Our reference: DOC16/642410

Manager Industry Assessment
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Sheelagh Laguna

Dear Sir/Madam

EPA Air Technical Advisory Services Unit's comments on Proposed Lead Acid Battery Recycling Facility at Kurri Kurri, NSW (SSD 7520)

I refer to our previous correspondence on this proposal.

The EPA's Air Technical Advisory Services Unit (ATASU) has reviewed the Air Quality Impact Assessment (AQIA), *Kurri Kurri Battery Recycling Facility Air Quality and Greenhouse Gas Assessment*, October 2016, prepared by Ramboll Environ.

Based on ATASU's assessment of the report EPA has noted the following:

- Pollutant emissions from the proposed process, especially sulfur dioxide, have been estimated using stack testing data from other facilities but no detailed supporting information has been provided, such as, the manufacturers design specifications.
- Estimated emissions of sulfur dioxide, as noted in the report, have the potential to be variable during operation of the plant but no robust justification of the estimated emission rates or performance guarantees at upper bounds of operational variability have been provided;
- Emissions estimates for arsenic, dioxin and furan discharges require more robust justification and clarification.
- Emission estimates for the purposes of cumulative assessment with other sources of the developing Industrial Area and a variety of compounds have not been robustly justified.
- The mitigation and management measures have not been benchmarked against Best Management Practice (BMP) principles fugitive emission capture and control mechanisms.

The EPA advises that:

- The assessment does not include sufficient supporting documentation to verify emission assumptions, especially for sulfur dioxide, but also for particulates, arsenic, dioxin, and furans.

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On this basis, validity on the model results and conclusions of the assessment are not able to be confirmed.

- To ensure that the assessment is robust for decision making purposes, detailed comments provided as **Attachment A** should be addressed prior to project approval.

Should you require further information regarding this matter, please contact Carolyn Alford on (02) 4908 6894.

Yours sincerely

Mark Carey
Acting Head Hazardous Materials
Hazardous Materials, Chemicals & Radiation
Environment Protection Authority

20 December 2016

Attachment A

Background

Pymore Recyclers International Pty Ltd propose to construct and operate a Used Lead Acid Battery (ULAB) recycling facility (the Project) at 129 Mitchell Avenue, Kurri Kurri. The Project would recycle approximately 60,000 tonnes per annum (tpa) of ULAB. The Project has been designated as State Significant Development (SSD), under Part 4 of the *NSW Environmental Planning and Assessment Act 1979.* The Project is currently on public exhibition.

The ULAB recycling plant would have four main processes – crushing, screening and separation, desulphurisation, crystallisation, and lead extraction. The process converts ULAB into material which are recycled for use in new products.

The following comments are provided by the EPA's Air Technical Advisory Services Unit (ATASU).

Detailed Comments

1. **Description of the process lacks clarity**

Section 6.1 of the Air Quality Impact Assessment (AQIA) advises there are five proposed point source emissions. The AQIA makes reference to point source discharges (stacks), C-720, C-729A, C-530, PK-520 and U-421/PK420.

Section 9.1 of the AQIA makes reference to mitigation measures and pollution control equipment, including:

- Bag house filtration system (PK-721)
- Bag house system (PK-720) for collection of process fumes from the rotary furnace;
- A pack tower scrubber (FL-530) where air collection is ducted to for removal of acid gas and mist; and
- Operation of the charge preparation building under negative pressure.

However, in some instances it is unclear which unit operations, and which pollution control equipment are associated with each point source discharge. A flow chart outlining each unit operation, the associated discharge point, and the associated pollution control equipment would be helpful in further understanding the proposal. This is an important consideration to ensure all sources, and substances are adequately characterised and assessed.

The AQIA should be revised to include information:

- ***That describes which point source emissions serve which process or unit operations;***
- ***That describes which pollution control equipment service which process or unit operations;***
- ***That describes which point sources include pollution control equipment; and***
- ***That describes which process areas are proposed to operate under negative pressure and which unit operations are contained in those process areas.***

2. Assessment scenarios may not reflect approvals being sort or potential worst case emissions

Section 3.4.3 of the Environmental Impact Statement (EIS) advises that there are two proposed development phases, being:

- Phase 1 (one furnace) – 100 tonnes per day (tpd), 30,000 tonnes per annum (tpa); and
- Phase 2 (two furnaces) – 200 tpd, 60,000 tonnes per annum (tpa).

The Air Quality Impact Assessment does not contain sufficient information to understand:

- which development phases have been assessed and at what processing rate; and
- If two furnaces have been assessed.

Hence it is unclear if potential worse case emissions have been considered in the AQIA methodology and assessed.

The AQIA should be revised to include:

- ***An assessment scenario for each phase of the project approval being sort;***
- ***Information and assessment that adequately demonstrates that potential worst case emissions have been assessed, with consideration to the throughputs articulated within the EIS; and***
- ***Information to clarify that two furnaces have been included within the assessment scenarios.***

3. Supporting information for emission estimations have not been provided

Section 6 of the AQIA advises that:

- "*Emission are derived based on stack testing data from identical facilities operating the Engitec CX system*";
- "*The emission rates (in grams per second) are derived from the expected in-stack concentrations provided by the proponent based on similar facilities*"

No detailed supporting information, including the stack testing report or manufactures' specifications, has been included.

As per Section 3.3 of the *Approved Methods of the Modelling and Assessment of Air Pollutants in NSW* (the Approved Methods), the EPA's preferred methods for estimating emissions rates are direct measurement for existing sources and manufacturer's design specifications for proposed sources.

The AQIA should be revised to provide a robust justification of estimated emissions. As a minimum, reference and inclusion should be made to manufacturers' specification, emission guarantees and/or stack test data reports.

4. Emissions of sulfur dioxide (SO_2) has the potential to be variable

Section 2.1.4 of the AQIA describes the desulphurisation process which involves the use of soda ash to convert the lead sulphates to sodium sulphate. Post filtration the resulting "*desulphurised*" lead paste is introduced into the rotary furnace to recover lead.

The performance of the desulphurisation process step has the potential to effect the mass of sulfur entering the rotary furnace and hence the emission performance of sulfur based compounds (i.e. SO_2) from the rotary furnace(s).

Section 3.3.4 of the Approved Methods includes the items that should be considered when accounting for potential variability in emissions rates. Included within Section 3.3.4 are the following items that should be considered:

- Manufacturers' design specifications or performance guarantees can establish the upper bounds of likely operational variability;
- If no data is available to describe the distribution of emission rates, use the maximum measured or calculated emission rate; and
- Where practicable, emission rate data should be constructed using an averaging period that is the lesser of one hour or the sampling time used in the concentration calculations.

The AQIA should be revised to provide a robust justification of the estimated emission rates including a demonstration that any potential emission variability has adequately been accounted for. This must include:

- ***a demonstration that SO_2 emission rates reflect a maximum over a one hour averaging period;***
- ***the measures that will be implemented to minimise sulfur entering the rotary furnace; and***
- ***the measures that will be implemented to minimise process emission variability.***

5. Emission estimates for arsenic have not been robustly justified

Section 6.1 of the assessment advises that "*Emission of arsenic from the project have been quantified based on the estimated arsenic content of the lead slag of 0.2%. This percentage has been applied to the estimate particulate matter emission rate to conservatively estimate arsenic emissions*". Presumable the lead slag being referred to is the remaining material post smelting in the rotary furnace. Hence the 0.2% may only account for the residual quantity of arsenic that remains after smelting and not the emissions (both particulate bound and gaseous) that occur during the smelting.

The AQIA should be revised to provide a robust justification for the emission estimation of arsenic.

6. The proposed dioxin and furan discharge concentrations require clarification

Table 6-1 and 8-1 of the AQIA provide the estimated discharge concentrations for the project in mg/m^3. The estimated discharge concentration for dioxins and furans for point sources C-720 and C-720A are 0.04 mg/m^3 and 0.1 mg/m^3. The *Protection of the Environment Operations (Clean Air) Regulation* prescribed concentration limits for dioxins and furans is 0.1 ng/m^3 (i.e. orders of magnitude difference with the units used for emission estimation). This is potentially a typographic error, but should be confirmed.

The AQIA should be revised to clarify the estimated discharge concentrations of dioxins and furans, and confirm that the proposal will meet the prescribed limits within the Clean Air Regulation for dioxins and furans.

7. **Emission estimates for the purposes of cumulative assessment with other sources have not been robustly justified**

Section 5.1 Air Quality Impact Assessment advises that cumulative impacts with neighbouring Weston Aluminium facility have been considered. The assessment advises that "*emissions data has been provided by Weston Aluminium for the inclusion in cumulative modelling of PM_{10}, $PM_{2.5}$, lead, NO_2 and SO_2*". The AQIA does not provide detailed discussion or demonstration that the emission estimates utilised are appropriate for assessing cumulative impacts. It is not clear that the recent Weston Aluminium proposal (SSD-15-7396) has been considered in conducting the cumulative assessment.

Additionally the Air Quality Impact Assessment advises that the proposal will occupy part of the lot on which the West Aluminium Dross Recycling Plant is located. ATASU considers that given the proposed location of the proposal the cumulative assessment should not be limited to those criteria pollutants currently included within the cumulative assessment (particulates, lead, NO_2 and SO_2).

The AQIA should be revised to:

- ***Include a robust justification for the emission estimates adopted from other sources on nearby premises;***
- ***Include additional information and assessment that robustly assesses potential cumulative impacts with the recent Weston Aluminium proposal.***
- ***Include cumulative assessment of other compounds.***

8. **The mitigation and management measures have not been benchmarked against Best Management Practice principles.**

Section 3.2 of the AQIA advises "*Best Management Practice (BMP) as a guiding principle in the Protection of the Environment Operations Act, and requires that all necessary practicable means are used to prevent or minimise air pollution in NSW*". However, the assessment does not discuss or benchmark the proposal against this principle.

The AQIA makes reference to similar facilities, for example in Section 6.1, for the purposes of estimating emissions. However, no comparison of control technology with other similar plants is included. Additionally, the AQIA does not discuss other control technologies including end of pipe controls which may be feasible for implementation.

The AQIA should be revised to include additional information that demonstrates the adoption of best management practice mitigation measures, including but not necessary limited to end of pipe controls.