Natural Resources Wales
Waste and Industry Regulation Team
Maes Y Ffynnon
Bangor
LL57 2DW

Monday, 22 December 2025

Ask for: Lauren Williams, Michelle Moran
Ref: ECL.10269.R03.009

Dear Sir/Madam,

Ty Mawr Landfill Site – Q4 2025 Monitoring Report

This letter-report accompanies the factual monitoring data that was collated during the Q4 2025 (October - December) review period. The scope of the data reflects the monitoring requirements included within Schedule 4, and reporting requirements in Schedule 5 of the Environmental Permit (reference EPR/BP3330LS) for the site, as well as extra analysis requested by NRW.

1. **Schedule 4, Table S4.1 Trigger levels for emissions into groundwater and monitoring requirements:**

   Monthly spot samples for downgradient groundwater monitoring boreholes are included in this report. During this period GW2R and GW2AR was dry for the months October and November. GW3R was abled to be sampled all 3 months and GW2R and GW2AR were sampled in December.

2. **Schedule 4, Table S4.2 Landfill gas in external monitoring boreholes - limits and monitoring requirements:**

   Monthly gas monitoring results for perimeter boreholes are included in this report. All boreholes were able to be monitored each month.

3. **Schedule 4, Table S4.3 Landfill gas – other monitoring requirements:**

   Monthly gas quality data for the in-waste landfill gas monitoring point LMP are included in this report.

4. **Schedule 4, Table S4.4 Surface water - other monitoring requirements:**

   Surface water quality data, monthly and quarterly suites, for locations SW1 and SW2 are included in this report. SW2 was dry in October therefore results are not included in this report.

5. **Schedule 4, S4.5 Particulate matter in ambient air:**

Dust monitoring is not included in this report, this will be included in the EMS review.

6. **Schedule 4, Table S4.6 Groundwater – Other monitoring requirements:**

   Groundwater monitoring is required monthly for all groundwater monitoring locations. Only the upgradient borehole GW1R and downgradient borehole GW3R contained a sufficient volume of water to sample in October and November. However, all ground water boreholes (GW1R, GW2R, GW2AR and GW3R) had a sufficient volume of water in December for samples to be taken.

7. **Waste acceptance criteria (WAC) – Additional requirement:**

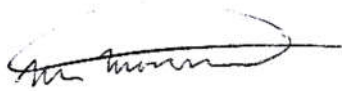
   Two samples of waste which had been deposited on the day of monitoring were collected and sent for waste acceptance criteria analysis, in quarter 3 therefore the results are not included in this report.

If you wish to discuss the submitted monitoring results, please do not hesitate to contact us.

Yours faithfully,

Lauren Williams
BSc (Hons), MSc
Graduate Environmental Technician

Reviewed by,



Michelle Moran
BSc (Hons) MSc, MCIWM
Associate Environmental Scientist

for Egniol Consulting Ltd.

Enclosed:

Data

Table S4.2 Landfill gas composition in external monitoring boreholes
Table S4.3 Landfill gas – other monitoring requirements
Table S4.4 Surface water – other monitoring requirements
Table S4.6 Groundwater – other monitoring requirements

Drawing

Ty Mawr monitoring point location plan [10269-ECL-XX-XX-DR-C-0016]

Table S4.2 Landfill Gas Composition in external monitoring boreholes

Date:	22.10.25	**Time at Start:**	10:40	**Time at End:**	12:40
Project:	10269	**Weather Conditions:**	Dry		
Project Ref:	Ty Mawr	**Surface Conditions:**	Wet		
Engineer(s):	LW/PB	**Equipment:**	GM Series BLE		

NR = Not Recorded **N/A = Not Applicable**

Location Reference	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)	Barometric Pressure (mb)	Internal Flow (l/h)	Comments
BH1AR	0.0	2.4	18.3	79.3	978	0	
BH1BR	0.0	1.1	19.5	79.4	978	0	
BH2AR	0.0	0.2	20.3	79.5	979	0	
BH2BR	0.0	0.5	20.3	79.2	977	0	
BH3AR1	0.0	0.4	20	79.6	979	0	
BH3BR	0.0	0.6	20	79.4	978	0	
BH4AR	0.0	0.7	19.4	79.9	979	0	
BH4BR	0.0	1.7	15.2	83.1	978	0	
BH5AR	0.0	1.2	19	79.8	980	0	
BH6AR	0.0	2.4	18.3	79.3	980	0.02	
BH7AR	0.0	1.4	18.4	80.2	980	0	

Table S4.2 Landfill Gas Composition in external monitoring boreholes

Date:	11.11.2025	**Time at Start:**	09:05	**Time at En**	11:20
Project:	10269	**Weather Conditions:**	Dry/windy		
Project Ref:	Ty Mawr	**Surface Conditions:**	Wet		
Engineer(s):	LW/CD	**Equipment:**	GM Series BLE		

NR = Not Recorded **N/A = Not Applicable**

Location Reference	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)	Barometric Pressure (mb)	Internal Flow (l/h)	Comments
BH1AR	0.0	0.8	19.2	80	980	0	
BH1BR	0.0	2.2	18	79.8	979	0	
BH2AR	0.0	0.3	19.7	80	980	0	
BH2BR	0.0	0.3	19.8	79.9	979	0	
BH3AR1	0.0	0.4	19.5	80.1	981	0	
BH3BR	0.0	0.3	19.7	80	979	0	
BH4AR	0.0	0.8	18.6	80.6	982	0	
BH4BR	0.0	1.7	13.1	85.2	980	-0.7	
BH5AR	0.0	2.8	17.1	80.1	982	0	
BH6AR	0.0	2.5	17.5	80	983	0	
BH7AR	0.0	0.4	19.7	79.9	983	0	

Table S4.2 Landfill Gas Composition in external monitoring boreholes

Date:	10.12.25	**Time at Start:**	09:20	**Time at End:**	11:30
Project:	10269	**Weather Conditions:**	Dry/windy		
Project Ref:	Ty Mawr	**Surface Conditions:**	Wet		
Engineer(s):	LW/CD	**Equipment:**	GM Series BLE		

NR = Not Recorded **N/A = Not Applicable**

Location Reference	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)	Barometric Pressure (mb)	Internal Flow (l/h)	Comments
BH1AR	0.0	0.5	18	81.5	990	0	
BH1BR	0.0	3.1	14.6	82.3	990	0	
BH2AR	0.0	0.3	18.8	80.9	990	0	
BH2BR	0.0	0.2	18.8	81	989	0	
BH3AR1	2.0	0.8	17.9	79.3	989	0.1	
BH3BR	0.0	0.2	18.7	81.1	989	0	
BH4AR	0.0	0.9	17.1	82	994	0	
BH4BR	0.0	0.6	16	83.1	991	0	
BH5AR	0.0	3.3	14.1	82.6	994	0.7	
BH6AR	0.0	0.1	18.8	81.1	994	54.7	
BH7AR	0.0	0.2	18.9	80.8	994	2.1	

Table S4.3 Landfill gas - other monitoring requirements

Project:	Ty Mawr Farm Landfill	**Egniol project referen**	10269	**Engineer(s):**	CD, LW	**Equipment:**	GM25-4 Series BLE

NR = Not Recorded **N/A = Not Applicable**

Date	Time	Borehole ID	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)	Barometric Pressure (mb)	Internal Flow (l/h)	Comments
22.10.2025	11:19	**LMP**	12.5	3.4	7.3	76.8	977	0.15	
11.11.2025	10:06	**LMP**	74.7	12.5	0.3	12.5	979	-3.1	
10.12.2025	11:29	**LMP**	0.0	0.1	18.9	81	991	0	

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Analytical Report Number : 25-057176

Project / Site name:	Wyn and Griffiths Ty Mawr Farm and Landfill	**Samples received on:**	23/10/2025
Your job number:	10269	**Samples instructed on/ Analysis started on:**	23/10/2025
Your order number:	POP003261	**Analysis completed by:**	30/10/2025
Report Issue Number:	1	**Report issued on:**	30/10/2025
Samples Analysed:	3 water samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-057176
Project / Site name: Wyn and Griffiths Ty Mawr Farm and Landfill

Your Order No: POP003261

Lab Sample Number				724411	724412	724413
Sample Reference				SW1	GW1R	GW3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				Surface water	Surface water	Surface water
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				22/10/2025	22/10/2025	22/10/2025
Time Taken				1115	1053	1201
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status			
General Inorganics						
pH (L099)	pH Units	N/A	ISO 17025	7.4	7.6	7.2
Electrical Conductivity at 20°C	µS/cm	10	ISO 17025	680	600	470
Sulphate as SO_4	mg/l	0.045	ISO 17025	33.6	77.6	32.5
Chloride	mg/l	0.15	ISO 17025	94	58	34
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	110	< 15	180
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	8.32	5.54	1.83
Alkalinity as $CaCO_3$	mgCaCO3/l	3	ISO 17025	210	190	190
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	21	-	-
BOD (Biochemical Oxygen Demand) (Total) - PL (L086B)	mg/l	1	ISO 17025	3.4	-	-
Total Oxidised Nitrogen (TON)	mg/l	0.02	NONE	1.14	< 0.020	3.85
Dissolved Oxygen	mg/l	1	NONE	6.6	8.6	8.7
Speciated PAHs						
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	-	-
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	-	-
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	-	-
Fluorene	µg/l	0.01	ISO 17025	< 0.01	-	-
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	-	-
Anthracene	µg/l	0.01	ISO 17025	< 0.01	-	-
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	-	-
Pyrene	µg/l	0.01	ISO 17025	< 0.01	-	-
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	-	-
Chrysene	µg/l	0.01	ISO 17025	< 0.01	-	-
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	-	-
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	-	-
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	-	-
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	-	-
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	-	-
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	-	-
Total PAH						
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	-	-
Heavy Metals / Metalloids						
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	0.04
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3	0.2	0.3
Copper (dissolved)	µg/l	0.5	ISO 17025	6.1	4.9	3
Lead (dissolved)	µg/l	0.2	ISO 17025	0.3	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	2.5	3.7	120
Nickel (dissolved)	µg/l	0.5	ISO 17025	0.9	1	2.3
Zinc (dissolved)	µg/l	0.5	ISO 17025	6.1	5.1	4

Analytical Report Number: 25-057176
Project / Site name: Wyn and Griffiths Ty Mawr Farm and Landfill

Your Order No: POP003261

Lab Sample Number				724411	724412	724413
Sample Reference				SW1	GW1R	GW3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				Surface water	Surface water	Surface water
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				22/10/2025	22/10/2025	22/10/2025
Time Taken				1115	1053	1201
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Calcium (dissolved)	mg/l	0.012	ISO 17025	74	63	72
Iron (dissolved)	mg/l	0.004	ISO 17025	0.051	0.005	0.008
Magnesium (dissolved)	mg/l	0.005	ISO 17025	12	22	20
Potassium (dissolved)	mg/l	0.025	ISO 17025	5.6	7	2.3
Sodium (dissolved)	mg/l	0.01	ISO 17025	54	36	24

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-057176
Project / Site name: Wyn and Griffiths Ty Mawr Farm and Landfill

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW,GW, Hg - SW,PW, Al - SW,PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	ISO 17025
Electrical Conductivity at 20°C in water	Determination of electrical conductivity in water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE	In-house method	L031B	W	ISO 17025
Total Organic Carbon in water	Determination of total organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	ISO 17025
Chemical Oxygen Demand in water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Total oxidised nitrogen in water	Calculation from nitrate and nitrite	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	L078-PL/L082B	W	NONE
Alkalinity of water (discrete analyser)	Determination of alkalinity of water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on MEWAM & USEPA Method 310.2	L082B	W	ISO 17025
Chloride in water	Determination of chloride in water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Biochemical Oxygen Demand in water (Total)	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on standard method 5210B	L086B	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen in water	In-house method	L086B	W	NONE
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	ISO 17025
Ammoniacal Nitrogen as N in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

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Analytical Report Number : 25-057176
Project / Site name: Wyn and Griffiths Ty Mawr Farm and Landfill

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe,Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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Analytical Report Number : 25-061160

Project / Site name:	Wyn and Griffiths Ty Mawr farm landfill	**Samples received on:**	12/11/2025
Your job number:	10269	**Samples instructed on/ Analysis started on:**	12/11/2025
Your order number:	POP003300	**Analysis completed by:**	19/11/2025
Report Issue Number:	1	**Report issued on:**	19/11/2025
Samples Analysed:	4 water samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 25-061160
Project / Site name: Wyn and Griffiths Ty Mawr farm landfill

Your Order No: POP003300

Lab Sample Number				746354	746355
Sample Reference				SW1	SW2
Sample Number				None Supplied	None Supplied
Water Matrix				Surface water	Surface water
Depth (m)				None Supplied	None Supplied
Date Sampled				11/11/2025	11/11/2025
Time Taken				1005	1035
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status		
General Inorganics					
pH (L099)	pH Units	N/A	ISO 17025	7.6	8
Electrical Conductivity at 20°C	µS/cm	10	ISO 17025	330	700
Chloride	mg/l	0.15	ISO 17025	29	77
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	< 15	< 15
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	20	37
BOD (Biochemical Oxygen Demand) (Total) - PL (L086B)	mg/l	1	ISO 17025	1.3	1.7
Dissolved Oxygen	mg/l	1	NONE	8.8	9

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 25-061160
Project / Site name: Wyn and Griffiths Ty Mawr farm landfill

Your Order No: POP003300

Lab Sample Number				746356	746357
Sample Reference				GW1R	GW3R
Sample Number				None Supplied	None Supplied
Water Matrix				Ground water	Ground water
Depth (m)				1.00	16.00
Date Sampled				11/11/2025	11/11/2025
Time Taken				0955	1001
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
General Inorganics					
pH (L099)	pH Units	N/A	ISO 17025	7.2	7.1
Electrical Conductivity at 20°C	µS/cm	10	ISO 17025	960	490
Chloride	mg/l	0.15	ISO 17025	-	31
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	-	< 15
Dissolved Oxygen	mg/l	1	NONE	5.1	7.7

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Normec i2 Analytical

Analytical Report Number : 25-061160
Project / Site name: Wyn and Griffiths Ty Mawr farm landfill

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Electrical Conductivity at 20°C in water	Determination of electrical conductivity in water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE	In-house method	L031B	W	ISO 17025
Chemical Oxygen Demand in water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of chloride in water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Biochemical Oxygen Demand in water (Total)	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on standard method 5210B	L086B	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen in water	In-house method	L086B	W	NONE
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025
Ammoniacal Nitrogen as N in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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Analytical Report Number : 25-066900

Project / Site name:	Wyn and Griffiths Ty Mawr Farm And Landfill	**Samples received on:**	11/12/2025
Your job number:	10269	**Samples instructed on/ Analysis started on:**	11/12/2025
Your order number:	POP003339	**Analysis completed by:**	22/12/2025
Report Issue Number:	1	**Report issued on:**	22/12/2025
Samples Analysed:	7 water samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-066900
Project / Site name: Wyn and Griffiths Ty Mawr Farm And Landfill

Your Order No: POP003339

Lab Sample Number				778453	778454	778455
Sample Reference				SW1	SW2	SW3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				Surface water	Surface water	Surface water
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				10/12/2025	10/12/2025	10/12/2025
Time Taken				0945	1100	1120
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status			
General Inorganics						
pH (L099)	pH Units	N/A	ISO 17025	7.7	8.1	7.9
Electrical Conductivity at 20°C	µS/cm	10	ISO 17025	310	470	410
Sulphate as SO_4	mg/l	0.045	ISO 17025	-	40.6	37.2
Chloride	mg/l	0.15	ISO 17025	35	43	35
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	22	34	48
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	-	11.9	12.7
Alkalinity as $CaCO_3$	mgCaCO3/l	3	ISO 17025	-	140	120
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	24	19	22
BOD (Biochemical Oxygen Demand) (Total) - PL (L086B)	mg/l	1	ISO 17025	1.7	1.4	1.3
Total Oxidised Nitrogen (TON)	mg/l	0.02	NONE	-	1.63	1.79
Dissolved Oxygen	mg/l	1	NONE	8.7	10	9.6
Speciated PAHs						
Naphthalene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01
Total PAH						
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	-	< 0.16	< 0.16
Heavy Metals / Metalloids						
Cadmium (dissolved)	µg/l	0.02	ISO 17025	-	< 0.02	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	-	0.8	0.7
Copper (dissolved)	µg/l	0.5	ISO 17025	-	5.1	4.6
Lead (dissolved)	µg/l	0.2	ISO 17025	-	0.9	0.3
Manganese (dissolved)	µg/l	0.05	ISO 17025	-	20	25
Nickel (dissolved)	µg/l	0.5	ISO 17025	-	1.2	1.1
Zinc (dissolved)	µg/l	0.5	ISO 17025	-	4.1	3.2

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Analytical Report Number: 25-066900
Project / Site name: Wyn and Griffiths Ty Mawr Farm And Landfill

Your Order No: POP003339

Lab Sample Number				778453	778454	778455
Sample Reference				SW1	SW2	SW3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				Surface water	Surface water	Surface water
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				10/12/2025	10/12/2025	10/12/2025
Time Taken				0945	1100	1120
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Calcium (dissolved)	mg/l	0.012	ISO 17025	-	55	66
Iron (dissolved)	mg/l	0.004	ISO 17025	-	0.049	0.053
Magnesium (dissolved)	mg/l	0.005	ISO 17025	-	8.6	7.3
Potassium (dissolved)	mg/l	0.025	ISO 17025	-	5.8	5.9
Sodium (dissolved)	mg/l	0.01	ISO 17025	-	36	25

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

UKAS TESTING
4041

Normec i2 Analytical

Analytical Report Number: 25-066900
Project / Site name: Wyn and Griffiths Ty Mawr Farm And Landfill

Your Order No: POP003339

Lab Sample Number				778456	778457	778458	778459
Sample Reference				GW1	GW2	GW2a	GW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				Ground water	Ground water	Ground water	Ground water
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				10/12/2025	10/12/2025	10/12/2025	10/12/2025
Time Taken				0930	1040	1030	1130
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status				
General Inorganics							
pH (L099)	pH Units	N/A	ISO 17025	7.4	7.1	7.7	7.1
Electrical Conductivity at 20°C	µS/cm	10	ISO 17025	590	450	1100	500
Sulphate as SO_4	mg/l	0.045	ISO 17025	-	9.85	261	-
Chloride	mg/l	0.15	ISO 17025	-	19	20	32
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	-	< 15	< 15	< 15
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	-	2.3	4.18	-
Alkalinity as $CaCO_3$	mgCaCO3/l	3	ISO 17025	-	210	330	-
Total Oxidised Nitrogen (TON)	mg/l	0.02	NONE	-	3.9	0.23	-
Dissolved Oxygen	mg/l	1	NONE	2.5	8.3	7.9	6
Speciated PAHs							
Naphthalene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01
Total PAH							
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	-	< 0.16	< 0.16	< 0.16
Heavy Metals / Metalloids							
Cadmium (dissolved)	µg/l	0.02	ISO 17025	-	< 0.02	0.02	-
Chromium (dissolved)	µg/l	0.2	ISO 17025	-	0.6	1.2	-
Copper (dissolved)	µg/l	0.5	ISO 17025	-	< 0.5	2.4	-
Lead (dissolved)	µg/l	0.2	ISO 17025	-	0.2	< 0.2	-
Manganese (dissolved)	µg/l	0.05	ISO 17025	-	4.4	11	-
Nickel (dissolved)	µg/l	0.5	ISO 17025	-	0.5	1.1	-
Zinc (dissolved)	µg/l	0.5	ISO 17025	-	0.7	1.2	-
Calcium (dissolved)	mg/l	0.012	ISO 17025	-	93	94	-
Iron (dissolved)	mg/l	0.004	ISO 17025	-	0.25	0.031	-
Magnesium (dissolved)	mg/l	0.005	ISO 17025	-	8.1	22	-
Potassium (dissolved)	mg/l	0.025	ISO 17025	-	1.7	3.8	-
Sodium (dissolved)	mg/l	0.01	ISO 17025	-	11	150	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 25-066900
Project / Site name: Wyn and Griffiths Ty Mawr Farm And Landfill

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Electrical Conductivity at 20°C in water	Determination of electrical conductivity in water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE	In-house method	L031B	W	ISO 17025
Chemical Oxygen Demand in water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of chloride in water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Biochemical Oxygen Demand in water (Total)	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on standard method 5210B	L086B	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen in water	In-house method	L086B	W	NONE
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025
Ammoniacal Nitrogen as N in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW,GW, Hg - SW,PW, Al - SW,PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	ISO 17025
Total Organic Carbon in water	Determination of total organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	ISO 17025
Total oxidised nitrogen in water	Calculation from nitrate and nitrite	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton & Polish Standard Method PN-82/C-04579.08	L078-PL/L082B	W	NONE
Alkalinity of water (discrete analyser)	Determination of alkalinity of water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on MEWAM & USEPA Method 310.2	L082B	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

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Analytical Report Number : 25-066900
Project / Site name: Wyn and Griffiths Ty Mawr Farm And Landfill

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe,Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Table S4.6 Groundwater Level Monitoring

Date:	22.10.2025	**Time at Start:**	10:40	**Time at End:**	12:45
Project:	Ty Mawr	**Weather Conditions:**	Clear (rained night before)		
Project Ref:	10269	**Surface Conditions:**	Damp		
Engineer(s):	LW,PB	**Equipment:**	ATEX 60m Dipmeter		

Dry = No Groundwater **NR = Not Recorded** **N/A = Not Applicable**

Date	Time	Location Reference	Dip to Groundwater (m below top of cover)	Dip to base of well (m below top of cover)	Dip to Groundwater (m below ground level)	Dip to Base of Well (m below ground level)	Cover Height (m above ground level)	Comments	Permit requirement	
									dip	sample
22.10.25		GW1R	1.89	15.90	1.29	15.30	0.60		monthly	monthly
22.10.25		GW2R	12.86	12.95	12.16	12.25	0.70	DRY	monthly	monthly
22.10.25		GW2AR	5.87	5.98	5.17	5.28	0.70	dry	monthly	monthly
22.10.25		GW3R	14.78	18.01	14.08	17.31	0.70	Brown	monthly	monthly

Table S4.6 Groundwater Level Monitoring

Date:	11.11.25	**Time at Start:**	09:05	**Time at End:**	11:20
Project:	Ty Mawr	**Weather Conditions:**	dry/overcast		
Project Ref:	10269	**Surface Conditions:**	Wet		
Engineer(s):	LW,CD	**Equipment:**	ATEX 60m Dipmeter		

Dry = No Groundwater **NR = Not Recorded** **N/A = Not Applicable**

Date	Time	Location Reference	Dip to Groundwater (m below top of cover)	Dip to base of well (m below top of cover)	Dip to Groundwater (m below ground level)	Dip to Base of Well (m below ground level)	Cover Height (m above ground level)	Comments	Permit requirement	
									dip	sample
11.11.25		GW1R	0.88	15.89	0.28	15.29	0.60		monthly	monthly
11.11.25		GW2R	12.83	12.89	12.13	12.19	0.70	DRY	monthly	monthly
11.11.25		GW2AR	5.86	5.98	5.16	5.28	0.70	dry	monthly	monthly
11.11.25		GW3R	14.40	18.01	13.70	17.31	0.70	Brown	monthly	monthly

Table S4.6 Groundwater Level Monitoring

Date:	10.12.25	**Time at Start:**	09:20	**Time at End:**	11:20
Project:	Ty Mawr	**Weather Conditions:**	dry/overcast		
Project Ref:	10269	**Surface Conditions:**	Wet		
Engineer(s):	LW,CD	**Equipment:**	ATEX 60m Dipmeter		

Dry = No Groundwater **NR = Not Recorded** **N/A = Not Applicable**

Date	Time	Location Reference	Dip to Groundwater (m below top of cover)	Dip to base of well (m below top of cover)	Dip to Groundwater (m below ground level)	Dip to Base of Well (m below ground level)	Cover Height (m above ground level)	Comments	Permit requirement	
									dip	sample
10.12.25		GW1R	0.89	15.89	0.29	15.29	0.60		monthly	monthly
10.12.25		GW2R	11.57	12.91	10.87	12.21	0.70	Brown	monthly	monthly
10.12.25		GW2AR	4.50	5.99	3.80	5.29	0.70		monthly	monthly
10.12.25		GW3R	13.19	18.04	12.49	17.34	0.70		monthly	monthly

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N

109m
wydd
103m
118m
110m
105m
120m
125m
130m
140m
142m
145m
86m
Cottage
Gas Gov
Iss
Track
Track
Track
Path
Drain
A548
FB
W
Spr
Ty-Mawr-Ucha
Bwthyn
Ysgeiriallt

SW2
GW2R
GW2AR
BH7AR
BH6AR
GW3R
BH5AR
BH4AR
BH4BR
LMP
BH3AR1
BH2AR
BH1AR
BH3BR
GW1R
BH2BR
SW1
BH1BR

Notes

1. Do not scale from this drawing.
2. Any anomalies on this drawing should be brought to the attention of Egniol Consulting Ltd.
3. Key.

In-waste gas monitoring boreholes.

Perimeter gas monitoring boreholes.

GW1 Ground water monitoring boreholes.

SW1 Surface water monitoring point

Rev	Modification	By	Chk	App	Date

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Telephone: 01248 355996
Email: info@egniol.com

Wyn Griffiths & Sons

Ty Mawr Farm,
Abergele

Monitoring point location plan

Drawn by	Checked by	Approved by
LG	CD	MB
Date	Date	Date
02.09.25	02.09.25	02.09.25

Status	Scale @ A1
INFORMATION	1:1250

Drawing Number	Revision
10269-ECL-ZZ-XX-DR-C-0016	-

CAD File Ref:P:\10269 Ty Mawr Farm Landfill, Environmental Services\CAD & BIM\Drawings\Current Working Drawings\10269-ECL-XX-XX-DR-C-0016.dwg