

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)	100.0
Application rate (t/acre)	40.5
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	40	0.0	4
Ammonium N	183	6.11	mg/kg	0.0	1		
Phosphorus (P)	3470	115.90	mg/kg	0.1	12		
Phosphate (P ₂ O ₅)		0.00		0.3	27	0.1	5
Potassium (K)	865	28.89	mg/kg	0.0	3		
Potash (K ₂ O)		0.00		0.0	3	0.0	1
Magnesium (Mg)	1490	49.77	mg/kg	0.0	5		
Magnesium (MgO)		0.00		0.1	8	0.0	2
Sulphur (S)	6120	204.41	mg/kg	0.2	20		
Sulphur (SO ₃)		0.00		0.5	51	0.1	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	108	3.61	mg/kg	3.61	0.36	15.00	2%
Copper	60.8	2.03	mg/kg	2.03	0.20	7.50	3%
Nickel	30.3	1.01	mg/kg	1.01	0.10	3.00	3%
Lead	36.8	1.23	mg/kg	1.23	0.12	15.00	1%
Cadmium	0.65	0.02	mg/kg	0.02	0.00	0.15	1%
Chromium	25.5	0.85	mg/kg	0.85	0.09	15.00	1%
Arsenic	16.4	0.55	mg/kg	0.55	0.05	0.70	8%
Mercury	0.59	0.02	mg/kg	0.02	0.00	0.10	2%
Other Elements							
Iron	24000	801.60	mg/kg	801.60	80		
Aluminium	140000	4676.00	mg/kg	4676.00	468		

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)	100.0
Application rate (t/acre)	40.5
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	28	0.0	3
Ammonium N	245	6.13	mg/kg	0.0	1		
Phosphorus (P)	4700	117.50	mg/kg	0.1	12		
Phosphate (P ₂ O ₅)		0.00		0.3	27	0.1	5
Potassium (K)	767	19.18	mg/kg	0.0	2		
Potash (K ₂ O)		0.00		0.0	2	0.0	0
Magnesium (Mg)	1040	26.00	mg/kg	0.0	3		
Magnesium (MgO)		0.00		0.0	4	0.0	1
Sulphur (S)	6590	164.75	mg/kg	0.2	16		
Sulphur (SO ₃)		0.00		0.4	41	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	119	2.98	mg/kg	2.98	0.30	15.00	2%
Copper	63.4	1.59	mg/kg	1.59	0.16	7.50	2%
Nickel	41	1.03	mg/kg	1.03	0.10	3.00	3%
Lead	49.9	1.25	mg/kg	1.25	0.12	15.00	1%
Cadmium	0.88	0.02	mg/kg	0.02	0.00	0.15	1%
Chromium	34.6	0.87	mg/kg	0.87	0.09	15.00	1%
Arsenic	34.5	0.86	mg/kg	0.86	0.09	0.70	12%
Mercury	0.8	0.02	mg/kg	0.02	0.00	0.10	2%
<u>Other Elements</u>							
Iron	15400	385.00	mg/kg	385.00	39		
Aluminium	158000	3950.00	mg/kg	3950.00	395		

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

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)	100.0
Application rate (t/acre)	40.5
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	30	0.0	3
Ammonium N	200	6.12	mg/kg	0.0	1		
Phosphorus (P)	5550	169.83	mg/kg	0.2	17		
Phosphate (P ₂ O ₅)		0.00		0.4	39	0.1	8
Potassium (K)	572	17.50	mg/kg	0.0	2		
Potash (K ₂ O)		0.00		0.0	2	0.0	0
Magnesium (Mg)	841	25.73	mg/kg	0.0	3		
Magnesium (MgO)		0.00		0.0	4	0.0	1
Sulphur (S)	3160	96.70	mg/kg	0.1	10		
Sulphur (SO ₃)		0.00		0.2	24	0.0	2

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	0.41	15.00	3%
Copper	51.3	1.57	mg/kg	1.57	0.16	7.50	2%
Nickel	33.5	1.03	mg/kg	1.03	0.10	3.00	3%
Lead	40.8	1.25	mg/kg	1.25	0.12	15.00	1%
Cadmium	0.72	0.02	mg/kg	0.02	0.00	0.15	1%
Chromium	28.3	0.87	mg/kg	0.87	0.09	15.00	1%
Arsenic	28.2	0.86	mg/kg	0.86	0.09	0.70	12%
Mercury	0.66	0.02	mg/kg	0.02	0.00	0.10	2%
Other Elements							
Iron	314000	9608.40	mg/kg	9608.40	961		
Aluminium	3080	94.25	mg/kg	94.25	9		

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)	100.0
Application rate (t/acre)	40.5
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	33	0.0	3
Ammonium N	316	6.13	mg/kg	0.0	1		
Phosphorus (P)	6000	116.40	mg/kg	0.1	12		
Phosphate (P ₂ O ₅)		0.00		0.3	27	0.1	5
Potassium (K)	893	17.32	mg/kg	0.0	2		
Potash (K ₂ O)		0.00		0.0	2	0.0	0
Magnesium (Mg)	390	7.57	mg/kg	0.0	1		
Magnesium (MgO)		0.00		0.0	1	0.0	0
Sulphur (S)	8000	155.20	mg/kg	0.2	16		
Sulphur (SO ₃)		0.00		0.4	39	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	126	2.44	mg/kg	2.44	0.24	15.00	2%
Copper	80.1	1.55	mg/kg	1.55	0.16	7.50	2%
Nickel	52.4	1.02	mg/kg	1.02	0.10	3.00	3%
Lead	63.7	1.24	mg/kg	1.24	0.12	15.00	1%
Cadmium	1.13	0.02	mg/kg	0.02	0.00	0.15	1%
Chromium	44.2	0.86	mg/kg	0.86	0.09	15.00	1%
Arsenic	39.4	0.76	mg/kg	0.76	0.08	0.70	11%
Mercury	1.03	0.02	mg/kg	0.02	0.00	0.10	2%
<u>Other Elements</u>							
Iron	24500	475.30	mg/kg	475.30	48		
Aluminium	138000	2677.20	mg/kg	2677.20	268		

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)	50.0
Application rate (t/acre)	20.2
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	25	0.1	3
Ammonium N	973	40.28	mg/kg	0.0	2		
Phosphorus (P)	8000	331.20	mg/kg	0.3	17		
Phosphate (P ₂ O ₅)		0.00		0.8	38	0.2	8
Potassium (K)	418	17.31	mg/kg	0.0	1		
Potash (K ₂ O)		0.00		0.0	1	0.0	0
Magnesium (Mg)	973	40.28	mg/kg	0.0	2		
Magnesium (MgO)		0.00		0.1	3	0.0	1
Sulphur (S)	3370	139.52	mg/kg	0.1	7		
Sulphur (SO ₃)		0.00		0.3	17	0.0	2

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	1.13	15.00	8%
Copper	37.4	1.55	mg/kg	1.55	0.08	7.50	1%
Nickel	26.3	1.09	mg/kg	1.09	0.05	3.00	2%
Lead	102	4.22	mg/kg	4.22	0.21	15.00	1%
Cadmium	1.06	0.04	mg/kg	0.04	0.00	0.15	1%
Chromium	20.6	0.85	mg/kg	0.85	0.04	15.00	0%
Arsenic	60.8	2.52	mg/kg	2.52	0.13	0.70	18%
Mercury	0.48	0.02	mg/kg	0.02	0.00	0.10	1%
Other Elements							
Iron	394000	16311.60	mg/kg	16311.60	816		
Aluminium	7990	330.79	mg/kg	330.79	17		

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)	100.0
Application rate (t/acre)	40.5
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	33	0.0	3
Ammonium N	109	6.10	mg/kg	0.0	1		
Phosphorus (P)	2100	117.60	mg/kg	0.1	12		
Phosphate (P ₂ O ₅)		0.00		0.3	27	0.1	5
Potassium (K)	313	17.53	mg/kg	0.0	2		
Potash (K ₂ O)		0.00		0.0	2	0.0	0
Magnesium (Mg)	653	36.57	mg/kg	0.0	4		
Magnesium (MgO)		0.00		0.1	6	0.0	1
Sulphur (S)	2570	143.92	mg/kg	0.1	14		
Sulphur (SO ₃)		0.00		0.4	36	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	181	10.14	mg/kg	10.14	1.01	15.00	7%
Copper	28.1	1.57	mg/kg	1.57	0.16	7.50	2%
Nickel	18.4	1.03	mg/kg	1.03	0.10	3.00	3%
Lead	38.2	2.14	mg/kg	2.14	0.21	15.00	1%
Cadmium	0.4	0.02	mg/kg	0.02	0.00	0.15	1%
Chromium	29.5	1.65	mg/kg	1.65	0.17	15.00	1%
Arsenic	15.4	0.86	mg/kg	0.86	0.09	0.70	12%
Mercury	0.36	0.02	mg/kg	0.02	0.00	0.10	2%
Other Elements							
Iron	420000	23520.00	mg/kg	23520.00	2352		
Aluminium	2930	164.08	mg/kg	164.08	16		

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)	100.0
Application rate (t/acre)	40.5
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	26	0.0	3
Ammonium N	131	6.10	mg/kg	0.0	1		
Phosphorus (P)	2500	116.50	mg/kg	0.1	12		
Phosphate (P ₂ O ₅)		0.00		0.3	27	0.1	5
Potassium (K)	397	18.50	mg/kg	0.0	2		
Potash (K ₂ O)		0.00		0.0	2	0.0	0
Magnesium (Mg)	1160	54.06	mg/kg	0.1	5		
Magnesium (MgO)		0.00		0.1	9	0.0	2
Sulphur (S)	2330	108.58	mg/kg	0.1	11		
Sulphur (SO ₃)		0.00		0.3	27	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	196	9.13	mg/kg	9.13	0.91	15.00	6%
Copper	39.7	1.85	mg/kg	1.85	0.19	7.50	2%
Nickel	21.8	1.02	mg/kg	1.02	0.10	3.00	3%
Lead	55	2.56	mg/kg	2.56	0.26	15.00	2%
Cadmium	0.47	0.02	mg/kg	0.02	0.00	0.15	1%
Chromium	38.3	1.78	mg/kg	1.78	0.18	15.00	1%
Arsenic	23.8	1.11	mg/kg	1.11	0.11	0.70	16%
Mercury	0.43	0.02	mg/kg	0.02	0.00	0.10	2%
Other Elements							
Iron	450000	20970.00	mg/kg	20970.00	2097		
Aluminium	4740	220.88	mg/kg	220.88	22		

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)	100.0
Application rate (t/acre)	40.5
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	24	0.0	2
Ammonium N	178	6.14	mg/kg	0.0	1		
Phosphorus (P)	3370	116.27	mg/kg	0.1	12		
Phosphate (P ₂ O ₅)		0.00		0.3	27	0.1	5
Potassium (K)	502	17.32	mg/kg	0.0	2		
Potash (K ₂ O)		0.00		0.0	2	0.0	0
Magnesium (Mg)	606	20.91	mg/kg	0.0	2		
Magnesium (MgO)		0.00		0.0	3	0.0	1
Sulphur (S)	2320	80.04	mg/kg	0.1	8		
Sulphur (SO ₃)		0.00		0.2	20	0.0	2

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	0.49	15.00	3%
Copper	45	1.55	mg/kg	1.55	0.16	7.50	2%
Nickel	29.4	1.01	mg/kg	1.01	0.10	3.00	3%
Lead	35.8	1.24	mg/kg	1.24	0.12	15.00	1%
Cadmium	0.95	0.03	mg/kg	0.03	0.00	0.15	2%
Chromium	24.8	0.86	mg/kg	0.86	0.09	15.00	1%
Arsenic	57.1	1.97	mg/kg	1.97	0.20	0.70	28%
Mercury	0.58	0.02	mg/kg	0.02	0.00	0.10	2%
Other Elements							
Iron	445000	15352.50	mg/kg	15352.50	1535		
Aluminium	2760	95.22	mg/kg	95.22	10		

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 - HIRWAUN WTW

Analysis of liquid water clarification sludge

Sampling Point No: 303551

Sample ID: 8443897

Date: 10/07/2025

Application rate (t/ha)	100.0
Application rate (t/acre)	40.5
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	27	0.0	3
Ammonium N	325	9.69	mg/kg	0.0	1		
Phosphorus (P)	3920	116.82	mg/kg	0.1	12		
Phosphate (P ₂ O ₅)		0.00		0.3	27	0.1	5
Potassium (K)	584	17.40	mg/kg	0.0	2		
Potash (K ₂ O)		0.00		0.0	2	0.0	0
Magnesium (Mg)	440	13.11	mg/kg	0.0	1		
Magnesium (MgO)		0.00		0.0	2	0.0	0
Sulphur (S)	8930	266.11	mg/kg	0.3	27		
Sulphur (SO ₃)		0.00		0.7	67	0.1	7

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	0.41	15.00	3%
Copper	52.3	1.56	mg/kg	1.56	0.16	7.50	2%
Nickel	34.2	1.02	mg/kg	1.02	0.10	3.00	3%
Lead	41.6	1.24	mg/kg	1.24	0.12	15.00	1%
Cadmium	0.74	0.02	mg/kg	0.02	0.00	0.15	1%
Chromium	41.5	1.24	mg/kg	1.24	0.12	15.00	1%
Arsenic	80.1	2.39	mg/kg	2.39	0.24	0.70	34%
Mercury	0.67	0.02	mg/kg	0.02	0.00	0.10	2%
Other Elements							
Iron	403000	12009.40	mg/kg	12009.40	1201		
Aluminium	2290	68.24	mg/kg	68.24	7		

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 - Cefn Dryskoed WTW

Analysis of liquid water clarification sludge

Sampling Point No: 79186

Sample ID: 8443871

Date: 10/07/2025

Application rate (t/ha)	100.0
Application rate (t/acre)	40.5
pH	6.4
Dry solids (%)	2.42

NUTRIENT CONTENT

	Dry Wt result	Wet Wt result	Units	Total		Available	
				(kg/t)	(kg/ha)	(kg/t)	(kg/ha)
Nitrogen (N)	1.14	0.03	%	0.3	28	0.0	3
Ammonium N	251	6.07	mg/kg	0.0	1		
Phosphorus (P)	4820	116.64	mg/kg	0.1	12		
Phosphate (P ₂ O ₅)		0.00		0.3	27	0.1	5
Potassium (K)	718	17.38	mg/kg	0.0	2		
Potash (K ₂ O)		0.00		0.0	2	0.0	0
Magnesium (Mg)	545	13.19	mg/kg	0.0	1		
Magnesium (MgO)		0.00		0.0	2	0.0	0
Sulphur (S)	6730	162.87	mg/kg	0.2	16		
Sulphur (SO ₃)		0.00		0.4	41	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	110	2.66	mg/kg	2.66	0.27	15.00	2%
Copper	64.3	1.56	mg/kg	1.56	0.16	7.50	2%
Nickel	42.1	1.02	mg/kg	1.02	0.10	3.00	3%
Lead	51.1	1.24	mg/kg	1.24	0.12	15.00	1%
Cadmium	1.26	0.03	mg/kg	0.03	0.00	0.15	2%
Chromium	35.5	0.86	mg/kg	0.86	0.09	15.00	1%
Arsenic	52.8	1.28	mg/kg	1.28	0.13	0.70	18%
Mercury	0.82	0.02	mg/kg	0.02	0.00	0.10	2%
Other Elements							
Iron	6470	156.57	mg/kg	156.57	16		
Aluminium	166000	4017.20	mg/kg	4017.20	402		

Sampling Point No:	79186	Location:	CEFN DRYSCOED WTW SLUDGE TANKERING POINT
Date Sampled:	10/07/2025	Time Taken:	09:56
Laboratory:	ALS	Sample ID:	8443871
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	545	mg/kg		
288 Aluminium	166000	mg/kg		
357 Arsenic	52.8	mg/kg		
4620 pH	6.4	pH		
7774 Mercury	0.82	mg/kg	<	
8241 Volatile solids	54.7	%		
9233 Ammoniacal nitrogen	251	mg/kg	<	
9234 Sulphur	6730	mg/kg		
9271 Cadmium	1.26	mg/kg		
9272 Chromium	35.5	mg/kg	<	
9273 Copper	64.3	mg/kg	<	
9275 Nickel	42.1	mg/kg	<	
9276 Lead	51.1	mg/kg	<	
9277 Zinc	110	mg/kg		
9278 Iron	6470	mg/kg		
9281 % Dry solids	2.42	%		
9282 % Minerals	45.2	%		
9283 % K (dry weight)	0.0718	mg/kg	<	
9284 % P (dry weight)	0.482	%	<	
9285 % N (dry weight)	1.14	%		

Comments:

Signed:

Approved by:

Position:

Upper Limit
