

FIRST MILK, HAVERFORDWEST

Analysis of Liquid Sludge

Sample Name: Aqua Thin Sludge

Report No: 79190

Sample No: 162728

Date: 17/02/2025

Application rate (t/ha) 70.0
Application rate (t/acre) 28.3
pH 6.76
Dry solids (%) 2.41

Organic Matter (%) 1.97

NUTRIENT CONTENT

	result	units	Total		Available	
			(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	0.19	%	1.9	133	0.4	27
Ammonium-N	53.4	mg/kg	0.1	4		
Phosphorus (P)	418	mg/kg	0.4	29		
Phosphate (P ₂ O ₅)			1.0	67	0.6	40
Potassium (K)	193	mg/kg	0.2	14		
Potash (K ₂ O)			0.2	16	0.2	13
Magnesium (Mg)	25.8	mg/kg	0.0	2		
Magnesium (MgO)			0.0	3	0.0	0
Sulphur (S)	118	mg/kg	0.1	8		
Sulphur (SO ₃)			0.3	21	0.1	4

POTENTIALLY TOXIC ELEMENTS

	result	units	Rate		Limit
			(g/tonne)	(kg/ha)	(kg/ha/yr)
Zinc	1.40	mg/kg	1.40	0.10	15.00
Copper	0.20	mg/kg	0.20	0.01	7.50
Nickel	0.20	mg/kg	0.20	0.01	3.00
Lead	0.50	mg/kg	0.50	0.04	15.00
Cadmium	0.01	mg/kg	0.01	0.00	0.15
Chromium	0.29	mg/kg	0.29	0.02	15.00
Mercury	0.05	mg/kg	0.05	0.00	0.10

All results expressed on sample as received. The copper, nickel, lead, cadmium and mercury concentrations are less than the minimum level of detection, consequently, the calculated values will be less than those shown

FIRST MILK, HAVERFORDWEST

Analysis of Liquid Sludge

Sample Name: Aqua Thin Sludge

Report No: 79190

Sample No: 162728

Date: 17/02/2025

Application rate (t/ha) 83.0
Application rate (t/acre) 33.6
pH 6.76
Dry solids (%) 2.41

Organic Matter (%) 1.97

NUTRIENT CONTENT

	result	units	Total		Available	
			(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	0.19	%	1.9	158	0.4	32
Ammonium-N	53.4	mg/kg	0.1	4		
Phosphorus (P)	418	mg/kg	0.4	35		
Phosphate (P ₂ O ₅)			1.0	79	0.6	48
Potassium (K)	193	mg/kg	0.2	16		
Potash (K ₂ O)			0.2	19	0.2	15
Magnesium (Mg)	25.8	mg/kg	0.0	2		
Magnesium (MgO)			0.0	4	0.0	0
Sulphur (S)	118	mg/kg	0.1	10		
Sulphur (SO ₃)			0.3	24	0.1	5

POTENTIALLY TOXIC ELEMENTS

	result	units	Rate		Limit
			(g/tonne)	(kg/ha)	(kg/ha/yr)
Zinc	1.40	mg/kg	1.40	0.12	15.00
Copper	0.20	mg/kg	0.20	0.02	7.50
Nickel	0.20	mg/kg	0.20	0.02	3.00
Lead	0.50	mg/kg	0.50	0.04	15.00
Cadmium	0.01	mg/kg	0.01	0.00	0.15
Chromium	0.29	mg/kg	0.29	0.02	15.00
Mercury	0.05	mg/kg	0.05	0.00	0.10

All results expressed on sample as received. The copper, nickel, lead, cadmium and mercury concentrations are less than the minimum level of detection, consequently, the calculated values will be less than those shown

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AQUA OPERATIONS
FIRST MILK

THIN SLUDGE

THIN SLUDGE ANALYSIS

Sample Reference :

AQUA THIN SLUDGE

Sample Matrix : THIN SLUDGE

Laboratory References

Report Number 79190
Sample Number 162728

Date Received 17-FEB-2025
Date Reported 27-FEB-2025

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand	Value	Units
Oven Dry Solids	2.41	%
E Coli [Fresh]	20	cfu/g
Conductivity 1:6	649	uS/cm
Total Kjeldahl Nitrogen	0.19	% w/w
Nitrate Nitrogen	<10	mg/kg
Ammonium Nitrogen	53.4	mg/kg
Total Phosphorus (P)	418	mg/kg
Total Potassium (K)	193	mg/kg
Total Magnesium (Mg)	25.8	mg/kg
Total Copper (Cu)	<0.2	mg/kg

Released by *Teresa Clyne*

Date *27/02/25*

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AQUA OPERATIONS
FIRST MILK

THIN SLUDGE

THIN SLUDGE ANALYSIS

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ANALYTICAL RESULTS *on 'as received' basis.*

Determinand	Value	Units
Total Zinc (Zn)	1.40	mg/kg
Total Sulphur (S)	118	mg/kg
Total Calcium (Ca)	293	mg/kg
Total Lead (Pb)	<0.5	mg/kg
Total Cadmium (Cd)	<0.01	mg/kg
Total Mercury (Hg)	<0.05	mg/kg
Total Nickel (Ni)	<0.2	mg/kg
Total Chromium (Cr)	0.29	mg/kg
Total Sodium (Na)	387	mg/kg
pH 1:6 [Fresh]	6.76	

Released by *Teresa Clyne*

Date *27/02/25*

STEPSIDE AGRI
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Please quote above code for all enquiries

AQUA OPERATIONS
FIRST MILK

THIN SLUDGE

THIN SLUDGE ANALYSIS

Sample Reference :

AQUA THIN SLUDGE

Sample Matrix : THIN SLUDGE

Laboratory References

Report Number	79190
Sample Number	162728

Date Received	17-FEB-2025
Date Reported	27-FEB-2025

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand	Value	Units
Organic Matter LOI	1.97	% w/w
Coliforms [fresh]	32000	cfu/g
B.O.D. [fresh]	12200	mg/l
C.O.D. [fresh]	26790	mg/kg
Oils,Fats and Grease	1820	mg/kg
Salmonella spp [fresh]	Negative	in 25g
EC [Neat]	2137	uS/cm

Released by *Teresa Clyne*

Date *27/02/25*

DWR CYMRU WELSH WATER - HIRWAUN WTW

Analysis of liquid water clarification sludge

Sampling Point No: 303551

Sample ID: 8443897

Date: 10/07/2025

Application rate (t/ha)	250.0
Application rate (t/acre)	101.2
pH	6.0
Dry solids (%)	2.98

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	0.913	0.03	%	0.3	68	0.0	7
Ammonium N	325	9.69	mg/kg	0.0	2		
Phosphorus (P)	3920	116.82	mg/kg	0.1	29		
Phosphate (P ₂ O ₅)		0.00		0.3	67	0.1	13
Potassium (K)	584	17.40	mg/kg	0.0	4		
Potash (K ₂ O)		0.00		0.0	5	0.0	1
Magnesium (Mg)	440	13.11	mg/kg	0.0	3		
Magnesium (MgO)		0.00		0.0	5	0.0	1
Sulphur (S)	8930	266.11	mg/kg	0.3	67		
Sulphur (SO ₃)		0.00		0.7	166	0.1	17

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	137	4.08	mg/kg	4.08	1.02	15.00	7%
Copper	52.3	1.56	mg/kg	1.56	0.39	7.50	5%
Nickel	34.2	1.02	mg/kg	1.02	0.25	3.00	8%
Lead	41.6	1.24	mg/kg	1.24	0.31	15.00	2%
Cadmium	0.74	0.02	mg/kg	0.02	0.01	0.15	4%
Chromium	41.5	1.24	mg/kg	1.24	0.31	15.00	2%
Arsenic	80.1	2.39	mg/kg	2.39	0.60	0.70	85%
Mercury	0.67	0.02	mg/kg	0.02	0.00	0.10	5%
Other Elements							
Iron	403000	12009.40	mg/kg	12009.40	3002		
Aluminium	2290	68.24	mg/kg	68.24	17		

Sampling Point No:	303551	Location:	HIRWAUN WTW SLUDGE TANKERING POINT
Date Sampled:	10/07/2025	Time Taken:	10:06
Laboratory:	ALS	Sample ID:	8443897
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Code	Result	Units	Qualifier	Lower Limit
238 Magnesium	440	mg/kg		
288 Aluminium	2290	mg/kg		
357 Arsenic	80.1	mg/kg		
4620 pH	6.0	pH		
7774 Mercury	0.67	mg/kg	<	
8241 Volatile solids	37.3	%		
9233 Ammoniacal nitrogen	325	mg/kg		
9234 Sulphur	8930	mg/kg		
9271 Cadmium	0.74	mg/kg	<	
9272 Chromium	41.5	mg/kg		
9273 Copper	52.3	mg/kg	<	
9275 Nickel	34.2	mg/kg	<	
9276 Lead	41.6	mg/kg	<	
9277 Zinc	137	mg/kg		
9278 Iron	403000	mg/kg		
9281 % Dry solids	2.98	%		
9282 % Minerals	62.6	%		
9283 % K (dry weight)	0.0584	mg/kg	<	
9284 % P (dry weight)	0.392	%	<	
9285 % N (dry weight)	0.913	%		

Comments:

Signed:

Approved by:

Position:

Upper Limit

DWR CYMRU WELSH WATER - LLECHRYD WTW

Analysis of liquid water clarification sludge

Sampling Point No: 100504

Sample ID: 8511042

Date: 04/09/2025

Application rate (t/ha)	172.0
Application rate (t/acre)	69.6
pH	6.9
Dry solids (%)	3.06

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	0.976	0.03	%	0.3	51	0.0	5
Ammonium N	200	6.12	mg/kg	0.0	1		
Phosphorus (P)	5550	169.83	mg/kg	0.2	29		
Phosphate (P ₂ O ₅)		0.00		0.4	67	0.1	13
Potassium (K)	572	17.50	mg/kg	0.0	3		
Potash (K ₂ O)		0.00		0.0	4	0.0	1
Magnesium (Mg)	841	25.73	mg/kg	0.0	4		
Magnesium (MgO)		0.00		0.0	7	0.0	1
Sulphur (S)	3160	96.70	mg/kg	0.1	17		
Sulphur (SO ₃)		0.00		0.2	42	0.0	4

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	133	4.07	mg/kg	4.07	0.70	15.00	5%
Copper	51.3	1.57	mg/kg	1.57	0.27	7.50	4%
Nickel	33.5	1.03	mg/kg	1.03	0.18	3.00	6%
Lead	40.8	1.25	mg/kg	1.25	0.21	15.00	1%
Cadmium	0.72	0.02	mg/kg	0.02	0.00	0.15	3%
Chromium	28.3	0.87	mg/kg	0.87	0.15	15.00	1%
Arsenic	28.2	0.86	mg/kg	0.86	0.15	0.70	21%
Mercury	0.66	0.02	mg/kg	0.02	0.00	0.10	3%
Other Elements							
Iron	314000	9608.40	mg/kg	9608.40	1653		
Aluminium	3080	94.25	mg/kg	94.25	16		

DWR CYMRU WELSH WATER - LLECHRYD WTW

Analysis of liquid water clarification sludge

Sampling Point No: 100504

Sample ID: 8511042

Date: 04/09/2025

Application rate (t/ha)	205.0
Application rate (t/acre)	83.0
pH	6.9
Dry solids (%)	3.06

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	0.976	0.03	%	0.3	61	0.0	6
Ammonium N	200	6.12	mg/kg	0.0	1		
Phosphorus (P)	5550	169.83	mg/kg	0.2	35		
Phosphate (P ₂ O ₅)		0.00		0.4	80	0.1	16
Potassium (K)	572	17.50	mg/kg	0.0	4		
Potash (K ₂ O)		0.00		0.0	4	0.0	1
Magnesium (Mg)	841	25.73	mg/kg	0.0	5		
Magnesium (MgO)		0.00		0.0	9	0.0	2
Sulphur (S)	3160	96.70	mg/kg	0.1	20		
Sulphur (SO ₃)		0.00		0.2	50	0.0	5

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	133	4.07	mg/kg	4.07	0.83	15.00	6%
Copper	51.3	1.57	mg/kg	1.57	0.32	7.50	4%
Nickel	33.5	1.03	mg/kg	1.03	0.21	3.00	7%
Lead	40.8	1.25	mg/kg	1.25	0.26	15.00	2%
Cadmium	0.72	0.02	mg/kg	0.02	0.00	0.15	3%
Chromium	28.3	0.87	mg/kg	0.87	0.18	15.00	1%
Arsenic	28.2	0.86	mg/kg	0.86	0.18	0.70	25%
Mercury	0.66	0.02	mg/kg	0.02	0.00	0.10	4%
Other Elements							
Iron	314000	9608.40	mg/kg	9608.40	1970		
Aluminium	3080	94.25	mg/kg	94.25	19		

Sampling Point No:	100504	Location:	LLECHRYD WTW SLUDGE TANKERING POINT
Date Sampled:	04/09/2025	Time Taken:	09:26
Laboratory:	ALS	Sample ID:	8511042
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Code	Result	Units	Qualifier	Lower Limit
238 Magnesium	841	mg/kg		
288 Aluminium	3080	mg/kg		
357 Arsenic	28.2	mg/kg		
4620 pH	6.9	pH		
7774 Mercury	0.66	mg/kg	<	
8241 Volatile solids	42.6	%		
9233 Ammoniacal nitrogen	200	mg/kg	<	
9234 Sulphur	3160	mg/kg		
9271 Cadmium	0.72	mg/kg	<	
9272 Chromium	28.3	mg/kg	<	
9273 Copper	51.3	mg/kg	<	
9275 Nickel	33.5	mg/kg	<	
9276 Lead	40.8	mg/kg	<	
9277 Zinc	133	mg/kg		
9278 Iron	314000	mg/kg		
9281 % Dry solids	3.06	%		
9282 % Minerals	57.4	%		
9283 % K (dry weight)	0.0572	mg/kg	<	
9284 % P (dry weight)	0.555	%		
9285 % N (dry weight)	0.976	%		

Comments:

Signed:

Approved by:

Position:

Upper Limit

DWR CYMRU WELSH WATER - STRATA FLORIDA WTW

Analysis of liquid water clarification sludge

Sampling Point No: 100519

Sample ID: 8443899

Date: 10/07/2025

Application rate (t/ha)	250.0
Application rate (t/acre)	101.2
pH	6.3
Dry solids (%)	1.94

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	1.69	0.03	%	0.3	82	0.0	8
Ammonium N	316	6.13	mg/kg	0.0	2		
Phosphorus (P)	6000	116.40	mg/kg	0.1	29		
Phosphate (P ₂ O ₅)		0.00		0.3	67	0.1	13
Potassium (K)	893	17.32	mg/kg	0.0	4		
Potash (K ₂ O)		0.00		0.0	5	0.0	1
Magnesium (Mg)	390	7.57	mg/kg	0.0	2		
Magnesium (MgO)		0.00		0.0	3	0.0	1
Sulphur (S)	8000	155.20	mg/kg	0.2	39		
Sulphur (SO ₃)		0.00		0.4	97	0.0	10

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	126	2.44	mg/kg	2.44	0.61	15.00	4%
Copper	80.1	1.55	mg/kg	1.55	0.39	7.50	5%
Nickel	52.4	1.02	mg/kg	1.02	0.25	3.00	8%
Lead	63.7	1.24	mg/kg	1.24	0.31	15.00	2%
Cadmium	1.13	0.02	mg/kg	0.02	0.01	0.15	4%
Chromium	44.2	0.86	mg/kg	0.86	0.21	15.00	1%
Arsenic	39.4	0.76	mg/kg	0.76	0.19	0.70	27%
Mercury	1.03	0.02	mg/kg	0.02	0.00	0.10	5%
Other Elements							
Iron	24500	475.30	mg/kg	475.30	119		
Aluminium	138000	2677.20	mg/kg	2677.20	669		

Sampling Point No:	100519	Location:	STRATA FLORIDA WTW SLUDGE TANKERING POINT
Date Sampled:	10/07/2025	Time Taken:	10:07
Laboratory:	ALS	Sample ID:	8443899
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Code	Result	Units	Qualifier	Lower Limit
238 Magnesium	390	mg/kg	<	
288 Aluminium	138000	mg/kg		
357 Arsenic	39.4	mg/kg		
4620 pH	6.3	pH		
7774 Mercury	1.03	mg/kg	<	
8241 Volatile solids	56.8	%		
9233 Ammoniacal nitrogen	316	mg/kg	<	
9234 Sulphur	8000	mg/kg		
9271 Cadmium	1.13	mg/kg	<	
9272 Chromium	44.2	mg/kg	<	
9273 Copper	80.1	mg/kg	<	
9275 Nickel	52.4	mg/kg	<	
9276 Lead	63.7	mg/kg	<	
9277 Zinc	126	mg/kg	<	
9278 Iron	24500	mg/kg		
9281 % Dry solids	1.94	%		
9282 % Minerals	43.2	%		
9283 % K (dry weight)	0.0893	mg/kg	<	
9284 % P (dry weight)	0.600	%	<	
9285 % N (dry weight)	1.69	%		

Comments:

Signed:

Approved by:

Position:

Upper Limit

DWR CYMRU WELSH WATER - BONTGOCH WTW

Analysis of liquid water clarification sludge

Sampling Point No: 100521

Sample ID: 8443895

Date: 10/07/2025

Application rate (t/ha)	88.0
Application rate (t/acre)	35.6
pH	7.8
Dry solids (%)	4.14

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	1.21	0.05	%	0.5	44	0.1	4
Ammonium N	973	40.28	mg/kg	0.0	4		
Phosphorus (P)	8000	331.20	mg/kg	0.3	29		
Phosphate (P ₂ O ₅)		0.00		0.8	67	0.2	13
Potassium (K)	418	17.31	mg/kg	0.0	2		
Potash (K ₂ O)		0.00		0.0	2	0.0	0
Magnesium (Mg)	973	40.28	mg/kg	0.0	4		
Magnesium (MgO)		0.00		0.1	6	0.0	1
Sulphur (S)	3370	139.52	mg/kg	0.1	12		
Sulphur (SO ₃)		0.00		0.3	31	0.0	3

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	547	22.65	mg/kg	22.65	1.99	15.00	13%
Copper	37.4	1.55	mg/kg	1.55	0.14	7.50	2%
Nickel	26.3	1.09	mg/kg	1.09	0.10	3.00	3%
Lead	102	4.22	mg/kg	4.22	0.37	15.00	2%
Cadmium	1.06	0.04	mg/kg	0.04	0.00	0.15	3%
Chromium	20.6	0.85	mg/kg	0.85	0.08	15.00	1%
Arsenic	60.8	2.52	mg/kg	2.52	0.22	0.70	32%
Mercury	0.48	0.02	mg/kg	0.02	0.00	0.10	2%
Other Elements							
Iron	394000	16311.60	mg/kg	16311.60	1435		
Aluminium	7990	330.79	mg/kg	330.79	29		

DWR CYMRU WELSH WATER - BONTGOCH WTW

Analysis of liquid water clarification sludge

Sampling Point No: 100521

Sample ID: 8443895

Date: 10/07/2025

Application rate (t/ha)	105.0
Application rate (t/acre)	42.5
pH	7.8
Dry solids (%)	4.14

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	1.21	0.05	%	0.5	53	0.1	5
Ammonium N	973	40.28	mg/kg	0.0	4		
Phosphorus (P)	8000	331.20	mg/kg	0.3	35		
Phosphate (P ₂ O ₅)		0.00		0.8	80	0.2	16
Potassium (K)	418	17.31	mg/kg	0.0	2		
Potash (K ₂ O)		0.00		0.0	2	0.0	0
Magnesium (Mg)	973	40.28	mg/kg	0.0	4		
Magnesium (MgO)		0.00		0.1	7	0.0	1
Sulphur (S)	3370	139.52	mg/kg	0.1	15		
Sulphur (SO ₃)		0.00		0.3	37	0.0	4

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	547	22.65	mg/kg	22.65	2.38	15.00	16%
Copper	37.4	1.55	mg/kg	1.55	0.16	7.50	2%
Nickel	26.3	1.09	mg/kg	1.09	0.11	3.00	4%
Lead	102	4.22	mg/kg	4.22	0.44	15.00	3%
Cadmium	1.06	0.04	mg/kg	0.04	0.00	0.15	3%
Chromium	20.6	0.85	mg/kg	0.85	0.09	15.00	1%
Arsenic	60.8	2.52	mg/kg	2.52	0.26	0.70	38%
Mercury	0.48	0.02	mg/kg	0.02	0.00	0.10	2%
<u>Other Elements</u>							
Iron	394000	16311.60	mg/kg	16311.60	1713		
Aluminium	7990	330.79	mg/kg	330.79	35		

Sampling Point No:	100521	Location:	BONTGOCH WTW SLUDGE TANKERING POINT
Date Sampled:	10/07/2025	Time Taken:	10:05
Laboratory:	ALS	Sample ID:	8443895
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Code	Result	Units	Qualifier	Lower Limit
238 Magnesium	973	mg/kg		
288 Aluminium	7990	mg/kg		
357 Arsenic	60.8	mg/kg		
4620 pH	7.8	pH		
7774 Mercury	0.48	mg/kg	<	
8241 Volatile solids	31.8	%		
9233 Ammoniacal nitrogen	973	mg/kg		
9234 Sulphur	3370	mg/kg		
9271 Cadmium	1.06	mg/kg		
9272 Chromium	20.6	mg/kg	<	
9273 Copper	37.4	mg/kg	<	
9275 Nickel	26.3	mg/kg		
9276 Lead	102	mg/kg		
9277 Zinc	547	mg/kg		
9278 Iron	394000	mg/kg		
9281 % Dry solids	4.14	%		
9282 % Minerals	68.2	%		
9283 % K (dry weight)	0.0418	mg/kg	<	
9284 % P (dry weight)	0.800	%		
9285 % N (dry weight)	1.21	%		

Comments:

Signed:

Approved by:

Position:

Upper Limit

DWR CYMRU WELSH WATER - BRYNGWYN WTW

Analysis of liquid water clarification sludge

Sampling Point No: 79131

Sample ID: 8443891

Date: 10/07/2025

Application rate (t/ha)	170.0
Application rate (t/acre)	68.8
pH	6.7
Dry solids (%)	5.60

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	0.586	0.03	%	0.3	56	0.0	6
Ammonium N	109	6.10	mg/kg	0.0	1		
Phosphorus (P)	2100	117.60	mg/kg	0.1	20		
Phosphate (P ₂ O ₅)		0.00		0.3	46	0.1	9
Potassium (K)	313	17.53	mg/kg	0.0	3		
Potash (K ₂ O)		0.00		0.0	4	0.0	1
Magnesium (Mg)	653	36.57	mg/kg	0.0	6		
Magnesium (MgO)		0.00		0.1	10	0.0	2
Sulphur (S)	2570	143.92	mg/kg	0.1	24		
Sulphur (SO ₃)		0.00		0.4	61	0.0	6

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	181	10.14	mg/kg	10.14	1.72	15.00	11%
Copper	28.1	1.57	mg/kg	1.57	0.27	7.50	4%
Nickel	18.4	1.03	mg/kg	1.03	0.18	3.00	6%
Lead	38.2	2.14	mg/kg	2.14	0.36	15.00	2%
Cadmium	0.4	0.02	mg/kg	0.02	0.00	0.15	3%
Chromium	29.5	1.65	mg/kg	1.65	0.28	15.00	2%
Arsenic	15.4	0.86	mg/kg	0.86	0.15	0.70	21%
Mercury	0.36	0.02	mg/kg	0.02	0.00	0.10	3%
Other Elements							
Iron	420000	23520.00	mg/kg	23520.00	3998		
Aluminium	2930	164.08	mg/kg	164.08	28		

Sampling Point No:	79131	Location:	BRYNGWYN WTW SLUDGE TANKERING POINT
Date Sampled:	10/07/2025	Time Taken:	10:03
Laboratory:	ALS	Sample ID:	8443891
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Code	Result	Units	Qualifier	Lower Limit
238 Magnesium	653	mg/kg		
288 Aluminium	2930	mg/kg		
357 Arsenic	15.4	mg/kg		
4620 pH	6.7	pH		
7774 Mercury	0.36	mg/kg	<	
8241 Volatile solids	32.5	%		
9233 Ammoniacal nitrogen	109	mg/kg	<	
9234 Sulphur	2570	mg/kg		
9271 Cadmium	0.40	mg/kg	<	
9272 Chromium	29.5	mg/kg		
9273 Copper	28.1	mg/kg	<	
9275 Nickel	18.4	mg/kg	<	
9276 Lead	38.2	mg/kg		
9277 Zinc	181	mg/kg		
9278 Iron	420000	mg/kg		
9281 % Dry solids	5.60	%		
9282 % Minerals	67.5	%		
9283 % K (dry weight)	0.0313	mg/kg	<	
9284 % P (dry weight)	0.210	%	<	
9285 % N (dry weight)	0.586	%		

Comments:

Signed:

Approved by:

Position:

Upper Limit

DWR CYMRU WELSH WATER - CAPEL DEWI WTW

Analysis of liquid water clarification sludge

Sampling Point No: 122055

Sample ID: 8443877

Date: 10/07/2025

Application rate (t/ha)	190.0
Application rate (t/acre)	76.9
pH	6.2
Dry solids (%)	4.66

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	0.553	0.03	%	0.3	49	0.0	5
Ammonium N	131	6.10	mg/kg	0.0	1		
Phosphorus (P)	2500	116.50	mg/kg	0.1	22		
Phosphate (P ₂ O ₅)		0.00		0.3	51	0.1	10
Potassium (K)	397	18.50	mg/kg	0.0	4		
Potash (K ₂ O)		0.00		0.0	4	0.0	1
Magnesium (Mg)	1160	54.06	mg/kg	0.1	10		
Magnesium (MgO)		0.00		0.1	17	0.0	3
Sulphur (S)	2330	108.58	mg/kg	0.1	21		
Sulphur (SO ₃)		0.00		0.3	52	0.0	5

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	196	9.13	mg/kg	9.13	1.74	15.00	12%
Copper	39.7	1.85	mg/kg	1.85	0.35	7.50	5%
Nickel	21.8	1.02	mg/kg	1.02	0.19	3.00	6%
Lead	55	2.56	mg/kg	2.56	0.49	15.00	3%
Cadmium	0.47	0.02	mg/kg	0.02	0.00	0.15	3%
Chromium	38.3	1.78	mg/kg	1.78	0.34	15.00	2%
Arsenic	23.8	1.11	mg/kg	1.11	0.21	0.70	30%
Mercury	0.43	0.02	mg/kg	0.02	0.00	0.10	4%
Other Elements							
Iron	450000	20970.00	mg/kg	20970.00	3984		
Aluminium	4740	220.88	mg/kg	220.88	42		

Sampling Point No:	122055	Location:	Capel Dewi WTW Sludge Tankering Point
Date Sampled:	10/07/2025	Time Taken:	09:59
Laboratory:	ALS	Sample ID:	8443877
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Code	Result	Units	Qualifier	Lower Limit
238 Magnesium	1160	mg/kg		
288 Aluminium	4740	mg/kg		
357 Arsenic	23.8	mg/kg		
4620 pH	6.2	pH		
7774 Mercury	0.43	mg/kg	<	
8241 Volatile solids	24.6	%		
9233 Ammoniacal nitrogen	131	mg/kg	<	
9234 Sulphur	2330	mg/kg		
9271 Cadmium	0.47	mg/kg	<	
9272 Chromium	38.3	mg/kg		
9273 Copper	39.7	mg/kg		
9275 Nickel	21.8	mg/kg	<	
9276 Lead	55.0	mg/kg		
9277 Zinc	196	mg/kg		
9278 Iron	450000	mg/kg		
9281 % Dry solids	4.66	%		
9282 % Minerals	75.4	%		
9283 % K (dry weight)	0.0397	mg/kg		
9284 % P (dry weight)	0.250	%	<	
9285 % N (dry weight)	0.553	%		

Comments:

Signed:

Approved by:

Position:

Upper Limit

DWR CYMRU WELSH WATER - CRAY WTW

Analysis of liquid water clarification sludge

Sampling Point No: 79114

Sample ID: 8443889

Date: 10/07/2025

Application rate (t/ha)	250.0
Application rate (t/acre)	101.2
pH	6.0
Dry solids (%)	3.45

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	0.702	0.02	%	0.2	61	0.0	6
Ammonium N	178	6.14	mg/kg	0.0	2		
Phosphorus (P)	3370	116.27	mg/kg	0.1	29		
Phosphate (P ₂ O ₅)		0.00		0.3	67	0.1	13
Potassium (K)	502	17.32	mg/kg	0.0	4		
Potash (K ₂ O)		0.00		0.0	5	0.0	1
Magnesium (Mg)	606	20.91	mg/kg	0.0	5		
Magnesium (MgO)		0.00		0.0	9	0.0	2
Sulphur (S)	2320	80.04	mg/kg	0.1	20		
Sulphur (SO ₃)		0.00		0.2	50	0.0	5

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	142	4.90	mg/kg	4.90	1.22	15.00	8%
Copper	45	1.55	mg/kg	1.55	0.39	7.50	5%
Nickel	29.4	1.01	mg/kg	1.01	0.25	3.00	8%
Lead	35.8	1.24	mg/kg	1.24	0.31	15.00	2%
Cadmium	0.95	0.03	mg/kg	0.03	0.01	0.15	5%
Chromium	24.8	0.86	mg/kg	0.86	0.21	15.00	1%
Arsenic	57.1	1.97	mg/kg	1.97	0.49	0.70	70%
Mercury	0.58	0.02	mg/kg	0.02	0.01	0.10	5%
Other Elements							
Iron	445000	15352.50	mg/kg	15352.50	3838		
Aluminium	2760	95.22	mg/kg	95.22	24		

Sampling Point No:	79114	Location:	CRAY WTW SLUDGE TANKERING POINT
Date Sampled:	10/07/2025	Time Taken:	10:03
Laboratory:	ALS	Sample ID:	8443889
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Code	Result	Units	Qualifier	Lower Limit
238 Magnesium	606	mg/kg		
288 Aluminium	2760	mg/kg		
357 Arsenic	57.1	mg/kg		
4620 pH	6.0	pH		
7774 Mercury	0.58	mg/kg	<	
8241 Volatile solids	34.9	%		
9233 Ammoniacal nitrogen	178	mg/kg	<	
9234 Sulphur	2320	mg/kg		
9271 Cadmium	0.95	mg/kg		
9272 Chromium	24.8	mg/kg	<	
9273 Copper	45.0	mg/kg	<	
9275 Nickel	29.4	mg/kg	<	
9276 Lead	35.8	mg/kg	<	
9277 Zinc	142	mg/kg		
9278 Iron	445000	mg/kg		
9281 % Dry solids	3.45	%		
9282 % Minerals	65.1	%		
9283 % K (dry weight)	0.0502	mg/kg	<	
9284 % P (dry weight)	0.337	%	<	
9285 % N (dry weight)	0.702	%		

Comments:

Signed:

Approved by:

Position:

Upper Limit

DWR CYMRU WELSH WATER - BOLTON HILL WTW

Analysis of liquid water clarification sludge

Sampling Point No: 120038

Sample ID: 8443907

Date: 10/07/2025

Application rate (t/ha)	250.0
Application rate (t/acre)	101.2
pH	6.6
Dry solids (%)	3.34

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	1.21	0.04	%	0.4	101	0.0	10
Ammonium N	183	6.11	mg/kg	0.0	2		
Phosphorus (P)	3470	115.90	mg/kg	0.1	29		
Phosphate (P ₂ O ₅)		0.00		0.3	66	0.1	13
Potassium (K)	865	28.89	mg/kg	0.0	7		
Potash (K ₂ O)		0.00		0.0	9	0.0	2
Magnesium (Mg)	1490	49.77	mg/kg	0.0	12		
Magnesium (MgO)		0.00		0.1	21	0.0	4
Sulphur (S)	6120	204.41	mg/kg	0.2	51		
Sulphur (SO ₃)		0.00		0.5	128	0.1	13

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	108	3.61	mg/kg	3.61	0.90	15.00	6%
Copper	60.8	2.03	mg/kg	2.03	0.51	7.50	7%
Nickel	30.3	1.01	mg/kg	1.01	0.25	3.00	8%
Lead	36.8	1.23	mg/kg	1.23	0.31	15.00	2%
Cadmium	0.65	0.02	mg/kg	0.02	0.01	0.15	4%
Chromium	25.5	0.85	mg/kg	0.85	0.21	15.00	1%
Arsenic	16.4	0.55	mg/kg	0.55	0.14	0.70	20%
Mercury	0.59	0.02	mg/kg	0.02	0.00	0.10	5%
<u>Other Elements</u>							
Iron	24000	801.60	mg/kg	801.60	200		
Aluminium	140000	4676.00	mg/kg	4676.00	1169		

Sampling Point No:	120038	Location:	BOLTON HILL Sludge Tankering Point
Date Sampled:	10/07/2025	Time Taken:	10:10
Laboratory:	ALS	Sample ID:	8443907
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Code	Result	Units	Qualifier	Lower Limit
238 Magnesium	1490	mg/kg		
288 Aluminium	140000	mg/kg		
357 Arsenic	16.4	mg/kg		
4620 pH	6.6	pH		
7774 Mercury	0.59	mg/kg	<	
8241 Volatile solids	40.7	%		
9233 Ammoniacal nitrogen	183	mg/kg	<	
9234 Sulphur	6120	mg/kg		
9271 Cadmium	0.65	mg/kg	<	
9272 Chromium	25.5	mg/kg	<	
9273 Copper	60.8	mg/kg		
9275 Nickel	30.3	mg/kg	<	
9276 Lead	36.8	mg/kg	<	
9277 Zinc	108	mg/kg		
9278 Iron	24000	mg/kg		
9281 % Dry solids	3.34	%		
9282 % Minerals	59.3	%		
9283 % K (dry weight)	0.0865	mg/kg		
9284 % P (dry weight)	0.347	%	<	
9285 % N (dry weight)	1.21	%		

Comments:

Signed:

Approved by:

Position:

Upper Limit

DWR CYMRU WELSH WATER - PRESELI WTW

Analysis of liquid water clarification sludge

Sampling Point No: 100506

Sample ID: 8443873

Date: 10/07/2025

Application rate (t/ha)	250.0
Application rate (t/acre)	101.2
pH	6.6
Dry solids (%)	2.50

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	1.11	0.03	%	0.3	69	0.0	7
Ammonium N	245	6.13	mg/kg	0.0	2		
Phosphorus (P)	4700	117.50	mg/kg	0.1	29		
Phosphate (P ₂ O ₅)		0.00		0.3	67	0.1	13
Potassium (K)	767	19.18	mg/kg	0.0	5		
Potash (K ₂ O)		0.00		0.0	6	0.0	1
Magnesium (Mg)	1040	26.00	mg/kg	0.0	7		
Magnesium (MgO)		0.00		0.0	11	0.0	2
Sulphur (S)	6590	164.75	mg/kg	0.2	41		
Sulphur (SO ₃)		0.00		0.4	103	0.0	10

POTENTIALLY TOXIC ELEMENTS

	Dry Wt result	Wet Wt result	Units	Rate		Limit	% of Annual Addition Limit
				(g/tonne)	(kg/ha)	(kg/ha/yr)	
Zinc	119	2.98	mg/kg	2.98	0.74	15.00	5%
Copper	63.4	1.59	mg/kg	1.59	0.40	7.50	5%
Nickel	41	1.03	mg/kg	1.03	0.26	3.00	9%
Lead	49.9	1.25	mg/kg	1.25	0.31	15.00	2%
Cadmium	0.88	0.02	mg/kg	0.02	0.01	0.15	4%
Chromium	34.6	0.87	mg/kg	0.87	0.22	15.00	1%
Arsenic	34.5	0.86	mg/kg	0.86	0.22	0.70	31%
Mercury	0.8	0.02	mg/kg	0.02	0.01	0.10	5%
<u>Other Elements</u>							
Iron	15400	385.00	mg/kg	385.00	96		
Aluminium	158000	3950.00	mg/kg	3950.00	988		

Sampling Point No:	100506	Location:	PRESELI WTW SLUDGE Tankering Point (New Works)
Date Sampled:	10/07/2025	Time Taken:	09:57
Laboratory:	ALS	Sample ID:	8443873
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Code	Result	Units	Qualifier	Lower Limit
238 Magnesium	1040	mg/kg		
288 Aluminium	158000	mg/kg		
357 Arsenic	34.5	mg/kg		
4620 pH	6.6	pH		
7774 Mercury	0.80	mg/kg	<	
8241 Volatile solids	47.6	%		
9233 Ammoniacal nitrogen	245	mg/kg	<	
9234 Sulphur	6590	mg/kg		
9271 Cadmium	0.88	mg/kg	<	
9272 Chromium	34.6	mg/kg	<	
9273 Copper	63.4	mg/kg		
9275 Nickel	41.0	mg/kg	<	
9276 Lead	49.9	mg/kg	<	
9277 Zinc	119	mg/kg		
9278 Iron	15400	mg/kg		
9281 % Dry solids	2.50	%		
9282 % Minerals	52.4	%		
9283 % K (dry weight)	0.0767	mg/kg		
9284 % P (dry weight)	0.470	%	<	
9285 % N (dry weight)	1.11	%		

Comments:

Signed:

Approved by:

Position:

Upper Limit
