste Received in 2013

EWC	Description	Waste in (tonnes)
17 05 04	Soils and stones other than those mentioned in 17 05 03	152,040
17 01 01	Concrete	(Cumulative) 20,000
17 01 02	Bricks	
17 01 03	Tiles and Ceramics	
17 01 07	Mixture of concrete, bricks , tiles and ceramics other than those mentioned in 17 01 06	
	Total Received	172,040

8.2 Waste Monitoring

No soil / waste monitoring was carried out in 2013.

8.3 Waste Removed / Rejected

Table 8-2
Waste Rejected in 2013

EWC	Description	Waste (tonnes)
17 05 04	Soils and Stones other than those mentioned in 17 05 03	0

EWC	Description	Waste (tonnes)
17 01 01	Concrete	0
17 01 02	Bricks	0
17 01 03	Tiles and Ceramics	0
17 01 07	Mixture of concrete, bricks , tiles and ceramics other than those mentioned in 17 01 06	0
	Total Rejected	0

8.4 Waste Consigned

Table 8-3
Waste Consigned in 2013

EWC	Description	Waste OUT (Litres)
13 02 05	Waste Oil	0
17 03 02	Bituminous material	0
	Total Consigned	0

9.0 ENVIRONMENTAL INCIDENTS AND COMPLAINTS

9.1 Incidents Summary

There were no environmental incidents during the reporting period.

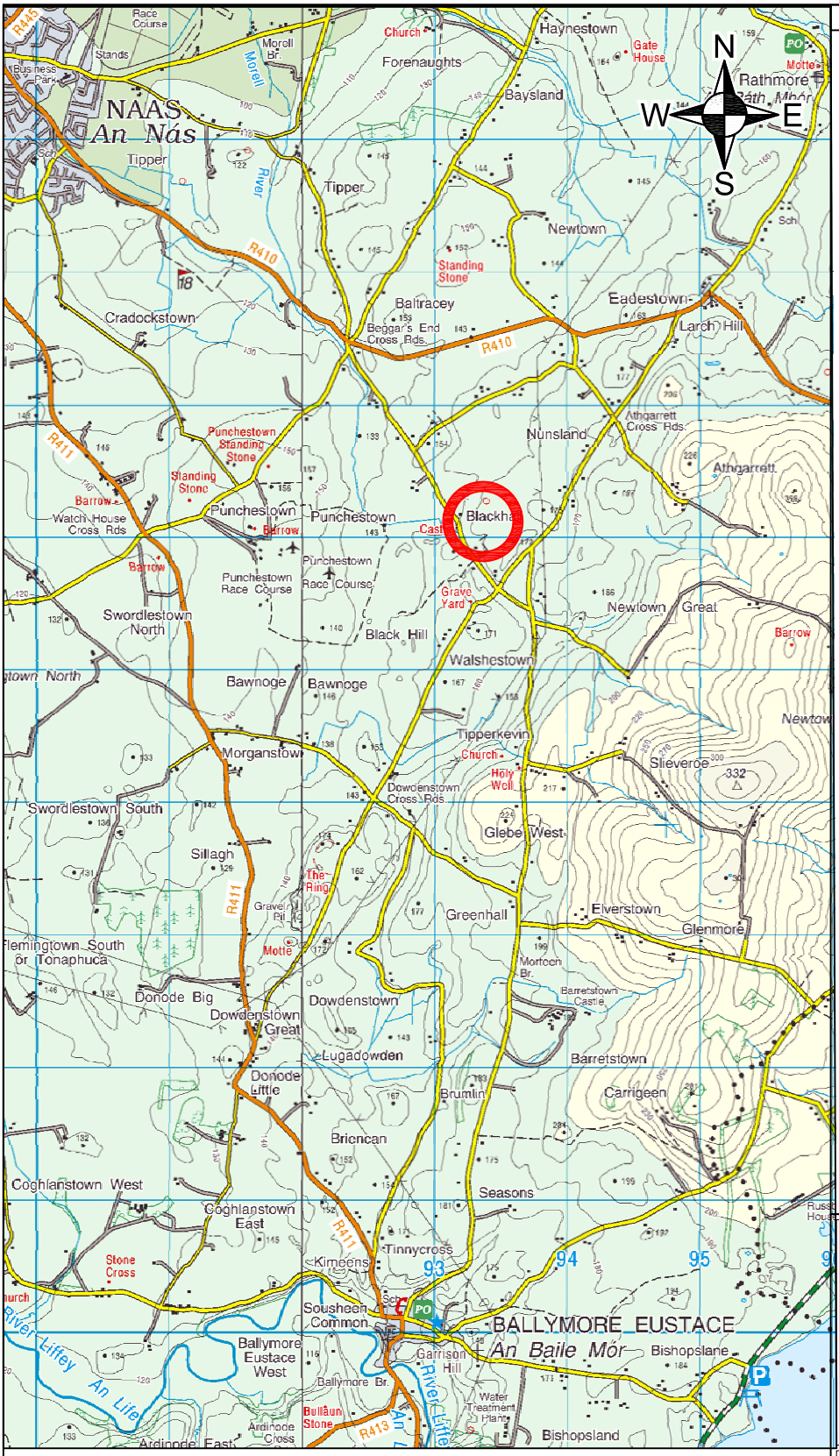
9.2 Register of complaints

There was one complaint received during the reporting period.

FIGURES

Figure 1Site Location Plan
Figure 2Site Layout Plan

APPENDIX A
Monitoring Reports



0 500 1000 1500 2000m 3000 4000 5000

Metres
1:50,000

LEGEND

SITE LOCATION

1. Extract from 1:50,000 O.S. Discovery Series Map No. 56

2. Ordnance Survey Ireland Licence No. SU 00007011 (c) Ordnance Survey Ireland & Government of Ireland

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JOHN BEHAN LAND RESTORATION

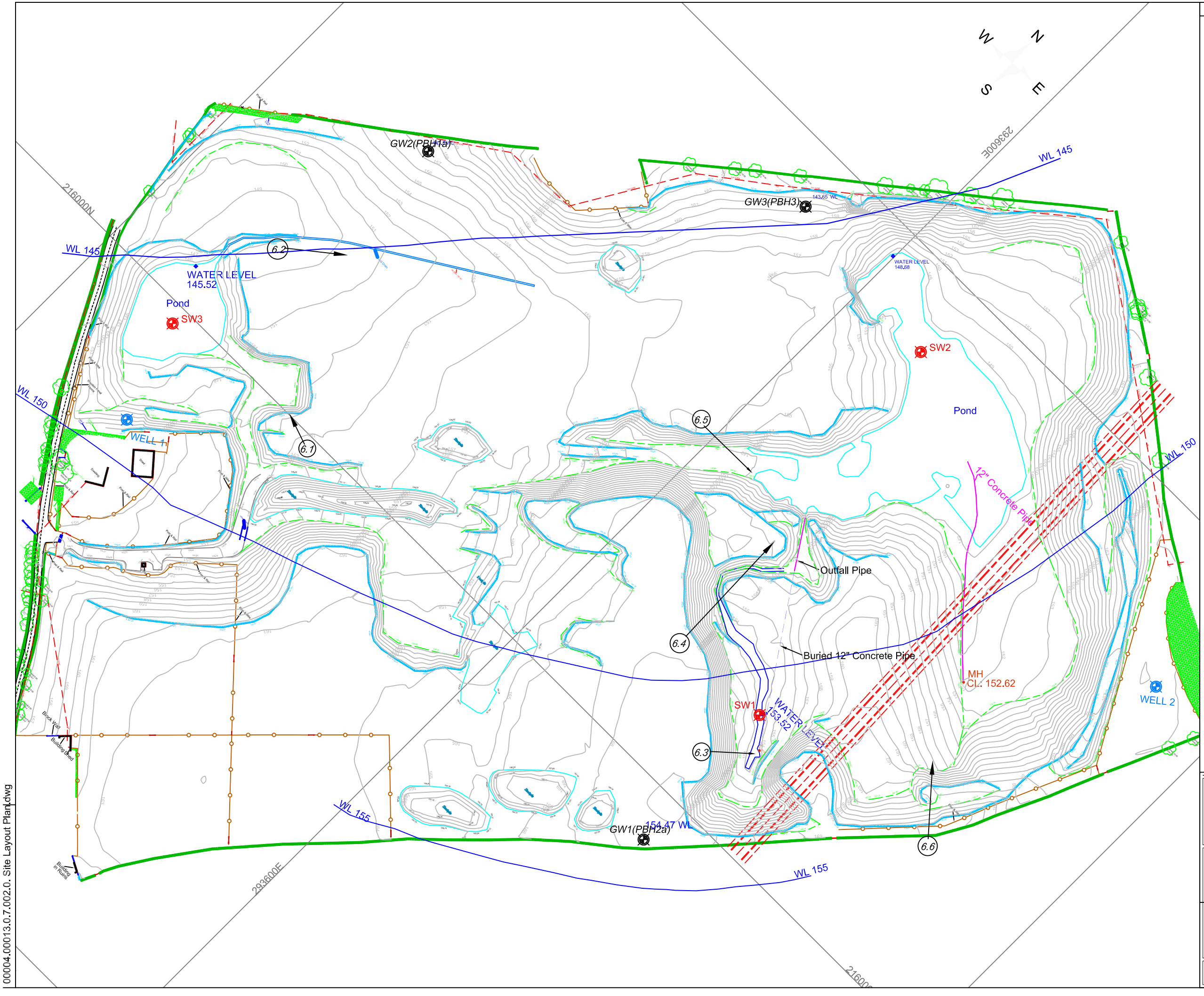
BLACKHALL, PUNCHESTOWN, NAAS, CO. KILDARE

SITE LOCATION PLAN

FIGURE 1

Scale	Date
1:50,000	September 2012

00004.00013.0.7.001.0 Site Location.dwg



LEGEND

1. Survey Provided By Erkina Surveys Ref : 0941-1 Rev.0 Dated 22-08-07

2. Ordnance Survey Ireland Licence No. SU 0000709 (c) Ordnance Survey Ireland & Government of Ireland

- *GATE*
- *DECIDUOUS TREE*
- *MANHOLE (SEWER)*
- *FENCE*
- *2007 BOREHOLE / MONITORING WELL*
- *BUILDING*
- *ESB / EIRCOM POLE & CABLE*
- *EMBANKMENT*
- *TREES*
- *DITCHLINE*
- *GROUNDWATER MONITORING WELL*
- *SURFACE WATER MONITORING WELL*
- *GROUND CONTOURS* (155)
- *GROUND WATER LEVELS* (155)
- 6.5

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www.slrconsulting.com

JOHN BEHAN LAND RESTORATION

BLACKHALL, PUNCHESTOWN
NAAS, CO. KILDARE

SITE LAYOUT PLAN

FIGURE 2

Scale: 1:2,500 @ A3

Date: SEPTEMBER 2012

ALcontrol Laboratories

c/o Aramex
Bellinstown
Ballyboughal
Co Dublin
Tel : +353 (0)184 33033 (Opt 2)

SLR Consulting Ireland
CSA House
Unit 7
Dundrum Business Park
Windy Harbour
Dublin
Dublin14

Attention: Aldona Binchy

CERTIFICATE OF ANALYSIS

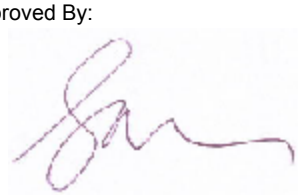
Date:	04 April 2013
Customer:	D_SLRCON_DUB
Sample Delivery Group (SDG):	130322-64
Your Reference:	
Location:	Blackhall
Report No:	218363

We received 7 samples on Thursday March 21, 2013 and 7 of these samples were scheduled for analysis which was completed on Thursday April 04, 2013. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:



Sonia McWhan

Operations Manager

ilac-MRA UKAS TESTING 1291

ALcontrol Laboratories is a trading division of ALcontrol UK Limited
Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No.

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
7118313	GW1			20/03/2013
7118314	GW2			20/03/2013
7118316	GW3			20/03/2013
7118321	SW2			20/03/2013
7118323	SW3			20/03/2013
7118318	WELL1			20/03/2013
7118319	WELL2			20/03/2013

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			7118313	GW1			1plastic (ALE221)
			7118314	GW2			H2SO4 (ALE244)
			7118316	GW3			1plastic (ALE221)
			7118321	SW2			H2SO4 (ALE244)
			7118323	SW3			1plastic (ALE221)
			7118318	WELL1			H2SO4 (ALE244)
			7118319	WELL2			Vial (ALE297)
Ammonium Low	All	NDPs: 0 Tests: 7					
				X	X	X	X		X		X		X	
Anions by Kone (w)	All	NDPs: 0 Tests: 7					
			X		X		X		X		X		X			
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 1					
									X							
VOC MS (W)	All	NDPs: 0 Tests: 3					
								X			X					X

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	GW1	GW2	GW3	SW2	SW3	WELL1
			Depth (m)	.	.	.	.	.	.
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	20/03/2013	20/03/2013	20/03/2013	20/03/2013	20/03/2013	20/03/2013
			Sample Time	.	.	.	.	.	.
			Date Received	21/03/2013	21/03/2013	21/03/2013	21/03/2013	21/03/2013	21/03/2013
			SDG Ref	130322-64	130322-64	130322-64	130322-64	130322-64	130322-64
			Lab Sample No.(s)	7118313	7118314	7118316	7118321	7118323	7118318
			AGS Reference						
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099		0.19 #	0.172 #	0.714 #	0.197 #	1.54 #	0.653 #
Sulphate	<2 mg/l	TM184		8.2 #	26.9 #	12.6 #	12.5 #	89.9 #	61.3 #
Chloride	<2 mg/l	TM184		11 #	13.8 #	13.3 #	12.6 #	19.1 #	14.4 #

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Customer Sample R			WELL2
Depth (m)			.
Sample Type			Water(GW/SW)
Date Sampled			20/03/2013
Sample Time			.
Date Received			21/03/2013
SDG Ref			130322-64
Lab Sample No.(s)			7118319
AGS Reference			
Component	**LOD/Units**	**Method**	
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	0.132 #
Sulphate	<2 mg/l	TM184	15.4 #
Chloride	<2 mg/l	TM184	27.1 #

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Customer Sample R	SW3
Depth (m)	.
Sample Type	Water(GW/SW)
Date Sampled	20/03/2013
Sample Time	.
Date Received	21/03/2013
SDG Ref	130322-64
Lab Sample No.(s)	7118323
AGS Reference	

Component	LOD/Units	Method	
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1
2-Chlorophenol (aq)	<1 µg/l	TM176	<1
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1
2-Methylphenol (aq)	<1 µg/l	TM176	<1
2-Nitroaniline (aq)	<1 µg/l	TM176	<1
2-Nitrophenol (aq)	<1 µg/l	TM176	<1
3-Nitroaniline (aq)	<1 µg/l	TM176	<1
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1
4-Chloroaniline (aq)	<1 µg/l	TM176	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1
4-Methylphenol (aq)	<1 µg/l	TM176	<1
4-Nitrophenol (aq)	<1 µg/l	TM176	<1
4-Nitroaniline (aq)	<1 µg/l	TM176	<1
Azobenzene (aq)	<1 µg/l	TM176	<1
Acenaphthylene (aq)	<1 µg/l	TM176	<1
Acenaphthene (aq)	<1 µg/l	TM176	<1
Anthracene (aq)	<1 µg/l	TM176	<1
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Customer Sample R			SW3					
Depth (m)			.					
Sample Type			Water(GW/SW)					
Date Sampled			20/03/2013					
Sample Time			.					
Date Received			21/03/2013					
SDG Ref			130322-64					
Lab Sample No.(s)			7118323					
AGS Reference								
Component	**LOD/Units**	**Method**						
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1					
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1					
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1					
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1					
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1					
Carbazole (aq)	<1 µg/l	TM176	<1					
Chrysene (aq)	<1 µg/l	TM176	<1					
Dibenzofuran (aq)	<1 µg/l	TM176	<1					
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1					
Diethyl phthalate (aq)	<1 µg/l	TM176	<1					
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1					
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1					
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5					
Fluoranthene (aq)	<1 µg/l	TM176	<1					
Fluorene (aq)	<1 µg/l	TM176	<1					
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1					
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1					
Pentachlorophenol (aq)	<1 µg/l	TM176	<1					
Phenol (aq)	<1 µg/l	TM176	<1					
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1					
Hexachloroethane (aq)	<1 µg/l	TM176	<1					
Nitrobenzene (aq)	<1 µg/l	TM176	<1					
Naphthalene (aq)	<1 µg/l	TM176	<1					
Isophorone (aq)	<1 µg/l	TM176	<1					
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1					
Phenanthrene (aq)	<1 µg/l	TM176	<1					
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1					
Pyrene (aq)	<1 µg/l	TM176	<1					

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	SW2	SW3	WELL2			
			Depth (m)	.	.	.			
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)			
			Date Sampled	20/03/2013	20/03/2013	20/03/2013			
			Sample Time	.	.	.			
			Date Received	21/03/2013	21/03/2013	21/03/2013			
			SDG Ref	130322-64	130322-64	130322-64			
			Lab Sample No.(s)	7118321	7118323	7118319			
			AGS Reference						
Dibromofluoromethane**	%	TM208		116	116	117			
Toluene-d8**	%	TM208		101	101	100			
4-Bromofluorobenzene**	%	TM208		95.9	95.5	96.9			
Dichlorodifluoromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Chloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Vinyl chloride	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Bromomethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Chloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Trichlorofluoromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,1-Dichloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Carbon disulphide	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #			
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1 #	<1 #	<1 #			
trans-1,2-Dichloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,1-Dichloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
cis-1,2-Dichloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
2,2-Dichloropropane	<1 µg/l	TM208		<1	<1	<1			
Bromochloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Chloroform	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,1,1-Trichloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,1-Dichloropropene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Carbontetrachloride	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,2-Dichloroethane	<1 µg/l	TM208		<1	<1	<1			
Benzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Trichloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,2-Dichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Dibromomethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Bromodichloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
cis-1,3-Dichloropropene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Toluene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
trans-1,3-Dichloropropene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,1,2-Trichloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	SW2	SW3	WELL2			
			Depth (m)	.	.	.			
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)			
			Date Sampled	20/03/2013	20/03/2013	20/03/2013			
			Sample Time	.	.	.			
			Date Received	21/03/2013	21/03/2013	21/03/2013			
			SDG Ref	130322-64	130322-64	130322-64			
			Lab Sample No.(s)	7118321	7118323	7118319			
			AGS Reference						
1,3-Dichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Tetrachloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Dibromochloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,2-Dibromoethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Chlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Styrene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Bromoform	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Isopropylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208		<1	<1	<1			
1,2,3-Trichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Bromobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Propylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
2-Chlorotoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
4-Chlorotoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
tert-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,2,4-Trimethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
sec-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
4-iso-Propyltoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,3-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,4-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
n-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,2-Dichlorobenzene	<1 µg/l	TM208		<1	<1	<1			
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		<1	<1	<1			
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Hexachlorobutadiene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Naphthalene	<1 µg/l	TM208		<1 #	<1 #	<1 #			

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	SW2	SW3	WELL2			
			Depth (m)	.	.	.			
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)			
			Date Sampled	20/03/2013	20/03/2013	20/03/2013			
			Sample Time	.	.	.			
			Date Received	21/03/2013	21/03/2013	21/03/2013			
			SDG Ref	130322-64	130322-64	130322-64			
			Lab Sample No.(s)	7118321	7118323	7118319			
			AGS Reference						
1,2,3-Trichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1			

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	7118313	7118314	7118316	7118321	7118323	7118318	7118319
Customer Sample Ref.	GW1	GW2	GW3	SW2	SW3	WELL1	WELL2
AGS Ref.							
Depth							
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammonium Low	04-Apr-2013	04-Apr-2013	04-Apr-2013	04-Apr-2013	04-Apr-2013	04-Apr-2013	04-Apr-2013
Anions by Kone (w)	02-Apr-2013	02-Apr-2013	02-Apr-2013	02-Apr-2013	02-Apr-2013	02-Apr-2013	02-Apr-2013
SVOC MS (W) - Aqueous					01-Apr-2013		
VOC MS (W)				28-Mar-2013	28-Mar-2013		28-Mar-2013

SDG:	130322-64	**Location:**	Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-82	**Customer:**	SLR Consulting Ireland	**Report Number:**	218363
Client Reference:		**Attention:**	Aldona Binchy	**Superseded Report:**	

Appendix
General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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SLR Consulting Ireland
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Unit 7
Dundrum Business Park
Windy Harbour
Dublin
Dublin14

Attention: Aldona Binchy

CERTIFICATE OF ANALYSIS

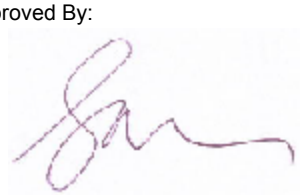
Date:	05 July 2013
Customer:	D_SLRCON_DUB
Sample Delivery Group (SDG):	130627-60
Your Reference:	501.00004.00019
Location:	John Behan
Report No:	231893

We received 7 samples on Wednesday June 26, 2013 and 7 of these samples were scheduled for analysis which was completed on Friday July 05, 2013. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	130627-60	**Location:**	John Behan	**Order Number:**	2077
Job:	D_SLRCON_DUB-73	**Customer:**	SLR Consulting Ireland	**Report Number:**	231893
Client Reference:	501.00004.00019	**Attention:**	Aldona Binchy	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
7663873	GW1			25/06/2013
7663874	GW2			25/06/2013
7663875	GW3			25/06/2013
7663883	SW02			25/06/2013
7663885	SW03			25/06/2013
7663879	WELL1			25/06/2013
7663882	WELL2			25/06/2013

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	130627-60	**Location:**	John Behan	**Order Number:**	2077
Job:	D_SLRCON_DUB-73	**Customer:**	SLR Consulting Ireland	**Report Number:**	231893
Client Reference:	501.00004.00019	**Attention:**	Aldona Binchy	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			7663873	GW1			500ml Plastic (ALE2)
			7663874	GW2			H2SO4 (ALE244)
			7663875	GW3			500ml Plastic (ALE2)
			7663883	SW02			H2SO4 (ALE244)
			7663885	SW03			500ml Plastic (ALE2)
			7663879	WELL1			H2SO4 (ALE244)
			7663882	WELL2			500ml Plastic (ALE2)
							H2SO4 (ALE244)
Ammonium Low	All	NDPs: 0 Tests: 7		X	X	X	X	X	X	X	X
Anions by Kone (w)	All	NDPs: 0 Tests: 7	X	X	X	X	X	X	X		X	

CERTIFICATE OF ANALYSIS

SDG:	130627-60	**Location:**	John Behan	**Order Number:**	2077
Job:	D_SLRCON_DUB-73	**Customer:**	SLR Consulting Ireland	**Report Number:**	231893
Client Reference:	501.00004.00019	**Attention:**	Aldona Binchy	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	GW1	GW2	GW3	SW02	SW03	WELL1
			Depth (m)	.	.	.	.	.	.
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	25/06/2013	25/06/2013	25/06/2013	25/06/2013	25/06/2013	25/06/2013
			Sample Time	.	.	.	.	.	.
			Date Received	26/06/2013	26/06/2013	26/06/2013	26/06/2013	26/06/2013	26/06/2013
			SDG Ref	130627-60	130627-60	130627-60	130627-60	130627-60	130627-60
			Lab Sample No.(s)	7663873	7663874	7663875	7663883	7663885	7663879
			AGS Reference						
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099		0.0255 #	0.0448 #	0.0335 #	0.0625 #	0.0594 #	0.289 #
Sulphate	<2 mg/l	TM184		8.6 #	37.8 #	12.3 #	13 #	135 #	48.2 #
Chloride	<2 mg/l	TM184		11.3 #	13.8 #	15.5 #	13.3 #	20.7 #	16.6 #

CERTIFICATE OF ANALYSIS

SDG:	130627-60	**Location:**	John Behan	**Order Number:**	2077
Job:	D_SLRCON_DUB-73	**Customer:**	SLR Consulting Ireland	**Report Number:**	231893
Client Reference:	501.00004.00019	**Attention:**	Aldona Binchy	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

	Customer Sample R	LOD/Units	Method
	WELL2		
Depth (m)	.		
Sample Type	Water(GW/SW)		
Date Sampled	25/06/2013		
Sample Time	.		
Date Received	26/06/2013		
SDG Ref	130627-60		
Lab Sample No.(s)	7663882		
AGS Reference			
Component		**LOD/Units**	**Method**
Ammoniacal Nitrogen as N (low level)	0.0446 #	<0.01 mg/l	TM099
Sulphate	19.1 #	<2 mg/l	TM184
Chloride	21.6 #	<2 mg/l	TM184

CERTIFICATE OF ANALYSIS

SDG:	130627-60	**Location:**	John Behan	**Order Number:**	2077
Job:	D_SLRCON_DUB-73	**Customer:**	SLR Consulting Ireland	**Report Number:**	231893
Client Reference:	501.00004.00019	**Attention:**	Aldona Binchy	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	130627-60	**Location:**	John Behan	**Order Number:**	2077
Job:	D_SLRCON_DUB-73	**Customer:**	SLR Consulting Ireland	**Report Number:**	231893
Client Reference:	501.00004.00019	**Attention:**	Aldona Binchy	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	7663873	7663874	7663875	7663883	7663885	7663879	7663882
Customer Sample Ref.	GW1	GW2	GW3	SW02	SW03	WELL1	WELL2
AGS Ref.							
Depth							
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammonium Low	01-Jul-2013	01-Jul-2013	01-Jul-2013	01-Jul-2013	01-Jul-2013	01-Jul-2013	01-Jul-2013
Anions by Kone (w)	03-Jul-2013	03-Jul-2013	05-Jul-2013	05-Jul-2013	03-Jul-2013	05-Jul-2013	03-Jul-2013

SDG:	130627-60	**Location:**	John Behan	**Order Number:**	2077
Job:	D_SLRCON_DUB-73	**Customer:**	SLR Consulting Ireland	**Report Number:**	231893
Client Reference:	501.00004.00019	**Attention:**	Aldona Binchy	**Superseded Report:**	

Appendix
General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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SLR Consulting Ireland
CSA House
Unit 7
Dundrum Business Park
Windy Harbour
Dublin
Dublin14

Attention: Aldona Binchy

CERTIFICATE OF ANALYSIS

Date:	02 October 2013
Customer:	D_SLRCON_DUB
Sample Delivery Group (SDG):	130921-29
Your Reference:	501.00004.00024
Location:	
Report No:	244243

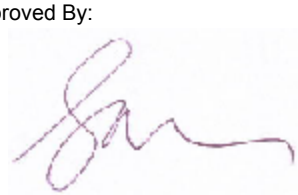
This report has been revised and directly supersedes 243757 in its entirety.

We received 7 samples on Friday September 20, 2013 and 7 of these samples were scheduled for analysis which was completed on Wednesday October 02, 2013. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:



Sonia McWhan

Operations Manager

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Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No.

CERTIFICATE OF ANALYSIS

SDG:	130921-29	**Location:**		**Order Number:**	
Job:	D_SLRCON_DUB-96	**Customer:**	SLR Consulting Ireland	**Report Number:**	244243
Client Reference:	501.00004.00024	**Attention:**	Aldona Binchy	**Superseded Report:**	243757

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
8138465	GW 1			20/09/2013
8138468	GW 2			20/09/2013
8138469	GW 3			20/09/2013
8138471	SW02			20/09/2013
8138473	SW03			20/09/2013
8138462	WELL 1			20/09/2013
8138464	WELL 2			20/09/2013

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	130921-29	**Location:**		**Order Number:**	
Job:	D_SLRCON_DUB-96	**Customer:**	SLR Consulting Ireland	**Report Number:**	244243
Client Reference:	501.00004.00024	**Attention:**	Aldona Binchy	**Superseded Report:**	243757

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			8138465	GW 1			500ml Plastic (ALE2)
			8138468	GW 2			H2SO4 (ALE244)
			8138469	GW 3			500ml Plastic (ALE2)
			8138471	SW02			H2SO4 (ALE244)
			8138473	SW03			500ml Plastic (ALE2)
			8138462	WELL 1			H2SO4 (ALE244)
			8138464	WELL 2			500ml Plastic (ALE2)
							H2SO4 (ALE244)
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 7		X	X	X	X	X	X	X	X
Ammonium Low	All	NDPs: 0 Tests: 7		X	X	X	X	X	X	X	X
Anions by Kone (w)	All	NDPs: 0 Tests: 7	X		X		X	X		X	

CERTIFICATE OF ANALYSIS

SDG:	130921-29	**Location:**		**Order Number:**	
Job:	D_SLRCON_DUB-96	**Customer:**	SLR Consulting Ireland	**Report Number:**	244243
Client Reference:	501.00004.00024	**Attention:**	Aldona Binchy	**Superseded Report:**	243757

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	GW 1	GW 2	GW 3	SW02	SW03	WELL 1
			Depth (m)	.	.	.	.	.	.
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
			Sample Time	.	.	.	.	.	.
			Date Received	20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
			SDG Ref	130921-29	130921-29	130921-29	130921-29	130921-29	130921-29
			Lab Sample No.(s)	8138465	8138468	8138469	8138471	8138473	8138462
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	0.2 #	<0.2 #
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099		0.0227 #	0.0185 #	0.0433 #	0.0718 #	0.144 #	0.048 #
Sulphate	<2 mg/l	TM184		7.5 #	41.5 #	12.4 #	15.4 #	820 #	30.1 #
Chloride	<2 mg/l	TM184		11.3 #	14 #	14.7 #	13.9 #	19.8 #	14.3 #

CERTIFICATE OF ANALYSIS

SDG:	130921-29	**Location:**		**Order Number:**	
Job:	D_SLRCON_DUB-96	**Customer:**	SLR Consulting Ireland	**Report Number:**	244243
Client Reference:	501.00004.00024	**Attention:**	Aldona Binchy	**Superseded Report:**	243757

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Customer Sample R	WELL 2
Depth (m)	.
Sample Type	Water(GW/SW)
Date Sampled	20/09/2013
Sample Time	.
Date Received	20/09/2013
SDG Ref	130921-29
Lab Sample No.(s)	8138464
AGS Reference	

Component	LOD/Units	Method	
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2 #
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	0.0108 #
Sulphate	<2 mg/l	TM184	13.1 #
Chloride	<2 mg/l	TM184	19.5 #

CERTIFICATE OF ANALYSIS

SDG:	130921-29	**Location:**		**Order Number:**	
Job:	D_SLRCON_DUB-96	**Customer:**	SLR Consulting Ireland	**Report Number:**	244243
Client Reference:	501.00004.00024	**Attention:**	Aldona Binchy	**Superseded Report:**	243757

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	130921-29	**Location:**		**Order Number:**	
Job:	D_SLRCON_DUB-96	**Customer:**	SLR Consulting Ireland	**Report Number:**	244243
Client Reference:	501.00004.00024	**Attention:**	Aldona Binchy	**Superseded Report:**	243757

Test Completion Dates

Lab Sample No(s)	8138465	8138468	8138469	8138471	8138473	8138462	8138464
Customer Sample Ref.	GW 1	GW 2	GW 3	SW02	SW03	WELL 1	WELL 2
AGS Ref.							
Depth							
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammoniacal Nitrogen	27-Sep-2013	27-Sep-2013	27-Sep-2013	25-Sep-2013	27-Sep-2013	27-Sep-2013	27-Sep-2013
Ammonium Low	02-Oct-2013	02-Oct-2013	02-Oct-2013	02-Oct-2013	02-Oct-2013	02-Oct-2013	02-Oct-2013
Anions by Kone (w)	28-Sep-2013	28-Sep-2013	28-Sep-2013	28-Sep-2013	28-Sep-2013	28-Sep-2013	28-Sep-2013

SDG:	130921-29	**Location:**		**Order Number:**	
Job:	D_SLRCON_DUB-96	**Customer:**	SLR Consulting Ireland	**Report Number:**	244243
Client Reference:	501.00004.00024	**Attention:**	Aldona Binchy	**Superseded Report:**	243757

Appendix
General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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SLR Consulting Ireland
CSA House
Unit 7
Dundrum Business Park
Windy Harbour
Dublin
Dublin14

Attention: Aldona Binchy

CERTIFICATE OF ANALYSIS

Date:	03 December 2013
Customer:	D_SLRCON_DUB
Sample Delivery Group (SDG):	131122-57
Your Reference:	501.00004.00025
Location:	John Behan Blackhall
Report No:	252343

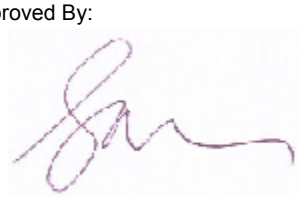
This report has been revised and directly supersedes 252162 in its entirety.

We received 7 samples on Friday November 22, 2013 and 7 of these samples were scheduled for analysis which was completed on Tuesday December 03, 2013. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:



Sonia McWhan

Operations Manager

Alcontrol Laboratories is a trading division of ALcontrol UK Limited
Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
8465040	GW1		0.00 - 0.00	20/11/2013
8465052	GW2		0.00 - 0.00	20/11/2013
8465066	GW3		0.00 - 0.00	20/11/2013
8465092	SW02		0.00 - 0.00	20/11/2013
8465101	SW03		0.00 - 0.00	20/11/2013
8465074	Well1		0.00 - 0.00	20/11/2013
8465084	Well2		0.00 - 0.00	20/11/2013

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

LIQUID

Results Legend

- X Test
- N No Determination Possible

Lab Sample No(s)			8465040				8465052				8465066				8465092				8465101				8465074				8465084			
Customer Sample Reference			GW1				GW2				GW3				SW02				SW03				Well1				Well2			
AGS Reference																														
Depth (m)			0.00 - 0.00				0.00 - 0.00				0.00 - 0.00				0.00 - 0.00				0.00 - 0.00				0.00 - 0.00				0.00 - 0.00			
Container			1l Glass bottle	1lplastic (ALE221)	H2SO4 (ALE244)	Vial (ALE297)	1l Glass bottle	1lplastic (ALE221)	H2SO4 (ALE244)	Vial (ALE297)	1l Glass bottle	1lplastic (ALE221)	H2SO4 (ALE244)	Vial (ALE297)	1l Glass bottle	1lplastic (ALE221)	H2SO4 (ALE244)	Vial (ALE297)	1l Glass bottle	1lplastic (ALE221)	H2SO4 (ALE244)	Vial (ALE297)	1l Glass bottle	1lplastic (ALE221)	H2SO4 (ALE244)	Vial (ALE297)	1l Glass bottle	1lplastic (ALE221)	H2SO4 (ALE244)	Vial (ALE297)
Alkalinity as CaCO3	All	NDPs: 0 Tests: 7		X				X				X				X				X				X				X		
Ammonium Low	All	NDPs: 0 Tests: 7			X				X				X				X				X				X				X	
Anions by Kone (w)	All	NDPs: 0 Tests: 7		X				X				X				X				X				X				X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 7		X				X				X				X				X				X				X		
EPH (DRO) (C10-C40) Aqueous (W)	All	NDPs: 0 Tests: 7	X				X				X				X				X				X				X			
Mercury Dissolved	All	NDPs: 0 Tests: 7	X				X				X				X				X				X				X			
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 7		X				X				X				X				X				X				X		
Metals by iCap-OES Unfiltered (W)	All	NDPs: 0 Tests: 7		X				X				X				X				X				X				X		
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 7	X				X				X				X				X				X				X			
Suspended Solids	All	NDPs: 0 Tests: 7		X				X				X				X				X				X				X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 7	X				X				X				X				X				X				X			
Total Dissolved Solids (Grav)	All	NDPs: 0 Tests: 7		X				X				X				X				X				X				X		
VOC MS (W)	All	NDPs: 0 Tests: 7				X				X				X				X				X				X				X

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW1	GW2	GW3	SW02	SW03	Well1
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013
			Sample Time	.	.	.	.	.	.
			Date Received	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013
			SDG Ref	131122-57	131122-57	131122-57	131122-57	131122-57	131122-57
			Lab Sample No.(s)	8465040	8465052	8465066	8465092	8465101	8465074
			AGS Reference						
Dissolved solids, Total (gravimetric)	<10 mg/l	TM021		312 ♦ #	307 ♦ #	359 ♦ #	319 ♦ #	701 ♦ #	328 ♦ #
Suspended solids, Total	<2 mg/l	TM022		36.5 #	59 #	1520 #	11.5 #	8 #	212 #
Alkalinity, Total as CaCO3	<2 mg/l	TM043		260 #	210 #	585 #	205 #	170 #	280 #
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099		0.014 #	0.0165 #	0.0378 #	0.0621 #	0.0257 #	0.0404 #
Aluminium (diss.filt)	<2.9 µg/l	TM152		<2.9 #	<2.9 #	<2.9 #	<2.9 #	<2.9 #	<2.9 #
Antimony (diss.filt)	<0.16 µg/l	TM152		1.38 #	0.178 #	<0.16 #	1.43 #	7.86 #	<0.16 #
Arsenic (diss.filt)	<0.12 µg/l	TM152		0.188 #	0.393 #	0.467 #	1.46 #	2.08 #	0.379 #
Barium (diss.filt)	<0.03 µg/l	TM152		44.7 #	45.8 #	56.2 #	54.4 #	45.3 #	40 #
Beryllium (diss.filt)	<0.07 µg/l	TM152		<0.07 #	<0.07 #	<0.07 #	<0.07 #	<0.07 #	<0.07 #
Boron (diss.filt)	<9.4 µg/l	TM152		<9.4 #	<9.4 #	<9.4 #	14.2 #	36.3 #	15.5 #
Cadmium (diss.filt)	<0.1 µg/l	TM152		<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Chromium (diss.filt)	<0.22 µg/l	TM152		2.81 #	2.73 #	3.38 #	2.01 #	1.64 #	2.74 #
Cobalt (diss.filt)	<0.06 µg/l	TM152		0.132 #	0.117 #	0.136 #	0.2 #	0.323 #	0.107 #
Copper (diss.filt)	<0.85 µg/l	TM152		<0.85 #	<0.85 #	<0.85 #	0.906 #	6.27 #	<0.85 #
Lead (diss.filt)	<0.02 µg/l	TM152		<0.02 #	<0.02 #	<0.02 #	0.067 #	0.1 #	<0.02 #
Manganese (diss.filt)	<0.04 µg/l	TM152		0.051 #	14.2 #	0.111 #	2.38 #	1.36 #	0.385 #
Molybdenum (diss.filt)	<0.24 µg/l	TM152		0.462 #	1.15 #	0.518 #	1.02 #	7.35 #	0.829 #
Nickel (diss.filt)	<0.15 µg/l	TM152		1.11 #	0.769 #	1 #	2.51 #	4.76 #	0.849 #
Selenium (diss.filt)	<0.39 µg/l	TM152		0.407 #	1.21 #	1.07 #	0.576 #	1.77 #	<0.39 #
Strontium (diss.filt)	<0.05 µg/l	TM152		247 #	173 #	249 #	339 #	659 #	304 #
Thallium (diss.filt)	<0.96 µg/l	TM152		<0.96	<0.96	<0.96	<0.96	<0.96	<0.96
Tin (diss.filt)	<0.36 µg/l	TM152		<0.36 #	0.433 #	<0.36 #	<0.36 #	<0.36 #	<0.36 #
Vanadium (diss.filt)	<0.24 µg/l	TM152		0.623 #	0.739 #	0.833 #	0.912 #	2.34 #	0.618 #
Zinc (diss.filt)	<0.41 µg/l	TM152		1.29 #	2.35 #	0.981 #	6.01 #	2.37 #	0.466 #
EPH Range >C10 - C40 (aq)	<46 µg/l	TM172		<46 #	<46 #	<46 #	<46 #	90.6 #	<46 #
EPH Band >C10-C12 (aq)	<10 µg/l	TM172		<10	<10	<10	<10	<10	<10
EPH Band >C12-C16 (aq)	<10 µg/l	TM172		<10	<10	<10	<10	<10	<10
EPH Band >C16-C21 (aq)	<10 µg/l	TM172		<10	<10	<10	<10	20.8	<10
EPH Band >C21-C28 (aq)	<10 µg/l	TM172		<10	<10	<10	<10	27.7	<10
EPH Band >C35-C40 (aq)	<10 µg/l	TM172		<10	<10	<10	<10	18	<10
EPH Band >C28-C35 (aq)	<10 µg/l	TM172		<10	<10	<10	<10	24.1	<10
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW1	GW2	GW3	SW02	SW03	Well1
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013
			Sample Time	.	.	.	.	.	.
			Date Received	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013
			SDG Ref	131122-57	131122-57	131122-57	131122-57	131122-57	131122-57
			Lab Sample No.(s)	8465040	8465052	8465066	8465092	8465101	8465074
			AGS Reference						
Sulphate	<2 mg/l	TM184		7.5 #	37.4 #	22.7 #	43.4 #	299 #	18.7 #
Chloride	<2 mg/l	TM184		11.1 #	14.4 #	15.9 #	19.8 #	17.9 #	11.4 #
Phosphate (ortho) as PO4	<0.05 mg/l	TM184		<0.05 ♦ #	0.063 ♦ #	0.092 ♦ #	<0.05 ♦ #	<0.05 ♦ #	<0.05 ♦ #
Nitrate as NO3	<0.3 mg/l	TM184		9.24 ♦ #	9.13 ♦ #	19.6 ♦ #	4.96 ♦ #	<0.3 ♦ #	2 ♦ #
Calcium (diss.filt)	<0.012 mg/l	TM228		86.4 #	78.1 #	106 #	77.7 #	156 #	85.4 #
Sodium (diss.filt)	<0.076 mg/l	TM228		7.43 #	12 #	9.27 #	12.8 #	16.3 #	11.2 #
Magnesium (diss.filt)	<0.036 mg/l	TM228		8.41 #	8.28 #	9.4 #	8.55 #	10.4 #	11.9 #
Potassium (diss.filt)	<1 mg/l	TM228		<1 #	<1 #	1.32 #	1.43 #	7.67 #	1.79 #
Iron (diss.filt)	<0.019 mg/l	TM228		<0.019 #	<0.019 #	0.24 #	<0.019 #	0.0299 #	<0.019 #
Hardness, Total as CaCO3 unfiltered	<0.35 mg/l	TM228		270	265	814	247	474	314

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Customer Sample Ref.	Well2
Depth (m)	0.00 - 0.00
Sample Type	Water(GW/SW)
Date Sampled	20/11/2013
Sample Time	.
Date Received	22/11/2013
SDG Ref	131122-57
Lab Sample No.(s)	8465084
AGS Reference	

Component	LOD/Units	Method	
Dissolved solids, Total (gravimetric)	<10 mg/l	TM021	438 ♦ #
Suspended solids, Total	<2 mg/l	TM022	552 #
Alkalinity, Total as CaCO3	<2 mg/l	TM043	380 #
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	0.0154 #
Aluminium (diss.filt)	<2.9 µg/l	TM152	<2.9 #
Antimony (diss.filt)	<0.16 µg/l	TM152	<0.16 #
Arsenic (diss.filt)	<0.12 µg/l	TM152	0.235 #
Barium (diss.filt)	<0.03 µg/l	TM152	57.7 #
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07 #
Boron (diss.filt)	<9.4 µg/l	TM152	<9.4 #
Cadmium (diss.filt)	<0.1 µg/l	TM152	<0.1 #
Chromium (diss.filt)	<0.22 µg/l	TM152	4.75 #
Cobalt (diss.filt)	<0.06 µg/l	TM152	0.113 #
Copper (diss.filt)	<0.85 µg/l	TM152	<0.85 #
Lead (diss.filt)	<0.02 µg/l	TM152	<0.02 #
Manganese (diss.filt)	<0.04 µg/l	TM152	0.051 #
Molybdenum (diss.filt)	<0.24 µg/l	TM152	<0.24 #
Nickel (diss.filt)	<0.15 µg/l	TM152	0.94 #
Selenium (diss.filt)	<0.39 µg/l	TM152	1.44 #
Strontium (diss.filt)	<0.05 µg/l	TM152	254 #
Thallium (diss.filt)	<0.96 µg/l	TM152	<0.96
Tin (diss.filt)	<0.36 µg/l	TM152	<0.36 #
Vanadium (diss.filt)	<0.24 µg/l	TM152	1.16 #
Zinc (diss.filt)	<0.41 µg/l	TM152	1.1 #
EPH Range >C10 - C40 (aq)	<46 µg/l	TM172	<46 #
EPH Band >C10-C12 (aq)	<10 µg/l	TM172	<10
EPH Band >C12-C16 (aq)	<10 µg/l	TM172	<10
EPH Band >C16-C21 (aq)	<10 µg/l	TM172	<10
EPH Band >C21-C28 (aq)	<10 µg/l	TM172	<10
EPH Band >C35-C40 (aq)	<10 µg/l	TM172	<10
EPH Band >C28-C35 (aq)	<10 µg/l	TM172	<10
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 #

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Well2
			Depth (m)	0.00 - 0.00
			Sample Type	Water(GW/SW)
			Date Sampled	20/11/2013
			Sample Time	.
			Date Received	22/11/2013
			SDG Ref	131122-57
			Lab Sample No.(s)	8465084
			AGS Reference	
Sulphate	<2 mg/l	TM184		12.9 #
Chloride	<2 mg/l	TM184		17.8 #
Phosphate (ortho) as PO4	<0.05 mg/l	TM184		0.058 ♦ #
Nitrate as NO3	<0.3 mg/l	TM184		20.1 ♦ #
Calcium (diss.filt)	<0.012 mg/l	TM228		118 #
Sodium (diss.filt)	<0.076 mg/l	TM228		9.86 #
Magnesium (diss.filt)	<0.036 mg/l	TM228		16.8 #
Potassium (diss.filt)	<1 mg/l	TM228		<1 #
Iron (diss.filt)	<0.019 mg/l	TM228		<0.019 #
Hardness, Total as CaCO3 unfiltered	<0.35 mg/l	TM228		587

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW1	GW2	GW3	SW02	SW03	Well1
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013
			Sample Time	.	.	.	.	.	.
			Date Received	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013
			SDG Ref	131122-57	131122-57	131122-57	131122-57	131122-57	131122-57
			Lab Sample No.(s)	8465040	8465052	8465066	8465092	8465101	8465074
			AGS Reference						
Naphthalene (aq)	<0.1 µg/l	TM178		<0.1 ♦ #	<0.1 ♦ #	<0.1 ♦ #	<0.1 ♦ #	<0.1 ♦ #	<0.1 ♦ #
Acenaphthene (aq)	<0.015 µg/l	TM178		<0.015 ♦ #	<0.015 ♦ #	<0.015 ♦ #	<0.015 ♦ #	<0.015 ♦ #	<0.015 ♦ #
Acenaphthylene (aq)	<0.011 µg/l	TM178		<0.011 ♦ #	<0.011 ♦ #	<0.011 ♦ #	<0.011 ♦ #	<0.011 ♦ #	<0.011 ♦ #
Fluoranthene (aq)	<0.017 µg/l	TM178		<0.017 ♦ #	<0.017 ♦ #	<0.017 ♦ #	<0.017 ♦ #	<0.017 ♦ #	<0.017 ♦ #
Anthracene (aq)	<0.015 µg/l	TM178		<0.015 ♦ #	<0.015 ♦ #	<0.015 ♦ #	<0.015 ♦ #	<0.015 ♦ #	<0.015 ♦ #
Phenanthrene (aq)	<0.022 µg/l	TM178		<0.022 ♦ #	<0.022 ♦ #	<0.022 ♦ #	<0.022 ♦ #	<0.022 ♦ #	<0.022 ♦ #
Fluorene (aq)	<0.014 µg/l	TM178		<0.014 ♦ #	<0.014 ♦ #	<0.014 ♦ #	<0.014 ♦ #	<0.014 ♦ #	<0.014 ♦ #
Chrysene (aq)	<0.013 µg/l	TM178		<0.013 ♦ #	<0.013 ♦ #	<0.013 ♦ #	<0.013 ♦ #	<0.013 ♦ #	<0.013 ♦ #
Pyrene (aq)	<0.015 µg/l	TM178		<0.015 ♦ #	<0.015 ♦ #	<0.015 ♦ #	<0.015 ♦ #	0.0158 ♦ #	<0.015 ♦ #
Benzo(a)anthracene (aq)	<0.017 µg/l	TM178		<0.017 ♦ #	<0.017 ♦ #	<0.017 ♦ #	<0.017 ♦ #	<0.017 ♦ #	<0.017 ♦ #
Benzo(b)fluoranthene (aq)	<0.023 µg/l	TM178		<0.023 ♦ #	<0.023 ♦ #	<0.023 ♦ #	<0.023 ♦ #	<0.023 ♦ #	<0.023 ♦ #
Benzo(k)fluoranthene (aq)	<0.027 µg/l	TM178		<0.027 ♦ #	<0.027 ♦ #	<0.027 ♦ #	<0.027 ♦ #	<0.027 ♦ #	<0.027 ♦ #
Benzo(a)pyrene (aq)	<0.009 µg/l	TM178		<0.009 ♦ #	<0.009 ♦ #	<0.009 ♦ #	<0.009 ♦ #	0.0139 ♦ #	<0.009 ♦ #
Dibenzo(a,h)anthracene (aq)	<0.016 µg/l	TM178		<0.016 ♦ #	<0.016 ♦ #	<0.016 ♦ #	<0.016 ♦ #	<0.016 ♦ #	<0.016 ♦ #
Benzo(g,h,i)perylene (aq)	<0.016 µg/l	TM178		<0.016 ♦ #	<0.016 ♦ #	<0.016 ♦ #	<0.016 ♦ #	<0.016 ♦ #	<0.016 ♦ #
Indeno(1,2,3-cd)pyrene (aq)	<0.014 µg/l	TM178		<0.014 ♦ #	<0.014 ♦ #	<0.014 ♦ #	<0.014 ♦ #	<0.014 ♦ #	<0.014 ♦ #
PAH, Total Detected USEPA 16 (aq)	<0.247 µg/l	TM178		<0.247 ♦	<0.247 ♦	<0.247 ♦	<0.247 ♦	<0.247 ♦	<0.247 ♦

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

PAH Spec MS - Aqueous (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&♦§@	Sample deviation (see appendix)

Customer Sample Ref.	Well2							
Depth (m)	0.00 - 0.00							
Sample Type	Water(GW/SW)							
Date Sampled	20/11/2013							
Sample Time	.							
Date Received	22/11/2013							
SDG Ref	131122-57							
Lab Sample No.(s)	8465084							
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene (aq)	<0.1 µg/l	TM178	<0.1 ♦ #					
Acenaphthene (aq)	<0.015 µg/l	TM178	<0.015 ♦ #					
Acenaphthylene (aq)	<0.011 µg/l	TM178	<0.011 ♦ #					
Fluoranthene (aq)	<0.017 µg/l	TM178	<0.017 ♦ #					
Anthracene (aq)	<0.015 µg/l	TM178	<0.015 ♦ #					
Phenanthrene (aq)	<0.022 µg/l	TM178	<0.022 ♦ #					
Fluorene (aq)	<0.014 µg/l	TM178	<0.014 ♦ #					
Chrysene (aq)	<0.013 µg/l	TM178	<0.013 ♦ #					
Pyrene (aq)	<0.015 µg/l	TM178	<0.015 ♦ #					
Benzo(a)anthracene (aq)	<0.017 µg/l	TM178	<0.017 ♦ #					
Benzo(b)fluoranthene (aq)	<0.023 µg/l	TM178	<0.023 ♦ #					
Benzo(k)fluoranthene (aq)	<0.027 µg/l	TM178	<0.027 ♦ #					
Benzo(a)pyrene (aq)	<0.009 µg/l	TM178	<0.009 ♦ #					
Dibenzo(a,h)anthracene (aq)	<0.016 µg/l	TM178	<0.016 ♦ #					
Benzo(g,h,i)perylene (aq)	<0.016 µg/l	TM178	<0.016 ♦ #					
Indeno(1,2,3-cd)pyrene (aq)	<0.014 µg/l	TM178	<0.014 ♦ #					
PAH, Total Detected USEPA 16 (aq)	<0.247 µg/l	TM178	<0.247 ♦					

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW1	GW2	GW3	SW02	SW03	Well1
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013
			Sample Time	.	.	.	.	.	.
			Date Received	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013
			SDG Ref	131122-57	131122-57	131122-57	131122-57	131122-57	131122-57
			Lab Sample No.(s)	8465040	8465052	8465066	8465092	8465101	8465074
			AGS Reference						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<2 #	<2 #	<2 #	<2 #	<2 #	<2 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Carbazole (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW1	GW2	GW3	SW02	SW03	Well1
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013
			Sample Time	.	.	.	.	.	.
			Date Received	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013
			SDG Ref	131122-57	131122-57	131122-57	131122-57	131122-57	131122-57
			Lab Sample No.(s)	8465040	8465052	8465066	8465092	8465101	8465074
			AGS Reference						
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
Hexachlorobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
Phenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Isophorone (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
SVOC TIC (aq)	-	TM176		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
bis(2-Chloroisopropyl)ether (TIC) (aq)	-	TM176		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Anthroquinone (TIC) (aq)	-	TM176		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Aniline (TIC) (aq)	-	TM176		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Biphenyl (TIC) (aq)	-	TM176		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2,6-Dichlorophenol (TIC) (aq)	-	TM176		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Customer Sample Ref.			Well2
Depth (m)			0.00 - 0.00
Sample Type			Water(GW/SW)
Date Sampled			20/11/2013
Sample Time			.
Date Received			22/11/2013
SDG Ref			131122-57
Lab Sample No.(s)			8465084
AGS Reference			
Component	**LOD/Units**	**Method**	
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176	<1
Azobenzene (aq)	<1 µg/l	TM176	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1 #
Carbazole (aq)	<1 µg/l	TM176	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176	<1 #

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

	Customer Sample Ref.	Well2
	Depth (m)	0.00 - 0.00
	Sample Type	Water(GW/SW)
	Date Sampled	20/11/2013
	Sample Time	.
	Date Received	22/11/2013
	SDG Ref	131122-57
	Lab Sample No.(s)	8465084
	AGS Reference	

Component	LOD/Units	Method	
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 #
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176	<1
Phenol (aq)	<1 µg/l	TM176	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176	<1 #
Isophorone (aq)	<1 µg/l	TM176	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1 #
SVOC TIC (aq)	-	TM176	Not Detected
bis(2-Chloroisopropyl)ether (TIC) (aq)	-	TM176	Not Detected
Anthroquinone (TIC) (aq)	-	TM176	Not Detected
Aniline (TIC) (aq)	-	TM176	Not Detected
Biphenyl (TIC) (aq)	-	TM176	Not Detected
2,6-Dichlorophenol (TIC) (aq)	-	TM176	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

VOC MS (W)

Results Legend		Customer Sample Ref.	GW1	GW2	GW3	SW02	SW03	Well1
#	ISO17025 accredited.							
M	*m*CERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.	Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
tot.unfilt	Total / unfiltered sample.	Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
*	Subcontracted test.	Date Sampled	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Sample Time	.	.	.	.	.	.
		Date Received	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013
		SDG Ref	131122-57	131122-57	131122-57	131122-57	131122-57	131122-57
(F)	Trigger breach confirmed	Lab Sample No.(s)	8465040	8465052	8465066	8465092	8465101	8465074
1-4&+§@	Sample deviation (see appendix)	AGS Reference						

Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM208	107	106	109	108	107	107
Toluene-d8**	%	TM208	100	101	99.3	99.7	99.6	100
4-Bromofluorobenzene**	%	TM208	97.2	94.8	96.1	97.1	96	98.3
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Chloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Vinyl chloride	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Trichlorofluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Carbon disulphide	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dichloromethane	<3 µg/l	TM208	<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chloroform	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Carbontetrachloride	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Benzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Trichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dibromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromodichloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW1	GW2	GW3	SW02	SW03	Well1
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013
			Sample Time	.	.	.	.	.	.
			Date Received	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013
			SDG Ref	131122-57	131122-57	131122-57	131122-57	131122-57	131122-57
			Lab Sample No.(s)	8465040	8465052	8465066	8465092	8465101	8465074
			AGS Reference						
1,3-Dichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Tetrachloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dibromochloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromoethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Chlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Styrene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromoform	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Isopropylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Bromobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Propylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

VOC MS (W)

Results Legend		Customer Sample Ref.	GW1	GW2	GW3	SW02	SW03	Well1
#	ISO17025 accredited.							
M	*m*CERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.	Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
tot.unfilt	Total / unfiltered sample.	Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
*	Subcontracted test.	Date Sampled	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013	20/11/2013
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Sample Time	.	.	.	.	.	.
		Date Received	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013	22/11/2013
		SDG Ref	131122-57	131122-57	131122-57	131122-57	131122-57	131122-57
(F)	Trigger breach confirmed	Lab Sample No.(s)	8465040	8465052	8465066	8465092	8465101	8465074
1-4&+§@	Sample deviation (see appendix)	AGS Reference						

Component	LOD/Units	Method						
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

VOC MS (W)

Results Legend		Customer Sample Ref.	Well2
#	ISO17025 accredited.		
M	*m*CERTS accredited.		
aq	Aqueous / settled sample.	Depth (m)	0.00 - 0.00
diss.filt	Dissolved / filtered sample.	Sample Type	Water(GW/SW)
tot.unfilt	Total / unfiltered sample.	Date Sampled	20/11/2013
*	Subcontracted test.	Sample Time	.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Date Received	22/11/2013
		SDG Ref	131122-57
(F)	Trigger breach confirmed	Lab Sample No.(s)	8465084
1-4&+§@	Sample deviation (see appendix)	AGS Reference	

Component	LOD/Units	Method	
Dibromofluoromethane**	%	TM208	106
Toluene-d8**	%	TM208	99.5
4-Bromofluorobenzene**	%	TM208	96.8
Dichlorodifluoromethane	<1 µg/l	TM208	<1
Chloromethane	<1 µg/l	TM208	<1 #
Vinyl chloride	<1 µg/l	TM208	<1 #
Bromomethane	<1 µg/l	TM208	<1 #
Chloroethane	<1 µg/l	TM208	<1 #
Trichlorofluoromethane	<1 µg/l	TM208	<1 #
1,1-Dichloroethene	<1 µg/l	TM208	<1 #
Carbon disulphide	<1 µg/l	TM208	<1 #
Dichloromethane	<3 µg/l	TM208	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #
1,1-Dichloroethane	<1 µg/l	TM208	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #
2,2-Dichloropropane	<1 µg/l	TM208	<1
Bromochloromethane	<1 µg/l	TM208	<1 #
Chloroform	<1 µg/l	TM208	<1 #
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #
1,1-Dichloropropene	<1 µg/l	TM208	<1 #
Carbontetrachloride	<1 µg/l	TM208	<1 #
1,2-Dichloroethane	<1 µg/l	TM208	<1
Benzene	<1 µg/l	TM208	<1 #
Trichloroethene	<1 µg/l	TM208	<1 #
1,2-Dichloropropane	<1 µg/l	TM208	<1 #
Dibromomethane	<1 µg/l	TM208	<1 #
Bromodichloromethane	<1 µg/l	TM208	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #
Toluene	<1 µg/l	TM208	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Well2
			Depth (m)	0.00 - 0.00
			Sample Type	Water(GW/SW)
			Date Sampled	20/11/2013
			Sample Time	.
			Date Received	22/11/2013
			SDG Ref	131122-57
			Lab Sample No.(s)	8465084
			AGS Reference	
1,3-Dichloropropane	<1 µg/l	TM208		<1 #
Tetrachloroethene	<1 µg/l	TM208		<1 #
Dibromochloromethane	<1 µg/l	TM208		<1 #
1,2-Dibromoethane	<1 µg/l	TM208		<1 #
Chlorobenzene	<1 µg/l	TM208		<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1 #
Ethylbenzene	<1 µg/l	TM208		<1 #
m,p-Xylene	<1 µg/l	TM208		<1 #
o-Xylene	<1 µg/l	TM208		<1 #
Styrene	<1 µg/l	TM208		<1 #
Bromoform	<1 µg/l	TM208		<1 #
Isopropylbenzene	<1 µg/l	TM208		<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208		<1
1,2,3-Trichloropropane	<1 µg/l	TM208		<1 #
Bromobenzene	<1 µg/l	TM208		<1 #
Propylbenzene	<1 µg/l	TM208		<1 #
2-Chlorotoluene	<1 µg/l	TM208		<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1 #
4-Chlorotoluene	<1 µg/l	TM208		<1 #
tert-Butylbenzene	<1 µg/l	TM208		<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208		<1 #
sec-Butylbenzene	<1 µg/l	TM208		<1 #
4-iso-Propyltoluene	<1 µg/l	TM208		<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208		<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208		<1 #
n-Butylbenzene	<1 µg/l	TM208		<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208		<1
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1 #
Hexachlorobutadiene	<1 µg/l	TM208		<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1 #
Naphthalene	<1 µg/l	TM208		<1 #

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Well2
			Depth (m)	0.00 - 0.00
			Sample Type	Water(GW/SW)
			Date Sampled	20/11/2013
			Sample Time	.
			Date Received	22/11/2013
			SDG Ref	131122-57
			Lab Sample No.(s)	8465084
			AGS Reference	
1,2,3-Trichlorobenzene	<1 µg/l	TM208		<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM021	Method 2540C, AWWA/APHA, 20th Ed., 1999	Determination of total dissolved solids in waters by gravimetry.		
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters		
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM191	Standard Methods for the examination of waters and wastewaters 16th Edition, ALPHA, Washington DC, USA. ISBN 0-87553-131-8.	Determination of Unfiltered Metals in Water Matrices by ICP-MS		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

Test Completion Dates

Lab Sample No(s)	8465040	8465052	8465066	8465092	8465101	8465074	8465084
Customer Sample Ref.	GW1	GW2	GW3	SW02	SW03	Well1	Well2
AGS Ref.							
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Alkalinity as CaCO3	25-Nov-2013	25-Nov-2013	25-Nov-2013	25-Nov-2013	25-Nov-2013	25-Nov-2013	25-Nov-2013
Ammonium Low	28-Nov-2013	02-Dec-2013	02-Dec-2013	28-Nov-2013	02-Dec-2013	02-Dec-2013	02-Dec-2013
Anions by Kone (w)	29-Nov-2013	28-Nov-2013	28-Nov-2013	29-Nov-2013	28-Nov-2013	28-Nov-2013	28-Nov-2013
Dissolved Metals by ICP-MS	27-Nov-2013	27-Nov-2013	27-Nov-2013	27-Nov-2013	27-Nov-2013	27-Nov-2013	27-Nov-2013
EPH (DRO) (C10-C40) Aqueous (W)	28-Nov-2013	28-Nov-2013	28-Nov-2013	28-Nov-2013	28-Nov-2013	28-Nov-2013	28-Nov-2013
Mercury Dissolved	28-Nov-2013	28-Nov-2013	28-Nov-2013	28-Nov-2013	28-Nov-2013	28-Nov-2013	28-Nov-2013
Metals by iCap-OES Dissolved (W)	26-Nov-2013	26-Nov-2013	26-Nov-2013	26-Nov-2013	26-Nov-2013	26-Nov-2013	26-Nov-2013
Metals by iCap-OES Unfiltered (W)	27-Nov-2013	27-Nov-2013	27-Nov-2013	27-Nov-2013	27-Nov-2013	27-Nov-2013	27-Nov-2013
Nitrite by Kone (w)	27-Nov-2013	26-Nov-2013	26-Nov-2013	27-Nov-2013	27-Nov-2013	26-Nov-2013	26-Nov-2013
PAH Spec MS - Aqueous (W)	02-Dec-2013	02-Dec-2013	02-Dec-2013	29-Nov-2013	02-Dec-2013	02-Dec-2013	02-Dec-2013
Suspended Solids	26-Nov-2013	27-Nov-2013	27-Nov-2013	26-Nov-2013	26-Nov-2013	27-Nov-2013	27-Nov-2013
SVOC MS (W) - Aqueous	02-Dec-2013	02-Dec-2013	02-Dec-2013	02-Dec-2013	02-Dec-2013	02-Dec-2013	02-Dec-2013
Total Dissolved Solids (Grav)	26-Nov-2013	26-Nov-2013	26-Nov-2013	26-Nov-2013	27-Nov-2013	26-Nov-2013	26-Nov-2013
VOC MS (W)	26-Nov-2013	26-Nov-2013	26-Nov-2013	26-Nov-2013	26-Nov-2013	26-Nov-2013	26-Nov-2013

SDG:	131122-57	**Location:**	John Behan Blackhall	**Order Number:**	
Job:	D_SLRCON_DUB-99	**Customer:**	SLR Consulting Ireland	**Report Number:**	252343
Client Reference:	501.00004.00025	**Attention:**	Aldona Binchy	**Superseded Report:**	252162

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt . However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5 -C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than :-

Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.