Caulmert Limited

Engineering, Environmental & Planning
Consultancy Services

Standard Landfill Site

Flintshire County Council Waste Management Services

Quarterly Monitoring Review

January – March 2015

Prepared by:

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APPROVAL RECORD

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Approved	Jim McClymont	**Date**	30.04.2015

DISCLAIMER

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1.0 INTRODUCTION

1.1 Background

1.1.1 This report has been compiled in accordance with the Environmental Permit for Standard Landfill Site, Buckley, which requires a quarterly review of the environmental monitoring data collected at the site. The data reviewed by this report was collected between the 1st of January and the 31st of March 2015.

1.1.2 This report records and discusses the monitoring data collected for landfill gas, groundwater, leachate, and surface water. For details regarding the site location, surrounding land-use, site history and development and environmental context please refer to the Standard Landfill Site Annual Monitoring Review 2014, document reference 1902.14.FCC.SDB.JDM.A0, submitted to Natural Resources Wales by Caulmert Ltd, on behalf of Flintshire County Council Waste Management Services in January 2015.

2.0 LANDFILL GAS

2.1 Introduction

2.1.1 Routine landfill gas (LFG) monitoring was carried out on a weekly basis at 29 perimeter boreholes during the review period. Methane, carbon dioxide, oxygen, relative pressure and atmospheric pressure were recorded at each borehole.

2.1.2 Borehole locations are shown on the drawing entitled 'Environmental Monitoring Locations' enclosed. A summary table displaying methane and carbon dioxide concentrations and can be found in Appendix 1.

2.2 Methane

2.2.1 Methane was only detected in BH22, with an average concentration of 0.3 %. A methane trigger level of 1.0 % was proposed for BH22 in EPR Compliance Assessment Report (CAR) ID 37073/0202764 issued by Natural Resources Wales (NRW) on the 27th of February 2014. The proposed trigger level was not exceeded at BH22 during this review period, with a maximum concentration of 0.5 %.

2.3 Carbon Dioxide

2.3.1 Carbon dioxide trigger levels were agreed with the Environment Agency during Q3 of 2011 and can be found in Appendix 1 along with the monitoring data. The carbon dioxide trigger values for boreholes BH16 and BH22, 3.0 % and 3.1 % respectively, were approved in EPR Compliance Assessment Report (CAR) ID 37073/0202764.

2.3.2 Carbon dioxide concentrations remained below the trigger levels in all locations throughout the review period.

3.0 GROUNDWATER

3.1 Introduction

3.1.1 During the review period groundwater levels were recorded on a monthly basis at seven groundwater monitoring boreholes, GW1, GW2, GW3, GW4R, GW5, GW6 and GW7R. Samples were collected from GW1, GW3, GW5 and GW6 and analysed for the quarterly suite of parameters listed below:

Carbon, Inorganics, Filtered (Dissolved) Metals, Mineral Oil/Oil & Greases and TPH CWG.

3.2 Groundwater Levels

3.2.1 Groundwater level data was recorded on a monthly basis in meters below ground level (mbgl), where borehole cover level data was available this also resulted in a calculation for groundwater level in metres above Ordnance Datum (mAOD).

3.2.2 Groundwater levels, in mBGL and mAOD are displayed in a summary table included in Appendix 2. Groundwater levels decreased over the review period in GW1, GW3 and GW6 and remained stable at all other locations. GW2 was dry during the review period and GW7R was recorded with a blockage, providing an inaccurate level reading in March.

3.2.3 During this review period and historically, boreholes GW2, GW4 and GW7R have been blocked and no samples have been retrieved. These boreholes were remediated in early April, therefore samples can now be collected, and results will be included in the next quarterly review (April – June 2015).

3.3 Groundwater Quality

3.3.1 Samples were collected from GW1, GW3, GW5 and GW6 on the 1st of April 2015. A groundwater quality summary table for this review period is included in Appendix 2.

3.3.2 GW6 continues to exhibit elevated concentrations of several parameters, following the leachate outbreak which was detected at the north west edge of the site, close to gas monitoring borehole 2.2 in May 2013.

3.3.3 Ammoniacal nitrogen concentration in GW6 was 75.5 mg/l, slightly lower than the 82.9 mg/l recorded in the previous review period. Highest concentrations of the metals cadmium, chromium, copper, lead, magnesium, manganese, nickel, potassium, sodium and zinc were detected in GW6. Chemical oxygen demand at GW6 was 225 mg/l.

3.3.4 Ammoniacal nitrogen concentrations were comparatively low in GW1 (1.12 mg/l), GW3 (0.8 mg/l) and GW5 (2.98 mg/l). COD in GW1, GW3 and GW5 was 280 mg/l, 28.5 mg/l and 225 mg/l respectively.

3.3.5 No toluene or xylenes were detected in any of the groundwater locations.

4.0 LEACHATE

4.1 Introduction

4.1.1 Leachate levels were recorded monthly at nine leachate monitoring locations, LC2.1, LC3, LC4, LC7, S1, S2, S3, SSR5 (LS5) and SSR6 (LS6). Additionally, samples from LC chambers were analysed for the quarterly suite of determinants listed below:

Carbon, Inorganics and Filtered (Dissolved) Metals,

4.1.2 Well locations are shown on the Environmental Monitoring Location drawing enclosed.

4.2 Leachate Levels

4.2.1 Leachate levels were recorded on a monthly basis. A summary table displaying leachate levels, in metres below ground level (mbgl) and in metres above Ordnance Datum (mAOD), can be found in Appendix 3.

4.2.2 Table 1 below displays minimum, maximum and average leachate head levels in metres above well base. Average levels range between 1.33 m above well base in LC4 to 1.74 m above well base in LC3.

Table 1: Leachate Head Levels in metres above well base

Location	Leachate head (m above cell base)		
	Min	Max	Average
LC2.1	1.44	1.49	1.47
LC3	1.70	1.79	1.74
LC4	1.29	1.35	1.33
LC7	1.79	1.89	1.85
LS5	1.35	1.39	1.37
LS6	1.52	1.55	1.54
S1	1.32	1.41	1.37
S2	1.60	1.64	1.63
S3	1.40	1.50	1.46

4.3 Leachate Quality

4.3.1 Quarterly leachate quality sampling was undertaken at four monitoring locations (LC2, LC3, LC4 and LC7). A summary of the analysis is shown in Table 3.2 in Appendix 3.

4.3.2 Concentrations of ammoniacal nitrogen within the leachate ranged between 372 mg/l in LC2 and a maximum concentration of 1180 mg/l in LC3.

5.0 SURFACE WATER

5.1 Introduction

5.1.1 Surface water samples are collected at four locations; SW1, SW2, SW4 and SW5 which are shown on the Environmental Monitoring Locations drawing enclosed.

5.1.2 Surface water samples were analysed on one occasion for the following parameters:

Ammoniacal nitrogen, chloride, chemical oxygen demand (COD), electrical conductivity and pH.

5.1.3 Surface water samples collected on the 1st of April 2015 were also analysed for the quarterly suite below:

Inorganics, Filtered (Dissolved) Metals, phenols, combined Pesticides and Herbicides.

5.1.4 Summary tables displaying the surface water analysis results are presented in Appendix 4.

5.2 Surface Water Quality

5.2.1 Average ammoniacal nitrogen concentrations ranged between <0.2 mg/l in SW2, SW4 and SW5 to 0.8 mg/l in SW1. Average chemical oxygen demand ranged between 17.4 mg/l in SW4 and 1010 mg/l in SW1. pH in the surface water ranged between an average of 7.6 in SW1 to 8.1 in SW5.

5.2.2 No phenols or combined pesticides and herbicides were detected at any of the surface water locations during this review period.

6.0 CONCLUSIONS

6.1 Landfill gas

6.1.1 None of the permitted trigger levels for carbon dioxide were exceeded during this review period.

6.1.2 Methane was only detected in BH22, remaining below the trigger level of 1.0 % throughout the review period, with an average concentration of 0.3 %.

6.2 Groundwater

6.2.1 Groundwater quality was generally good in all locations, with the exception of GW6.

6.2.2 GW6 continued to display the highest concentrations of most parameters potentially due to the residual impact of the leachate outbreak close to this borehole which was detected in May 2013.

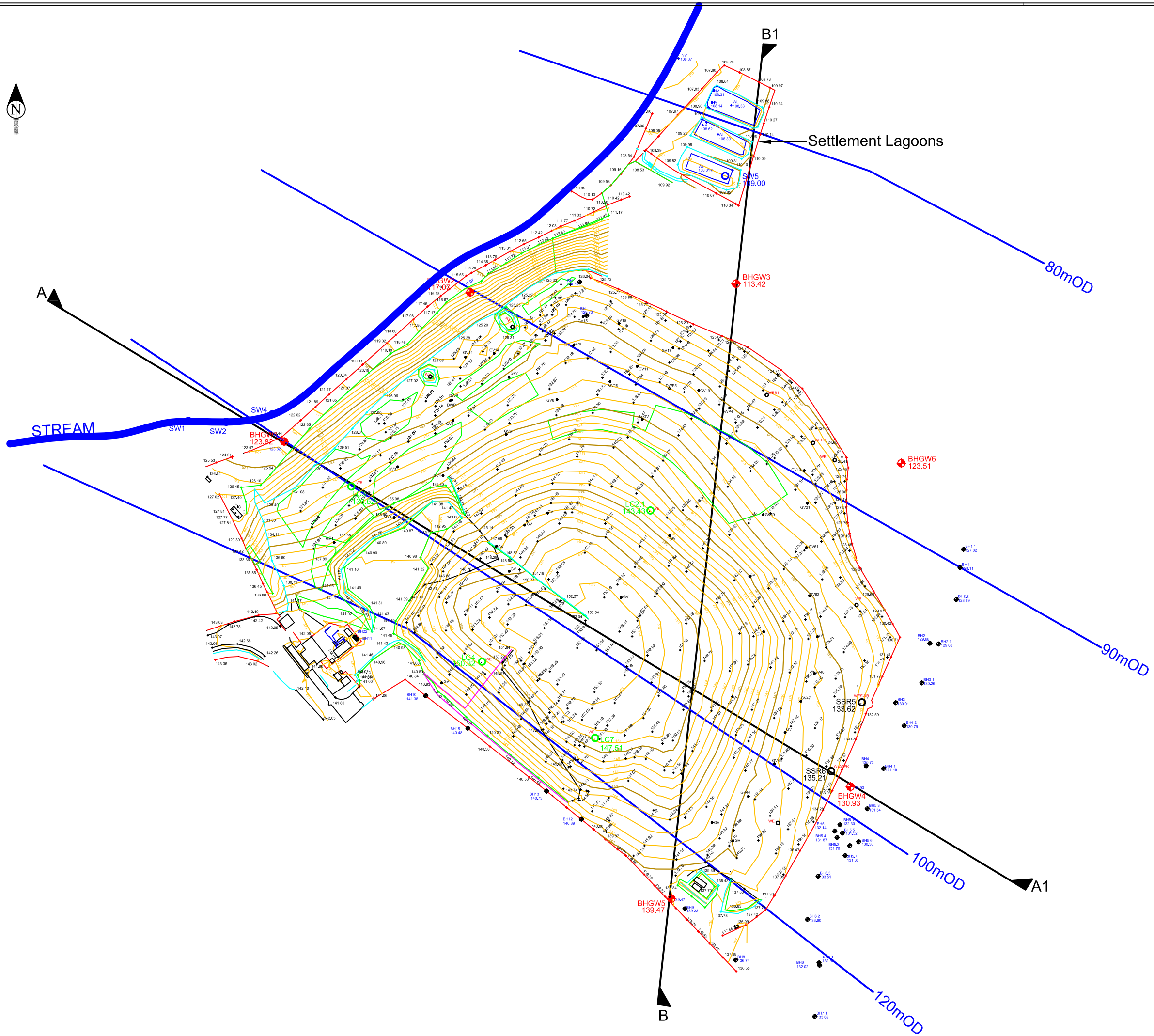
6.3 Leachate

6.3.1 Leachate levels remained low for the duration of the review period.

6.3.2 Leachate quality results indicate that a medium to strong leachate is present. This is to be expected given the age of the waste mass and the closed and capped nature of the site.

6.4 Surface Water

6.4.1 Surface water quality was relatively good and suggests that the Site is having no significant impact on the surface water quality near the Landfill.



Notes

- BHGW4 — Groundwater Borehole
- SSR6 — Side Slope Riser
- LC7 — Leachate Chamber
- SW1 — Surface Water Monitoring Point
- Cross Section
- Ground Water Contours

Notes

Monitoring Point Height (mOD) Given Below Identity Number

Ground Water Contour Based on 2005 Levels

TerraConsult

Bold Business Centre, Bold Lane, Sutton, St Helens WA9 4TX

Client: A D Waste Limited

Site

Standard Landfill Buckley

Title

Environmental Monitoring Locations

Scale	1:1500	@ A2
Drawing No.	0987/1/002	
Rev	Date	Description
File	Standard Landfill3863a-TCL Revision001.dwg	
Date	03/09	Engineer CB
Drawn	SH	Checked JB

APPENDIX 1

APPENDIX 1

Table 1 – Summary of Landfill Gas Concentrations

Location		CH4 (%v/v)	Trigger (%v/v)	CO2 (%v/v)	Trigger (%v/v)	Location		CH4 (%v/v)	Trigger (%v/v)	CO2 (%v/v)	Trigger (%v/v)
BH 1	Min	0.0	1.0	1.0	5.37	BH 4.1	Min	0.0	1.0	1.0	7.12
	Max	0.0		2.6			Max	0.0		1.5	
	Ave	0.0		1.8			Ave	0.0		1.2	
	Count	13		13			Count	13		13	
BH 1.1	Min	0.0	1.0	0.9	5.35	BH 4.2	Min	0.0	1.0	0.5	8.59
	Max	0.0		2.1			Max	0.0		2.4	
	Ave	0.0		1.3			Ave	0.0		1.5	
	Count	13		13			Count	13		13	
BH 2.0	Min	0.0	1.0	0.8	7.05	BH 5.0	Min	0.0	15.0	1.1	19.42
	Max	0.0		1.6			Max	0.0		2.9	
	Ave	0.0		1.2			Ave	0.0		1.8	
	Count	13		13			Count	13		13	
BH 2.1	Min	0.0	1.0	0.9	7.57	BH 5.1	Min	0.0	1.0	0.6	5.8
	Max	0.0		1.5			Max	0.0		1.6	
	Ave	0.0		1.2			Ave	0.0		1.1	
	Count	13		13			Count	13		13	
BH 2.2	Min	0.0	1.0	0.9	5.82	BH 5.2	Min	0.0	1.0	0.9	9.64
	Max	0.0		2.6			Max	0.0		1.5	
	Ave	0.0		1.7			Ave	0.0		1.2	
	Count	13		13			Count	13		13	
BH 3.0	Min	0.0	1.0	0.9	6.7	BH 5.3	Min	0.0	1.0	1.0	6
	Max	0.0		1.8			Max	0.0		1.9	
	Ave	0.0		1.4			Ave	0.0		1.3	
	Count	13		13			Count	13		13	
BH 3.1	Min	0.0	1.0	1.0	7.76	BH 5.4	Min	0.0	1.0	0.9	16.03
	Max	0.0		3.5			Max	0.0		2.0	
	Ave	0.0		2.0			Ave	0.0		1.2	
	Count	13		13			Count	13		13	
BH 4.0	Min	0.0	10.0	0.9	10.65	BH 5.5	Min	0.0	1.0	1.0	17.06
	Max	0.0		1.5			Max	0.0		2.1	
	Ave	0.0		1.2			Ave	0.0		1.5	
	Count	13		13			Count	13		13	

Location		CH4 (%v/v)	Trigger (%v/v)	CO2 (%v/v)	Trigger (%v/v)
BH 5.7	Min	0.0	1.0	1.5	7.07
	Max	0.0		2.5	
	Ave	0.0		2.1	
	Count	13		13	
BH 6.0	Min	0.0	1.0	1.5	8.92
	Max	0.0		2.6	
	Ave	0.0		2.1	
	Count	13		13	
BH 6.1	Min	0.0	1.0	0.8	3.72
	Max	0.0		1.5	
	Ave	0.0		1.2	
	Count	13		13	
BH 6.2	Min	0.0	1.0	0.9	6.12
	Max	0.0		2.3	
	Ave	0.0		1.8	
	Count	13		13	
BH 6.3	Min	0.0	1.0	1.0	8.24
	Max	0.0		2.6	
	Ave	0.0		1.6	
	Count	13		13	
BH 7.0	Min	0.0	1.0	1.3	6.2
	Max	0.0		3.0	
	Ave	0.0		2.1	
	Count	13		13	
BH 7.1	Min	0.0	1.0	1.4	5.49
	Max	0.0		2.5	
	Ave	0.0		1.9	
	Count	13		13	
BH 9.0	Min	0.0	1.0	1.5	10.72
	Max	0.0		3.2	
	Ave	0.0		2.2	
	Count	13		13	

Location		CH4 (%v/v)	Trigger (%v/v)	CO2 (%v/v)	Trigger (%v/v)
BH 12	Min	0.0	10	1.0	6.48
	Max	0.0		1.8	
	Ave	0.0		1.4	
	Count	13		13	
BH 13	Min	0.0	10	1.0	5.2
	Max	0.0		2.3	
	Ave	0.0		1.8	
	Count	13		13	
BH 15	Min	0.0	1	1.0	8.3
	Max	0.0		2.1	
	Ave	0.0		1.4	
	Count	13		13	
BH 16	Min	0.0	1	1.0	3
	Max	0.0		2.5	
	Ave	0.0		1.8	
	Count	13		13	
BH 22	Min	0.2	1	1.1	3.1
	Max	0.5		2.3	
	Ave	0.3		1.7	
	Count	13		13	

APPENDIX 2

APPENDIX 2

Table 2.1 - Groundwater Levels

Location	Date	Dip Level (mBGL)	GW Level (mAOD)
GW 1	28/01/2015	17.69	106.39
	16/02/2015	19.21	104.87
	25/03/2015	23.28	100.80
GW 2	28/01/2015	9.10	108.11
	16/02/2015	9.10	108.11
	25/03/2015	9.10	108.11
GW 3	28/01/2015	20.39	93.03
	16/02/2015	22.31	91.11
	25/03/2015	27.58	85.84
GW 4R	28/01/2015	52.69	78.31
	16/02/2015	52.24	78.76
	25/03/2015	51.98	79.02
GW 5	28/01/2015	2.54	132.32
	16/02/2015	3.04	131.82
	25/03/2015	4.21	130.65
GW 6	28/01/2015	19.21	104.36
	16/02/2015	21.36	102.21
	25/03/2015	24.18	99.39
GW 7R	28/01/2015	65.21	76.79
	16/02/2015	66.32	75.68
	25/03/2015	43.21	98.79

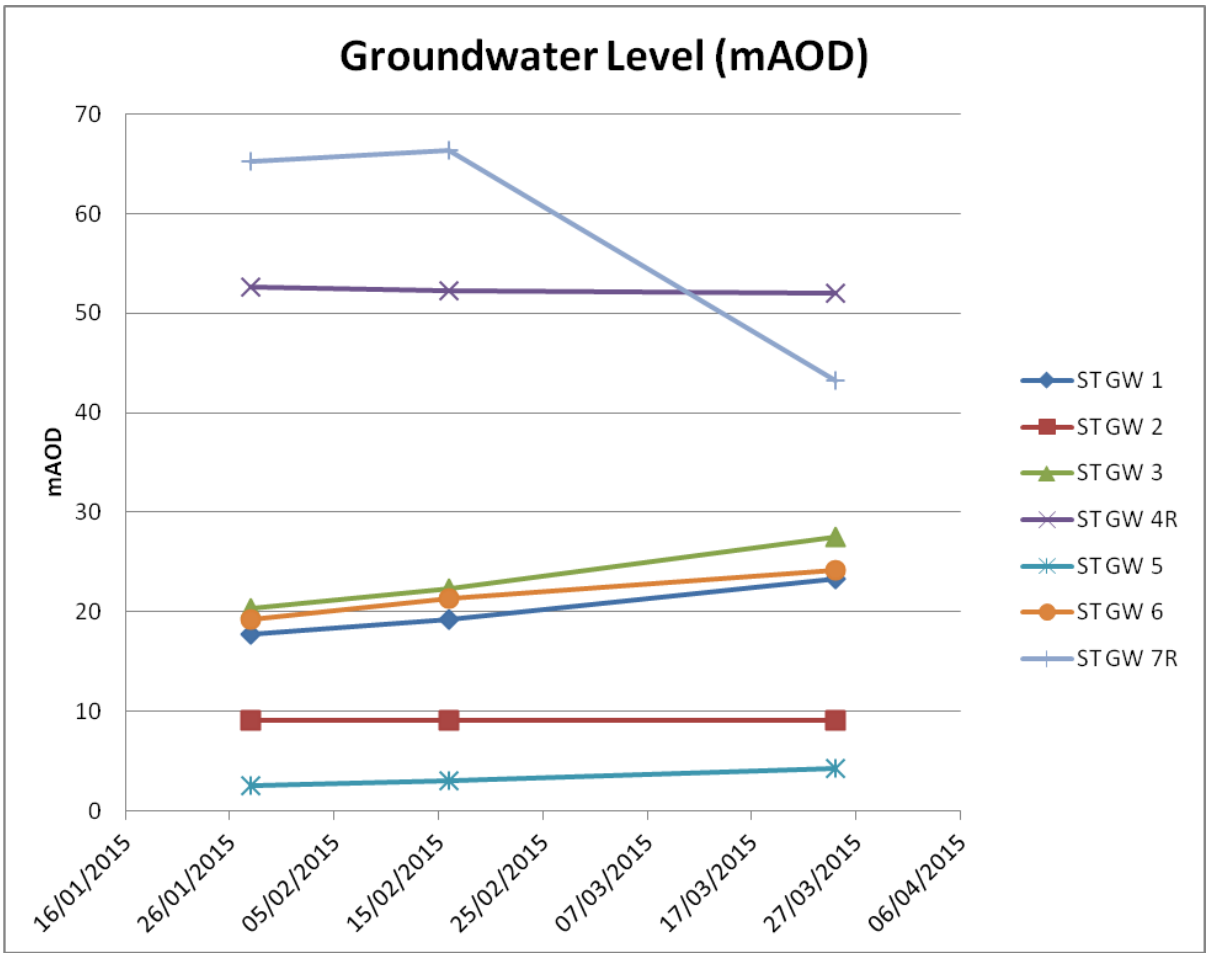

Groundwater Level (mAOD)
mAOD
70
60
50
40
30
20
10
0
16/01/2015
26/01/2015
05/02/2015
15/02/2015
25/02/2015
07/03/2015
17/03/2015
27/03/2015
06/04/2015
STGW 1
STGW 2
STGW 3
STGW 4R
STGW 5
STGW 6
STGW 7R

Table 2.2 - Groundwater Quality Data Summary

Parameter	Units	GW1	GW3	GW5	GW6
Carbon					
Organic Carbon, Total	**mg/l**	<3	3.33	7.72	29.4
Inorganics					
Alkalinity, Total as CaCO3	**mg/l**	130	200	220	90
Ammoniacal Nitrogen as N	**mg/l**	1.12	0.795	2.98	75.5
Chloride	**mg/l**	56.9	70.7	14.1	519
COD, unfiltered	**mg/l**	280	28.5	225	225
Conductivity @ 20 deg.C	**mS/cm**	0.587	0.823	0.373	2.82
Oxygen, dissolved	**mg/l**	3.12	3.73	<0.3	3.39
pH	**pH Units**	6.25	6.94	7.31	6.43
Sulphate	**mg/l**	276	294	48.7	426
Total Oxidised Nitrogen as N	**mg/l**	0.758	0.942	3.25	>106
Filtered (Dissolved) Metals					
Cadmium (diss.filt)	**mg/l**	<0.0001	<0.0001	<0.0001	0.00281
Calcium (diss.filt)	**mg/l**	60.2	95.1	74.8	79.9
Chromium (diss.filt)	**mg/l**	0.00158	0.00401	0.00247	0.00419
Copper (diss.filt)	**mg/l**	<0.00085	<0.00085	<0.00085	0.0069
Iron (diss.filt)	**mg/l**	<0.019	<0.019	10.8	0.0613
Lead (diss.filt)	**mg/l**	<0.00002	<0.00002	0.000036	0.000229
Magnesium (diss.filt)	**mg/l**	29	42.2	9.7	42.5
Manganese (diss.filt)	**mg/l**	1.09	0.0964	2.77	8.3
Nickel (diss.filt)	**mg/l**	0.00149	0.00241	0.00313	0.104
Potassium (diss.filt)	**mg/l**	10.9	10.6	7.27	64.3
Sodium (diss.filt)	**mg/l**	29.6	51.1	12.1	365
Zinc (diss.filt)	**mg/l**	0.0126	0.00528	0.00662	0.0975
TPH Criteria Working Group (TPH CWG)					
Sum of detected Xylenes	**mg/l**	<0.011	<0.011	<0.011	<0.011
Toluene	**mg/l**	<0.004	<0.004	<0.004	<0.004

APPENDIX 3

APPENDIX 3

Table 3.1 - Leachate Levels

Location	Date	Dip Level (mBGL)	Leachate Level (mAOD)	Leachate Level Head (m)
LC2.1	13/01/2015	29.51	111.54	1.49
	17/02/2015	29.52	111.53	1.48
	24/03/2015	29.56	111.49	1.44
LC3	13/01/2015	3.05	130.91	1.79
	17/02/2015	3.11	130.85	1.73
	24/03/2015	3.14	130.82	1.70
LC4	13/01/2015	17.65	131.00	1.35
	17/02/2015	17.71	130.94	1.29
	24/03/2015	17.65	131.00	1.35
LC7	13/01/2015	18.42	132.87	1.89
	17/02/2015	18.52	132.77	1.79
	24/03/2015	18.43	132.86	1.88
LS5	13/01/2015	28.62	104.69	1.35
	17/02/2015	28.52	104.79	1.39
	24/03/2015	28.59	104.72	1.36
LS6	13/01/2015	29.11	105.75	1.55
	17/02/2015	29.14	105.72	1.54
	24/03/2015	29.19	105.67	1.52
S1	13/01/2015	3.02	124.96	1.41
	17/02/2015	3.06	124.92	1.37
	24/03/2015	3.11	124.87	1.32
S2	13/01/2015	1.71	127.15	1.64
	17/02/2015	1.75	127.11	1.60
	24/03/2015	1.71	127.15	1.64
S3	13/01/2015	3.59	124.91	1.50
	17/02/2015	3.62	124.88	1.47
	24/03/2015	3.69	124.81	1.40

Table 3.2 - Leachate Quality Data Summary LC Wells

Parameter	Units	LC2	LC3	LC4	LC7
Carbon					
Organic Carbon, Total	**mg/l**	770	533	264	373
Inorganics					
Alkalinity, Total as CaCO3	**mg/l**	7680	5700	3930	4530
Ammoniacal Nitrogen as N	**mg/l**	372	1180	734	734
BOD, unfiltered	**mg/l**	114	117	36.4	55.9
Chloride	**mg/l**	2400	1780	1330	1260
COD, unfiltered	**mg/l**	2280	1780	840	870
pH	**pH Units**	7.98	7.88	7.96	7.88
Sulphate	**mg/l**	1.52	29.8	0.874	4.08
Total Oxidised Nitrogen as N	**mg/l**	0.293	0.0129	0.621	0.455
Filtered (Dissolved) Metals					
Calcium (diss.filt)	**mg/l**	58.4	74.6	111	78.2
Magnesium (diss.filt)	**mg/l**	95.4	84.2	92.4	98.2
Potassium (diss.filt)	**mg/l**	733	591	381	399
Sodium (diss.filt)	**mg/l**	1840	1380	960	1070

APPENDIX 4

APPENDIX 4

Table 4.1 –Surface Water Quality Data Summary

Location		Ammoniacal Nitrogen	Chloride	COD	Conductivity	pH
		mg/l	mg/l	mg/l	mS/cm	pH Units
SW1	20/02/2015	1.2	209	142	1.2	7.8
SW2	20/02/2015	0.2	323	26	1.4	7.8
SW4	20/02/2015	<0.2	306	20	1.4	8.0
SW5	20/02/2015	<0.2	66	31	0.6	7.5

Table 4.2 –Quarterly Surface Water Quality

Parameter	Units	SW1	SW2	SW4	SW5
Inorganics					
Alkalinity, Total as CaCO3	mg/l	205	155	165	125
Ammoniacal Nitrogen as N	mg/l	0.763	<0.2	<0.2	<0.2
BOD, unfiltered	mg/l	63.9	2.19	<1	<1
COD, unfiltered	mg/l	1010	23.8	17.4	45.3
Cyanide, Total	mg/l	<0.05	<0.05	<0.05	<0.05
Nitrate as NO3	mg/l	20.1	2.22	9.6	3.74
Nitrite as NO2	mg/l	<0.03	0.703	0.417	0.742
pH	pH Units	7.64	7.96	8.02	8.05
Total Oxidised Nitrogen as N	mg/l	4.53	0.716	2.29	1.07
Filtered (Dissolved) Metals					
Arsenic (diss.filt)	mg/l	0.00114	0.000532	0.00079	0.0012
Cadmium (diss.filt)	mg/l	<0.0001	<0.0001	<0.0001	<0.0001
Copper (diss.filt)	mg/l	<0.00085	0.00289	0.00422	0.00374
Iron (diss.filt)	mg/l	0.637	0.0641	0.0677	0.0701
Lead (diss.filt)	mg/l	0.000406	0.000163	0.000284	0.00027
Magnesium (diss.filt)	mg/l	19.5	15.1	12.8	25.3
Mercury (diss.filt)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001
Nickel (diss.filt)	mg/l	0.00345	0.00615	0.0055	0.00464
Potassium (diss.filt)	mg/l	7.05	8.36	8.21	8.24
Sodium (diss.filt)	mg/l	44.5	97.8	50.4	29
Zinc (diss.filt)	mg/l	0.00478	0.00336	0.0103	0.00216
Phenols					
Phenols, Total Detected 5 speciated	mg/l	<0.025	<0.025	<0.025	<0.025

Parameter	Units	SW1	SW2	SW4	SW5
Combined Pesticides / Herbicides					
Aldrin	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
alpha-Hexachlorocyclohexane (HCH / Lindane)	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Atrazine	mg/l	<0.02	<0.001	<0.001	<0.001
Azinphos-ethyl	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Azinphos-methyl	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
beta-Hexachlorocyclohexane (HCH / Lindane)	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Carbophenothion	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Chlorfenvinphos	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Chlorothalonil	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Chlorpyriphos	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Chlorpyriphos methyl	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
cis-Chlordane	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Diazinon	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Dichlorvos	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Dieldrin	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Dimethoate	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Disulfoton	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Endosulphan I	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Endosulphan II	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Endosulphan sulphate	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Endrin	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Ethion	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Etrimphos	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Fenitrothion	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Fenthion	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
gamma-Hexachlorocyclohexane (HCH / Lindane)	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Heptachlor	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Heptachlor epoxide	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Hexachlorobenzene	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Isodrin	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Malathion	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Methyl parathion	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Mevinphos	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
o,p-DDE	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
o,p-DDT	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
o,p-Methoxychlor	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
o,p-TDE (DDD)	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
p,p-DDE	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
p,p-DDT	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
p,p-Methoxychlor	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
p,p-TDE (DDD)	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Parathion	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Pendimethalin	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Permethrin I	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Permethrin II	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Phosalone	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Pirimiphos-methyl	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Propetamphos	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Quintozene (PCNB)	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Simazine	mg/l	<0.02	<0.001	<0.001	<0.001
Tecnazene	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Telodrin	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Trans-chlordane	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Triadimefon	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Triallate	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Triazophos	mg/l	<0.0002	<0.00001	<0.00001	<0.00001
Trifluralin	mg/l	<0.0002	<0.00001	<0.00001	<0.00001

APPENDIX 5

Standard Landfill Borehole Gas Monitoring

Date 02-01-15
Weather: Slight rain
Wind conditions: calm
Air Temperature: 8 °C

Instrument: GA2000
Serial No: GA10692
Calibrated To: 18-02-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	11:26	0	2.6	19.9	77.5	0	0	999	0.1	1	5.4
STBH 1.1	11:23	0	2.1	19.8	78.1	0	0	999	-0.07	1	5.4
STBH 2.0	11:30	0	1.5	19.5	79	0	0	999	0.5	1	7
STBH 2.1	11:18	0	1.5	19.8	78.7	0	0	999	0.85	1	7.6
STBH 2.2	11:21	0	2.6	19.6	77.8	0	0	999	0.51	1	5.8
STBH 3.0	11:35	0	1.8	19.5	78.7	0	0	999	0.58	1	6.7
STBH 3.1	11:16	0	3.5	19.9	76.6	0	0	999	0.28	1	7.8
STBH 4.0	11:39	0	1.2	19.8	79	0	0	999	1.25	10	10.6
STBH 4.1	11:07	0	1.4	20.1	78.5	0	0	999	1.26	1	7.1
STBH 4.2	11:12	0	2.2	19.8	78	0	0	999	1.05	1	8.6
STBH 5.0	11:42	0	2.3	19.5	78.2	0	0	999	0.64	15	19.4
STBH 5.1	11:46	0	1.4	19.9	78.7	0	0	999	0.42	1	5.8
STBH 5.2	10:59	0	1.5	20.1	78.4	0	0	999	0.22	1	9.6
STBH 5.3	11:02	0	1.2	20.1	78.7	0	0	999	0.94	1	6
STBH 6.0	12:04	0	2.6	19.6	77.8	0	0	999	-0.88	1	5.4
STBH 6.1	10:48	0	1.2	19.5	79.3	0	0	999	0.69	1	5.4
STBH 6.2	10:52	0	2.3	19.6	78.1	0	0	999	1.37	1	5.4
STBH 6.3	10:56	0	1.2	19.9	78.9	0	0	999	1.04	1	8.2
STBH 7.0	12:08	0	2	19.5	78.5	0	0	999	0.12	1	6.2
STBH 7.1	10:44	0	2.3	20.1	77.6	0	0	999	0.56	1	5.5
STBH 9.0	12:19	0	2.6	19.6	77.8	0	0	999	0.66	1	10.7
STBH 12	12:22	0	1.5	20	78.5	0	0	999	0.82	10	6.5
STBH 13	12:26	0	2.3	19.5	78.2	0	0	999	-0.16	10	5.2
STBH 15	12:30	0	1.1	20.1	78.8	0	0	999	0.86	1	8.3
STBH 16	12:34	0	1.6	19.9	78.5	0	0	999	0.59	1	3
STBH 22	12:38	0.4	2.1	19.9	77.6	0	0	999	0.51	1.6	3.1
STMBH 5.4	11:50	0	1.4	19.2	79.4	0	0	999	0.58	1	16
STMBH 5.5	11:52	0	2.1	20.1	77.8	0	0	999	-0.16	1	17.1
STMBH 5.7	11:55	0	2.5	20.1	77.4	0	0	999	-0.18	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 09-01-15
Weather: dry
Wind conditions: calm
Air Temperature: 10 °C

Instrument: GA2000
Serial No: GA10692
Calibrated To: 18-02-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	11:39	0	2.4	20.2	77.4	0	0	1002	-0.2	1	5.4
STBH 1.1	11:36	0	1.9	19.6	78.5	0	0	1002	-0.02	1	5.4
STBH 2.0	11:43	0	1.6	20.1	78.3	0	0	1002	-0.59	1	7
STBH 2.1	11:31	0	1.4	19.6	79	0	0	1002	-0.81	1	7.6
STBH 2.2	11:34	0	2.3	20.1	77.6	0	0	1002	-0.62	1	5.8
STBH 3.0	11:48	0	1.5	19.9	78.6	0	0	1002	-0.29	1	6.7
STBH 3.1	11:29	0	3.2	19.6	77.2	0	0	1002	0.39	1	7.8
STBH 4.0	11:52	0	1	20.1	78.9	0	0	1002	0.9	10	10.6
STBH 4.1	11:20	0	1.1	19.9	79	0	0	1002	1.29	1	7.1
STBH 4.2	11:25	0	2.3	19.7	78	0	0	1002	1.04	1	8.6
STBH 5.0	11:55	0	2.5	19.8	77.7	0	0	1002	0.63	15	19.4
STBH 5.1	11:59	0	1.6	19.6	78.8	0	0	1002	0.42	1	5.8
STBH 5.2	11:12	0	1.2	20.2	78.6	0	0	1002	0.34	1	9.6
STBH 5.3	11:15	0	1	19.9	79.1	0	0	1002	-0.13	1	6
STBH 6.0	12:17	0	2.3	20.1	77.6	0	0	1002	-0.91	1	5.4
STBH 6.1	11:01	0	1.5	19.8	78.7	0	0	1002	-0.24	1	5.4
STBH 6.2	11:05	0	2.1	20.1	77.8	0	0	1002	1.28	1	5.4
STBH 6.3	11:09	0	1.4	19.9	78.7	0	0	1002	0.98	1	8.2
STBH 7.0	12:21	0	2.2	19.8	78	0	0	1002	0.49	1	6.2
STBH 7.1	10:57	0	2.5	19.9	77.6	0	0	1002	0.54	1	5.5
STBH 9.0	12:32	0	2.1	19.6	78.3	0	0	1002	0.72	1	10.7
STBH 12	12:35	0	1.6	19.9	78.5	0	0	1002	-0.94	10	6.5
STBH 13	12:39	0	2.1	19.6	78.3	0	0	1002	-0.17	10	5.2
STBH 15	12:43	0	1.4	20.3	78.3	0	0	1002	0.83	1	8.3
STBH 16	12:47	0	1.5	19.8	78.7	0	0	1002	-0.75	1	3
STBH 22	12:51	0.3	2.3	20.2	77.2	0	0	1002	0.61	1.6	3.1
STMBH 5.4	12:03	0	1.1	19.8	79.1	0	0	1002	-0.7	1	16
STMBH 5.5	12:05	0	1.8	19.9	78.3	0	0	1002	-0.01	1	17.1
STMBH 5.7	12:08	0	2.5	19.9	77.6	0	0	1002	-0.18	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 16-01-15
Weather: dry
Wind conditions: calm
Air Temperature: 10 °C

Instrument: GA2000
Serial No: GA10692
Calibrated To: 18-02-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:02	0	2.3	20	77.7	0	0	996	0.11	1	5.4
STBH 1.1	9:59	0	1.5	19.9	78.6	0	0	996	-0.16	1	5.4
STBH 2.0	10:06	0	1.2	20.3	78.5	0	0	996	0.55	1	7
STBH 2.1	9:54	0	1	19.3	79.7	0	0	996	0.84	1	7.6
STBH 2.2	9:57	0	2.1	19.6	78.3	0	0	996	0.52	1	5.8
STBH 3.0	10:11	0	1.6	19.5	78.9	0	0	996	0.58	1	6.7
STBH 3.1	9:52	0	2.9	19.8	77.3	0	0	996	0.29	1	7.8
STBH 4.0	10:15	0	1.2	20	78.8	0	0	996	1.21	10	10.6
STBH 4.1	9:43	0	1.4	19.9	78.7	0	0	996	1.28	1	7.1
STBH 4.2	9:48	0	2.4	19.9	77.7	0	0	996	1	1	8.6
STBH 5.0	10:18	0	2.9	19.8	77.3	0	0	996	0.59	15	19.4
STBH 5.1	10:22	0	1.1	20.1	78.8	0	0	996	0.47	1	5.8
STBH 5.2	9:35	0	1	20.1	78.9	0	0	996	0.31	1	9.6
STBH 5.3	9:38	0	1.3	20.3	78.4	0	0	996	0.91	1	6
STBH 6.0	10:40	0	2	19.9	78.1	0	0	996	-0.98	1	5.4
STBH 6.1	9:24	0	1.4	20.1	78.5	0	0	996	0.72	1	5.4
STBH 6.2	9:28	0	2.3	19.6	78.1	0	0	996	1.33	1	5.4
STBH 6.3	9:32	0	1	20.3	78.7	0	0	996	0.99	1	8.2
STBH 7.0	10:44	0	3	19.6	77.4	0	0	996	0.17	1	6.2
STBH 7.1	9:20	0	2.2	20.1	77.7	0	0	996	0.58	1	5.5
STBH 9.0	10:55	0	3.2	19.5	77.3	0	0	996	0.7	1	10.7
STBH 12	10:58	0	1.8	20.1	78.1	0	0	996	0.87	10	6.5
STBH 13	11:02	0	2.3	19.9	77.8	0	0	996	-0.17	10	5.2
STBH 15	11:06	0	1.5	19.9	78.6	0	0	996	0.84	1	8.3
STBH 16	11:10	0	1	19.6	79.4	0	0	996	0.67	1	3
STBH 22	11:14	0.5	2	20.1	77.4	0	0	996	0.58	1.6	3.1
STMBH 5.4	10:26	0	0.9	20.2	78.9	0	0	996	0.61	1	16
STMBH 5.5	10:28	0	1.9	19.6	78.5	0	0	996	-0.17	1	17.1
STMBH 5.7	10:31	0	2.1	20.1	77.8	0	0	996	-0.22	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 23-01-15
Weather: dry
Wind conditions: calm
Air Temperature: 9 °C

Instrument: GA2000
Serial No: GA10692
Calibrated To: 18-02-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:37	0	2	20.3	77.7	0	0	1001	0.22	1	5.4
STBH 1.1	10:34	0	1.3	19.8	78.9	0	0	1001	0.11	1	5.4
STBH 2.0	10:41	0	1	20.1	78.9	0	0	1001	-0.46	1	7
STBH 2.1	10:29	0	1.2	19.6	79.2	0	0	1001	-0.24	1	7.6
STBH 2.2	10:32	0	2.3	19.9	77.8	0	0	1001	-0.26	1	5.8
STBH 3.0	10:46	0	1.8	20.1	78.1	0	0	1001	-0.17	1	6.7
STBH 3.1	10:27	0	2.5	19.5	78	0	0	1001	0.21	1	7.8
STBH 4.0	10:50	0	1	19.9	79.1	0	0	1001	0.47	10	10.6
STBH 4.1	10:18	0	1.2	20.1	78.7	0	0	1001	0.66	1	7.1
STBH 4.2	10:23	0	2.1	19.6	78.3	0	0	1001	-0.96	1	8.6
STBH 5.0	10:53	0	2.5	19.9	77.6	0	0	1001	0.75	15	19.4
STBH 5.1	10:57	0	1.4	20.2	78.4	0	0	1001	0.23	1	5.8
STBH 5.2	10:10	0	1.2	19.6	79.2	0	0	1001	0.4	1	9.6
STBH 5.3	10:13	0	1.1	19.9	79	0	0	1001	-0.36	1	6
STBH 6.0	11:15	0	2.3	19.6	78.1	0	0	1001	-0.17	1	5.4
STBH 6.1	9:59	0	1.5	19.8	78.7	0	0	1001	-0.4	1	5.4
STBH 6.2	10:03	0	2	20.1	77.9	0	0	1001	0.9	1	5.4
STBH 6.3	10:07	0	1.3	20.1	78.6	0	0	1001	0.75	1	8.2
STBH 7.0	11:19	0	2.5	19.8	77.7	0	0	1001	0.3	1	6.2
STBH 7.1	9:55	0	2.1	20.2	77.7	0	0	1001	0.16	1	5.5
STBH 9.0	11:30	0	3	19.6	77.4	0	0	1001	-0.29	1	10.7
STBH 12	11:33	0	1.5	19.9	78.6	0	0	1001	0.77	10	6.5
STBH 13	11:37	0	2	20.2	77.8	0	0	1001	0.04	10	5.2
STBH 15	11:41	0	1.4	19.8	78.8	0	0	1001	0.27	1	8.3
STBH 16	11:45	0	1.2	19.7	79.1	0	0	1001	-0.19	1	3
STBH 22	11:49	0.2	2.3	20	77.5	0	0	1001	0.48	1.6	3.1
STMBH 5.4	11:01	0	1.1	19.9	79	0	0	1001	-0.21	1	16
STMBH 5.5	11:03	0	1.6	19.8	78.6	0	0	1001	-0.11	1	17.1
STMBH 5.7	11:06	0	2	20	78	0	0	1001	-0.97	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 30-01-15
Weather: dry
Wind conditions: calm
Air Temperature: 7 °C

Instrument: GA2000
Serial No: GA10692
Calibrated To: 18-02-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	11:39	0	2.1	20.1	77.8	0	0	1000	-0.17	1	5.4
STBH 1.1	11:36	0	1.4	19.8	78.8	0	0	1000	-0.04	1	5.4
STBH 2.0	11:43	0	1.2	19.8	79	0	0	1000	-0.58	1	7
STBH 2.1	11:31	0	1	19.8	79.2	0	0	1000	-0.84	1	7.6
STBH 2.2	11:34	0	2.1	20.3	77.6	0	0	1000	-0.58	1	5.8
STBH 3.0	11:48	0	1.5	19.9	78.6	0	0	1000	-0.28	1	6.7
STBH 3.1	11:29	0	2.3	19.5	78.2	0	0	1000	0.34	1	7.8
STBH 4.0	11:52	0	1.2	20.1	78.7	0	0	1000	0.9	10	10.6
STBH 4.1	11:20	0	1	19.8	79.2	0	0	1000	1.27	1	7.1
STBH 4.2	11:25	0	1.5	19.2	79.3	0	0	1000	0.97	1	8.6
STBH 5.0	11:55	0	2.1	19.5	78.4	0	0	1000	0.65	15	19.4
STBH 5.1	11:59	0	1.3	20.1	78.6	0	0	1000	0.42	1	5.8
STBH 5.2	11:12	0	1	19.6	79.4	0	0	1000	0.3	1	9.6
STBH 5.3	11:15	0	1.3	20	78.7	0	0	1000	-0.17	1	6
STBH 6.0	12:17	0	2	19.6	78.4	0	0	1000	-0.9	1	5.4
STBH 6.1	11:01	0	1.1	19.4	79.5	0	0	1000	-0.3	1	5.4
STBH 6.2	11:05	0	2.3	19.6	78.1	0	0	1000	1.18	1	5.4
STBH 6.3	11:09	0	1.4	20	78.6	0	0	1000	1.05	1	8.2
STBH 7.0	12:21	0	2.1	19.5	78.4	0	0	1000	0.5	1	6.2
STBH 7.1	10:57	0	2	19.9	78.1	0	0	1000	0.6	1	5.5
STBH 9.0	12:32	0	2.8	19.5	77.7	0	0	1000	0.71	1	10.7
STBH 12	12:35	0	1.4	19.8	78.8	0	0	1000	-0.91	10	6.5
STBH 13	12:39	0	2.3	20.7	77	0	0	1000	-0.12	10	5.2
STBH 15	12:43	0	1.2	19.6	79.2	0	0	1000	0.91	1	8.3
STBH 16	12:47	0	1	20.1	78.9	0	0	1000	-0.77	1	3
STBH 22	12:51	0.2	2.1	19.8	77.9	0	0	1000	0.67	1.6	3.1
STMBH 5.4	12:03	0	1.2	20	78.8	0	0	1000	-0.62	1	16
STMBH 5.5	12:05	0	1.5	19.9	78.6	0	0	1000	0.01	1	17.1
STMBH 5.7	12:08	0	2.3	19.9	77.8	0	0	1000	-0.13	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 06-02-15
Weather: dry
Wind conditions: Breezy
Air Temperature: 6 °C

Instrument: GA2000
Serial No: GA10692
Calibrated To: 18-02-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	11:35	0	2	19.3	78.7	0	0	997	-0.17	1	5.4
STBH 1.1	11:32	0	1.1	20.3	78.6	0	0	997	-0.04	1	5.4
STBH 2.0	11:39	0	1	20.1	78.9	0	0	997	-0.55	1	7
STBH 2.1	11:27	0	1.2	19.9	78.9	0	0	997	-0.83	1	7.6
STBH 2.2	11:30	0	1.8	20.1	78.1	0	0	997	-0.59	1	5.8
STBH 3.0	11:44	0	1.4	19.8	78.8	0	0	997	-0.21	1	6.7
STBH 3.1	11:25	0	2	19.7	78.3	0	0	997	0.32	1	7.8
STBH 4.0	11:48	0	1	19.6	79.4	0	0	997	0.87	10	10.6
STBH 4.1	11:16	0	1.2	19.9	78.9	0	0	997	1.26	1	7.1
STBH 4.2	11:21	0	1.4	19.5	79.1	0	0	997	1.04	1	8.6
STBH 5.0	11:51	0	1.8	19.6	78.6	0	0	997	0.66	15	19.4
STBH 5.1	11:55	0	1.1	20	78.9	0	0	997	0.45	1	5.8
STBH 5.2	11:08	0	1	19.8	79.2	0	0	997	0.32	1	9.6
STBH 5.3	11:11	0	1.3	19.9	78.8	0	0	997	-0.12	1	6
STBH 6.0	12:13	0	2.3	20.1	77.6	0	0	997	-0.96	1	5.4
STBH 6.1	10:57	0	0.9	19.7	79.4	0	0	997	-0.3	1	5.4
STBH 6.2	11:01	0	2.3	19.8	77.9	0	0	997	1.2	1	5.4
STBH 6.3	11:05	0	1.5	19.8	78.7	0	0	997	1.02	1	8.2
STBH 7.0	12:17	0	2.4	19.6	78	0	0	997	0.47	1	6.2
STBH 7.1	10:53	0	1.8	20.1	78.1	0	0	997	0.52	1	5.5
STBH 9.0	12:28	0	1.9	19.9	78.2	0	0	997	0.64	1	10.7
STBH 12	12:31	0	1.2	19.6	79.2	0	0	997	-0.92	10	6.5
STBH 13	12:35	0	2	20.1	77.9	0	0	997	-0.16	10	5.2
STBH 15	12:39	0	1.4	19.2	79.4	0	0	997	0.88	1	8.3
STBH 16	12:43	0	2	20	78	0	0	997	-0.78	1	3
STBH 22	12:47	0.3	1.8	19.4	78.5	0	0	997	0.61	1.6	3.1
STMBH 5.4	11:59	0	1	19.6	79.4	0	0	997	-0.7	1	16
STMBH 5.5	12:01	0	1.1	20	78.9	0	0	997	0.04	1	17.1
STMBH 5.7	12:04	0	2.1	19.8	78.1	0	0	997	-0.14	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 13-02-15
Weather: dry
Wind conditions: Calm
Air Temperature: 9 °C

Instrument: GA2000
Serial No: GA10692
Calibrated To: 18-02-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	11:11	0	1.9	19.5	78.6	0	0	999	-0.2	1	5.4
STBH 1.1	11:08	0	1.2	19.8	79	0	0	999	-0.02	1	5.4
STBH 2.0	11:15	0	1.2	20	78.8	0	0	999	-0.59	1	7
STBH 2.1	11:03	0	1	19.5	79.5	0	0	999	-0.81	1	7.6
STBH 2.2	11:06	0	1.5	19.2	79.3	0	0	999	-0.62	1	5.8
STBH 3.0	11:20	0	1	20	79	0	0	999	-0.29	1	6.7
STBH 3.1	11:01	0	1.8	19.9	78.3	0	0	999	0.39	1	7.8
STBH 4.0	11:24	0	0.9	19.8	79.3	0	0	999	0.9	10	10.6
STBH 4.1	10:52	0	1	19.5	79.5	0	0	999	1.29	1	7.1
STBH 4.2	10:57	0	1.2	19.1	79.7	0	0	999	1.04	1	8.6
STBH 5.0	11:27	0	1.1	20.3	78.6	0	0	999	0.63	15	19.4
STBH 5.1	11:31	0	0.9	19.9	79.2	0	0	999	0.42	1	5.8
STBH 5.2	10:44	0	1.2	20.2	78.6	0	0	999	0.34	1	9.6
STBH 5.3	10:47	0	1	19.6	79.4	0	0	999	-0.13	1	6
STBH 6.0	11:49	0	2.1	20.1	77.8	0	0	999	-0.91	1	5.4
STBH 6.1	10:33	0	0.8	19.8	79.4	0	0	999	-0.24	1	5.4
STBH 6.2	10:37	0	2	20.1	77.9	0	0	999	1.28	1	5.4
STBH 6.3	10:41	0	1.4	19.6	79	0	0	999	0.98	1	8.2
STBH 7.0	11:53	0	2	20.1	77.9	0	0	999	0.49	1	6.2
STBH 7.1	10:29	0	1.6	19.6	78.8	0	0	999	0.54	1	5.5
STBH 9.0	12:04	0	2.1	20.1	77.8	0	0	999	0.72	1	10.7
STBH 12	12:07	0	1.4	19.5	79.1	0	0	999	-0.94	10	6.5
STBH 13	12:11	0	2.3	19.9	77.8	0	0	999	-0.17	10	5.2
STBH 15	12:15	0	1.6	19.5	78.9	0	0	999	0.83	1	8.3
STBH 16	12:19	0	2.1	20.2	77.7	0	0	999	-0.75	1	3
STBH 22	12:23	0.2	1.5	19.8	78.5	0	0	999	0.61	1.6	3.1
STMBH 5.4	11:35	0	1.2	19.8	79	0	0	999	-0.7	1	16
STMBH 5.5	11:37	0	1.4	19.9	78.7	0	0	999	-0.01	1	17.1
STMBH 5.7	11:40	0	2.3	20.1	77.6	0	0	999	-0.18	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 20-02-15
Weather: dry
Wind conditions: Calm
Air Temperature: 12 °C

Instrument: GA 2000
Serial No: GA10692
Calibrated To: 20-09-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:41	0	1.4	19.2	79.4	0	0	1002	0.05	1	5.4
STBH 1.1	10:38	0	1	19.5	79.5	0	0	1002	-0.08	1	5.4
STBH 2.0	10:45	0	1.3	20.3	78.4	0	0	1002	0.53	1	7
STBH 2.1	10:33	0	1.2	19.5	79.3	0	0	1002	0.88	1	7.6
STBH 2.2	10:36	0	1.4	19.4	79.2	0	0	1002	0.55	1	5.8
STBH 3.0	10:50	0	0.9	19.6	79.5	0	0	1002	0.59	1	6.7
STBH 3.1	10:31	0	1.5	20.2	78.3	0	0	1002	0.2	1	7.8
STBH 4.0	10:54	0	1.1	19.5	79.4	0	0	1002	1.22	10	10.6
STBH 4.1	10:22	0	1.2	19.9	78.9	0	0	1002	1.32	1	7.1
STBH 4.2	10:27	0	0.9	19.5	79.6	0	0	1002	1.04	1	8.6
STBH 5.0	10:57	0	1.4	20.1	78.5	0	0	1002	0.68	15	19.4
STBH 5.1	11:01	0	0.6	19.9	79.5	0	0	1002	0.38	1	5.8
STBH 5.2	10:14	0	1.5	20	78.5	0	0	1002	0.24	1	9.6
STBH 5.3	10:17	0	1.2	19.8	79	0	0	1002	0.94	1	6
STBH 6.0	11:19	0	1.8	19.9	78.3	0	0	1002	-0.89	1	5.4
STBH 6.1	10:03	0	1.2	19.5	79.3	0	0	1002	0.75	1	5.4
STBH 6.2	10:07	0	1.5	19.9	78.6	0	0	1002	1.29	1	5.4
STBH 6.3	10:11	0	1.4	20.1	78.5	0	0	1002	1.04	1	8.2
STBH 7.0	11:23	0	2.1	19.9	78	0	0	1002	0.14	1	6.2
STBH 7.1	9:59	0	1.6	19.8	78.6	0	0	1002	0.5	1	5.5
STBH 9.0	11:34	0	1.6	19.6	78.8	0	0	1002	0.65	1	10.7
STBH 12	11:37	0	1.2	19.9	78.9	0	0	1002	0.85	10	6.5
STBH 13	11:41	0	2	20	78	0	0	1002	-0.13	10	5.2
STBH 15	11:45	0	1.3	19.4	79.3	0	0	1002	0.85	1	8.3
STBH 16	11:49	0	1.9	19.9	78.2	0	0	1002	0.68	1	3
STBH 22	11:53	0.4	1.4	19.6	78.6	0	0	1002	0.55	1.6	3.1
STMBH 5.4	11:05	0	1.1	20.1	78.8	0	0	1002	0.62	1	16
STMBH 5.5	11:07	0	1.2	19.6	79.2	0	0	1002	-0.15	1	17.1
STMBH 5.7	11:10	0	2	19.9	78.1	0	0	1002	-0.18	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 27-02-15
Weather: dry
Wind conditions: Breezy
Air Temperature: 12 °C

Instrument: GA 2000
Serial No: GA10692
Calibrated To: 20-09-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:43	0	1.2	19.5	79.3	0	0	997	0.08	1	5.4
STBH 1.1	10:40	0	0.9	20	79.1	0	0	997	-0.1	1	5.4
STBH 2.0	10:47	0	1.1	19.9	79	0	0	997	0.54	1	7
STBH 2.1	10:35	0	1	19.8	79.2	0	0	997	0.86	1	7.6
STBH 2.2	10:38	0	1.9	19.2	78.9	0	0	997	0.54	1	5.8
STBH 3.0	10:52	0	1	19.9	79.1	0	0	997	0.54	1	6.7
STBH 3.1	10:33	0	1.2	20.1	78.7	0	0	997	0.26	1	7.8
STBH 4.0	10:56	0	1.5	19.9	78.6	0	0	997	1.26	10	10.6
STBH 4.1	10:24	0	1.4	19.6	79	0	0	997	1.3	1	7.1
STBH 4.2	10:29	0	1	19.6	79.4	0	0	997	1.07	1	8.6
STBH 5.0	10:59	0	1.2	19.8	79	0	0	997	0.59	15	19.4
STBH 5.1	11:03	0	0.9	20.1	79	0	0	997	0.37	1	5.8
STBH 5.2	10:16	0	1.2	19.3	79.5	0	0	997	0.28	1	9.6
STBH 5.3	10:19	0	1.2	19.5	79.3	0	0	997	0.98	1	6
STBH 6.0	11:21	0	1.5	19.6	78.9	0	0	997	-0.97	1	5.4
STBH 6.1	10:05	0	1	19.7	79.3	0	0	997	0.74	1	5.4
STBH 6.2	10:09	0	0.9	20.2	78.9	0	0	997	1.3	1	5.4
STBH 6.3	10:13	0	1.3	20.3	78.4	0	0	997	1	1	8.2
STBH 7.0	11:25	0	1.8	19.8	78.4	0	0	997	0.19	1	6.2
STBH 7.1	10:01	0	1.4	19.4	79.2	0	0	997	0.49	1	5.5
STBH 9.0	11:36	0	1.9	19.8	78.3	0	0	997	0.65	1	10.7
STBH 12	11:39	0	1.1	20.2	78.7	0	0	997	0.82	10	6.5
STBH 13	11:43	0	1.5	20.1	78.4	0	0	997	-0.11	10	5.2
STBH 15	11:47	0	1.2	19.6	79.2	0	0	997	0.82	1	8.3
STBH 16	11:51	0	2	20.3	77.7	0	0	997	0.6	1	3
STBH 22	11:55	0.3	1.1	19.8	78.8	0	0	997	0.52	1.6	3.1
STMBH 5.4	11:07	0	0.9	19.9	79.2	0	0	997	0.62	1	16
STMBH 5.5	11:09	0	1	19.6	79.4	0	0	997	-0.17	1	17.1
STMBH 5.7	11:12	0	1.5	19.8	78.7	0	0	997	-0.23	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 06-03-15
Weather: dry
Wind conditions: Calm
Air Temperature: 12 °C

Instrument: GA 2000
Serial No: GA10692
Calibrated To: 20-09-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	10:43	0	1	19.6	79.4	0	0	999	0.04	1	5.4
STBH 1.1	10:40	0	1.2	20.1	78.7	0	0	999	-0.01	1	5.4
STBH 2.0	10:47	0	1.4	19.8	78.8	0	0	999	0.41	1	7
STBH 2.1	10:35	0	0.9	20.1	79	0	0	999	0.32	1	7.6
STBH 2.2	10:38	0	1.6	19.4	79	0	0	999	1.01	1	5.8
STBH 3.0	10:52	0	1.2	19.8	79	0	0	999	0.26	1	6.7
STBH 3.1	10:33	0	1	20.3	78.7	0	0	999	0.01	1	7.8
STBH 4.0	10:56	0	1.4	19.5	79.1	0	0	999	0.2	10	10.6
STBH 4.1	10:24	0	1	20.1	78.9	0	0	999	0.59	1	7.1
STBH 4.2	10:29	0	1.3	19.8	78.9	0	0	999	0.96	1	8.6
STBH 5.0	10:59	0	1.5	19.6	78.9	0	0	999	1.06	15	19.4
STBH 5.1	11:03	0	1	20.3	78.7	0	0	999	1.23	1	5.8
STBH 5.2	10:16	0	1	19.5	79.5	0	0	999	1.09	1	9.6
STBH 5.3	10:19	0	1.6	20.1	78.3	0	0	999	0.34	1	6
STBH 6.0	11:21	0	2	19.5	78.5	0	0	999	-0.09	1	5.4
STBH 6.1	10:05	0	1.5	19.6	78.9	0	0	999	0.05	1	5.4
STBH 6.2	10:09	0	1.2	19.8	79	0	0	999	0.1	1	5.4
STBH 6.3	10:13	0	2.3	20.1	77.6	0	0	999	0.62	1	8.2
STBH 7.0	11:25	0	2.1	20.3	77.6	0	0	999	0.35	1	6.2
STBH 7.1	10:01	0	1.6	19.8	78.6	0	0	999	0.23	1	5.5
STBH 9.0	11:36	0	1.8	19.5	78.7	0	0	999	0.21	1	10.7
STBH 12	11:39	0	1.3	19.6	79.1	0	0	999	0.86	10	6.5
STBH 13	11:43	0	1.4	20.3	78.3	0	0	999	0.91	10	5.2
STBH 15	11:47	0	1	19.8	79.2	0	0	999	-0.08	1	8.3
STBH 16	11:51	0	2.3	20.1	77.6	0	0	999	0.14	1	3
STBH 22	11:55	0.2	1.4	19.6	78.8	0	0	999	0.32	1.6	3.1
STMBH 5.4	11:07	0	1.2	20.1	78.7	0	0	999	0.87	1	16
STMBH 5.5	11:09	0	1.2	19.9	78.9	0	0	999	-0.19	1	17.1
STMBH 5.7	11:12	0	1.9	20	78.1	0	0	999	0.29	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 13-03-15
Weather: dry
Wind conditions: breezy
Air Temperature: 15 ^{o}C

Instrument: GA 2000
Serial No: GA10692
Calibrated To: 20-09-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	11:11	0	1.6	20.1	78.3	0	0	1004	0.03	1	5.4
STBH 1.1	11:08	0	1	19.9	79.1	0	0	1004	-0.13	1	5.4
STBH 2.0	11:15	0	1.2	19.5	79.3	0	0	1004	0.5	1	7
STBH 2.1	11:03	0	1	20.3	78.7	0	0	1004	0.79	1	7.6
STBH 2.2	11:06	0	1.2	19.6	79.2	0	0	1004	0.57	1	5.8
STBH 3.0	11:20	0	1	19.9	79.1	0	0	1004	0.63	1	6.7
STBH 3.1	11:01	0	1.8	19.9	78.3	0	0	1004	0.24	1	7.8
STBH 4.0	11:24	0	1.3	19.5	79.2	0	0	1004	1.23	10	10.6
STBH 4.1	10:52	0	1.2	19.8	79	0	0	1004	1.26	1	7.1
STBH 4.2	10:57	0	1.2	20	78.8	0	0	1004	1.07	1	8.6
STBH 5.0	11:27	0	1.4	19.9	78.7	0	0	1004	0.66	15	19.4
STBH 5.1	11:31	0	0.9	20.4	78.7	0	0	1004	0.41	1	5.8
STBH 5.2	10:44	0	1.2	19.6	79.2	0	0	1004	0.31	1	9.6
STBH 5.3	10:47	0	1.9	19.8	78.3	0	0	1004	1	1	6
STBH 6.0	11:49	0	2.3	19.7	78	0	0	1004	-0.9	1	5.4
STBH 6.1	10:33	0	1.4	19.9	78.7	0	0	1004	0.71	1	5.4
STBH 6.2	10:37	0	1.5	20.1	78.4	0	0	1004	1.35	1	5.4
STBH 6.3	10:41	0	2.6	19.9	77.5	0	0	1004	0.99	1	8.2
STBH 7.0	11:53	0	2	20	78	0	0	1004	0.15	1	6.2
STBH 7.1	10:29	0	1.9	19.5	78.6	0	0	1004	0.58	1	5.5
STBH 9.0	12:04	0	1.5	19.6	78.9	0	0	1004	0.63	1	10.7
STBH 12	12:07	0	1	19.9	79.1	0	0	1004	0.9	10	6.5
STBH 13	12:11	0	1.2	20.1	78.7	0	0	1004	-0.2	10	5.2
STBH 15	12:15	0	1.3	19.5	79.2	0	0	1004	0.83	1	8.3
STBH 16	12:19	0	2	19.9	78.1	0	0	1004	0.62	1	3
STBH 22	12:23	0.5	1.3	19.9	78.3	0	0	1004	0.51	1.6	3.1
STMBH 5.4	11:35	0	1	20.3	78.7	0	0	1004	0.53	1	16
STMBH 5.5	11:37	0	1.4	19.5	79.1	0	0	1004	-0.16	1	17.1
STMBH 5.7	11:40	0	2	19.6	78.4	0	0	1004	-0.18	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 20-03-15
Weather: dry
Wind conditions: breezy
Air Temperature: 16 ^{o}C

Instrument: GA 2000
Serial No: GA10692
Calibrated To: 20-09-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	9:45	0	1.4	19.9	78.7	0	0	996	0.04	1	5.4
STBH 1.1	9:42	0	1.2	20.1	78.7	0	0	996	-0.02	1	5.4
STBH 2.0	9:49	0	0.9	19.6	79.5	0	0	996	-0.47	1	7
STBH 2.1	9:37	0	1.2	19.9	78.9	0	0	996	-0.23	1	7.6
STBH 2.2	9:40	0	1	20.1	78.9	0	0	996	-0.29	1	5.8
STBH 3.0	9:54	0	1.5	19.5	79	0	0	996	-0.12	1	6.7
STBH 3.1	9:35	0	1.2	20.1	78.7	0	0	996	0.27	1	7.8
STBH 4.0	9:58	0	1.1	19.6	79.3	0	0	996	0.47	10	10.6
STBH 4.1	9:26	0	1.5	20.3	78.2	0	0	996	0.68	1	7.1
STBH 4.2	9:31	0	0.9	19.7	79.4	0	0	996	-0.93	1	8.6
STBH 5.0	10:01	0	1.2	19.5	79.3	0	0	996	0.79	15	19.4
STBH 5.1	10:05	0	1.2	20.1	78.7	0	0	996	0.24	1	5.8
STBH 5.2	9:18	0	1.1	19.9	79	0	0	996	0.38	1	9.6
STBH 5.3	9:21	0	1.5	19.9	78.6	0	0	996	-0.38	1	6
STBH 6.0	10:23	0	2.5	20.1	77.4	0	0	996	-0.13	1	5.4
STBH 6.1	9:07	0	1.1	19.2	79.7	0	0	996	-0.38	1	5.4
STBH 6.2	9:11	0	1.2	19.6	79.2	0	0	996	0.88	1	5.4
STBH 6.3	9:15	0	2.1	20.3	77.6	0	0	996	0.7	1	8.2
STBH 7.0	10:27	0	1.5	19.6	78.9	0	0	996	0.32	1	6.2
STBH 7.1	9:03	0	1.4	19.6	79	0	0	996	0.22	1	5.5
STBH 9.0	10:38	0	1.9	19.8	78.3	0	0	996	-0.23	1	10.7
STBH 12	10:41	0	1.2	20.1	78.7	0	0	996	0.81	10	6.5
STBH 13	10:45	0	1	19.8	79.2	0	0	996	0.06	10	5.2
STBH 15	10:49	0	1.9	19.6	78.5	0	0	996	0.31	1	8.3
STBH 16	10:53	0	2.5	19.6	77.9	0	0	996	-0.19	1	3
STBH 22	10:57	0.3	1.4	19.8	78.5	0	0	996	0.44	1.6	3.1
STMBH 5.4	10:09	0	0.9	20	79.1	0	0	996	-0.24	1	16
STMBH 5.5	10:11	0	1.3	19.6	79.1	0	0	996	-0.14	1	17.1
STMBH 5.7	10:14	0	1.6	19.8	78.6	0	0	996	-0.95	1	7.1

Standard Landfill Borehole Gas Monitoring

Date 27-03-15
Weather: dry
Wind conditions: calm
Air Temperature: 15 ^{o}C

Instrument: GA 2000
Serial No: GA10692
Calibrated To: 20-09-15
Operatives AS

Monitoring Point	Time Hrs	CH4 %	CO2 %	O2 %	Balance %	CO ppm	H2S ppm	Baro mb	Rel Pressure mb	Trigger lev CH4 %	Trigger lev CO2
STBH 1	9:55	0	1.5	20.3	78.2	0	0	1002	0	1	5.4
STBH 1.1	9:52	0	1	19.7	79.3	0	0	1002	0.02	1	5.4
STBH 2.0	9:59	0	0.8	19.5	79.7	0	0	1002	-0.51	1	7
STBH 2.1	9:47	0	1.4	20	78.6	0	0	1002	-0.22	1	7.6
STBH 2.2	9:50	0	0.9	19.8	79.3	0	0	1002	-0.31	1	5.8
STBH 3.0	10:04	0	1.4	19.6	79	0	0	1002	-0.16	1	6.7
STBH 3.1	9:45	0	1	20	79	0	0	1002	0.26	1	7.8
STBH 4.0	10:08	0	1.3	19.5	79.2	0	0	1002	0.42	10	10.6
STBH 4.1	9:36	0	1.2	20	78.8	0	0	1002	0.68	1	7.1
STBH 4.2	9:41	0	0.5	20.1	79.4	0	0	1002	-1	1	8.6
STBH 5.0	10:11	0	1.3	19.6	79.1	0	0	1002	0.75	15	19.4
STBH 5.1	10:15	0	1.4	19.6	79	0	0	1002	0.21	1	5.8
STBH 5.2	9:28	0	0.9	20.1	79	0	0	1002	0.4	1	9.6
STBH 5.3	9:31	0	1.3	19.6	79.1	0	0	1002	-0.44	1	6
STBH 6.0	10:33	0	2	20	78	0	0	1002	-0.14	1	5.4
STBH 6.1	9:17	0	1.4	19.4	79.2	0	0	1002	-0.37	1	5.4
STBH 6.2	9:21	0	1.3	19.8	78.9	0	0	1002	0.97	1	5.4
STBH 6.3	9:25	0	2.5	20.1	77.4	0	0	1002	0.71	1	8.2
STBH 7.0	10:37	0	1.3	19.9	78.8	0	0	1002	0.32	1	6.2
STBH 7.1	9:13	0	1.9	19.5	78.6	0	0	1002	0.17	1	5.5
STBH 9.0	10:48	0	2.2	19.9	77.9	0	0	1002	-0.3	1	10.7
STBH 12	10:51	0	1.5	20.1	78.4	0	0	1002	0.79	10	6.5
STBH 13	10:55	0	1.2	19.6	79.2	0	0	1002	0.03	10	5.2
STBH 15	10:59	0	2.1	20.1	77.8	0	0	1002	0.32	1	8.3
STBH 16	11:03	0	2.1	19.9	78	0	0	1002	-0.13	1	3
STBH 22	11:07	0.2	1.6	19.6	78.6	0	0	1002	0.5	1.6	3.1
STMBH 5.4	10:19	0	2	20.1	77.9	0	0	1002	-0.19	1	16
STMBH 5.5	10:21	0	1.4	19.9	78.7	0	0	1002	-0.06	1	17.1
STMBH 5.7	10:24	0	1.9	20	78.1	0	0	1002	-0.98	1	7.1

STANDARD			Gas Well Balance / Monitoring							
Date		12-01-15								
Weather:		Slight rain								
Wind conditions:		Calm								
Air Temperature:		10								
Instrument:		GA2000								
Serial No:		GA10692								
Calibrated To:		18-02-15								
Operative		AS								
Monitoring	**Time**	**CH4**	**CO2**	**O2**	**Balance**	**CO**	**H2S**	**Baro**	**Rel Pressure**	**Comments**
Point		**%**	**%**	**%**	**%**	**ppm**	**ppm**	**mb**		
GV1	9:10	51.6	30.6	0.4	17.4	10	6	1002	-22.00	Open Full
GV2		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Access
GV3		51.0	30.8	0.2	18.0	8	10	1002	-21.0	open full
GV4		52.6	26.4	0.3	20.7	9	9	1002	-22.0	Open full
GV5		50.0	28.7	0.6	20.7	12	10	1002	-24.0	Open full
GV6		50.7	29.1	0.1	20.1	14	5	1002	-17.0	Open full
GV7		49.8	29.8	0.2	20.2	8	6	1002	-23.0	Open full
GV8		50.3	30.0	0.6	19.1	14	10	1002	-19.0	Open full
GV9		50.1	29.9	1.4	18.6	9	12	1002	-4.0	reg closed to cracked o2 high
GV10		50.0	33.6	0.4	16.0	11	11	1002	-20.0	Open full
GV11		49.9	31.4	0.5	18.2	7	14	1002	-24.0	Left Open full
GV18		51.2	29.8	0.5	18.5	13	12	1002	-22.0	Open full (pumped)
GV19		50.8	29.4	0.6	19.2	10	8	1002	-20.0	Open full
GV20		48.9	29.3	0.1	21.7	12	9	1002	-23.0	Left open full
GV22		50.4	29.8	0.2	19.6	7	10	1002	-21.0	Open full
GV24		52.3	30.2	0.3	17.2	10	7	1002	-19.0	Open full (pumped)
GV25		48.6	30.4	0.5	20.5	5	13	1002	-24.0	Open Full
GV27		51.3	29.5	0.4	18.8	9	8	1002	-25.0	Left Open Full
GV31		50.3	30.0	0.3	19.4	6	12	1002	-19.0	Open full (pumped)
GV32		48.9	29.9	1.1	20.1	10	10	1002	-9.0	reg closed to half way o2 rose slightly
GV33		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off (pumped)
GV34		24.5	16.9	2.3	56.3	12	17	1002	0.0	Left off bad gas
GV35		52.0	30.3	0.2	17.5	8	10	1002	-22.0	Open full
GV51		51.9	27.4	0.4	20.3	9	13	1002	-16.0	open full
GV55		50.6	30.8	0.6	18.0	11	9	1002	-21.0	Open full
Manifold C		49.9	30.6	0.3	19.2	9	15	1002	-19.0	
GV38		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	left off
GV39		27.8	19.9	3.9	48.4	9	12	1002	0.0	Left Off
GV40		49.9	30.4	0.2	19.5	8	12	1002	-23.0	Open full
GV41		50.2	31.2	0.3	18.3	14	10	1002	-18.0	Open full
GV42		47.8	32.0	0.4	19.8	7	14	1002	-21.0	Open full
GV43		49.1	30.6	0.5	19.8	6	9	1002	-24.0	Left Open Full
Manifold B		50.2	30.7	0.1	19.0	10	14	1002	-20.0	
GV44		51.3	29.9	0.3	18.5	12	9	1002	-16.0	left open full
GV45		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV46		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV47		40.2	29.8	1.6	28.4	9	12	1002	0.1	Left off bad gas
GV48		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV49		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV50		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV52		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV53		51.2	29.6	0.2	19.0	10	4	1002	-24.0	Left open good gas
GV54		50.3	30.2	0.3	19.2	10	9	1002	-19.0	Open full
GV56		51.3	30.2	0.4	18.1	16	10	1002	-22.0	Open full
GV57		50.9	31.4	0.4	17.3	12	7	1002	-18.0	Open full
GV58		50.0	29.8	0.6	19.6	10	18	1002	-24.0	left opened full
GV59		51.2	31.4	0.2	17.2	7	16	1002	-25.0	Open full
Manifold A		50.1	29.6	0.6	19.7	5	10	1002	-12.0	
GV60		48.6	29.8	1.2	20.4	13	12	1002	-2.0	reg closed to cracked high o2
GV61		50.0	31.4	0.5	18.1	10	6	1002	-19.0	Open Full
GV62		51.2	29.6	0.2	19.0	8	12	1002	-23.0	Open full
GV63		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Closed
GV64		51.2	27.8	0.3	20.7	13	8	1002	-19.0	Open full
GV65		50.3	29.6	0.6	19.5	9	10	1002	-18.0	Open full
GV66		51.2	30.2	0.7	17.9	11	12	1002	-20.0	Open full
New Wells										
GW60		51.3	31.4	0.4	16.9	10	10	1002	-16.0	Open full (pumped)
GW61		50.9	29.6	0.6	18.9	7.0	12.0	1002	-18	Left Open full
GW62		51.4	32.5	0.3	15.8	13	6	1002	-23.0	Open full
GW63		49.6	31.6	0.9	17.9	6	9	1002	-12.0	Open full
GW64		49.7	28.4	0.4	21.5	10	14	1002	-19.0	Open full (pumped)
GW65		53.2	30.5	0.3	16.0	9	10	1002	-15.0	Open full
GW66		48.7	29.6	0.7	21.0	11	12	1002	-23.0	Left open full
Engine	14:35	50.1	30.2	0.3	19.4	n/a	n/a	1002	-16	320 m3/h

STANDARD			Gas Well Balance / Monitoring							
Date		16-02-15								
Weather:		dry								
Wind conditions:		breezy								
Air Temperature:		9								
Instrument:		GA2000								
Serial No:		GA10692								
Calibrated To:		18-02-15								
Operative		AS								
Monitoring	**Time**	**CH4**	**CO2**	**O2**	**Balance**	**CO**	**H2S**	**Baro**	**Rel Pressure**	**Comments**
Point		**%**	**%**	**%**	**%**	**ppm**	**ppm**	**mb**		
GV1	10:00	50.2	29.9	0.5	19.4	10	7	1001	-23.00	Open Full
GV2		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Access
GV3		51.2	29.6	0.3	18.9	7	11	1001	-19.0	open full
GV4		51.3	27.9	0.1	20.7	10	10	1001	-21.0	Open full
GV5		50.3	29.5	0.5	19.7	9	7	1001	-23.0	Open full
GV6		51.2	30.4	0.3	18.1	12	8	1001	-19.0	Open full
GV7		50.2	30.2	0.4	19.2	6	6	1001	-21.0	Open full
GV8		50.9	29.9	0.3	18.9	12	12	1001	-24.0	Open full
GV9		49.2	30.5	1.0	19.3	7	14	1001	-10.0	reg opend half way o2 improved
GV10		48.6	32.5	0.6	18.3	14	9	1001	-21.0	Open full
GV11		46.8	32.5	1.2	19.5	8	12	1001	-4.0	reg closed to cracked high o2
GV18		50.2	30.2	0.6	19.0	12	13	1001	-19.0	Open full (pumped)
GV19		51.2	30.2	0.5	18.1	9	9	1001	-23.0	Open full
GV20		49.6	29.1	0.3	21.0	11	10	1001	-19.0	Left open full
GV22		51.2	29.2	0.4	19.2	6	7	1001	-24.0	Open full
GV24		51.2	30.8	0.2	17.8	9	9	1001	-23.0	Open full (pumped)
GV25		49.9	31.2	0.3	18.6	6	12	1001	-19.0	Open Full
GV27		50.2	29.8	0.1	19.9	12	7	1001	-23.0	Left Open Full
GV31		51.2	29.6	0.2	19.0	8	11	1001	-21.0	Open full (pumped)
GV32		49.9	30.2	0.6	19.3	6	9	1001	-19.0	reg opened full gas improved
GV33		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off (pumped)
GV34		29.9	17.1	2.8	50.2	11	15	1001	0.0	Left off bad gas
GV35		51.2	28.3	0.3	20.2	7	9	1001	-20.0	Open full
GV51		50.2	28.7	0.6	20.5	10	12	1001	-19.0	open full
GV55		51.2	32.5	0.7	15.6	14	7	1001	-19.0	Open full
Manifold C		50.2	31.2	0.4	18.2	10	14	1001	-21.0	
GV38		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	left off
GV39		28.9	21.4	3.2	46.5	10	13	1001	0.0	Left Off
GV40		50.2	29.9	0.1	19.8	9	17	1001	-21.0	Open full
GV41		51.2	30.2	0.3	18.3	15	9	1001	-20.0	Open full
GV42		49.6	31.4	0.4	18.6	9	12	1001	-24.0	Open full
GV43		49.6	31.2	0.5	18.7	7	10	1001	-23.0	Left Open Full
Manifold B		51.2	31.2	0.3	17.3	9	12	1001	-19.0	
GV44		50.4	30.6	0.2	18.8	11	10	1001	-17.0	left open full
GV45		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV46		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV47		41.2	30.2	1.8	26.8	10	15	1001	0.1	Left off bad gas
GV48		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV49		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV50		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV52		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV53		50.2	30.1	0.3	19.4	7	5	1001	-22.0	Left open good gas
GV54		51.2	29.8	0.4	18.6	9	10	1001	-18.0	Open full
GV56		50.2	31.2	0.6	18.0	15	11	1001	-21.0	Open full
GV57		49.9	30.9	0.1	19.1	13	9	1001	-19.0	Open full
GV58		49.6	31.2	0.1	19.1	14	17	1001	-21.0	left opened full
GV59		50.2	30.6	0.3	18.9	6	21	1001	-22.0	Open full
Manifold A		50.8	29.1	0.6	19.5	9	9	1001	-14.0	
GV60		49.9	30.2	0.4	19.5	11	14	1001	-19.0	reg opened full good gas
GV61		49.6	30.5	0.3	19.6	12	8	1001	-23.0	Open Full
GV62		50.3	30.2	0.2	19.3	9	13	1001	-22.0	Open full
GV63		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Closed
GV64		50.2	29.5	0.2	20.1	12	10	1001	-25.0	Open full
GV65		49.6	30.2	0.4	19.8	10	8	1001	-26.0	Open full
GV66		50.2	29.6	0.1	20.1	10	13	1001	-17.0	Open full
New Wells										
GW60		51.0	29.9	0.4	18.7	11	9	1001	-19.0	Open full (pumped)
GW61		48.6	30.2	1.2	20.0	8.0	14.0	1001	-10	reg closed half way o2 increased
GW62		52.6	31.2	0.4	15.8	12	7	1001	-21.0	Open full
GW63		49.3	30.2	0.5	20.0	7	12	1001	-16.0	Open full
GW64		50.1	29.6	0.1	20.2	12	16	1001	-18.0	Open full (pumped)
GW65		52.3	31.4	0.4	15.9	7	9	1001	-21.0	Open full
GW66		49.1	30.2	0.6	20.1	12	11	1001	-20.0	Left open full
Engine	16:15	50.1	31.2	0.4	18.3	n/a	n/a	1001	-19	600 kw

STANDARD			Gas Well Balance / Monitoring							
Date		09-03-15								
Weather:		dry								
Wind conditions:		Calm								
Air Temperature:		14								
Instrument:		GA 2000								
Serial No:		GA10692								
Calibrated To:		20-09-15								
Operative		AS								
Monitoring	**Time**	**CH4**	**CO2**	**O2**	**Balance**	**CO**	**H2S**	**Baro**	**Rel Pressure**	**Comments**
Point		**%**	**%**	**%**	**%**	**ppm**	**ppm**	**mb**		
GV1	10:25	51.2	31.2	0.3	17.3	8	6	998	-21.00	Open Full
GV2		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Access
GV3		48.6	30.2	0.2	21.0	8	12	998	-19.0	open full
GV4		49.8	28.9	0.3	21.0	10	9	998	-23.0	Open full
GV5		51.3	30.4	0.8	17.5	9	8	998	-21.0	Open full
GV6		50.0	31.2	0.4	18.4	14	10	998	-20.0	Open full
GV7		50.3	29.8	0.6	19.3	7	8	998	-17.0	Open full
GV8		50.4	29.2	0.4	20.0	11	11	998	-19.0	Open full
GV9		50.2	30.2	0.8	18.8	8	16	998	-16.0	Reg opened full good gas
GV10		49.9	31.4	0.7	18.0	12	6	998	-22.0	Open full
GV11		42.2	31.2	1.9	24.7	7	15	998	0.0	reg closed bad gas
GV18		50.4	31.2	0.9	17.5	14	10	998	-21.0	Open full (pumped)
GV19		50.3	29.8	0.3	19.6	11	12	998	-21.0	Open full
GV20		50.8	30.1	0.4	18.7	14	11	998	-23.0	Left open full
GV22		49.9	30.2	0.6	19.3	7	8	998	-20.0	Open full
GV24		50.3	29.9	0.7	19.1	10	10	998	-22.0	Open full (pumped)
GV25		50.3	31.2	0.5	18.0	7	14	998	-21.0	Open Full
GV27		50.6	29.5	0.3	19.6	13	8	998	-20.0	Left Open Full
GV31		50.8	30.5	0.3	18.4	9	14	998	-23.0	Open full (pumped)
GV32		50.3	29.9	0.6	19.2	7	10	998	-21.0	left open full good gas
GV33		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off (pumped)
GV34		31.2	18.5	3.0	47.3	12	14	998	0.0	Left off bad gas
GV35		50.2	29.4	0.4	20.0	8	11	998	-19.0	Open full
GV51		49.8	29.6	0.8	19.8	9	12	998	-20.0	open full
GV55		48.6	29.9	0.6	20.9	12	8	998	-24.0	Open full
Manifold C		50.3	30.2	0.4	19.1	11	12	998	-23.0	
GV38		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	left off
GV39		30.2	20.5	2.8	46.5	9	9	998	0.0	Left Off
GV40		49.6	29.4	0.2	20.8	7	15	998	-24.0	Open full
GV41		50.2	30.2	0.4	19.2	14	12	998	-18.0	Open full
GV42		49.2	29.5	0.6	20.7	8	14	998	-25.0	Open full
GV43		50.2	30.8	0.7	18.3	6	9	998	-21.0	Left Open Full
Manifold B		50.4	32.5	0.4	16.7	8	11	998	-19.0	
GV44		50.1	31.2	0.3	18.4	12	9	998	-19.0	left open full
GV45		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV46		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV47		42.3	31.2	2.1	24.4	7	14	998	0.0	Left off bad gas
GV48		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV49		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV50		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV52		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Turned off
GV53		51.2	29.9	0.5	18.4	6	6	998	-23.0	Left open good gas
GV54		50.3	30.2	0.6	18.9	12	9	998	-19.0	Open full
GV56		50.6	29.7	0.4	19.3	14	14	998	-19.0	Open full
GV57		51.4	31.4	0.3	16.9	11	12	998	-20.0	Open full
GV58		50.2	30.5	0.2	19.1	13	20	998	-23.0	left opened full
GV59		50.8	30.2	0.3	18.7	7	18	998	-24.0	Open full
Manifold A		51.2	29.6	0.4	18.8	10	10	998	-15.0	
GV60		50.7	29.9	0.5	18.9	14	11	998	-23.0	Left open full
GV61		48.6	31.2	0.3	19.9	9	7	998	-19.0	Open Full
GV62		50.8	31.2	0.6	17.4	7	12	998	-20.0	Open full
GV63		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Closed
GV64		49.8	28.4	0.3	21.5	13	14	998	-23.0	Open full
GV65		49.2	29.8	0.5	20.5	9	7	998	-21.0	Open full
GV66		50.3	30.2	0.4	19.1	6	12	998	-19.0	Open full
New Wells										
GW60		50.2	30.6	0.3	18.9	9	10	998	-17.0	Open full (pumped)
GW61		50.2	29.6	0.8	19.4	7.0	12.0	998	-20	Reg opened full good gas
GW62		53.0	29.7	0.5	16.8	13	9	998	-23.0	Open full
GW63		49.9	31.2	0.2	18.7	8	11	998	-17.0	Open full
GW64		50.0	30.4	0.4	19.2	11	14	998	-20.0	Open full (pumped)
GW65		51.3	30.2	0.3	18.2	8	10	998	-23.0	Open full
GW66		49.6	29.6	0.2	20.6	13	12	998	-22.0	Left open full
Engine	16:10	50.3	30.4	0.6	18.7	n/a	n/a	998	-18	600 kw

Standard Groundwater Monitoring

Date 28-01-15
Weather: slight rain
Wind conditions: calm
Air Temperature: 7 ^{o}C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip-Lev Metres	Dip-Base Metres	Water-Lev Metres	
ST GW 1	10:20	17.69	55.77	38.08	
ST GW 2	10:36	9.1	9.1	0	DRY
ST GW 3	11:35	20.39	53.25	32.86	
ST GW 4R	12:10	52.69	53	0.31	
ST GW 5	11:00	2.54	10	7.46	
ST GW 6	11:18	19.21	45.46	26.25	
ST GW 7R	10:49	65.21	71	5.79	Not accurate

Standard Groundwater Monitoring

Date 16-02-15
Weather: Dry
Wind conditions: Breezy
Air Temperature: 7 ^{o}C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip-Lev Metres	Dip-Base Metres	Water-Lev Metres	
ST GW 1	9:25	19.21	55.77	36.56	
ST GW 2	9:40	9.1	9.1	0	DRY
ST GW 3	10:30	22.31	53.25	30.94	
ST GW 4R	11:15	52.24	53	0.76	
ST GW 5	10:10	3.04	10	6.96	
ST GW 6	10:50	21.36	45.46	24.1	
ST GW 7R	9:55	66.32	71	4.68	Not accurate

Standard Groundwater Monitoring

Date 25-03-15
Weather: Dry
Wind conditions: Breezy
Air Temperature: 10 ^{o}C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip-Lev Metres	Dip-Base Metres	Water-Lev Metres	
ST GW 1	9:00	23.28	55.77	32.49	
ST GW 2	9:20	9.1	9.1	0	DRY
ST GW 3	10:08	27.58	53.25	25.67	
ST GW 4R	11:02	51.98	53	1.02	get full sample (dry)
ST GW 5	9:51	4.21	10	5.79	
ST GW 6	10:35	24.18	45.46	21.28	
ST GW 7R	9:40	43.21	71	27.79	Blocked at 43.21

Standard Leachate Monitoring

Date 13-01-15
Weather: dry
Wind conditions: Breezy
Air Temperature: 9 ^{o}C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip Level (m)	Base Level	Leachate Depth	Pumping Yes/No	Comments
LC2.1	9:30	29.51	31	1.49	YES	Pneumatic pumps
LC3	9:48	3.05	4.84	1.79	YES	Pneumatic pumps
LC4	10:14	17.65	19	1.35	YES	Pneumatic pumps
LC7	10:29	18.42	20.31	1.89	YES	Pneumatic pumps
LS5	10:44	28.62	32	1.35	YES	Electric Pump - Direct To Tanks
LS6	10:58	29.11	33	1.55	YES	Electric Pump - Direct To Tanks
S1	11:12	3.02	4.43	1.41	YES	Pneumatic pumps
S2	11:35	1.71	3.35	1.64	YES	Pneumatic pumps
S3	11:55	3.59	5.09	1.5	YES	Pneumatic pumps

Standard Leachate Monitoring

Date 17-02-15
Weather: dry
Wind conditions: Calm
Air Temperature: 8 ^{o}C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip Level (m)	Base Level	Leachate Depth	Pumping Yes/No	Comments
LC2.1	9:45	29.52	31	1.48	YES	Pneumatic pumps
LC3	10:11	3.11	4.84	1.73	YES	Pneumatic pumps
LC4	10:35	17.71	19	1.29	YES	Pneumatic pumps
LC7	10:42	18.52	20.31	1.79	YES	Pneumatic pumps
LS5	10:58	28.52	32	1.39	YES	Electric Pump - Direct To Tanks
LS6	11:14	29.14	33	1.54	YES	Electric Pump - Direct To Tanks
S1	11:25	3.06	4.43	1.37	YES	Pneumatic pumps
S2	11:51	1.75	3.35	1.6	YES	Pneumatic pumps
S3	12:11	3.62	5.09	1.47	YES	Pneumatic pumps

Standard Leachate Monitoring

Date 24-03-15
Weather: dry
Wind conditions: Calm
Air Temperature: 8 ^{o}C

Instrument: Dip-Metre

Operative AS

Monitoring Point	Time Hrs	Dip Level (m)	Base Level	Leachate Depth	Pumping Yes/No	Comments
LC2.1	9:30	29.56	31	1.44	YES	Pneumatic pumps
LC3	10:00	3.14	4.84	1.7	YES	Pneumatic pumps
LC4	10:25	17.65	19	1.35	YES	Pneumatic pumps
LC7	10:30	18.43	20.31	1.88	YES	Pneumatic pumps
LS5	10:45	28.59	32	1.36	YES	Electric Pump - Direct To Tanks
LS6	11:00	29.19	33	1.52	YES	Electric Pump - Direct To Tanks
S1	11:10	3.11	4.43	1.32	YES	Pneumatic pumps
S2	11:35	1.71	3.35	1.64	YES	Pneumatic pumps
S3	11:50	3.69	5.09	1.4	YES	Pneumatic pumps

ALcontrol Laboratories

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Flintshire County Council
Waste Management Services
Brookhill Landfill Site
Pinfold Industrial Estate
Buckley
Flintshire
CH7 3PL

Attention: Paul Murphy

CERTIFICATE OF ANALYSIS

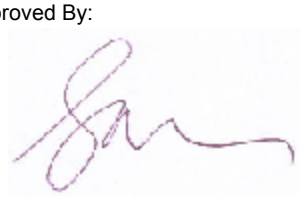
Date:	20 April 2015
Customer:	H_FLINTCCO_BUC
Sample Delivery Group (SDG):	150402-94
Your Reference:	
Location:	Brookhill Quarterlys
Report No:	309628

We received 8 samples on Thursday April 02, 2015 and 8 of these samples were scheduled for analysis which was completed on Monday April 20, 2015. 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:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11125820	GW1			01/04/2015
11125821	GW3			01/04/2015
11125822	GW5			01/04/2015
11125823	GW6			01/04/2015
11125824	SW1			01/04/2015
11125825	SW2			01/04/2015
11125826	SW4			01/04/2015
11125827	SW5			01/04/2015

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

SDG:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

LIQUID

Results Legend

- X Test
- N No Determination Possible

Lab Sample No(s)			11125820				11125821				11125822				11125823				11125824						11125825						11125826						11125827					
Customer Sample Reference			GW1				GW3				GW5				GW6				SW1						SW2						SW4						SW5					
AGS Reference																																										
Depth (m)																																										
Container			1000ml glass bottle	1plastic (ALE221)	250ml BOD (ALE21	H2SO4 (ALE244)	1000ml glass bottle	1plastic (ALE221)	250ml BOD (ALE21	H2SO4 (ALE244)	1000ml glass bottle	1plastic (ALE221)	250ml BOD (ALE21	H2SO4 (ALE244)	1000ml glass bottle	1plastic (ALE221)	250ml BOD (ALE21	H2SO4 (ALE244)	1000ml glass bottle	1plastic (ALE221)	250ml BOD (ALE21	Dissolved Metals Pr	H2SO4 (ALE244)	NaOH (ALE245)	1000ml glass bottle	1plastic (ALE221)	250ml BOD (ALE21	Dissolved Metals Pr	H2SO4 (ALE244)	NaOH (ALE245)	1000ml glass bottle	1plastic (ALE221)	250ml BOD (ALE21	Dissolved Metals Pr	H2SO4 (ALE244)	NaOH (ALE245)	1000ml glass bottle	1plastic (ALE221)	250ml BOD (ALE21	Dissolved Metals Pr	H2SO4 (ALE244)	NaOH (ALE245)
Alkalinity as CaCO3	All	NDPs: 0 Tests: 8		X				X				X				X				X						X						X						X				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 8				X				X				X				X					X						X						X						X	
Anions by ion Chromatography	All	NDPs: 0 Tests: 8		X				X				X				X				X						X						X						X				
BOD True Total	All	NDPs: 0 Tests: 4																			X						X						X						X			
COD Unfiltered	All	NDPs: 0 Tests: 8			X				X				X				X				X						X						X						X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 4		X				X				X				X																										
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 4																						X						X						X						X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 8		X				X				X				X				X						X						X						X				
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 4		X				X				X				X																										
GRO by GC-FID (W)	All	NDPs: 0 Tests: 4	X				X				X				X																											
Mercury Dissolved	All	NDPs: 0 Tests: 4																				X						X						X						X		
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 8		X				X				X				X				X						X						X						X				
OC, OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 4																	X						X						X						X					
pH Value	All	NDPs: 0 Tests: 8		X				X				X				X				X						X						X						X				
Phenols by HPLC (W)	All	NDPs: 0 Tests: 4																					X						X						X						X	

CERTIFICATE OF ANALYSIS

SDG:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

LIQUID

Results Legend

X Test

N No Determination Possible

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			11125820	GW1			1000ml glass bottle
			11125821	GW3			1000ml glass bottle
			11125822	GW5			1000ml glass bottle
			11125823	GW6			1000ml glass bottle
			11125824	SW1			1000ml glass bottle
			11125825	SW2			1000ml glass bottle
			11125826	SW4			1000ml glass bottle
			11125827	SW5			1000ml glass bottle
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 4	X		X		X

CERTIFICATE OF ANALYSIS

SDG:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**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
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	GW1	GW3	GW5	GW6	SW1	SW2
			Depth (m)	.	.	.	.	.	.
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	01/04/2015	01/04/2015	01/04/2015	01/04/2015	01/04/2015	01/04/2015
			Sample Time	.	.	.	.	.	.
			Date Received	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015	02/04/2015
			SDG Ref	150402-94	150402-94	150402-94	150402-94	150402-94	150402-94
			Lab Sample No.(s)	11125820	11125821	11125822	11125823	11125824	11125825
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		130 #	200 #	220 #	90 #	205 #	155 #
BOD, unfiltered	<1 mg/l	TM045						63.9 #	2.19 ♦ #
Oxygen, dissolved	<0.3 mg/l	TM046		3.12 #	3.73 #	<0.3 #	3.39 #		
Organic Carbon, Total	<3 mg/l	TM090		<3 ♦ #	3.33 ♦ #	7.72 ♦ #	29.4 ♦ #		
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1.12 #	0.795 #	2.98 #	75.5 #	0.763 #	<0.2 #
COD, unfiltered	<7 mg/l	TM107		280 ♦ #	28.5 ♦ #	225 ♦ #	225 ♦ #	1010 ♦ #	23.8 ♦ #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.587 #	0.823 #	0.373 #	2.82 #		
Arsenic (diss.filt)	<0.00012 mg/l	TM152						0.00114 #	0.000532 #
Cadmium (diss.filt)	<0.0001 mg/l	TM152		<0.0001 #	<0.0001 #	<0.0001 #	0.00281 #	<0.0001 #	<0.0001 #
Chromium (diss.filt)	<0.00022 mg/l	TM152		0.00158 #	0.00401 #	0.00247 #	0.00419 #		
Copper (diss.filt)	<0.00085 mg/l	TM152		<0.00085 #	<0.00085 #	<0.00085 #	0.0069 #	<0.00085 #	0.00289 #
Lead (diss.filt)	<0.00002 mg/l	TM152		<0.00002 #	<0.00002 #	0.000036 #	0.000229 #	0.000406 #	0.000163 #
Manganese (diss.filt)	<0.00004 mg/l	TM152		1.09 #	0.0964 #	2.77 #	8.3 #		
Nickel (diss.filt)	<0.00015 mg/l	TM152		0.00149 #	0.00241 #	0.00313 #	0.104 #	0.00345 #	0.00615 #
Zinc (diss.filt)	<0.00041 mg/l	TM152		0.0126 #	0.00528 #	0.00662 #	0.0975 #	0.00478 #	0.00336 #
Mercury (diss.filt)	<0.00001 mg/l	TM183						<0.00001 #	<0.00001 #
Chloride	<0.08 mg/l	TM226		56.9 #	70.7 #	14.1 #	519 #		
Nitrite as NO2	<0.03 mg/l	TM226						<0.03 ♦ #	0.703 ♦ #
Nitrate as NO3	<0.04 mg/l	TM226						20.1 #	2.22 #
Sulphate	<0.1 mg/l	TM226		276 #	294 #	48.7 #	426 #		
Total Oxidised Nitrogen as N	<0.01 mg/l	TM226		0.758 #	0.942 #	3.25 #	>106 #	4.53 #	0.716 #
Cyanide, Total	<0.05 mg/l	TM227						<0.05 #	<0.05 #
Calcium (diss.filt)	<0.012 mg/l	TM228		60.2 #	95.1 #	74.8 #	79.9 #		
Sodium (diss.filt)	<0.076 mg/l	TM228		29.6 #	51.1 #	12.1 #	365 #	44.5 #	97.8 #
Magnesium (diss.filt)	<0.036 mg/l	TM228		29 #	42.2 #	9.7 #	42.5 #	19.5 #	15.1 #
Potassium (diss.filt)	<1 mg/l	TM228		10.9 #	10.6 #	7.27 #	64.3 #	7.05 #	8.36 #
Iron (diss.filt)	<0.019 mg/l	TM228		<0.019 #	<0.019 #	10.8 #	0.0613 #	0.637 #	0.0641 #
pH	<1 pH Units	TM256		6.25 ♦ #	6.94 ♦ #	7.31 ♦ #	6.43 ♦ #	7.64 ♦ #	7.96 ♦ #
Phenols, Total Detected 5 speciated	<0.025 mg/l	TM259						<0.025	<0.025

CERTIFICATE OF ANALYSIS

SDG:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**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
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	SW4	SW5				
			Depth (m)	.	.				
			Sample Type	Water(GW/SW)	Water(GW/SW)				
			Date Sampled	01/04/2015	01/04/2015				
			Sample Time	.	.				
			Date Received	02/04/2015	02/04/2015				
			SDG Ref	150402-94	150402-94				
			Lab Sample No.(s)	11125826	11125827				
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		165 #	125 #				
BOD, unfiltered	<1 mg/l	TM045		<1 #	<1 #				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #				
COD, unfiltered	<7 mg/l	TM107		17.4 ♦ #	45.3 ♦ #				
Arsenic (diss.filt)	<0.00012 mg/l	TM152		0.00079 #	0.0012 #				
Cadmium (diss.filt)	<0.0001 mg/l	TM152		<0.0001 #	<0.0001 #				
Copper (diss.filt)	<0.00085 mg/l	TM152		0.00422 #	0.00374 #				
Lead (diss.filt)	<0.00002 mg/l	TM152		0.000284 #	0.00027 #				
Nickel (diss.filt)	<0.00015 mg/l	TM152		0.0055 #	0.00464 #				
Zinc (diss.filt)	<0.00041 mg/l	TM152		0.0103 #	0.00216 #				
Mercury (diss.filt)	<0.00001 mg/l	TM183		<0.00001 #	<0.00001 #				
Nitrite as NO2	<0.03 mg/l	TM226		0.417 ♦ #	0.742 ♦ #				
Nitrate as NO3	<0.04 mg/l	TM226		9.6 #	3.74 #				
Total Oxidised Nitrogen as N	<0.01 mg/l	TM226		2.29 #	1.07 #				
Cyanide, Total	<0.05 mg/l	TM227		<0.05 #	<0.05 #				
Sodium (diss.filt)	<0.076 mg/l	TM228		50.4 #	29 #				
Magnesium (diss.filt)	<0.036 mg/l	TM228		12.8 #	25.3 #				
Potassium (diss.filt)	<1 mg/l	TM228		8.21 #	8.24 #				
Iron (diss.filt)	<0.019 mg/l	TM228		0.0677 #	0.0701 #				
pH	<1 pH Units	TM256		8.02 ♦ #	8.05 ♦ #				
Phenols, Total Detected 5 speciated	<0.025 mg/l	TM259		<0.025	<0.025				

CERTIFICATE OF ANALYSIS

SDG:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

GRO by GC-FID (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
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	GW1	GW3	GW5	GW6		
			Depth (m)	.	.	.	.		
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)		
			Date Sampled	01/04/2015	01/04/2015	01/04/2015	01/04/2015		
			Sample Time	.	.	.	.		
			Date Received	02/04/2015	02/04/2015	02/04/2015	02/04/2015		
			SDG Ref	150402-94	150402-94	150402-94	150402-94		
			Lab Sample No.(s)	11125820	11125821	11125822	11125823		
			AGS Reference						
Toluene	<0.004 mg/l	TM245		<0.004 1 #	<0.004 1 #	<0.004 1 #	<0.004 1 #		
Sum of detected Xylenes	<0.011 mg/l	TM245		<0.011 1	<0.011 1	<0.011 1	<0.011 1		

CERTIFICATE OF ANALYSIS

SDG:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

OC, OP Pesticides and Triazine Herb

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
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	SW1	SW2	SW4	SW5		
			Depth (m)	.	.	.	.		
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)		
			Date Sampled	01/04/2015	01/04/2015	01/04/2015	01/04/2015		
			Sample Time	.	.	.	.		
			Date Received	02/04/2015	02/04/2015	02/04/2015	02/04/2015		
			SDG Ref	150402-94	150402-94	150402-94	150402-94		
			Lab Sample No.(s)	11125824	11125825	11125826	11125827		
			AGS Reference						
Volume	-	TM231		70	70	70	75		
Atrazine	<0.001 mg/l	TM231		<0.02	<0.001	<0.001	<0.001		
Simazine	<0.001 mg/l	TM231		<0.02	<0.001	<0.001	<0.001		
Dichlorvos	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Mevinphos	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Tecnazene	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Hexachlorobenzene	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Trifluralin	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
alpha-Hexachlorocyclohexane (HCH / Lindane)	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Quintozene (PCNB)	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Diazinon	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Triallate	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Etrimphos	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
gamma-Hexachlorocyclohexane (HCH / Lindane)	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Disulfoton	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Propetamphos	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Heptachlor	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Chlorpyriphos methyl	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Dimethoate	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Aldrin	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Chlorothalonil	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Pirimiphos-methyl	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
beta-Hexachlorocyclohexane (HCH / Lindane)	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Chlorpyriphos	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Telodrin	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Methyl parathion	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Isodrin	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Malathion	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Fenthion	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Fenitrothion	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Heptachlor epoxide	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Triadimefon	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		

CERTIFICATE OF ANALYSIS

SDG:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

OC, OP Pesticides and Triazine Herb

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
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	SW1	SW2	SW4	SW5		
			Depth (m)	.	.	.	.		
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)		
			Date Sampled	01/04/2015	01/04/2015	01/04/2015	01/04/2015		
			Sample Time	.	.	.	.		
			Date Received	02/04/2015	02/04/2015	02/04/2015	02/04/2015		
			SDG Ref	150402-94	150402-94	150402-94	150402-94		
			Lab Sample No.(s)	11125824	11125825	11125826	11125827		
			AGS Reference						
Pendimethalin	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Parathion	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
o,p-DDE	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Chlorfenvinphos	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Endosulphan I	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Trans-chlordane	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
cis-Chlordane	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
p,p-DDE	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Dieldrin	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
o,p-TDE (DDD)	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Endrin	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
o,p-DDT	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
p,p-TDE (DDD)	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Ethion	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Endosulphan II	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
p,p-DDT	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Carbophenothion	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
o,p-Methoxychlor	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Triazophos	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
p,p-Methoxychlor	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Endosulphan sulphate	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Permethrin I	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Phosalone	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Permethrin II	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Azinphos-methyl	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		
Azinphos-ethyl	<0.00001 mg/l	TM231		<0.0002	<0.00001	<0.00001	<0.00001		

CERTIFICATE OF ANALYSIS

SDG:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM046	Method 4500G, AWWA/APHA, 20th Ed., 1999	Measurement of Dissolved Oxygen by Oxygen Meter		
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
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		
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM231	Agilent 6890 Gas Chromatograph system using an Agilent 5973 Mass Selective Detector (MSD)	Determination of Organochlorine and Organophosphorus Pesticides and Triazine Herbicides by GCMS		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC		

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

CERTIFICATE OF ANALYSIS

SDG:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	11125820	11125821	11125822	11125823	11125824	11125825	11125826	11125827
Customer Sample Ref.	GW1	GW3	GW5	GW6	SW1	SW2	SW4	SW5
AGS Ref.								
Depth								
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Alkalinity as CaCO3	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015
Ammoniacal Nitrogen	13-Apr-2015	15-Apr-2015	15-Apr-2015	15-Apr-2015	15-Apr-2015	15-Apr-2015	15-Apr-2015	15-Apr-2015
Anions by ion Chromatography	20-Apr-2015	20-Apr-2015	17-Apr-2015	20-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015
BOD True Total					08-Apr-2015	09-Apr-2015	08-Apr-2015	08-Apr-2015
COD Unfiltered	16-Apr-2015	16-Apr-2015	16-Apr-2015	16-Apr-2015	16-Apr-2015	16-Apr-2015	16-Apr-2015	16-Apr-2015
Conductivity (at 20 deg.C)	15-Apr-2015	15-Apr-2015	15-Apr-2015	15-Apr-2015				
Cyanide Comp/Free/Total/Thiocyanate					09-Apr-2015	09-Apr-2015	09-Apr-2015	09-Apr-2015
Dissolved Metals by ICP-MS	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015
Dissolved Oxygen by Probe	04-Apr-2015	04-Apr-2015	04-Apr-2015	04-Apr-2015				
GRO by GC-FID (W)	15-Apr-2015	15-Apr-2015	15-Apr-2015	15-Apr-2015				
Mercury Dissolved					08-Apr-2015	08-Apr-2015	08-Apr-2015	08-Apr-2015
Metals by iCap-OES Dissolved (W)	08-Apr-2015	08-Apr-2015	08-Apr-2015	08-Apr-2015	08-Apr-2015	08-Apr-2015	08-Apr-2015	08-Apr-2015
OC, OP Pesticides and Triazine Herb					08-Apr-2015	08-Apr-2015	08-Apr-2015	08-Apr-2015
pH Value	16-Apr-2015	16-Apr-2015	16-Apr-2015	16-Apr-2015	16-Apr-2015	16-Apr-2015	16-Apr-2015	16-Apr-2015
Phenols by HPLC (W)					17-Apr-2015	17-Apr-2015	17-Apr-2015	17-Apr-2015
Total Organic and Inorganic Carbon	10-Apr-2015	10-Apr-2015	10-Apr-2015	10-Apr-2015				

SDG:	150402-94	**Location:**	Brookhill Quarterlys	**Order Number:**	
Job:	H_FLINTCCO_BUC-7	**Customer:**	Flintshire County Council	**Report Number:**	309628
Client Reference:		**Attention:**	Paul Murphy	**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 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** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

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
5	Samples exceeded holding time before presevation was performed
§	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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Flintshire County Council
Waste Management Services
Brookhill Landfill Site
Pinfold Industrial Estate
Buckley
Flintshire
CH7 3PL

Attention: Paul Murphy

CERTIFICATE OF ANALYSIS

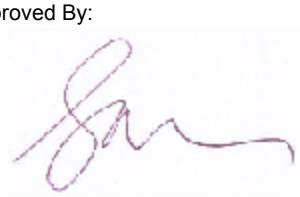
Date:	20 April 2015
Customer:	H_FLINTCCO_BUC
Sample Delivery Group (SDG):	150402-95
Your Reference:	
Location:	Standard Quarterly
Report No:	309638

We received 9 samples on Thursday April 02, 2015 and 4 of these samples were scheduled for analysis which was completed on Monday April 20, 2015. 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:	150402-95	**Location:**	Standard Quarterly	**Order Number:**	
Job:	H_FLINTCCO_BUC-8	**Customer:**	Flintshire County Council	**Report Number:**	309638
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11125988	LC2			01/04/2015
11125989	LC3			01/04/2015
11125990	LC4			01/04/2015
11125991	LC7			01/04/2015
11125994	S1			01/04/2015
11125995	S2			01/04/2015
11125996	S3			01/04/2015
11125992	SSR5			01/04/2015
11125993	SSR6			01/04/2015

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

CERTIFICATE OF ANALYSIS

SDG:	150402-95	**Location:**	Standard Quarterly	**Order Number:**	
Job:	H_FLINTCCO_BUC-8	**Customer:**	Flintshire County Council	**Report Number:**	309638
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	11125988	11125989	11125990	11125991
			Customer Sample Reference	LC2	LC3	LC4	LC7
			AGS Reference				
			Depth (m)				
			Container	1000ml glass bottle 1lplastic (ALE221) 250ml BOD (ALE21 H2SO4 (ALE244)	1000ml glass bottle 1lplastic (ALE221) 250ml BOD (ALE21 H2SO4 (ALE244)	1000ml glass bottle 1lplastic (ALE221) 250ml BOD (ALE21 H2SO4 (ALE244)	1000ml glass bottle 1lplastic (ALE221) 250ml BOD (ALE21 H2SO4 (ALE244)
Alkalinity as CaCO3	All	NDPs: 0 Tests: 4		X	X	X	X
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 4		X	X	X	X
Anions by ion Chromatography	All	NDPs: 0 Tests: 4		X	X	X	X
BOD True Total	All	NDPs: 0 Tests: 4		X	X	X	X
COD Unfiltered	All	NDPs: 0 Tests: 4		X	X	X	X
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 4		X	X	X	X
pH Value	All	NDPs: 0 Tests: 4		X	X	X	X
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 4		X	X	X	X

CERTIFICATE OF ANALYSIS

SDG:	150402-95	**Location:**	Standard Quarterly	**Order Number:**	
Job:	H_FLINTCCO_BUC-8	**Customer:**	Flintshire County Council	**Report Number:**	309638
Client Reference:		**Attention:**	Paul Murphy	**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
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	LC2	LC3	LC4	LC7		
			Depth (m)	.	.	.	.		
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)		
			Date Sampled	01/04/2015	01/04/2015	01/04/2015	01/04/2015		
			Sample Time	.	.	.	.		
			Date Received	02/04/2015	02/04/2015	02/04/2015	02/04/2015		
			SDG Ref	150402-95	150402-95	150402-95	150402-95		
			Lab Sample No.(s)	11125988	11125989	11125990	11125991		
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		7680 #	5700 #	3930 #	4530 #		
BOD, unfiltered	<1 mg/l	TM045		114 ♦ #	117 ♦ #	36.4 ♦ #	55.9 ♦ #		
Organic Carbon, Total	<3 mg/l	TM090		770 ♦ #	533 ♦ #	264 ♦ #	373 ♦ #		
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		372 #	1180 #	734 #	734 #		
COD, unfiltered	<7 mg/l	TM107		2280 ♦ #	1780 #	840 #	870 ♦ #		
Chloride	<0.08 mg/l	TM226		2400 #	1780 #	1330 #	1260 #		
Sulphate	<0.1 mg/l	TM226		1.52 #	29.8 #	0.874 #	4.08 #		
Total Oxidised Nitrogen as N	<0.01 mg/l	TM226		0.293 #	0.0129 #	0.621 #	0.455 #		
Calcium (diss.filt)	<0.012 mg/l	TM228		58.4 #	74.6 #	111 #	78.2 #		
Sodium (diss.filt)	<0.076 mg/l	TM228		1840 #	1380 #	960 #	1070 #		
Magnesium (diss.filt)	<0.036 mg/l	TM228		95.4 #	84.2 #	92.4 #	98.2 #		
Potassium (diss.filt)	<1 mg/l	TM228		733 #	591 #	381 #	399 #		
pH	<1 pH Units	TM256		7.98 #	7.88 #	7.96 #	7.88 #		

CERTIFICATE OF ANALYSIS

SDG:	150402-95	**Location:**	Standard Quarterly	**Order Number:**	
Job:	H_FLINTCCO_BUC-8	**Customer:**	Flintshire County Council	**Report Number:**	309638
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		

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

CERTIFICATE OF ANALYSIS

SDG:	150402-95	**Location:**	Standard Quarterly	**Order Number:**	
Job:	H_FLINTCCO_BUC-8	**Customer:**	Flintshire County Council	**Report Number:**	309638
Client Reference:		**Attention:**	Paul Murphy	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	11125988	11125989	11125990	11125991
Customer Sample Ref.	LC2	LC3	LC4	LC7
AGS Ref.				
Depth				
Type	LIQUID	LIQUID	LIQUID	LIQUID
Alkalinity as CaCO3	17-Apr-2015	17-Apr-2015	17-Apr-2015	09-Apr-2015
Ammoniacal Nitrogen	13-Apr-2015	13-Apr-2015	14-Apr-2015	13-Apr-2015
Anions by ion Chromatography	20-Apr-2015	20-Apr-2015	20-Apr-2015	20-Apr-2015
BOD True Total	13-Apr-2015	13-Apr-2015	13-Apr-2015	13-Apr-2015
COD Unfiltered	16-Apr-2015	10-Apr-2015	10-Apr-2015	16-Apr-2015
Metals by iCap-OES Dissolved (W)	10-Apr-2015	10-Apr-2015	10-Apr-2015	10-Apr-2015
pH Value	15-Apr-2015	15-Apr-2015	15-Apr-2015	15-Apr-2015
Total Organic and Inorganic Carbon	10-Apr-2015	10-Apr-2015	10-Apr-2015	10-Apr-2015

SDG:	150402-95	**Location:**	Standard Quarterly	**Order Number:**	
Job:	H_FLINTCCO_BUC-8	**Customer:**	Flintshire County Council	**Report Number:**	309638
Client Reference:		**Attention:**	Paul Murphy	**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 NH_4 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** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

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
5	Samples exceeded holding time before presevation was performed
§	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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Flintshire County Council
Waste Management Services
Standard Landfill Site
Spencers Industrial Estate
Buckley
Flintshire
CH7 3LY

Attention: Phil Mulhall

CERTIFICATE OF ANALYSIS

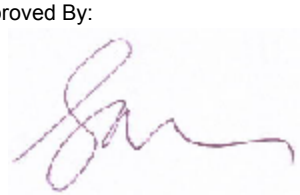
Date:	03 March 2015
Customer:	H_FLINTCCO_BUC
Sample Delivery Group (SDG):	150220-87
Your Reference:	
Location:	Standard Weekly
Report No:	303924

We received 5 samples on Friday February 20, 2015 and 5 of these samples were scheduled for analysis which was completed on Tuesday March 03, 2015. 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:	150220-87	**Location:**	Standard Weekly	**Order Number:**	
Job:	H_FLINTCCO_BUC-1	**Customer:**	Flintshire County Council	**Report Number:**	303924
Client Reference:		**Attention:**	Phil Mulhall	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
10874314	GW6 - 20/02/15			20/02/2015
10874309	SW1 - 20/02/15			20/02/2015
10874311	SW2 - 20/02/15			20/02/2015
10874312	SW4 - 20/02/15			20/02/2015
10874313	SW5 - 20/02/15			20/02/2015

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

CERTIFICATE OF ANALYSIS

SDG:	150220-87	**Location:**	Standard Weekly	**Order Number:**	
Job:	H_FLINTCCO_BUC-1	**Customer:**	Flintshire County Council	**Report Number:**	303924
Client Reference:		**Attention:**	Phil Mulhall	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			10874314	GW6 - 20/02/15			1plastic (ALE221)
			10874309	SW1 - 20/02/15			H2SO4 (ALE244)
			10874311	SW2 - 20/02/15			1plastic (ALE221)
			10874312	SW4 - 20/02/15			H2SO4 (ALE244)
			10874313	SW5 - 20/02/15			1plastic (ALE221)
							H2SO4 (ALE244)
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 5					X X X X X
Anions by ion Chromatography	All	NDPs: 0 Tests: 5	X	X	X	X	X
COD Unfiltered	All	NDPs: 0 Tests: 4		X	X	X	X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 5	X	X	X	X	X
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 1	X				
pH Value	All	NDPs: 0 Tests: 5	X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG:	150220-87	**Location:**	Standard Weekly	**Order Number:**	
Job:	H_FLINTCCO_BUC-1	**Customer:**	Flintshire County Council	**Report Number:**	303924
Client Reference:		**Attention:**	Phil Mulhall	**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
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	GW6 - 20/02/15	SW1 - 20/02/15	SW2 - 20/02/15	SW4 - 20/02/15	SW5 - 20/02/15
			Depth (m)	.	.	.	.	.
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	20/02/2015	20/02/2015	20/02/2015	20/02/2015	20/02/2015
			Sample Time	.	.	.	.	.
			Date Received	20/02/2015	20/02/2015	20/02/2015	20/02/2015	20/02/2015
			SDG Ref	150220-87	150220-87	150220-87	150220-87	150220-87
			Lab Sample No.(s)	10874314	10874309	10874311	10874312	10874313
			AGS Reference	GW6	SW1	SW2	SW4	SW5
Oxygen, dissolved	<0.3 mg/l	TM046		4.53 #				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		77.2 #	1.18 #	0.233 #	<0.2 #	<0.2 #
COD, unfiltered	<7 mg/l	TM107			142 #	25.8 #	20.4 #	31.4 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		2.7 #	1.16 #	1.42 #	1.44 #	0.573 #
Chloride	<0.08 mg/l	TM226		443 #	209 #	323 #	306 #	65.9 #
pH	<1 pH Units	TM256		6.91 #	7.78 #	7.82 #	8.02 #	7.45 #

CERTIFICATE OF ANALYSIS

SDG:	150220-87	**Location:**	Standard Weekly	**Order Number:**	
Job:	H_FLINTCCO_BUC-1	**Customer:**	Flintshire County Council	**Report Number:**	303924
Client Reference:		**Attention:**	Phil Mulhall	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM046	Method 4500G, AWWA/APHA, 20th Ed., 1999	Measurement of Dissolved Oxygen by Oxygen Meter		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		

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

CERTIFICATE OF ANALYSIS

SDG:	150220-87	**Location:**	Standard Weekly	**Order Number:**	
Job:	H_FLINTCCO_BUC-1	**Customer:**	Flintshire County Council	**Report Number:**	303924
Client Reference:		**Attention:**	Phil Mulhall	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	10874314	10874309	10874311	10874312	10874313
Customer Sample Ref.	GW6 - 20/02/15	SW1 - 20/02/15	SW2 - 20/02/15	SW4 - 20/02/15	SW5 - 20/02/15
AGS Ref.					
Depth					
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammoniacal Nitrogen	03-Mar-2015	03-Mar-2015	03-Mar-2015	03-Mar-2015	03-Mar-2015
Anions by ion Chromatography	27-Feb-2015	27-Feb-2015	27-Feb-2015	27-Feb-2015	27-Feb-2015
COD Unfiltered		26-Feb-2015	25-Feb-2015	25-Feb-2015	25-Feb-2015
Conductivity (at 20 deg.C)	26-Feb-2015	26-Feb-2015	26-Feb-2015	26-Feb-2015	26-Feb-2015
Dissolved Oxygen by Probe	25-Feb-2015				
pH Value	02-Mar-2015	02-Mar-2015	02-Mar-2015	28-Feb-2015	02-Mar-2015

SDG:	150220-87	**Location:**	Standard Weekly	**Order Number:**	
Job:	H_FLINTCCO_BUC-1	**Customer:**	Flintshire County Council	**Report Number:**	303924
Client Reference:		**Attention:**	Phil Mulhall	**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 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
5	Samples exceeded holding time before presevation was performed
§	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.

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