HYDRO ALUMINIUM DEESIDE LIMITED T//A HYDRO WREXHAM
Bridge Road
Wrexham Industrial Estate
Wrexham LL13 9PS

17th November 2025

Alice Burrows
Permitting Service,
Natural Resources Wales,
Crown Buildings,
Cathays Park,
Cardiff,
CF10 3NQ

Application reference: PAN-027261 (EPR/BK3638IF/V007), request for further information dated 28/10/2025

Dear Ms Burrows,

Further to your letter dated 28/10/2025, please see further information below, as requested:

1. An updated H1 Risk Assessment showing:
    - The existing emissions parameters (for A1 and A12) at the permitted emission limits
    - The new emissions parameters (for A17) at the permitted emission limits
2. Identify any Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites within 10km of your site.
3. Overall assessment of whether the potential impacts to human health and the environment (including protected sites) from the new emission point are either worse, the same or better than from the existing emission points

Please do not hesitate to contact Stuart Taylor at the Wrexham plant if you require any further information.

Yours sincerely,

Joel Priest
HSE Manager
Hydro Aluminium Recycling, on behalf of Hydro Aluminium Deeside Ltd

1. H1 Environmental Risk Assessment: Emissions to air

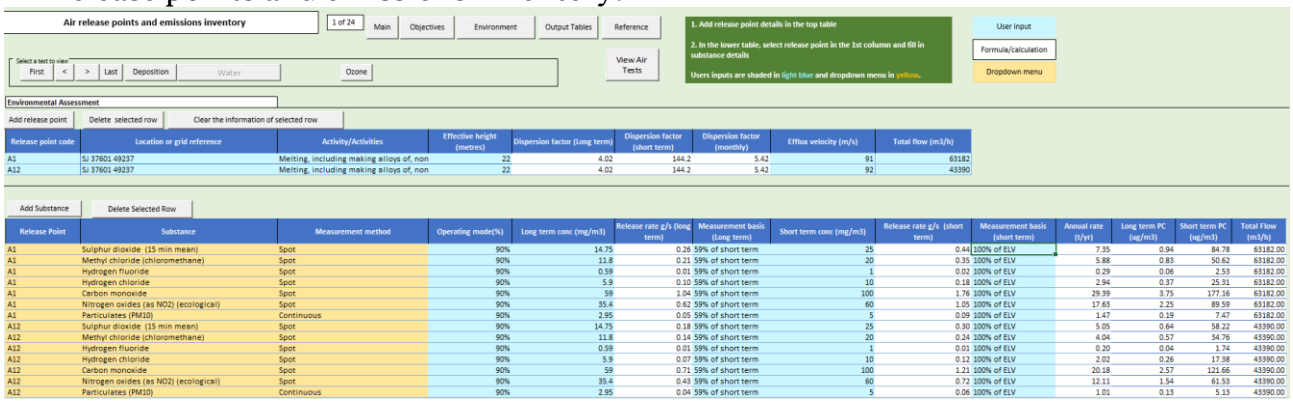
Following the request for further information, an additional H1 assessment was run to compare emissions from release points A1 and A12 to those from A17, based on emitting at permit ELV levels. Screenshots from the assessment are included below.

Across all outputs and screening tests performed by the H1 model, the single emission point (A17) results in a lower environmental impact compared to the two release points of A1 and A12. The highest result in both cases is the short term release of NO_2, with H1 returning figures for "%PC of EAL minus 2 x background" of 240% for A1 + A12 and 168% for A17.

The original supporting information included an assessment of A17 using measured historical data from stacks A1 and A12. This resulted in a far lower result in Test 2 of short term process contribution at 44.9% of the EAL (minus 2 x background), and long term levels (predicted environmental concentration) at 22.37%of the long term EAL. This leaves 77.63% of headroom before the EAL is at risk of being breached.

1.1, Old Bag Plant (release points A1 and A12) at permit ELV

Air release points and emissions inventory:



Air release points and emissions inventory | 1 of 24 | Main | Objectives | Environment | Output Tables | Reference

1. Add release point details in the top table
2. In the lower table, select release point in the 1st column and fill in substance details

Users inputs are shaded in light blue and dropdown menu in yellow.

User input | Formula/calculation | Dropdown menu

Select a test to view: First | < | > | Last | Deposition | Water | Ozone | View Air Tests

Environmental Assessment

Add release point | Delete selected row | Clear the information of selected row

Release point code	Location or grid reference	Activity/Activities	Effective height (metres)	Dispersion factor (Long term)	Dispersion factor (short term)	Dispersion factor (monthly)	Efflux velocity (m/s)	Total flow (m3/h)
A1	SJ 37601 49237	Melting, including making alloys of, non	22	4.02	144.2	5.42	91	63182
A12	SJ 37601 49237	Melting, including making alloys of, non	22	4.02	144.2	5.42	92	43390

Add Substance | Delete Selected Row

Release Point	Substance	Measurement method	Operating mode(%)	Long term conc (mg/m3)	Release rate g/s (long term)	Measurement basis (Long term)	Short term conc (mg/m3)	Release rate g/s (short term)	Measurement basis (short term)	Annual rate (t/yr)	Long term PC (ug/m3)	Short term PC (ug/m3)	Total Flow (m3/h)
A1	Sulphur dioxide (15 min mean)	Spot	90%	14.75	0.26	59% of short term	25	0.44	100% of ELV	7.35	0.94	84.78	63182.00
A1	Methyl chloride (chloromethane)	Spot	90%	11.8	0.21	59% of short term	20	0.35	100% of ELV	5.88	0.83	50.62	63182.00
A1	Hydrogen fluoride	Spot	90%	0.59	0.01	59% of short term	1	0.02	100% of ELV	0.29	0.06	2.53	63182.00
A1	Hydrogen chloride	Spot	90%	5.9	0.10	59% of short term	10	0.18	100% of ELV	2.94	0.37	25.31	63182.00
A1	Carbon monoxide	Spot	90%	59	1.04	59% of short term	100	1.76	100% of ELV	29.39	3.75	177.16	63182.00
A1	Nitrogen oxides (as NO2) (ecological)	Spot	90%	35.4	0.62	59% of short term	60	1.05	100% of ELV	17.63	2.25	89.59	63182.00
A1	Particulates (PM10)	Continuous	90%	2.95	0.05	59% of short term	5	0.09	100% of ELV	1.47	0.19	7.47	63182.00
A12	Sulphur dioxide (15 min mean)	Spot	90%	14.75	0.18	59% of short term	25	0.30	100% of ELV	5.05	0.64	58.22	43390.00
A12	Methyl chloride (chloromethane)	Spot	90%	11.8	0.14	59% of short term	20	0.24	100% of ELV	4.04	0.57	34.76	43390.00
A12	Hydrogen fluoride	Spot	90%	0.59	0.01	59% of short term	1	0.01	100% of ELV	0.20	0.04	1.74	43390.00
A12	Hydrogen chloride	Spot	90%	5.9	0.07	59% of short term	10	0.12	100% of ELV	2.02	0.26	17.38	43390.00
A12	Carbon monoxide	Spot	90%	59	0.71	59% of short term	100	1.21	100% of ELV	20.18	2.57	121.66	43390.00
A12	Nitrogen oxides (as NO2) (ecological)	Spot	90%	35.4	0.43	59% of short term	60	0.72	100% of ELV	12.11	1.54	61.53	43390.00
A12	Particulates (PM10)	Continuous	90%	2.95	0.04	59% of short term	5	0.06	100% of ELV	1.01	0.13	5.13	43390.00

Air Impacts, pollutants:

Number	Substance	Long term EAL (ug/m3)	Long term PC (ug/m3)	Long term modelled PC	Short term EAL (ug/m3)	Short term PC (ug/m3)	Short term modelled PC
1	Sulphur dioxide (15 min mean)	0	1.579796685		266	143.0048223	
2	Methyl chloride (chloromethane)	18	1.40426372		0	85.37601333	
3	Hydrogen fluoride	16	0.09		160	4.27	
4	Hydrogen chloride	0	0.63		750	42.69	
5	Carbon monoxide	0	6.32		10000	298.82	
6	Nitrogen oxides (as NO2) (ecological)	30	3.79		75	151.12	
7	Particulates (PM10)	40	0.32		50	12.59	

Air Impacts, test 1:

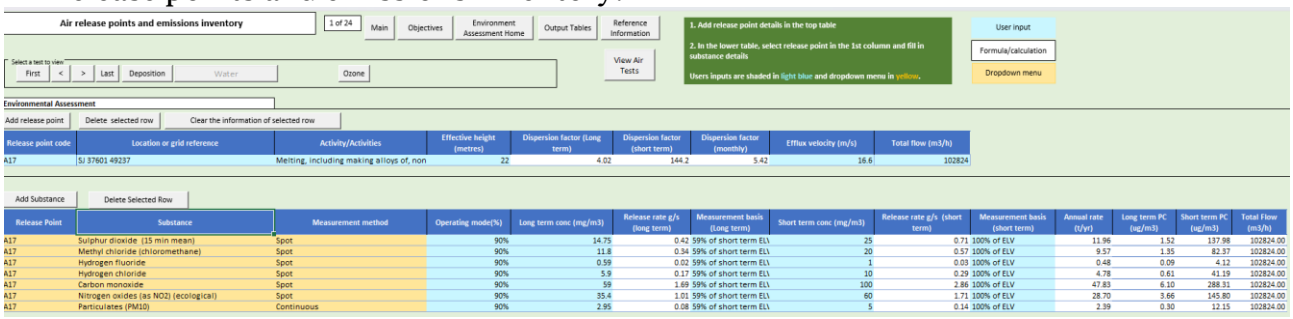
Number	Substance	Long term EAL (ug/m3)	Long term PC (ug/m3)	%PC of EAL (long term)	>1% of EAL? (long term)	Short term EAL (ug/m3)	Short term PC (ug/m3)	%PC of EAL (short term)	>10% of EAL? (short term)
1	Sulphur dioxide (15 min mean)	0	1.579796685			266	143.0048223	53.76%	fail
2	Methyl chloride (chloromethane)	18	1.40426372	7.80%	fail	0	85.37601333		
3	Hydrogen fluoride	16	0.094665539	0.59%	pass	160	4.268800667	2.67%	pass
4	Hydrogen chloride	0	0.631918674			750	42.68800667	5.69%	pass
5	Carbon monoxide	0	6.31918674			10000	298.8160467	2.99%	pass
6	Nitrogen oxides (as NO2) (ecological)	30	3.791512044	12.64%	fail	75	151.1155436	201.49%	fail
7	Particulates (PM10)	40	0.315959337	0.79%	pass	50	12.59296197	25.19%	fail

Air Impacts, Test 2:

Number	Substance	Long term EAL (ug/m3)	Long term PC (ug/m3)	Air Background conc (ug/m3)	%PC of headroom (long term)	PEC Long term (µg/m3)	%PEC of EAL% (Long term)	%PEC of EAL>70%? (long term)	Short term EAL (ug/m3)	Short term PC (ug/m3)	%PC of the EAL-2*background	%PC of headroom >=20%? (short term)
1	Sulphur dioxide (15 min mean)	0	1.579796685	1	100%	2.58			266	143.0048223	54.17%	fail
2	Methyl chloride (chloromethane)	18	1.40426372	0	8%	1.40	7.80%	pass	0	85.37601333		
6	Nitrogen oxides (as NO2) (ecological)	30	3.791512044	6	16%	9.79	32.64%	pass	75	151.1155436	239.87%	fail
7	Particulates (PM10)	40	0.315959337	5	1%	5.32	13.29%	pass	50	12.59296197	31.48%	fail

1.2, New Bag Plant (release point A17) at permit ELV

Air release points and emissions inventory:



Air Impacts, pollutants:

	Substance	Long term EAL (ug/m3)	Long term PC (ug/m3)	Long term modelled PC	Short term EAL (ug/m3)	Short term PC (ug/m3)	Short term modelled PC
1	Sulphur dioxide (15 min mean)	0	1.11178125		266	100.6395833	
2	Methyl chloride (chloromethane)	18	0.98825		0	60.08333333	
3	Hydrogen fluoride	16	0.07		160	3.00	
4	Hydrogen chloride	0	0.44		750	30.04	
5	Carbon monoxide	0	4.45		10000	210.29	
6	Nitrogen oxides (as NO2) (ecological)	30	2.67		75	106.35	
7	Particulates (PM10)	40	0.22		50	8.86	

Air Impacts, test 1:

	Substance	Long term EAL (ug/m3)	Long term PC (ug/m3)	%PC of EAL (long term)	>1% of EAL? (long term)	Short term EAL (ug/m3)	Short term PC (ug/m3)	%PC of EAL (short term)	>10% of EAL? (short term)
1	Sulphur dioxide (15 min mean)	0	1.11178125			266	100.6395833	37.83%	fail
2	Methyl chloride (chloromethane)	18	0.98825	5.49%	fail	0	60.08333333		
3	Hydrogen fluoride	16	0.066620833	0.42%	pass	160	3.004166667	1.88%	pass
4	Hydrogen chloride	0	0.4447125			750	30.04166667	4.01%	pass
5	Carbon monoxide	0	4.447125			10000	210.2916667	2.10%	pass
6	Nitrogen oxides (as NO2) (ecological)	30	2.668275	8.89%	fail	75	106.3475	141.80%	fail
7	Particulates (PM10)	40	0.22235625	0.56%	pass	50	8.862291667	17.72%	fail

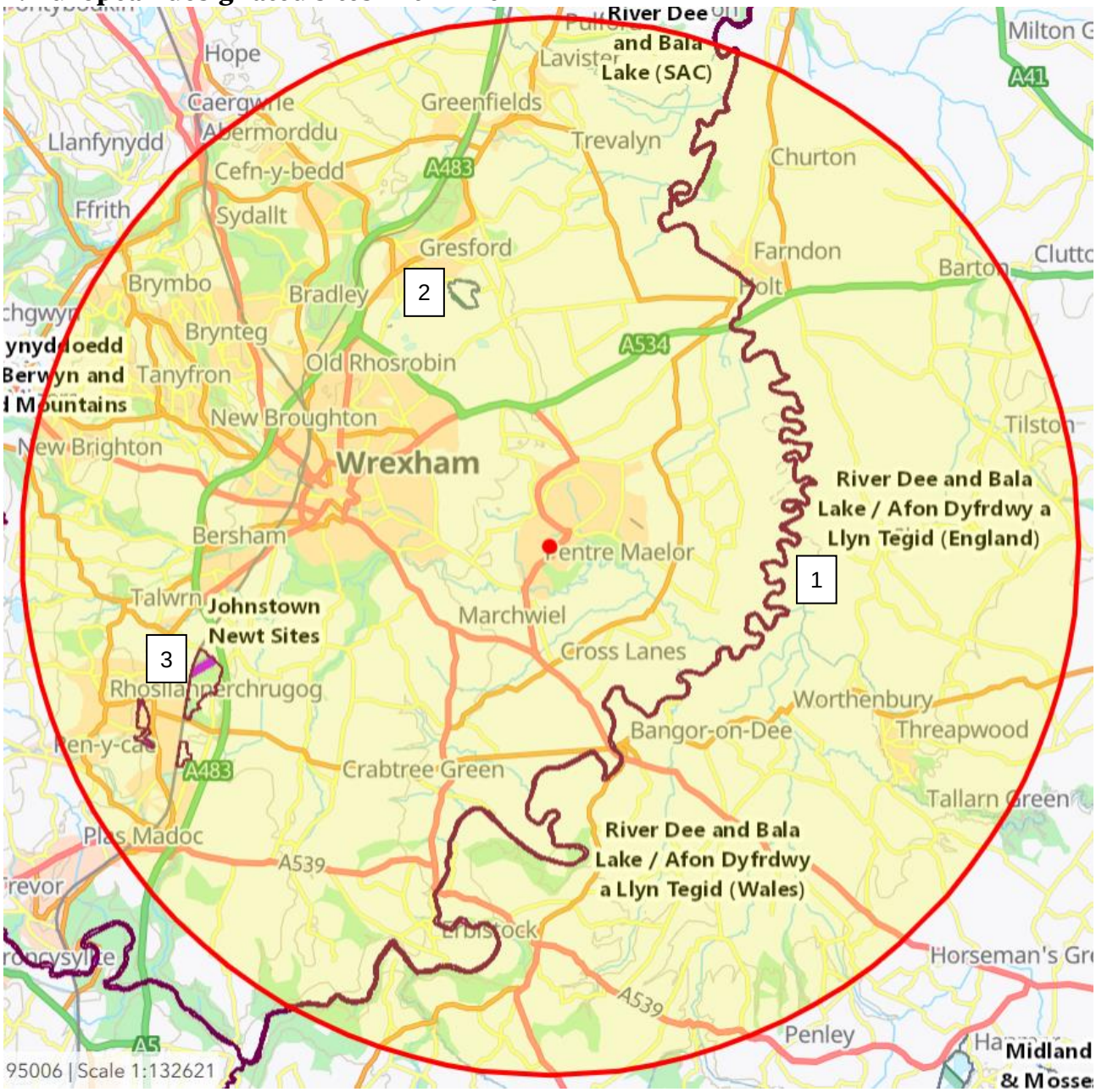
Air Impacts, Test 2:

	Substance	Long term EAL (ug/m3)	Long term PC (ug/m3)	Air Background conc (ug/m3)	%PC of headroom (long term)	PEC Long term (µg/m3)	%PEC of EAL% (Long term)	%PEC of EAL>70%? (long term)	Short term EAL (ug/m3)	Short term PC (ug/m3)	%PC of the EAL-2*background	%PC of headroom >=20%? (short term)
1	Sulphur dioxide (15 min mean)	0	1.11178125	1	100%	2.11			266	100.6395833	38.12%	fail
2	Methyl chloride (chloromethane)	18	0.98825	0	5%	0.99	5.49%	pass	0	60.08333333		
6	Nitrogen oxides (as NO2) (ecological)	30	2.668275	6	11%	8.67	28.89%	pass	75	106.3475	168.81%	fail
7	Particulates (PM10)	40	0.22235625	5	1%	5.22	13.06%	pass	50	8.862291667	22.16%	fail

In summary, all results are 3.5% lower with a single stack compared to two release points based on the H1 assessment methodology– see table below.

A1 & A12			A17		
Annual Rate (t/yr)	LT PC (ug/m3)	ST PC (ug/m3)	Annual Rate (t/yr)	LT PC (ug/m3)	ST PC (ug/m3)
12.39	1.58	143.00	11.96	1.52	137.98
9.91	1.40	85.38	9.57	1.35	82.37
0.50	0.09	4.27	0.48	0.09	4.12
4.96	0.63	42.69	4.78	0.61	41.19
49.57	6.32	298.82	47.83	6.10	288.31
29.74	3.79	151.12	28.70	3.66	145.80
2.48	0.32	12.59	2.39	0.30	12.15

2. European designated sites within 10km



(Source: www.magic.defra.gov.uk)

Map ref.	Name	Ref. no.	Designation	Distance/km	Orientation
1	River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid	UK0030252	SAC	3.9	E & SE
2	Midland Meres and Mosses Phase 2	UK11080	Ramsar Site	4.7	NNW
3	Johnstown Newt Sites	UK0030173	SAC	6.6	WSW

Biodiversity risk screening and assessment was completed to meet requirements of the Aluminium Stewardship Initiative standard ("ASI"). This identified protected areas, habitats and species that may be impacted by the operations of Hydro Wrexham. The assessment concluded that, "Even if the emissions contribute to the total impact from human activity in the region, isolated it is unlikely that the operation has a material impact on the nearby Protected Areas or ecosystem services".

3. Overall Assessment

This assessment concludes that the potential impacts to human health and the environment (including protected sites) from the new emission point are lower compared to operating a filtration plant with two release points.

It is thought that any further detailed modelling is likely to show a lower process contribution than that calculated in H1, and there are no air quality management areas nearby, or sensitive human or ecological receptors that will be impacted from proposed filter plant change.