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Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001
Attention: Ms Emma Barnet

emma.barnet@planning.nsw.gov.au

Dear Ms Barnet

**RESPONSE TO SUBMISSIONS - WESTON ALUMINIUM PTY LTD
PROPOSED MEDICAL AND OTHER WASTE THERMAL PROCESSING (SSD 15_7396)**

I refer to your email to the Environment Protection Authority (EPA), dated 5 December 2016, seeking comment on a Response to Submissions in relation to the proposed thermal processing treatment of medical and other waste at the Weston Aluminium Pty Ltd (Weston Aluminium) facility, application reference SSD 15_7396. The project relates to Weston Aluminium premises licensed under Environment Protection Licence 6423, located at 129 Mitchell Ave, Kurri Kurri.

The EPA has undertaken a detailed review of the originally submitted Environmental Impact Statement, along with the Response to Submissions, in relation to potential air quality emissions. It has been determined that further information is required before the EPA can adequately provide any recommended conditions of approval. The EPA's detailed comments on air quality assessment matters are at **Attachment A**.

The EPA's key issues in relation to air quality are listed below:

- a) The AQIA should be revised to discuss and quantify the composition of "other" wastes that are incinerated. Emissions from these other wastes should be considered in the emissions inventory and in the dispersion modelling;
- b) In order to confirm emission concentrations and predicted ground level concentrations, the EPA requires the provision of Calpuff input and output files. The output files need only include concentrations at selected sensitive receptors;
- c) In order to assess emissions of PAHs post commissioning, the EPA requires the provision of the maximum PAH emission rate used to model ambient PAH concentrations that are below the impact assessment criterion;
- d) The EPA requires the provision of 100 percentile model predictions for all individual toxic air pollutants; and
- e) The meteorology and background data used should be evaluated and justified as being representative. Specifically:
 - a. 2014 should be justified as being a representative year;
 - b. Explain why the Calmet data only has 8,735 hours of data; and

- c. Explain why the background data and the meteorological data was not contemporaneous (as is required for a Level 2 assessment).

The Air Quality Impact Assessment (AQIA), provided at Appendix E of the EIS should be revised to address these matters. Should further information be required regarding this matter, please contact Emma Paull on 4908 6828 or by email to hunter.region@epa.nsw.gov.au

Yours sincerely



23 DEC 2016

MITCHELL BENNETT
Head Regional Operations Unit - Hunter
Environment Protection Authority

Encl: Attachment A – EPA's Air Quality Impact Assessment Review

ATTACHMENT A**EPA'S AIR QUALITY IMPACT ASSESSMENT REVIEW (SSD 15_7396)**

The EPA has reviewed the EIS and specifically the report at Appendix E of the EIS titled '*Weston Aluminium Thermal Waste Processing Project – Air Quality Impact Assessment*' (AQIA), dated 26 August 2016 and prepared by Aecom Australia Pty Ltd. The EPA has also reviewed additional information provided in the Response to Submissions. The EPA's detailed comments on the AQIA are provided below.

Issues Raised in EPA's Advice of 24 October 2016	AECOM/WA Response of 24 November 2016	EPA's Advice of 23 December 2016	EPA position at 23 December 2016
1.1 Processing rate may be underestimated causing underestimation of emission rates	The thermal waste processing equipment has been confirmed as having a maximum throughput rate of 800 kg/hour.	Emission rates in the dispersion modelling were derived assuming a throughput of 800 kg/hour, thus emissions will not be underestimated on this basis.	This issued has been adequately addressed.
1.2 Emission data and assumptions are not adequately justified	A fully comprehensive review of medical waste incinerators has been undertaken, and AP42 factors for medical waste incinerators are considered appropriate.	The EPA's concern is that the feedstock in the combustion chamber can comprise approximately 15% of quarantine wastes, and 10% of other wastes. In the conference call on 24 November 2016, it was discussed that trials are currently being undertaken on quarantine waste. However this emissions data has not been provided, nor has emission data for "other wastes" been discussed or considered.	The AQIA should be revised to include a discussion about the composition of the feedstock, including quarantine and "other" wastes. Emissions from quarantine and other wastes need to be considered in the emissions inventory and in the dispersion modelling.
1.3 Dioxin emission have not been adequately justified	There was an error in the original report, and the impact assessment criterion for dioxins was specified as 1000 times less than what it is. Thus, dioxin emissions easily meet the criterion. The requirement to discharge at 0.1% stack discharge concentration limit is not required.	Please provide the EPA with the Calpuff input and output files (outputs of concentrations at sensitive receptors only) to confirm this.	The proponent should provide Calpuff input and output files to confirm dioxin concentrations.
1.4 Aluminium, barium and polycyclic aromatic hydrocarbon (PAH) emissions have not been assessed	AECOM sourced impact assessment criteria for aluminium and barium and found that the predicted ground level concentrations will not exceed these. There are no PAH emission factors in AP42, and PAHs have not been monitored at similar facilities. Assessment of dioxins	The EPA concurs that aluminium and barium are not likely to cause adverse impacts. Since the proposal involves combustion processes, and PAHs are a product of combustion, the proponent must demonstrate that the facility will meet the ambient impact assessment criterion for PAHs at the site boundary.	The proponent should determine an appropriate PAH emission rate and remodel to demonstrate compliance with the ambient PAH impact assessment criterion.

	and furans should be adequate to assess the impact of PAHs.	The EPA is aware of at least one document (EU BREF Waste Incineration) that specifies PAH emission concentration for waste incineration. The proponent should therefore review other references to determine an appropriate PAH emission concentration for the proposal. Modelling should then be undertaken to demonstrate compliance with the ambient PAH impact assessment criterion.	
1.5 VOCs are not adequately assessed	The benzene criterion was used to assess the impact of VOCs. This is a conservative assumption. The proposed plant is not a thermal treatment plant, since its primary goal is not the thermal treatment of air impurities but the thermal treatment of waste. The relevant VOC stack discharge limit should therefore be for general plant and equipment, and hence is 40 mg/m ³ . The secondary combustion chamber is designed to achieve complete combustion of gases, and will have continuous monitoring of combustion efficiency. This will further help to minimise VOC emissions.	VOCs have not been assessed for Scenarios 1, 3 and 4. It is acknowledged that there is no VOC emission factor in AP42 for medical waste incinerators, and assessment was therefore undertaken assuming discharge concentrations specified in the POEO (Clean Air) Regulation. Predicted ground level concentrations were then compared to the impact assessment criterion for benzene. The EPA concurs that this is a reasonable (and conservative) approach. According to Schedule 1, Part 3, Division 2 of the Protection of the Environment Operations Act, thermal treatment <i>means the processing of wastes by burning, incineration, thermal oxidation, gasification, pyrolysis, plasma or other thermal treatment processes</i> . By this definition, the proponent is undertaking thermal treatment of waste, and therefore the discharge limits set out in Schedule 2 of the POEO (Clean Air) Regulation are relevant to the site. Given that the proposed facility is a thermal treatment plant that treats principal toxic air pollutants (e.g. dioxins/furans), according to Schedule 2 of the POEO (Clean Air) Regulation, it has a discharge limit of 20 mg/m ³ .	The proponent should be advised that the appropriate stack discharge concentration limit is 20 mg/Nm ³ .
1.6 10 minute average SO ₂ is not modelled	10 minute SO ₂ ground level concentrations have been calculated from the 1 hour	AECOM has calculated the 10 minute average ground level concentration of SO ₂ , and has found that it easily	This issue has been adequately addressed.

	predictions using the Vic EPA power law equation.	meets the impact assessment criterion.	
1.7 Particle size distribution is not representative.	AECOM used the particle size distribution from USEPA 2.3-15 with scrubber for PM ₁₀	USEPA states 71.9% TSP is PM ₁₀ and 2.7% is PM _{2.5} (AECOM uses 71.9% and 9.5%). The proposed development will have a fabric filter and a scrubber, so emissions are likely to be less than this. Therefore emissions by AECOM are considered conservative.	This issue has been adequately addressed.
1.8 Existing sources are modelled based on average emissions	Stacks at the facility don't all operate simultaneously, and don't all operate continuously. Since they have been modelled as continuous and simultaneous, this is a conservative assumption.	The EPA concurs that this is conservative.	This has been adequately addressed.
1.9 In Scenario 2, partitioning of metal emission species is not adequately justified	Hg emissions account for 87% of total metal emissions. Modelling assumed Hg emissions accounted for 8% of total metal emissions, and thus the modelling under predicted Hg impacts by a factor of approximately 11. Hg impacts were 15 times less than the impact assessment criterion. Thus even if Hg emissions increased by a factor of 11, they would still meet the impact assessment criterion.	Since there are no variable emissions, scaling can be done to calculate ground level concentrations. If Hg emissions are increased by approximately 11 times their current value, the approximate ground level concentration will increase to 0.13, which is 73% of the impact assessment criterion of 0.18. Thus, in scenario 2, using a more realistic partitioning will still predict compliance with the impact assessment criterion.	This issue has been adequately addressed.
1.10 Adoption of 99.9 th percentile model results for dioxins is not adequately justified	Regional background data and site specific prognostic data were used in the assessment.	Regional background data and site specific prognostic meteorological data were used in the assessment. The meteorological data was not contemporaneous with the background data, as is a requirement for a Level 2 assessment. Stack emissions for the thermal treatment facility have been derived using emission factors. The EPA considers that the assessment is a Level 1 assessment and the maximum dispersion model prediction should be used.	The proponent should provide 100 percentile model predictions for all individual toxic air pollutants.
1.11 Potential emissions from the 'burnout hearth' is not assessed.	The burnout hearth is not ventilated to atmosphere. All combustion gases	Since the burnout hearth is not discharged directly to atmosphere, there are no	This issue has been adequately addressed.

	from the burnout heath are discharged through Stack 5.	additional emissions to be assessed.	
1.12 Duel fuel combustion operation is not assessed.	A duel fuel feed is not proposed. If an alternative fuel is to be added to the combustion process, then regulatory approval will be sought via a licence variation application.	The AECOM response is considered appropriate.	No additional information is required at this stage.
1.13 Emission concentrations are not demonstrated as complying with the Regulation prior to dilution.	Injection of ambient air is required to reduce the temperature of the air prior to entering the baghouse. Process air oxygen concentration in the combustion chamber outlet will be measured to provide a reference point for an oxygen correction.	Clause 54 of the Clean Air Regulation specifies that the concentration of a gas stream needs to be adjusted if it is mixed with another gas stream prior to discharge to the atmosphere. This is to ensure that dilution is not used as a method to reduce the concentration of the pollutant at discharge.	The proponent should demonstrate that the undiluted gas stream meets concentration limits specified in the POEO (Clean Air) Regulation for all relevant pollutants.
1.14 Meteorology and background air quality data are not adequately evaluated and justified as representative.		This has not been addressed to the satisfaction of the EPA. 2014 has not been justified as being a representative year for modelling purposes. The <i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW</i> requires site-representative meteorological data to be correlated against a longer duration site-representative meteorological database of at least five (preferably consecutive) years to be deemed acceptable. - The model set up has not been confirmed, and there is no explanation as to why Calmet only had 8,735 hours of data. - No explanation was given as to why the background air quality data and the meteorological data are not contemporaneous.	The proponent should address points 1-3.
1.15 Control technology has not been benchmarked against best practice process design and emission control.	Control technology has been benchmarked against best practice and determined that a fabric filter, along with activated carbon and lime injection	AECOM has undertaken a comprehensive review of best practice technology. The EPA concurs that the proposed control technology is suitable	This issue has been adequately addressed.

	is suitable for the purpose.	for the thermal waste processing facility.	
1.16 Proposed bypass stack emissions do not comply with regulation limits and assessment criteria are predicted to be exceeded.	The bypass stack will only be used in emergency situations.	The stack discharge limits, as set out in the POEO (Clean Air) Regulation, are not applicable to the bypass stack since the bypass stack will be used in emergency situations only.	No additional information is required at this stage.