ATTACHMENT A: DETAILED REVIEW COMMENTS ON JULY 2017 ENVIRONMENTAL ASSESSMENT FOR THE WESTON ALUMINIUM DROSS RECYCLING FACILITY MODIFICATION PROPOSAL

C&R has prepared this advice upon reviewing the following submissions pertaining to the Weston Aluminium Dross Recycling Facility[1] at 129 Mitchell Avenue, Kurri Kurri:

(1) *Environmental Assessment: Modification – Pharmaceutical & Illicit Drug Waste,* Revision 1 (the EA) – prepared by AECOM Australia Pty Ltd, 10-Jul-2017. The Air Quality Impact Assessment (the AQIA) contained within the EA is specifically referenced in preparing this advice.

(2) *Secretary's Environmental Assessment Requirements* (the SEARs) – the Department of Planning and Environment letter to Weston Aluminium dated 3-Mar-2017.

Summary

C&R finds that the EA does not sufficiently inform the issue of risk to human health, due primarily to the assumption made of unchanging feedstock characteristics relative to previous (metallurgical) operations. This proposal is likely to cause a significant change in the facility emissions profile, for example due to the introduction of chlorinated compounds from the new feedstock (pharmaceutical wastes and illicit drugs). As a minimum, the Proponent must be required to benchmark the proposal against international best practice on medical waste incineration, to determine that the proposed change in feedstock is an appropriate use for the existing rotary furnace. To this end, the air impact assessment modelling for the proposed modification should apply realistic emissions data from the two-year trial phase the Proponent has undertaken. In addition, assessment of technology appropriateness is also required, including consideration of any additional air pollution mitigation unit operations that may be necessary to control air emissions at the stack.

C&R also advises that the Proponent must ensure technical consistency between the various modelling assessments being undertaken to support multiple proposals/projects at Weston Aluminium's Kurri Kurri site. Inconsistencies in modelled stack parameters and lack of clarity between different scenarios modelled for the current and a previous proposal at the WA's Kurri Kurri site (SSD_ 7396) should be addressed in any future submissions.

Finally, to sufficiently address the *Secretary's Environmental Assessment Requirements* and thus inform the risk of the harm due to the proposed modification, the Proponent must undertake a human health risk assessment.

[1] DA-86-04-01 MOD 12 & LEC 10397 OF 1995 (MOD10)

Detailed comments

1. **Key air pollutants of concern from the Modification proposal and how these change the risk due the proposal have not been considered**

The EA states that *the ongoing processing of pharmaceutical and illicit drug wastes would fit within the existing processing limit (i.e, up to a combined total of 40,000 tpa of aluminium dross, SPL, and pharmaceutical and illicit drug wastes).*

Based on the above argument (i.e. unchanging waste limits), the EA has deduced no increased risk of harm from the modification proposal. C&R advises that for the proposed modification, meeting the processing limit requirement should not be the only criteria for ensuring risk of harm does not change. A key determinant in this case will be the potential chemicals of concern that the new waste stream will introduce into the process.

The EA must present evidence to support the position that the stack emissions profile will remain unchanged with the introduction of pharmaceuticals/illicit drugs (e.g. change in both, pollutant types, and concentrations).

The Proponent is requested to:

a. Review and discuss evidence from credible sources stating key chemicals of potential concern from the incineration of pharmaceutical wastes/illicit drug stream. This review must highlight the significance of any additional hazardous pollutants introduced by the new waste stream when compared to previous operations (i.e. metals processing).

b. Present data from previous operations and trial phase operations and discuss whether the trial phase change in waste type has changed the emissions profile.

2. **Proposed modified facility should apply best-practice medical waste incineration principles and technology**

This proposal requires benchmarking against best practice medical waste incineration technology, as the (former) Dross Recycling Facility did not involve medical wastes. Due to halogenated content of pharmaceutical wastes and possibly various packaging materials, the incineration of this waste stream will most likely introduce dioxin emissions, which are known human carcinogens. The Proponent therefore must consider the question of technology appropriateness in seeking this modification.

Furthermore, Proponent must consider what practices will be implemented to ensure efficient combustion processes to minimise emissions of dioxins and other products of incomplete combustion. For example, pre-incineration procedures such as adequate mixing/blending of the feedstock, and any other “rule of thumb” best practices must be investigated for implementation.

The Proponent is requested to:

a. Review and discuss best-practice incineration technology for pharmaceutical wastes.

b. Justify that the existing rotary furnace meets the required best practice standards for pharmaceutical waste incineration. Alternatively, discuss the best available technology option that is feasible for adoption to progress the proposed modification.

c. If the above options cannot be substantiated, consider other use options for the rotary furnace.

3. A detailed human health risk assessment should be required for the modification proposal

The EA refers to a Preliminary Hazard Analysis (PHA) that has been undertaken, to conclude low risk of hazards, however, C&R is of the position that a detailed human health risk assessment be required from the perspective of informing risk to human health. In doing so, the Proponent is requested to justify the claim that "*hazards associated with the ongoing commercial-scale processing of pharmaceutical and illicit drug wastes at the site would not result in a change to the existing risk profile*" in relation to human health.

The Proponent is requested to provide a detailed human health risk assessment for the modification proposal, supported by the following additional information:

a. Discuss the "existing risk profile";

b. Justify the level of level of human health risk assessment undertaken with respect to EnHealth guidelines. This discussion must also describe the adequacy of criterion/guideline values applied, and;

c. Demonstrate that cumulative risks will be acceptable, as per the SEARs requirement that the EA must "demonstrate acceptable levels of cumulative risks by estimating cumulative impacts from overall site and surrounding potentially hazardous developments in the area".

4. To inform a more realistic health risk analysis, trial phase emissions data should be considered

C&R notes that it is questionable as to how realistic the air modelling outcomes informing any risk analysis on this proposed modification are given that a 24 month trial period is nearing completion, yet neither emissions measurements nor activity rates from real operational conditions appear to have been used. Instead, source emissions are estimated and that too, estimated as averages as opposed to for peak/worst-case scenarios. No trial phase data has been presented either, which brings into question the purpose served by the trial phase and whether any data is available. It is also unclear if the Proponent has met the SEARs requirement of *allowance for stock feed variation* in deducing the risks related to the project.

The Proponent is requested to:

a. Discuss how the waste mix ratio proposed to be processed by the modification proposal would change the emissions profile, and particularly whether the trial phase assessed different mix ratios.

b. Model appropriate emissions scenarios incorporating inputs that reference trial phase activity rates, waste mixes and at-stack concentrations of pollutants of concern under (a) normal operations, and (b) emergency operations.

c. Discuss the worst-case emissions scenario created by the emergency stack (i.e., from (2b) above), and risks of acute exposure this would present off-site.

d. Assess risk of off-site human impacts based on the above.

e. Consider additional mitigation and operational processes, particularly in relation to those which represent worst-case operational scenarios.

5. Waste blending operations and related mitigation is unclear

Table 6 "Risk Assessment" rates the risk of "Generation of fugitive emissions, dust and odour" as having "medium" likelihood. C&R understands that this project involves thermal processing of "waste blends" made of pharmaceuticals wastes with conventional dross, spent pot lining (SPL) and/or scrap furnace. C&R notes that waste blending before introduction into the incinerator allows for efficient combustion and thereby minimises toxic emissions (e.g. formation of dioxins). Given the importance of this step, it is unclear as to where the production of "waste blends" would occur if at all, and more importantly if it would occur under protective conditions to limit off-site exposure and exposure to workers.

The Proponent is requested to:

a. Confirm that waste blending will be undertaken, and state clearly the conditions under which this will occur.

b. Justify whether a medium risk category indicated in Table 6 is realistically achievable with the existing safeguards. If not, consider additional process design elements to ensure waste blending occurs under adequately protective conditions.

6. Proponent is requested to ensure consistency in air modelling assessments prepared for various proposed projects at the Weston Aluminium Kurri Kurri site

For consistency, the Proponent must ensure harmonisation between various Weston Aluminium project proposals related to the Kurri Kurri site when preparing any future iterations of the reviewed submission, or any other related project. In referencing two different proposals[2] for the WA Kurri Kurri site, C&R have identified the following issues:

- The impact assessment criterion for dioxins and furans used in the EA (see Table 10, $2x10^{-6}$) is 1000 times above that recommended by the *NSW Approved Methods for Modelling and Assessment of Air Pollutants in New South* Wales (which is $2x10^{-9}$). C&R notes that the correct criterion has been applied for the thermal incineration project (see Table 3, WA_SSD_EIS_AQIA_Rev_0_30.06.17).

- The subject of this modification proposal is Stack 1, and C&R notes that both Stack 1 and Stack 5 (subject of SSD 7296, the thermal incineration proposal) have been modelled for cumulative impact assessment purposes (see Table 6, EA). However, there are inconsistencies in stack velocity parameter used between the two proposals related to this WA Kurri Kurri site[3].

- C&R also notes that the predicted airborne concentrations of dioxins and furans are near-criterion-levels for both WA proposals under normal operational scenarios[4]. C&R notes that further to the above-noted inconsistencies in stack parameters applied, the air impact assessments for the two proposals cannot be easily related to each other in terms of scenarios modelled. Hence, it is difficult to determine the significance of the current proposal relative to SSD 7396.

The Proponent is requested to present all scenarios modelled in every submission related to the WA's Kurri Kurri site so that scenarios modelled and stack parameters applied to Stacks 1 and 5 (and any other emission sources/stacks) are consistent between proposals.

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[2] Being: (1) Environmental Assessment: Modification – Pharmaceutical & Illicit Drug Waste; and, (2) Weston Aluminium Thermal Waste Processing Project (SSD 15_7396)

[3] See also Table 10, WA_SSD_EIS_AQIA_Rev_0_30.06.17

[4] For reference, see Table 10 of the EA and Table 20 of WA_SSD_EIS_AQIA_Rev_0_30.06.17