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16 September 2016

Emma Barnet
Environmental Planning Officer
Infrastructure and Industry Assessments
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001
(by email)

Re: Weston Aluminium – Application for Development Consent Modification
Proposed Processing Trial of Quarrantine Wastes

Dear Mrs Barnet,

Further to our earlier discussions with Mr David Mooney of the NSW DPE (22 February 2016) and subsequently with Mrs Emma Paul, Mrs Karen Marler and Mrs Jenny Lang of the NSW EPA (1 March 2016), Weston Aluminium Pty Limited (Weston Aluminium) wishes to further diversify its Kurri Kurri based operations and explore the feasibility of thermally processing quarantine wastes. Accordingly, Weston Aluminium seeks a modification to its Development Consent and variation to its Environmental Protection Licence to enable limited processing trials of these wastes to be undertaken at our Kurri Kurri premises.

This initiative has been identified through preliminary pharmaceutical processing activities (Trial in progress), heightened demand within the waste sector, and as an extension to the NSW EPA's 2016 project and call for Expressions of Interest for Innovation in Problem Waste management.

The objective of the processing Trial is to assess compatibility of existing plant and equipment, understand the nature and processing demand of input wastes, and to generate data in support of our proposed *'Medical and Other Waste Thermal Treatment Facility'* State Significant Development, currently under exhibition. Furthermore, our ongoing and imperative need to further diversify is now even more crucial in view of uncertainty within the Australian Steelmaking sector, and our need to place less reliance of this traditional market sector to sustain our operations.

In support of our Development Modification and Licence Variation Applications, Weston Aluminium has prepared the enclosed briefing in relation to *'Quarantine Waste Trial Processing'*, including background, proposed trial project overview and associated environmental assessment.

I trust the information provided is suitable for your consideration. Should you require additional information, please do not hesitate to contact me on 4936 2166.

Yours sincerely,

Weston Aluminium Pty Ltd

Christopher McClung
Plant Manager

CC: NSW Environment Protection Authority

Enclosures: Attachment 1 – Applications to Modify Development Consent

BACKGROUND

Existing Company Operations

Weston Aluminium is a services company that provides innovative solutions to the aluminium and steel industries. Created in 1996 by Managing Director, Garbis Simonian (and in partnership with Asahi Seiren Co. Ltd of Japan), an opportunity was identified to process and recycle aluminium by-products in an environmentally efficient and responsible manner.

Operations commenced at our Kurri Kurri facility with the reprocessing of aluminium-bearing smelter wastes from local, domestic and international primary smelter generators. Using the 'non salt' processing technology adopted from its sister company in Japan as a core, Weston Aluminium has developed technologies to process all forms of aluminium bearing by-products from the aluminium manufacturing sector. In 2001, Weston Aluminium expanded its operations, commissioning a Reverbatory furnace for the reprocessing of aluminium scrap and base metals for the production of de-oxidant puck and specialist alloyed ingot for the steel manufacturing and die-cast industries, respectively.

Through various value-add processes, and in response to Weston Aluminium's central and foundation involvement with the Australasian Industrial Ecology Network (represented by like-minded industry, academics and Government regulators, eager to encourage the recovery of industrial by-products as valuable resources, and thereby achieve the diversion of large material volumes from landfill and/or overseas treatment), non-metallic residues generated by these core processes have been beneficiated and marketed to various industrial and manufacturing-based end-users as substitutes to conventional virgin raw materials (e.g. fluxes, desulfurising agents, slag conditioners and other raw material feedstock). In doing so, Weston Aluminium has diverted significant quantities of otherwise by-product residues from landfill disposal, thereby achieving a zero-waste position.

Further diversification of the business' service provision and product profile has occurred more recently in response to the Global Financial Crisis and contraction in the manufacturing sector and traditional markets served, including the following activities:

- 2012 - Extension of service provision to primary smelter clientele through the reprocessing of spent potlining wastes;
- 2015 – Trial-based thermal treatment and processing of pharmaceutical and illicit drug wastes; and
- 2016 – Proposed thermal treatment of medical and other scheduled wastes.

In addition to service diversification and operational sustainability, the proposed processing of Quarantine Waste provides a further opportunity to utilise surplus processing capacity to divert significant volumes of waste from limited landfilling resources.

Trial Conception and Demand

Through our experience to date with pharmaceutical waste processing, liaison with waste Suppliers and colleagues in the Waste Management Sector, and our growing awareness of other waste residues requiring treatment and management, Weston Aluminium seeks to further diversify its operations to include the Trial thermal processing of Quarantine wastes (Waste Code R150).

Quarantine waste, defined as any product that has entered Australia from overseas and deemed not for use in the marketplace without prior treatment, may be generated by the following activities/facilities:

- International airport environment (including ports, aircraft, catering facilities and passenger terminals);
- International seaport environment (including ports, ships/vessels and offshore installations);
- Quarantine approved premises (including post entry quarantine facilities); and
- International Mail Centres (Australia post facilities).

Quarantine wastes for which Trial approval is sought include the following inputs:

- Material used to pack or stabilise cargo;
- Galley and food waste;
- Sweepings from the holds or decks of a vessel or installation;
- Imported goods that cannot meet import conditions;
- Goods the importer has elected to dispose of;
- By-products including waste from processing;
- Growing waste/residues;
- Animal waste (including deceased animals);
- Dunnage and packing materials; and
- Any other material deemed to be quarantine waste by the Australian Quarantine and Inspection Service (AQIS).

Our research and industry consultation indicates that, as for pharmaceutical wastes, the rate of waste generation and demand for treatment is in a growth phase - in the order of a compounding 5% per annum. Domestic processing and disposal options for such wastes within NSW are limited, and regulations require that these wastes be thermally treated (by incineration or autoclaving). There is only one suitable NSW-based facility offering incineration services, and only two facilities with autoclaves, and accordingly, such a service is expensive, and often wastes are transported excessive distances for treatment. Furthermore, the processing of such wastes by autoclave generates approximately 105% of the original waste weight, resulting in compounded landfill demand.

Hence, generators and managers of quarantine wastes are highly supportive of proposed trial activities and the prospect of competition development within the industry.

In response to our preliminary research, Weston Aluminium has undertaken a more detailed analysis of the type, source location and generation quantities of these quarantine wastes that require thermal treatment, and for which our plant, equipment, processes and environmental controls are considered compatible. Input for the report was sourced from various publically-available databases, industry codes of practice, Department of Health, AQIS, the NSW Environment Protection Authority and via interviews with various industry experts.

Preliminary AQIS Consultation and Activities

In conjunction with Trial conception and preliminary design activities, Weston Aluminium has liaised with AQIS to perform a site inspection and audit, and to identify additional site and operational requirements relating to the proposed thermal destruction of quarantine waste. It is anticipated that Weston Aluminium's facility will be fully AQIS-acreddited by the end of September 2016.

TRIAL PROJECT OVERVIEW

Weston Aluminium is seeking to trial the thermal treatment of R150 quarantine wastes in conjunction with, or in isolation from, existing plant feedstock at a scale appropriate to evaluate the variability of waste streams, and to assess and verify the performance of the treatment sequence. Accordingly, Weston Aluminium is seeking approval to trial the processing of up to 1,000 tonnes of quarantine waste over an interval of up to two (2) years from Approval.

Consistent with prior trial activities, Weston Aluminium proposes a treatment process based on the following elements:

1. Input characterisation and segregated storage;
2. Furnace feedstock formulation;
3. Thermal treatment; and
4. Residue profiling and value-add.

It is proposed that existing plant and equipment currently employed for the handling and processing of conventional Plant inputs will be used for the treatment of quarantine wastes. Existing infrastructure and associated controls will be employed for material containment and compliance with regulatory environmental requirements.

Trial Objectives

Trials are proposed to establish the following:

- Variability of waste consignment density, packaging type, moisture content and storage and handling requirements;
- Verification of technology and infrastructure compatibility and performance on a relatively large-scale (storage and containment, treatment, and environmental control systems);
- Optimal furnace operating conditions, including identifying suitable batch composition, batch/residence time, burner protocol and required operating temperature for the thermal processing of quarantine wastes;
- Verification of the performance of the existing pollution control systems;
- Verification of the performance of various feedstock formulations;
- Assessment and confirmation of process and procedural controls relating to occupational exposures and safety performance;
- Energy demand requirements;
- Profile of ash for recycling opportunity potential; and
- Potential for scrap metal recovery after treatment.

Trial Proposal

The following activities are proposed:

1. The transportation of quarantine wastes from sources to Weston Aluminium's Kurri Kurri facility by licensed road Transport Contractors. Weston Aluminium has extensive experience with bulk waste materials that require special procedures for correct storage, handling and processing. Tracking and reporting of the R150 controlled waste movements will also occur in accordance with NSW EPA and AQIS waste tracking requirements;

2. Up to 1,000 tonnes of quarantine waste will be sourced domestically. It is anticipated that input materials will be sourced primarily from Newcastle and Sydney;

3. Due to the expected sporadic nature of supply and potential variation in waste nature, trial processing of quarantine wastes will occur at our Kurri Kurri facility over a period up to 24 months from Approval;

4. The proposed processing sequence is as follows:

    - Waste pre-screening and verification in accordance with AQIS requirements. This will permit an assessment of treatment viability, and identify any incompatible wastes or combinations of wastes for treatment design;
    - The delivery of wastes from domestic sources will be undertaken by a licensed road Transport Contractor. Transport routes, material handling and quality control/quality assurance documentation protocols established and implemented for existing waste movements as well as strict adherence to AQIS protocols and procedures will be adopted for the transport and handling of these wastes;
    - Inspection of wastes upon site delivery in accordance with established quality control protocols as well as strict adherence to AQIS protocols and procedures;
    - Waste feedstock deliveries will be temporarily stored in existing enclosed storage bays, as per AQIS requirements and accreditation until processing;
    - Thermal processing of waste as discrete, independent inputs will occur within existing natural gas-fired rotary furnaces under a batch-style process. These furnaces are capable of attaining the required elevated temperatures to efficiently and safely oxidise combustible components. Where appropriate, waste blends [small-quantity combinations (typically <100 kg) with conventional dross or SPL furnace additions] may also be explored;
    - Current Plant operations occur during the approved 24 h/day, 7 days/week. It is anticipated that processing trials will principally be undertaken during typical hours of operation (10 pm Sunday – 10 pm Friday), although trial activities may also occur during weekend periods, as dictated by Plant production and maintenance scheduling requirements;

- Process emissions will be ventilated, controlled and monitored by existing best-practice emission controls systems, including extraction hoods, lime scrubber-fabric-filter baghouse complexes, real-time continuous emissions monitoring systems, and routine independent NATA-accredited air emissions monitoring;
- Processed material will be tapped from the furnace into product bins. Once sufficiently cooled, the ash residue will be stored undercover awaiting laboratory assessment and future beneficiation into trial end-use products;
- Scrap metals will be reciovered and recycled, where possible; and
- The storage, handling and dispatch of finished product to Customers will occur under existing quality control procedures.

REGULATORY APPROVAL AND ASSESSMENT OF ENVIRONMENTAL IMPACT

In response to preliminary meetings and discussions with the NSW DPE and the NSW EPA, and for consistency with prior research and development trials and regulatory approvals, Weston Aluminium has prepared Applications to modify Development Consents, vary our Environment Protection Licence, and an assessment of potential environmental impact for the proposed processing Trials. This assessment describes proposed operations, safeguards and emission control technologies designed to ensure compliance with existing regulatory standards.

Regulatory Approvals

Approval is sought from the NSW DPE to modify Weston Aluminium's existing Development Consents (DA-86-04-01 and 10397 of 1995, as modified), authorising the trial processing of quarantine wastes. Applications to Modify Development Consents are enclosed as **Attachment 1**.

Concurrently, Weston Aluminium is also seeking a Variation of its Environment Protection Licence (EPL 6423) with the NSW EPA to authorise the carrying out of the processing trials. It is noted that the wastes may contain precursors to dioxins and furan formation, and in order to allow for the wastes to be processed in Weston Aluminium's rotary furnaces, the Variation also seeks an air concentration limit of 0.1 ng/m^3 for dioxin/furan emissions from Stack 1 (EPL Point 1) **– valid for the trial period only.** This limit reflects our regulatory limit already established for for Stack 1 during pharmaceutical and illicit waste trial processing, and for Stack 5 (Point 13) during aluminium scrap remelt operations, and is consistent with the most stringent air emissions criteria (Group 6) applicable for NSW regulation.

Consistent with prior Consent Modifications, Application is not sought to vary existing environmental performance requirements, nor to increase emission limits established for the premises. Weston Aluminium is committed to maintaining its high standard of emissions compliance, and is confident that existing emission control technologies and practices will be sufficient to maintain this high performance standard.

Our Application for Environment Protection Licence Variation has been issued to the NSW EPA.

Potential Key Environmental Issues and Proposed Management, Monitoring and Mitigation Measures

A review of potential environmental issues associated with the proposed waste processing trials is provided in **Table 1**. Proposed management and mitigation measures designed to address these potential issues are also tabulated.

Table 1: Potential Key Environmental Issues and Proposed Management and Mitigation Measures

Environmental Aspect	Potential Environmental Issue	Management and Mitigation Measure	Potential Environmental Impact
Air Quality	• Generation of fugitive dust emissions • Non-compliance with existing regulatory compliance stack air emission limits (including particulates and products of combustion) • Generation of odour	• Operations historically performed at our Kurri Kurri premises verify the performance of existing pollution control systems, operating to effectively control emissions to within acceptable levels. • All trial operations will be performed within enclosed buildings. Storage bays are to be maintained under negative pressure to mitigate fugitive emission and odour generation. • Deliveries of raw materials will occur by truck. All delivery loads will be covered as per existing delivery practices. • All relevant facilities / unit operations (storage bays, furnace melting and casting) are serviced by existing pollution control systems (also see below). • Existing fabric filter baghouses to be maintained and operated for the control and removal of particulate matter and other particulate-bound pollutants. • The existing particulate emission monitoring systems will be operated to provide continuous, real-time assessment of particulate emissions. • Existing lime scrubber systems will be operated for the control and removal of acid-gases and dioxins/furans which may be present within furnace exhaust gases. • Wastes are to be processed in small batches so as to minimise pollutant generation and thereby ensure control by emission control systems. • Furnace burners are routinely tuned to ensure optimal operating combustion efficiencies. • Ongoing implementation of our Air Quality Monitoring Program, which defines operational, maintenance and validation protocols to assess and ensure compliance with regulatory requirements. Ongoing adherance to current emission limit requirements - no increases sought. • Monitoring of emission parameters, including flow conditions (velocity, temperature, dry gas density, moisture content), solid particulates, hydrogen chloride, metals, dioxins & furans, polycyclic aromatic hydrocarbons, carbon dioxide, carbon monoxide, oxides of nitrogen, oxides of sulfur and volatile organic compounds will be conducted during the trial on a six-monthly basis. Emission testing will be performed by a NATA-accreddited emissions testing service providers. Monitoring methodologies employed will be in strict accordance with licencing requirements.	Emission performance is expected to be similar to that of normal site operations, and remain within existing compliance limits. The potential impact on local air emissions is, therefore, considered to be low.

Environmental Aspect	Potential Environmental Issue	Management and Mitigation Measure	Potential Environmental Impact
Water Quality	• Spills of raw materials to site catchment and pollution of local water ways • Spills of product ash materials to site catchment and pollution of local water ways	• All raw material truck delivery loads will be covered by tarpaulin to prevent spillages, as per current process material deliveries. • All trial inputs are non-hazardous and non-dangerous goods materials. • All trial operations will be performed within enclosed buildings to mitigate against external spills and contact with stormwater. • Product ashes are stored and beneficiated within enclosed buildings to mitigate against external spills and contact with stormwater. • Should a spill occur, site personnel will recover materials in accordance with established spill response procedures. Spilt material will be returned to storage for processing (i.e. not disposed). • The onsite stormwater management system (drainage network, pond and wetland) captures and contains all runoff from potentially dirty areas, including hardstand and traffic ways, for subsequent onsite irrigation reuse. Only waters impinging on the catchment after this first flush is contained are directed to the adjacent Swamp Creek (north-west corner of site). The pond and wetland will similarly contain any spills, should they occur. It is expected, however, that this system will not be relied upon due to other controls proposed for the trial (i.e. all storage and processing activities occurring within buildings). • Routine compliance monitoring of water quality will be maintained to assess the presence of any associated contaminants, including particulates, oil & grease, acids & alkalis and salt residues.	The potential impact on local water ways is considered to be low.
Noise	• Exceedance of regulatory compliance noise limits	• Weston Aluminium has Regulatory approvals for plant operation 24-hours a day, 7-days per week. Specific receptor noise limits are prescribed for daytime, evening and night time periods. Weston Aluminium continues to comply with these limits. No increases to limits are sought. • Trial operations will be identical to normal Plant operations, and will typically occur within normal operating hours (10 pm Sunday to 10 pm Friday). • No construction activities are required to support the Trial. • All traffic movements will be constrained to 7am – 4pm deliveries on Mondays – Fridays. • All operations will occur within the enclosed Plant Building.	The potential impact on noise amenity is expected to be negligible.

Environmental Aspect	Potential Environmental Issue	Management and Mitigation Measure	Potential Environmental Impact
Traffic and Transportation	• Exceedance of regulatory compliance traffic movement limits	• Weston Alumnium has Regulatory approval for up to 46 heavy vehicle and 18 light-vehicle movements per day (excluding staff vehicle movements). Currently, vehicle movements are in the order of 10 heavy vehicle and 12 light vehicle movements per day. Additional waste inputs are anticipated in the order of up to 2 light vehicle movements per day. • No construction activities are required to support the Trial. • All traffic movements by licenced transport contractors will be constrained to 7am – 4pm deliveries on Mondays – Fridays. • Heavy vehicle traffic movements will occur via the Hunter Expressway, Hart Road, Govrenment Road and Mitchell Avenue route. No heavy vehicle movements will occur via the Kurri Kurri township.	The potential impact on traffic and transportation conditions is expected to be negligible.
Waste Management	• Generation of waste requiring disposal	• Trial waste materials will be delivered in bulk, in polypropylene bulka bags, in 240 Litre wheelie bins or in plastic shrink-wrapped cardboard cartons. • Ash residues of thermal treatment processes are to be beneficiated for reuse. No landfilling of these residues is likely to occur. • Scrap metals recovered from the treatment process will be segregated for recycling.	No hazardous waste will be generated by the proposed trial process.
Hazards	• Furnace explosion and expulsion of raw/product materials • Hazard to the health of employees	• No change to hazard profile of existing operation. Weston Aluminium will maintain existing hazard management strategies, and operate and maintain associated infrastructure. • Existing furnace operational protocols will be adopted for the processing of quarantine waste. • Existing PPE requirements are considered adequate for the handling and processing of waste materials. Weston Aluminium has also recently sourced supplied-air respirators for all operations staff. • Weston Aluminium has recently updated its Fire Safety Study, Safety Management System and Emergency Response Plan. These documents define appropriate operational and management strategies designed for risk and hazard assessment, mitigation and management and safe operation of the processing operation, and are considered compatible and appropriate for trial feedstock materials and activities.	The potential for fires, furnace explosion or workplace exposures is considered to be negligible.

Environmental Aspect	Potential Environmental Issue	Management and Mitigation Measure	Potential Environmental Impact
Greenhouse Gases	• Excessive generation of greenhouse gases (GHG), including carbon dioxide, methane and oxides of nitrogen	• Furnace burners are routinely tuned to optimise burner efficiencies and minimise GHG emissions. Furnace burners and fuel:combustion air ratios will be maintained to ensure optimal combustion of furnace feedstock inputs and furnace off-gases. Natural gas consumption will be lower than conventional furnace operations as waste inputs will exhibit intrinsic calorific value. • Emission of unburnt methane and other natural gas constituents is not likely to occur due to burner tuning and set-up and furnace temperatures proposed for the Trials. • As described above, monitoring of GHG emission parameters, including carbon dioxide, carbon monoxide, oxides of nitrogen, oxides of sulfur and volatile organic compounds will be conducted during the Trial on a six monthly basis. Emission testing will be performed by NATA-accreddited emissions testing and analytical laboratory service providers. Monitoring methodologies employed will be in strict accordance with EPA and licence requirements.	Emission of GHGs is expected to be typical of normal furnace operation. The potential for excessive GHG emissions is considered to be acceptible.
Community	• Potential interest / concern by community stakeholders in relation to the trial processing sequence, management and environmental performance	In conjunction with the recent Stakeholder Information Session associated with our Medical and Other Waste Thermal Treatment proposal, Weston Aluminium outlined the proposed trial processing of quarantine wastes, including: • Company background and trial context; • Description and nature of wastes to be processed; • Proposed storage, handling and processing cycle; • Environmental safeguards, controls and monitoring programs; and • Quality control program, including inspection and documentation, emissions management and monitoring and reporting. Weston Aluminium are currently awaiting feedback via the Department of Planning and Environment, and will respond to any submissions accordingly. No further community liaison regarding the proposed quarantine waste processing trial is considered necessary.	Impact to Community stakeholders is anticipated to be low.

Other Environmental Aspects

The proposed waste processing trials are not expected to have any negative impact on biological values, visual amenity nor community effects (socio-economic, heritage and cultural values and land use).

Conclusion

Weston Aluminium wishes to explore the compatability and suitability of existing infrastructure, technologies, operational protocols and emission control systems with the effective processing of quarantine wastes at our Kurri Kurri premises. We are confident that the trial activities proposed will demonstrate the safe and responsible processing of such wastes, and will importantly support the viability and sustainability of Weston Aluminium's operations.

Attachment 1