# Singleton Shire Healthy Environment Group

## "Weston Aluminium Plant & Medical Waste"

*A community-based group looking to address Environmental issues affecting Singleton Shire residents*
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We seek identification as to what is making our Children and Community Sick so they can be mitigated by OH&S Compliance Orders.

**SSHEG Focus on Health**

SSHEG is Not Anti Mining or Anti Power Stations

### Weston Aluminium Plant &
### Medical and Other Waste Thermal Processing Facility

22th October 2016

**SSHEG Submission of Objection relating to Disease Threat Posed to Near Neighbours on two sides and TAFE college on third.**

This SSHEG Submission objects to these five Applications, as in reality it's a High Temperature Incinerator located in an otherwise Residential area. The Community Health Risks of High Temperature Incinerators anywhere in the Hunter Valley Environs, stems from their Pollution concerns and removal from Sydney area, and the ongoing Complaints regarding Bayswater and Liddell Power Stations also being used as High Temperature Incinerators for Toxic matter such as Tar impregnated Oster Stakes, Arsenic Impregnated Timber from Viticulture, roads guards, and Councils use, Toxic Waste Oils and grease Residuals, and Petrochemical Plants Toxic solids, liquids etc. It is evident that this Facility would target this same profitable Toxic Materials, with their associated Air Pollution Impact.

Weston Aluminium proposes to install and operate thermal processing equipment for the processing of medical and other wastes - including clinical, pharmaceutical, pathogenic and cytotoxic-related wastes, as well as solvents, pitch residues, documents and oily rags. The proposed thermal oxidiser and feeding systems will be integrated within the northern end of the site, utilising existing plant, equipment and infrastructure - including access ways, weighbridge, hardstand, buildings, laboratory, mobile plant, stormwater detention, stores and maintenance facilities and common emission control systems. Operations are to occur 24 hours per day, 7 days per week, processing of up to 8.000 tonnes per annum.

This SSHEG Submission objects to this Application for the following reasons;-

Primary objection is the location of Facility; it should be relocated in its entirety to Tomago.

Secondly the existing plant was apparently deliberately oversizes to allow for the claim that both SPL's can now be processed in the existing plant, obviating Approval scrutiny for higher levels of Air and Noise Pollution.

Thirdly is the overall Cumulative Community Disease impact in Hunter Valley particularly Dioxins and Furanes (emissions in a concentrated area beside Residences) adding again in the Kurri Environs, and adding further Toxicity onto Ambient Particulates by their surface "Adsorption".

Fourth is the World Health Organisation now calling for Air and Noise Pollution Minimisation and hence lower exposure for Nearby Residents.

Fifth is Health Risk Assessments are based on methodologies and standards prior to Oct 2013 when WHO decreed Air Pollution, Particulate Matter, and Diesel Exhausts as Carcinogens without any Thresholds; with WHO 2015 resolutions calling for Air Pollution Minimisation even when compliance exists.

Sixth is how Averaging distorts and disguises the Human Exposure, where Air Drifting patterns, and calm conditions increase Air Toxicity not considered in current Modelling evaluations. Hydro Aluminium Kurri Meteorology indicated that Calm periods range from 52 -26%, while CALMET used in modelling is only 3.9 - 0.4%.

Seventh is, there is no imprimatur from NSW or Federal Health Authorities of these Facility Medical Waste disposal Procedures or any indication that NSW Health and Environmental Health have scrutinised this Facility as being suitable.

Eighth is, Toxic Medical material effective Incineration relies upon set Temperatures that produce Toxic Flue Stack Plumes, and Toxic Ash concentrated by factors of say 10; and this Ash Airborne Health Risk propensity, its safe handling and how safely deposited - particularly if moist, along with any Leakage and its safe Handling, needs greater scrutiny by Authorities even if this Facility were to be relocated to Tomago for example.

Ninth is Pollution leakage in Stack Recuperator and fires in Pollution Control Filters, a real risk evident in this technology at witnessed recently at Blue Scope Steels Sinter Plant Filter Fire.

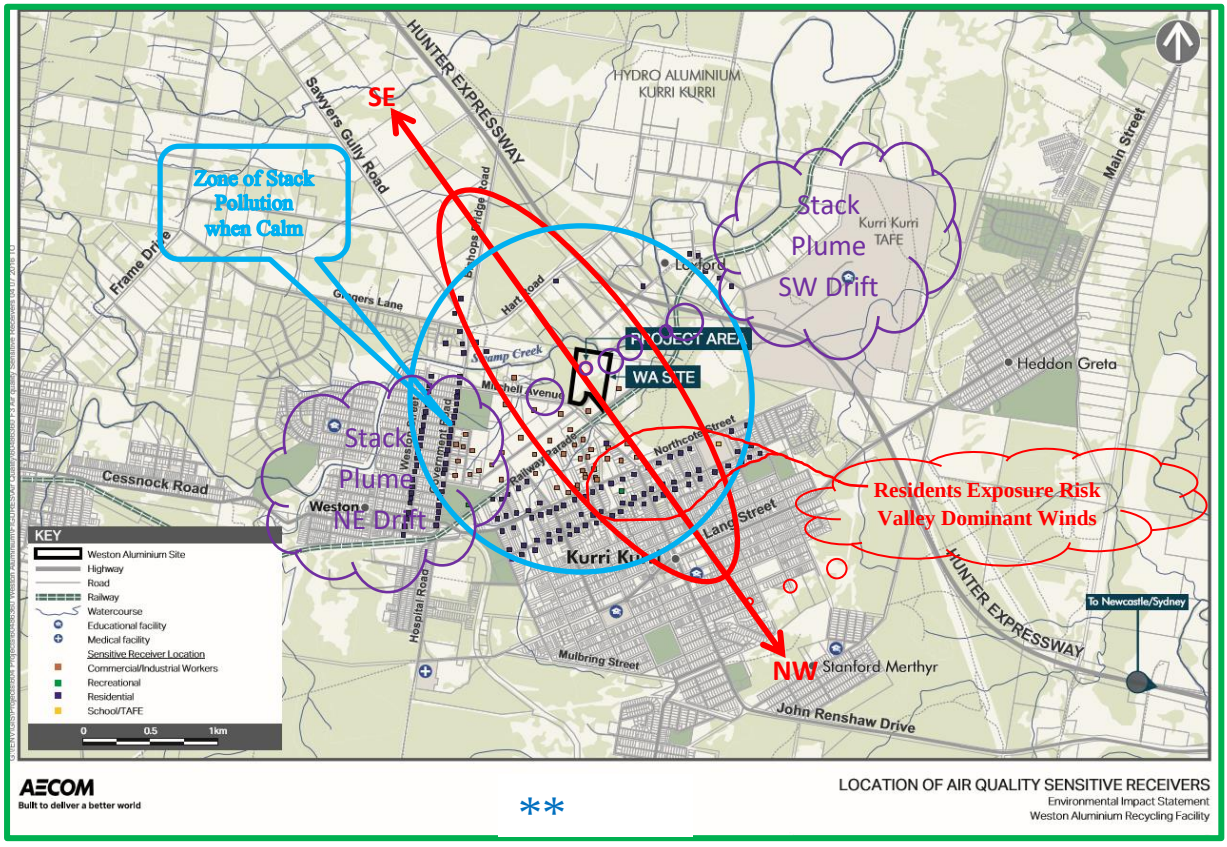
Tenth is a Health Survey is needed to establish the demographic Disease propensity of Near Neighbours most at Risk of impact from Stack Pollution, as distinct from General Population statistics; being these demographics, such as - Pre and Post Natal, Children under 18, elderly over 65, Asthmatics, COPD, Diabetics, and those in Poverty.

Eleventh is, once approved "Other Wastes" means anything the Facility management decide upon, hence this needs to be restricted to a specific list and scrutinised by video surveillance 24 hrs a day and Videos and plant audited by Authorities quarterly.

The extent of the Air Pollution Toxicity relates to the Incineration of the Mix of Medical Wastes as detailed below#. Further detailed evaluation by NSW Health and Environmental Health needs to be forthcoming, along with International Evaluations with Peer Reviews to substantiate any recommendations, restrictions, and OH & S guidelines for both Occupationally Exposed Workers and "Near Neighbours where appropriate buffer zones" to such facilities are not catered for.

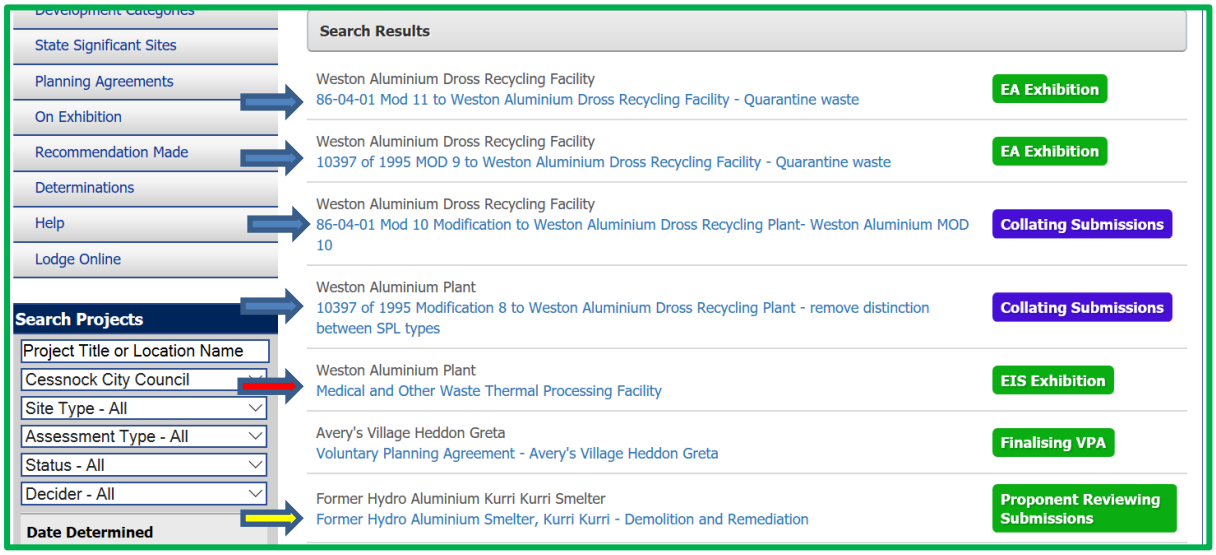
**Cytotoxic waste** is the by-product of **cytotoxic** drug therapy administered to patients (such as chemotherapy). **Cytotoxic waste** typically includes all drug administrative equipment (eg. needles, syringes, dripsets etc) as well as all gowns and body fluids/**waste** from patients undergoing such treatment. #

The World Health Assembly 2015 and 2016 focus on short term Air Pollution Exposure Disease Impact. The short term Residents exposure zones based are likely to be illustrated below**. With the Stack Heights at 15 m and the land Topography this suggests Residents are exposed to existing and Proposed SPL Stack Pollution, now being proposed to add the uncertainty of the "Other and Medical Waste's" complicating "Near Neighbour" Health Risks, especially children under 8 Years.




Weston Aluminium (WA) proposes to diversify its service provision to the aluminium smelting industry beyond the reprocessing of aluminium drosses, Second Cut Spent Pot Liner and other aluminium-bearing by-products to secure sustainable business growth and improve waste recycling options for the aluminium industry. The proposed Project, which is the subject of this report, is to treat and process all SPL waste arisings from the primary aluminium sector on a commercial scale.

With Hydro Aluminium Smelter at Kurri now closed and dismantling approval is being sought, it seems more appropriate to move this entire Weston Aluminium Facility at this stage perhaps to a suitable location near the Tomago Smelter site. The number of related Major Projects are captured below and this submission relates to all of those six marked.




From the Community Viewpoint the concept of the combined SPL and Medical Waste Facility is noteworthy.

What is wrong is:- this Hydro Aluminium associated Industrial service area Facility has been used on a small scale for SPL Process Development, Research and recent trials. However the time has come to upscale this Facility to a more viable commercial entity in an otherwise downscaling Industrial Service Centre Area beside existing and developing High Density Residential Homes, and with the overall area developing rather as a Residential and Education Precinct.

Strategically then, with the Aluminium Smelter Operations ongoing at Tomago, and the option of processing Toxic SPL from other Smelters such as Western Australia or Queensland for example, a Facility that is closer to sea transport is an added benefit.

Thus considering the upscaling approvals needed for this Facility, and the Toxic nature (outlined below) of these Processes, it makes sense to operate such a Facility near Tomago area which is also more likely to be better positioned as an ongoing developing Toxic Medical Waste Processing Facility.

The other competing Facility at Silverwater in one of Sydney's Air Pollution Hot Spots will also come under renewed Air Pollution Scrutiny as the WHO "Roadmap for Air and Particulate Matter Pollution Minimisation" begins to be mandated.

Spent Pot Lining is a hazardous by-product of primary aluminium production, generated from the periodic de-lining of electrolytic cells. First Cut SPL (originating from the carbon cathode) and Second Cut SPL (refractory lining) contain varying proportions of aluminium, carbon, cyanide, fluorides, sodium and other trace contaminants, and its management and disposal represents a major issue faced by the industry on a worldwide scale. At present, the two primary smelters in NSW (Tomago Aluminium Company and Hydro Aluminium) have not yet attained an effective and sustainable solution for their SPL, and each continue to stockpile surplus SPL and/or export the waste to Europe for treatment. Such treatment is performed at significant expense, and relies on the transport of dangerous and hazardous materials over many jurisdictions and the vagaries of third party countries. This strategy is clearly not

**Table 2:** Analytical Laboratory Analysis Results – Raw Feedstock Materials

| Analytical Parameter | Total Contaminant Concentrations (mg/kg, dry wt) | | | | | TCLP Leachable Contaminant Concentrations (mg/L) | |
|---|---|---|---|---|---|---|---|
| | 1st Cut SPL | 2nd Cut SPL | Iron Oxide | Cullet | Lime | 1st Cut SPL | 2nd Cut SPL |
| Aluminium | 69,600 | 79,200 | 14,500 | 140 | 1,030 | 75.8 | 9.8 |
| Antimony | 6 | <5 | 42 | 14 | <5 | <0.1 | <0.1 |
| Arsenic | 8 | 8 | 15 | <5 | <5 | <0.1 | <0.1 |
| Barium | 410 | 390 | 60 | <10 | <10 | 2.0 | 0.6 |
| Beryllium | 9 | 7 | 1 | <1 | <1 | 0.08 | <0.05 |
| Cadmium | 1 | <1 | 13 | <1 | <1 | <0.05 | <0.05 |
| Calcium | 360 | <10 | 70 | 180 | 3,920 | 63 | 21 |
| Chromium | 34 | 26 | 119 | 4 | 0.3 | <0.1 | <0.1 |
| Cobalt | 3 | <2 | 6 | <2 | <2 | <0.1 | <0.1 |
| Copper | 127 | 18 | 168 | 22 | 5 | 0.6 | <0.1 |
| Cyanide | 319 | 148 | 1 | <1 | <1 | 4.73 | 6.83 |
| Fluoride | 79,100 | 47,900 | 18,400 | 180 | <40 | 98.0 | 134 |
| Iron | 39,600 | 14,700 | 413,000 | 410 | 760 | 20.2 | 11.3 |
| Lead | 42 | 18 | 532 | 109 | <5 | <0.1 | <0.1 |
| Manganese | 590 | 141 | 7,050 | 14 | 78 | 1.9 | <0.1 |
| Mercury | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.0010 | <0.0010 |
| Nickel | 95 | 28 | 76 | 3 | <2 | 0.7 | 0.1 |
| Phosphorus | 210 | 250 | 920 | <50 | 120 | 0.45 | 0.55 |
| Selenium | <5 | <5 | <5 | 3 | <5 | <0.05 | <0.05 |
| Sodium | 13,700 | 68,900 | 1,880 | 490 | 100 | 2210 | 2390 |
| Sulfur | 1,500 | 800 | 700 | 400 | 500 | 40 | 29 |
| Total Organic Carbon | 8,000 | <5,000 | 6,000 | <5,000 | <5,000 | 2250 | 2310 |
| Thallium | <5 | <5 | 8 | <5 | <5 | <0.05 | <0.05 |
| Vanadium | 104 | 48 | 457 | <5 | <5 | 0.3 | 0.3 |
| Zinc | 1,140 | 168 | 22,400 | 65 | 56 | 0.5 | 0.3 |



**Primary Combustion Chamber Proposed for Medical Waste Processing**

The primary combustion chamber for the Project would be in the form of a rotary kiln.

**Secondary Combustion Chamber**

The function of the secondary chamber is to ensure complete breakdown of all combustible gases generated in the thermal processing plant's primary chamber. The secondary chamber is therefore used to complete the combustion of gases generated from the primary combustion chamber. The secondary chamber provides better gas mixing and the addition of oxygen (airflow) to allow increased gas combustion and therefore reduced pollutant generation. This is achieved by maintaining the secondary chamber at a temperature of 1,1000C whilst ensuring an adequate supply of combustion air. An efficient secondary chamber is essential to minimise emissions of dioxins and other products of incomplete combustion.

The critical parameters when determining the efficiency of a secondary chamber are the combustion temperature, the chamber combustion time or retention time and the turbulence. These parameters assume that sufficient combustion air is available to complete the combustion process. The secondary chamber is designed to provide a secondary chamber retention time of 2.0 seconds at a temperature of 1100oC.

On the surface these Five Weston Aluminium Plant Major Project applications lack the Federal and NSW Health and Environmental Health imprimatur, and hence cannot be supported.

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