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Chris Roscoe,
Permitting Service,
Natural Resources Wales,
Cambria House,
29 Newport Road,
Cardiff,
CF24 0TP

8th January 2018

Our ref: VP3030BX
Your ref: PAN-002038

Dear Chris Roscoe,

Response to Notice Requiring Further Information (PAN-002038)

Thank you for the letter received dated 3rd January 2018 (ref: PAN-002038) regarding the application for Befesa Salt Slags Limited and for the subsequent phone calls with myself and my colleague Steve Filkin. We note the requirement to issue additional information to support the application for an environmental permit. This letter includes the information issued to Natural Resources Wales in December 2017 (sent to Matthew Kelk by Yvonne Sheridan at Befesa).

The current environmental permit for Befesa Salt Slags Limited (Permit number: EPR/VP3030BX) includes two improvement conditions (IC) for completion by the 30th November 2017 (Table S1.3 Improvement Programme Requirements). The content of the ICs is as follows:

- IC19: The Operator shall undertake detailed air dispersion modelling of ammonia emissions from the current chemical scrubbers on site, stacks A2, A5 and A6. The modelling shall include data from recent quarterly extractive monitoring. A report shall be forwarded to Natural Resources Wales detailing the findings of this modelling. Due 30/11/2017

- IC20: Where chemical species described in Table S3.1b alongside Best Available Techniques Associated Emission Levels (BAT AELs) have not historically been monitored, the Operator shall conduct an assessment of the emissions against BAT for approval by Natural Resources Wales. Due 30/11/2017

Befesa has commissioned a modelling specialist to review the dispersion of ammonia releases. This work was undertaken to confirm that all processing authorised by the environmental permit is undertaken in accordance with Best Available Technique (BAT) the details of which

are detailed in a reference document available at: http://eippcb.jrc.ec.europa.eu/reference/BREF/BATC_NFM.pdf Table 21 of the BREF details the following emission levels for gaseous emissions to air from wet milling and leaching from the salt slag recovery process due to be implemented by 2020.

Parameter	BAT-AEL (mg/Nm^3) (1)
NH_3	≤ 10
PH_3	≤ 0.5
H_2S	≤ 2
(1) As an average over the sampling period	

The current emission levels required by the BAT document are higher than these; but we have completed this analysis on the basis of the 2020 requirement to demonstrate Befesa is already operating within the 2020 levels.

Improvement Condition 19

Attached is a report prepared on behalf of Befesa by Steve Smith, AS Modelling & Data Ltd. The report details an assessment using dispersion modelling of the impact of emissions of ammonia from A2, A5 and A6. Please note: in addition there is reference to emissions from a proposed A7 stack that is the subject of an environmental permit variation that has been submitted by Befesa Salt Slag Limited in October 2017 (Submitted to NRW on 23rd October 2017, reference no: EPRBEFESA0001).

Emissions of ammonia (NH_3) from the three existing ammonia scrubbing units have been assessed and quantified based upon data from Stack Reports compiled by ESG (ongoing quarterly extractive monitoring for Befesa) and supplied to AS Modelling & Data Ltd. by Befesa Salt Slags Limited. The recorded ammonia emissions are included within the report in Tables 3a to 3c. The three tables are included in this letter for clarity purposes.

Table 3a. ESG recorded ammonia emissions and efflux parameters – Stack A2.

	Ammonia (mg/m^3)	Ammonia (g/h)	Water Vapour (%)	Temperature (°C)	Volume (m^3/h)	Volume at STP wet (m^3/h)	Volume at STP (dry) (m^3/h)	Volume REF (m^3/h)	Velocity (m/s)	Diameter (m)
Mar-16	2.1	37	5	47	20295	17229	16363	17229	11.8	0.78
Jun-16	0.46	6.4	4.6	47	16415	13921	13287	139210	9.5	0.78
Aug-16	0.07	0.69	1.9	19	11328	10597	10376	10579	6.6	0.78
Sep-16	7.6	116	6.6	53	18502	15354	14341	15354	10.8	0.78
Dec-16	13	160	14.3	53	15169	12641	10835	12641	8.8	0.78
Feb-17	0.14	1.3	1.8	51	11247	9425	9253	9425	6.5	0.78
Average	**3.895**	53.565	5.7	45	15493	13195	12409	34073	9	0.78
Maximum	13	160	14.3	53	20295	17229	16363	139210	11.8	0.78
Minimum	0.07	0.69	1.8	19	11247	9425	9253	9425	6.5	0.78

Table 3b. ESG recorded ammonia emissions and efflux parameters – Stack A5.

	Ammonia (mg/m^3)	Ammonia (g/h)	Water Vapour (%)	Temperature (℃)	Volume (m^3/h)	Volume at STP wet (m^3/h)	Volume at STP (dry) (m^3/h)	Volume REF (m^3/h)	Velocity (m/s)	Diameter (m)
Mar-16	0.24	0.61	1.1	15	2724	2561	2532	2561	7.5	0.35
Jun-16	1.6	4.4	3	16	2996	2783	2699	2783	8.5	0.35
*	0.35	0.96								
Sep-16	1.9	5.2	1.1	15	2926	2744	2713	2744	8.4	0.35
Dec-16	3.7	6.3	1.1	11	1790	1713	1694	1713	5.2	0.35
*	8.7	15								
Feb-17	1.5	1.5	0.83	12	1044	993	985	993	3	0.35
*	1.4	1.4								
Average	**2.424**	4.421	1.426	13.8	2296	2159	2125	2159	6.52	0.35
Maximum	8.700	15.000	3	16	2996	2783	2713	2783	8.5	0.35
Minumum	0.240	0.610	0.83	11	1044	993	985	993	3	0.35

** Same sample for the month previous but analysed by different methods*

Table 3c. ESG recorded ammonia emissions and efflux parameters – Stack A6.

	Ammonia (mg/m^3)	Ammonia (g/h)	Water Vapour (%)	Temperature (°C)	Volume (m^3/h)	Volume at STP wet (m^3/h)	Volume at STP (dry) (m^3/h)	Volume REF (m^3/h)	Velocity (m/s)	Diameter (m)
Jun-16	0.85	5.8	2.1	23	7511	6880	6733	6880	4.2	0.8
Aug-16	0.08	1.9	1.8	15	24348	23019	22609	23019	13.5	0.8
*	0.86	20								
Nov-16	0.05	0.99	3.3	27	20835	18857	18232	12275	11.5	0.8
*	2	38								
Nov-16	0.08	1.15	1.4	25	16153	14781	14518	14781	8.9	0.8
*	2.5	36								
Feb-17	0.42	4.7	2.9	25	12390	11284	10957	11284	6.8	0.8
*	0.59	6.7								
Average	**0.826**	12.804	2.3	23	16247	14964	14610	13648	8.98	0.8
Maximum	2.5	38	3.3	27	24348	23019	22609	23019	13.5	0.8
Minimum	0.05	0.99	1.4	15	7511	6880	6733	6880	4.2	0.8

** Same sample for the month previous but analysed by different methods*

As highlighted in **bold** within the tables included the stack emissions have an average of 3.895 mg/m^3 (stack A2), 2.424 mg/m^3 (stack A4) and 0.826 mg/m^3 (stack A6) so each is below the BAT level of ≤ 10 mg/Nm^3. In fact, on a cumulative basis the total is 7.145 mg/m^3.

Improvement Condition 20

The improvement condition is concerned with Phosphine and Hydrogen Sulphide. These have not previously been monitored by Befesa and so have been subject to a recent monitoring check. Results show:

Phosphine: 0.01 mg/m^3 for each stack A2, A5 and A6 (BAT is ≤ 0.5 mg/Nm^3)

Hydrogen sulphide: 0.72, 0.77 and 0.42 mg/m^3 respectively for stacks A2, A5 and A6 (BAT is ≤ 2 mg/Nm^3)

The modelling results have shown that Befesa is operating below the BAT levels (the levels are given in brackets). The chemistry of the process that is undertaken would suggest it is unlikely that these compounds would be released in any notable quantity. Befesa respectfully request that any requirement for monitoring of these emission levels (Phosphine and Hydrogen Sulphide) is minimised as the extent of generation is minimal particularly compared to BAT levels. The BAT document suggests monitoring of these stack emissions have a minimum monitoring frequency of once per year (see para. 1.1.5 of the BAT document referenced earlier in this letter).

The notice for further information (dated 3rd January 2018) notes that:

The environmental risk assessment that you've included in your application ('Befesa Environmental Risk Assessment H1_Oct 12 (002).pdf') does not contain sufficient quantitative information to assess the risks arising from the Whitchurch Salt Slags site's overall emissions. Without further detail, an evidence based assessment of the emission impact on local sensitive receptors cannot be performed.

Please submit a risk assessment which considers the impact of process contributions of your emissions on sensitive receptors.

We trust that through receipt of a copy of this letter and the associated report that this information is sufficient for your requirements; please get in touch if further information is required.

Kind regards,

Dr Bryony Turner

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