

Gwynedd Council

Ffridd Rasmus Landfill

Environmental Monitoring Report January-March 2015 – Final Report



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Report for

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Document revisions

No.	Details	Date
1	Draft for Client Comment	07/05/15
2	Final Report	18/05/15

Executive summary

This report has been produced for the purpose of presenting the results of environmental monitoring that has continued at Ffridd Rasmus Landfill during this latest reported monitoring period, January to March 2015. Area 2 (unlined closed landfill & civic amenity area) and Area 3 (engineered landfill) are regulated under the conditions of Environmental Permit (EP) ref: PP3294FJ/V008 (dated 21 April 2013) and EP ref: GP3330BY (Variation Notice number QP3134LY/V004 dated 21 March 2013), respectively. Area 3 closed to the receipt of wastes in January 2014 and Cell 4 was capped and restored in March 2014. The closure plan for Area 3 was submitted in December 2014.

Leachate monitoring in Area 3 showed levels below the EP limit of 1.5 m above base and quality within the range of previous data throughout the reporting period except for chloride concentrations in Cell 4A, which exceeded the previous maximum. This is consistent with Cell 4A having the most recently deposited waste. Leachate monitoring points in Area 2 continued to be recorded as dry during this quarter.

Groundwater levels at most boreholes showed a small fall consistent with the seasonal variation in recharge during the reporting period. Groundwater monitoring data continue to show contamination by leachate from the unlined Area 2 landfill. Chloride and ammoniacal nitrogen concentrations along the downgradient boundary of Area 2 (and upgradient of Area 3) continue to increase southwards towards BH27 but concentrations show a downward trend. Elevated concentrations, exceeding those at BH27 at some locations, continue to be recorded about 200 m downgradient of Area 2 indicating downgradient movement of the leachate plume from Area 2.

The groundwater quality trigger levels specified in the EP (ref GP3330BY) for Areas 1 and 3 were exceeded for chloride in BH19A, BH19B, BH19C and BH20A and for ammoniacal-nitrogen in BH20A, BH20B and BH21A. These exceedances reflect variability in the data associated with contaminant migration from Area 2. Compliance with the trigger levels specified in the EP for Area 2 and Civic Amenity (ref PP3294FJ) is reported on a 6-monthly basis and falls outside this quarterly monitoring period. The trigger levels will be reviewed in the site's Hydrogeological Risk Assessment Review due in 2015. This will include establishing trigger levels for naphthalene.

Ammoniacal nitrogen and chloride concentrations at the surface water monitoring locations varied as follows in the latest quarter: SW1 (Area 1 permitted discharge) and the pipe adjacent to SW1 continue to record chloride concentration peaks consistent with previous data and ammoniacal-nitrogen concentrations below the detection limit; concentrations at SW2 (ditch flowing south along downstream boundary of Area 3) continue to show elevated peaks exceeding the baseline quality (possible reasons for the increased levels are under investigation and may include livestock close to the stream); and concentrations at SW3 (ditch exiting the downstream boundary of Area 3) remained within the range recorded previously.

Landfill gas monitoring for the latest quarter was consistent with previous data and show no evidence of off-site landfill gas migration. None of the trigger levels for methane or carbon dioxide have been exceeded in the perimeter monitoring boreholes during the monitoring period. Wastes in Area 3 are continuing to produce landfill gas with methane and carbon dioxide concentrations within historical ranges for all locations and parameters.



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1. Introduction

Ffridd Rasmus Landfill (the site) is located approximately 3 km north of Harlech and received predominantly municipal waste up to closure in January 2014. The site is operated by Gwynedd Council. Area 2 of the landfill received waste between 1981 and 2007 and is capped and in its aftercare phase. Area 2 is regulated under the conditions of EP ref PP3294FJ/V008 (dated 21 May 2013). Area 3 commenced accepting waste in April 2007 and is regulated under the conditions of EP ref GP3330BY (latest Variation Notice number QP3134LY/V004 dated 21 March 2013). A variation application for the closure of Area 3 was submitted to NRW in December 2014. The periods of filling and capping in Area 3 were as follows:

- ▶ Cells 1 and 2: filled between 2007 and 2011, with capping works completed in June 2011;
- ▶ Cell 3: filled between January 2011 and June 2012 with capping works completed in February 2013; and
- ▶ Cell 4A and Cell 4B filled between June 2012 and January 2014 and capped in February to March 2014.

This report presents the results of environmental monitoring carried out at the site during the period January to March 2015, together with earlier data in order to present data trends. Surface water, groundwater, leachate and gas monitoring have been undertaken by Gwynedd Council. Leachate, surface water and groundwater samples are sent to ALS Environmental Ltd in Coventry for analysis.

1.1 Leachate Monitoring

When conditions allow, leachate quality and level are monitored six-monthly at locations LW4a, LW5a, LW6a and LW13 in Area 2 as required by the EP ref: PP3294FJ/V008. For a long period, these points have been dry and there have been no samples from these monitoring points. In Area 3, leachate level measurements are monitored weekly and leachate quality monthly as required by the EP ref: GP3330BY. The leachate sampling regime at Ffridd Rasmus is shown in Table 1.1. Monitoring locations are shown on Figure 1.1.

Table 1.1 Leachate Monitoring Regime

Monitoring Location	Frequency	Parameter
Area 2 LW4a, LW5a, LW6a, LW13.	Six monthly	Level, Temperature, Cl, pH, EC, NH ₄ , Ca, Mg, K, Na, Alkalinity, TOC, SO ₄ , TON, phenol, COD, BOD.
	Annually	As six-monthly plus Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn and hazardous substances.
Area 3 LM1/1, LM1/2, LM2/1, LM2/2, LM3/1, LM3/2*	Monthly	Temperature, leachate level, pH, EC, NH ₄ and Cl.
	Quarterly	As monthly plus Ca, Mg, K, Na, Alkalinity, TOC, SO ₄ , TON, phenol, COD, BOD and Cd.
	Annually	As quarterly plus Cr, Cu, Fe, Pb, Mn, Ni, Zn and hazardous substances.

Note: * Leachate quality samples were generally taken from the leachate collection tank, with the cell source identified. As of January 2013, samples of leachate are collected individually from each of the four cells. Wells LM1/1, LM1/2, LM2/1, LM2/2, LM3/1, LM3/2 were connected to the gas extraction system in August 2013 and are no longer monitored. Leachate levels have been monitored at LCP1, LCP2, LCP3, LCP4/2 and LCP4/B since August 2013.

1.2 Groundwater Monitoring

Groundwater quality and level are monitored quarterly in Area 2 and monthly in Area 3 as required by EP ref PP3294FJ/V008 and EP ref GP3330BY, respectively. The groundwater sampling regime is presented in Table 1.2.

Three additional boreholes (BH34-BH36) were installed in March 2012 along the western margin of Area 2 as replacements for lost boreholes BH7, BH26 and NRA2 (Figure 1.1). Sampling of these boreholes began in April 2012.

Table 1.2 Groundwater Monitoring Regime

Monitoring Location	Frequency	Parameter
Area 2 BH1, BH15, BH18A, BH18B, BH19A, BH19B, BH19C, BH20A, BH20B, BH21A, BH21B, BH23, BH24, BH27-BH36 and NRA3	Quarterly	Water level, DO, pH, EC, NH ₄ , Cl, Ca, Mg, K, Na, Alkalinity, TOC, SO ₄ , TON, phenol and Cd
	Annually	As quarterly plus Cr, Cu, Fe, Pb, Mn, Ni and Zn.
Area 3 BH1, BH15, BH18A, BH18B, BH19A, BH19B, BH19C, BH20A, BH20B, BH21A, BH21B, BH23, BH24, BH27-BH36 and NRA3	Monthly	Level, Temperature, pH, EC, NH ₄ , Cl and DO.
	Quarterly	As monthly plus Ca, Mg, K, Na, Alkalinity, TOC, SO ₄ , TON, phenol and Cd.
	Annually	As quarterly plus Cr, Cu, Fe, Pb, Mn, Ni and Zn.

1.3 Surface Water Monitoring

Surface water quality is monitored six-monthly in Area 2 and monthly in Area 3 at locations SW1, SW2 and SW3 as required by EP ref: PP3294FJ/V008 and EP ref: GP3330BY, respectively. The surface water sampling regime is identified in Table 1.3. Weekly observations of the appearance of the water are also made at locations SW1 and SW3. Sampling of the discharge from a pipe near to location SW1 has also been included in the monitoring regime since October 2011. Since the installation of the new interceptor, both sampling points SW1 and SW1 (pipe) have been relocated westwards, to the discharge point of the new operational interceptor (Figure 1.1). Sampling at this new location began in December 2012.

Table 1.3 Surface Water Monitoring Regime

Monitoring Location	Frequency	Parameter
Area 2 SW1, SW2 and SW3	Six-monthly	Cl, COD, DO, EC, NH ₄ , pH and Temperature.
Area 3 SW1*, SW2 and SW3	Monthly	Cl, COD, DO, EC, NH ₄ , pH and Temperature.

*Discharge from pipe adjacent to SW1 also sampled since December 2012 (if flowing).

1.4 Landfill Gas Monitoring

Landfill gas is monitored in boreholes located around the site perimeter: two locations for Area 2 and five locations for Area 3 as required by EP ref PP3294FJ/V008 and EP ref GP3330BY, respectively. The gas monitoring regime is shown in Table 1.4.

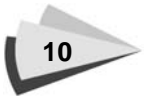


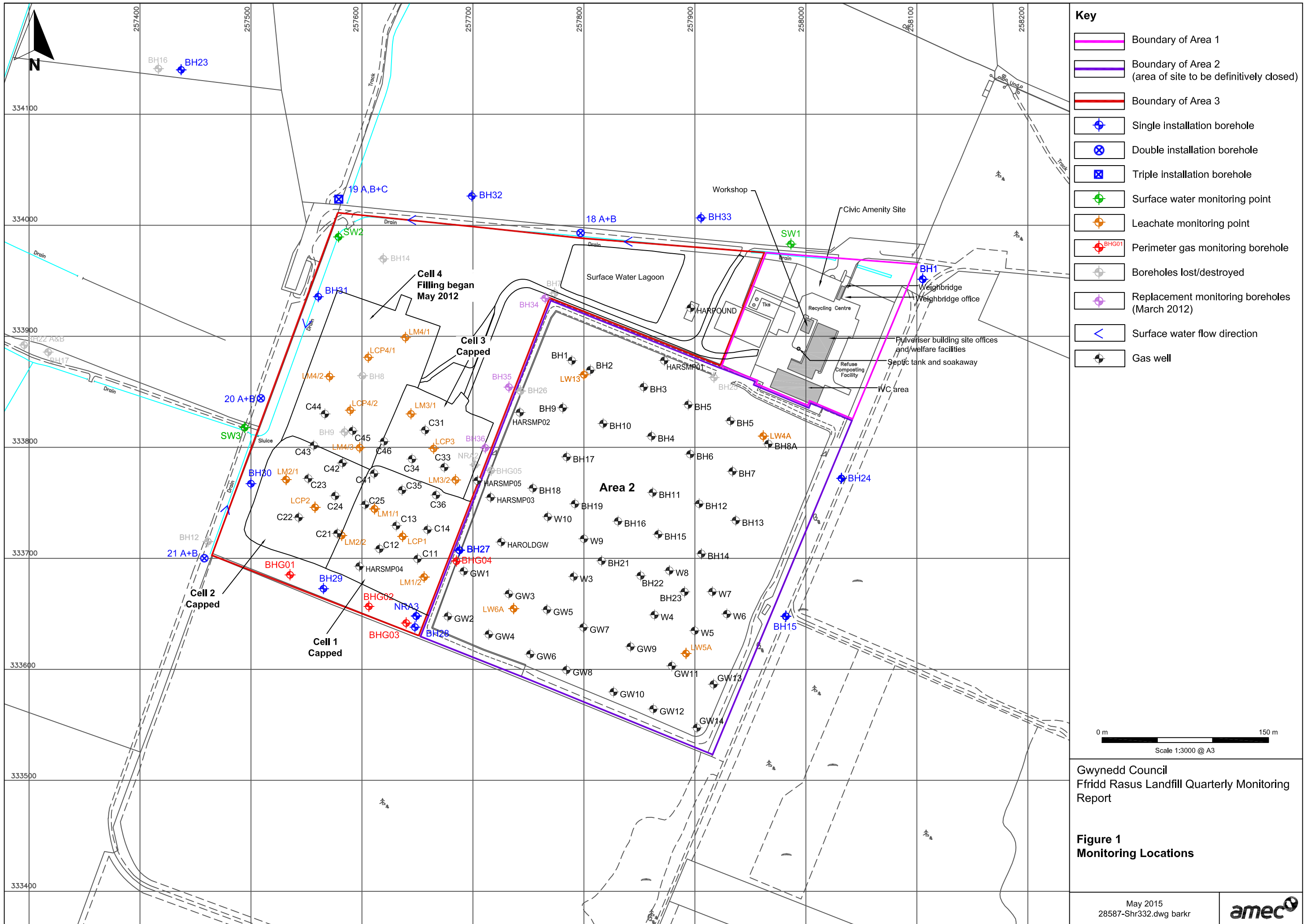
Table 1.4 Gas Monitoring Regime

Monitoring Location	Frequency	Parameter
Area 2 BHG03 and BHG04	Six-monthly	Methane and carbon dioxide.
Area 3 BHG01 to BHG05	Monthly	Methane and carbon dioxide.

Note: Borehole BHG05 has been destroyed.

The locations of all monitoring points are shown on Figure 1.1. In addition, records of meteorological data for the site are kept, which include temperature, rainfall and wind speed. These are included in Appendix H.





- Key**
- Boundary of Area 1
 - Boundary of Area 2 (area of site to be definitively closed)
 - Boundary of Area 3
 - + Single installation borehole
 - + Double installation borehole
 - + Triple installation borehole
 - + Surface water monitoring point
 - + Leachate monitoring point
 - + Perimeter gas monitoring borehole
 - + Boreholes lost/destroyed
 - + Replacement monitoring boreholes (March 2012)
 - + Surface water flow direction
 - + Gas well

0 m 150 m
Scale 1:3000 @ A3

Gwynedd Council
Ffridd Rasmus Landfill Quarterly Monitoring Report

Figure 1
Monitoring Locations

May 2015
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2. Leachate and Groundwater Levels

2.1 Leachate Levels

Area 2

Monitoring points LW4A, LW5A, LW6A or LW13 have been dry for a long period and continued to be dry in this reporting period.

Area 3

Time-series plots for weekly leachate levels since January 2011 are shown in Appendix A. A summary of the leachate levels measured during the period January to March 2015 is presented in Table 2.1. The data show:

- ▶ Cell 1: levels increased from 1.12 in January to 1.21 m above base by mid-March, before dropping to 1.15m above base at the end of March;
- ▶ Cell 2: levels showed variability and an overall small increase from 1.15 in January to 1.24 m by the end of March;
- ▶ Cell 3: levels increased from 1.16 m in January to 1.23 m above base in early February, then fell to 1.01 m above base by mid-February before increasing again to 1.10 m above base in March;
- ▶ Cell 4A: levels fell from 1.31 m to 0.84 m above base in mid-January before increasing to 1.10-1.14 m above base in the remainder of the reporting period;
- ▶ Cell 4B: levels showed variability within the range 1.02 to 1.19 m above base.

Leachate levels in this reporting period remained within the range of values measured in previous monitoring and were below the EP leachate level limit of 1.5 m above base.

Table 2.1 Leachate Level Measurements for January to March 2015

Date	Leachate Level (m above base)				
	Cell 1	Cell 2	Cell 3	Cell 4A	Cell 4B
	LCP1	LCP2	LCP3	LCP4/2	LCP4/B
05/01/2015	1.12	1.15	1.16	1.31	1.19
12/01/2015	1.12	1.15	1.18	0.84	1.02
19/01/2015	1.13	1.18	1.20	0.90	1.09
26/01/2015	1.13	1.19	1.19	0.95	1.11
09/02/2015	1.16	1.22	1.23	0.98	1.16
16/02/2015	1.16	1.11	1.01	1.03	1.03
02/03/2015	1.17	1.09	1.04	1.09	1.06
09/03/2015	1.18	1.04	1.06	1.09	1.06

Table 2.1 (cont) Leachate Level Measurements for January to March 2015

Date	Leachate Level (m above base)				
	Cell 1	Cell 2	Cell 3	Cell 4A	Cell 4B
	LCP1	LCP2	LCP3	LCP4/2	LCP4/B
16/03/2015	1.20	1.16	1.10	1.10	1.08
23/03/2015	1.21	1.20	1.10	1.14	1.08
30/03/2015	1.15	1.24	1.10	1.10	1.08
<i>Historical Range (min-max)</i>	<i>0.88 – 1.35</i>	<i>0.7 – 1.48</i>	<i>0.51 – 1.49</i>	<i>0.12 – 1.46</i>	<i>0.53 – 1.42</i>

Notes: Historical data is for the period 2011 to 2014 for Cells 1, 2 and 3, 2012-2014 for Cell 4A and 2013-2014 for Cell 4B.

2.2 Groundwater Levels

Table 2.2 shows the range of groundwater levels recorded during the period January to March 2015. Groundwater level data since February 2000 is presented graphically in Appendix B. The groundwater hydrographs have been split into three groups for ease of presentation as follows:

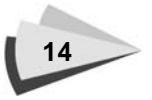
- ▶ Boreholes drilled prior to 2004;
- ▶ Boreholes drilled during 2004; and
- ▶ Boreholes drilled during 2006 and 2012.

Table 2.2 Summary of Groundwater Level Data January to March 2015

Borehole	Groundwater Level (m AOD) ^a			Groundwater Level Historical Range (m AOD) ^{a, b}	
	January	February	March	Min	Max
BH1	6.15	6.20	6.14	5.35	7.30
BH15	6.59	6.41	6.37	5.19	7.65
BH18A	4.99	3.91	5.00	4.29	5.88
BH18B	5.67	5.51	5.63	4.63	5.87
BH19A	4.72	4.57	4.61	3.48	5.02
BH19B	4.70	4.52	4.61	4.07	5.17
BH19C	4.84	4.52	4.54	3.98	5.12
BH20A	4.32	4.22	4.27	3.28	5.07
BH20B	4.21	4.16	4.23	3.00	5.07
BH21A	4.47	4.32	4.42	3.46	4.87
BH21B	4.47	4.35	4.42	3.79	4.9
BH23	3.54	3.24	3.37	2.87	4.47
BH24	5.73	5.70	5.67	4.77	6.86
BH27	3.97	4.85	4.92	4.19	5.46
BH28	5.12	5.13	5.10	4.33	5.76
BH29	4.73	4.72	4.63	4.03	5.59
BH30	4.17	4.05	4.12	3.73	4.54
BH31	4.34	4.26	4.30	3.81	4.51
BH32	4.65	4.49	4.61	3.85	5.78
BH33	5.53	5.42	5.46	4.76	6.71
NRA3	5.10	5.09	5.03	4.32	6.26
BH34	5.80	5.77	5.73	5.01	6.25
BH35	5.73	5.73	5.69	5.02	6.22
BH36	5.66	5.64	5.61	4.93	6.16

Note: a) Monthly monitoring data; b) Data for February 2000 to December 2014.

During the latest monitoring period, groundwater levels at most boreholes showed a small fall consistent with the seasonal variation in recharge. Rainfall records from the site rain gauge show several periods of comparably low rainfall during latest monitoring period compared to the previous quarter (Appendix H). Rainfall monthly totals for January, February and March 2015 were 101, 65 and 137 mm, respectively, compared to 167, 116 and 121 mm, in October, November and December 2014, respectively.



3. Leachate Quality

3.1 Area 2

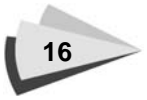
Monitoring points LW4A, LW5A, LW6A and LW13 in Area 2 were dry in the latest quarter and therefore samples could not be obtained. Data collected during the period 2006-2008 indicated an improving trend in leachate quality in this area of the site, as shown on the data plots in Appendix A. More recent data have not been collected since the monitoring points have been dry for a long period following capping of Area 2.

3.2 Area 3

Representative analytical results of the leachate quality monitoring during the latest quarter are presented in Table 3.1 and graphically in Appendix A, where they are included with long term leachate quality data. Laboratory analytical data sheets are included in Appendix D. Ammoniacal-nitrogen and chloride concentrations remained within the range of historical data except in Cell 4A. Chloride concentrations continued to increase in Cell 4A from its previous maximum of 2340 mg/l recorded in December 2014 to 2490 mg/l in March and ammoniacal-nitrogen concentrations continued to be high. This is consistent with Cell 4A having the most recently deposited waste and it is some 9-12 months since the cell was capped.

Table 3.1 Selected Leachate Quality Results January to March 2015

Cell	Date	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	Ammoniacal-Nitrogen (mg/l)	Chloride (mg/l)
Cell 1 (LCP1)	Jan	7.7	18.1	8960	793	1000
	Feb	7.8	18.0	8860	746	974
	Mar	8.4	17.8	8960	745	985
Cell 2 (LCP2)	Jan	7.8	19.5	15200	1510	1720
	Feb	7.9	17.9	15200	1480	1750
	Mar	8.4	21.5	15600	1470	1750
Cell 3 (LCP3)	Jan	7.6	22.4	13100	1180	1440
	Feb	7.8	23.8	13500	1180	1520
	Mar	8.4	21.1	13600	1230	1560
Cell 4A (LCP4)	Jan	7.9	22.5	19600	2010	2280
	Feb	7.9	27.9	20700	2130	2430
	Mar	8.5	24.2	21000	2200	2490



4. Groundwater Quality

4.1 Monitoring Regime

Analytical results of the groundwater quality monitoring (ammoniacal nitrogen, chloride, cadmium and temperature) during January to March 2015 are summarised in Table 4.1 and shown graphically in Appendix C, where they are included with long term groundwater quality data. Laboratory analytical data sheets are included as Appendix D. The groundwater monitoring boreholes have been split into three groups for ease of presentation as follows:

- ▶ Boreholes drilled prior to 2004 - BH1, BH15 and NRA3;
- ▶ Boreholes drilled during 2004 - BH18A, BH18B, BH19A, BH19B and BH19C, BH20A, BH20B, BH21A, BH21B, BH23 and BH24. Ammoniacal nitrogen concentrations for boreholes BH20A, BH20B, BH21A and BH21B have been graphed separately as concentrations are higher than in other boreholes within this group; and
- ▶ Boreholes drilled during 2006 (BH27 to BH33) and 2012 (BH34 to BH36).

Table 4.1 Selected Groundwater Quality Data January to March 2015

Borehole	Ammoniacal Nitrogen (mg/l)			Chloride (mg/l)			Cadmium (mg/l)			Temperature (°C)		
	Jan	Feb	Mar	Jan	Feb	Mar	Jan	Feb	Mar	Jan	Feb	Mar
Upgradient of Areas 2 and 3												
BH1	<0.27	<0.27	<0.27	41.7	57.4	54.5	<0.0006	-	-	9.3	9.3	9.6
BH15	<0.27	<0.27	<0.27	15.9	15.9	11.7	<0.0006	-	-	9.2	8.9	8.4
BH24	0.59	<0.27	<0.27	31.5	30.6	29.6	<0.0006	-	-	9.5	11.1	10.4
Downgradient of Area 2 and Upgradient of Area 3												
BH27	n.m	147	161	263	276	284	0.001	-	-	15.7	15.4	16.1
BH34	0.56	<0.27	n.m	41.8	53.4	n.m	0.0007	-	-	10.8	10.9	11.2
BH35	1.2	18.3	23	38.9	86	130	<0.0006	-	-	12.1	10.9	11.5
BH36	123	91	140	188	143	96.8	0.0009	-	-	13.4	13.6	13.9
NRA3	0.88	0.79	0.76	31	39.9	28.9	<0.0006	-	-	11	10.6	10.5
Lateral to Groundwater Flow												
BH18A	<0.27	<0.27	<0.27	41.9	39.7	32.3	<0.0006	-	-	11.3	11.6	12.4
BH18B	<0.27	<0.27	<0.27	35.7	34.6	41.7	<0.0006	-	-	10.9	11.2	11.7
BH28	n.m	0.63	0.3	n.m	21.3	18.1	n.m	-	-	10.7	10.7	10.6
BH29	1.31	1.37	1.92	15	19	16.7	<0.0006	-	-	10.5	11.3	10.4

Note: n.m.- not measured.

Table 4.1 (cont) Selected Groundwater Quality Data January to March 2015

Borehole	Ammoniacal Nitrogen (mg/l)			Chloride (mg/l)			Cadmium(mg/l)			Temperature (°C)		
	Jan	Feb	Mar	Jan	Feb	Mar	Jan	Feb	Mar	Jan	Feb	Mar
Lateral to Groundwater Flow												
BH32	<0.27	<0.27	<0.27	25.3	18.9	22.3	<0.0006	-	-	11.1	8.9	11.4
BH33	<0.27	<0.27	<0.27	13.6	10	9.9	<0.0006	-	-	10.8	10.6	11.2
Downgradient of Areas 2 and 3												
BH19A	<0.27	0.43	<0.27	38.2	36.6	35	<0.0006	-	-	10.1	11	11.7
BH19B	<0.27	<0.27	<0.27	73.1	62.1	58.1	<0.0006	-	-	11	11.5	11.7
BH19C	<0.27	<0.27	<0.27	216	161	161	<0.0006	-	-	11.6	11.1	11.4
BH20A	71.7	71.6	73.3	431	414	392	<0.0006	-	-	11.6	12	12.4
BH20B	n.m	231	235	327	332	339	0.0008	-	-	12	12.6	13.2
BH21A	8.98	36.4	31.7	138	228	261	<0.0006	-	-	10.2	10.2	10.4
BH21B	49.1	57.1	58.3	143	132	129	<0.0006	-	-	9.5	10.1	10.6
BH23	<0.27	<0.27	<0.27	15.8	13.9	14.7	<0.0006	-	-	11.1	11.1	11.7
BH30	146	n.m	162	281	278	271	0.002	-	-	15	15.1	14.5
BH31	68.8	63.1	64.5	42.3	41.3	45	0.001	-	-	11.9	11.6	12.7

Notes: Monthly monitoring for ammoniacal-nitrogen, chloride and temperature and quarterly monitoring for cadmium. n.m.- not measured.

4.2 Upgradient Boreholes

Boreholes BH1, BH15 and BH24 are upgradient of Areas 2 and 3 and provide an indication of background groundwater quality. Boreholes BH27, BH34 to BH36 and NRA3 are downgradient of Area 2 and upgradient of Area 3 and provide an indication of potential impact from Area 2 (Figure 1.1). Data for ammoniacal nitrogen, chloride and cadmium at the upgradient boreholes for the latest quarter show that (Table 4.1):

- ▶ Local background groundwater quality (BH1, BH15 and BH24):
 - ▶ Ammoniacal nitrogen concentrations continue to be below the laboratory detection limit (<0.27 mg/l) except for an isolated peak (0.59 mg/l) recorded at borehole BH24 in January ;
 - ▶ Chloride concentrations continue to be low and broadly consistent with previous measurements. Borehole BH15 continues to show lower concentrations than boreholes BH1 and BH24. Concentrations at boreholes BH1 increased during this reporting period;
 - ▶ Cadmium concentrations continue to be below the laboratory detection limit (<0.0006 mg/l).
- ▶ Groundwater quality downgradient of Area 2 and upgradient of Area 3 (BH27, BH34 to BH36 and NRA3):
 - ▶ Concentrations of ammoniacal nitrogen, chloride and cadmium continue to be above local background concentrations at boreholes BH27, BH35 and BH36 within the central part of the downgradient boundary of Area 2. This represents migration of contaminated groundwater from Area 2.
 - ▶ The most elevated ammoniacal nitrogen and chloride concentrations continue to be recorded at BH27;
 - ▶ Ammoniacal nitrogen and chloride concentrations continue to show increasing concentrations southwards from boreholes BH34, BH35 and BH36 towards borehole BH27.

4.3 Boreholes Situated Lateral to the Groundwater Flow Direction

Boreholes BH18A and BH18B, BH28, BH29, BH32 and BH33 are situated lateral to the groundwater flow direction (Figure 1.1). Data for ammoniacal nitrogen, chloride and cadmium at these boreholes for the latest quarter show that (Table 4.1):

- ▶ Concentrations continue to be generally consistent with the results of previous monitoring and show little or no evidence of contamination. Elevated chloride concentrations were recorded during 2011-2012 at boreholes BH18A and BH18B associated with leaching from marine dredgings used as part of the engineered cap to Area 2 but over time this effect is diminishing;
- ▶ Ammoniacal-nitrogen concentrations continue to be generally within local background levels except for BH29, on the southern edge of Area 3, which continues to show slightly higher concentrations (1.31-1.92 mg/l) consistent with historical data.

4.4 Downgradient Boreholes

Boreholes BH19 (A, B and C), BH20 (A and B), BH21 (A and B), BH30 and BH31 are downgradient of Areas 2 and 3. Data for ammoniacal nitrogen, chloride and cadmium at these boreholes for the latest quarter show that (Table 4.1) all of the boreholes downgradient of Areas 2 and 3 are contaminated to some degree by leachate from the unlined Area 2 landfill. The highest ammoniacal-nitrogen and chloride concentrations on the downgradient edge of Area 2 (and upgradient of Area 3) continue to be recorded at BH27 but concentrations show a downward trend. Boreholes BH20A, BH20B and BH30, located about 200 m downgradient of BH27, continue to record elevated concentrations and exceeding those at BH27 at some locations, indicating downgradient movement of the leachate plume from Area 2.

4.5 Groundwater Trigger Levels

The groundwater trigger levels (Table 4.2) for ammoniacal-nitrogen and chloride specified in the EP (ref GP3330BY) for Areas 1 and 3 were exceeded in the reporting period as follows (monthly reporting):

- ▶ BH19A – chloride trigger level (29 mg/l) in January (38.2 mg/l), February (36.6 mg/l) and March (35 mg/l);
- ▶ BH19B – chloride trigger level (28 mg/l) in January (73.1 mg/l), February (62.1 mg/l) and March (58.1 mg/l);
- ▶ BH19C –chloride trigger level (30 mg/l) in January (216 mg/l), February (161 mg/l) and March (161 mg/l);
- ▶ BH20A – ammoniacal-nitrogen trigger level (5 mg/l) in January (71.7 mg/l), February (71.6 mg/l) and March (73.3 mg/l). Chloride trigger level (310 mg/l) in January (431 mg/l), February (414 mg/l) and March (392 mg/l); and
- ▶ BH20B – ammoniacal-nitrogen trigger level (230 mg/l) in March (235 mg/l).
- ▶ BH21A – ammoniacal-nitrogen trigger level (5.1 mg/l) in January (8.98 mg/l), February (36.4 mg/l) and March (31.7 mg/l).

Cadmium concentrations in the reporting period continue to be below the trigger level (5.5 µg/l) specified in the EP for Areas 1 and 3 (ref GP3330BY).

Compliance with the trigger levels (Table 4.2) specified in the EP for Area 2 and Civic Amenity (ref PP3294FJ) is reported on a 6-monthly basis and falls outside this quarterly monitoring period.

Table 4.2 EP Trigger Levels for Groundwater Quality

Borehole	EP (ref PP3294FJ) Trigger Levels for Area 2 and Civic Amenity			EP (ref GP3330BY) Trigger Levels for Areas 1 & 3		
	Chloride (mg/l)	Ammoniacal Nitrogen (mg/l)	Cadmium (µg/l)	Chloride (mg/l)	Ammoniacal Nitrogen (mg/l)	Cadmium (µg/l)
Reporting Frequency	6 Monthly	6 Monthly	6 Monthly	Monthly	Monthly	Quarterly
BH19A	250	3.6	5.5	29	3.6	5.5
BH19B	34	3.0	5.5	28	3.0	5.5
BH19C	34	3.0	5.5	30	3.0	5.5
BH20A	504	5.0	5.5	310	5.0	5.5
BH20B	504	230	5.5	424	230	5.5
BH21A	387	266	5.5	270	5.10	5.5
BH21B	215	69.7	5.5	411	69.7	5.5
BH29	19.8	19.8	5.5	-	-	-
BH30	504	266	5.5	-	-	-
BH31	179	102	5.5	-	-	-

Notices of the trigger levels exceedances were provided to the NRW by the submission of Schedule 6 notifications. Copies of these are included in Appendix E. These exceedances continue to reflect variability in the data associated with contaminant migration from the unlined landfill Area 2.

Overall, the leachate plume derived from Area 2 is having an impact on groundwater quality downgradient of Areas 2 and 3. The closure of Area 3, including capping and associated drainage of completed cells is likely to also be affecting groundwater quality. However, the overall effect on groundwater quality is expected to be a continued improvement due to a combination of the following:

- ▶ Reduced leachate generation due to restricted infiltration following capping of Area 2;
- ▶ Reduction in leachate concentration as a result of waste stabilisation; and
- ▶ Dilution by groundwater migrating beneath the landfill from the east.

Leachate and groundwater quality will continue to be monitored. The Contingency Action Plan for the site (Table 4.1 in Closure Report, May 2007) identifies a number of actions subject to the number of exceedances of groundwater control and trigger limits, including review of monitoring information, review of conceptual model assumptions and review of existing control and trigger limits. The trigger levels will be reviewed in the site's Hydrogeological Risk Assessment Review due in 2015. This will include establishing trigger levels for naphthalene.

4.6 Temperature Measurements

Temperature measurements for this quarter are consistent with seasonal trends, recording increasing values in all monitoring locations (Appendix C). There is no major variability in temperature measurements between upgradient/lateral boreholes and downgradient boreholes with the following exceptions:

- ▶ Borehole BH27 (downgradient of Area 2 only), which has consistently recorded temperatures up to 5°C higher than most of the other monitoring locations, possibly reflecting ongoing waste degradation activity in Area 2 of the landfill;
- ▶ Borehole BH30, on the western edge of Area 3, which also records temperatures 3-6°C higher than most other locations. This borehole is downgradient of borehole BH27; and
- ▶ Boreholes BH35 and BH36 (downgradient of Area 2 only), the more southerly of the boreholes on the downgradient edge of Area 2, have continued to record temperatures that are slightly higher than most other locations (except boreholes BH27 and BH30).

5. Surface Water Quality

Surface water monitoring is a requirement of the EP for Areas 2 and 3 at monitoring locations SW1, SW2 and SW3 (Section 1.3). SW1 is located in the vicinity of the site's permitted discharge and SW2 and SW3 are located in the ditch to the west (downstream) of Area 3, as shown on Figure 1.1. As a consequence of some contamination identified in this part of the site in late 2010, in addition to the regular sampling at location SW1, samples are also taken whenever possible from the pipe which discharges to the drain near this point. The pipe discharges surface water runoff from hardstanding around the site buildings in Area 1 after it has passed through an oil water separator.

Analytical results for ammoniacal nitrogen, chloride, electrical conductivity (EC) and temperature in the last quarter are summarised in Table 5.1 and presented (excluding EC but including chemical oxygen demand (COD)) graphically combined with long term water quality data in Appendix F. The data for the latest quarter show that:

- ▶ Ammoniacal-nitrogen concentrations at SW1 remained below the detection limit (<0.27 mg/l). Chloride concentrations increased from 27.1 mg/l in January to 62 mg/l in February before falling to 53.7 mg/l in March. This is consistent with chloride peaks recorded in previous years which may be due to de-icing salts applied to hardstanding areas from which runoff drains towards SW1. Concentrations remained within the historical range. Similar concentrations were measured at the adjacent pipe discharge;
- ▶ Ammoniacal-nitrogen and chloride concentrations at SW2 continue to show elevated peaks (6.04mg/l and 227mg/l in February) exceeding baseline (average concentrations of <0.3 mg/l for ammoniacal-nitrogen in 2005 to 2012 and 23 mg/l for chloride in 2005-2009). There are a number of possible explanations for the increased concentrations at SW2 which are under investigation including:
 - ▶ Former storage of compost taken from the IVC facility which ceased operation in 2013 (some site derived compost has been applied to the Cell 4 final capped soil profile);
 - ▶ Sludge spraying and muck spreading on adjacent agricultural land, along with livestock (cows) close to the ditch.
 - ▶ Saline groundwater baseflow contribution to the perimeter ditch during periods of high groundwater levels: groundwater quality in the northern part of the site (cross-gradient to the landfill) has been affected, particularly during 2011 to 2013, by the passage of a saline "slug" associated with runoff from the marine dredgings used as part of the engineered cap to Area 2. The elevated chloride peaks recorded at SW2 since 2012 are likely to reflect baseflow of saline groundwater (time-series charts in Appendix F). The occasional ammoniacal-nitrogen peaks in SW2 in 2013-2014 (24.6 mg/l in August 2013, 15.3 mg/l in December 2013, 6.4 mg/l in July 2014, 6.52 mg/l in November 2014 and 6.04 mg/l in February 2015) may be associated with desorption of ammoniacal-nitrogen from the sand aquifer by potassium (ion exchange) associated with the saline "slug";
- ▶ Ammoniacal nitrogen at SW3 show variability but remained within historical range. Concentrations peaked in February 2015 at 5.61 mg/l before falling below detection limit (<0.27 mg/l) in March 2015. Chloride concentrations decreased from 78.7 mg/l in January to 72.9 mg/l in March;
- ▶ Temperature measurements are consistent with seasonal trends, showing an upward trend in all monitoring locations. There is little difference between the values measured across monitoring locations except for SW1 which shows slightly higher values since July 2014; and
- ▶ Observations of the state of the water at locations SW1 (Area 1 discharge) and SW3 (site discharge near sluice) are made on a weekly basis, as specified in Table S4.3 of the EP. Site records of these observations are included with the surface water quality plots in Appendix F.

Table 5.1 Summary of Surface Water Quality January to March 2015

Determinand	SW1			Pipe Adjacent to SW1			SW2			SW3		
	Jan	Feb	Mar	Jan	Feb	Mar	Jan	Feb	Mar	Jan	Feb	Mar
Ammoniacal Nitrogen (mg/l)	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	6.04	<0.27	0.91	5.61	<0.27
Chloride (mg/l)	27.1	62	53.7	32.3	62.6	53.2	70.3	227	65.6	78.7	77.7	72.9
Electrical Conductivity (μ S/cm)	318	474	408	295	476	407	735	1550	653	795	847	738
Temperature ($^{\circ}$ C)	7.8	3.5	9.6	7.9	3.4	9.5	7.7	5.8	11	7.3	5.9	9.3

6. Landfill Gas

6.1 Perimeter Gas Monitoring

Landfill gas monitoring in the perimeter boreholes is a requirement of the EP for Area 3 to identify any off site migration. Monitoring results for Boreholes BG01 to BG04 for the latest monitoring quarter are presented in Table 6.1 together with trigger limits for methane and carbon dioxide. These show levels consistent with previous monitoring and show no evidence of off-site landfill gas migration. None of the trigger limits were exceeded during the reporting period.

Table 6.1 Results of Perimeter Landfill Gas Monitoring January to March 2015

Date	BHG01			BHG02			BHG03			BHG04		
	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)
08/01/2015	0	0.2	1	0	0.2	1	0	1.9	1	0	0.1	1
12/02/2015	0	0.3	2	0	0.5	2	0	0.6	2	0	0.1	2
23/03/2015	0.1	0.1	1	0.1	0.6	2	0.1	1.6	0	0.1	0.1	1
Trigger Limits	1	1.5	-	1	1.6	-	1	5.1	-	14.8	11.1	-

6.2 In-Waste Gas Monitoring (Area 3)

Gas monitoring has also been carried out within Area 3 in accordance with the site EP. Monitoring during this reporting period was from combined leachate and gas monitoring wells (LM1/1 and LM1/2 in Cell 1, LM2/1 and LM2/2 in Cell 2 and LM3/1 in Cell 3, LM4/2 in Cell 4A, leachate manholes (LCP1, LCP2, LCP3, LCP4A and LCP4B in Cells 1, 2, 3, 4A and 4B, respectively) and gas wells (C11 to C14 in Cell 1, C21 to C25 in Cell 2, C31 to C36 in Cell 3, C41 to C46 in Cell 4A and C51 to C57 in Cell 4B).

The results of the gas monitoring undertaken during the latest monitoring period are presented in Tables 6.2 to 6.6. The data show that wastes in Cells 1, 2, 3, 4A and 4B are continuing to produce landfill gas with methane and carbon dioxide concentrations recently up to 67.7% v/v and 38.3% v/v respectively in Cell 1, 67.4% v/v and 38.1% v/v respectively in Cell 2, 60.5% v/v and 37.9% v/v respectively in Cell 3, 63.1% v/v and 39.6% v/v respectively in Cell 4A and 61.7% v/v and 39.8% v/v respectively in Cell 4B. Concentrations were generally within historical ranges for all locations and parameters. The gas balancing data is provided in Appendix G.

Table 6.2 Cell 1 In-Waste Landfill Gas Monitoring Results January to March 2015

Date	AP (mb)	LCP01				LM1/1				LM1/2			
		CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO
12/01/2015	999-1007	63.6	22.9	0.1	2	28	23.1	0.3	4	0	3.4	18.1	1
09/02/2015	1038	67.7	23.1	0.4	0	5.5	16.0	3.1	2	0	2.8	18.7	0
09/03/2015	1014-1017	59.3	38.3	0	5	59.4	38.3	0	7	5.1	13.5	5.1	4

Date	AP (mb)	C11				C12				C13				C14			
		CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO
12/01/2015	1005-1007	28.7	19.2	0	3	28.3	20.5	0.1	3	36.5	19.7	0	3	24.9	17.0	1.6	6
09/02/2015	1037	19.4	17.8	0.3	3	12.5	19.0	0.2	3	35.6	18.3	0.7	3	11.7	14.8	2.7	11
09/03/2015	1012-1016	21.1	18.3	0.2	3	18.5	18.9	0.5	3	41.3	19.5	0.3	3	12.5	14.5	3.4	8

Notes: AP- Atmospheric Pressure.
 CH4, CO2 and O2 in %v/v and CO in ppm.

Table 6.3 Cell 2 In-Waste Landfill Gas Monitoring Results January to March 2015

Date	AP (mb)	LCP02				LM2/1				LM2/2				C21			
		CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO
12/01/2015	999-1004	56.9	35.0	1.1	3	62.2	36.4	0	5	50.5	30.2	0	3	50.3	26.7	0.1	4
09/02/2015	1036-1038	52.1	33.4	1.4	4	15.6	18.8	4	9	29.3	26.1	0	3	18.3	20.7	0.8	16
09/03/2015	1012-1016	60.1	37.9	0	9	65.2	37.5	0	8	60.7	38.1	0	8	49.7	24.7	0.2	5
Date	AP (mb)	C22				C23				C24				C25			
		CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO
12/01/2015	1005-1007	61.6	35.1	0.1	4	67.4	31.1	0	5	0	0.1	21.7	0	56.1	33.2	0.2	4
09/02/2015	1034-1038	23.8	24.0	1.2	6	24.4	14.8	0	15	13.4	9.0	16.2	2	16.3	20.1	0.7	4
09/03/2015	1012-1013	34.7	25.1	4.5	6	61	37.0	0	9	51.9	33.3	0.8	5	27.6	23.6	0.5	3

Notes: AP- Atmospheric Pressure.
CH4, CO2 and O2 in %v/v and CO in ppm

Table 6.4 Cell 3 In-Waste Landfill Gas Monitoring Results January to March 2015

Date	AP (mb)	LCP03				LM3/1				C31				C32			
		CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO
12/01/2015	1003-1005	36.9	27.6	2.6	2	27.0	22.8	0.6	4	28.3	16.1	0.1	10	0.7	1.0	21.1	2
09/02/2015	1035-1039	35.4	25.0	6.1	2	26.1	25.9	1.3	6	27.2	26.2	0	10	0.7	1.0	21.2	2
09/03/2015	1016-1017	56.1	35.5	0.8	1	14.8	22.5	0.3	1	n.m.	n.m.	n.m.	n.m.	3.5	4.2	15.6	5

Date	AP (mb)	C33				C34				C35				C36			
		CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO
12/01/2015	1003-1009	49.0	29.6	0.8	14	55.2	34.4	0	21	46.1	29.1	0.3	3	19.2	19.4	0.3	3
09/02/2015	1036-1038	26.7	26.5	0.9	4	44.5	33.2	0	22	32.9	29.1	0.1	4	11.7	22.0	0.5	2
09/03/2015	1014-1017	37.8	27.8	0.1	5	n.m.	n.m.	n.m.	n.m.	60.5	37.9	0	7	10.1	19.3	0.5	4

Notes: AP- Atmospheric Pressure.
 CH4, CO2 and O2 in %v/v and CO in ppm
 .m.- not measured

Table 6.5 Cell 4A In-Waste Landfill Gas Monitoring Results January to March 2015

Date	AP (mb)	LCP4A				LM4/2				C0041				C0042			
		CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO
12/01/2015	1002-1007	37.6	28.0	5.3	9	31.4	26.7	1.8	5	54.2	33.9	0	11	57.6	33.9	0	9
09/02/2015	1036-1038	60.6	38.7	0	8	60.9	40	0	9	38.7	27.8	0	12	41.8	31.3	0	8
09/03/2015	1012-1014	63.1	39.6	0	8	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	56.9	36.1	0	9
Date	AP (mb)	C0043				C0044				C0045				C0046			
		CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO
12/01/2015	1003-1006	62.1	36.1	0	10	51.6	34.5	0	10	60.3	37.2	0	12	54.0	35.2	0	8
09/02/2015	1036-1038	61.9	35.0	0	9	49.5	34.5	0	9	62	37.5	0	12	45.9	32.8	0	19
09/03/2015	1012-1014	62.8	35.9	0.2	10	57.0	35.9	0	10	60.8	37.4	0	10	n.m.	n.m.	n.m.	n.m.

Notes: AP- Atmospheric Pressure.
 CH4, CO2 and O2 in %v/v and CO in ppm
 .m.- not measured

Table 6.6 Cell 4B In-Waste Landfill Gas Monitoring Results January to March 2015

Date	AP (mb)	LCP4B				C51				C52				C53			
		CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO
12/01/2015	1004-1006	58.3	37.7	0	8	59.4	38.1	0	17	53.6	36.1	0.3	12	59.4	39.1	0	12
09/02/2015	1036-1038	53.7	34.8	1.3	10	61.0	37.4	0	18	61.7	38.3	0	15	50.7	35.6	0	27
09/03/2015	1013	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	56.6	37.3	0	14
Date	AP (mb)	C54				C55				C56				C57			
		CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO	CH4	CO2	O2	CO
12/01/2015	1005-1006	58.9	38.9	0	13	59.1	37.4	0	10	60.5	37.9	0	24	59.7	37.5	0	37
09/02/2015	1036-1038	59.3	39.0	0.1	37	56.7	36.9	0	11	61.3	37.5	0	23	52.4	32.8	1.1	50
09/03/2015	1014	61.6	39.8	0	11	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.

Notes: AP- Atmospheric Pressure.

CH4, CO2 and O2 in %v/v and CO in ppm

n.m.- not measured *(the gas analyser run out of charge and the site experienced a power cut)

7. Meteorological Data

Measurements of rainfall, temperature and wind speed are recorded daily at Ffridd Rasus. Monitoring data for the months January, February and March 2015 are presented in Appendix H.



8. Summary

The results of environmental monitoring carried out during the period January to March 2015 are broadly consistent with the results of previous monitoring; however there continues to be some variability in the data obtained.

The latest results can be summarised as follows:

- ▶ Leachate levels in Area 3 have been controlled below the leachate head limit of 1.5 m, with leachate extraction carried out as necessary;
- ▶ All of the groundwater boreholes recorded water levels within the historical range and related to the local seasonal recharge;
- ▶ Leachate monitoring points in Area 2 continued to be dry during this quarter. Chloride and ammoniacal-nitrogen concentrations in leachate from Area 3 remained within the range of previous data except for Cell 4A which exceeded the previous maximum. This is consistent with Cell 4A having the most recently deposited waste and having been capped earlier in 2014;
- ▶ Downgradient groundwater monitoring boreholes continue to indicate contamination by leachate from the unlined Area 2 landfill. Chloride and ammoniacal-nitrogen concentrations along the downgradient boundary of Area 2 (and upgradient of Area 3) increase southwards towards BH27 but continue to show a downward trend. Elevated concentrations, exceeding those at BH27 at some locations, continue to be recorded about 200 m downgradient of Area 2 indicating downgradient movement of the leachate plume from Area 2.
- ▶ The groundwater quality trigger levels specified in the EP (ref GP3330BY) for Areas 1 and 3 were exceeded for chloride in BH19A, BH19B, BH19C and BH20A and for ammoniacal-nitrogen in BH20A, BH20B and BH21A. These exceedances reflect variability in the data associated with contaminant migration from the unlined Area 2 landfill. Compliance with the trigger levels specified in the EP for Area 2 and Civic Amenity (ref PP3294FJ) is reported on a 6-monthly basis and falls outside this quarterly monitoring period;
- ▶ SW1 (Area 1 permitted discharge) and pipe adjacent to SW1 monitoring locations continue to record chloride concentration peaks consistent with previous data and ammoniacal-nitrogen concentrations below the detection limit;
- ▶ Ammoniacal-nitrogen and chloride concentrations at SW2 (ditch flowing south along downstream boundary of Area 3) continue to show elevated peaks exceeding the typical baseline for this location. Possible reasons for the increased levels are under investigation and include muck spreading on adjacent agricultural land, presence of livestock close to the ditch and saline groundwater baseflow contribution.
- ▶ Ammoniacal-nitrogen and chloride concentrations at SW3 (ditch exiting the downstream boundary of Area 3) remained within the historical range; and
- ▶ Gas monitoring boreholes showed no evidence of off-site landfill gas migration. None of the trigger levels for methane or carbon dioxide have been exceeded in the perimeter monitoring boreholes during the monitoring period. Wastes in Area 3 are continuing to produce landfill gas with methane and carbon dioxide concentrations within historical ranges for all locations and parameters.



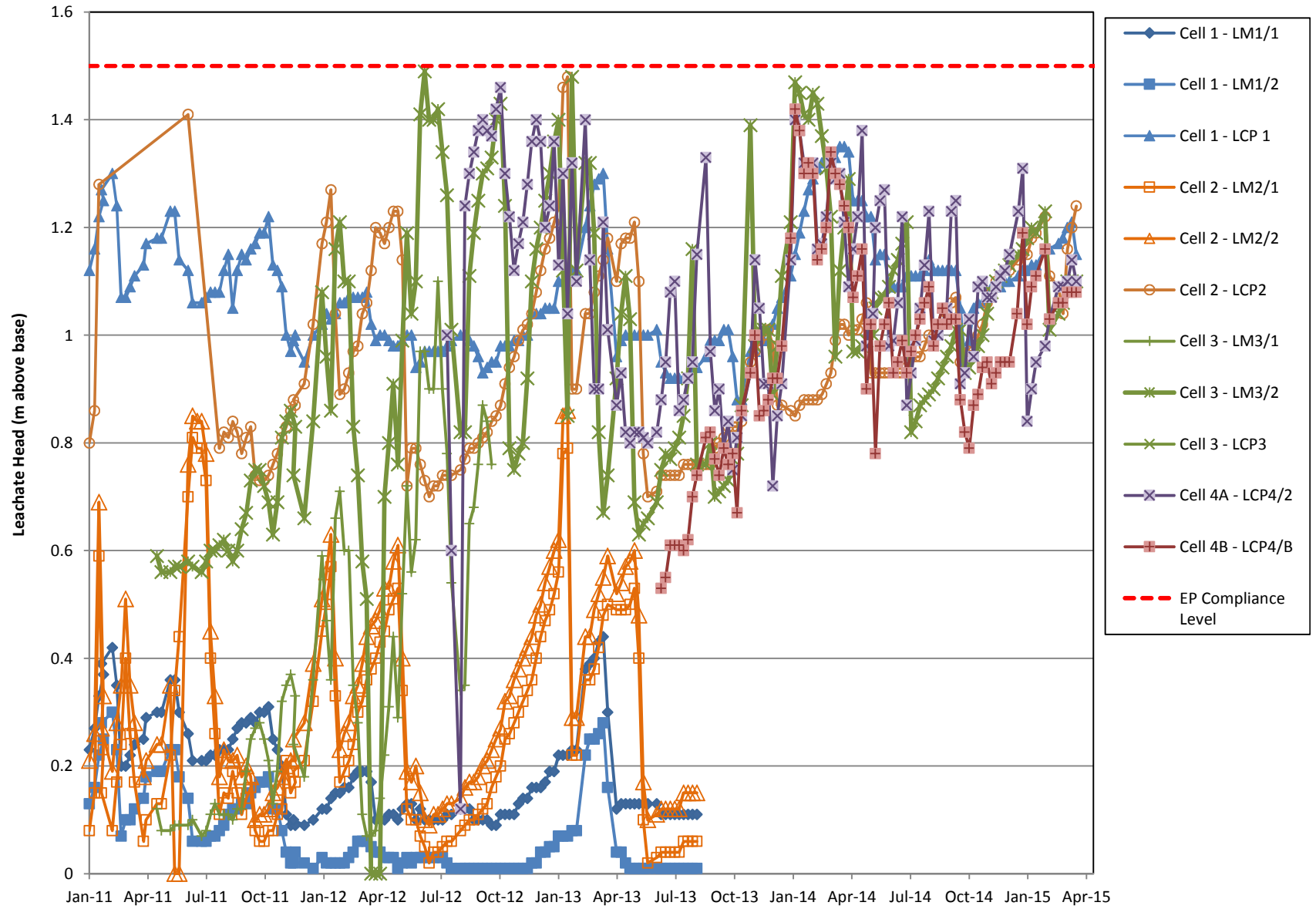


Appendix A

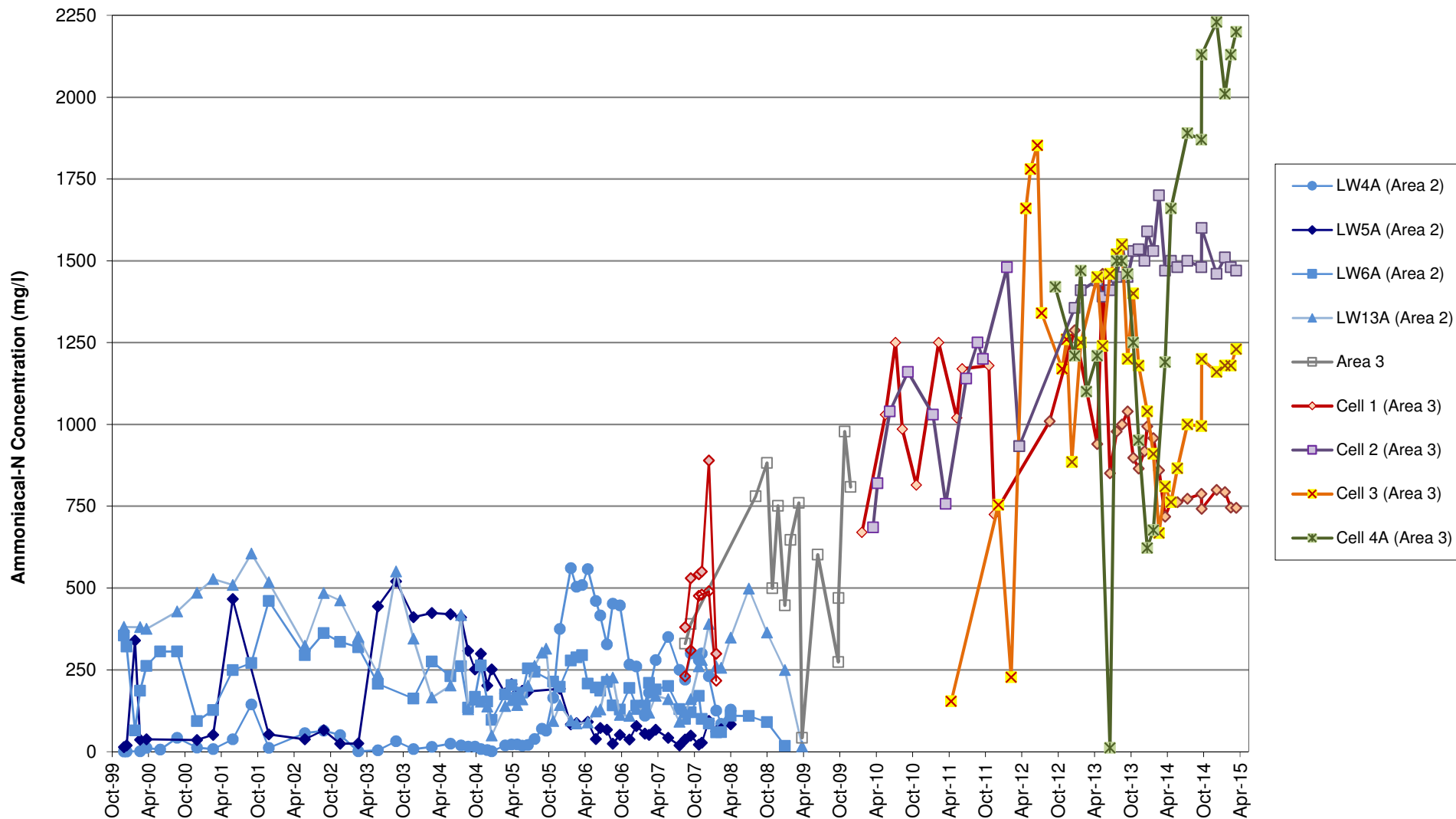
Leachate Level and Quality Plots



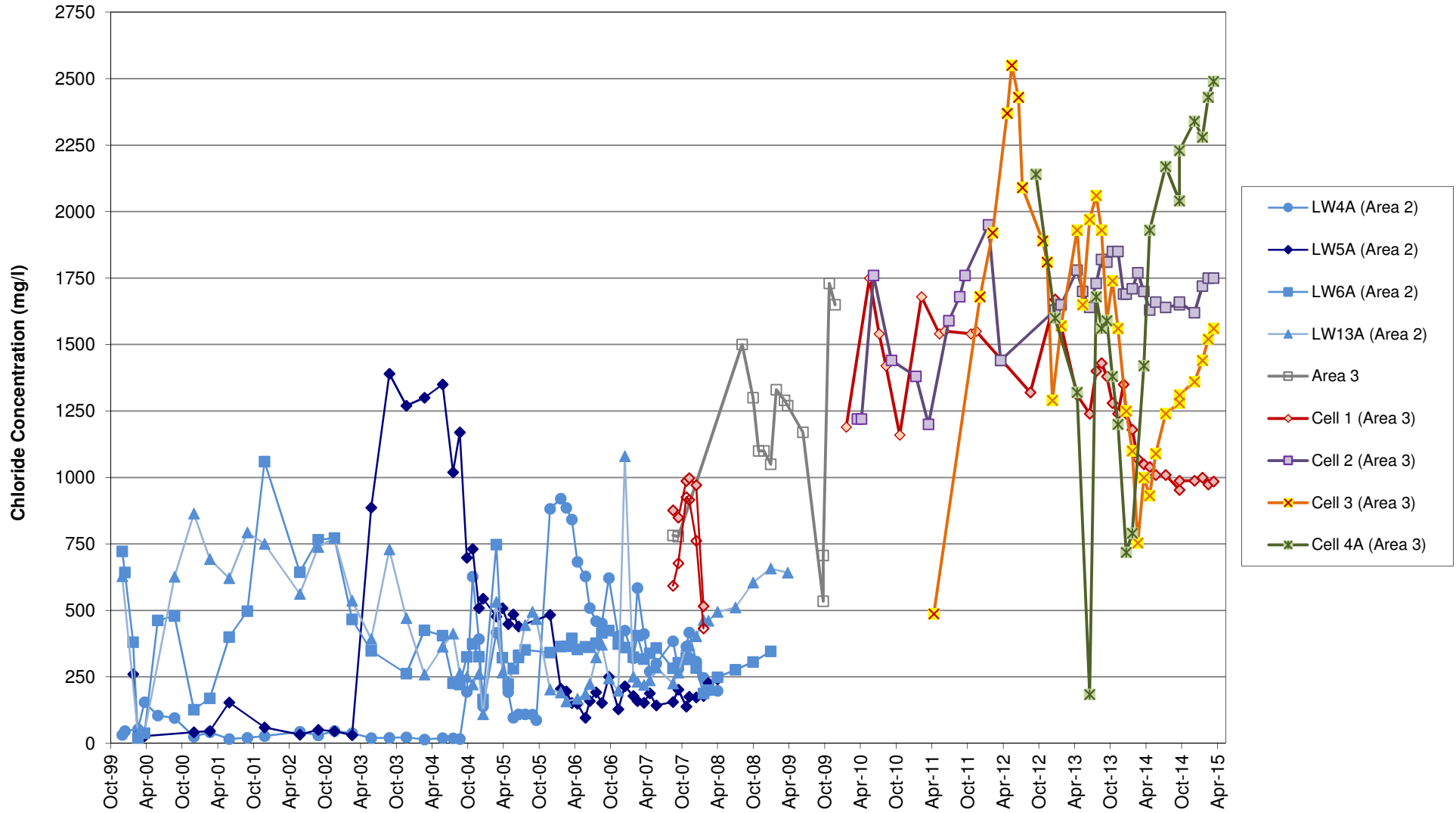
Ffridd Rasmus Landfill - Leachate Levels



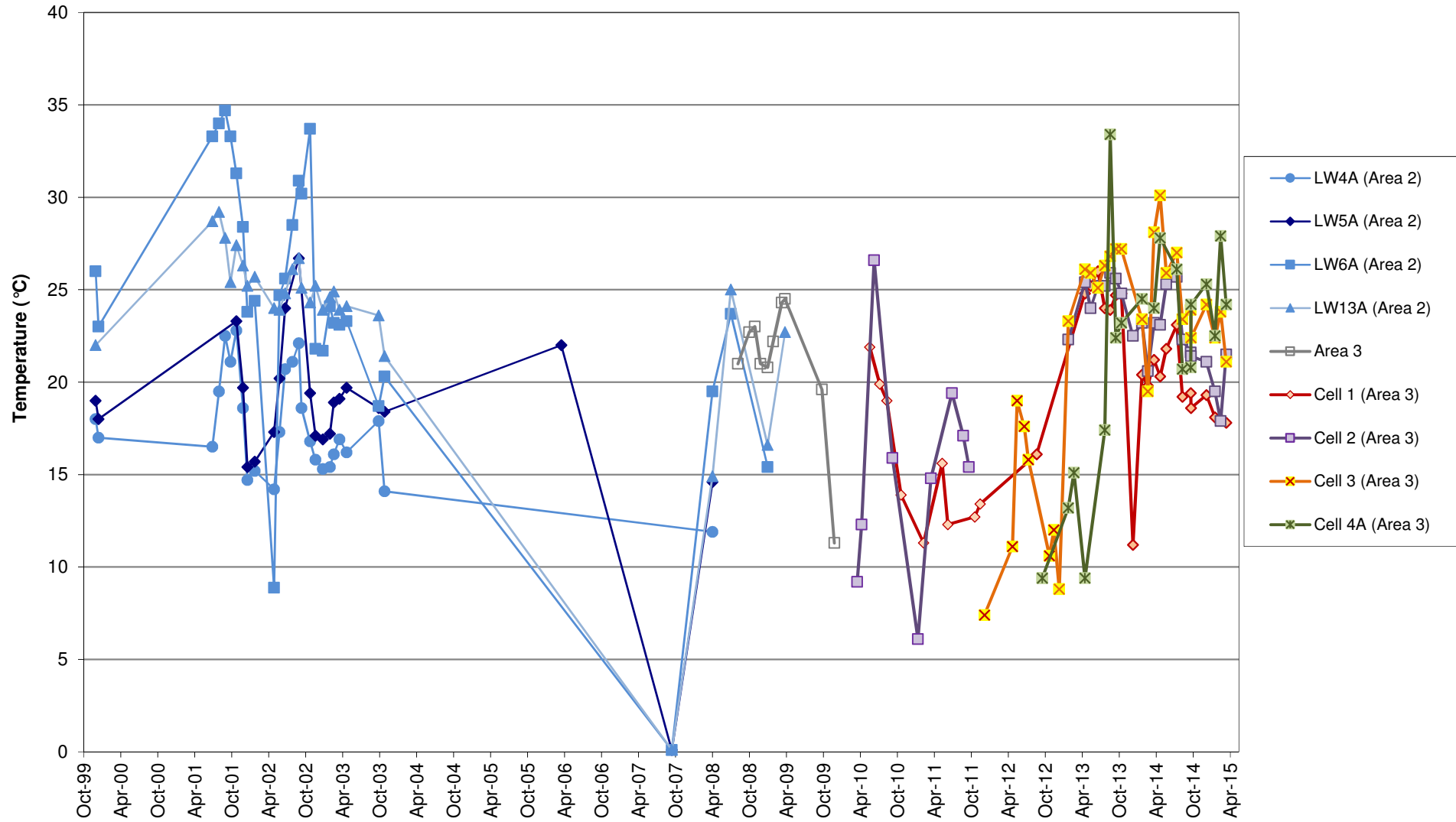
Ffridd Rasmus Landfill - Ammoniacal Nitrogen in Leachate



Ffridd Rasmus Landfill - Chloride in Leachate



Ffridd Rasmus Landfill - Leachate Temperature



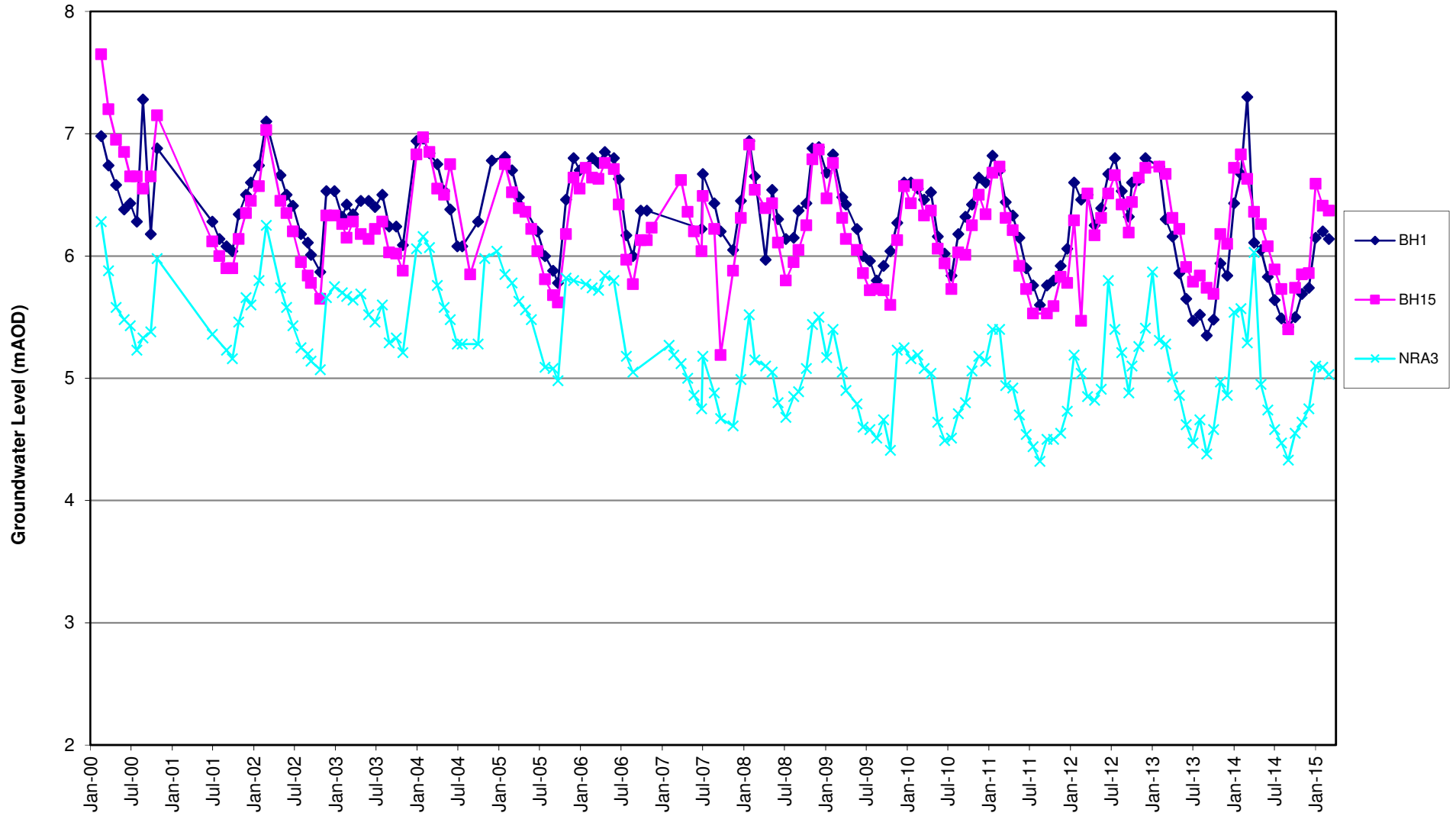


Appendix B

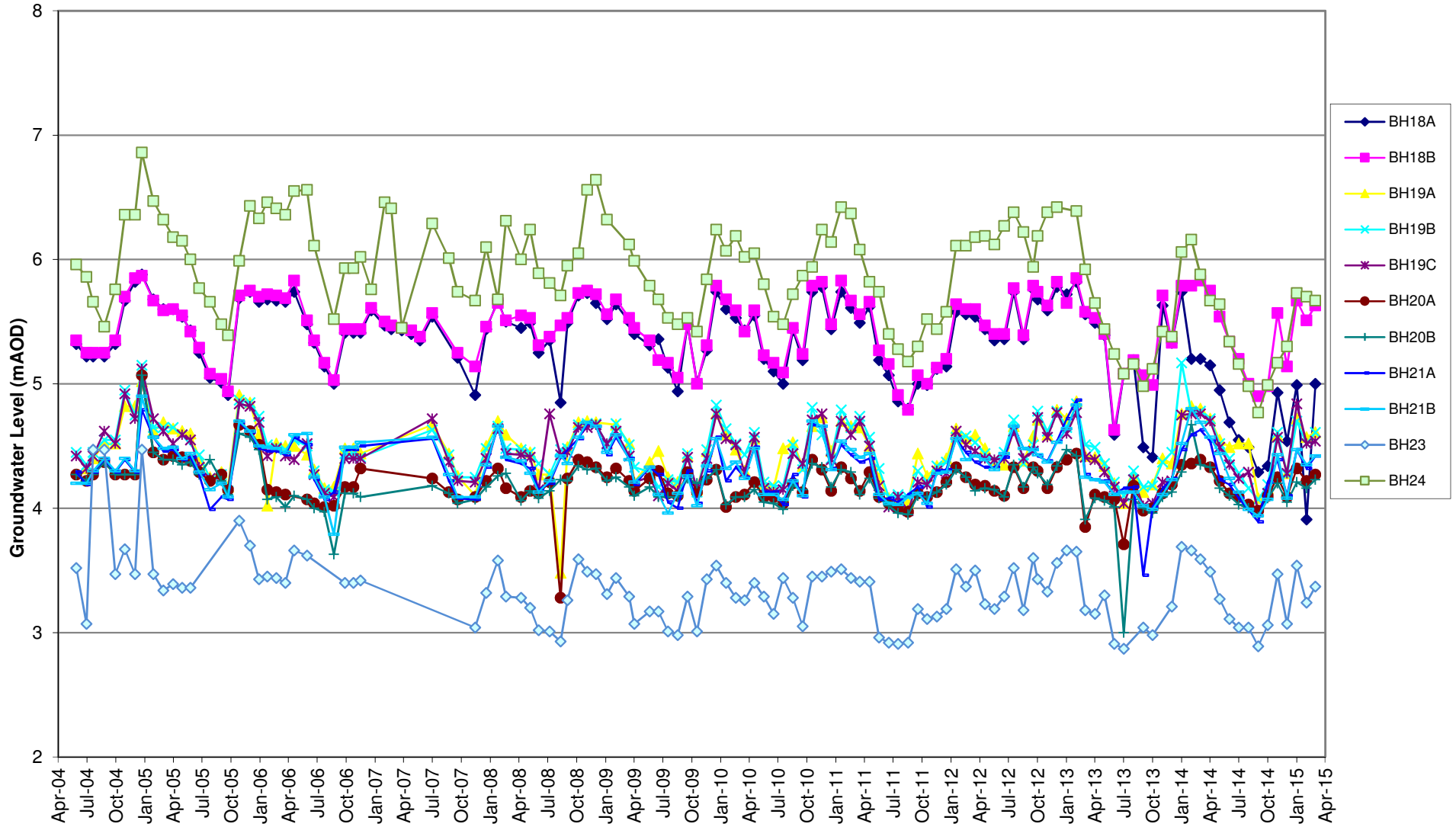
Groundwater Level Plots



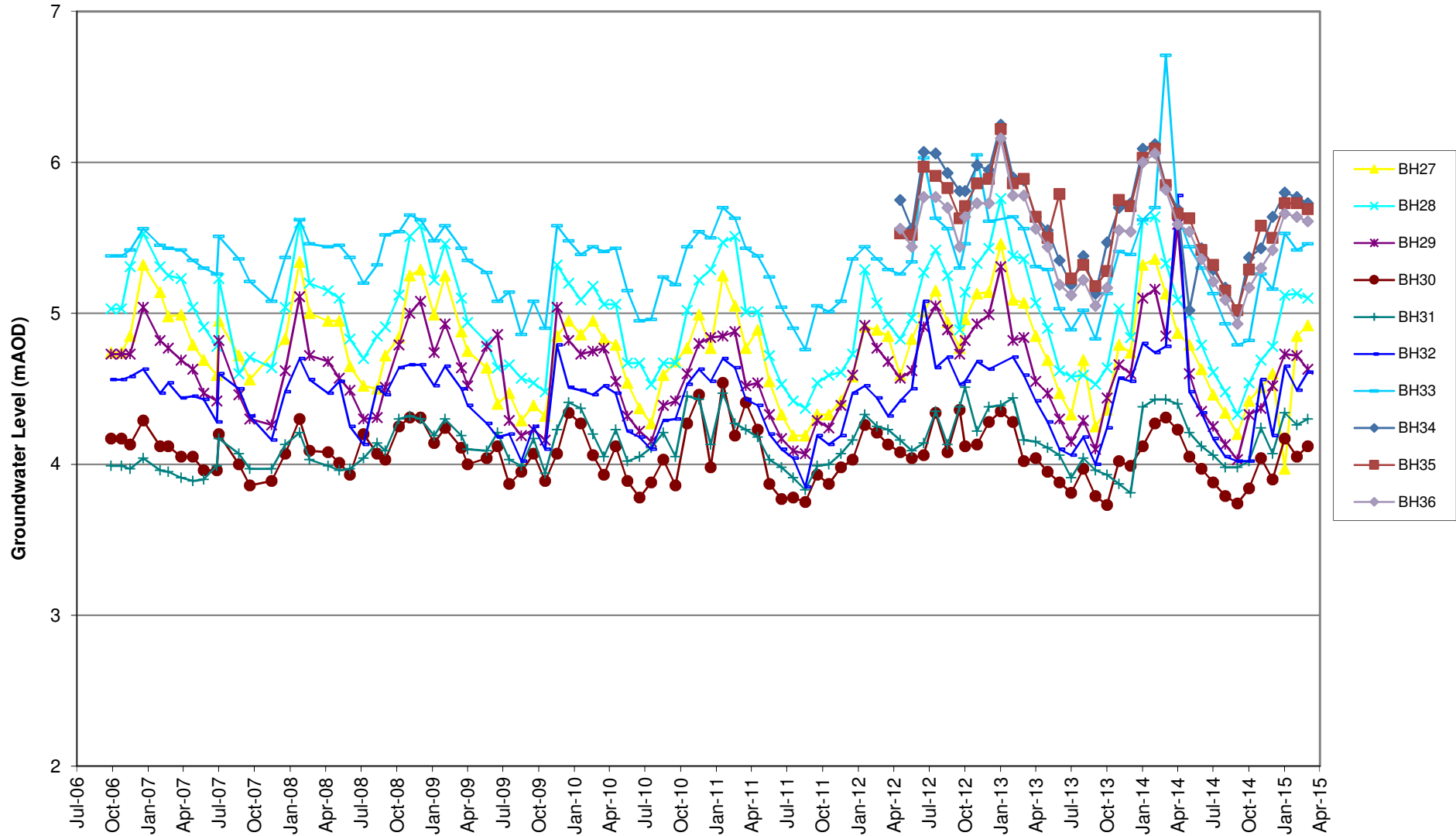
Ffridd Rasmus Landfill - Groundwater Levels (boreholes drilled pre-2004)



Ffridd Rasmus Landfill - Groundwater Levels (boreholes drilled in 2004)



Ffridd Rasmus- Groundwater Levels (boreholes drilled in 2006 and 2012)



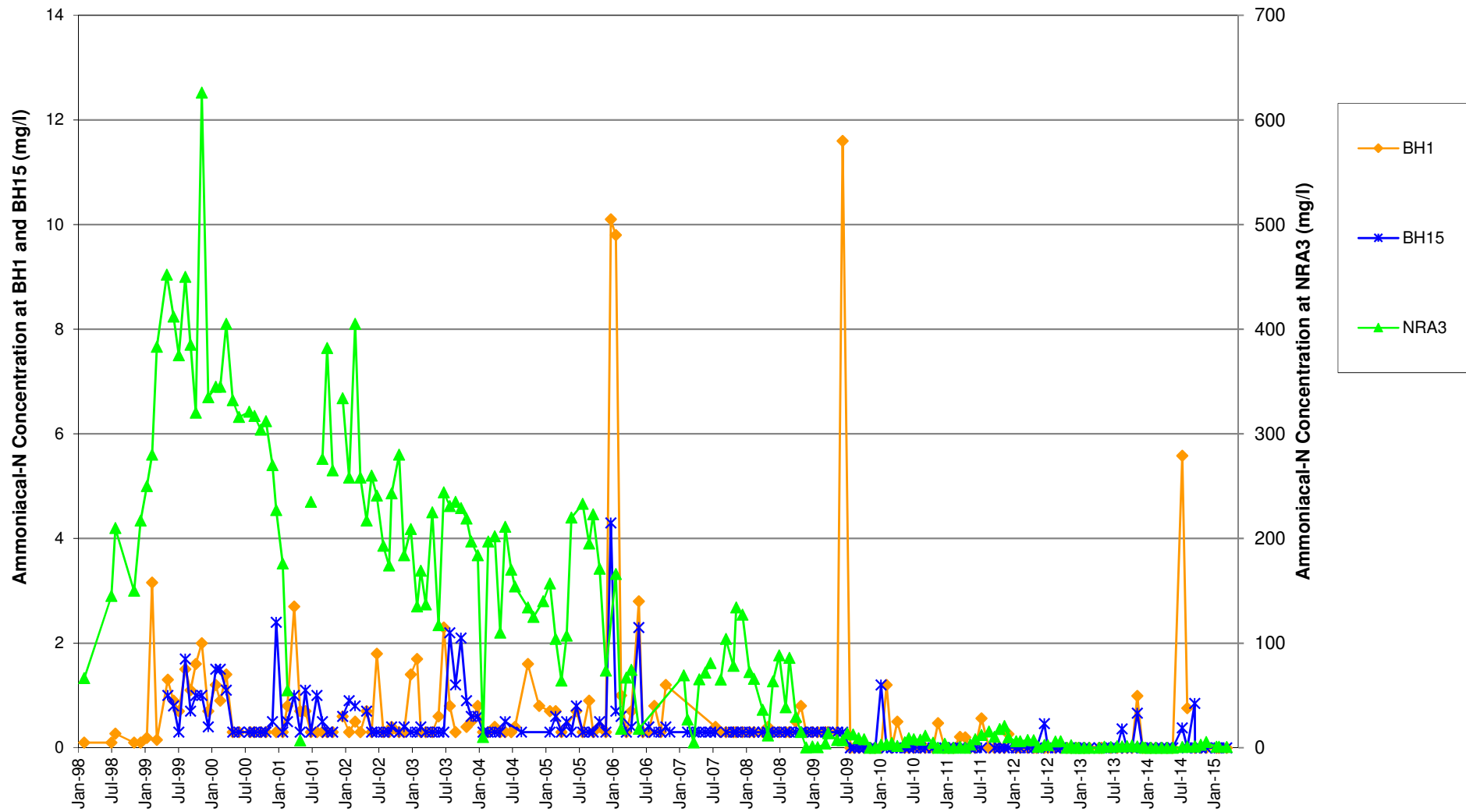


Appendix C

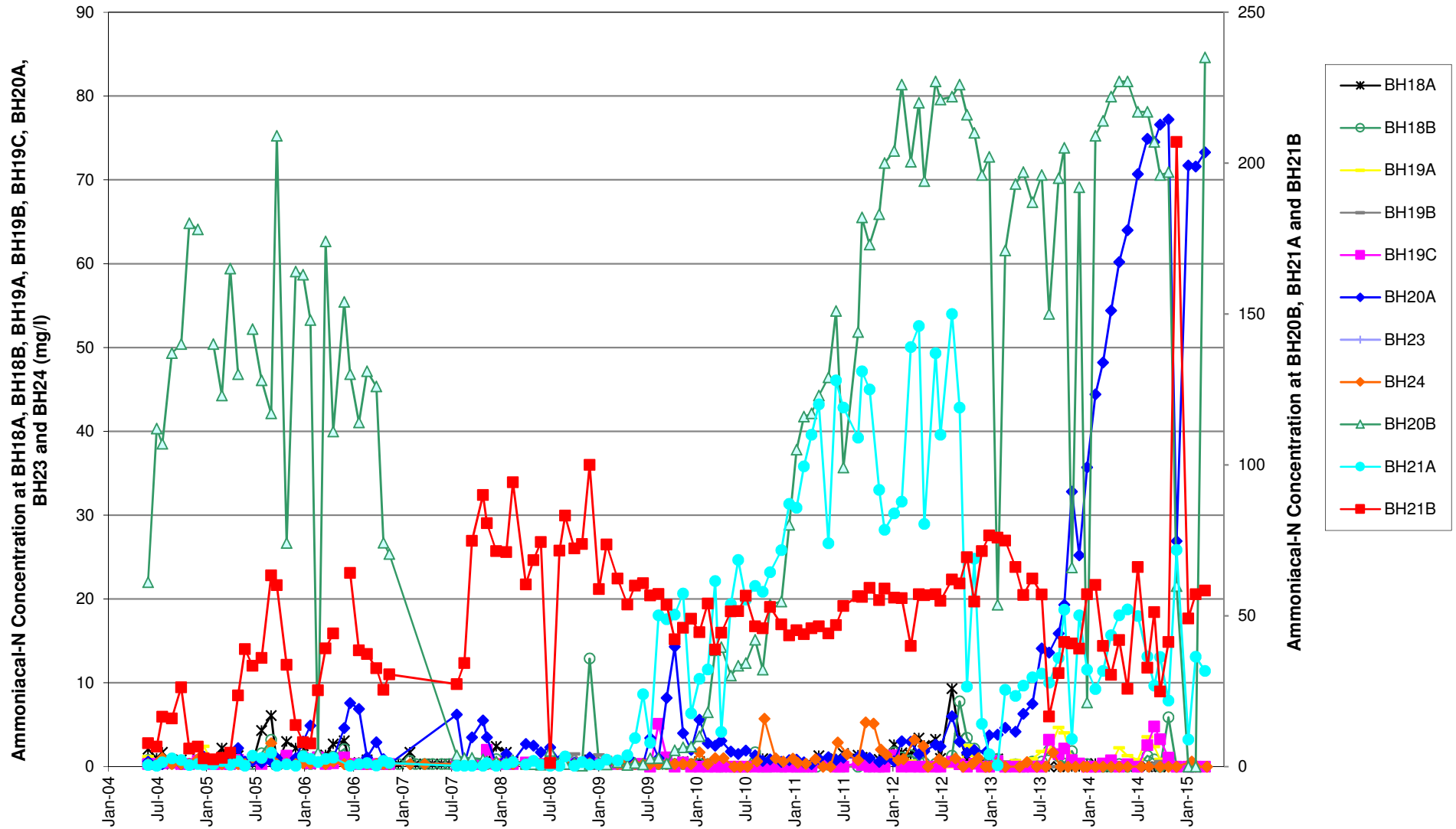
Groundwater Quality Plots



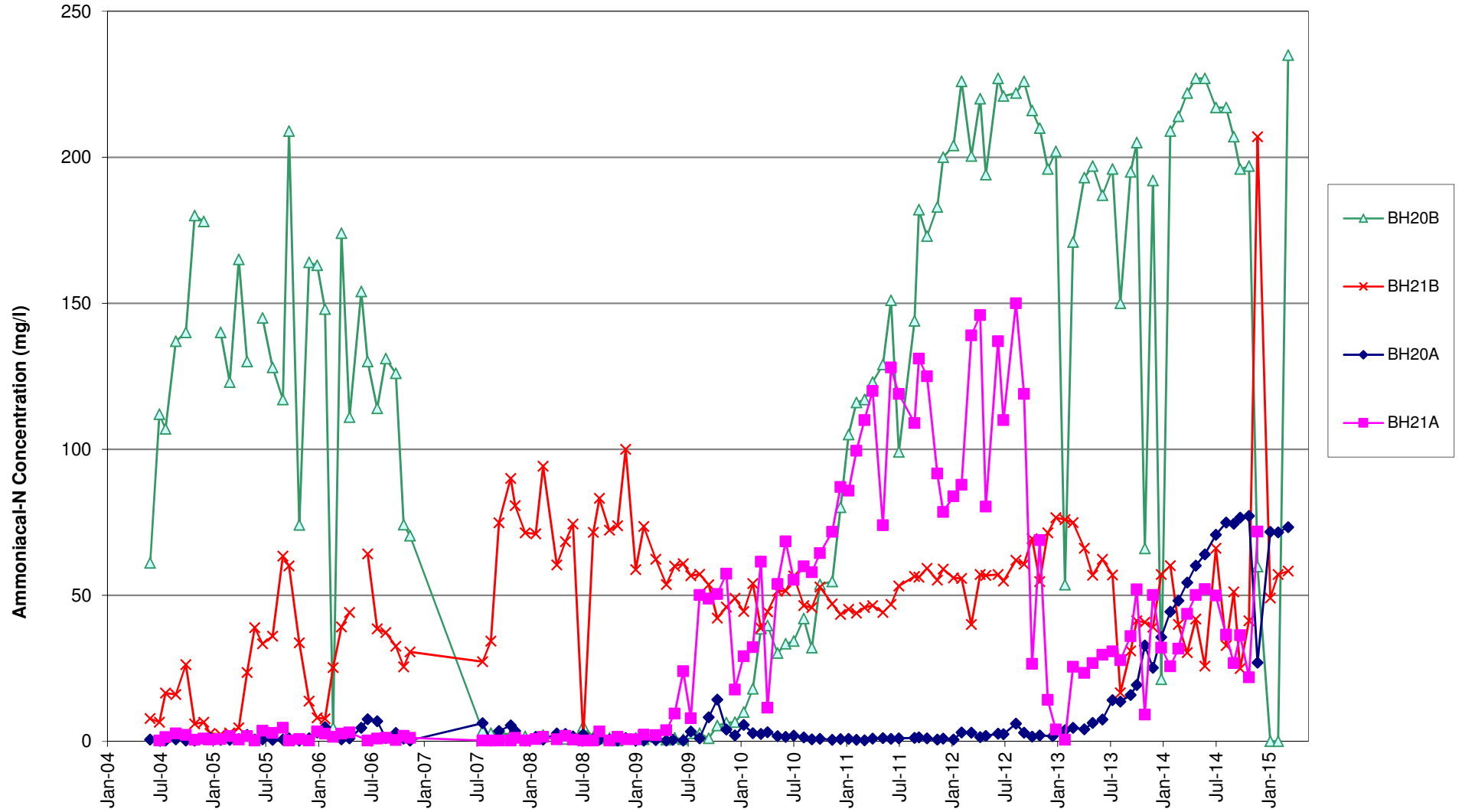
Ffridd Rasmus Landfill - Ammoniacal Nitrogen in Groundwater (Boreholes drilled pre-2004)



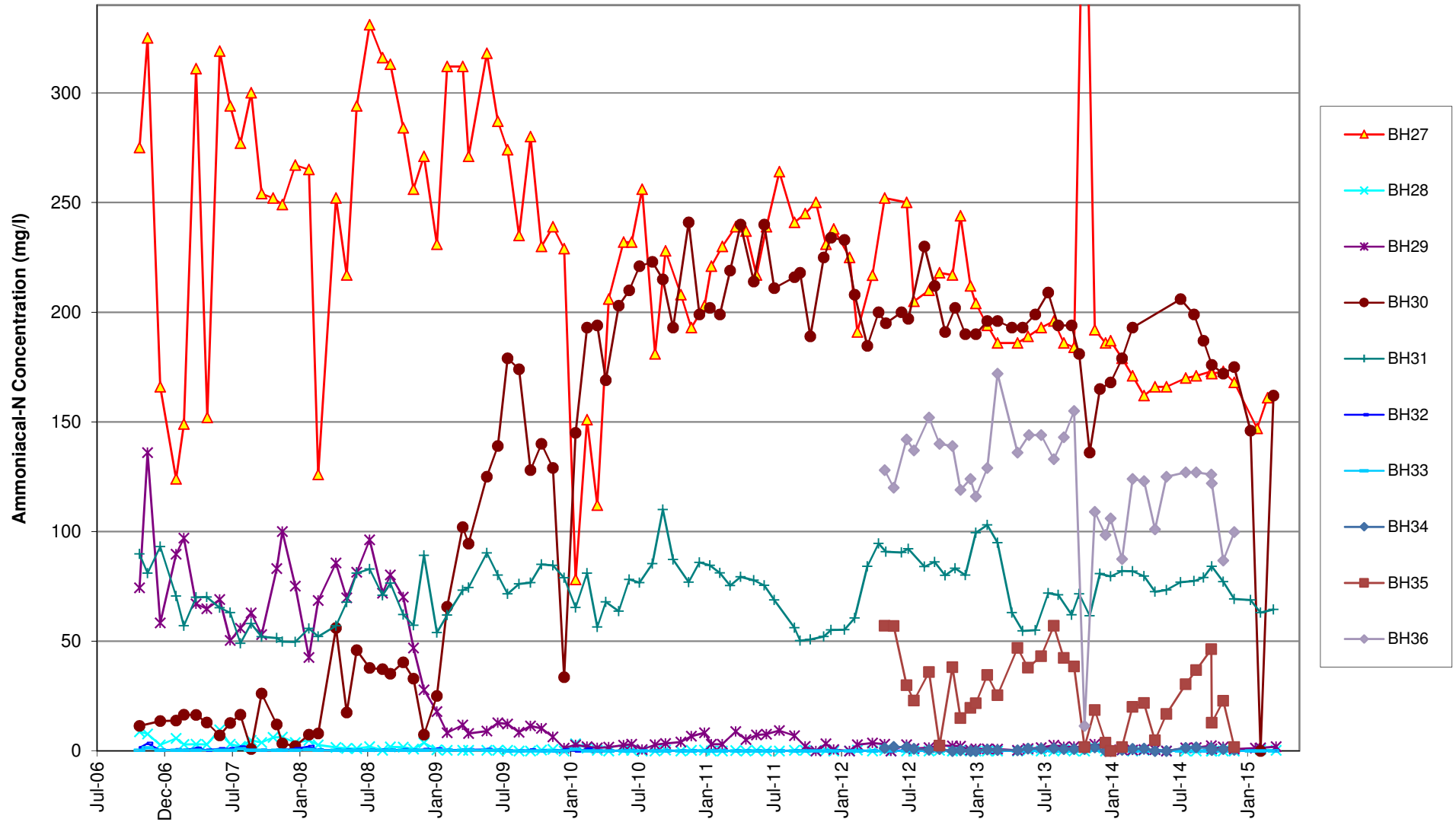
Ffridd Rasmus Landfill - Ammoniacal Nitrogen in Groundwater (boreholes drilled in 2004)



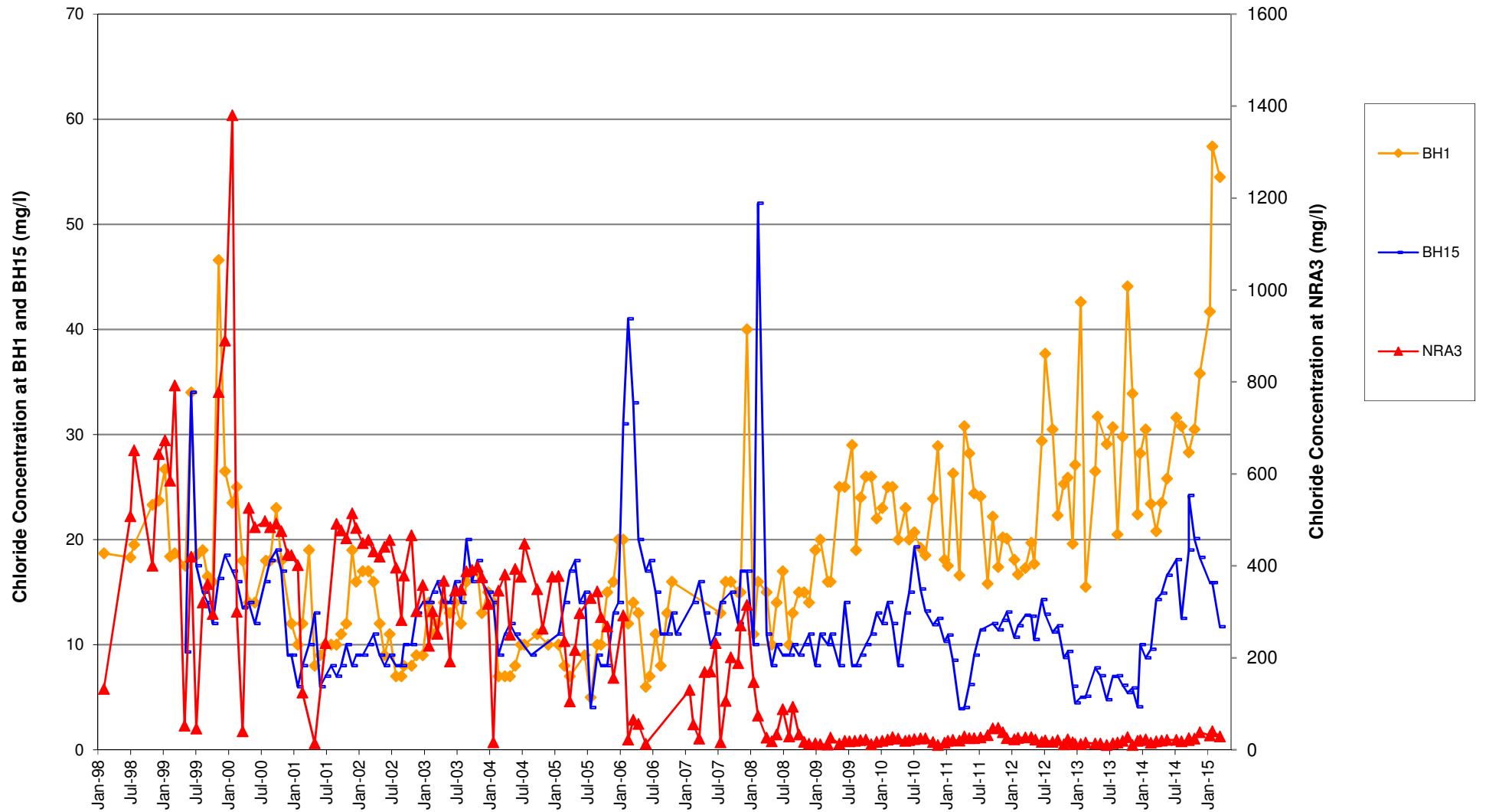
Ffridd Rasmus Landfill - Ammoniacal Nitrogen in Groundwater (boreholes 20A, 20B 21A & 21B)



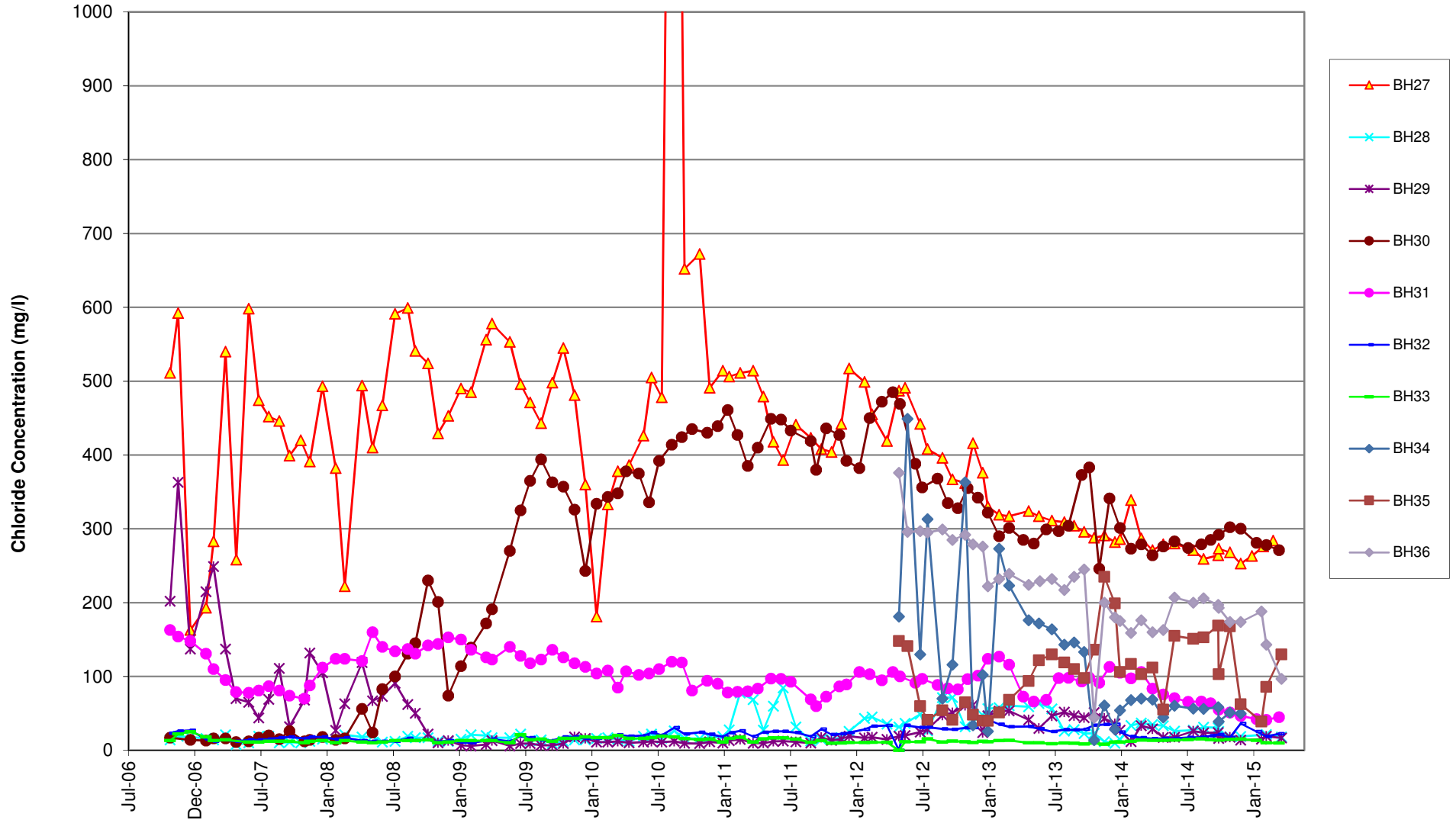
Ffridd Rasmus Landfill - Ammoniacal Nitrogen in groundwater (boreholes drilled in 2006 and 2012)



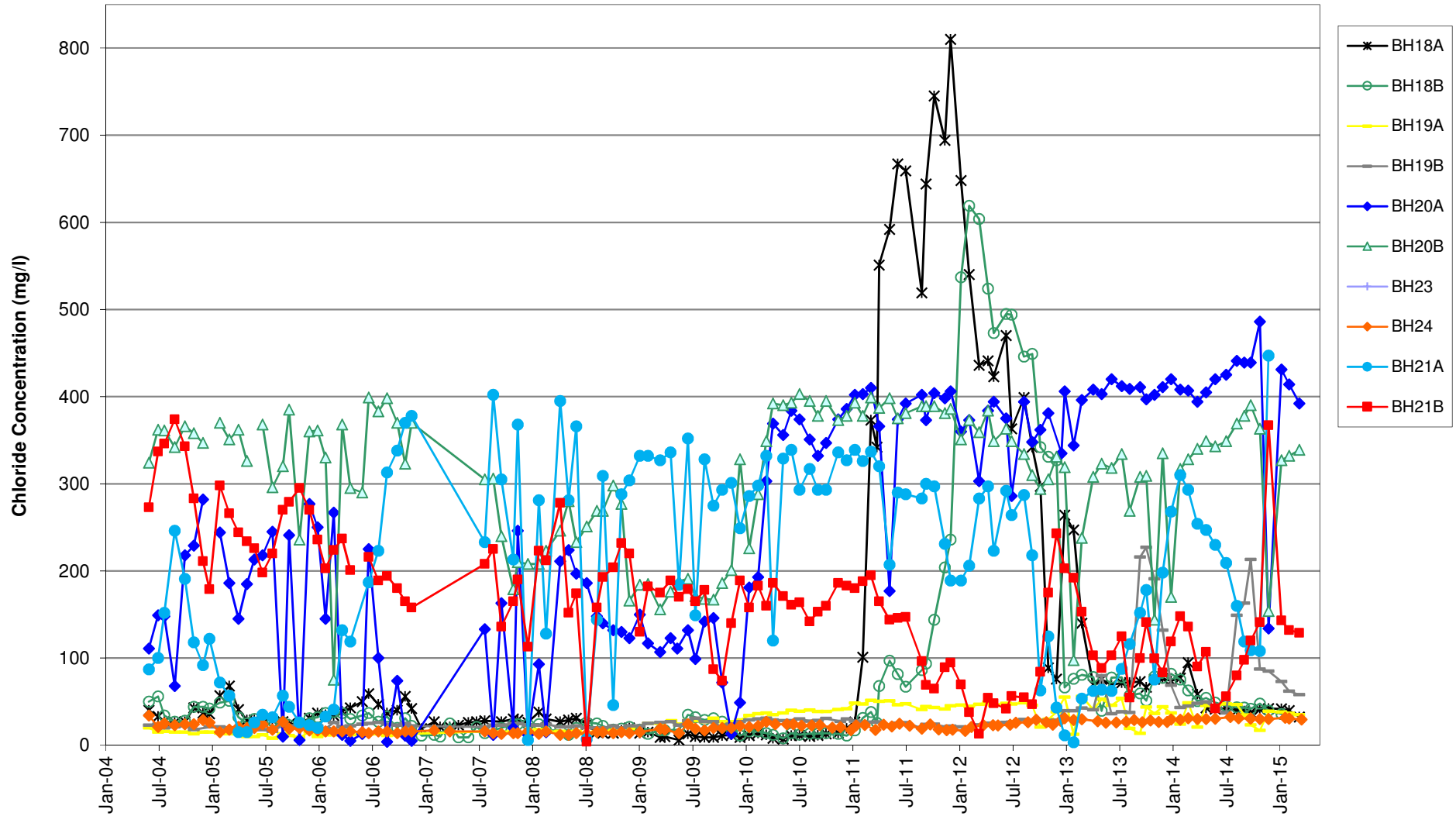
Chloride in Groundwater - boreholes drilled pre 2004



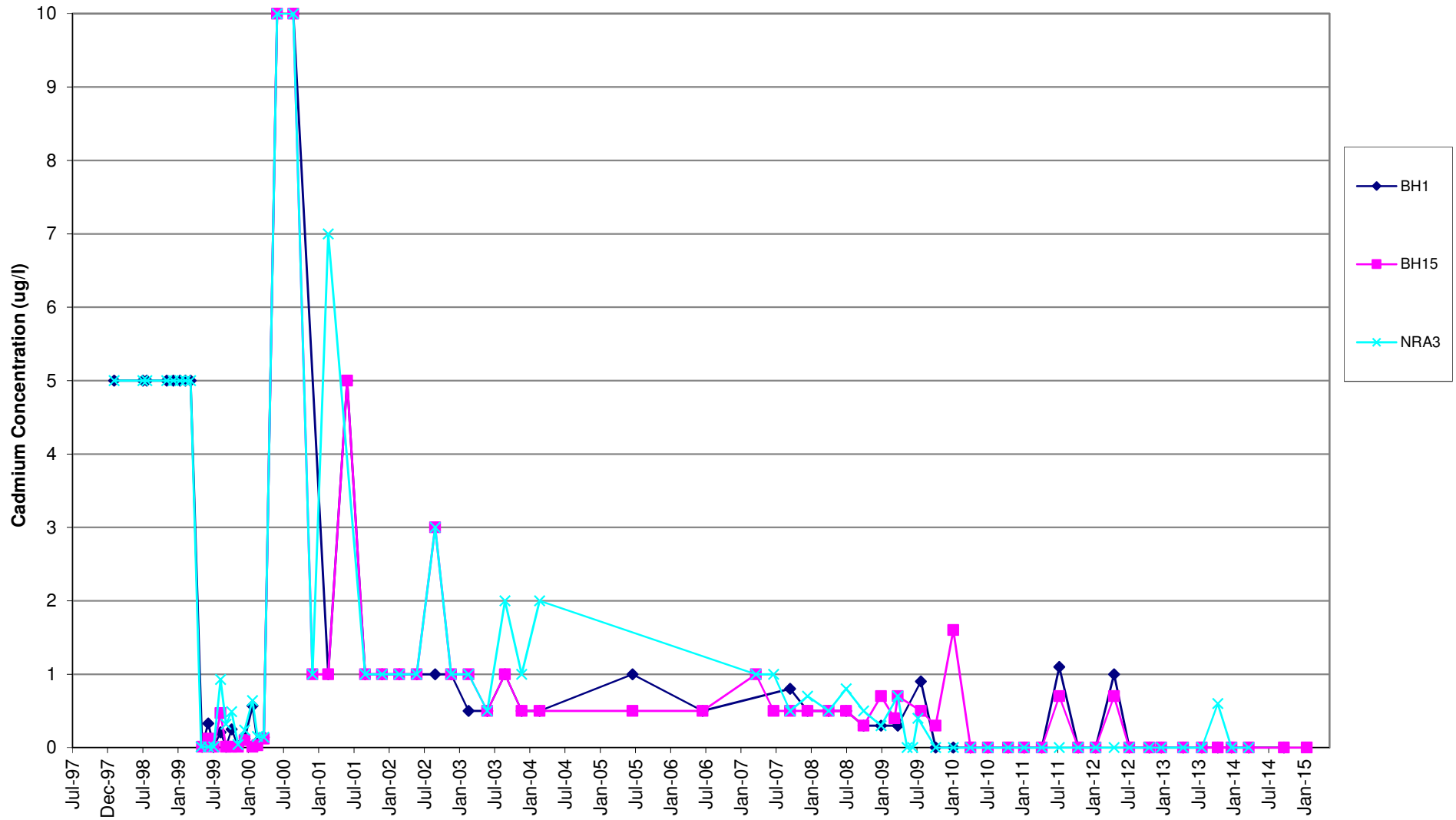
Ffridd Rasmus Landfill - Chloride in Groundwater (boreholes drilled in 2006 and 2012)



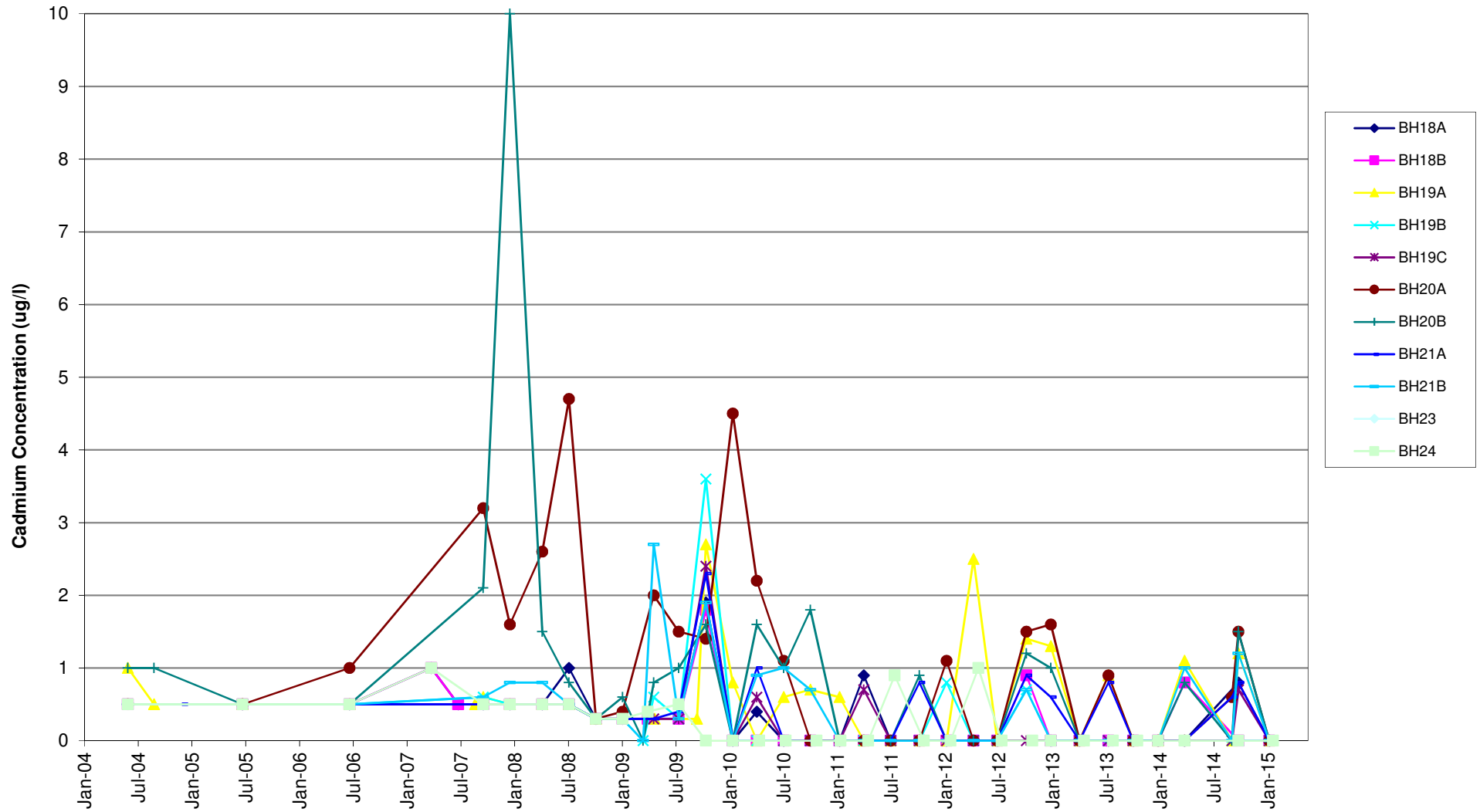
Ffridd Rasmus Landfill - Chloride in Groundwater (boreholes drilled in 2004)



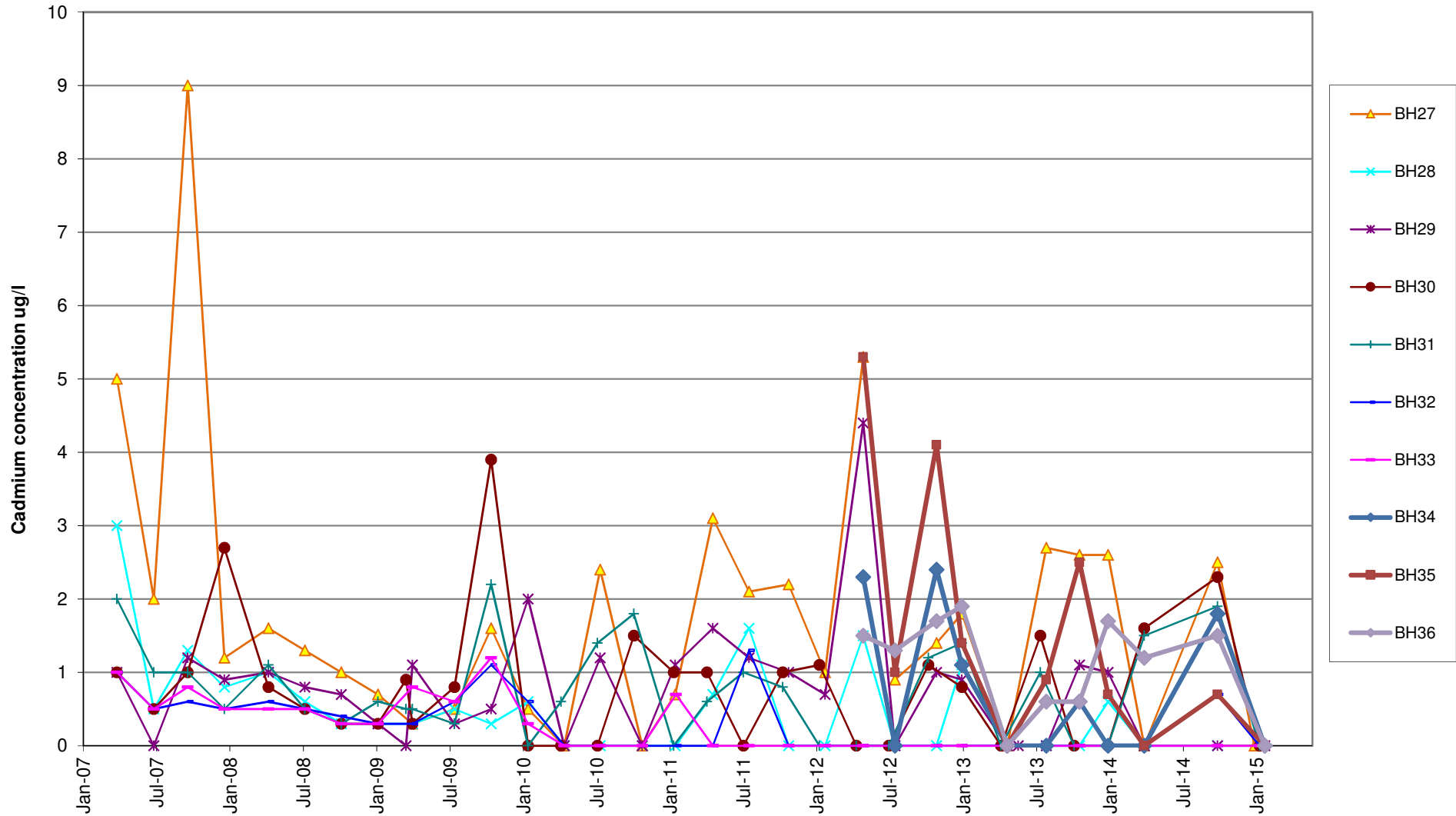
Ffridd Rasmus Landfill - Cadmium in Groundwater (boreholes drilled pre 2004)



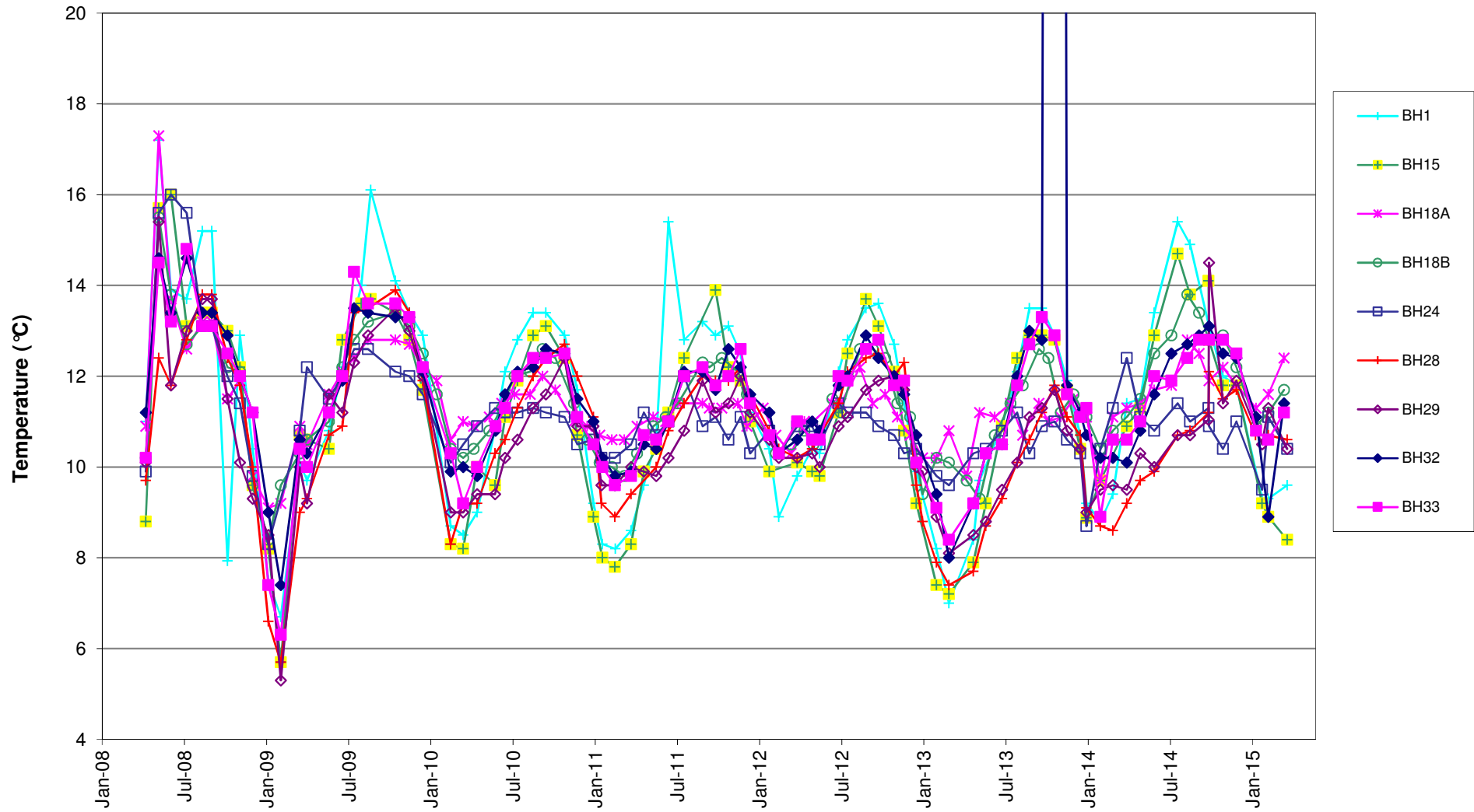
Ffridd Rasmus Landfill - Cadmium in Groundwater (boreholes drilled in 2004)



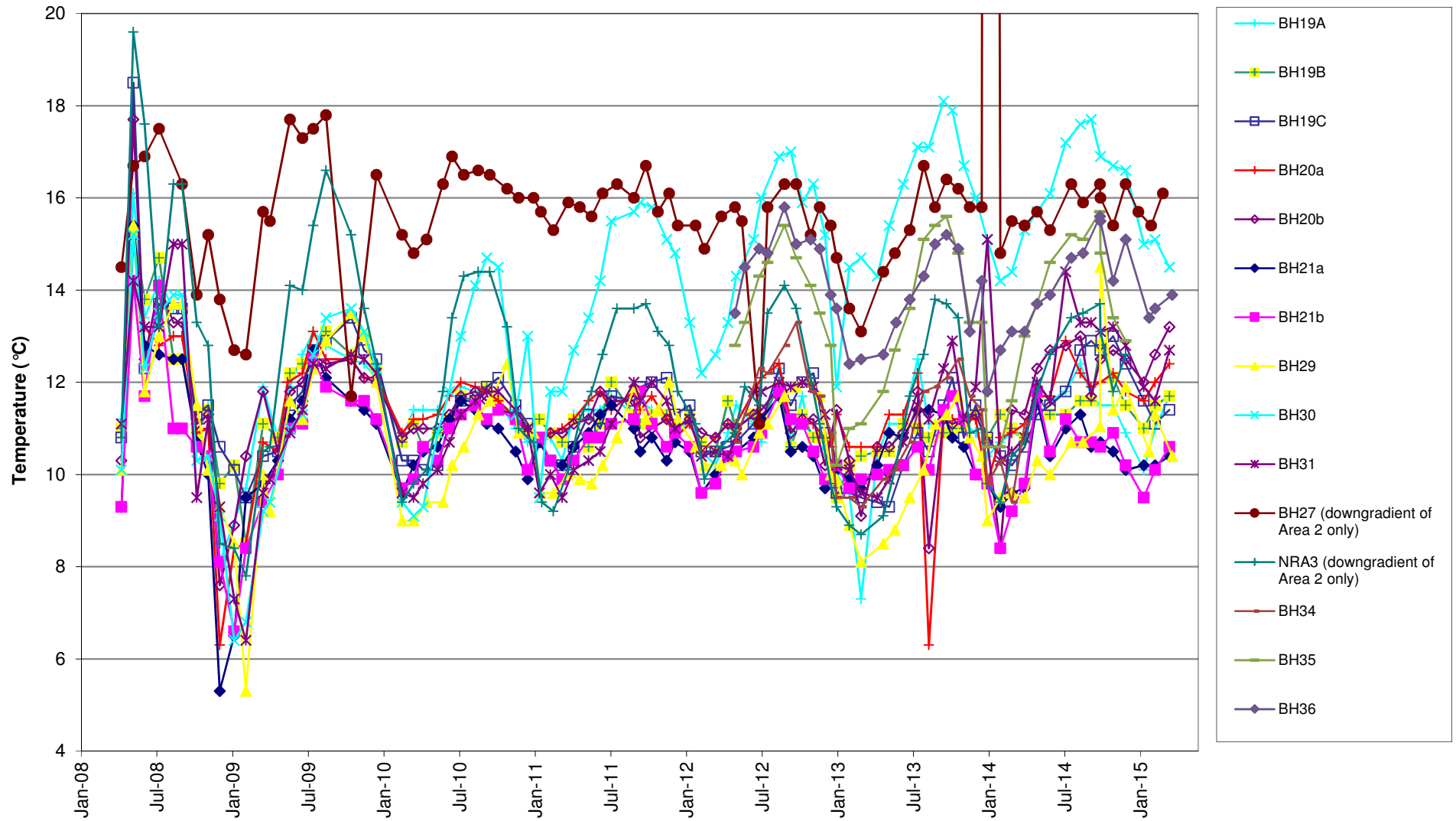
Ffridd Rasmus Landfill - Cadmium in Groundwater (boreholes drilled in 2006)



Ffridd Rasmus Landfill - Groundwater Temperature (Upgradient/Lateral to Groundwater Flow Boreholes)



Ffridd Rasmus Landfill - Groundwater Temperature (Downgradient Boreholes)





Appendix D

Laboratory Analytical Data



ALS Environmental Ltd
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www.alsenvironmental.co.uk

Ms Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon LL55 1AT
Gwynedd

27 January 2015

Test Report: COV/1160372/2015

Dear Ms Francis

Analysis of your sample(s) submitted on 14 January 2015 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: P. Pepper

Title: Organic Team Leader



Certificate No. GB97/10269
Environmental Management Systems



OHS 542058



FS 67435



Report Summary



**Ms Susan Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon
Gwynedd
LL55 1AT**

Date of Issue: **27 January 2015**

Report Number: **COV/1160372/2015**

Issue **1**

Job Description: Ffridd Rasmus

Job Location: December - Ffridd Rasmus

Number of Samples
included in this report **18**

Job Received: **14 January 2015**

Number of Test Results
included in this report **234**

Analysis Commenced: **15 January 2015**

Signed:

Name: **P. Pepper**

Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

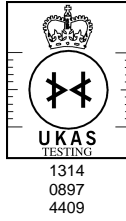
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425643**

Sample **1** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH18A**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	167	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	36.9	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	28.3	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	52.5	mg/l	22/01/2015	Y Cov	WAS049
pH	8.0	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1200	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	170	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	25/01/2015	N Cov	WAS036
Chloride as Cl	41.9	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	495	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.5	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	4.4	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425643:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

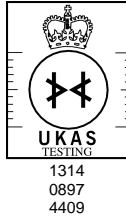
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425644**

Sample **2** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH18B**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	115	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	28.9	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	20.8	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	52.6	mg/l	22/01/2015	Y Cov	WAS049
pH	8.2	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	949	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	191	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	25/01/2015	N Cov	WAS036
Chloride as Cl	35.7	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	332	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.5	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	4.3	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425644:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

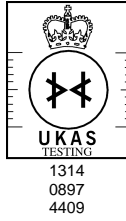
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
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Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425645**

Sample **3** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH19A**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	43.8	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	5.5	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	1.25	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	11.7	mg/l	22/01/2015	Y Cov	WAS049
pH	8.1	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	306	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	100.0	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	25/01/2015	N Cov	WAS036
Chloride as Cl	38.2	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	15.4	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	5.4	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	<0.7	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425645:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

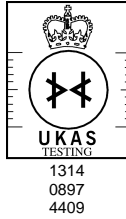
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
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Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425646**

Sample **4** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH19B**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	73.5	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	12.7	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	1.38	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	29.5	mg/l	22/01/2015	Y Cov	WAS049
pH	8.0	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	560	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	111	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	25/01/2015	N Cov	WAS036
Chloride as Cl	73.1	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	90.3	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.9	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	1.1	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425646:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

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Signed:

Name: **P. Pepper**

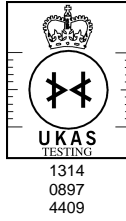
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425647**

Sample **5** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH19C**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	134	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	22.0	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	4.15	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	122	mg/l	22/01/2015	Y Cov	WAS049
pH	7.7	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1300	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	110	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	25/01/2015	N Cov	WAS036
Chloride as Cl	216	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	316	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.3	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	1.1	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425647:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

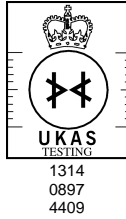
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425648**

Sample **6** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH20A**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	131	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	36.2	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	22.2	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	268	mg/l	22/01/2015	Y Cov	WAS049
pH	7.6	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	2350	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	786	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	71.7	mg/l	25/01/2015	N Cov	WAS036
Chloride as Cl	431	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	<1.3	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	2.6	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	37.5	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425648:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

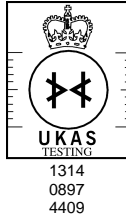
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425649**

Sample **7** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH20B**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.0008	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	35.7	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	48.0	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	160	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	267	mg/l	22/01/2015	Y Cov	WAS049
pH	7.8	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	3230	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	1490	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	222	mg/l	26/01/2015	Y Cov	WAS055
Chloride as Cl	327	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	0.52	mg/l	23/01/2015	N Cov	WAS036
Sulphate, total as SO4 by I.C.	19.54	mg/l	27/01/2015	Y Cov	CON27
Dissolved Oxygen, Fixed	2.9	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	59.3	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425649:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised. Sulphate analysed by ion chromatography due to interference with turbidimetric determination {*/}

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

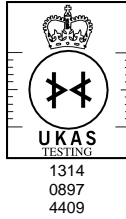
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425650**

Sample **8** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH21A**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	69.1	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	14.7	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	8.72	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	93.3	mg/l	22/01/2015	Y Cov	WAS049
pH	8.1	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	950	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	322	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	8.98	mg/l	25/01/2015	N Cov	WAS036
Chloride as Cl	138	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	5.08	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	11.7	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.6	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	9.5	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425650:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

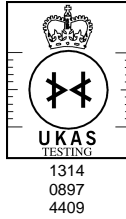
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
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Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425651**

Sample **9** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH21B**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	46.8	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	12.7	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	41.3	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	39.1	mg/l	22/01/2015	Y Cov	WAS049
pH	8.0	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1060	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	271	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	49.1	mg/l	23/01/2015	N Cov	WAS036
Chloride as Cl	143	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	5.04	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	64.3	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.2	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	5.7	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425651:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

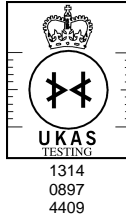
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
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Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425652**

Sample **10** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH23**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	44.2	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	4.7	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	0.66	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	8.28	mg/l	22/01/2015	Y Cov	WAS049
pH	8.2	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	270	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	136	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	23/01/2015	N Cov	WAS036
Chloride as Cl	15.8	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	<1.3	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	5.3	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	3.5	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425652:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

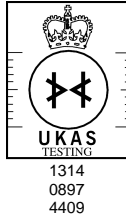
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

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Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425653**

Sample **11** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH32**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	44.2	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	5.5	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	2.66	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	13.9	mg/l	22/01/2015	Y Cov	WAS049
pH	8.2	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	309	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	116	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	23/01/2015	N Cov	WAS036
Chloride as Cl	25.3	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	20.9	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.1	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	1.7	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425653:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

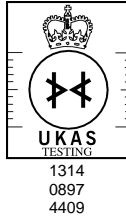
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
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Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425654**

Sample **12** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH33**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	31.6	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	3.9	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	1.11	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	7.82	mg/l	22/01/2015	Y Cov	WAS049
pH	8.3	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	211	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	86.6	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	23/01/2015	N Cov	WAS036
Chloride as Cl	13.6	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	2.20	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	3.0	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	5.7	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	1.0	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425654:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

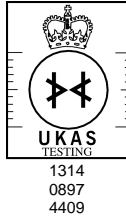
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

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Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425655**

Sample **13** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH30**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.0020	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	28.8	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	48.9	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	111	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	220	mg/l	22/01/2015	Y Cov	WAS049
pH	7.8	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	2620	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	1110	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	146	mg/l	23/01/2015	N Cov	WAS036
Chloride as Cl	281	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	2.3	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	1.8	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	42.6	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425655:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

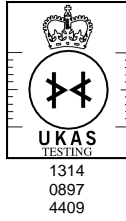
Date: **27 January 2015**

Title: **Organic Team Leader**

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Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425656**

Sample **14** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH31**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.001	mg/l	22/01/2015	Y Cov	WAS049
Calcium , Total as Ca	53.5	mg/l	22/01/2015	Y Cov	WAS049
Magnesium, Total as Mg	15.8	mg/l	22/01/2015	Y Cov	WAS049
Potassium , Total as K	62.3	mg/l	22/01/2015	Y Cov	WAS049
Sodium , Total as Na	45.3	mg/l	22/01/2015	Y Cov	WAS049
pH	7.8	pH units	17/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1180	uS/cm	17/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	464	mg/l	20/01/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	68.8	mg/l	23/01/2015	N Cov	WAS036
Chloride as Cl	42.3	mg/l	23/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	0.67	mg/l	23/01/2015	N Cov	WAS036
Sulphate as SO4	118	mg/l	23/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.2	mg/l	21/01/2015	Y Cov	WAS052
TOC (Filtered)	11.5	mg/l	16/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	19/01/2015	Y Cov	WAS019

Analyst Comments for 14425656:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

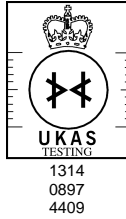
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425657**

Sample **15** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW1**

Sample Matrix: **Surface Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.4	pH units	17/01/2015	N Cov	WAS039
Conductivity- Electrical 20C	318	uS/cm	17/01/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	23/01/2015	Y Cov	WAS036
Chloride as Cl	27.1	mg/l	23/01/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	5.8	mg/l	21/01/2015	N Cov	WAS052
COD (Total)	<11.0	mg/l	22/01/2015	N Cov	WAS040

Analyst Comments for 14425657:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

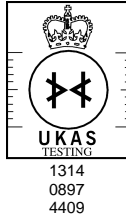
Date: **27 January 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425658**

Sample **16** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW1 (pipe)**

Sample Matrix: **Surface Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.5	pH units	17/01/2015	N Cov	WAS039
Conductivity- Electrical 20C	295	uS/cm	17/01/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	23/01/2015	Y Cov	WAS036
Chloride as Cl	32.3	mg/l	23/01/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	6.3	mg/l	21/01/2015	N Cov	WAS052
COD (Total)	14.0	mg/l	22/01/2015	N Cov	WAS040

Analyst Comments for 14425658:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

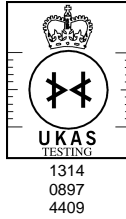
Signed:

Name: **P. Pepper**

Date: **27 January 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425659**

Sample **17** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW2**

Sample Matrix: **Surface Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.7	pH units	17/01/2015	N Cov	WAS039
Conductivity- Electrical 20C	735	uS/cm	17/01/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	23/01/2015	Y Cov	WAS036
Chloride as Cl	70.3	mg/l	23/01/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	7.2	mg/l	21/01/2015	N Cov	WAS052
COD (Total)	79.0	mg/l	22/01/2015	N Cov	WAS040

Analyst Comments for 14425659:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

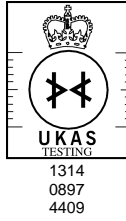
Signed:

Name: **P. Pepper**

Date: **27 January 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1160372/2015**

Issue **1**

Laboratory Number: **14425660**

Sample **18** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW3**

Sample Matrix: **Surface Water**

Sample Date/Time: **13 January 2015**

Sample Received: **14 January 2015**

Analysis Complete: **27 January 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.5	pH units	17/01/2015	N Cov	WAS039
Conductivity- Electrical 20C	795	uS/cm	17/01/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	0.91	mg/l	23/01/2015	Y Cov	WAS036
Chloride as Cl	78.7	mg/l	23/01/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	7.3	mg/l	21/01/2015	N Cov	WAS052
COD (Total)	32.0	mg/l	22/01/2015	N Cov	WAS040

Analyst Comments for 14425660:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Pepper**

Date: **27 January 2015**

Title: **Organic Team Leader**

Date of Issue: **27 January 2015**

Sample No	Analysis Comments
14425643	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425644	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425645	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425646	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425647	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425648	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425649	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised. Sulphate analysed by ion chromatography due to interference with turbidimetric determination {*/}
14425650	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425651	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425652	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425653	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425654	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425655	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425656	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, Nitrogen, Total Oxidised as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425657	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425658	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425659	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.
14425660	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

Signed:



Name: **P. Pepper**

Date: **27 January 2015**

Title: **Organic Team Leader**

DETERMINAND COMMENTS FOR REPORT COV/1160372/2015

ISSUE 1

Date of Issue : 27 January 2015

Sample No	Description	Determinand	Comments

Signed: 

Name: P. Pepper

Date: 27 January 2015

Title: Organic Team Leader

ALS Environmental Ltd
Torrington Avenue
Coventry
CV4 9GU

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F: +44 (0)24 7685 6575
www.alsenvironmental.co.uk

Ms Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon LL55 1AT
Gwynedd

25 February 2015

Test Report: COV/1163613/2015

Dear Ms Francis

Analysis of your sample(s) submitted on 28 January 2015 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: J. Beckett

Title: Inorganic Team Leader



Certificate No. GB97/10269
Environmental Management Systems



OHS 542058



FS 67435



Report Summary



**Ms Susan Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon
Gwynedd
LL55 1AT**

Date of Issue: **25 February 2015**

Report Number: **COV/1163613/2015**

Issue **1**

Job Description: Ffridd Rasmus

Job Location: December - Ffridd Rasmus

Number of Samples
included in this report **14**

Job Received: **28 January 2015**

Number of Test Results
included in this report **218**

Analysis Commenced: **29 January 2015**

Signed:

Name: **J. Beckett**

Date: **25 February 2015**

Title: **Inorganic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

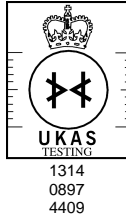
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447626**

Sample **1** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH34**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.0007	mg/l	05/02/2015	Y Cov	WAS049
Calcium , Total as Ca	72.4	mg/l	05/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	15.6	mg/l	05/02/2015	Y Cov	WAS049
Potassium , Total as K	5.91	mg/l	05/02/2015	Y Cov	WAS049
Sodium , Total as Na	25.8	mg/l	05/02/2015	Y Cov	WAS049
pH	7.5	pH units	29/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	575	uS/cm	29/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	141	mg/l	04/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	0.56	mg/l	29/01/2015	N Cov	WAS036
Chloride as Cl	41.8	mg/l	29/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	29/01/2015	N Cov	WAS036
Sulphate as SO4	133	mg/l	29/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.8	mg/l	29/01/2015	Y Cov	WAS052
TOC (Filtered)	4.5	mg/l	31/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	02/02/2015	Y Cov	WAS019

Analyst Comments for 14447626:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

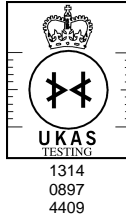
Date: **25 February 2015**

Title: **Inorganic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447627**

Sample **2** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH35**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	05/02/2015	Y Cov	WAS049
Calcium , Total as Ca	35.7	mg/l	05/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	4.3	mg/l	05/02/2015	Y Cov	WAS049
Potassium , Total as K	18.0	mg/l	05/02/2015	Y Cov	WAS049
Sodium , Total as Na	17.2	mg/l	05/02/2015	Y Cov	WAS049
pH	7.4	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	394	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	127	mg/l	04/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	1.20	mg/l	29/01/2015	N Cov	WAS036
Chloride as Cl	38.9	mg/l	29/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	0.49	mg/l	29/01/2015	N Cov	WAS036
Sulphate as SO4	18.9	mg/l	29/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.9	mg/l	29/01/2015	Y Cov	WAS052
TOC (Filtered)	6.3	mg/l	31/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	02/02/2015	Y Cov	WAS019

Analyst Comments for 14447627:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

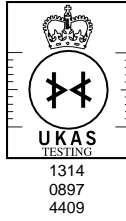
Date: **25 February 2015**

Title: **Inorganic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447628**

Sample **3** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH36**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.0009	mg/l	05/02/2015	Y Cov	WAS049
Calcium , Total as Ca	51.2	mg/l	05/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	19.0	mg/l	05/02/2015	Y Cov	WAS049
Potassium , Total as K	76.8	mg/l	05/02/2015	Y Cov	WAS049
Sodium , Total as Na	138	mg/l	05/02/2015	Y Cov	WAS049
pH	7.6	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1890	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	790	mg/l	04/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	123	mg/l	29/01/2015	N Cov	WAS036
Chloride as Cl	188	mg/l	29/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	29/01/2015	N Cov	WAS036
Sulphate as SO4	<1.3	mg/l	29/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	2.6	mg/l	29/01/2015	Y Cov	WAS052
TOC (Filtered)	34.2	mg/l	31/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	02/02/2015	Y Cov	WAS019

Analyst Comments for 14447628:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

Date: **25 February 2015**

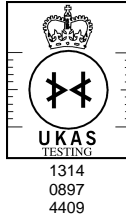
Title: **Inorganic Team Leader**

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Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447629**

Sample **4** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH27**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.001	mg/l	05/02/2015	Y Cov	WAS049
Calcium , Total as Ca	72.9	mg/l	05/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	39.9	mg/l	05/02/2015	Y Cov	WAS049
Potassium , Total as K	116	mg/l	05/02/2015	Y Cov	WAS049
Sodium , Total as Na	200	mg/l	05/02/2015	Y Cov	WAS049
pH	7.5	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	2560	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	1130	mg/l	04/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	162	mg/l	30/01/2015	Y Cov	WAS055
Chloride as Cl	263	mg/l	29/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	29/01/2015	N Cov	WAS036
Sulphate as SO4	<1.3	mg/l	29/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.0	mg/l	29/01/2015	Y Cov	WAS052
TOC (Filtered)	47.0	mg/l	31/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	02/02/2015	Y Cov	WAS019

Analyst Comments for 14447629:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

Date: **25 February 2015**

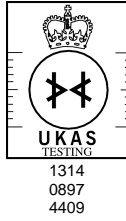
Title: **Inorganic Team Leader**

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Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447630**

Sample **5** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH28**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	05/02/2015	Y Cov	WAS049
Calcium , Total as Ca	73.8	mg/l	05/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	12.1	mg/l	05/02/2015	Y Cov	WAS049
Potassium , Total as K	2.96	mg/l	05/02/2015	Y Cov	WAS049
Sodium , Total as Na	7.42	mg/l	05/02/2015	Y Cov	WAS049
pH	7.7	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	440	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	219	mg/l	04/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	29/01/2015	N Cov	WAS036
Chloride as Cl	18.4	mg/l	29/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	29/01/2015	N Cov	WAS036
Sulphate as SO4	9.3	mg/l	29/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.6	mg/l	29/01/2015	Y Cov	WAS052
TOC (Filtered)	2.7	mg/l	31/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	02/02/2015	Y Cov	WAS019

Analyst Comments for 14447630:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

Date: **25 February 2015**

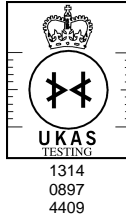
Title: **Inorganic Team Leader**

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Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447631**

Sample **6** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH29**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	05/02/2015	Y Cov	WAS049
Calcium , Total as Ca	71.7	mg/l	05/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	5.8	mg/l	05/02/2015	Y Cov	WAS049
Potassium , Total as K	4.39	mg/l	05/02/2015	Y Cov	WAS049
Sodium , Total as Na	9.52	mg/l	05/02/2015	Y Cov	WAS049
pH	7.7	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	420	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	209	mg/l	04/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	1.31	mg/l	29/01/2015	N Cov	WAS036
Chloride as Cl	15.0	mg/l	29/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	29/01/2015	N Cov	WAS036
Sulphate as SO4	4.1	mg/l	29/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.0	mg/l	29/01/2015	Y Cov	WAS052
TOC (Filtered)	3.4	mg/l	31/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	02/02/2015	Y Cov	WAS019

Analyst Comments for 14447631:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

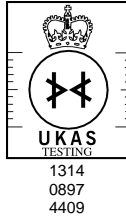
Date: **25 February 2015**

Title: **Inorganic Team Leader**

ALS Environmental Ltd

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Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447632**

Sample **7** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **NRA3**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	05/02/2015	Y Cov	WAS049
Calcium , Total as Ca	67.8	mg/l	05/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	4.8	mg/l	05/02/2015	Y Cov	WAS049
Potassium , Total as K	7.01	mg/l	05/02/2015	Y Cov	WAS049
Sodium , Total as Na	23.2	mg/l	05/02/2015	Y Cov	WAS049
pH	7.0	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	482	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	143	mg/l	04/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	0.88	mg/l	29/01/2015	N Cov	WAS036
Chloride as Cl	31.0	mg/l	29/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	3.24	mg/l	29/01/2015	N Cov	WAS036
Sulphate as SO4	52.2	mg/l	29/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.4	mg/l	29/01/2015	Y Cov	WAS052
TOC (Filtered)	6.7	mg/l	31/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	02/02/2015	Y Cov	WAS019

Analyst Comments for 14447632:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

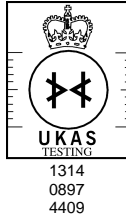
Date: **25 February 2015**

Title: **Inorganic Team Leader**

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Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447633**

Sample **8** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH1**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	05/02/2015	Y Cov	WAS049
Calcium , Total as Ca	33.2	mg/l	05/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	4.1	mg/l	05/02/2015	Y Cov	WAS049
Potassium , Total as K	1.30	mg/l	05/02/2015	Y Cov	WAS049
Sodium , Total as Na	16.2	mg/l	05/02/2015	Y Cov	WAS049
pH	7.8	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	299	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	77.1	mg/l	04/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	29/01/2015	N Cov	WAS036
Chloride as Cl	41.7	mg/l	29/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	3.90	mg/l	29/01/2015	N Cov	WAS036
Sulphate as SO4	6.6	mg/l	29/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	7.2	mg/l	29/01/2015	Y Cov	WAS052
TOC (Filtered)	0.7	mg/l	31/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	02/02/2015	Y Cov	WAS019

Analyst Comments for 14447633:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

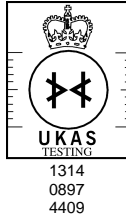
Date: **25 February 2015**

Title: **Inorganic Team Leader**

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Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447634**

Sample **9** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH15**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	05/02/2015	Y Cov	WAS049
Calcium , Total as Ca	29.9	mg/l	05/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	1.9	mg/l	05/02/2015	Y Cov	WAS049
Potassium , Total as K	0.91	mg/l	05/02/2015	Y Cov	WAS049
Sodium , Total as Na	7.61	mg/l	05/02/2015	Y Cov	WAS049
pH	8.2	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	200	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	78.4	mg/l	04/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.27	mg/l	29/01/2015	N Cov	WAS036
Chloride as Cl	15.9	mg/l	29/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	1.26	mg/l	29/01/2015	N Cov	WAS036
Sulphate as SO4	1.3	mg/l	29/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	8.2	mg/l	29/01/2015	Y Cov	WAS052
TOC (Filtered)	<0.7	mg/l	31/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	02/02/2015	Y Cov	WAS019

Analyst Comments for 14447634:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

Date: **25 February 2015**

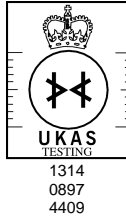
Title: **Inorganic Team Leader**

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Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447635**

Sample **10** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH24**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	05/02/2015	Y Cov	WAS049
Calcium , Total as Ca	70.4	mg/l	05/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	9.7	mg/l	05/02/2015	Y Cov	WAS049
Potassium , Total as K	0.74	mg/l	05/02/2015	Y Cov	WAS049
Sodium , Total as Na	11.2	mg/l	05/02/2015	Y Cov	WAS049
pH	8.0	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	425	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	199	mg/l	04/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	0.59	mg/l	29/01/2015	N Cov	WAS036
Chloride as Cl	31.5	mg/l	29/01/2015	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	29/01/2015	N Cov	WAS036
Sulphate as SO4	2.8	mg/l	29/01/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.6	mg/l	29/01/2015	Y Cov	WAS052
TOC (Filtered)	3.8	mg/l	31/01/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	<0.15	mg/l	02/02/2015	Y Cov	WAS019

Analyst Comments for 14447635:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

Date: **25 February 2015**

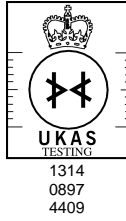
Title: **Inorganic Team Leader**

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Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447636**

Sample **11** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP1**

Sample Matrix: **Land Leachate**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	12/02/2015	Y Cov	WAS049
Calcium , Total as Ca	93.8	mg/l	12/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	41.1	mg/l	12/02/2015	Y Cov	WAS049
Potassium , Total as K	346	mg/l	12/02/2015	Y Cov	WAS049
Sodium , Total as Na	722	mg/l	12/02/2015	Y Cov	WAS049
pH	7.7	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	8960	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	3960	mg/l	11/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	793	mg/l	30/01/2015	Y Cov	WAS055
Chloride as Cl	1000	mg/l	29/01/2015	Y Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	10/02/2015	Y Cov	WAS036
Sulphate as SO4	4.2	mg/l	10/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	29/01/2015	N Cov	WAS052
BOD + ATU (5 day)	41	mg/l	16/02/2015	N Cov	WAS001
COD (Total)	1000	mg/l	11/02/2015	Y Cov	WAS040
TOC (Filtered)	292	mg/l	12/02/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	Analyst Com	mg/l	12/02/2015	Y Cov	WAS019

Analyst Comments for 14447636:


This sample has been analysed for BOD + ATU (5 day), Magnesium, Total as Mg, Sodium Total as Na, COD (Total), Nitrogen, Total Oxidised as N, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

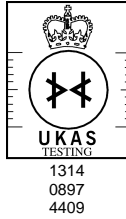
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:  Name: **J. Beckett** Date: **25 February 2015**
Title: **Inorganic Team Leader**

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Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447637**

Sample **12** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP2**

Sample Matrix: **Land Leachate**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	12/02/2015	Y Cov	WAS049
Calcium , Total as Ca	94.4	mg/l	12/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	69.0	mg/l	12/02/2015	Y Cov	WAS049
Potassium , Total as K	624	mg/l	12/02/2015	Y Cov	WAS049
Sodium , Total as Na	1160	mg/l	12/02/2015	Y Cov	WAS049
pH	7.8	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	15200	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	7560	mg/l	11/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	1510	mg/l	30/01/2015	Y Cov	WAS055
Chloride as Cl	1720	mg/l	29/01/2015	Y Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	10/02/2015	Y Cov	WAS036
Sulphate as SO4	3.2	mg/l	10/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	29/01/2015	N Cov	WAS052
BOD + ATU (5 day)	61	mg/l	16/02/2015	N Cov	WAS001
COD (Total)	1720	mg/l	11/02/2015	Y Cov	WAS040
TOC (Filtered)	376	mg/l	12/02/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	Analyst Com	mg/l	12/02/2015	Y Cov	WAS019

Analyst Comments for 14447637:


This sample has been analysed for BOD + ATU (5 day), Magnesium, Total as Mg, Sodium Total as Na, COD (Total), Nitrogen, Total Oxidised as N, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

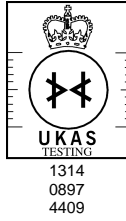
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:  Name: **J. Beckett** Date: **25 February 2015**
Title: **Inorganic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447638**

Sample **13** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP3**

Sample Matrix: **Land Leachate**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	<0.0006	mg/l	12/02/2015	Y Cov	WAS049
Calcium , Total as Ca	191	mg/l	12/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	63.5	mg/l	12/02/2015	Y Cov	WAS049
Potassium , Total as K	520	mg/l	12/02/2015	Y Cov	WAS049
Sodium , Total as Na	1060	mg/l	12/02/2015	Y Cov	WAS049
pH	7.6	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	13100	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	6530	mg/l	11/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	1180	mg/l	30/01/2015	Y Cov	WAS055
Chloride as Cl	1440	mg/l	29/01/2015	Y Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	10/02/2015	Y Cov	WAS036
Sulphate as SO4	<1.3	mg/l	10/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	29/01/2015	N Cov	WAS052
BOD + ATU (5 day)	74	mg/l	16/02/2015	N Cov	WAS001
COD (Total)	2390	mg/l	11/02/2015	Y Cov	WAS040
TOC (Filtered)	468	mg/l	12/02/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	Analyst Com	mg/l	12/02/2015	Y Cov	WAS019

Analyst Comments for 14447638:

This sample has been analysed for BOD + ATU (5 day), Magnesium, Total as Mg, Sodium Total as Na, COD (Total), Nitrogen, Total Oxidised as N, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

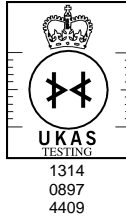
Date: **25 February 2015**

Title: **Inorganic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
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Certificate of Analysis



Report Number: **COV/1163613/2015**

Issue **1**

Laboratory Number: **14447639**

Sample **14** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP4A**

Sample Matrix: **Land Leachate**

Sample Date/Time: **27 January 2015**

Sample Received: **28 January 2015**

Analysis Complete: **16 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.0007	mg/l	12/02/2015	Y Cov	WAS049
Calcium , Total as Ca	110	mg/l	12/02/2015	Y Cov	WAS049
Magnesium, Total as Mg	59.9	mg/l	12/02/2015	Y Cov	WAS049
Potassium , Total as K	693	mg/l	12/02/2015	Y Cov	WAS049
Sodium , Total as Na	1370	mg/l	12/02/2015	Y Cov	WAS049
pH	7.9	pH units	30/01/2015	Y Cov	WAS039
Conductivity- Electrical 20C	19600	uS/cm	30/01/2015	Y Cov	WAS039
Alkalinity as CaCO3	9900	mg/l	11/02/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	2010	mg/l	31/01/2015	Y Cov	WAS055
Chloride as Cl	2280	mg/l	29/01/2015	Y Cov	WAS036
Nitrogen, Total Oxidised as N	0.50	mg/l	10/02/2015	Y Cov	WAS036
Sulphate as SO4	36.1	mg/l	10/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	29/01/2015	N Cov	WAS052
BOD + ATU (5 day)	123	mg/l	16/02/2015	N Cov	WAS001
COD (Total)	4060	mg/l	11/02/2015	Y Cov	WAS040
TOC (Filtered)	1070	mg/l	12/02/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	Analyst Com	mg/l	12/02/2015	Y Cov	WAS019

Analyst Comments for 14447639:

This sample has been analysed for BOD + ATU (5 day), Magnesium, Total as Mg, Sodium Total as Na, Ammoniacal Nitrogen as N, COD (Total), Nitrogen, Total Oxidised as N, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **J. Beckett**

Date: **25 February 2015**

Title: **Inorganic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

ANALYST COMMENTS FOR REPORT

COV/1163613/2015

Issue 1

Date of Issue: 25 February 2015

Sample No	Analysis Comments
14447626	
14447627	
14447628	
14447629	
14447630	
14447631	
14447632	
14447633	
14447634	
14447635	
14447636	This sample has been analysed for BOD + ATU (5 day), Magnesium, Total as Mg, Sodium Total as Na, COD (Total), Nitrogen, Total Oxidised as N, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.
14447637	This sample has been analysed for BOD + ATU (5 day), Magnesium, Total as Mg, Sodium Total as Na, COD (Total), Nitrogen, Total Oxidised as N, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.
14447638	This sample has been analysed for BOD + ATU (5 day), Magnesium, Total as Mg, Sodium Total as Na, COD (Total), Nitrogen, Total Oxidised as N, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.
14447639	This sample has been analysed for BOD + ATU (5 day), Magnesium, Total as Mg, Sodium Total as Na, Ammoniacal Nitrogen as N, COD (Total), Nitrogen, Total Oxidised as N, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.

Signed:



Name: **J. Beckett**

Date: **25 February 2015**

Title: **Inorganic Team Leader**

DETERMINAND COMMENTS FOR REPORT COV/1163613/2015

ISSUE 1

Date of Issue : 25 February 2015

Sample No	Description	Determinand	Comments

Signed:



Name: J. Beckett

Date: 25 February 2015

Title: Inorganic Team Leader

ALS Environmental Ltd
Torrington Avenue
Coventry
CV4 9GU

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F: +44 (0)24 7685 6575
www.alsenvironmental.co.uk

**Ms Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon LL55 1AT
Gwynedd**

23 February 2015

Test Report: COV/1166717/2015

Dear Ms Francis

Analysis of your sample(s) submitted on 11 February 2015 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:



Name: A. Zunzunegui

Title: Organic Team Leader



Report Summary



1314
0897
4409



**Ms Susan Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon
Gwynedd
LL55 1AT**

Date of Issue: **23 February 2015**

Report Number: **COV/1166717/2015**

Issue **1**

Job Description: Ffridd Rasmus

Job Location: February - Ffridd Rasmus

Number of Samples
included in this report **22**

Job Received: **11 February 2015**

Number of Test Results
included in this report **98**

Analysis Commenced: **13 February 2015**

Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

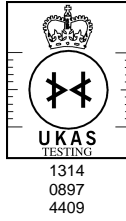
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470146**

Sample **1** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH18A**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.8	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1140	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	13/02/2015	N Cov	WAS036
Chloride as Cl	39.7	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.4	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470146:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

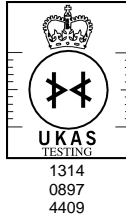
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470147**

Sample **2** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH18B**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.0	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	965	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	13/02/2015	N Cov	WAS036
Chloride as Cl	34.6	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.8	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470147:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

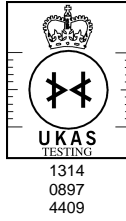
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470148**

Sample **3** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH19A**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.2	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	309	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	0.43	mg/l	13/02/2015	N Cov	WAS036
Chloride as Cl	36.6	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.1	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470148:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

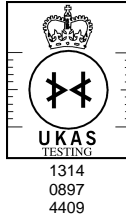
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470149**

Sample **4** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH19B**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.1	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	549	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	13/02/2015	N Cov	WAS036
Chloride as Cl	62.1	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	5.4	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470149:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

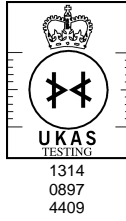
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470150**

Sample **5** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH19C**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.6	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1090	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	13/02/2015	N Cov	WAS036
Chloride as Cl	161	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.0	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470150:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

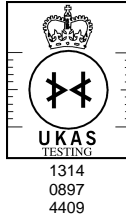
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470151**

Sample **6** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH20A**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.5	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	2460	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	71.6	mg/l	15/02/2015	N Cov	WAS036
Chloride as Cl	414	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.6	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470151:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

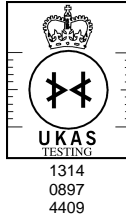
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470152**

Sample **7** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH20B**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.7	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	3480	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	231	mg/l	16/02/2015	Y Cov	WAS055
Chloride as Cl	332	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.5	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470152:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

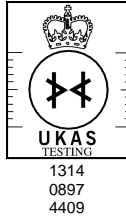
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470153**

Sample **8** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH21A**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.6	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1530	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	36.4	mg/l	15/02/2015	N Cov	WAS036
Chloride as Cl	228	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	5.0	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470153:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

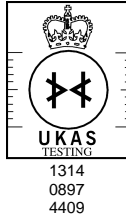
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470154**

Sample **9** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH21B**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.7	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1060	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	57.1	mg/l	13/02/2015	N Cov	WAS036
Chloride as Cl	132	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	7.2	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470154:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

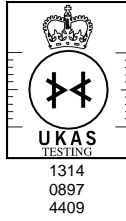
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470155**

Sample **10** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH23**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.9	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	272	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	13/02/2015	N Cov	WAS036
Chloride as Cl	13.9	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.5	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470155:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

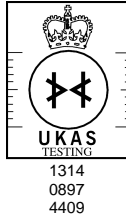
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470156**

Sample **11** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH32**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.1	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	281	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	13/02/2015	N Cov	WAS036
Chloride as Cl	18.9	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.1	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470156:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

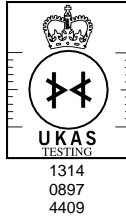
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470157**

Sample **12** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH33**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.3	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	205	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	13/02/2015	N Cov	WAS036
Chloride as Cl	10.0	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.8	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470157:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

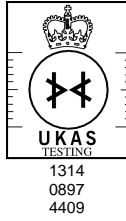
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470158**

Sample **13** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH30**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.4	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	2620	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	159	mg/l	16/02/2015	Y Cov	WAS055
Chloride as Cl	278	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.5	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470158:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

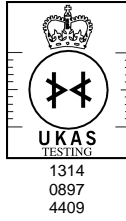
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470159**

Sample **14** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH31**

Sample Matrix: **Ground Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.5	pH units	16/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1110	uS/cm	16/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	63.1	mg/l	13/02/2015	N Cov	WAS036
Chloride as Cl	41.3	mg/l	13/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.5	mg/l	23/02/2015	Y Cov	WAS052

Analyst Comments for 14470159:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

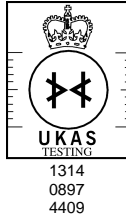
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470160**

Sample **15** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW1**

Sample Matrix: **Surface Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.4	pH units	16/02/2015	N Cov	WAS039
Conductivity- Electrical 20C	474	uS/cm	16/02/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	13/02/2015	Y Cov	WAS036
Chloride as Cl	62.0	mg/l	13/02/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	6.2	mg/l	23/02/2015	N Cov	WAS052
COD (Total)	11.0	mg/l	20/02/2015	N Cov	WAS040

Analyst Comments for 14470160:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

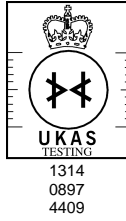
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470161**

Sample **16** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW1 (pipe)**

Sample Matrix: **Surface Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.3	pH units	16/02/2015	N Cov	WAS039
Conductivity- Electrical 20C	476	uS/cm	16/02/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	13/02/2015	Y Cov	WAS036
Chloride as Cl	62.6	mg/l	13/02/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	>14.5	mg/l	23/02/2015	N Cov	WAS052
COD (Total)	33.0	mg/l	20/02/2015	N Cov	WAS040

Analyst Comments for 14470161:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

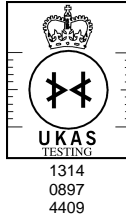
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470162**

Sample **17** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW2**

Sample Matrix: **Surface Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.2	pH units	16/02/2015	N Cov	WAS039
Conductivity- Electrical 20C	1550	uS/cm	16/02/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	6.04	mg/l	13/02/2015	Y Cov	WAS036
Chloride as Cl	227	mg/l	13/02/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	2.8	mg/l	23/02/2015	N Cov	WAS052
COD (Total)	123	mg/l	20/02/2015	N Cov	WAS040

Analyst Comments for 14470162:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

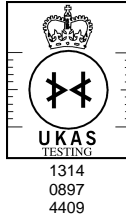
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470163**

Sample **18** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW3**

Sample Matrix: **Surface Water**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	6.9	pH units	16/02/2015	N Cov	WAS039
Conductivity- Electrical 20C	847	uS/cm	16/02/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	5.61	mg/l	13/02/2015	Y Cov	WAS036
Chloride as Cl	77.7	mg/l	13/02/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	3.6	mg/l	23/02/2015	N Cov	WAS052
COD (Total)	48.0	mg/l	20/02/2015	N Cov	WAS040

Analyst Comments for 14470163:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

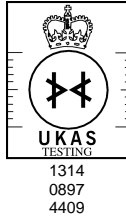
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470164**

Sample **19** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP1**

Sample Matrix: **Land Leachate**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Sample Not Received	No Test		17/02/2015	N Cov	N/A

Analyst Comments for 14470164: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

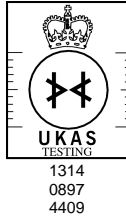
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470165**

Sample **20** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP2**

Sample Matrix: **Land Leachate**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Sample Not Received	No Test		17/02/2015	N Cov	N/A

Analyst Comments for 14470165: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

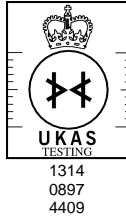
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470166**

Sample **21** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP3**

Sample Matrix: **Land Leachate**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Sample Not Received	No Test		17/02/2015	N Cov	N/A

Analyst Comments for 14470166: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

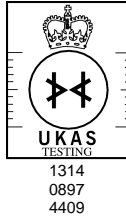
Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1166717/2015**

Issue **1**

Laboratory Number: **14470167**

Sample **22** of **22**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP4A**

Sample Matrix: **Land Leachate**

Sample Date/Time: **10 February 2015**

Sample Received: **11 February 2015**

Analysis Complete: **23 February 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Sample Not Received	No Test		17/02/2015	N Cov	N/A

Analyst Comments for 14470167: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

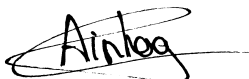
ANALYST COMMENTS FOR REPORT COV/1166717/2015

Issue 1

Date of Issue: 23 February 2015

Sample No	Analysis Comments
14470146	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470147	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470148	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470149	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470150	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470151	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470152	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470153	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470154	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470155	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470156	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470157	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470158	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470159	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470160	This sample has been analysed for pH, Dissolved Oxygen, Fixed, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470161	This sample has been analysed for pH, Dissolved Oxygen, Fixed, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470162	This sample has been analysed for pH, Dissolved Oxygen, Fixed, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470163	This sample has been analysed for pH, Dissolved Oxygen, Fixed, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.
14470164	
14470165	
14470166	
14470167	

Signed:



Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

DETERMINAND COMMENTS FOR REPORT COV/1166717/2015

ISSUE 1

Date of Issue : 23 February 2015

Sample No	Description	Determinand	Comments

Signed:



Name: **A. Zunzunegui**

Date: **23 February 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd
Torrington Avenue
Coventry
CV4 9GU

T: +44 (0)24 7642 1213
F: +44 (0)24 7685 6575
www.alsenvironmental.co.uk

**Ms Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon LL55 1AT
Gwynedd**

11 March 2015

Test Report: COV/1169845/2015

Dear Ms Francis

Analysis of your sample(s) submitted on 25 February 2015 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: D. Lewis

Title: Inorganic Team Leader



Certificate No. GB97/10269
Environmental Management Systems



OHS 542058



FS 67435



Report Summary



**Ms Susan Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon
Gwynedd
LL55 1AT**

Date of Issue: **11 March 2015**

Report Number: **COV/1169845/2015**

Issue **1**

Job Description: Ffridd Rasmus

Job Location: February - Ffridd Rasmus

Number of Samples
included in this report **14**

Job Received: **25 February 2015**

Number of Test Results
included in this report **78**

Analysis Commenced: **26 February 2015**

Signed:

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

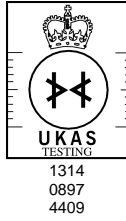
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492636**

Sample **1** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH34**

Sample Matrix: **Ground Water**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.4	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1040	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	26/02/2015	N Cov	WAS036
Chloride as Cl	53.4	mg/l	26/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.0	mg/l	27/02/2015	Y Cov	WAS052

Analyst Comments for 14492636:


The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

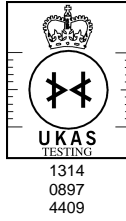
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **D. Lewis** Date: **11 March 2015**

Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492637**

Sample **2** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH35**

Sample Matrix: **Ground Water**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.5	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1030	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	18.3	mg/l	26/02/2015	N Cov	WAS036
Chloride as Cl	86.0	mg/l	26/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.2	mg/l	27/02/2015	Y Cov	WAS052

Analyst Comments for 14492637:

The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

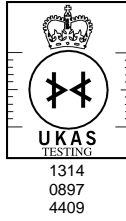
Signed:

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492638**

Sample **3** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH36**

Sample Matrix: **Ground Water**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.7	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1500	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	91.0	mg/l	26/02/2015	N Cov	WAS036
Chloride as Cl	143	mg/l	26/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.5	mg/l	27/02/2015	Y Cov	WAS052

Analyst Comments for 14492638:

The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

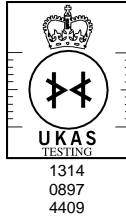
Signed:

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492639**

Sample **4** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH27**

Sample Matrix: **Ground Water**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.6	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	2620	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	147	mg/l	26/02/2015	N Cov	WAS036
Chloride as Cl	276	mg/l	26/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.9	mg/l	27/02/2015	Y Cov	WAS052

Analyst Comments for 14492639:

The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

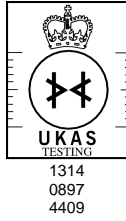
Signed:

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492640**

Sample **5** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH28**

Sample Matrix: **Ground Water**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.8	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	469	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	0.63	mg/l	26/02/2015	N Cov	WAS036
Chloride as Cl	21.3	mg/l	26/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	2.7	mg/l	27/02/2015	Y Cov	WAS052

Analyst Comments for 14492640:

The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

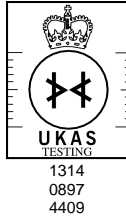
Signed:

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492641**

Sample **6** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH29**

Sample Matrix: **Ground Water**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.8	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	444	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	1.37	mg/l	26/02/2015	N Cov	WAS036
Chloride as Cl	19.0	mg/l	26/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.7	mg/l	27/02/2015	Y Cov	WAS052

Analyst Comments for 14492641:

The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

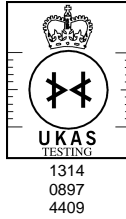
Signed:

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492642**

Sample **7** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **NRA3**

Sample Matrix: **Ground Water**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.1	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	581	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	0.79	mg/l	26/02/2015	N Cov	WAS036
Chloride as Cl	39.9	mg/l	26/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.1	mg/l	27/02/2015	Y Cov	WAS052

Analyst Comments for 14492642:

The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

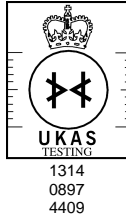
Signed:

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492643**

Sample **8** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH1**

Sample Matrix: **Ground Water**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.0	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	414	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	26/02/2015	N Cov	WAS036
Chloride as Cl	57.4	mg/l	26/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.9	mg/l	27/02/2015	Y Cov	WAS052

Analyst Comments for 14492643:

The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

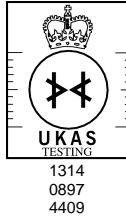
Signed:

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492644**

Sample **9** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH15**

Sample Matrix: **Ground Water**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.3	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	186	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	26/02/2015	N Cov	WAS036
Chloride as Cl	15.9	mg/l	26/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.4	mg/l	27/02/2015	Y Cov	WAS052

Analyst Comments for 14492644:

The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

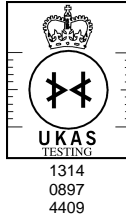
Signed:

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492645**

Sample **10** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH24**

Sample Matrix: **Ground Water**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.1	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	426	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	26/02/2015	N Cov	WAS036
Chloride as Cl	30.6	mg/l	26/02/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.8	mg/l	27/02/2015	Y Cov	WAS052

Analyst Comments for 14492645:


The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

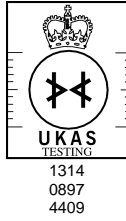
Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:  Name: **D. Lewis** Date: **11 March 2015**
Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492646**

Sample **11** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP1**

Sample Matrix: **Land Leachate**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Zinc, Total as Zn	0.03	mg/l	05/03/2015	Y Cov	WAS049
pH	7.8	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	8860	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	746	mg/l	27/02/2015	Y Cov	WAS055
Chloride as Cl	974	mg/l	26/02/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	27/02/2015	N Cov	WAS052
Mecoprop	20.9	ug/l	11/03/2015	Y Cov	GEO49

Analyst Comments for 14492646:


The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

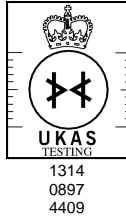
Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:  Name: **D. Lewis** Date: **11 March 2015**
Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492647**

Sample **12** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP2**

Sample Matrix: **Land Leachate**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Zinc, Total as Zn	0.05	mg/l	05/03/2015	Y Cov	WAS049
pH	7.9	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	15200	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	1480	mg/l	27/02/2015	Y Cov	WAS055
Chloride as Cl	1750	mg/l	26/02/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	27/02/2015	N Cov	WAS052
Mecoprop	30.0	ug/l	11/03/2015	Y Cov	GEO49

Analyst Comments for 14492647:


The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

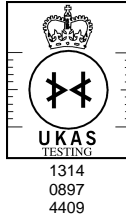
Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:  Name: **D. Lewis** Date: **11 March 2015**
Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492648**

Sample **13** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP3**

Sample Matrix: **Land Leachate**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Zinc, Total as Zn	0.04	mg/l	05/03/2015	Y Cov	WAS049
pH	7.8	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	13500	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	1180	mg/l	27/02/2015	Y Cov	WAS055
Chloride as Cl	1520	mg/l	26/02/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	27/02/2015	N Cov	WAS052
Mecoprop	48.8	ug/l	11/03/2015	Y Cov	GEO49

Analyst Comments for 14492648:

The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

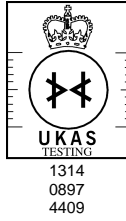
Signed:

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

Certificate of Analysis



Report Number: **COV/1169845/2015**

Issue **1**

Laboratory Number: **14492649**

Sample **14** of **14**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP4A**

Sample Matrix: **Land Leachate**

Sample Date/Time:

Sample Received: **25 February 2015**

Analysis Complete: **11 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Zinc, Total as Zn	0.157	mg/l	05/03/2015	Y Cov	WAS049
pH	7.9	pH units	27/02/2015	Y Cov	WAS039
Conductivity- Electrical 20C	20700	uS/cm	27/02/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	2130	mg/l	27/02/2015	Y Cov	WAS055
Chloride as Cl	2430	mg/l	26/02/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	27/02/2015	N Cov	WAS052
Mecoprop	83.7	ug/l	11/03/2015	Y Cov	GEO49

Analyst Comments for 14492649:


The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:  Name: **D. Lewis** Date: **11 March 2015**
Title: **Inorganic Team Leader**

Date of Issue: **11 March 2015**

Sample No	Analysis Comments
14492636	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492637	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492638	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492639	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492640	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492641	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492642	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492643	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492644	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492645	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492646	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492647	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492648	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
14492649	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Signed: 

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

DETERMINAND COMMENTS FOR REPORT COV/1169845/2015

ISSUE 1

Date of Issue : 11 March 2015

Sample No	Description	Determinand	Comments

Signed: 

Name: **D. Lewis**

Date: **11 March 2015**

Title: **Inorganic Team Leader**

ALS Environmental Ltd
Torrington Avenue
Coventry
CV4 9GU

T: +44 (0)24 7642 1213
F: +44 (0)24 7685 6575
www.alsenvironmental.co.uk

Ms Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon LL55 1AT
Gwynedd

23 March 2015

Test Report: COV/1174652/2015

Dear Ms Francis

Analysis of your sample(s) submitted on 18 March 2015 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:



Name: A. Zunzunegui

Title: Organic Team Leader



1314
4398



Certificate No. GB97/10269
Environmental Management Systems



OHS 542058



FS 67435



Report Summary



**Ms Susan Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon
Gwynedd
LL55 1AT**

Date of Issue: **23 March 2015**

Report Number: **COV/1174652/2015**

Issue **1**

Job Description: Ffridd Rasmus

Job Location: March - Ffridd Rasmus

Number of Samples
included in this report **18**

Job Received: **18 March 2015**

Number of Test Results
included in this report **94**

Analysis Commenced: **19 March 2015**

Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

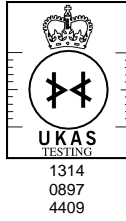
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525614**

Sample **1** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH18A**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.0	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1030	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	32.3	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	5.6	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525614: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

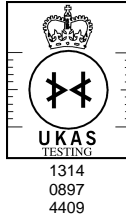
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525615**

Sample **2** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH18B**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.1	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1190	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	41.7	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	7.4	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525615: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

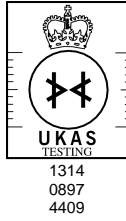
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525616**

Sample **3** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH19A**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.2	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	316	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	35.0	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.8	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525616:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

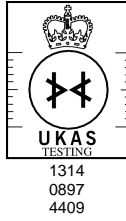
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525617**

Sample **4** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH19B**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.1	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	502	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	58.1	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.0	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525617: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

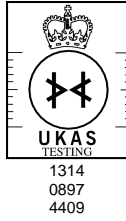
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525618**

Sample **5** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH19C**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.9	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1130	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	161	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.7	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525618:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

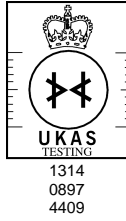
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525619**

Sample **6** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH20A**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.8	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	2650	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	73.3	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	392	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.4	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525619: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

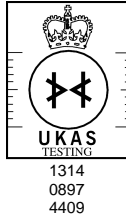
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525620**

Sample **7** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH20B**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.0	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	3460	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	235	mg/l	21/03/2015	Y Cov	WAS055
Chloride as Cl	339	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.3	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525620:

This sample has been analysed for Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

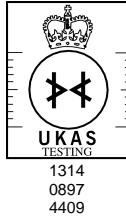
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525621**

Sample **8** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH21A**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.9	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1640	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	31.7	mg/l	21/03/2015	N Cov	WAS036
Chloride as Cl	261	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	5.9	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525621: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

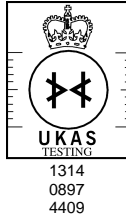
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525622**

Sample **9** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH21B**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.0	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1060	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	58.3	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	129	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	8.1	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525622: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

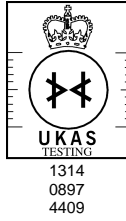
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525623**

Sample **10** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH23**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.1	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	275	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	14.7	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	5.7	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525623: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525624**

Sample **11** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH32**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.1	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	328	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	22.3	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	5.9	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525624: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

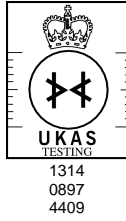
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525625**

Sample **12** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH33**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.2	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	201	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	9.90	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.0	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525625: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

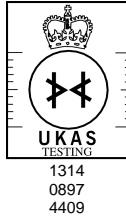
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525626**

Sample **13** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH30**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.8	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	2630	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	162	mg/l	21/03/2015	Y Cov	WAS055
Chloride as Cl	271	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.0	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525626:

This sample has been analysed for Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

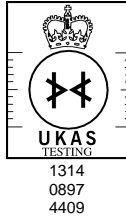
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525627**

Sample **14** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH31**

Sample Matrix: **Ground Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.8	pH units	19/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1110	uS/cm	19/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	64.5	mg/l	20/03/2015	N Cov	WAS036
Chloride as Cl	45.0	mg/l	20/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.8	mg/l	20/03/2015	Y Cov	WAS052

Analyst Comments for 14525627: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

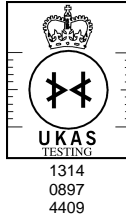
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525628**

Sample **15** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW1**

Sample Matrix: **Surface Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.2	pH units	19/03/2015	N Cov	WAS039
Conductivity- Electrical 20C	408	uS/cm	19/03/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	Y Cov	WAS036
Chloride as Cl	53.7	mg/l	20/03/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	13.4	mg/l	20/03/2015	N Cov	WAS052
COD (Total)	20.0	mg/l	19/03/2015	N Cov	WAS040

Analyst Comments for 14525628:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

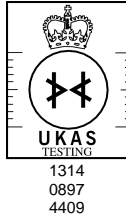
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525629**

Sample **16** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW1 (pipe)**

Sample Matrix: **Surface Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.2	pH units	19/03/2015	N Cov	WAS039
Conductivity- Electrical 20C	407	uS/cm	19/03/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	Y Cov	WAS036
Chloride as Cl	53.2	mg/l	20/03/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	13.6	mg/l	20/03/2015	N Cov	WAS052
COD (Total)	14.0	mg/l	19/03/2015	N Cov	WAS040

Analyst Comments for 14525629:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

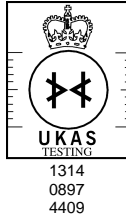
Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
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Page 17 of 21

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525630**

Sample **17** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW2**

Sample Matrix: **Surface Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.9	pH units	19/03/2015	N Cov	WAS039
Conductivity- Electrical 20C	653	uS/cm	19/03/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	Y Cov	WAS036
Chloride as Cl	65.6	mg/l	20/03/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	10.6	mg/l	20/03/2015	N Cov	WAS052
COD (Total)	58.0	mg/l	19/03/2015	N Cov	WAS040

Analyst Comments for 14525630:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

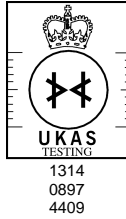
Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

Certificate of Analysis



Report Number: **COV/1174652/2015**

Issue **1**

Laboratory Number: **14525631**

Sample **18** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **SW3**

Sample Matrix: **Surface Water**

Sample Date/Time: **17 March 2015**

Sample Received: **18 March 2015**

Analysis Complete: **23 March 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.5	pH units	19/03/2015	N Cov	WAS039
Conductivity- Electrical 20C	738	uS/cm	19/03/2015	N Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	20/03/2015	Y Cov	WAS036
Chloride as Cl	72.9	mg/l	20/03/2015	Y Cov	WAS036
Dissolved Oxygen, Fixed	6.2	mg/l	20/03/2015	N Cov	WAS052
COD (Total)	23.0	mg/l	19/03/2015	N Cov	WAS040

Analyst Comments for 14525631:

No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

ANALYST COMMENTS FOR REPORT


COV/1174652/2015

Issue 1

Date of Issue: **23 March 2015**

Sample No	Analysis Comments
14525614	
14525615	
14525616	
14525617	
14525618	
14525619	
14525620	This sample has been analysed for Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14525621	
14525622	
14525623	
14525624	
14525625	
14525626	This sample has been analysed for Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.
14525627	
14525628	
14525629	
14525630	
14525631	

Signed:



Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

DETERMINAND COMMENTS FOR REPORT COV/1174652/2015

ISSUE 1

Date of Issue : 23 March 2015

Sample No	Description	Determinand	Comments

Signed:



Name: **A. Zunzunegui**

Date: **23 March 2015**

Title: **Organic Team Leader**

ALS Environmental Ltd
Torrington Avenue
Coventry
CV4 9GU

T: +44 (0)24 7642 1213
F: +44 (0)24 7685 6575
www.alsenvironmental.co.uk

**Ms Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon LL55 1AT
Gwynedd**

08 April 2015

Test Report: COV/1176242/2015

Dear Ms Francis

Analysis of your sample(s) submitted on 25 March 2015 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: *A I Horobin*

Name: A. Horobin

Title: Organic Operations Manager



Certificate No. GB97/10269
Environmental Management Systems



OHS 542058



FS 67435



Report Summary



**Ms Susan Francis
Gwynedd Council (UDG)
Gwynedd Council (UDG)
Waste Treatment Services
5-7 Bangor Street
Caernarfon
Gwynedd
LL55 1AT**

Date of Issue: **08 April 2015**

Report Number: **COV/1176242/2015**

Issue **2**

Job Description: Ffridd Rasmus

Job Location: March - Ffridd Rasmus

Number of Samples
included in this report **18**

Job Received: **25 March 2015**

Number of Test Results
included in this report **122**

Analysis Commenced: **26 March 2015**

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

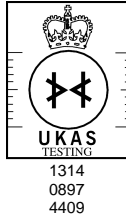
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2015. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535944**

Sample **1** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH34**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.4	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1050	uS/cm	30/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	0.57	mg/l	27/03/2015	N Cov	WAS036
Chloride as Cl	44.2	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.6	mg/l	01/04/2015	Y Cov	WAS052

Analyst Comments for 14535944:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

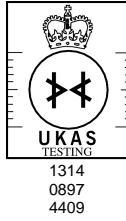
Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535945**

Sample **2** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH35**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.4	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	1250	uS/cm	30/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	23.0	mg/l	27/03/2015	N Cov	WAS036
Chloride as Cl	130	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.4	mg/l	01/04/2015	Y Cov	WAS052

Analyst Comments for 14535945:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

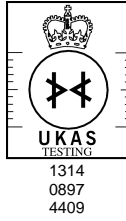
Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535946**

Sample **3** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH36**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.3	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	2240	uS/cm	30/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	140	mg/l	27/03/2015	N Cov	WAS036
Chloride as Cl	96.8	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	3.2	mg/l	01/04/2015	Y Cov	WAS052

Analyst Comments for 14535946:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

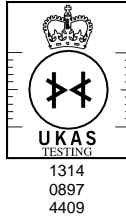
Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535947**

Sample **4** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH27**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.4	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	2770	uS/cm	30/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	161	mg/l	27/03/2015	Y Cov	WAS055
Chloride as Cl	284	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	1.9	mg/l	01/04/2015	Y Cov	WAS052

Analyst Comments for 14535947:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

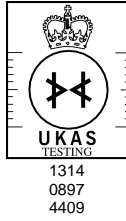
Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535948**

Sample **5** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH28**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.6	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	528	uS/cm	30/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	0.30	mg/l	27/03/2015	N Cov	WAS036
Chloride as Cl	18.1	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.6	mg/l	01/04/2015	Y Cov	WAS052

Analyst Comments for 14535948:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

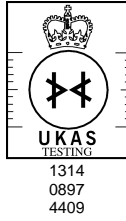
Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535949**

Sample **6** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH29**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.6	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	458	uS/cm	30/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	1.92	mg/l	27/03/2015	N Cov	WAS036
Chloride as Cl	16.7	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.7	mg/l	01/04/2015	Y Cov	WAS052

Analyst Comments for 14535949:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

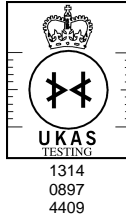
Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535950**

Sample **7** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **NRA3**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.4	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	520	uS/cm	30/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	0.76	mg/l	27/03/2015	N Cov	WAS036
Chloride as Cl	28.9	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	4.9	mg/l	01/04/2015	Y Cov	WAS052

Analyst Comments for 14535950:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

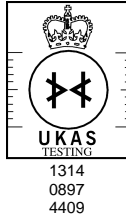
Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535951**

Sample **8** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH1**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.3	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	402	uS/cm	30/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	27/03/2015	N Cov	WAS036
Chloride as Cl	54.5	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	7.2	mg/l	01/04/2015	Y Cov	WAS052

Analyst Comments for 14535951:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

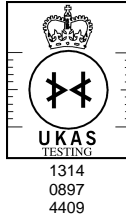
Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535952**

Sample **9** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH15**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.1	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	174	uS/cm	30/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	27/03/2015	N Cov	WAS036
Chloride as Cl	11.7	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	7.3	mg/l	01/04/2015	Y Cov	WAS052

Analyst Comments for 14535952:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

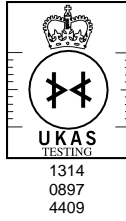
Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535953**

Sample **10** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **BH24**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.5	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	428	uS/cm	30/03/2015	Y Cov	WAS039
Ammoniacal Nitrogen as N	<0.27	mg/l	27/03/2015	N Cov	WAS036
Chloride as Cl	29.6	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	6.1	mg/l	01/04/2015	Y Cov	WAS052

Analyst Comments for 14535953:

This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

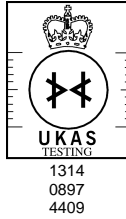
Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: *A I Horobin* Name: **A. Horobin** Date: **08 April 2015**
Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535954**

Sample **11** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP1**

Sample Matrix: **Land Leachate**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.001	mg/l	08/04/2015	Y Cov	WAS049
Calcium , Total as Ca	98.8	mg/l	08/04/2015	Y Cov	WAS049
Magnesium, Total as Mg	44.3	mg/l	08/04/2015	Y Cov	WAS049
Potassium , Total as K	372	mg/l	08/04/2015	Y Cov	WAS049
Sodium , Total as Na	741	mg/l	08/04/2015	Y Cov	WAS049
pH	8.4	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	8960	uS/cm	30/03/2015	Y Cov	WAS039
Alkalinity as CaCO3	3860	mg/l	07/04/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	745	mg/l	27/03/2015	Y Cov	WAS055
Chloride as Cl	985	mg/l	27/03/2015	Y Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	27/03/2015	Y Cov	WAS036
Sulphate as SO4	4.6	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	01/04/2015	N Cov	WAS052
BOD + ATU (5 day)	33	mg/l	31/03/2015	N Cov	WAS001
COD (Total)	920	mg/l	27/03/2015	Y Cov	WAS040
TOC (Filtered)	280	mg/l	30/03/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	Analyst Com	mg/l	01/04/2015	Y Cov	WAS019

Analyst Comments for 14535954:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {(*)}Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.{(*)}

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

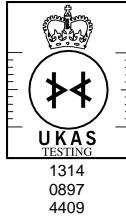
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: *A I Horobin* Name: **A. Horobin** Date: **08 April 2015**
Title: **Organic Operations Manager**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535955**

Sample **12** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP2**

Sample Matrix: **Land Leachate**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.001	mg/l	08/04/2015	Y Cov	WAS049
Calcium , Total as Ca	90.9	mg/l	08/04/2015	Y Cov	WAS049
Magnesium, Total as Mg	71.8	mg/l	08/04/2015	Y Cov	WAS049
Potassium , Total as K	627	mg/l	08/04/2015	Y Cov	WAS049
Sodium , Total as Na	1210	mg/l	08/04/2015	Y Cov	WAS049
pH	8.4	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	15600	uS/cm	30/03/2015	Y Cov	WAS039
Alkalinity as CaCO3	7380	mg/l	07/04/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	1470	mg/l	27/03/2015	Y Cov	WAS055
Chloride as Cl	1750	mg/l	27/03/2015	Y Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	27/03/2015	Y Cov	WAS036
Sulphate as SO4	<1.3	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	01/04/2015	N Cov	WAS052
BOD + ATU (5 day)	73	mg/l	31/03/2015	N Cov	WAS001
COD (Total)	1800	mg/l	27/03/2015	Y Cov	WAS040
TOC (Filtered)	595	mg/l	30/03/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	Analyst Com	mg/l	01/04/2015	Y Cov	WAS019

Analyst Comments for 14535955:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {(*)}Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.{(*)}

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: *A I Horobin*

Name: **A. Horobin**

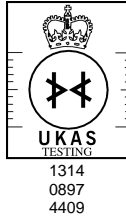
Date: **08 April 2015**

Title: **Organic Operations Manager**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535956**

Sample **13** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP3**

Sample Matrix: **Land Leachate**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.001	mg/l	08/04/2015	Y Cov	WAS049
Calcium , Total as Ca	177	mg/l	08/04/2015	Y Cov	WAS049
Magnesium, Total as Mg	67.9	mg/l	08/04/2015	Y Cov	WAS049
Potassium , Total as K	533	mg/l	08/04/2015	Y Cov	WAS049
Sodium , Total as Na	1120	mg/l	08/04/2015	Y Cov	WAS049
pH	8.4	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	13600	uS/cm	30/03/2015	Y Cov	WAS039
Alkalinity as CaCO3	6360	mg/l	07/04/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	1230	mg/l	27/03/2015	Y Cov	WAS055
Chloride as Cl	1560	mg/l	27/03/2015	Y Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	27/03/2015	Y Cov	WAS036
Sulphate as SO4	<1.3	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	01/04/2015	N Cov	WAS052
BOD + ATU (5 day)	93	mg/l	31/03/2015	N Cov	WAS001
COD (Total)	2020	mg/l	27/03/2015	Y Cov	WAS040
TOC (Filtered)	570	mg/l	30/03/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	Analyst Com	mg/l	01/04/2015	Y Cov	WAS019

Analyst Comments for 14535956:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {(*)}Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.{(*)}

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

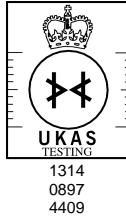
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: *A I Horobin* Name: **A. Horobin** Date: **08 April 2015**
Title: **Organic Operations Manager**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535957**

Sample **14** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LCP4A**

Sample Matrix: **Land Leachate**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Cadmium , Total as Cd	0.0020	mg/l	08/04/2015	Y Cov	WAS049
Calcium , Total as Ca	97.4	mg/l	08/04/2015	Y Cov	WAS049
Magnesium, Total as Mg	62.5	mg/l	08/04/2015	Y Cov	WAS049
Potassium , Total as K	730	mg/l	08/04/2015	Y Cov	WAS049
Sodium , Total as Na	1490	mg/l	08/04/2015	Y Cov	WAS049
pH	8.5	pH units	28/03/2015	Y Cov	WAS039
Conductivity- Electrical 20C	21000	uS/cm	30/03/2015	Y Cov	WAS039
Alkalinity as CaCO3	10600	mg/l	07/04/2015	Y Cov	WAS025
Ammoniacal Nitrogen as N	2200	mg/l	27/03/2015	Y Cov	WAS055
Chloride as Cl	2490	mg/l	27/03/2015	Y Cov	WAS036
Nitrogen, Total Oxidised as N	<0.42	mg/l	27/03/2015	Y Cov	WAS036
Sulphate as SO4	43.3	mg/l	27/03/2015	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	01/04/2015	N Cov	WAS052
BOD + ATU (5 day)	173	mg/l	31/03/2015	N Cov	WAS001
COD (Total)	4530	mg/l	27/03/2015	Y Cov	WAS040
TOC (Filtered)	1170	mg/l	30/03/2015	Y Cov	WAS005
Phenols Mono (Phenol Index)	Analyst Com	mg/l	01/04/2015	Y Cov	WAS019

Analyst Comments for 14535957:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {(*)}Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.{(*)}

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: *A I Horobin*

Name: **A. Horobin**

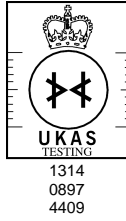
Date: **08 April 2015**

Title: **Organic Operations Manager**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535958**

Sample **15** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LW4A**

Sample Matrix: **Land Leachate**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Sample Received	'Empty'		26/03/2015	N Cov	N/A

Analyst Comments for 14535958: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

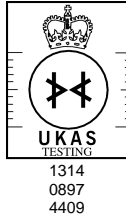
Signed: *A Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535959**

Sample **16** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LW5A**

Sample Matrix: **Land Leachate**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Sample Received	'Empty'		26/03/2015	N Cov	N/A

Analyst Comments for 14535959: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

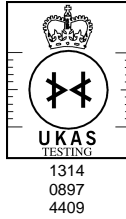
Signed: *A Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535960**

Sample **17** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LW6A**

Sample Matrix: **Land Leachate**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Sample Received	'Empty'		26/03/2015	N Cov	N/A

Analyst Comments for 14535960: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

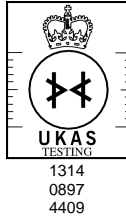
Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Certificate of Analysis



Report Number: **COV/1176242/2015**

Issue **2**

Laboratory Number: **14535961**

Sample **18** of **18**

Sample Source: **Gwynedd Council (UDG)**

Sample Point Description:

Sample Description: **LW13**

Sample Matrix: **Land Leachate**

Sample Date/Time: **24 March 2015**

Sample Received: **25 March 2015**

Analysis Complete: **08 April 2015**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Sample Received	'Empty'		26/03/2015	N Cov	N/A

Analyst Comments for 14535961: No Analyst Comment

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Run = Runcorn(WA7 1SL), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

Date of Issue: **08 April 2015**

Sample No	Analysis Comments
14535944	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14535945	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14535946	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14535947	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14535948	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14535949	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14535950	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14535951	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14535952	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14535953	This sample has been analysed for pH, Dissolved Oxygen, Fixed outside recommended stability times. It is therefore possible that the results provided may be compromised.
14535954	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {/}*Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.{*/}
14535955	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {/}*Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.{*/}
14535956	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {/}*Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.{*/}
14535957	This sample has been analysed for pH, Dissolved Oxygen, Fixed, Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {/}*Unable to analyse for Monophenol as excessive reaction upon acidification makes the sample unsuitable for segmented flow analysis.{*/}
14535958	
14535959	
14535960	
14535961	

Signed: *A Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**

DETERMINAND COMMENTS FOR REPORT COV/1176242/2015

ISSUE 2

Date of Issue : 08 April 2015

Sample No	Description	Determinand	Comments

Signed: *A. Horobin*

Name: **A. Horobin**

Date: **08 April 2015**

Title: **Organic Operations Manager**



Appendix E

Schedule 6 Submissions to NRW



Schedule 6 – Notification

This page outlines the information that the operator must provide.

Units of measurement in the information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the PPC Regulations.

Part A

Permit number	GP3330BY (Variation number QP3134LY/V003)
Name of operator	Gwynedd Council
Location of installation	Ffridd Rasmus Landfill Site Areas 1 and 3, Morfa Road, Harlech, Gwynedd, LL46 2UW
Time and date of detection	Results received on 27/01/15

(a) Notification requirements for any malfunction, breakdown or failure of equipment or technique, accident, or fugitive emission which has caused, is causing or may cause significant pollution

To be notified within 24 hours of detection

Date and Time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substance(s) potentially released	
Best estimate of the quality or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of limit

To be notified within 24 hours of detection unless otherwise specified below

Emission point reference/source	BH 19A	BH 19B	BH 19C	BH 20A	BH 21A	
Parameter(s)	Cl	Cl	Cl	NH ₄ Cl	NH ₄	
Limit	29mg/l	28mg/l	30mg/l	5 mg/l 310mg	5.10mg/l	
Measured value and uncertainty	38.2mg/l	73.1mg/l	216mg/l	71.7 mg/l 431mg/l	8.98mg/l	
Date and time of monitoring	13/01/15					
Measures taken, or intended to be taken, to stop the emission						

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substance(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B to be supplied as soon as practicable

Any more accurate information on the matters for notification under Part A	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the installation in the proceeding 24 months	

Name *	Susan Francis
Post	Assistant Engineer
Signature	
Date	17/02/15

* authorised to sign on behalf of Gwynedd Council

Schedule 6 – Notification

This page outlines the information that the operator must provide.

Units of measurement in the information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the PPC Regulations.

Part A

Permit number	GP3330BY (Variation number QP3134LY/V003)
Name of operator	Gwynedd Council
Location of installation	Ffridd Rasmus Landfill Site Areas 1 and 3, Morfa Road, Harlech, Gwynedd, LL46 2UW
Time and date of detection	Results received on 23/02/15

(a) Notification requirements for any malfunction, breakdown or failure of equipment or technique, accident, or fugitive emission which has caused, is causing or may cause significant pollution

To be notified within 24 hours of detection

Date and Time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substance(s) potentially released	
Best estimate of the quality or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of limit

To be notified within 24 hours of detection unless otherwise specified below

Emission point reference/source	BH 19A	BH 19B	BH 19C	BH 20A	BH20B	BH 21A
Parameter(s)	Cl	Cl	Cl	NH4 Cl	NH4	NH4
Limit	29mg/l	28mg/l	30mg/l	5 mg/l 310mg	230mg/l	5.10mg/l
Measured value and uncertainty	36.6mg/l	62.1mg/l	161mg/l	71.6mg/l 414mg/l	231mg/l	36.4mg/l
Date and time of monitoring	10/02/15					
Measures taken, or intended to be taken, to stop the emission						

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substance(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B to be supplied as soon as practicable

Any more accurate information on the matters for notification under Part A	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the installation in the proceeding 24 months	

Name *	Susan Francis
Post	Assistant Engineer
Signature	
Date	24/02/15

* authorised to sign on behalf of Gwynedd Council

Schedule 6 – Notification

This page outlines the information that the operator must provide.

Units of measurement in the information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the PPC Regulations.

Part A

Permit number	GP3330BY (Variation number QP3134LY/V003)
Name of operator	Gwynedd Council
Location of installation	Ffridd Rasmus Landfill Site Areas 1 and 3, Morfa Road, Harlech, Gwynedd, LL46 2UW
Time and date of detection	Results received on 23/03/15

(a) Notification requirements for any malfunction, breakdown or failure of equipment or technique, accident, or fugitive emission which has caused, is causing or may cause significant pollution
To be notified within 24 hours of detection

Date and Time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substance(s) potentially released	
Best estimate of the quality or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of limit						
To be notified within 24 hours of detection unless otherwise specified below						
Emission point reference/source	BH 19A	BH 19B	BH 19C	BH 20A	BH20B	BH 21A
Parameter(s)	Cl	Cl	Cl	NH4 Cl	NH4	NH4
Limit	29mg/l	28mg/l	30mg/l	5 mg/l 310mg	230mg/l	5.10mg/l
Measured value and uncertainty	35mg/l	58.1mg/l	161mg/l	73.3mg/l 392mg/l	235mg/l	31.7mg/l
Date and time of monitoring	17/03/15					
Measures taken, or intended to be taken, to stop the emission						

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substance(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B to be supplied as soon as practicable

Any more accurate information on the matters for notification under Part A	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the installation in the proceeding 24 months	

Name *	Susan Francis
Post	Assistant Engineer
Signature	
Date	24/03/15

* authorised to sign on behalf of Gwynedd Council

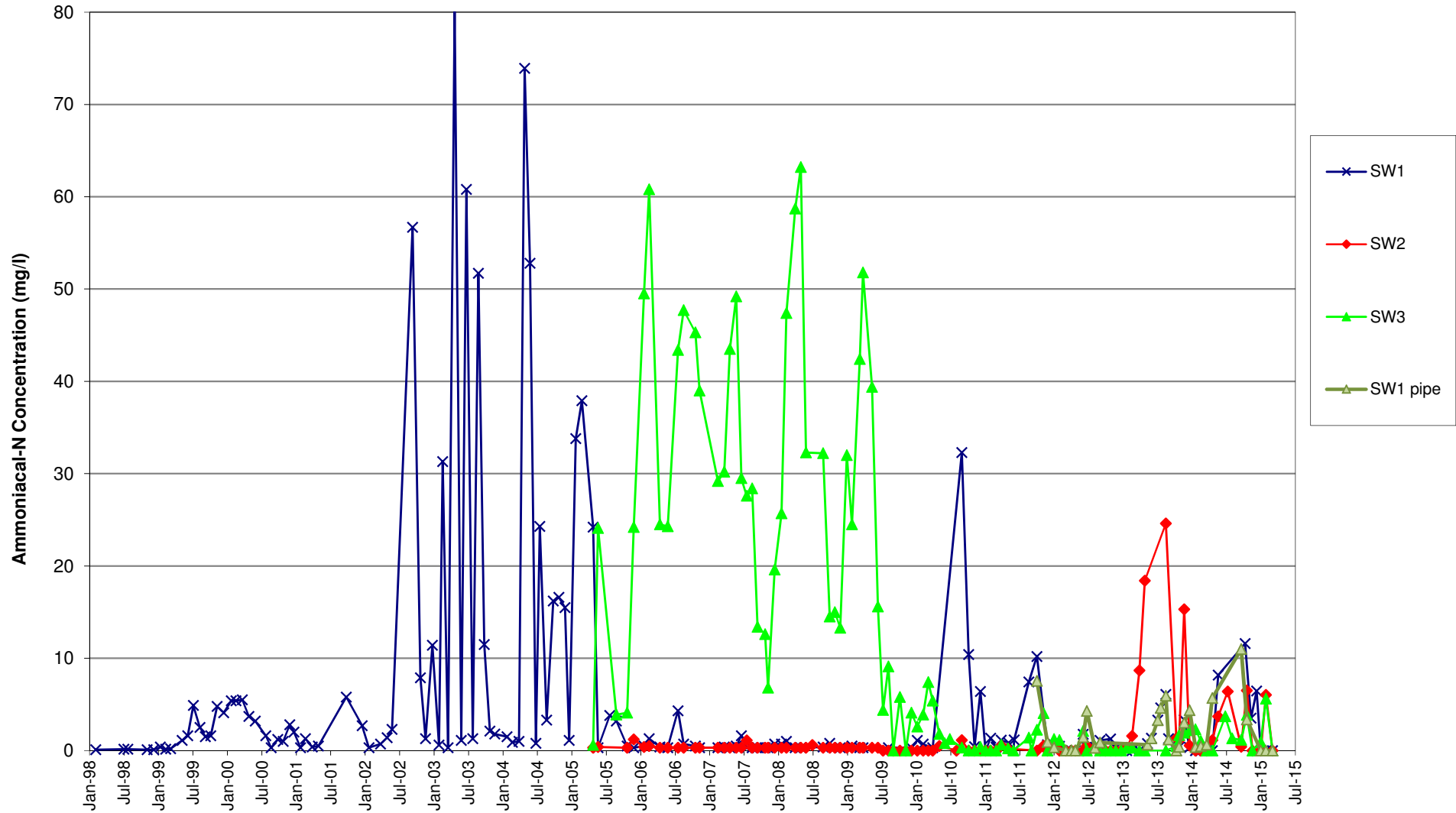


Appendix F

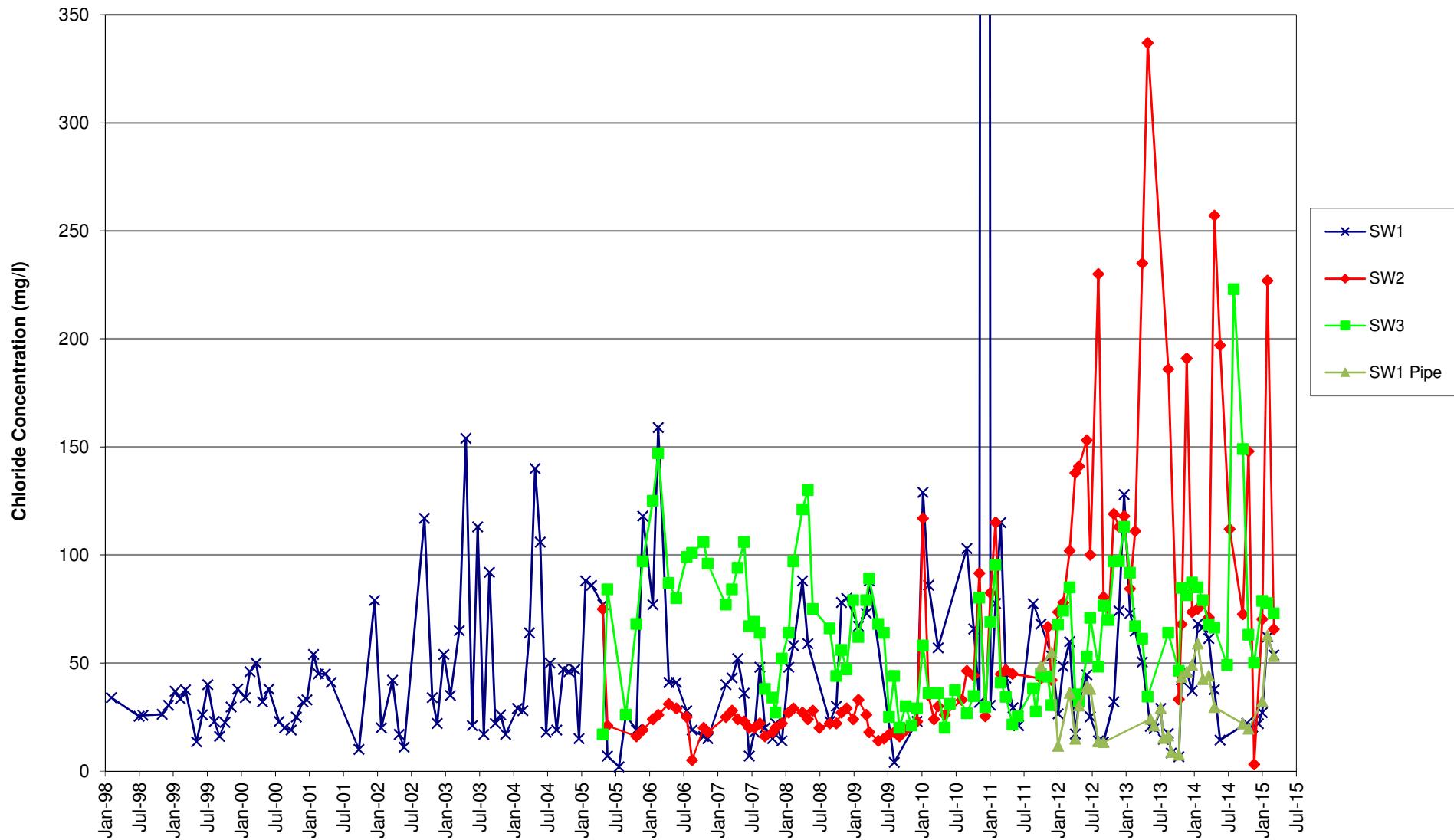
Surface Water Quality Plots and Observations at SW1 and SW3



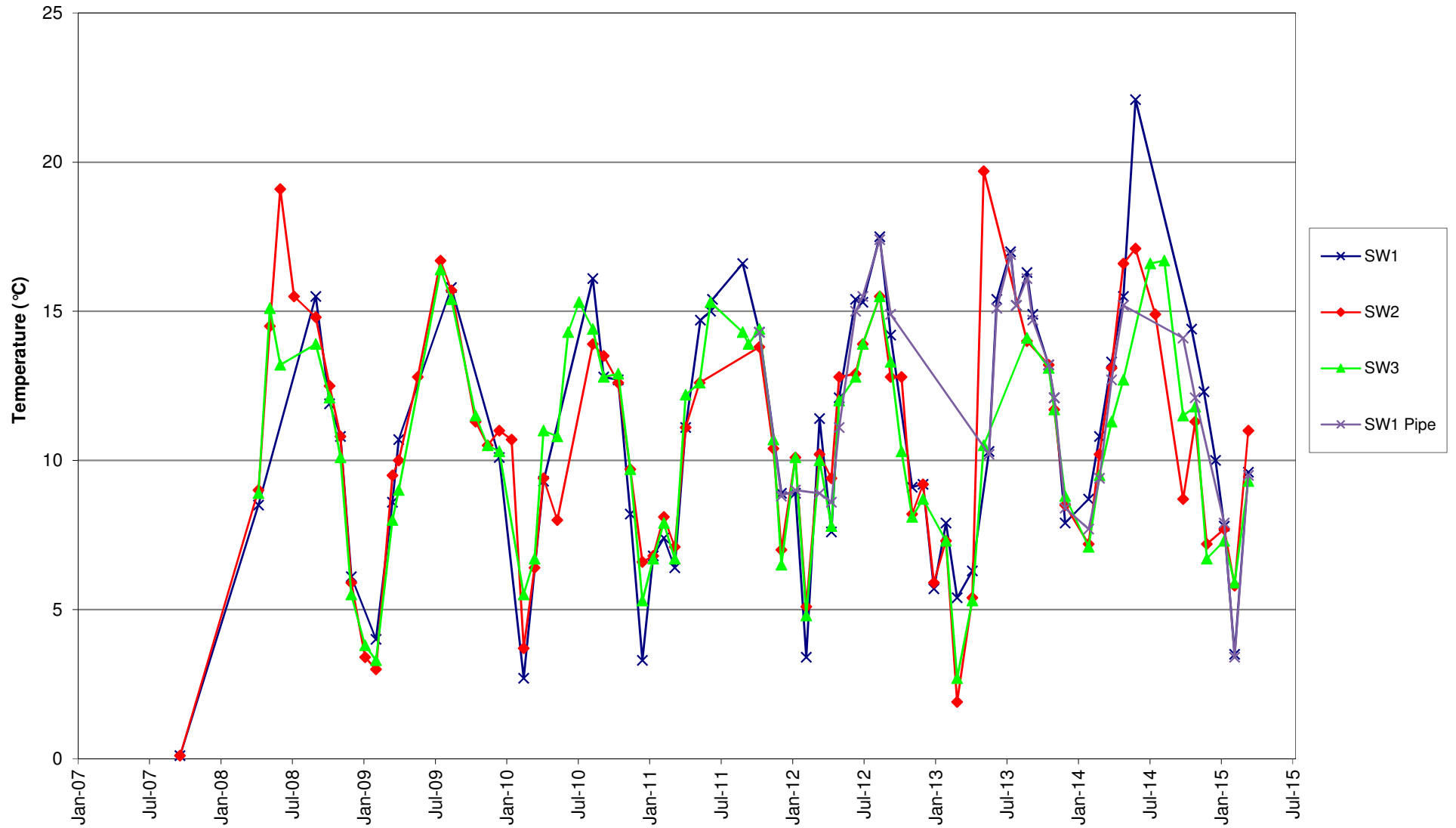
Ffridd Rasmus Landfill - Ammoniacal-Nitrogen in Surface Water



Ffridd Rasmus Landfill - Chloride in Surface Water



Ffridd Rasmus Landfill - Surface Water Temperature



Ffridd Rasmus Landfill Site
Point source emissions to water (table S4.3)

Interceptor drain – location SW 1
Sluice – location SW 3

COPY

Date	Location	Description of water		Further comments :-
		Surface film or Oil	Is the SW location dry?	Weather
9/12/14	SW 1	CLEAR	NO	SHOWERS
	SW 3	CLEAR	NO	SHOWERS
16/12/14	SW 1	CLEAR	NO	DRY
	SW 3	CLEAR	NO	DRY
23/12/14	SW 1	CLEAR	NO	HEAVY SHOWERS
	SW 3	CLEAR	NO	HEAVY SHOWERS
6/1/15	SW 1	CLEAR	NO	DRY
	SW 3	CLEAR	NO	DRY
13/1/15	SW 1	CLEAR	NO	DRY/COLD
	SW 3	CLEAR	NO	DRY/COLD
20/1/15	SW 1	CLEAR	NO	DRY/COLD
	SW 3	CLEAR	NO	DRY/COLD
28/1/15	SW 1	CLEAR	NO	DRY/WINDY
	SW 3	CLEAR	NO	DRY/WINDY
3/2/15	SW 1	CLEAR	NO	SUNNY
	SW 3	CLEAR	NO	SUNNY
10/2/15	SW 1	CLEAR	NO	DRY/COLD
	SW 3	CLEAR	NO	DRY/COLD

101 23 MAR 2015

Ffridd Rasmus Landfill Site
Point source emissions to water (table S4.3)

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Interceptor drain - location SW 1
Sluice - location SW 3

Date	Location	Description of water		Further comments :- Weather
		Surface film or Oil	Is the SW location dry?	
17/2/15	SW 1	CLEAR	NO	DRY/COLD
	SW 3	CLEAR	NO	DRY/COLD
25/2/15	SW 1	CLEAR	NO	DRY
	SW 3	CLEAR	NO	DRY
2/3/15	SW 1	CLEAR	NO	DRY/COLD
	SW 3	CLEAR	NO	DRY/COLD
10/3/15	SW 1	CLEAR	NO	SUNNY
	SW 3	CLEAR	NO	SUNNY
17/3/15	SW 1	CLEAR	NO	SUNNY
	SW 3	CLEAR	NO	SUNNY
	SW 1			
	SW 3			
	SW 1			
	SW 3			
	SW 1			
	SW 3			
	SW 1			
	SW 3			



Appendix G

Gas Balancing Data



GAS FIELD MONITORING SHEET													CH4 Consultants		
Site:		Ffridd Rasmus						Weather Conditions			Showers				
Date:		12/01/2015						Temperature °C			3 to 5				
Name:		Steve Hindle						Total Flow Setting m³/hr			decreased flow 280m³/hr to 260m³/hr				
Equipment Used :		GA 5000													
Serial No :		G500196													
Last Calibration Date :		19/12/2014													
Calibration Due Date :		22/06/2015													
1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	
ID	Date/Time	CH4 %	CO2 %	O2 %	BALANCE %	RESIDUAL NITROGEN %	CO ppm	SUCTION PRESSURE mb	ATMOS - PHERIC PRESSURE mb	VELOCITY	FLOW m³/hr	METHANE FLOW m³/hr	COMMENTS	VALVE POSITION %	
FR_FLARE	12/01/2015 09:40	40.2	28.3	1	30.5	26.72	5	-33.25	1004					33	
FR_BH001	12/01/2015 09:46	40	27.2	1.3	31.5	26.59	5	9.3	1003					0	
FR_BH002	12/01/2015 09:54	25.8	19.5	0.4	54.3	52.79	2	0.05	1001					0	
FR_BH003	12/01/2015 09:58	42.9	18.1	0	39	39	3	0.43	1004					2	
FR_BH004	12/01/2015 10:01	25	11.8	7	56.2	29.74	1	0.58	1005					0	
FR_BH005	12/01/2015 10:03	29.6	18.3	1	51.1	47.32	1	0.39	1003					0	
FR_BH006	12/01/2015 10:04	38.5	21.3	0.1	40.1	39.72	2	0.94	1004					10	
FR_BH007	12/01/2015 10:06	39.7	20.1	0.3	39.9	38.77	2	-5.88	1005					10	
FR_BH008	12/01/2015 10:08	28.1	17.9	3.8	50.2	35.84	2	1.74	1005					0	
FR_MAN01	12/01/2015 10:15	39.7	20	0.1	40.2	39.82	2	-5.57	1004					20	
FR_BH009	12/01/2015 10:17	2.1	16.4	0	81.5	81.5	5	0.14	1002					0	
FR_BH010	12/01/2015 10:19	13.5	17.3	0.1	69.1	68.72	0	0.29	1001					0	
FR_BH011	12/01/2015 10:21	39.7	20.3	0	40	40	1	-2.05	1004					10	
FR_BH012	12/01/2015 10:23	38	20.9	0	41.1	41.1	2	-19.47	1005					15	
FR_BH013	12/01/2015 10:25	36.7	26.2	0	37.1	37.1	1	-7.86	1005					5	
FR_BH014	12/01/2015 10:27	33.7	23.3	0.1	42.9	42.52	1	0.19	1004					0	
FR_BH015	12/01/2015 10:29	34.5	17.8	0	47.7	47.7	1	0.03	1005					0	
FR_BH016	12/01/2015 10:31	37.5	20.5	0	42	42	3	-0.32	1005					5	
FR_BH017	12/01/2015 10:33	23.3	17	0.2	59.5	58.74	1	0.03	1004					0	
FR_BH018	12/01/2015 10:35	22.4	18.3	0.4	58.9	57.39	1	-0.03	1003					0	
FR_MAN02	12/01/2015 10:37	38.2	20.7	0	41.1	41.1	2	-16.1	1004					25	
FR_C0032	12/01/2015 10:39	0.7	1	21.1	77.2	0	2	-3.59	1005					0	
FR_LCP03	12/01/2015 10:41	36.9	27.6	2.6	32.9	23.07	2	-4.94	1004					0	
FR_C0033	12/01/2015 10:43	49	29.6	0.8	20.6	17.58	14	-4.92	1004					0	
FR_C0036	12/01/2015 10:45	19.2	19.4	0.3	61.1	59.97	3	-5.52	1006					0	
FR_LM3/1	12/01/2015 10:47	27	22.8	0.6	49.6	47.33	4	-5.88	1005					0	
FR_MAN05	12/01/2015 10:49	43.1	27.8	1	28.1	24.32	11	-20.39	1004					20	
FR_BH019	12/01/2015 10:51	36.8	19	0.1	44.1	43.72	2	0.09	1003					0	
FR_BH020	12/01/2015 10:53	30.5	18.6	0.8	50.1	47.08	3	-0.09	1005					0	
FR_BH021	12/01/2015 10:55	37.5	20.7	0.1	41.7	41.32	3	-1.21	1007					15	
FR_BH022	12/01/2015 10:57	40.6	22.7	0.1	36.6	36.22	3	-8.99	1006					25	
FR_BH023	12/01/2015 10:59	28.3	19.4	1.3	51	46.09	2	-1.86	1007					0	
FR_MAN03	12/01/2015 11:01	39.4	21.9	0.3	38.4	37.27	3	-19.64	1006					30	
FROLDGWM	12/01/2015 11:03	1.7	10.2	6.1	82	58.94	3	-0.15	1005					40	
FR_GW001	12/01/2015 11:15	0	0.1	21.7	78.2	0	1	-4.22	1002					40	
FR_GW003	12/01/2015 11:18	0.3	0.4	21.3	78	0	1	-0.34	1006					40	
FR_GW005	12/01/2015 11:21	0	0.2	21.6	78.2	0	1	-1.93	1007					40	
FR_GW007	12/01/2015 11:24	7.5	15.3	4.6	72.6	55.21	4	-0.38	1006					40	
FR_GW009	12/01/2015 11:27	20.6	19.3	1.1	59	54.84	17	-0.63	1006					40	
FR_GW011	12/01/2015 11:30	0.3	0.7	11.8	87.2	42.6	3	-0.44	1005					40	
FR_GW013	12/01/2015 11:33	0	0.2	21.4	78.4	0	0	-1.09	1003					40	
FR_GW014	12/01/2015 11:36	1.5	4.7	16.2	77.6	16.36	2	-0.7	1004					40	
FR_GW012	12/01/2015 11:39	7.4	18.6	4.1	69.9	54.4	2	-1.01	1006					40	
FR_GW010	12/01/2015 11:42	14.1	18.7	0.4	66.8	65.29	3	-0.58	1006					40	
FR_GW008	12/01/2015 11:45	3.2	7.7	13.1	76	26.48	1	-0.6	1006					40	
FR_GW006	12/01/2015 11:48	0	0.3	21	78.7	0	0	-0.32	1007					40	
FR_GW004	12/01/2015 11:51	0	0.2	21.5	78.3	0	0	0.09	1007					40	
FR_GW002	12/01/2015 11:54	0	0.3	21.5	78.2	0	1	0.17	1005					40	
FR_LM1/2	12/01/2015 11:57	0	3.4	18.1	78.5	10.08	1	-0.14	1007					0	
FR_LCP01	12/01/2015 12:00	63.6	22.9	0.1	13.4	13.02	2	-0.09	1004					0	
FR_C0021	12/01/2015 12:03	50.3	26.7	0.1	22.9	22.52	4	-0.36	1007					10	
FR_LM1/1	12/01/2015 12:06	28	23.1	0.3	48.6	47.47	4	-0.44	999					0	
FR_C0024	12/01/2015 12:09	0	0.1	21.7	78.2	0	0	0.32	1004					0	
FR_C0025	12/01/2015 12:12	56.1	33.2	0.2	10.5	9.74	4	-1.88	1004					2	
FR_C0035	12/01/2015 12:15	46.1	29.1	0.3	24.5	23.37	3	-4.29	1006					2	
FR_C0013	12/01/2015 12:18	36.5	19.7	0	43.8	43.8	3	-1.21	1007					0	
FR_C0014	12/01/2015 12:21	24.9	17	1.6	56.5	50.45	6	-2.09	1005					0	
FR_C0012	12/01/2015 12:24	28.3	20.5	0.1	51.1	50.72	3	-2.12	1007					0	
FR_C0011	12/01/2015 12:27	28.7	19.2	0	52.1	52.1	3	-2.36	1006					0	
FR_MAN04	12/01/2015 12:30	50.7	29.2	0	20.1	20.1	5	-17.2	1006					50	
FR_LM2/2	12/01/2015 12:33	50.5	30.2	0	19.3	19.3	3	-0.48	1006					0	
FR_C0022	12/01/2015 12:36	61.6	35.1	0.1	3.2	2.82	4	0.17	1006					2	
FR_LCP02	12/01/2015 12:39	56.9	35	1.1	7	2.84	3	-0.46	1005					0	
FR_C0023	12/01/2015 12:42	67.4	31.1	0	1.5	1.5	5	-1.74	1006					50	
FR_LM2/1	12/01/2015 12:45	62.2	36.4	0	1.4	1.4	5	-0.17	1006					2	
FR_C0043	12/01/2015 12:48	62.1	36.1	0	1.8	1.8	10	-13.59	1006					100	
FR_C0044	12/01/2015 12:51	51.6	34.5	0	13.9	13.9	10	-6.65	1003					75	
FR_C0042	12/01/2015 12:54	57.6	33.9	0	8.5	8.5	9	-7.3	1002					75	
FR_C0045	12/01/2015 12:57	60.3	37.2	0	2.5	2.5	12	-7.13	1005					100	
FR_LCP4A	12/01/2015 13:00	37.6	28	5.3	29.1	9.07	9	-7.26	1004					0	
FR_C0053	12/01/2015 13:06	59.4	39.1	0	1.5	1.5	12	-8.48	1006					100	
FR_C0054	12/01/2015 13:09	58.9	38.9	0	2.2	2.2	13	-8.58	1006					100	
FR_LM4/2	12/01/2015 13:12	31.4	26.7	1.8	40.1	33.3	5	-7.81	1004					0	
FR_MAN06	12/01/2015 13:15	56.9	36.6	0	6.5	6.5	18	-14.46	1003					100	
FR_C0055	12/01/2015 13:18	59.1	37.4	0	3.5	3.5	10	-17.06	1005					100	
FR_LCP4B	12/01/2015 13:21	58.3	37.7	0	4	4	8	-17.09	1005					25	
FR_C0056	12/01/2015 13:24	60.5	37.9	0	1.6	1.6	24	-23.74	1006					100	
FR_C0057	12/01/2015 13:27	59.7	37.5	0	2.8	2.8	37	-17.3	1005					100	
FR_C0052	12/01/2015 13:30	53.6	36.1	0.3	10	8.87	12	-18.22	1005					100	
FR_C0051	12/01/2015 13:33	59.4	38.1	0	2.5	2.5	17	-17.93	1004					100	
FR_C0041	12/01/2015 13:36	54.2	33.9	0	11.9	11.9	11	-17.79	1007					100	
FR_C0046	12/01/2015 13:39	54	35.2	0	10.8	10.8	18	-24.26	1006					100	
FR_C0034	12/01/2015 13:42	55.2	34.4	0	10.4	10.4	21	-21.38	1009					75	
FR_C0031	12/01/2015 13:45	28.3	26.1	0.1	45.5	45.12	10	-3.33	1003					0	
FR_MAN07	12/01/2015 13:48	54.4	35.3	0	10.3	10.3	20	-29.15	1006					40	
FR_FLARE	12/01/2015 14:32	48.3	30.1	0.2	21.4	20.64	11	-41.03	1002					32	

GAS FIELD MONITORING SHEET

CH4 Consultants

Site:	Ffridd Rasmus	Weather Conditions	Cloudy
Date:	09/02/2015	Temperature °C	5 to 7
Name:	Steve Hindle		
Equipment Used :	GA 5000		
Serial No :	G500196		
Last Calibration Date :	19/12/2014	Total Flow Setting m³/hr	decreased flow 260m³/hr to 230m³/hr
Calibration Due Date :	22/06/2015		

1	2	3	4	5	6	7	8	9	10	12	13	14	15	16
ID	Date/Time	CH4 %	CO2 %	O2 %	BALANCE %	RESIDUAL NITROGEN %	CO ppm	SUCTION PRESSURE mb	ATMOS - PHERIC PRESSURE mb	VELOCITY	FLOW m3/hr	METHANE FLOW m3/hr	COMMENTS	VALVE POSITION %
FR_FLARE	09/02/2015 09:46	37.8	27.6	0.6	34	31.73	5	-41.11	1035					32
FR_BH001	09/02/2015 09:54	1.6	3.2	16.6	78.6	15.85	0	-0.8	1037					0
FR_BH002	09/02/2015 09:56	24.1	20.1	0.4	55.4	53.89	0	-0.12	1036					0
FR_BH003	09/02/2015 09:58	17	18.5	0.5	64	62.11	1	-0.14	1037					0
FR_BH004	09/02/2015 10:02	13.8	17.2	0.4	68.6	67.09	0	0.05	1037					0
FR_BH005	09/02/2015 10:03	30.9	19	0.4	49.7	48.19	0	0.39	1037					0
FR_BH006	09/02/2015 10:05	35.4	20.6	0.3	43.7	42.57	1	0.41	1038					10
FR_BH007	09/02/2015 10:07	36.3	19.5	1.6	42.6	36.55	1	-1.69	1038					10
FR_BH008	09/02/2015 10:09	34.9	21.1	1.2	42.8	38.26	1	0.6	1038					0
FR_MAN01	09/02/2015 10:11	36	20.5	0.4	43.1	41.59	1	-3.74	1038					20
FR_BH009	09/02/2015 10:17	0	1.3	20.1	78.6	2.62	0	0.56	1038					0
FR_BH010	09/02/2015 10:19	5.6	17	0.2	77.2	76.44	1	-0.03	1039					0
FR_BH011	09/02/2015 10:20	37.6	19.9	0.1	42.4	42.02	1	-0.55	1039					10
FR_BH012	09/02/2015 10:22	27.1	19.9	0.2	52.8	52.04	1	-15.42	1038					0
FR_BH013	09/02/2015 10:23	20.5	23.1	0	56.4	56.4	1	-2.75	1038					0
FR_BH014	09/02/2015 10:25	33.1	23.4	0.1	43.4	43.02	1	-0.1	1036					0
FR_BH015	09/02/2015 10:27	33	17.8	0.8	48.4	45.38	1	0.02	1037					0
FR_BH016	09/02/2015 10:29	35.1	19.8	0.1	45	44.62	2	-0.21	1037					10
FR_BH017	09/02/2015 10:30	12.5	17	0.1	70.4	70.02	1	-0.09	1039					0
FR_BH018	09/02/2015 10:32	16.5	18.5	0.1	64.9	64.52	1	-0.02	1038					0
FR_MAN02	09/02/2015 10:34	36.1	19.8	0	44.1	44.1	1	-14.26	1037					25
FR_C0032	09/02/2015 10:39	0.7	1	21.2	77.1	0	2	0.1	1039					0
FR_LCP03	09/02/2015 10:41	35.4	25	6.1	33.5	10.44	2	0.05	1036					0
FR_C0033	09/02/2015 10:44	26.7	26.5	0.9	45.9	42.5	4	0.02	1037					0
FR_C0036	09/02/2015 10:47	11.7	22	0.5	65.8	63.91	2	0.02	1038					0
FR_LM3/1	09/02/2015 10:51	26.1	25.9	1.3	46.7	41.79	6	-3.25	1036					0
FR_MAN05	09/02/2015 10:58	32.7	18.8	0	48.5	48.5	1	0.84	1036					0
FR_BH020	09/02/2015 11:00	17.3	15	5	62.7	43.8	1	0.68	1038					0
FR_BH021	09/02/2015 11:02	32.3	19.2	0.8	47.7	44.68	1	-0.02	1037					25
FR_BH022	09/02/2015 11:04	37.9	22.5	0.1	39.5	39.12	1	-13.3	1038					25
FR_BH023	09/02/2015 11:07	26.7	17.7	3.8	51.8	37.44	1	0.63	1036					0
FR_MAN03	09/02/2015 11:09	36.5	21.6	0.2	41.7	40.94	2	-28.39	1040					30
FROLDGWM	09/02/2015 11:11	0.4	2.9	19	77.7	5.88	1	0.15	1037					0
FR_GW001	09/02/2015 11:53	0.3	2.6	18.8	78.3	7.24	1	0.03	1034					40
FR_GW003	09/02/2015 11:55	0	0.1	21.6	78.3	0	0	-0.26	1037					40

GAS FIELD MONITORING SHEET

CH4 Consultants

Site:	Ffridd Rasmus	Weather Conditions	Cloudy
Date:	09/02/2015	Temperature °C	5 to 7
Name:	Steve Hindle		
Equipment Used :	GA 5000		
Serial No :	G500196		
Last Calibration Date :	19/12/2014	Total Flow Setting m^3/hr	decreased flow 260m^3/hr to 230m^3/hr
Calibration Due Date :	22/06/2015		

1	2	3	4	5	6	7	8	9	10	12	13	14	15	16
ID	Date/Time	CH4 %	CO2 %	O2 %	BALANCE %	RESIDUAL NITROGEN %	CO ppm	SUCTION PRESSURE mb	ATMOS - PHERIC PRESSURE mb	VELOCITY	FLOW m3/hr	METHANE FLOW m3/hr	COMMENTS	VALVE POSITION %
FR_GW005	09/02/2015 11:57	0.5	1.9	19.2	78.4	5.82	0	-0.65	1037					40
FR_GW007	09/02/2015 11:59	2.6	12.6	8	76.8	46.56	3	-0.74	1038					40
FR_GW009	09/02/2015 12:01	0.1	12	8.7	79.2	46.31	0	-0.67	1038					40
FR_GW011	09/02/2015 12:03	10.3	11.3	8.8	69.6	36.34	19	-0.43	1038					40
FR_GW013	09/02/2015 12:05	0	1	20.1	78.9	2.92	0	-0.21	1037					40
FR_GW014	09/02/2015 12:07	0	2.4	18.6	79	8.69	0	0.03	1032					40
FR_GW012	09/02/2015 12:08	6.3	17.2	4.6	71.9	54.51	9	-0.07	1039					40
FR_GW010	09/02/2015 12:10	11.4	18.5	0.6	69.5	67.23	1	-0.1	1038					40
FR_GW008	09/02/2015 12:12	1.1	8.2	11.9	78.8	33.82	1	0.02	1038					40
FR_GW006	09/02/2015 12:14	0.5	3.4	16.5	79.6	17.23	0	0.24	1039					40
FR_GW004	09/02/2015 12:16	9.1	13.4	1.5	76	70.33	1	0.09	1039					40
FR_GW002	09/02/2015 12:18	0	0.6	20.9	78.5	0	0	0.1	1039					40
FR_LM1/2	09/02/2015 12:21	0	2.8	18.7	78.5	7.81	0	-0.24	1038					0
FR_LCP01	09/02/2015 12:23	67.7	23.1	0.4	8.8	7.29	0	-0.34	1038					2
FR_C0021	09/02/2015 12:25	18.3	20.7	0.8	60.2	57.18	16	-7.11	1037					0
FR_LM1/1	09/02/2015 12:27	5.5	16	3.1	75.4	63.68	2	-0.96	1038					0
FR_C0024	09/02/2015 12:32	13.4	9	16.2	61.4	0.16	2	-2.79	1035					0
FR_C0025	09/02/2015 12:34	16.3	20.1	0.7	62.9	60.25	4	-7.64	1034					0
FR_C0035	09/02/2015 12:36	32.9	29.1	0.1	37.9	37.52	4	-4.53	1036					10
FR_C0013	09/02/2015 12:38	35.6	18.3	0.7	45.4	42.75	3	-1.25	1037					0
FR_C0014	09/02/2015 12:42	11.7	14.8	2.7	70.8	60.59	11	-0.21	1037					0
FR_C0012	09/02/2015 12:44	12.5	19	0.2	68.3	67.54	3	-0.77	1037					0
FR_C0011	09/02/2015 12:46	19.4	17.8	0.3	62.5	61.37	3	-4.89	1037					0
FR_MAN04	09/02/2015 12:48	32.5	28.6	0.1	38.8	38.42	5	-28.31	1038					50
FR_LM2/2	09/02/2015 12:50	29.3	26.1	0	44.6	44.6	3	0.15	1036					0
FR_C0022	09/02/2015 12:54	23.8	24	1.2	51	46.46	6	-22.6	1038					0
FR_LCP02	09/02/2015 12:57	52.1	33.4	1.4	13.1	7.81	4	-0.8	1036					2
FR_C0023	09/02/2015 12:59	24.4	24.8	0	50.8	50.8	15	-26.99	1036					0
FR_LM2/1	09/02/2015 13:01	15.6	18.8	4	61.6	46.48	9	-6.12	1038					0
FR_C0043	09/02/2015 13:04	61.9	35	0	3.1	3.1	9	-30.21	1037					100
FR_C0044	09/02/2015 13:06	49.5	34.5	0	16	16	9	-17.09	1038					50
FR_C0042	09/02/2015 13:07	41.8	31.3	0	26.9	26.9	8	-29.38	1036					50
FR_C0045	09/02/2015 13:08	62	37.5	0	0.5	0.5	12	-30.05	1037					100
FR_LCP4A	09/02/2015 13:10	60.6	38.7	0	0.7	0.7	8	-1.98	1036					25
FR_C0053	09/02/2015 13:12	50.7	35.6	0	13.7	13.7	27	-27.98	1036					100

GAS FIELD MONITORING SHEET

CH4 Consultants

Site:	Ffridd Rasmus	Weather Conditions	Cloudy
Date:	09/02/2015	Temperature °C	5 to 7
Name:	Steve Hindle		
Equipment Used :	GA 5000		
Serial No :	G500196		
Last Calibration Date :	19/12/2014	Total Flow Setting m³hr	decreased flow 260m ³ hr to 230m ³ hr
Calibration Due Date :	22/06/2015		

1	2	3	4	5	6	7	8	9	10	12	13	14	15	16
ID	Date/Time	CH4 %	CO2 %	O2 %	BALANCE %	RESIDUAL NITROGEN %	CO ppm	SUCTION PRESSURE mb	ATMOS - PHERIC PRESSURE mb	VELOCITY	FLOW m3/hr	METHANE FLOW m3/hr	COMMENTS	VALVE POSITION %
FR_C0054	09/02/2015 13:13	59.3	39	0.1	1.6	1.22	37	-28.24	1037					100
FR_LM4/2	09/02/2015 13:15	60.9	40	0	0	0	9	0.8	1038					25
FR_MAN06	09/02/2015 13:16	55.2	37.2	0	7.6	7.6	14	-15.93	1037					100
FR_C0055	09/02/2015 13:19	56.7	36.9	0	6.4	6.4	11	-15.93	1036					100
FR_LCP4B	09/02/2015 13:21	53.7	34.8	1.3	10.2	5.29	10	-15.61	1036					25
FR_C0056	09/02/2015 13:22	61.3	37.5	0	1.2	1.2	23	-25.81	1038					100
FR_C0057	09/02/2015 13:25	52.4	32.8	1.1	13.7	9.54	50	-16.24	1037					100
FR_C0052	09/02/2015 13:26	61.7	38.3	0	0	0	15	-24.65	1037					100
FR_C0051	09/02/2015 13:27	61	37.4	0	1.6	1.6	18	-26.02	1038					100
FR_C0041	09/02/2015 13:29	38.7	27.8	0	33.5	33.5	12	-24.34	1037					20
FR_C0046	09/02/2015 13:31	45.9	32.8	0	21.3	21.3	19	-24.91	1036					100
FR_C0034	09/02/2015 13:32	44.5	33.2	0	22.3	22.3	22	-25.09	1037					50
FR_C0031	09/02/2015 13:34	27.2	26.2	0	46.6	46.6	10	-0.15	1035					0
FR_MAN07	09/02/2015 13:37	47.4	33.1	0.2	19.3	18.54	20	-16.96	1037					40
FR_FLARE	09/02/2015 15:40	44	29.6	0.2	26.2	25.44	9	-42.39	1037					31
FR_FLARE	09/02/2015 15:46	44.4	30	0.1	25.5	25.12	11	-36.05	1046					28

GAS FIELD MONITORING SHEET

CH4 Consultants

Site:	Ffridd Rasmus	Weather Conditions	Heavy rain
Date:	09/03/2015	Temperature °C	4 to 6
Name:	Steve Hindle	Total Flow Setting m³hr	230m ³ hr
Equipment Used :	GA 5000		
Serial No :	G500196		
Last Calibration Date :	19/12/2014		
Calibration Due Date :	22/06/2015		

1	2	3	4	5	6	7	8	9	10	12	13	14	15	16
ID	Date/Time	CH4 %	CO2 %	O2 %	BALANCE %	RESIDUAL NITROGEN %	CO ppm	SUCTION PRESSURE mb	ATMOS - PHERIC PRESSURE mb	VELOCITY	FLOW m3/hr	METHANE FLOW m3/hr	COMMENTS	VALVE POSITION %
FR_FLARE	09/03/2015 09:37	45	30.3	0.1	24.6	24.22	4	-30.26	1014					26
FR_BH001	09/03/2015 09:50	0.2	3.2	15.6	81	22.03	0	-1.01	1015					0
FR_BH002	09/03/2015 09:53	19.2	19.9	0.2	60.7	59.94	1	0.56	1019					0
FR_BH003	09/03/2015 09:55	32.1	19.2	0.1	48.6	48.22	2	0.17	1015					0
FR_BH004	09/03/2015 09:57	16.3	17.6	0.2	65.9	65.14	1	0.51	1019					0
FR_BH005	09/03/2015 10:00	29.1	19.5	0.3	51.1	49.97	1	0.67	1017					0
FR_BH006	09/03/2015 10:01	35.6	21.1	0	43.3	43.3	1	0.8	1017					10
FR_BH007	09/03/2015 10:03	39	20.8	0.2	40	39.24	2	-7.37	1017					10
FR_BH008	09/03/2015 10:08	38.8	23.3	0.1	37.8	37.42	1	1.73	1018					0
FR_MAN01	09/03/2015 10:09	35.9	21.2	0.1	42.8	42.42	1	-7.3	1023					20
FR_BH009	09/03/2015 10:15	0.2	7.1	8.1	84.6	53.98	1	0.05	1015					0
FR_BH010	09/03/2015 10:17	5.7	17.9	0	76.4	76.4	1	0.38	1017					0
FR_BH011	09/03/2015 10:19	35.4	20	0.2	44.4	43.64	1	-1.42	1019					10
FR_BH012	09/03/2015 10:20	32.9	20.1	0.1	46.9	46.52	2	-19.74	1017					0
FR_BH013	09/03/2015 10:23	21.6	23.4	0.1	54.9	54.52	1	3.38	1017					0
FR_BH014	09/03/2015 10:26	23.5	19.5	3.8	53.2	38.84	1	1.26	1019					0
FR_BH015	09/03/2015 10:28	32.5	18.7	0	48.8	48.8	1	0.32	1016					0
FR_BH016	09/03/2015 10:30	33.5	20.1	0	46.4	46.4	2	0.14	1015					10
FR_BH017	09/03/2015 10:31	13.4	17.5	0.1	69	68.62	1	0.27	1016					0
FR_BH018	09/03/2015 10:33	17.4	18.6	0.1	63.9	63.52	1	0.24	1017					0
FR_MAN02	09/03/2015 10:34	33.4	19.8	0.1	46.7	46.32	2	-8.5	1016					25
FR_C0032	09/03/2015 10:39	3.5	4.2	15.6	76.7	17.73	5	-0.15	1017				Power cut flare off	0
FR_LCP03	09/03/2015 10:42	56.1	35.5	0.8	7.6	4.58	1	-0.02	1016				Power cut flare off	2
FR_C0033	09/03/2015 10:45	37.8	27.8	0.1	34.3	33.92	5	-0.27	1016				Power cut flare off	0
FR_C0036	09/03/2015 10:47	10.1	19.3	0.5	70.1	68.21	4	-0.14	1017				Power cut flare off	0
FR_LM3/1	09/03/2015 10:48	14.8	22.5	0.3	62.4	61.27	1	-0.07	1016				Power cut flare off	0
FR_MAN05	09/03/2015 10:50	23.7	25.2	0.6	50.5	48.23	2	-0.29	1018				Power cut flare off	30
FR_GW001	09/03/2015 11:36	1.2	17.2	0.3	81.3	80.17	1	-0.02	1013				Power cut flare off	0
FR_GW003	09/03/2015 11:38	20.8	16	0.1	63.1	62.72	7	-0.15	1016				Power cut flare off	40
FR_GW005	09/03/2015 11:40	0.3	8	6	85.7	63.02	0	-0.24	1016				Power cut flare off	0
FR_GW007	09/03/2015 11:42	3.9	16.6	0.6	78.9	76.63	7	-0.07	1015				Power cut flare off	0
FR_GW009	09/03/2015 11:44	8.7	18.7	0	72.6	72.6	4	-0.05	1020				Power cut flare off	0
FR_GW011	09/03/2015 11:45	9.2	20.3	0.1	70.4	70.02	6	0.17	1017				Power cut flare off	0
FR_GW013	09/03/2015 11:47	0.1	13.2	4.4	82.3	65.67	0	0.36	1015				Power cut flare off	0
FR_GW014	09/03/2015 11:49	8	19.6	0.3	72.1	70.97	6	0.31	1017				Power cut flare off	0
FR_GW012	09/03/2015 11:51	5	17.4	0.4	77.2	75.69	6	0.65	1015				Power cut flare off	0
FR_GW010	09/03/2015 11:53	4.2	17.1	0.3	78.4	77.27	6	0.94	1017				Power cut flare off	0
FR_GW008	09/03/2015 11:55	0.1	11.3	6.6	82	57.05	0	0.19	1017				Power cut flare off	0
FR_GW006	09/03/2015 11:57	0.1	6.1	9.1	84.7	50.3	0	0.12	1017				Power cut flare off	0
FR_GW004	09/03/2015 11:59	8.3	14.8	1.9	75	67.82	2	0.03	1017				Power cut flare off	0
FR_GW002	09/03/2015 12:00	0.2	11.6	1.6	86.6	80.55	0	-0.31	1017				Power cut flare off	0

GAS FIELD MONITORING SHEET

CH4 Consultants

Site:	Ffridd Rasmus	Weather Conditions	Heavy rain
Date:	09/03/2015	Temperature °C	4 to 6
Name:	Steve Hindle	Total Flow Setting m³hr	230m ³ hr
Equipment Used :	GA 5000		
Serial No :	G500196		
Last Calibration Date :	19/12/2014		
Calibration Due Date :	22/06/2015		

1	2	3	4	5	6	7	8	9	10	12	13	14	15	16
ID	Date/Time	CH4 %	CO2 %	O2 %	BALANCE %	RESIDUAL NITROGEN %	CO ppm	SUCTION PRESSURE mb	ATMOS - PHERIC PRESSURE mb	VELOCITY	FLOW m3/hr	METHANE FLOW m3/hr	COMMENTS	VALVE POSITION %
FR_LM1/2	09/03/2015 12:03	5.1	13.5	5.1	76.3	57.02	4	-0.21	1017				Power cut flare off	0
FR_LCP01	09/03/2015 12:05	59.3	38.3	0	2.4	2.4	5	0.48	1017				Power cut flare off	10
FR_C0021	09/03/2015 12:08	49.7	24.7	0.2	25.4	24.64	5	-0.58	1016				Power cut flare off	2
FR_LM1/1	09/03/2015 12:10	59.4	38.3	0	2.3	2.3	7	0.94	1014				Power cut flare off	0
FR_BH019	09/03/2015 12:26	32.9	18.6	0.3	48.2	47.07	3	0.62	1017				Power cut flare off	0
FR_BH020	09/03/2015 12:27	10.9	8.7	11.9	68.5	23.52	3	0.91	1015				Power cut flare off	0
FR_BH021	09/03/2015 12:29	50.5	35.2	0.1	14.2	13.82	7	1.15	1016				Power cut flare off	25
FR_BH022	09/03/2015 12:30	50.1	34.7	0.2	15	14.24	7	2.24	1015				Power cut flare off	25
FR_BH023	09/03/2015 12:31	17.9	14	7.1	61	34.16	3	6.31	1010				Power cut flare off	0
FR_MAN03	09/03/2015 12:33	51.5	35.4	0.1	13	12.62	8	4.05	1017				Power cut flare off	30
FROLDGWM	09/03/2015 12:34	1.5	8.7	10.9	78.9	37.7	3	0.7	1016				Power cut flare off	0
FR_LM1/1	09/03/2015 13:30	59.6	37.4	0.3	2.7	1.57	6	1.26	1015				Power cut flare off	0
FR_C0024	09/03/2015 13:32	51.9	33.3	0.8	14	10.98	5	3.42	1012				Power cut flare off	0
FR_C0025	09/03/2015 13:34	27.6	23.6	0.5	48.3	46.41	3	2.39	1013				Power cut flare off	0
FR_C0035	09/03/2015 13:35	60.5	37.9	0	1.6	1.6	7	4.58	1014				Power cut flare off	50
FR_C0013	09/03/2015 13:37	41.3	19.5	0.3	38.9	37.77	3	2.5	1012				Power cut flare off	0
FR_C0014	09/03/2015 13:38	12.5	14.5	3.4	69.6	56.75	8	2.8	1015				Power cut flare off	0
FR_C0012	09/03/2015 13:39	18.5	18.9	0.5	62.1	60.21	3	2.14	1016				Power cut flare off	0
FR_C0011	09/03/2015 13:41	21.1	18.3	0.2	60.4	59.64	3	2.32	1014				Power cut flare off	0
FR_MAN04	09/03/2015 13:42	60.6	38	0	1.4	1.4	7	4.56	1018				Power cut flare off	50
FR_LM2/2	09/03/2015 13:44	60.7	38.1	0	1.2	1.2	8	1.4	1012				Power cut flare off	0
FR_C0022	09/03/2015 13:48	34.7	25.1	4.5	35.7	18.69	6	3.79	1013				Power cut flare off	0
FR_LCP02	09/03/2015 13:49	60.1	37.9	0	2	2	9	4.74	1013				Power cut flare off	50
FR_C0023	09/03/2015 13:51	61	37	0	2	2	9	4.19	1012				Power cut flare off	10
FR_LM2/1	09/03/2015 13:53	65.2	37.5	0	0	0	8	2.44	1014				Power cut flare off	10
FR_C0043	09/03/2015 13:57	62.8	35.9	0.2	1.1	0.34	10	4.99	1014				Power cut flare off	100
FR_C0044	09/03/2015 13:58	57	35.9	0	7.1	7.1	10	5.18	1013				Power cut flare off	75
FR_C0042	09/03/2015 14:00	56.9	36.1	0	7	7	9	5.04	1014				Power cut flare off	75
FR_C0045	09/03/2015 14:01	60.8	37.4	0	1.8	1.8	10	5.16	1012				Power cut flare off	100
FR_LCP4A	09/03/2015 14:02	63.1	39.6	0	0	0	8	5.18	1012				Power cut flare off	50
FR_C0053	09/03/2015 14:04	56.6	37.3	0	6.1	6.1	14	3.98	1013				Power cut flare off	100
FR_C0054	09/03/2015 14:05	61.6	39.8	0	0	0	11	4.63	1014				Power cut flare off	100
FR_MAN06	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											100	
FR_C0055	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											100	
FR_LCP4B	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											25	
FR_C0056	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											100	
FR_C0057	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											100	
FR_C0052	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											100	
FR_C0051	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											100	
FR_C0041	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											20	
FR_C0046	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											100	

GAS FIELD MONITORING SHEET

CH4 Consultants

Site:	Ffridd Rasus	Weather Conditions	Heavy rain	
Date:		09/03/2015		
Name:		Steve Hindle	Temperature °C	4 to 6
Equipment Used :		GA 5000		
Serial No :		G500196		
Last Calibration Date :		19/12/2014	Total Flow Setting m³hr	230m ³ hr
Calibration Due Date :	22/06/2015			

1	2	3	4	5	6	7	8	9	10	12	13	14	15	16
ID	Date/Time	CH4 %	CO2 %	O2 %	BALANCE %	RESIDUAL NITROGEN %	CO ppm	SUCTION PRESSURE mb	ATMOS - PHERIC PRESSURE mb	VELOCITY	FLOW m3/hr	METHANE FLOW m3/hr	COMMENTS	VALVE POSITION %
FR_C0034	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											50	
FR_C0031	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											0	
FR_MAN07	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											40	
FR_FLARE	09/03/2015 00:00	Gas readings not taken due to batteries run out on gas analyser and unable to recharge due to power cut.											31	



Appendix H

Meteorological Data



CYNGOR GWYNEDD - GWASANAETH TRIN GWASTRAFF

RAINFALL / WEATHER RECORD - FFRIDD RASUS LANDFILL SITE

COPY

MARCH 2015			RAINFALL				WIND		CLOUD DESCRIPTION	WEATHER DESCRIPTION
DATE	TIME		DAILY	MM.	MONTH TO DATE	MM.	M.P.H.			
2	08:15	A.M. / P.M.	13	MM.	13	MM.	20	M.P.H.	80%	COLD/WINDY 4°C
		A.M. / P.M.		MM.		MM.		M.P.H.		
3	08:10	A.M. / P.M.	0	MM.	13	MM.	11	M.P.H.	LITTLE CLOUD	DRY/SUNNY 4°C
4		A.M. / P.M.		MM.		MM.		M.P.H.		
5	14:15	A.M. / P.M.	10	MM.	13	MM.	11	M.P.H.	100%	DRY 8°C
6	13:55	A.M. / P.M.	0	MM.	13	MM.	8	M.P.H.	LITTLE CLOUD	DRY 10°C
7		A.M. / P.M.		MM.		MM.		M.P.H.		
8		A.M. / P.M.		MM.		MM.		M.P.H.		
9	10:00	A.M. / P.M.	13	MM.	26	MM.	17	M.P.H.	100%	RAIN 9°C
10	09:20 09:20	A.M. / P.M.	6	MM.	32	MM.	2	M.P.H.	100% LITTLE CLOUD	RAIN SUNNY 7°C
11	09:20	A.M. / P.M.	0	MM.	32	MM.	9	M.P.H.	100%	DRY 10°C
12	13:40	A.M. / P.M.	8	MM.	40	MM.	7	M.P.H.	100%	RAIN 11°C
13	13:20	A.M. / P.M.	18	MM.	58	MM.	13	M.P.H.	100%	DRY 7°C
14		A.M. / P.M.		MM.		MM.		M.P.H.		
15		A.M. / P.M.		MM.		MM.		M.P.H.		
16	08:45	A.M. / P.M.	0	MM.	58	MM.	7	M.P.H.	100%	DRY 6°C
17	09:00	A.M. / P.M.	0	MM.	58	MM.	7	M.P.H.	80%	DRY 6°C
18	10:00	A.M. / P.M.	0	MM.	58	MM.	10	M.P.H.	NO CLOUD	SUNNY 7°C
19		A.M. / P.M.		MM.		MM.		M.P.H.		
20		A.M. / P.M.		MM.		MM.		M.P.H.		
21		A.M. / P.M.		MM.		MM.		M.P.H.		
22		A.M. / P.M.		MM.		MM.		M.P.H.		
23		A.M. / P.M.		MM.		MM.		M.P.H.		
24	15:05	A.M. / P.M.	2	MM.	60	MM.	18	M.P.H.	PARTLY CLOUD	DRY 6°C
25	15:20	A.M. / P.M.	3	MM.	63	MM.	6	M.P.H.	NO CLOUD	SUNNY 7°C
26	13:40	A.M. / P.M.	10	MM.	73	MM.	22	M.P.H.	PARTLY CLOUD	SUNNY 10°C
27	13:50	A.M. / P.M.	0	MM.	73	MM.	9	M.P.H.	100%	DRY 9°C
28		A.M. / P.M.		MM.		MM.		M.P.H.		
29		A.M. / P.M.		MM.		MM.		M.P.H.		
30	11:00	A.M. / P.M.	15	MM.	88	MM.	9	M.P.H.	CLOUDY	DRY 9°C
31	13:45	A.M. / P.M.	13	MM.	101	MM.	15	M.P.H.	PARTLY CLOUD	DRY 5°C

RECEIVED
01 MARCH 2015

COPY

RAINFALL / WEATHER RECORD - FFRIDD RASUS LANDFILL SITE

FEBRUARY 2015		RAINFALL		WIND	CLOUD DESCRIPTION	WEATHER DESCRIPTION
DATE	HOUR	DAILY	MONTH TODATE			
2	09:40 A.M. / P.M.	6 MM.	6 MM.	4 M.P.H.	100%	LIGHT SNOW SHOWERS 0°
3	A.M. / P.M.	MM.	MM.	M.P.H.		
3	14:50 A.M. / P.M.	0 MM.	6 MM.	7 M.P.H.	NO CLOUD	SUNNY / COOL 6°
4	08:00 A.M. / P.M.	0 MM.	6 MM.	3 M.P.H.	NO CLOUD	SUNNY / COOL 0°
5	12:30 A.M. / P.M.	0 MM.	6 MM.	2 M.P.H.	LITTLE CLOUD	SUNNY 8°
6	A.M. / P.M.	MM.	MM.	M.P.H.		
7	A.M. / P.M.	MM.	MM.	M.P.H.		
8	A.M. / P.M.	MM.	MM.	M.P.H.		
9	12:00 A.M. / P.M.	0 MM.	6 MM.	1 M.P.H.	PATCHY CLOUD	DRY 5°
10	13:40 A.M. / P.M.	0 MM.	6 MM.	4 M.P.H.	100%	DRY 3°
11	08:30 A.M. / P.M.	0 MM.	6 MM.	0 M.P.H.	100%	DRY 4°
12	08:00 A.M. / P.M.	0 MM.	6 MM.	2 M.P.H.	100%	DRY 4°
13	07:35 A.M. / P.M.	0 MM.	6 MM.	11 M.P.H.	100%	DRY 8°
14	A.M. / P.M.	MM.	MM.	M.P.H.		
15	A.M. / P.M.	MM.	MM.	M.P.H.		
16	08:30 A.M. / P.M.	17 MM.	23 MM.	7 M.P.H.	100%	CLOUDY 7°
17	09:30 A.M. / P.M.	1 MM.	24 MM.	2 M.P.H.	LITTLE CLOUD	SUNNY / COOL 5°
18	A.M. / P.M.	MM.	MM.	M.P.H.		
19	10:50 A.M. / P.M.	45.9 MM.	33 MM.	M.P.H.	overcast	Rain
20	A.M. / P.M.	MM.	MM.	M.P.H.		
21	A.M. / P.M.	MM.	MM.	M.P.H.		
22	A.M. / P.M.	MM.	MM.	M.P.H.		
23	12:30 A.M. / P.M.	14 MM.	47 MM.	8 M.P.H.	PATCHY CLOUD	DRY 7°
24	A.M. / P.M.	MM.	MM.	M.P.H.		
25	A.M. / P.M.	MM.	MM.	M.P.H.		
26	A.M. / P.M.	MM.	MM.	M.P.H.		
27	10:50 A.M. / P.M.	18 MM.	65 MM.	5 M.P.H.	NO CLOUD	SUNNY 7°
28	A.M. / P.M.	MM.	MM.	M.P.H.		
29	A.M. / P.M.	MM.	MM.	M.P.H.		
30	A.M. / P.M.	MM.	MM.	M.P.H.		
31	A.M. / P.M.	MM.	MM.	M.P.H.		

RECEIVED
03 MAR 2015

CYNGOR GWYNEDD - GWASANAETH TRIN GWASTRAFF

RAINFALL / WEATHER RECORD - FFRIDD RASUS LANDFILL SITE

JANUARY 2015		RAINFALL		WIND	CLOUD DESCRIPTION	WEATHER DESCRIPTION
DATE	HOUR	DAILY	MONTH TODATE			
1	A.M. / P.M.	MM.	MM.	M.P.H.		
2	A.M. / P.M.	22 MM.	22 MM.	M.P.H.		
3	A.M. / P.M.	22 MM.	MM.	M.P.H.		
4	A.M. / P.M.	MM.	MM.	M.P.H.		
5	10:00 A.M. / P.M.	15 MM.	37 MM.	M.P.H.		
6	11:30 A.M. / P.M.	5 MM.	42 MM.	12 M.P.H.	100%	DRY 10°C
7	A.M. / P.M.	MM.	MM.	8 M.P.H.	PATCHY CLOUD	DRY 8°C
8	08:45 A.M. / P.M.	18 MM.	60 MM.	2 M.P.H.	100%	DRY 7°C
9	09:00 A.M. / P.M.	5 MM.	65 MM.	15 M.P.H.	PATCHY CLOUD	DRY 9°C
10	A.M. / P.M.	MM.	MM.	M.P.H.		
11	A.M. / P.M.	MM.	MM.	M.P.H.		
12	13:50 A.M. / P.M.	16 MM.	81 MM.	4 M.P.H.	100%	DRY 8°C
13	14:35 A.M. / P.M.	2 MM.	83 MM.	13 M.P.H.	PATCHY CLOUD	DRY/COOL 6°C
14	13:00 A.M. / P.M.	1 MM.	84 MM.	23 M.P.H.	100% CLOUD	DRY 6°C
15	12:30 A.M. / P.M.	13 MM.	97 MM.	7 M.P.H.	PATCHY CLOUD	DRY 7°C
16	10:00 A.M. / P.M.	1 MM.	98 MM.	11 M.P.H.	PATCHY CLOUD	SHOWERS 5°C
17	A.M. / P.M.	MM.	MM.	M.P.H.		
18	A.M. / P.M.	MM.	MM.	M.P.H.		
19	14:00 A.M. / P.M.	2 MM.	100 MM.	2 M.P.H.	80%	DRY/COOL 4°C
20	12:00 A.M. / P.M.	0 MM.	100 MM.	0 M.P.H.	100%	DRY/COOL 4°C
21	10:00 A.M. / P.M.	2 MM.	102 MM.	1 M.P.H.	70%	DRY/COOL 4°C
22	09:00 A.M. / P.M.	0 MM.	102 MM.	2 M.P.H.	LITTLE CLOUD	SUNNY/COOL 2°C
23	11:00 A.M. / P.M.	0 MM.	102 MM.	16 M.P.H.	100%	DRY 6°C
24	A.M. / P.M.	MM.	MM.	M.P.H.		
25	A.M. / P.M.	MM.	MM.	M.P.H.		
26	08:00 A.M. / P.M.	15 MM.	117 MM.	9 M.P.H.	100%	DRY 6°C
27	A.M. / P.M.	MM.	MM.	M.P.H.		
28	14:30 A.M. / P.M.	9 MM.	126 MM.	30 M.P.H.	100%	DRY/WINDY 5°C
29	10:00 A.M. / P.M.	2 MM.	128 MM.	29 M.P.H.	100%	SHOWERS/COOL 4°C
30	12:15 A.M. / P.M.	9 MM.	137 MM.	12 M.P.H.	100%	SHOWERS 6°C
31	A.M. / P.M.	MM.	MM.	M.P.H.		

