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Attention: Susan Fox

By email: [susan.fox@planning.nsw.gov.au](mailto:susan.fox@planning.nsw.gov.au)

14 May 2019

Dear Ms Fox

**Regain Spent Potlining Treatment Facility – Response to Submissions  
MP 06\_0050 Modification 2**

I refer to your email to the Environment Protection Authority (EPA), dated 2 April 2019, seeking the EPA's review of the proponent's response to submissions for the Regain Spent Potlining Treatment Facility modification application, reference MP 06\_0050 Mod 2. The proponent's response is detailed in the report titled "Response to Submissions Report" (RTS), dated 29 March 2019 and prepared by Aecom Australia Pty Ltd.

While most of the air quality impact assessment matters previously raised have been addressed, additional information is still required regarding the assessment approach for polycyclic aromatic hydrocarbons (PAHs). This is detailed at **Attachment A**, and relates to:

- The speciated emission profile of PAHs;
- The application of potency equivalency factors for assessing against the impact assessment criteria which is applied as Benzo(a)pyrene equivalency; and
- The emission performance for PAHs (including test reports) as Benzo(a)pyrene equivalent.

A detailed review of the previously raised matters that have been adequately addressed in the RTS is provided at **Attachment B**.

If you have any questions about this matter, please contact Michael Howat on (02) 4908 6819 or by email to [hunter.region@epa.nsw.gov.au](mailto:hunter.region@epa.nsw.gov.au).

Yours sincerely

**MITCHELL BENNETT**  
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**Environment Protection Authority**

Encl: ATTACHMENT A – Additional Information Required – Regain (MP 06\_0050 Mod 2)  
ATTACHMENT B – Assessment of matters adequately assessed in the Response to Submissions

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## ATTACHMENT A

### **Additional Information Required – Regain (MP 06 0050 Mod 2)**

#### **Assessment of ground level concentrations for cadmium and PAHs**

The EPA required a more robust assessment, based on actual (design) emission performance that is consistent with best practice emission control, rather than nominal values.

#### **Cadmium**

The revised air quality impact assessment includes an additional assessment scenario based on actual source monitoring data. It is noted that the additional scenario is based average monitoring data which is inconsistent with the *Approved Methods for Modelling and Assessment of Air Pollutants in NSW* (this is addressed further under 'Issue 4' in Attachment B).

If results of the average monitoring (scenario 1) are scaled to account of maximum monitoring data, predicted ground level concentrations for cadmium are approximately 60 % of the impact assessment criteria. Additionally, Scenario 2, based on proposed EPL limits, predicts ground level concentrations for cadmium are approximately 99% of the impact assessment criteria.

Given the lack of further detailed assessment for cadmium accounting for other significant sources, the EPA recommend that limits for cadmium be included for all existing and proposed emission sources that are representative of 'no net increase' for cadmium emission intensity. Based on a current cadmium limit of 0.035 mg/m<sup>3</sup> for the existing kiln, a limit of 0.018 mg/m<sup>3</sup> for both the existing and proposed kilns discharge points is proposed.

**Recommendation:** In the absence of further assessment accounting for cadmium emissions from other significant sources, a revised cadmium limit of 0.018 mg/m<sup>3</sup> is recommended for both processing kilns.

#### **PAHs**

If results of the average monitoring data (scenario 1) are scaled to account for maximum monitoring data for PAHs, predicted ground level concentrations for PAHs are approximately 75% of the impact assessment criteria. Additionally, Scenario 2, based on proposed EPL limits, predicts ground level concentrations for PAHs are approximately 91 % of the impact assessment criteria.

The revised assessment does not advise on the methodology for assessing PAHs (including the specification profile of PAHs), noting that:

- Current EPL limit for PAHs is not as benzo(a)pyrene equivalent;
- The impact assessment criteria for PAHs is based on benzo(a)pyrene equivalent.

The proponent must provide further information on the assessment approach for PAHs, including the provisions of test data, PAH specification profile, and the application of potency equivalency factors for the specification PAH profile.

**Recommendation:** Proponent must provide further information on the assessment approach for PAHs including the application of potency equivalency factors, and whether PAHs have been assessed as benzo(a)pyrene equivalent.

## ATTACHMENT B

### **Assessment of matters adequately addressed in the Response to Submissions**

The EPA reviewed the previously exhibited Air Quality Impact Assessment (AQIA) and identified eight issues where additional information was required. Each of the previously identified issues, and the adequacy of the additional information in addressing those issues, are discussed below. For ease of reference the numbering system used below is consistent with our previous submission on the AQIA. Issue 6 is the matter detailed in Attachment A.

#### **Issue 1 – A more detailed process description, including benchmarking emission performances with available best practice mitigation measures**

The EPA recommended the proponent provide further information on the proposed mitigation measures for key pollutants associated with the process, including a comparison or benchmark of the proposed mitigation measures with best practice mitigation measures for key pollutants.

The RTS includes mass balance information on some of the key pollutants associated (fluoride and cyanide) with the proposal. Specifically, the mass balance information provided, advises on mass emissions of specific pollutants for each 100 tonnes of spent pot lining (SPL) product processed. The information advises that:

- Approximately 17 g of the 10 t of fluoride that is present in the material processed is emitted in flue gas, and
- Approximately 3 g of the 50 kg of cyanide that is present in the material processed is emitted in flue gas.

As such the mass balance information indicated that > 99.99% of cyanide and fluoride is being mitigated or retained within the process material.

Whilst the response to submissions does not compare emission performance of other mitigation measures, the mass balance information provided for fluoride and cyanide indicates that a sufficient level of control can be achieved. The proponent is proposing mitigation measures in the form of:

- enclosure for the SPL handling and preparation plant with dedicated dust extraction and filtration;
- enclosure of material transfer points with subsequent dust extraction and filtration for the external plant and equipment;
- filtration in the form of baghouses for the two new point source discharges (the fine grinding stack, and the processing kiln); and
- temperature control of the thermal treatment process (maintain temperature below 850 deg C) to minimise gaseous fluoride.

Given this information, additional investigation of additional mitigation measures is not warranted. Monitoring requirements will be recommended for the proposal to demonstrate ongoing environmental performance.

#### **Issue 2 – Detail on the proposed plant configuration and design not provided**

The EPA recommended that the proponent provide further detail on plant and equipment configuration including, but not limited to, flowrates and vapour stream compositions through major processing units.

The response to submissions includes a revised impact assessment which includes an additional scenario based on monitoring data for the proposal. Hence vapour stream compositions and flowrate information have been included within the revised assessment. There is a lack of clarity on the assessment of PAHs, specifically the speciation profile of the PAHs and the application of potency equivalency factors.

### **Issue 3 – Uncertainty on the significance of the site contributions to cumulative ground level concentrations**

The EPA recommended the AQIA be revised to include a more robust cumulative assessment scenario where emissions from Tomago Aluminium are included in the modelling, on the basis of potential cumulative impacts for HF and SO<sub>2</sub>.

The response to submissions includes a revised AQIA. The revised AQIA does not include a dispersion modelling scenario that models emissions from both Tomago Aluminium and the proposal. However, the revised AQIA does account for contributions from Tomago Aluminium for hydrogen fluoride and sulphur dioxide based on consideration of all ambient air monitoring conducted within the vicinity of Tomago Aluminium. This is an expanded dataset compared with the exhibited AQIA.

The revised assessment indicates the potential for exceedances of the impact assessment criteria for hydrogen fluoride (HF) when considering the larger range of ambient air monitoring data for hydrogen fluoride. Given the ambient air monitoring data considered for hydrogen fluoride there is potential for exceedances of the impact assessment criteria without consideration of the proposed plant and equipment. The EPA is aware that a buffer was developed for managing fluoride emissions from the Tomago facility. The ambient air monitoring data collected represents locations located within that buffer.

It is noted that the predicted incremental ground level concentrations for HF (considering maximum source monitoring data from the existing plant) are approximately 14 % of the impact assessment criteria at industrial receptors and approximately 4 % of the impact assessment criteria at residential receptors. When considering emission estimates based on proponent proposed EPL limits, the predicted incremental ground level concentration of HF is approximately 6 % of the impact assessment at residential receptors and approximately 24 % of the impact assessment criteria at industrial receptors.

Given the estimated contributions from the proposal, and the mass balance information which advises that fluoride is largely retained within material processed, this issue is adequately resolved.

### **Issue 4 – Assessment based on nominal emission concentrations rather than actual emission performances that are consistent with best practice**

The EPA recommended that the air quality assessment include a scenario based on actual emission performance of the proposed plant design that are consistent with best practice.

The revised air quality impact assessment includes a scenario based on actual monitoring data (Scenario 1). Scenario 1 is based on average monitoring data collected from the existing plant. The use of average monitoring data is not consistent with the *Approved Methods for Modelling and Assessment of Air Pollutants in NSW*.

The EPA advises that if results of the average monitoring data are scaled to account for maximum monitoring data exceedances are unlikely (with the exception of HF). Additionally, Scenario 2 based

on proposed EPL limits does not predict exceedances (with the exception of HF) of the impact assessment criteria.

**Issue 5 – Unclear if the assessment has adequately considered all pollutants from each source**

The EPA recommended that the assessment be revised to provide additional information and/or assessment of the other significant air pollutants, specifically PM<sub>2.5</sub>, metals and other combustion pollutants associated with other sources at the premises.

The response to submissions includes further clarification on the assessment approach and the revised assessment includes an assessment of PM<sub>2.5</sub>. The response to submissions advises that only particulate emissions have been assessed for activities associated within Shed 5, Ball Mill operations and the dryer stack. Post commissioning testing of the particle sources for Type 1 and Type 2 substances should be conducted if project approval is granted.

Recommendation: As this issue has only been partially addressed, post commissioning testing of type 1 and type 2 substances for particulate matter sources will need to be conducted.

**Issue 7 – Demonstration of Compliance with the *Protection of the Environment Operations (Clean Air) Regulation 2010***

The EPA recommended that the proponent include a demonstration of compliance with the prescribed concentrations contained in the *Protection of the Environment Operations (Clean Air) Regulation 2010*.

The revised assessment includes a summary of test results and proposed EPL emission limits for the additional point sources. The revised assessment advises that both existing monitoring data and proposed EPL emission limits are compliant with prescribed concentration contained in the *Protection of the Environment Operations (Clean Air) Regulation 2010*.

**Issue 8 – Clarification of sensitive receptors and predicted impacts at each sensitive receptor**

The EPA recommended that the assessment be revised to include further information on the sensitive receptor locations and the predicted ground level concentrations for each receptor type.

The revised assessment tabulates predicted ground level concentrations for both residential and industrial receptors for the two scenarios assessed.