AMGEN CYMRU	
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Document	Annual Report for Bryn Pica Landfill Site EP DP3732SQ
Date	29.01.24
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Overview

Amgen Cymru has carried out a review of the results of environmental monitoring activities undertaken at the Bryn Pica landfill site, during 2023. The submission to Natural Resources Wales (NRW) of a periodic review of environmental monitoring results is required under Section 4.2 of the sites Environmental Permit.

This report constitutes Amgen's submission under 4.2 (a) of the Environmental Permit for the Bryn Pica Landfill Site and includes analysis of results of the following monitoring tasks:

- Leachate Monitoring
- Surface Water Quality Monitoring
- Groundwater Quality Monitoring
- Landfill Gas Monitoring

Leachate Monitoring

Throughout the period Jan 23 – Dec 23 Amgen Cymru carried out leachate monitoring at 7 fixed points, representing various aspects of leachate generation at Bryn Pica. During the current reporting period a total of 88 leachate samples were collected from Bryn Pica and subject to third party laboratory analysis. A summary of results is provided and have been assessed to be consistent with the previous observations at the site and published UK averages for non-hazardous municipal landfill sites.

Amgen Cymru staff have continued to undertake monthly dip measurement of the leachate level residing within the landfill containment cells at the Bryn Pica Landfill. The results show that the leachate levels within the landfill site continue to be maintained within the 1m (above the basal liner) required by the Environmental Permit for the site.

Groundwater Monitoring

Throughout the period Jan 23 – Dec 23 Amgen Cymru carried out groundwater monitoring at 4 fixed points; 1 location up-gradient of the landfill and 3 down-gradient.

During the reporting period, a total of 42 groundwater samples were collected from Bryn Pica and subject to third party laboratory analysis. A visual summary of results is provided within the report.

In respect of Ammonia (NH_4 as N), monitoring results indicate there were six occasions when samples returned levels in excess of the permitted compliance threshold of 1.5mg/l. These are as follows:

Monitoring Location	Date	NH_4 as N Value Reported
GW 5	May-23	6.3 mg/l
	Oct-23	8.46 mg/l
GW 6	May-23	4.47 mg/l
	Oct-23	3.14 mg/l
GW 7	May-23	1.93 mg/l
	Sep-23	6.7 mg/l

It is relevant to note that the upgradient groundwater monitoring location, GW0705 and up-stream surface water sample point, SW 1 also illustrated higher than normal levels of NH_4 as N, on several occasions. During the reporting period, samples obtained from these two monitoring locations reported concentrations of NH_4 as N greater than 1.5 mg/l (as shown in the following table).

Monitoring Location	Date	NH_4 as N Value Reported
GW0705	Mar-23	2.7
	May-23	6.3 mg/l
	Sep-23	1.8 mg/l
SW 1	Oct-23	9.13 mg/l

It is not clear whether the compliance failures identified for GW 5, GW 6 and GW 7, represent a reduction in the environmental performance of waste management operations at Bryn Pica. The following observations are made:

- A very high NH_4 as N return for SW 1 (Oct-23) is somewhat suspicious in terms of accuracy. The sample location is a natural mountain spring situated at an elevation which is considerably above the landfill site, with no realistic pathway for contamination. This outcome coincided with failures in groundwater monitoring samples taken during the same monitoring round.

- Upgradient groundwater monitoring borehole (GW0705) illustrated three results that were in excess of the 1.5 mg/l compliance threshold. This may be an indication that groundwater quality in general may have been reduced at certain periods throughout 2023.

- Considering the elevated levels of NH_4 as N in the context of the wider sample results, there is no indication of other contaminants associated with landfill leachate. In respect of Chloride, which is a key leachate contaminant; none of the samples that reported higher levels of NH_4 as N, indicated elevated concentrations of Chloride. This does lead to a suspicion that the external laboratory analysis for NH_4 as N may not be a simple indication of direct contamination with landfill leachate.

Amgen Cymru has taken action to investigate the source of non-compliance identified. Monitoring results for Dec-23 and Jan-24 have been reviewed and do not illustrate any non-compliance. In addition blank samples (sample taken from a potable water source) have been sent with each round of monitoring in an attempt to identify potential spurious third-party analytical results.

Surface Water Monitoring

Throughout the period Jan 23 – Dec 23 Amgen Cymru carried out surface water monitoring at 7 fixed points; 2 location up-stream of the landfill and 5 down-stream. During the reporting period a total of 64 surface water samples were collected from Bryn Pica and subject to third party laboratory analysis.

The quality of surface water observed on and around the site is of a good standard. Throughout 2023 there was no record of an exceedance of any permitted threshold and no indication of impact from the landfill.

Landfill Gas Monitoring

Throughout the period Jan 23 – Dec 23 Amgen Cymru carried out subsurface landfill gas monitoring at 15 fixed ground gas monitoring boreholes. In total, 180 samples were measured using the handheld gas analyser GA5000.

It has previously been noted that the Bryn Pica Landfill has two areas of subsurface landfill gas migration. A small degree of migration is noted on the southwestern margin of the phase 1 landfill, near to the location of gas wells BYPP1203 and 1204. This is reasonably limited in nature and due to the lack of any potential receptors near to this locality it is not considered to be of concern. During 2023 analysis of gas monitoring location GMBH06-06 indicated the presence of Methane in the range 1.2 – 36.0 % CH4 by Vol.

The landfill gas risk assessment for the Bryn Pica Landfill Site has not indicated any potential receptors to landfill gas migration in a westerly direction from the location of gas monitoring borehole GMBH06-06 (not identified with 750m). Furthermore, a

significant height different exists between the site and the nearest receptor and in this respect the potential risk associated with the subsurface landfill gas migration in this direction is considered to be very low.

a) *A review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the risk assessments submitted with the Application.*

Bryn Pica Environmental Monitoring Annual Report
Landfill Leachate Monitoring
Jan-23 to Dec-23

Overview			
Total Number over samples	88	Comments	Restricted acces to some of the leachate sample points due to location of tipping operations.

Key Chemical Determinands						
		Units	Count	Maximum	Minimum	Average
pH	P1L1		12	8.25	7.82	7.95
	P2AL1		12	8.16	7.69	7.83
	P2CL1		9	8.55	7.58	8.01
	LD1		12	8.52	7.5	8.14
	P3BSWR		9	7.89	7.54	7.75
	P4AL2		12	7.86	7.62	7.78
	P4BSWR		10	7.68	7.38	7.38
	P5A		12	7.68	7.33	7.53
Ammonia (NH4 as N)	P1L1	mg/l	12	1280	667	977
	P2AL1		12	1210	45	624
	P2CL1		9	1920	642	1502
	LD1		12	746	50	433
	P3BSWR		9	1830	1340	1519
	P4AL2		12	1700	1210	1471
	P4BSWR		10	1380	264	628
	P5A		12	1170	278	617

Key Chemical Determinands						
		Units	Count	Maximum	Minimum	Average
Electrical Conductivity	P1L1	µS/cm^3	12	12,260	10,780	11,300
	P2AL1		12	10,830	3,256	7,798
	P2CL1		9	20,880	17	15,859
	LD1		12	10,670	2,356	5,989
	P3BSWR		9	18,970	15,530	17,311
	P4AL2		12	18,560	17	16,407
	P4BSWR		10	8,831	5,394	7,465
	P5A		12	12,720	3,894	7,996
Zinc	P1L1	ug/l	4	12	N/D	N/A
	P2AL1		4	55	21	38
	P2CL1		4	800	89	341
	LD1		4	59	20	38
	P3BSWR		3	67	41	53
	P4AL2		4	55	N/D	32
	P4BSWR		4	160	83	113
	P4B		4	55	113	30
Cadmium	P1L1	mg/l	4	N/D	N/D	N/A
	P2AL1		4	N/D	N/D	N/A
	P2CL1		4	N/D	N/D	N/A
	LD1		4	N/D	N/D	N/A
	P3BSWR		3	N/D	N/D	N/A
	P4AL2		4	N/D	N/D	N/A
	P4BSWR		4	N/D	N/D	N/A
	P5A		4	N/D	N/D	N/A

General Comments:	1. Leachate contamination comparable to previous years and typical of landfill leachate from non-hazardous municipal waste landfill.
	2. No non-compliance with any threshold stated within the Environmental Permit.

Bryn Pica Environmental Monitoring Annual Report
Groundwater Monitoring
Jan-23 to Dec-23

Overview			
Total Number of samples	42	Comments	Increase (35%) in the total number of groundwater samples obtained and tested. Access to GW 7 secured with landowner after negociation regarding COVID access restrictions. Dry period in Jun / Jul 2023 results in no samples obtained from GW 5.

		Monitoring ID	Count	Max	Min	Average	Trigger Level	No. of times Exceeded
Ammoniacal Nitrogen (NH4 as N) mg/l	Upgradient	GMBH07 05	12	6.34	N/D	0.93	N/A	N/A
	Downgradient	GW 5	9	8.46	N/D	1.69	1.5	2
		GW 6	11	4.47	N/D	0.79	1.5	2
		GW 7	10	6.7	N/D	0.88	1.5	2
Chloride mg/l	Upgradient	GMBH07 05	12	18.0	13.0	15.1	N/A	N/A
	Downgradient	GW 5	9	10.0	7.0	8.1	37.0	0
		GW 6	11	10.0	7.0	7.6	37.0	0
		GW 7	10	20.0	12.0	15.5	37.0	0
Zinc ug/l	Upgradient	GMBH07 05	4	6	5	6	N/A	N/A
	Downgradient	GW 5	3	24	N/D	10	320	0
		GW 6	4	5	2	4	320	0
		GW 7	4	27	6	15	320	0
Cadmium ug/l	Upgradient	GMBH07 05	4	N/D	N/D	N/D	N/A	N/A
	Downgradient	GW 5	3	N/D	N/D	N/D	0.1	0
		GW 6	4	N/D	N/D	N/D	0.1	0
		GW 7	4	N/D	N/D	N/D	0.1	0
Mercury mg/l	Upgradient	GMBH07 05	4	N/D	N/D	N/D	N/A	N/A
	Downgradient	GW 5	3	N/D	N/D	N/D	0.01	0
		GW 6	4	N/D	N/D	N/D	0.01	0
		GW 7	4	N/D	N/D	N/D	0.01	0

		Monitoring ID	Count	Max	Min	Average	Trigger Level	Number of Times Exceeded
Mecroprop mg/l	Upgradient	GMBH07 05	3	N/D	N/D	N/D	N/A	N/A
	Downgradient	GW 5	3	N/D	N/D	N/D	0.04	0
		GW 6	3	N/D	N/D	N/D	0.04	0
		GW 7	3	N/D	N/D	N/D	0.04	0
Naphthalene mg/l	Upgradient	GMBH07 05	4	N/D	N/D	N/D	N/A	N/A
	Downgradient	GW 5	2	N/D	N/D	N/D	0.1	0
		GW 6	3	N/D	N/D	N/D	0.1	0
		GW 7	4	N/D	N/D	N/D	0.1	0

Notes	
	N/D - Not Detected
	N/A - Not Applicable
	N/R - No Record

Comments:	
	6 breaches of Ammonia (NH4 as N) trigger level across 3 downgradient monitoring points (GW 5, GW 6 and GW 7). Average values for 2023 below the threshold of 1.5mg/l, except GW with an annual average of 1.7 mg/l. Elevated levels also noted in upgradient monitoring borehole GW07BH5 (maximum - 6.34mg/l, annual average 0.9mg/l. Further investigation to be undertaken.
	Increase level of analysus for Mercury, Mecroprop and Napthalene compared to 2022 reporting period. No positive identification of any of the above referenced substances down to very low levels of detection.

Bryn Pica Environmental Monitoring Annual Report
Surface Water Monitoring
Jan-23 to Dec-23

Overview			
Total number of samples.	64	Comments	39% increase in sample yeild compared to previous reporting period (2022 - 41 samples obtained from 7 monitoring points. SW 11 and 12 again remain predominantly dry during summer months.

Key Chemical Determinands							
		Units	Count	Maximum	Minimum	Average	Non-Compliance
pH	Upstream		23	8.05	6.75	7.45	N/A
	Downstream		41	8.59	6.21	7.86	0
Conductivity @20C	Upstream	mg/l	23	258	70	142	N/A
	Downstream		41	1306	134	703	N/A
Chemical Oxygen Demand	Upstream	mg/l	23	18	N/D	4	N/A
	Downstream		41	25	N/D	6	0
Ammoniacal Nitrogen (NH4 as N)	Upstream	µS/cm^3	23	9.13	N/D	0.49	N/A
	Downstream		41	8.02	N/D	0.32	0
Chloride	Upstream	mg/l	23	10	4	6	N/A
	Downstream		40	22	8	12	0
Suspended Solids	Upstream	mg/l	23	60	N/D	3	N/A
	Downstream		41	46	N/D	3	0

General Comments:	1. Water qualtiy reported in samples taken upgradient comparative with downgradient, indicating no descernable impact from waste management operation at Bryn Pica.
	2. No breach of any emissions limit specified in site's environmental permit.

Table: Summary of Sub-Surface Landfill Gas Monitoring (Outside Waste) carried out at Bryn Pica Landfill Site Jan 23 - Dec 23.

Determinant	GMBH 7						GMBH06-01			GMBH06-02		
	Max	Min	Ave				Max	Min	Ave	Max	Min	Ave
CH4 (% by Vol)	0.2	0.0	0.1				0.2	0.0	0.1	7.2	0.0	1.0
CO2 (% by Vol)	1.4	0.0	0.4				0.6	0.0	0.3	5.8	0.0	1.5
O2 (% by Vol)	22.4	19.8	21.2				21.8	20.7	21.3	22.2	1.3	16.3
CO (ppm)	0	0	0				0	0	0	0	0	0
H2S (ppm)	0	0	0				0	0	0	0	0	0
Pressure (mbar)	0.1	-0.1	0.0				0.9	-1.6	0.0	0.1	-0.2	0.0

Determinant	GMBH06-03			GMBH06-05			GMBH06-06			GMBH06-07		
	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave
CH4 (% by Vol)	13.1	0.0	2.6	0.2	0.2	0.1	36.0	1.2	23.8	0.2	0.0	0.1
CO2 (% by Vol)	7.4	0.1	2.5	4.3	0.0	1.7	21.5	1.9	13.9	4.3	0.0	1.8
O2 (% by Vol)	22.2	0.3	15.7	21.7	14.3	19.5	19.5	0.3	6.1	21.3	0.1	11.0
CO (ppm)	1	0	0	0	0	0	1	0	0	1	0	0
H2S (ppm)	0	0	0	0	0	0	1	0	0	0	0	0
Pressure (mbar)	0.1	-0.1	0.0	0.4	-0.1	0.0	0.2	-0.1	0.0	0.1	-0.2	0.0

Determinant	GMBH06-08			GMBH06-09			GMBH06-10			GMBH06-11		
	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave
CH4 (% by Vol)	0.2	0.0	0.1	0.2	0.0	0.1	0.2	0.0	0.1	0.2	0.0	0.1
CO2 (% by Vol)	2.6	0.0	0.8	4.5	0.0	1.9	2.6	0.2	1.2	1.4	0.1	0.8
O2 (% by Vol)	22.1	14.8	19.7	22.1	16.9	19.7	21.8	18.6	20.4	21.8	18.6	20.8
CO (ppm)	0	0	0	0	0	0	0	0	0	1	0	0
H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0
Pressure (mbar)	0.1	-0.1	0.0	0.1	-0.1	0.0	0.1	-0.1	0.0	0.2	-0.1	0.0

Determinant							GMBH07-04			GMBH07-05		
							Max	Min	Ave	Max	Min	Ave
CH4 (% by Vol)							0.2	0.0	0.1			
CO2 (% by Vol)							2.7	0.0	0.9			
O2 (% by Vol)							21.8	17.7	20.8			
CO (ppm)							0	0	0			
H2S (ppm)							0	0	0			
Pressure (mbar)							0.3	-0.2	0.0			

Determinant	GMBH08-01						GMBH09-01			GMBH12-01		
	Max	Min	Ave				Max	Min	Ave	Max	Min	Ave
CH4 (% by Vol)	32.8	20.8	26.0				0.2	0.0	0.1	0.2	0.0	0.1
CO2 (% by Vol)	17.2	14.0	15.6				4.2	0.0	1.2	0.3	0.0	0.1
O2 (% by Vol)	4.1	0.4	2.4				22.8	-12.4	19.6	22.6	20.6	21.5
CO (ppm)	1	0	0				1	0	0	0	0	0
H2S (ppm)	4	0	1				0	0	0	0	0	0
Pressure (mbar)	-7.2	-41.4	-25.7				0.1	-0.1	0.0	0.5	-0.1	0.1

b) Where the Operator's management system encompasses annual improvement targets, a summary report of the previous year's progress against such targets.
No improvement targets set for 2023. No update to report.

c) The energy consumed at the site, reported in the format set out in Schedule 5 Table S5.3.

d) The water consumed at the site, reported in the format set out in Schedule 5 Table S5.2.

S5.3 Performance Parameters 2023			
Parameter	**Frequency of Assessment**	**Annual Total**	**Unit**
Potable water use	Annually	**N/R**	Cubic meters
Energy used	Annually	**317.08**	MW of electricity
Non potable water use	Annually	**0**	Cubic meters

e) The annual production / treatment set out in Schedule 5 Table S5.2.

Table S5.2: Annual (2023) Production / Treatment	
Leachate:	**Cubic meters/year**
Disposed of off-site;	48,593
Disposed of to any onsite effluent treatment plant;	0
Recirculated into the waste mass;	0
Surface water and / or groundwater:	**Cubic meters/year**
Disposed of off-site;	n/r
Disposed of to any onsite effluent treatment plant;	0
Landfill Gas:	**Normalised cubic meters/year**
Combustion in flares (estimated)	285,077
Combustion in gas engines (estimated)	3,349,558
Other methods of gas utilisation;	0

f) The annual production / treatment set out in Schedule 5 Table S5.2.

There has been no evidence of contamination at the site during the reporting period and there have been no decontamination activities to report.

g) The topographical survey required by condition 3.6.3 other than those submitted as part of a CQA validation report.
Provided below.

PHASE 3B
AVERAGE LEVEL :
316.049M

PHASE 3A
AVERAGE LEVEL :
311.133M

PHASE 2C
AVERAGE LEVEL :
306.983M

INCOMPLETE PHASE 4 CAPPED AREA

PHASE 2B
AVERAGE LEVEL :
299.248M

PHASE 2A
AVERAGE LEVEL :
286.137M

PHASE 5A
CURRENT TIPPING
OPERATIONS

N

Notes:

Legend

- Settlement Section Line
- Phase 2A Capped & Restored Area
- Phase 2B Capped & Restored Area
- Phase 2C Capped & Restored Area
- Phase 3A Capped & Restored Area
- Phase 3B Capped & Restored Area
- Phase 4A Capped & Restored Area
- Phase 4B Active Cell Area

Client:

AMGEN Cymru Ltd

Job Title: Bryn Pica Waste Management Facility
Annual Report 2023

Drawing Title: Annual Settlement Survey 2023

Drawing No.:	AC2024/ENV/03/001	Revision:	-
Scale:	1 : 1000	Sheet size:	A1

Rev.	Description	Date
-	-	-

Drawn by:	APW	Checked by:	LF
Date:	31 01 2024	Date:	31 01 2024

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Client: AMGEN Cymru Ltd	Rev. -	Description -	Date -
Job Title: BRYN PICA WASTE MANAGEMENT FACILITY ANNUAL REPORT 2023	Drawn by: APW	Checked by: APW	
Drawing Title: TYPICAL SECTION THROUGH PHASES 2A, 2B, 2C, 3A, 3B & 4A SHOWING SETTLEMENT CHARACTERISTICS	Date: 31 01 2024	Date: 31 01 2024	
Drawing No.: AC2024/ENV/03/002	Revision: -	Notes:	
Scale: 1 : 750	Sheet size: A1		

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h) The volumetric difference (reported in cubic meters) between the most recent topographical survey and the previous annual topographical survey. *i) An assessment of the settlement behaviour of the landfill body based on the difference between the most recent topographical survey and the previous annual topographical survey for the areas of the landfill, which did not receive waste between the surveys.* *j) A calculation of the remaining capacity (reported in cubic meters) derived from the pre-settlement contours and the most recent topographical survey.*
Please see following void-space report.

Introduction

This document provides information required under items (h), (i) and (j) of Section 4.2 of the Bryn Pica Landfill Site PPC Permit (No. DP3732SQ), which states:

A report or reports on the performance of the Activities over the previous year shall be submitted to the Agency by the 31st January (or other date agreed in writing by the Agency) each year. The reports shall include as a minimum:

(h) the volumetric difference (reported in cubic metres) between the most recent topographical survey and the previous annual topographic survey (i.e. the additional volume of the landfill void that is occupied by waste);

(i) an assessment of the settlement behaviour of the landfill body based n the difference survey for the areas of the landfill which did not receive waste between the surveys;

(j) a calculation of the remaining capacity (reported in cubic metres) derived from the pre-settlement contours and the most recent topographical survey.

Item h – Volumetric Difference

The volumetric difference calculated between the topographical surveys taken at Bryn Pica in Jan 2023 and Dec 2023 gives a fill volume during that period of **12,320 cubic meters**.

Item i – Settlement Behaviour

The table on the next page an assessment of the settlement behaviour of the landfill body based on the difference between annual topographical surveys. Also please find Drawing No.AC2024/ENG/03/002 (included in settlement Behaviour Table attached) to demonstrated the settlement behaviour.

Item j – Calculation of the Remaining Void Space

The remaining capacity of the landfill is based on the December 2022 Phase 5A void survey, and the proposed basal design as submitted in the PPC, compared with the agreed Pre settlement Waste Contours prepared for the PPC.

The remaining void calculated for the Bryn Pica Landfill Site is **2,785,190 cubic meters.**

Settlement Behaviour Table

		Restored Waste Cell Areas					
		Phase 4A	Phase 3B	Phase 3A	Phase 2C	Phase 2B	Phase 2A
2024	Average Waste Level	N/A	316.049	311.133	306.983	299.248	286.137
	Average Waste Thickness		45.337	39.34	34.218	25.45	11.418
	Percentage Difference		0.2	-0.1	0.2	0.1	0.0
2023	Average Waste Level	N/A	316.131	311.107	307.036	299.264	286.141
	Average Waste Thickness		45.419	39.31	34.271	25.47	11.422
	Percentage Difference		0.1	-0.2	0.1	0.1	0.0
2022	Average Waste Level	N/A	316.159	311.024	307.058	299.294	286.137
	Average Waste Thickness		45.447	39.23	34.293	25.50	11.418
	Percentage Difference		0.0	0.2	0.0	0.0	0.2
2021	Average Waste Level	316.94	316.18	311.095	307.071	299.294	286.156
	Average Waste Thickness	44.56	45.468	39.30	34.306	25.50	11.437
	Percentage Difference	0.5	0.0	0.1	0.1	0.1	0.1
2020	Average Waste Level	317.145	316.196	311.125	307.109	299.328	286.162
	Average Waste Thickness	44.76	45.484	39.33	34.344	25.53	11.443
	Percentage Difference	0.8	0.2	-0.4	0.1	0.2	0.0
2019	Average Waste Level	317.262	316.227	311.018	307.165	299.398	286.189
	Average Waste Thickness	44.881	45.515	39.225	34.400	25.601	11.470
	Percentage Difference	0.5	0.1	-0.1	-0.1	-0.1	-0.3
2018	Average Waste Level	317.493	316.284	310.985	307.145	299.376	286.158
	Average Waste Thickness	45.112	45.572	39.192	34.380	25.579	11.439
	Percentage Difference	0.4	0.1	0.1	0.2	0.2	0.1
2017	Average Waste Level	317.672	316.331	311.022	307.214	299.419	286.169
	Average Waste Thickness	45.29	45.62	39.23	34.45	25.62	11.45
	Percentage Difference	0.5	0.2	0.3	0.2	0.3	0.4
2016	Average Waste Level	317.89	316.43	311.13	307.28	299.49	286.21
	Average Waste Thickness	45.51	45.72	39.33	34.52	25.70	11.49
	Percentage Difference	0.5	0.5	-2.3	0.3	0.4	0.2
Feb-15	Average Waste Level	317.89	316.67	310.26	307.39	299.61	286.23
	Average Waste Thickness	45.51	45.96	38.46	34.62	25.81	11.52
	Percentage Difference	1.2	0.5	-0.9	0.2	0.1	-0.3
Mar-14	Average Waste Level	318.46	316.89	309.90	307.46	299.64	286.20
	Average Waste Thickness	46.08	46.18	38.11	34.70	25.84	11.48
	Percentage Difference		0.8	0.0	0.4	0.4	0.6
Mar-13	Average Waste Level		317.27	309.91	307.60	299.74	286.27
	Average Waste Thickness		46.55	38.12	34.83	25.95	11.55
	Percentage Difference			2.0	0.3	0.4	0.2
Feb-12	Average Waste Level			310.69	307.71	299.84	286.30
	Average Waste Thickness			38.89	34.94	26.04	11.58
	Percentage Difference			1.0	0.4	0.2	-0.6

Jan-11	Average Waste Level			311.06	307.86	299.90	286.23
	Average Waste Thickness			39.27	35.10	26.10	11.51
	Percentage Difference			0.9	0.4	0.1	0.5
Jan-10	Average Waste Level			311.43	307.99	299.92	286.29
	Average Waste Thickness			39.64	35.23	26.13	11.57
	Percentage Difference			1.5	1.0	1.3	0.8
Dec-09	Average Waste Level			312.02	308.36	300.26	286.38
	Average Waste Thickness			40.23	35.59	26.47	11.67
	Percentage Difference			1.8	-3.3	0.2	21.0
Jan-08	Average Waste Level			312.75	307.22	300.32	289.48
	Average Waste Thickness			40.96	34.46	26.52	14.76
	Percentage Difference				4.4	1.4	-1.3
Jan-07	Average Waste Level				308.80	300.69	289.29
	Average Waste Thickness				36.04	26.89	14.58
	Percentage Difference					3.1	-0.4
Jan-06	Average Waste Level					301.55	289.23
	Average Waste Thickness					27.75	14.51
	Percentage Difference					2.4	2.8
Jan-05	Average Waste Level					302.24	289.65
	Average Waste Thickness					28.44	14.93
	Percentage Difference					-9.1	-12.3
Feb-04	Average Waste Level					299.86	288.02
	Average Waste Thickness					26.1	13.3
Overall Difference		-1.52	-1.22	-1.619	-1.818	-2.991	-3.511
Assumed Difference (Average Base Level)		272.381	270.712	271.793	272.765	273.797	274.719

Restoration soils removed to expose tie-in edge.

Average level influenced by haulage road on capped area.

Level prior to restoration.

Restored level.

k) The compliance testing undertaken in the period.

The non-hazardous commercial municipal waste accepted at Bryn Pica over the previous 12 months is not suitable for compliance testing and in this respect, none has been carried out.

Compliance testing was undertaken on waste glass fines accepted at the landfill during the period. This was limited to Loss on Ignition for the purpose of landfill tax. Results were reported to the Welsh Revenue Authority and adjustment made to landfill tax. Results can be provided if required. A list of tests undertaken during 2023 is provided below.

Amgen Cymru - Result of compliance testing undertaken on 'lower rated' material disposed of at the Bryn Pica Landfill during the period 01.01.23 to 31.12.23

Date	Ticket No	Sample Ref	Date Sent	Lab Ref	Date Returned	Result %	Comment
17/05/2023	79227	PGF170523CE	18/05/23	23/04880	01/06/23	4.9	Pass
18/05/2023	79270	PGF180523CE	23/05/23	23/05044	07/06/23	9.7	Pass
18/05/2023	79328	PGF180523CE	23/05/23	23/05044	07/06/23	13.8	Initial "A" Failure - "B Sample" Failure on Retest
19/05/2023	79390	PGF190523CE	23/05/23	23/05044	07/06/23	7.0	Pass
19/05/2023	79427	PGF190523CE	23/05/23	23/05044	07/06/23	10.0	Pass
22/05/2023	79492	PGF220523CE	23/05/23	23/05044	07/06/23	8.7	Pass
22/05/2023	79523	PGF220523CE	23/05/23	23/05044	07/06/23	11	Failure - WRA Notified - PreQ Reviewed
23/05/2023	79627	PGF230523CE	25/05/23	23/05173	07/06/23	8.9	Pass
23/05/2023	79659	PGF230523CE	25/05/23	23/05173	07/06/23	6.8	Pass
24/05/2023	79729	PGF240523CE	25/05/23	23/05173	07/06/23	11.4	Failure - WRA Notified - PreQ Reviewed
24/05/2023	79782	PGF240523CE	25/05/23	23/05173	07/06/23	6.4	Pass
25/05/2023	79811	PGF250523CD	30/05/23	23/05304	07/06/23	8.3	Pass
25/05/2023	79894	PGF250523CD	30/05/23	23/05304	07/06/23	6.2	Pass
26/05/2023	79927	PGF260523CD	30/05/23	23/05304	07/06/23	6.4	Pass
26/05/2023	79994	PGF260523CD	30/05/23	23/05304	07/06/23	8.4	Pass
30/05/2023	80133	PGF300523CD	01/06/23	23/05379	15/06/23	9.7	Pass
30/05/2023	80233	PGF300523CD	01/06/23	23/05379	15/06/23	10.6	Failure - WRA Notified - PreQ Reviewed
31/05/2023	80259	PGF310523CD	01/06/23	23/05379	15/06/23	9.2	Pass
31/05/2023	80302	PGF310523CD	01/06/23	23/05379	15/06/23	8.9	Pass
01/06/2023	80377	PGF010623CD	01/06/23	23/05379	15/06/23	11.2	Failure - WRA Notified - PreQ Reviewed
01/06/2023	80460	PGF010623CD	06/06/23	23/05573	15/06/23	20.5	Failure - WRA Notified - PreQ Reviewed
02/06/2023	80557	PGF020623CD	06/06/23	23/05573	15/06/23	21.9	Failure - WRA Notified - PreQ Reviewed
02/06/2023	80607	PGF020623CD	06/06/23	23/05573	15/06/23	18.1	Failure - WRA Notified - PreQ Reviewed
05/06/2023	80636	PGF050623CD	06/06/23	23/05573	15/06/23	6.6	Pass
05/06/2023	80694	PGF050623CD	06/06/23	23/05573	15/06/23	8.3	Initial "A" Failure - "B Sample" Pass on Retest
06/06/2023	80795	PGF060623CD	08/06/23	23/05689	28/06/23	21.3	Failure - WRA Notified - PreQ Reviewed
06/06/2023	80855	PGF060623CD	08/06/23	23/05689	28/06/23	11.4	Failure - WRA Notified - PreQ Reviewed
07/06/2023	80872	PGF070623CD	08/06/23	23/05689	28/06/23	14.6	Failure - WRA Notified - PreQ Reviewed
07/06/2023	80909	PGF070623CD	08/06/23	23/05689	28/06/23	19.3	Failure - WRA Notified - PreQ Reviewed
08/06/2023	80984	PGF080623CD	14/06/23	23/05915	04/07/23	18.6	Failure - WRA Notified - PreQ Reviewed
08/06/2023	81015	PGF080623CD	14/06/23	23/05915	04/07/23	25.2	Failure - WRA Notified - PreQ Reviewed
09/06/2023	81140	PGF090623CD	14/06/23	23/05915	04/07/23	19.7	Failure - WRA Notified - PreQ Reviewed
09/06/2023	81158	PGF090623CD	14/06/23	23/05915	04/07/23	19.8	Failure - WRA Notified - PreQ Reviewed
12/06/2023	81176	PGF120623CD	14/06/23	23/05915	04/07/23	20.1	Failure - WRA Notified - PreQ Reviewed
12/06/2023	81247	PGF120623CD	14/06/23	23/05915	04/07/23	22.2	Failure - WRA Notified - PreQ Reviewed
13/06/2023	81333	PGF130623CD	14/06/23	23/05915	04/07/23	25.8	Failure - WRA Notified - PreQ Reviewed
13/06/2023	81407	PGF130623CD	14/06/23	23/05915	04/07/23	26.3	Failure - WRA Notified - PreQ Reviewed
14/06/2023	81466	PGF140623CD	15/06/23	23/05974	05/07/23	9.4	Pass
14/06/2023	81505	PGF140623CD	15/06/23	23/05974	05/07/23	9.4	Pass
15/06/2023	81550	PGF150623CD	19/06/23	23/06085	05/07/23	21.3	Failure - WRA Notified - PreQ Reviewed
15/06/2023	81608	PGF150623CD	19/06/23	23/06085	05/07/23	24	Failure - WRA Notified - PreQ Reviewed
05/10/2023	90008	PGF051023CD	09/10/23	23/09991	27/10/23	4.8	Pass
05/10/2023	90068	PGF051023CD	09/10/23	23/09991	27/10/23	4.2	Pass
06/10/2023	90103	PGF061023CD	09/10/23	23/09991	27/10/23	4.9	Pass
06/10/2023	90157	PGF061023CD	09/10/23	23/09991	27/10/23	4.4	Pass
09/10/2023	90219	PGF091023CD	09/10/23	23/09991	27/10/23	5.1	Pass
09/10/2023	90295	PGF091023CD	12/10/23	23/10134	27/10/23	4.4	Pass
10/10/2023	90356	PGF101023CD	12/10/23	23/10134	27/10/23	3	Pass
10/10/2023	90415	PGF101023CD	12/10/23	23/10134	27/10/23	5.1	Pass
11/10/2023	90451	PGF111023CE	12/10/23	23/10134	27/10/23	6.1	Pass
11/10/2023	90488	PGF111023CE	12/10/23	23/10134	27/10/23	6.1	Pass
20/10/2023	91159	PGF201023ML	23/10/23	23/10438	07/11/23	6.2	Pass
20/10/2023	91235	PGF201023ML	23/10/23	23/10438	07/11/23	5.9	Pass
23/10/2023	91261	PGF231023ML	23/10/23	23/10438	07/11/23	5.5	Pass
23/10/2023	91354	PGF231023ML	26/10/23	23/10624	10/11/23	5.3	Pass
24/10/2023	91422	PGF241023ML	26/10/23	23/10624	10/11/23	5.1	Pass
24/10/2023	91466	PGF241023ML	26/10/23	23/10624	10/11/23	5.6	Pass
25/10/2023	91527	PGF251023ML	26/10/23	23/10624	10/11/23	5.1	Pass
25/10/2023	91556	PGF251023ML	26/10/23	23/10624	10/11/23	5	Pass
26/10/2023	91600	PGF261023ML	26/10/23	23/10624	10/11/23	3.8	Pass
26/10/2023	91649	PGF261023ML	30/10/23	23/10712	15/11/23	3.9	Pass
27/10/2023	91696	PGF271023CE	30/10/23	23/10712	15/11/23	4.4	Pass
27/10/2023	91734	PGF271023ML	30/10/23	23/10712	15/11/23	4.7	Pass

Date	Ticket No	Sample Ref	Date Sent	Lab Ref	Date Returne	Result %	Comment
30/10/2023	91869	PGF301023ML	02/11/23	23/10880	16/11/23	4.2	Pass
30/10/2023	91906	PGF301023ML	02/11/23	23/10880	16/11/23	3.6	Pass
31/10/2023	91933	PGF311023ML	02/11/23	23/10880	16/11/23	6.2	Pass
31/10/2023	91989	PGF311023ML	02/11/23	23/10880	16/11/23	4.5	Pass
01/11/2023	92100	PGF011123ML	02/11/23	23/10880	16/11/23	5.0	Pass
01/11/2023	92190	PGF011123ML	02/11/23	23/10880	16/11/23	3.8	Pass
02/11/2023	92233	PGF021123ML	02/11/23	23/10880	16/11/23	4.6	Pass