

**Submission
No 40**

INQUIRY INTO HEALTH IMPACTS OF AIR POLLUTION IN THE SYDNEY BASIN

Organisation: Alcoa Australia Rolled Products

Name: Mr John Costly

Position: Location Manager

Telephone:

Date Received: 6/09/2006

Subject:

Summary



**Alcoa Australia
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6 September 2006

RECEIVED

06 SEP 2006

GPSC's

The Hon Patricia Forsythe MLC
Chair
General Purpose Standing Committee No. 2
Legislative Council
Parliament House
Macquarie St
Sydney NSW 2000

Dear Ms Forsythe

Re: Inquiry into the health impacts of air pollution in the Sydney Basin

Please find enclosed eight copies of a submission to the above enquiry from Alcoa Australia Rolled Products (Alcoa ARP) at Yennora.

We would like to thank the Committee for providing us with the opportunity to respond to information submitted to the Inquiry by the Western Sydney Clean Air and Water Action Group (WSCAWAG) regarding our operations.

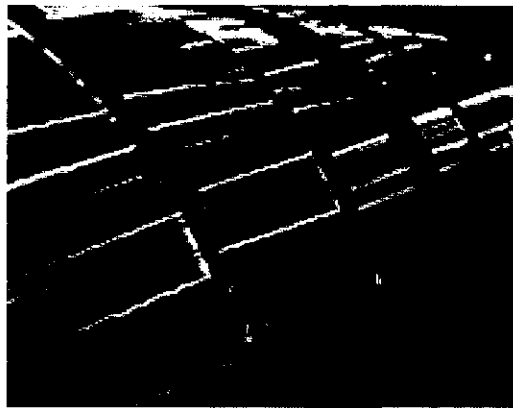
Yours sincerely,

A handwritten signature in black ink, appearing to read "John Costley", written over a horizontal line.

**John Costley
Location Manager**



Alcoa Australia Rolled Products Yennora Plant



**RESPONSE TO HEALTH IMPACTS INQUIRY OF AIR
POLLUTION IN THE SYDNEY BASIN**

- Final
- 6 September 2006



Alcoa Australian Rolled Products Yennora Plant

**RESPONSE TO HEALTH IMPACTS INQUIRY OF AIR POLLUTION
IN THE SYDNEY BASIN**

- Final
- 6 September 2006



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1. Executive Summary

This report is provided on behalf of Alcoa Australia Rolled Products (Alcoa ARP) in response to correspondence from the NSW Legislative Council's General Purpose Standing Committee No.2 regarding its Inquiry into the health impacts of air pollution in the Sydney Basin.

Alcoa ARP is Australia's largest recycler of aluminium products and is the largest supplier of rolled aluminium products (sheet aluminium) to the domestic market. The Alcoa ARP plant at Yennora recycles used aluminium products and aluminium waste into new aluminium sheet.

Recycling aluminium uses only 5% of the energy as making aluminium from raw materials and as a result significantly reduces greenhouse gas emissions. By recycling aluminium, Alcoa preserves important finite resources such as energy, metals and landfill space. Aluminium products which can be recycled include general aluminium scrap, used beverage cans and dross (a waste product of the aluminium smelting process).

Along side best practice production processes, this places Alcoa ARP and the Yennora region at the forefront of sustainable manufacturing in Australia. Alcoa ARP Yennora earned ISO 14001 certification for its environmental systems and management in December 2005.

There are approximately 350 people employed at the Yennora site and Alcoa ARP is considered an important employer and contributor to the local and regional economy.

Alcoa ARP acquired the Yennora facility in 1996. Since then, it has invested in production and environmental management improvements to secure the future of the facility and its workforce. The development consent for the scope of the site's activities is currently subject to litigation initiated by Weston Aluminium (a competitor of Alcoa ARP). The Courts have not directed Alcoa ARP to cease or curtail current operations in any way.

Alcoa ARP at Yennora has applied for a Development Application covering the range of feedstock it uses. It has met all requirements for the Development Application submission required by both the Department of Environment and Conservation (DEC) and Holroyd City Council. It has also informed community stakeholders of its business plans as part of ongoing community consultation processes.

The DEC issued General Terms of Approval to the Council to allow it to make a decision on the Development Application. The Council subsequently provided advice to the Land and Environment Court that it had no objections to the issue of consent orders. The Development Application is now before the Land and Environment Court.

Alcoa ARP is proud to be a part of the Yennora community. The business is engaged in a diverse range of partnerships to create opportunities for people, institutions and businesses to contribute to the economic, social and cultural fabric of the Western Sydney community. The business is accountable to local residents and operates in a transparent manner. As part of this, Alcoa ARP at Yennora has established:

- a Community Consultation Network - an open and inclusive consultation forum with diverse representation from the local community and government;
- site open days - 600 people attended in 2005;
- a quarterly newsletter distributed to 3,500 households and businesses in the local area; and
- a range of other community capacity-building activities in the local area such as enabling local community groups to participate in the Communities in Control conference in Melbourne in May 2006.

Through these diverse outreach initiatives, Alcoa ARP has developed a good understanding of issues and concerns of the Yennora community. Alcoa ARP Yennora aims to be the best company in Western Sydney and sets a strong benchmark for private companies engaging with the community and other stakeholders.

The Alcoa ARP Yennora site operates under Environmental Protection Licence (EPL) No. 642 issued by the DEC. The EPL requires compliance with air and noise emissions criteria and addresses a wide range of general environmental matters including hazardous waste generation and management. The EPL provides concentration limits for discharges to air and water, monitoring locations and frequency, load limits for Load Based Licensing (LBL), and other limits relating to waste, noise as well as operating, monitoring and reporting conditions.

The site monitors air emissions on a continuous basis and through quarterly stack monitoring. The results are routinely reported to the DEC and Environment Australia (for National Pollutant Inventory reporting). Sampling and analyses for the purposes of regulatory reporting and compliance are undertaken by independent, accredited specialist consultants in compliance with accepted standards and guidelines.

The site holds a dangerous goods licence and is regularly audited by a WorkCover-accredited dangerous good consultant.

The Alcoa ARP Yennora site consistently complies with the requirements of the EPL.

Alcoa ARP is committed to good environmental performance and management as a critical aspect of business sustainability. Alcoa ARP's commitment to environmental performance and management has been reflected in the targets set for 2006 – 2007 in the Yennora Environmental Improvement Plan (EIP). The Yennora EIP was developed in close consultation with the local

community and other stakeholders. It represents the company's ongoing commitment to go beyond regulatory compliance in a framework of sustainability and cooperation.

The Yennora site is periodically audited by members of the Alcoa global audit team and is assessed against rigorous global criteria for performance. The Yennora site consistently ranks highly amongst Alcoa's best environmental practice sites. In its most recent Alcoa corporate audit, the site achieved 100% performance standard for occupational health and safety. To put this in context, Alcoa globally has been voted amongst the most responsible companies on governance and climate change policy by CERES, the largest coalition of investors, environmental and public interest organizations in North America.

It is also important to place the site's air emissions into the context of total emissions within the Sydney region. Alcoa ARP Yennora's most significant emissions are particulates, oxides of nitrogen and volatile organic carbons. Overall, in a worst-case estimate, Alcoa ARP Yennora is responsible for less than 0.1% of the same emission categories in the Sydney Basin.

Evaluation of the site's contribution to air quality in the immediate area was undertaken in 2005. Alcoa ARP Yennora commissioned specialist computer-assisted modelling of the dispersion of air emissions from the site and the resulting concentrations of a wide range of compounds at ground level. This allows the concentrations of emitted compounds that may be experienced by the surrounding community to be compared to internationally accepted environmental health standards.

The study concluded that the site's remelting operations were very unlikely to have an impact on the health and amenity of the surrounding Yennora community. Comparison of emission ground level concentrations with background (ambient) air quality data suggests that Alcoa ARP Yennora's emissions are quite small compared to other sources. The predicted concentrations resulting from Alcoa ARP Yennora's emissions were all within the relevant environmental health criteria, and many by orders of magnitude.

Independent scientific evaluation of air emissions at Alcoa ARP Yennora confirms the site:

- consistently complies with its obligations under the Environmental Protection Licence;
- makes very little contribution to air pollution in the Sydney Basin or the local area; and
- is very unlikely to give rise to health impacts on the surrounding community.

2. Introduction

2.1 General Information

Alcoa Australia Rolled Products Pty Ltd (AARP) with the assistance of Sinclair Knight Merz (SKM) has reviewed the information supplied by the NSW Legislative Council regarding the inquiry into health impacts in the Western Sydney Basin in relation to the Alcoa Yennora site. This report details the findings of the review and provides a formal response to the letter received from the NSW Legislative Council.

2.2 Background

The Alcoa Yennora site received a letter from the NSW Legislative Council, dated the 17th August 2006, detailing that an Inquiry into the health impacts of air pollution in the Sydney Basin was being undertaken. Specifically, the letter detailed that a public hearing was held which involved concerned residents of the Guildford and Western Sydney Clean Air and Water Action Group. Evidence was given at this hearing regarding the operations of the Alcoa plant at Yennora, including the alleged impact of Alcoa's operations on the health of local residents.

The NSW Legislative Council has since invited Alcoa to respond to the allegations made at the public hearing and provided Alcoa with the relevant pages of the hearing transcript, copies of the submission made by the Western Sydney Clean Air and Water Action group, copies of two documents tabled at the hearing by witnesses and a submission made by Weston Aluminium Pty Limited.

A response from Alcoa is required to be provided to the NSW Legislative Council by the 6th September 2006.

3. Operational Activities

3.1 Overview

This section of the report describes the operational activities currently undertaken on site and an overview of the sites significance to Yennora, history and community programs.

3.2 General Operations

Alcoa is Australia's largest reprocessor of aluminium products and is the largest supplier of rolled aluminium products to the domestic market. Recycling aluminium in this way provides a 95% reduction in energy use and therefore greenhouse gas generation compared with production of new aluminium. This places AARP and the Yennora region at the forefront of environmentally sustainable manufacturing in Australia. The range of aluminium containing materials processed or reprocessed to recover aluminium includes general aluminium scrap, used beverage cans (UBCs) and dross . By reprocessing the aluminium, rather than sourcing new raw materials, Alcoa preserves finite resources such as energy, metals landfill space (EIS 2005).

Aluminium products are sold domestically, and also exported to a number of other countries including New Zealand, South Africa, China and India. These products include road signs, boats, packaging products and the majority of aluminium can sheeting used in Australia.

Yennora is one of two rolling mills in Australia operated by AARP. The two sites combined produce approximately 200,000 tonnes per year of can sheet, generally as sheet and plate, and foil, in which approximately 100,000 tonnes per year is produced at the Yennora site (EIS 2005).

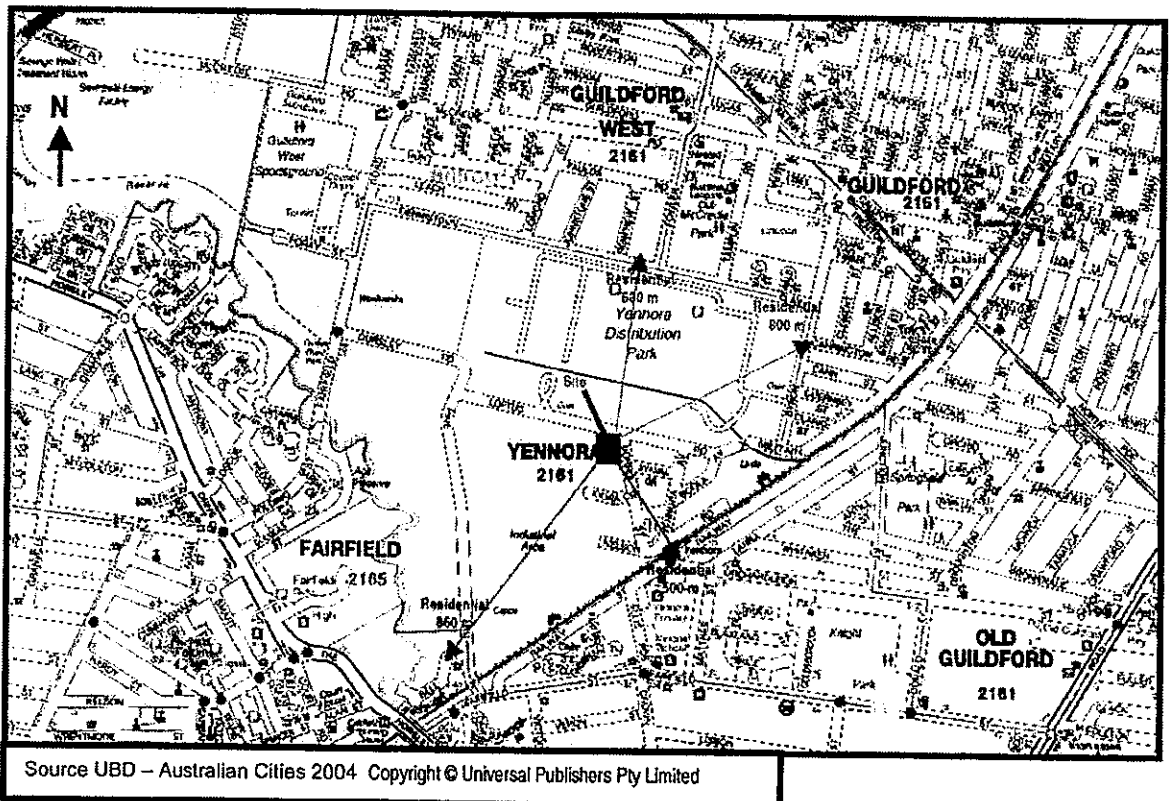
The operations of the Yennora site include:

- The re-melting operations, namely the secondary processing (melting) of materials containing aluminium to reclaim aluminium.
- The casting of aluminium ingot from the reclaimed molten aluminium and from primary ingots.
- The rolling of ingots into sheets of thicknesses appropriate for the different types of aluminium product produced – namely can stock, sheeting and aluminium foil.
- The preparation of the rolled product into a form suitable for the intended purpose of that product.

There are approximately 350 people are employed at the Yennora site and Alcoa are considered a significant employer and major economic contributor in the local and regional area.

The Yennora site is located in the Holroyd City Council area within the Western Sydney basin as shown in Figure 3-1.

■ Figure 3-1 Locality Map



Note: The nearest residential arrows are shown arrowed.

The site operates under an Environmental Protection Licence (No.: 642) issued by the Department of Environment and Conservation (DEC). A summary of the licence requirements relating to air emissions are detailed in Section 6.4.

3.3 Significance of Operations

Aluminium manufacturing has been a part of Yennora for over 40 years. In 1996, Alcoa acquired what was a poorly performing business on a path to closure and, through strategic investment and with support of its management and workforce, developed a financially and environmentally sustainable business in touch with its surrounding community aspirations. Alcoa has recently invested further in productivity and product quality at Yennora via the installation of a new clean and cut to length line in 2005. Coupled with sale growth in the Asian markets this has ensured the future of Alcoa in Yennora and subsequently the jobs of its 350 workers.

The value of total exports for AARP in 2004 was \$306 million and total spending for the two rolling mills was approximately \$180 million per year. In total AARP employs 770 people, with around 350 of those employed directly at the Yennora rolling mill. At Yennora, the payroll is approximately \$26 million per annum.

Alcoa is a significant part of the regional economy and major contributor to and partner with the community in the Yennora region.

When the Hon Joe Tripodi MP, Member for Fairfield and Minister for Energy, officially opened the new clean and cut to length line he congratulated Alcoa on its contribution to productive manufacturing capacity, keeping jobs in Australia and their commitment to best practice environmental management¹.

The significance of operations at Yennora includes the following:

- Production of locally produced clean aluminium sheet and coil reduces the need for Australian industry to import these products;
- Employment of 350 people from predominantly within the local area;
- Potentially the stimulation of new business and employment opportunities among contractors, service suppliers, product distributors and manufacturers in the community and Australia more generally due to the production of clean aluminium sheet and coil in Western Sydney; and
- Broadening of AARP product mix and capability through equipment upgrade investment, to better meet both local and international customer needs and increase export opportunities.

3.4 History of Operations

Industrial development on the site commenced in 1958 when Cumberland Brass and Aluminium Mills – a division of Austral Bronze Pty Limited commenced a brass and copper rolling operation.

In 1963 Comalco Aluminium Limited acquired the south eastern portion of the site and constructed the first section of the existing aluminium re-melt and semi fabrication facility. Over time, the facility has grown and changed.

The re-melting facilities (including a rotary furnace) were originally located on the southern part of the site. Commencing with a development consent given in 1978 and followed by consents given

¹ Alcoa Yennora website: http://www.alcoa.com/locations/australia_yennora/en/home.asp

in 1980 and 1981 the re-melting facilities were moved to the northern part of the site and the southern re-melting facilities were decommissioned.

Prior to the relocation, Comalco used a variety of aluminium products as feedstock in its rotary furnace and other melters. Earlier development consents for the remelt facility on the southern part of the site did not limit the type or nature of feedstock which could be used.

Comalco continued to use a range of different aluminium feedstock in its newer remelting operations on the northern part of the site.

Alcoa has operated its aluminium re-melt and semi-fabrication plant at Yennora since 1996, firstly as part of a joint venture, and since 2003 by itself.

In 2005 ARP installed a new manufacturing line, the first of its kind in Australia, to expand the company's product range. The line has the potential to produce more than 9000 tonnes of clean aluminium sheet and coil annually, opening new domestic and export opportunities. It is understood that in the past industry in Australia has relied on imported product.

3.5 Development Consent

A large number of development consents apply to the land now owned by Alcoa at Yennora.

A development application was submitted by Alcoa to Holroyd Council in March 2006 relating to operations undertaken at the North Remelt facility. The need for this development application arose due to Court proceedings brought by a competitor (Weston Aluminium) in which it was contended that existing consents do not permit the use of the range of feedstock which Alcoa has and wishes to continue in its operations (EIS 2005).

Alcoa, Holroyd Council and the EPA also understood that the relevant development consents did not limit the type of feedstock that could be used.

The issue of what the development consents allow for is currently subject to litigation initiated by Weston Aluminium. In the meantime, the Courts have not directed Alcoa to cease or curtail current operations in any way. In order to clarify the issue, Alcoa has applied for a Development Application (DA) covering the range of feedstock it uses and has done this in consultation with the community, Council and DEC. Alcoa has met all requirements for the DA submission required by both the DEC and Council. The DEC has issued General Terms of Approval to Council to allow it to make a decision on the DA. The Council provided advice to the Land and Environment Court that no objections are raised by Council to the issue of consent orders. The DA is now before the Land and Environment Court.

A history of approvals for the land now forming Alcoa's Yennora site is set out in **Appendix A**.

4. Community Partnerships

Alcoa is committed to working with the community and is engaged in a diverse range of partnerships to create opportunities for people, institutions and businesses to contribute to the economic, social and cultural structure of the communities surrounding their Australian operations. These partnerships have strengthened the connection of the company with the community.

Consulting with the local communities is one of the key measures that helps Alcoa to respond to social expectations. The company's involvement with the community has continued to expand in line with increasing understanding of the constituents that make up the community and their values.

As a good corporate citizen, Alcoa embraces the opportunities for consultation to identify issues of importance within the community. This then enables a collaborative two way communication process to address issues as they arise, and attributes to the continual growth and improvement of the company. Alcoa aims to be the best company in Western Sydney and sets a strong benchmark for private companies engaging with the community, both locally and globally.

Through consultation the community is better equipped to understand the operations of the company and is given the confidence that as a neighbor and part of the local community, Alcoa is performing at a high standard and using best practices in its operations.

4.1 Community Engagement

Alcoa engages the community through face to face meetings as well as through information that is disseminated. This approach allows Alcoa to involve the local residents and business owners and allows for wider community reach.

A brief description of the community involvement methods that are currently in place is outlined below.

4.1.1 Community Consultation Network

Community consultation was initiated in 1999 with little success in engaging the community. Invitations were extended to the community to attend consultation forums. However, these were initially poorly attended by the community. Community involvement has increased recently with the development of the Community Consultative Network (CCN). These network groups have been established at each site across Australia. Representation on the CNN includes local residents, community leaders, environmental lobby group representatives, state government (DEC/EPA) and local government.

The direct, inclusive and transparent consultation between industry, the local community and government regulators, implemented at Alcoa sites across Australia represents a best practice

approach to community engagement. Further description of this industry leading approach is provided below.

The CCN for the Yennora plant comprises representatives of the following groups:

- Local residents;
- Concerned Residents of Guildford;
- Western Clean Air & Water Action Group;
- Guildford and District Chamber of Commerce;
- Local business owner;
- Holroyd City Council;
- Department of Environment and Conservation;
- Alcoa Community Relations Officer; and
- Alcoa environmental management and senior management staff as required.

The mix of participants allows for informed discussions on a broad range of technical, environmental and social issues to take place. Alcoa's representation is based on the agenda items to be addressed to ensure relevant technical expertise is available as much as possible. When staff are not available to attend meetings, issues are forwarded to relevant staff to be addressed following the meeting and reported back to the group.

Six consultation forums were held with the community prior to the establishment of the CNN. During the forum held on the 9 December 2004, it was agreed to initiate more regular Community Consultation Network meetings. The first CCN for the Yennora plant was held in April 2005 and were initially held monthly. In December 2005 the group agreed to hold meetings bimonthly. Meetings are held bimonthly on the second Thursday of the month. Recently the meetings have been extended from one to one and a half hour duration. Alcoa continues to be appreciative of the ongoing and freely given commitment of time from local community members and Government officers.

Membership for the CNN was sought through advertising in local press, letterbox drops and community mail outs. The quarterly mailout also included an invitation to join this group as do other publications such as the Sustainability Profile and Environment Improvement Plan 2006-2007.

All correspondence to the community relating to complaints or issues raised by individuals or groups also includes an invitation to participate in the CNN and/or contact the site for further information. All participants are invited to submit agenda items.

The main aim of the group is to address specific issues related to the plant operations. Terms of Reference have been agreed to help guide the CCN and ensure an interactive and open forum that enables members of the community and Alcoa to freely discuss topics and issues relevant to Alcoa and local communities in an efficient and effective manner.

The CCN is requested to provide agenda items to be addressed, and these include issues such as environmental management and community issues. Complaints received are tabled at CCN meetings and discussed.

Minutes of the meeting are recorded and distributed to the members of the CCN and any other participants of the meeting.

To date, 14 meetings have been held with the CCN. Four meetings have been held in 2006 and will continue on a bimonthly basis.

A significant achievement of the community consultation process has been the development of the Environment Improvement Plan, which sets ambitious targets for continuing improvement to the site's environmental management and performance for the next two years. Contribution from the CCN to the Plan was highly regarded and recognised by Alcoa. The community input ensured that the framework for environmental improvement for the company addressed environmental issues of importance to the community as well as legislative requirements and guidelines being met.

The Environment Improvement Plan was launched by Alison Megarrity MP, Parliamentary Secretary to the Minister for the Environment in May 2006.

Alcoa believe's that it's community consultation process is a benchmark for industry in the region.

4.1.2 Alcoa Open Days

Since 1980's Alcoa have invited the neighboring public into the workplace to observe the operations of the company in an informal manner. The last Open Day in October 2005 was attended by approximately 600 people, including employees, relatives and local community members, including the Mayor of Holroyd City Council community partners.

The open day raised over \$5,000 for Westmead Children's Hospital.

4.1.3 Alcoa Flier

A quarterly flier is distributed to approximately 3,500 households within the local communities surrounding the plant. This mailout presents information about Alcoa operations and encourages community involvement in the CNN.

The flier lists contact details for Alcoa, providing an opportunity for the community to raise issues or provide feedback to the company.

Four fliers have been distributed to the community since May 2005. Approximately 1,500 fliers were posted in May 2005, 1,500 in December 2005, 2,000 in March 2006 and 3,500 in July 2006. Fliers are either in the form of a brochure or a letter.

In addition, mailouts to approximately 500 local community members have been distributed at varying intervals since 1999 inviting people to attend community consultation.

4.1.4 Advertising

Local newspapers are used to relay information to a broader reach of the community. For example on 22 March 2006, an advertisement was placed in the Parramatta Advertiser and Fairfield Advance to inform the public of the release of the Sustainability Profile and Environment Improvement Plan and inviting the public to find out more and participate in the CCN. These papers have a circulation of 82,812 and readership of 144,000, and circulation of 56,920 and readership of 108,000 respectively.

4.1.5 Website

The Alcoa - Yennora website is found at: http://www.alcoa.com/locations/australia_yennora/en/home.asp and communicates broad company information. The site allows all users to contact the company via a feedback form. This form enables members of the public to include comments that are readily responded to as soon as possible.

The Alcoa newsletter – “Alumination” is also available on the website. This newsletter updates the reader with Australia – wide information on the company, particularly in relation to partnerships and initiatives undertaken by Alcoa within the local and wider community.

4.2 Working With The Community

Alcoa aims to be the best company in Western Sydney and sets a strong benchmark for private companies engaging with the community, both locally and globally. A wide range of Initiatives to promote partnerships and strengthen the company’s connection to the broader community have been established. These are briefly outlined below.

4.2.1 Time Help Program

Funded through the Alcoa Foundation, this program is a collaborative initiative where senior volunteers from the local community participate in learning and other activities at local schools to fill gaps in available resources, allowing schools to better meet the needs of the students. The volunteers assist classes in reading, library, art and crafts as well as assisting in grounds maintenance activities. To date, ten volunteers assist at four local schools: Yennora, Pendle Hill,

Sherwood Grange and Merrylands Public Schools, and it is expected that the program will continue to expand.

4.2.2 K.I.D.S Foundation

Through the Alcoa Foundation, Alcoa is working with the K.I.D.S (Kids in Dangerous Situations) Foundation to prevent childhood injuries and support recovery programs for young people who have suffered serious injury. The program is being introduced to Western Sydney through the introduction of School Safety Clubs.

In 2005, Alcoa donated over \$50,000 to the K.I.D.S Foundation. This partnership was recently recognised in the Prime Minister's Awards for Excellence in Community Business Partnerships. It was held up as an example of how corporations and community organisations can help each other achieve their goals.

Alcoa and Alcoa ARP's partnership with K.I.D.S Foundation is founded on a common value of safety.

Alcoa's support assists K.I.D.S Foundation to develop community safety outreach programs, while the involvement of K.I.D.S Foundation in our businesses has helped inspire Alcoa Victorian sites to further drive internal safety initiatives.

4.2.3 Westmead Children's Hospital

Through the Alcoa Foundation the company has provided a grant as well as volunteer support for the Connective Tissue Dysplasia (CTD) Clinic in 2006. The company has actively supported the fundraising activities of the hospital for approximately eight years and continues to maintain the relationship.

4.2.4 Greystanes Woodland Conservation Group

A grant was provided through the Alcoa Foundation to the Greystanes Woodland Conservation Group to regenerate bushland at Windemere Reserve in Greystanes. In May 2006 Alcoa employees volunteered to help plant 600 native tube stocks and remove invasive weeds (Paddy's lucerne and lantana).

4.2.5 Keep Australia Beautiful (NSW)

Alcoa has provided substantial sponsorships of the Clean Beach Challenge and Sustainable Cities programs.

4.2.6 Clean Up Australia

Alcoa founded the Triple Bin Challenge program with Clean Up Australia in Victoria. The Triple Bin System has been implemented at two local primary schools (Sherwood Grange and Guildford West Public Schools). This program will continue to be rolled out to other schools.

4.2.7 River Recovery Program

This program brings together business leaders, scientists, community-based organisations and government agencies to focus on the restoration, protection and management of Australia's river systems. The Hawkesbury-Nepean in NSW is part of the program.

Alcoa has committed \$2.3 million over the next three years.

4.2.8 Communities in Control Conference (2006)

Local community groups and community workers were sponsored through the Alcoa Foundation to participate in the Communities in Control Conference. Six community partners attended this conference which is aimed at giving local community members a chance to network, exchange ideas and explore current and future trends impacting on the community sector.

4.2.9 Certificate IV in Business (Governance)

The Alcoa Foundation is sponsoring local community groups and community workers to complete a Certificate IV in Business (Governance), a new nationally recognized qualification, in November 2006.

4.2.10 Collaboration with Schools

Alcoa has fostered a strong relationship with neighbouring schools in the western suburbs. Schools such as Yennora Public School have had a long standing rapport with the company. In 2001 the company provided a grant to rebuild the school library following a fire that burnt the library down, and in approximately 2003 Alcoa purchased several computers for the school.

Alcoa has hosted site tours for school groups over the years. Most recently, groups from Patrician Brothers High School (20 August, 2006) and Fairfield High School (23 August 2006) visited the site. Students were able to observe the plant and operations. The tour also included a presentation by relevant Alcoa staff.

4.2.11 Adopt-a-school Program

Alcoa participates in the Adopt-a-School Program facilitated by Fairfield Business Education Partnership Inc. The aim of the program is to provide an active link between manufacturing employers, students, teachers and the broader school environment through activities that will increase knowledge and opportunity for careers and further education.

4.2.12 University of NSW Co-Op Program

Alcoa ARP Yennora sponsors one or two students per year in the field of metallurgy. The aim of this program is to provide opportunities for young people in the community to further develop career opportunities and encourage uptake of a students in this field.

4.2.13 Alcoa in the Community Committee

This committee was established in late 2005, and consists of a diverse range of Alcoa employees. The aim of the committee is to inform and familiarise employees on elements of the community relations programs, including sponsorship proposals.

The committee has a charter to review a broad scope of activities involving the company. This approach supports the business in its aim of being the best company in Western Sydney by reviewing and promoting community activities and, by doing so, creating greater transparency, employee ownership and diverse input into decision making processes.

4.2.14 Other Partnerships

Yennora has formed partnerships with community organisations to strengthen the communities in which they work. Partnerships underway include the fields of Safe and Healthy Children and Families, Future Leaders of Industry, Arts for Life, Conservation and Sustainability, Volunteers for Life and Sustainable Communities.

5. Issues Management

5.1 Overview

An important aspect of Alcoa's continuous improvement process includes effective management of issues, including those issues identified by the community.

The management of issues adopts a multidiscipline approach, using the expertise from staff across the company to address relevant issues. This ensures a thorough understanding of issues that are raised, and better allows for continuous improvement.

5.2 Complaints Handling Process

The general public is encouraged to contact the Environmental Issues Hotline toll free number 1800 647 644, 24 hours a day, 7 days a week if they are concerned about odour, noise or any other nuisance observed from the site. The Hotline was first established approximately eight years ago.

The Hotline number is advertised on posters on fences surrounding the site and on the website. The number is also promoted through community mailouts.

The complaints management process includes calls to the hotline being in the first instance diverted to the gatehouse. This centralised approach provides a single point of contact that captures all issues that are raised. The complaint is then immediately escalated to the Location Manager or Environment Health and Safety Manager.

The issue is investigated and corrective actions implemented as appropriate.

The Environmental Health and Safety (EHS) Manager contacts the complainant by phone to discuss the issue and any findings. A letter is also sent to the complainant to close out the issue.

The Community Relations Officer will often also speak with the complainant to ensure issues raised are captured and measures are incorporated into the process to reduce likelihood of a repeat incident. Every complainant is invited to attend the Community Consultation Network. If appropriate, complainants are also invited to tour the site and meet personally with relevant staff to discuss the issue further.

A recent example of effectiveness of the complaints handling process includes a number of complaints relating to pluming above Rotary Furnace 3. The complaints were reported and the site engaged external air quality consultants to investigate the issue. The findings from the investigation found that the plume was due to condensation. This information will be communicated back to all of the callers who registered the complaints.

In 2006 a total of 25 complaints have been received. 21 of these calls related to occasional pluming from Rotary Furnace 3. Other issues that have been raised from complaints relating to Alcoa's operations include:

- Ash blowing through a residential property - This issue was unsubstantiated by the investigation that followed.
- Odour from pluming -- action was immediately undertaken on the occasion that odour was confirmed. Processes were implemented to monitor issue to reduce likelihood of repeat incidences.
- Smoke from rotary furnace building -- investigations confirmed a thermiting incident identified by local business. Immediate action was taken to mitigate the issue.

These issues have all been recorded as part of the complaints management system.

6. Environmental (Air Quality) Management

6.1 Overview

This section of the report describes the environmental management practises used on site and a summary of the AARP Yennora Environmental Improvement Program 2006-2007, specifically in relation to air emissions.

6.2 Background

The Alcoa Yennora site operates under Environmental Protection Licence (EPL) No. 642 issued by the DEC. The EPL requires compliance with air and noise emissions criteria and addresses a wide range of general environmental matters including hazardous waste generation and management. The site holds a dangerous goods licence and has audited the facility using a WorkCover accredited dangerous good consultant. The EPL provides concentration limits for discharges to air and water, monitoring locations and frequency, load limits for Load Based Licensing (LBL), and other limits relating to waste, noise as well as operating, monitoring and reporting conditions.

The EPL also requires annual reporting of compliance and reporting of any non conformances should an event cause licence requirements to be exceeded. A summary of the limits detailed in this licence relating to air emissions is outlined in **Section 6.4**.

The site undertakes regulatory monitoring of air emissions on a continuous basis and through quarterly stack monitoring. Routine reporting of these results to the DEC takes place, as does NPI (National Pollutant Inventory) reporting to Environment Australia.

Details of the monitoring undertaken is outlined in **Section 6.4**.

The Yennora site consistently achieves a ranking amongst the top performers world-wide within Alcoa's environmental best practice sites. Additionally, the site achieved 100% performance standard for occupational health and safety in its most recent Alcoa corporate audit.

Alcoa world-wide has voluntarily set high targets, including emissions to air such as reducing direct global greenhouse gas emissions by 25% by Year 2010 from the base year of Year 1990. Alcoa has also established waste minimisation and cleaner production programs at its manufacturing facilities.

The Yennora site is in the process examining further opportunities for waste minimisation, greater material reuse and recycling on site, and ways to reducing use of natural resources, principally water.

The Yennora site operates within a strict Code of Practice for regulatory compliance.

Following the formation of Alcoa Australia Rolled Products in 2003, the plant at Yennora has taken a number of steps to embed sustainability principles in their operations. Alcoa believes that environmental performance and management is critical to their business sustainability. Alcoa's commitment to environmental performance and management has been reflected in the targets set for 2006 – 2007 in the Yennora Environmental Improvement Plan (EIP).

Alcoa recognises that their environmental impacts have important implications for the health and safety of their employees and neighbours. In 2005 Alcoa established the Community Consultation Network (CCN) to share information with the community and allow those living in the local area to raise any concern or needs for more information and to have a meaningful input into setting the environmental objectives for the location.

Following an extensive consultation process, the CCN provided input into the EIP, identifying issues for which the community would like clearer information, and the areas of environmental performance for which they wanted to see targets set for the 2006-07 period. The EIP is to be revised every two years, and in the future include an analysis against the previous targets set. A summary of the EIP is in **Section 6.8**.

6.3 ISO14001 Accreditation

In December 2005, Alcoa ARP at Yennora's Environmental Management System achieved ISO 14001 certification, the International Organisation for Standardisation's (ISO) standard for environmental management systems.

To gain ISO14001 certification, the Alcoa ARP site at Yennora demonstrated - to a high standard - that environmental risks are understood, appropriate controls are in place, performance is constantly checked, and there is a genuine commitment to continuous improvement.

Now that certification has been achieved, Alcoa ARP at Yennora will be audited by an external accredited auditing body every six months, and will undergo a full re-certification audit every three years.

Alcoa Australia Rolled Products at Yennora's Environmental Management System ensures good environmental management is integrated into its daily operations, long term planning and other management systems. It provides an objective assessment of the processes in place to protect the environment.

6.4 EPA Licence Requirements

Alcoa Yennora are required to operate according to EPL No. 642 for Secondary Aluminium Production (58) > 10,000 – T produced.

In general environment protection licences are a central means to control the localised, cumulative and acute impacts of pollution in NSW, under the Protection of the Environment Operations Act 1997 (POEO Act).

The load-based licensing (LBL) scheme, which commenced on 1 July 1999, sets limits on the pollutant loads emitted by holders of environment protection licences, and links licence fees to pollutant emissions. LBL is a powerful tool for controlling, reducing and preventing air and water pollution in NSW.

LBL combines the strengths of several regulatory instruments to achieve better environmental and economic outcomes. In particular, it:

- sets clear minimum standards for environmental performance;
- incorporates powerful incentives for ongoing pollution reduction;
- gives licensees flexibility to implement cost-effective pollution abatement methods;
- increases regulatory transparency;
- provides the infrastructure for emissions trading schemes; and
- enables the long-term tracking of emissions reductions.

The AARP Yennora EPL provides concentration limits for discharges to air and water, monitoring locations and frequency, load limits for LBL, and other limits relating to waste, noise etc, and operating, monitoring and reporting conditions.

Alcoa ARP Yennora operations are required to operate within the limits stipulated in the Licence, provide an annual report detailing compliance to the DEC and notify the DEC immediately of any harm or immediately for incidents causing or threatening material harm to the environment as soon as practicable.

6.4.1 Discharge Points, Monitoring Requirements and Concentration Limits

The EPA licensed discharge points, monitoring requirements and concentration limits relating to air emissions are detailed in **Table 6-1** to

Table 6-3, as per the EPA Licence No. 642. Alcoa Yennora commission the monitoring as required by their EPL, with records maintained on site. The monitoring is undertaken by NATA accredited consultants and laboratories and the sampling and analysis methods used comply with DEC's Approved Methods for the Sampling and Analysis of Air Pollutants in NSW, 2005.

■ **Table 6-1 Monitoring / Discharge Points**

EPA ID No.	Type of Monitoring Point	Type of Discharge Point	Description of Location
3	Discharge to air; Air emissions monitoring	Discharge to air; Air emissions monitoring	Exhaust from No. 6 Remelt Furnace labelled '46' on drawing number NL-001-A received by EPA on 21 Aug 01
4	Discharge to air; Air emissions monitoring	Discharge to air; Air emissions monitoring	Exhaust from No. 7 Remelt Furnace labelled '47' on drawing number NL-001-A received by the EPA on 21 Aug 01
5	Discharge to air; Air emissions monitoring	Discharge to air; Air emissions monitoring	Exhaust from Rotary Furnace No. 3 labelled '1' on drawing number NL-001-A received by the EPA on 21 Aug 01
6	Discharge to air; Air emissions monitoring	Discharge to air; Air emissions monitoring	Exhaust from No. 8 Remelt Furnace labelled '65' on drawing number NL-001-A received by the EPA on 21 Aug 01

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■ Table 6-2 Monitoring Requirements

Point	Pollutant	Units of Measure	Frequency	Sampling Method
3	Opacity	%	Yearly	In line instrumentation
4	Opacity	%	Quarterly	In line instrumentation
5	Opacity	%	Yearly	In line instrumentation
6	Carbon monoxide	%	Yearly	Clean Air (Plant & Equipment) Regulation 1997 Test method 24
	Carbon monoxide	Ppm	Yearly	Other approved method 1
	Dry gas density	kg/m ³	Yearly	Clean Air (Plant & Equipment) Regulation 1997 Test method 23
	Moisture	%	Yearly	Clean Air (Plant & Equipment) Regulation 1997 Test method 22
	Molecular weight of stack gases	g/g-mole	Yearly	Clean Air (Plant & Equipment) Regulation 1997 Test method 23
	Nitrogen dioxide	mg/m ³	Yearly	Clean Air (Plant & Equipment) Regulation 1997 Test method 11
	Oxygen (O ₂)	% by volume	Yearly	Clean Air (Plant & Equipment) Regulation 1997 Test method 25
	Particular matter	mg/m ³	Yearly	Clean Air (Plant & Equipment) Regulation 1997 Test method 15
	Temperature	C	Yearly	Clean Air (Plant & Equipment) Regulation 1997 Test method 2
	Velocity	m/s	Yearly	Clean Air (Plant & Equipment) Regulation 1997 Test method 2
	Volumetric flowrate	m ³ /s	Yearly	Clean Air (Plant & Equipment) Regulation 1997 Test method 2

■ **Table 6-3 Concentration Limits**

Point	Pollutant	Units of Measure	100 Percentile Concentration Limit
5	Solid Particles	mg/m ³	100
	Opacity	%	20
6	Nitrogen dioxide	mg/m ³	100
	Solid Particles	mg/m ³	100
	Carbon monoxide	Ppm	100
	Opacity	%	20

6.4.2 Load Based Licensing

The load limits presented in **Table 6-4** relates to the load base licensing scheme which links pollutants directly to annual licence fees. The actual load of an assessable pollutant must be calculated in accordance with the relevant load calculation protocol to determine the fee and determine if the site has complied with their licence load limit for the year.

■ **Table 6-4 Load Limits**

Assessable Pollutant	Load Limit (kg)
Coarse particulates	29,000
Fine Particulates	12,000
Fluoride	1,200
Nitrogen Oxides	108,000
Sulfur Oxides	34,000
Volatile Organic Compounds	145,000

The air emissions loads reported for the site are detailed in **Table 6-5**. It can be seen that in each case, the pollutants loads calculated all comply with the site licence load limit requirements.

■ **Table 6-5 Actual Annual Load**

Assessable Pollutant	2003 (kg)	2004 (kg)	2005 (kg)
Coarse particulates	20,180	21,543	24,074
Fine Particulates	8,584	8,992	9,240
Fluoride	839	424	427
Nitrogen Oxides	78,676	79,407	83,806
Sulfur Oxides	24,195	25,974	26,294
Volatile Organic Compounds	103,826	105,511	108,810

A graphical summary of emission loads and how these have changed over time, and as a function of changes in aluminium produced is presented in **Appendix B**. In general while it can be seen that while emissions overall have increased in recent years as production increased, the quantity emitted per tonne of aluminium produced has decreased. Importantly, the license limits does not represent environmental harm, the limits have been set well below environmental thresholds and are used to ensure Alcoa's operations maintain high level environmental performance at evolving levels of production.

6.4.3 Protection of the Environment (Clean Air) Regulation 2002

The site licence refers to Alcoa ARP Yennora as being a Secondary Aluminium Production (58) scheduled activity. When setting concentration limits for air pollutants the DEC uses the limits outlined in *The Protection of the Environment Operations (Clean Air) Regulation 2002* to set the limits for specific activities and plant. Limits are set based on the Group that the activities and plant fall within. This means that scheduled premises if commenced at different times could have different emission limits to comply with.

Scheduled premises activities and plant are grouped according to the criteria outlined in **Table 6-6**.

■ Table 6-6 Scheduled Premises Group Descriptions

Group	Requirements
1	Commenced to be carried on, or to operate, before 1 January 1972, or it commenced to be carried on, or to operate, on or after 1 January 1972 as a result of a pollution control approval granted under the <i>Pollution Control Act 1970</i> pursuant to an application made before 1 January 1972.
2	Commenced to be carried on, or to operate, on or after 1 January 1972 as a result of a pollution control approval granted under the <i>Pollution Control Act 1970</i> pursuant to an application made on or after 1 January 1972 and before 1 July 1979
3	Commenced to be carried on, or to operate, on or after 1 July 1979 as a result of a pollution control approval granted under the <i>Pollution Control Act 1970</i> pursuant to an application made on or after 1 July 1979 and before 1 July 1986.
4	Commenced to be carried on, or to operate, on or after 1 July 1986 as a result of a pollution control approval granted under the <i>Pollution Control Act 1970</i> pursuant to an application made on or after 1 July 1986 and before 1 August 1997.
5	Commenced to be carried on, or to operate, on or after 1 August 1997 as a result of a pollution control approval granted under the <i>Pollution Control Act 1970</i> pursuant to an application made on or after 1 August 1997 and before 1 July 1999, or an environment protection licence granted under the <i>Protection of the Environment Operations Act 1997</i> pursuant to an application made on or after 1 July 1999 and before 1 September 2005.
6	Commenced to be carried on, or to operate, on or after 1 September 2005, as a result of an environment protection licence granted under the <i>Protection of the Environment Operations Act 1997</i> pursuant to an application made on or after 1 September 2005.
	Any activity or plant that would, but for this subclause, belong to Group 6 is taken to belong to Group 5 if it is the subject of a development consent in respect of which the EPA had given general terms of approval (within the meaning of section 93 of the <i>Environmental Planning and Assessment Act 1979</i>) before 1 September 2005.

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Group	Requirements
	If an emission unit in Group 1, 2, 3, 4 or 5 is altered as a result of the modification of development consent under section 96 (2) of the <i>Environmental Planning and Assessment Act 1979</i> pursuant to an application made on or after 1 September 2005, or the variation of the licence for the plant, and the effect of the alteration is that there is an increase in the emission of air impurities, or a change in the nature of the air impurities emitted or the intensity with which air impurities are emitted, from the plant of which the emission unit forms part, or to which it is attached, the altered emission unit is taken to belong to Group 6.

Sourced from *The Protection of the Environment Operations (Clean Air) Regulation 2002*.

A summary of the air emission limits relevant to secondary aluminium production is outlined in **Table 6-7**, as per *The Protection of the Environment Operations (Clean Air) Regulation 2002* requirements.

■ **Table 6-7 Aluminium Secondary Production Air Emission Criteria**

Air Impurity	Activity or Plant	Standard of Concentration	
Solid particles (total)	Any activity or plant, including any smelting, refining or holding furnace (except as listed below)	Group 1	400 mg/m ³
		Group 2, 3 or 4	250 mg/m ³
		Group 5	100 mg/m ³
		Group 6	50 mg/m ³
	Any crushing, grinding, separating or materials handling activity	Group 1	400 mg/m ³
		Group 2, 3 or 4	250 mg/m ³
		Group 5	100 mg/m ³
		Group 6	20 mg/m ³
Nitrogen dioxide (NO ₂) or nitric oxide (NO) or both, as NO ₂ equivalent	Any activity or plant, including any smelting, refining or holding furnace	Group 1	2,500 mg/m ³
		Group 2, 3 or 4	2,500 mg/m ³
		Group 5	2,000 mg/m ³
		Group 6	300 mg/m ³
Fluorine (F ₂) or any compound containing fluorine, as total fluoride (HF) equivalent	Any smelting or refining furnace	Group 1	100 mg/m ³
		Group 2, 3, 4, 5 or 6	50 mg/m ³
Type 1 substances (in aggregate)	Any smelting or refining furnace	Group 1, 2 or 3	20 mg/m ³
		Group 4	10 mg/m ³
		Group 5 or 6	—
Type 1 substances and Type 2 substances (in aggregate)	Any smelting or refining furnace	Group 1, 2, 3 or 4	—
		Group 5	5 mg/m ³
		Group 6	1 mg/m ³
Cadmium (Cd) or mercury (Hg) individually	Any smelting or refining furnace	Group 1, 2 or 3	—
		Group 4	3 mg/m ³
		Group 5	1 mg/m ³
		Group 6	0.2 mg/m ³

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Air Impurity	Activity or Plant	Standard of Concentration	
Dioxins or furans Volatile organic compounds (VOCs), as n-propane equivalent	Any smelting or refining furnace	Group 1, 2, 3, 4 or 5	—
		Group 6	0.1 ng/m ³
	Any smelting or refining furnace	Group 1, 2, 3, 4 or 5	—
		Group 6	40 mg/m ³ VOCs or 125 mg/m ³ CO
Smoke	Any activity or plant	Group 2, 3, 4, 5 or 6, in approved circumstances	Ringelmann 3 or 60% opacity
		Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 1 or 20% opacity
		Group 2, 3, 4, 5 or 6, in approved circumstances	Ringelmann 3 or 60% opacity
		Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 1 or 20% opacity

At present the Alcoa ARP Yennora site is classified as a Group 5 scheduled premises, however, as discussed in **Section 6.7** to follow more stringent emission limits will apply to the site, specifically RF No.3 in the near future.

The Alcoa ARP Yennora site currently performs air emission testing for RF3 (EPL Point No. 5) for all the pollutants listed in **Table 6-7**, even though according to the *Protection of the Environment Operations (Clean Air) Regulation 2002* and their site EPA Licence the Company is not required to do so. From the monitoring performed in May, June, and August 2006 by Emissions Testing Consultants, the air emissions from RF3 comply with all of the concentration limits specified by the *Protection of the Environment (Clean Air) Regulation 2002* for Group 6 activities and plant, as outlined in **Table 6-7**.

6.5 Alcoa Air Emission in Context with the Sydney Basin

It is important to place Alcoa air emissions into the context of total emissions within the Sydney region. For the most significant emissions from the Alcoa site as reported under the LBL Scheme this has been done using air emissions inventory data as outlined in the DEC submission (No. 25) to the Inquiry.

Table 6-8 provides the fractional air emissions from the Alcoa Yennora site based on emitted loads reported to the DEC in 2005. The comparison is made with 2002 Airshed inventory data, as none are available for 2005. This is considered to provide a conservative estimate of the Alcoa fraction of total emissions.

■ Table 6-8 Alcoa Yennora Industry Fractional Air Emissions

Pollutant	Alcoa Yennora 2005 Load Limit (kg/yr)		Industry 2002 Air Emissions (kg/yr)	Total Sydney Region 2002 Air Emissions (kg/yr)
	Total	RF3 and Melters		
Particulates (TSP)	24,074 (0.25% of Industry) (0.10% of Total)	12,769 (0.13% of Industry) (0.05% of Total)	9,700,000	24,400,000
NO _x	83,806 (0.54% of Industry) (0.08% of Total)	-	15,600,000	98,600,000
VOC	108,810 (0.56% of Industry) (0.08% of Total)	11,734 (0.06% of Industry) (0.01% of Total)	19,500,000	135,900,000

Considering AARP Yennora's most significant emissions - particulates, oxides of nitrogen and volatile organic carbons - a conservative estimate of the site's emissions shows the site emits less than 0.1 % of these air emission in the Sydney Basin. Emissions from RF No.3 and the Melters are less again.

6.6 Air Quality Impact Assessment

An Environmental Impact Statement (EIS) was developed by Dick Benbow & Associates Pty Ltd (DBA) in March 2005 (EIS 2005) to accompany the development application relating to land at the Yennora site referred to a lot 220, DP703309, seeking consent to use existing land, buildings, plant and equipment including the current rotary furnace known as RF3 (EPL Point No. 5).

The need for this development application arose because of Court proceedings in which it was contended by a competitor (Weston Aluminium) that existing consents do not permit the use of the range of feedstock which Alcoa has and wishes to continue to use in its operations (EIS 2005).

Further to the EIS, an Addendum Report was prepared for Holroyd City Council by Dick Benbow & Associates in October 2005 (EIS Adendum 2005). The Addendum report addressed issues raised by various stakeholders in their review of the original EIS.

In the EIS air quality impacts were assessed using dispersion modelling with the AUSPLUME model assuming that the melting operations are conducted 24 hours a day, 365 days per year. The modelled impacts were assessed in accordance with DEC *Approved Methods and Guidance for Modelling and Assessment of Air Pollutants in New South Wales* (2005).

The results of air dispersion modelling including the full suite of pollutants considered and their relative compliance with DEC criteria is included in **Appendix C**. The modelling results considered scenarios for both “processing” and “not processing” Port Henry dross.

Air dispersion modelling results were presented in the EIS and as isopleths of ground levels concentrations show the dispersion of air quality impacts within the local area surrounding the site. Specific results were also generated for specific discrete receptor locations and these included:

- Location A: Yennora Primary School
- Location B: Residences – Railway Street and Tara Close, Yennora
- Location C: Residences – Pine Road and Bell Crescent, Fairfield
- Location D: Residence – Douglas Ace Avenue, Fairfield
- Location E: Dennistoun Avenue and Fowler Road, Guildford
- Location F: Byron Road and Cann Street, Guildford

The modelling found that the different scenarios had very little effect to air pollution emissions due to the maximum emission rate used for each pollutant being based on testing undertaken by Emission Testing Consultants and more often than not the emission data used from the Point Henry Dross not exceeding those of other feedstocks.

The only pollutant where the proposal could possibly make a difference was for magnesium oxide. However, the change in the impact was so low that it was concluded that the remelting operations of the site do not have significant impact on the health and amenity of the surrounding community of Yennora are likely to be within the margin of error that could have resulted in the initial measurement of emission rates in the stack.

Where background data files were used to model impacts a stronger influence on the impacts were found than those determined for Alcoa’s whole facility. This is demonstrated through the comparison of impacts in the tables located in **Appendix C** for each receptor with and without the background field for carbon monoxide, nitrogen dioxide, PM₁₀, sulphur dioxide and TSP emissions. The difference suggests that Alcoa’s emissions are quite small compared to ambient pollutant concentrations.

The one exceedance that occurred in the modelling performed was for TSP for the case where background contribution is not considered. DBA outlines that this impact would likely decrease if the assumptions and a conservative approach were adopted to give a more accurate assessment. Because of the way in which the emission rates were selected for the furnace, whose TSP emissions dominate the rest of the facility site’s TSP emissions, the rate used was higher than

would be the case for a normal load i.e. a load consisting of a mix of materials instead of one single material.

The remaining impacts were several times to several magnitudes lower than relevant criteria.

On the basis of the results of air dispersion modelling DBA concluded that air emissions from the AARP Yennora facility have no discernable affect on the health and amenity of communities surrounding the plant.

6.7 General Terms of Approval

Following completion of the EIS process General Terms of Approval from the DEC were developed in response to a letter from Alcoa and the development application 2005/674 submitted to Holroyd Council in 2006. This document relates specifically to variations the DEC will make to the existing EPA licence when consent is given to development application 2005/674.

The concentration limits for EPL Point No. 5 (RF3) outlined in this approval document are detailed in Table 6-9, along with current concentration levels allowed under Alcoa ARP Yennora's current EPL.

■ Table 6-9 Concentration Limits RF3 (EPL Point No. 5)

Pollutant	Units of measure	Draft General Terms of Approval	Current Licence
		100 percentile concentration limit	
Cadmium	mg/m ³	0.2	
Dioxins & Furans	ng/m ³	0.1	
Type 1 and Type 2 substances in aggregate	mg/m ³	1	
Hydrogen chloride	mg/m ³	50	
Total Fluorides (as HF)	mg/m ³	10	
Mercury	mg/m ³	0.2	
Nitrogen Oxides	mg/m ³	100	
Opacity	% Opacity	20	20
Solid Particles	mg/m ³	10	100
Sulphuric acid mist and sulphur trioxide (as SO ₃)	mg/m ³		
Carbon monoxide	mg/m ³		
Volumetric flowrate	mg/m ³		
Volatile Organic Compounds	Ppm	20	

Apart from the type, number and percentile concentration limits for pollutants that Alcoa will be required to monitor, the frequency of monitoring has also changed to in general quarterly from yearly as detailed in the current licence.

Another significant change is the introduction of a dioxin emissions capture and emissions control report and dioxin emissions reduction – continuous improvement program.

The Draft Terms of Approval also detail that the Rotary Kiln No. 3 permissible aluminium containing feedstock includes Yennora dross, Point Henry dross, used beverage cans, smelter scrap and general aluminium scrap.

It should be noted that the air emission concentrations detailed in the DEC Draft Terms of Approval for EPL Point No. 5 (RF No.3) (refer to **Table 6-9**) are in general more stringent than those outlined for Group 6 activities and plant in the *Protection of the Environment Operations (Clean Air) Regulations 2002*, Schedule for Secondary Aluminium Production.

6.8 Environmental Improvement Plan 2006 – 2007

In 2005 Alcoa formalised mechanisms to share information with neighbours through the Community Consultation Network (CCN). As part of the consultation process, the CCN provided invaluable input into the development of the Environmental Improvement Plan 2006-2007 (EIP) identifying issues for which clearer information was required and the areas of environmental performance for which they wanted targets sets for the 2006-2007 period.

The EIP was prepared on behalf of the Yennora community consultative partnership to give an overview of Alcoa Australia Rolled Products operations, improvements accomplished to date, and the current initiatives program.

This Plan will be reviewed regularly during CCN meetings by the community consultative partners to assess progress and provide input to future goals and actions. The Environment Improvement Plan will be rewritten every two years.

Items underway or completed within the current EIP include dust containment from the RF No.3 building, cooling tower No. 10 replacement to reduce water consumption and installation of an oxyburner on the RF3 to reduce the volume of salt residue produced.

Specifically in relation to air emission the Alcoa has committed to air emissions management targets for 2006-2007 as detailed in **Table 6-10**.

Although production has increased it can be seen in the figures and tabulated data contained in **Appendix B** that there has been a significant decrease in VOC and fluoride emissions and a slight

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decrease in PM₁₀, NO_x and SO₂ emissions since 1999 in relation to total load emitted per aluminium production.

■ Table 6-10 EIP Targets: Air Emissions Management

section	proposed targets 06-07	proposed actions 06-07	performance measures
AIR EMISSIONS MANAGEMENT			
SO ₂	<p>Sulphur Dioxide (SO₂) No exceeding the site load based limits (LBL) as set by the NSW EPA licence (SO₂ LBL = 34t)</p> <p>Maintain or reduce SO₂ emitted per tonne of aluminium product sold from 2004 baseline. (2004 SO₂ = 0.258kg per tonne of aluminium sold)</p>	<p>Investigate benefits and viability of changing to bio-diesel in all forklifts.</p>	SO ₂ emitted per tonne of aluminium product sold.
NO _x	<p>Oxides of Nitrogen (NO₂, NO, N₂O) No exceeding the site load based limits (LBL) as set by the NSW EPA licence (NO_x LBL = 108t)</p> <p>Maintain or reduce NO_x emitted per tonne of aluminium product sold from 2004 baseline. (2004 NO_x = 0.8kg per tonne of aluminium sold)</p>	<p>Investigate benefits and viability of changing to bio-diesel in all forklifts.</p>	NO _x emitted per tonne of aluminium product sold.
Dioxins	<p>Dioxins Maintain or reduce dioxins emitted per tonne of aluminium product sold. No exceeding the Clean Air 1ng/m³ Regulation limit of 0.1ng/m³.</p>	<p>Dioxins are already emitted at very low levels and we will remain alert to best available technologies for air emission control Quarterly monitoring of dioxins</p>	Measure dioxins and furans at ng/m ³
VOCs	<p>Volatile Organic Compounds No exceeding the site load based limits (LBL) as set by the NSW EPA licence (VOC's LBL = 145t)</p> <p>Maintain or reduce VOCs emitted per tonne of aluminium product sold from 2004 baseline. (2004 VOCs = 1.052kg per tonne of aluminium sold)</p>	<p>Investigate benefits and viability of changing to bio-diesel in all forklifts.</p> <p>Improvements in production cycle for finished goods planned are expected to reduce VOC outputs per tonne of aluminium sold.</p>	VOCs emitted per tonne of aluminium product sold.
Fluoride	<p>Fluoride Compounds No exceeding the site load based limits (LBL) as set by the NSW EPA licence (F LBL = 1.2t)</p> <p>Maintain or reduce fluoride emitted per tonne of aluminium product sold from 2004 baseline. (2004 F = 0.004kg per tonne of aluminium)</p>	<p>Fluoride is already emitted at very low levels and we will remain alert to best available technologies for air emission control.</p>	Fluoride emitted per tonne of aluminium product sold.
PM	<p>Particulate Matter (PM₁₀ - 10 micrometres or less and PM₂₅ 25 micrometres or less) No exceeding the site load based limits (LBL) as set by the NSW EPA licence. These are PM₁₀ LBL = 12t and PM₂₅ LBL = 29t.</p> <p>Maintain or reduce particulate matter emitted per tonne of aluminium product sold from 2004 baseline. (2004 PM₁₀ = 0.091kg per tonne of aluminium) (2004 PM₂₅ = 0.222kg per tonne of aluminium)</p>	<p>Investigate benefits and viability of changing to bio-diesel in all forklifts.</p> <p>Hood improvement on rotary furnace Salt Slag cooling and loading practices.</p>	Particulate matter emitted per tonne of aluminium product sold

7. Response to Inquiry

7.1 Overview

This section of the report provides a summary of the issues raised (transcript) by the groups present at the Public Inquiry held in August 2006 relevant to the Alcoa Yennora site. In addition a brief summary of the information provided to Alcoa by the NSW Legislative Council and a formal response to the issues raised throughout the Inquiry relevant to Alcoa Yennora operations are detailed below.

7.2 Public Inquiry

A Public Inquiry into Health Impacts of Air Pollution in the Sydney Basin was held on the 16th August 2006. As per the letter received from the NSW Legislative Council Alcoa was invited to make a response in writing in relation to allegations made at the inquiry in relations to Alcoa's operations at Yennora. The following summarises the discussions and submissions as part of the Inquiry.

7.2.1 General Purpose Standing Committee No. 2

This is a report of the proceeding before the General Purpose Standing Committee No. 2, Inquiry into Health Impacts of Air Pollution in the Sydney Basin, 16th August 2006. This document provides the statements given by participants and minutes of discussions at the inquiry.

In relation to the Alcoa Yennora site representatives from the Western Sydney Clean Air & Water Action Group & Concerned Residents of Guildford were present and provided information at the Inquiry. A submission from Weston Aluminium was also provided.

7.2.2 Submission No.6 - Weston Aluminium Pty Ltd

Weston Aluminium (WA) submitted a report to the Inquiry via the Action Group. The report detailed Weston Aluminium's:

- Operations: 40,000 tonne per annum capacity aluminium dross and alloying plant;
- Location: Weston NSW in the Hunter;
- Employee Numbers: approximately 50;
- Opinion: Relating to the impact of NSW air pollution laws over the past three decades;
- Case Study: Illustrating their difficulty to understand the DEC's licensing approach for two plants processing secondary aluminium. Basically outlining the difference in EPL conditions in regards to pollutant air emission limits, concentration limits and monitoring requirements.

7.2.3 Submission No 18 – Western Sydney Clean Air and Water

The Western Sydney Clean Air & Water Action Group & Concerned Residents of Guildford provided Submission No 18 at the Inquiry outlining their concern in regards to the pollution emitted from the Alcoa Yennora operations. The Action Group was formed in 2004 to assist in protecting the community from air and water pollution affecting Prospect Creek and Prospect Reservoir.

7.3 Response

The information contained in **Table 7-1** and **Table 7-2** provides a summary of the issues raised at the Inquiry in relation to the Alcoa Yennora operations, specifically in relation to the issues raised by the Western Sydney Clean Air and Water Action Group and Weston Aluminium Pty Ltd in their submissions.

Health Impacts Inquiry of Air Pollution in the Sydney Basin

Table 7-1 Western Sydney Clean Air and Water Action Group Submission

Issue Category	Comments	Response
Request to formally appear at Inquiry	<p>The Western Sydney Clean Air and Water Action Group and Concerned Residents from Guildford also requests to formally appear before the inquiry to provide testimony. We recommend the following members of our group;</p> <ul style="list-style-type: none"> ■ Chaplain Len Stephens (Chair); ■ Mr Eric Cameron, both from Western Sydney Clean Air & Water Action Group; & ■ Mr Hugh Nguyen; and ■ Ms Angelika Lange, both concerned residents from Guildford. <p>(Exec. Summary)</p>	N/A
Health Impacts of Air Pollution / Emissions	<p>The effect of air pollution on health has become a major concern in recent years. Epidemiological research into air pollution over the past 20 years has demonstrated cardio-respiratory health effects ranging from minor respiratory symptoms to increased hospital admissions and mortality.</p> <p>The submission recognises that exposure to adverse air quality is generally involuntary, and that governments have a duty of care. Reduced exposure to air pollution has multiple benefits, including reduced health costs - an increasingly significant burden on the community.</p> <p>The action group is concerned that the Alcoa Yennora plant emits a wide range of toxic pollutants including dioxins. These pollutants have reported skin rashes, respiratory problems and other changes in their health which they attribute to Alcoa's pollution. The residents complain about smells from the factory, increased amounts of dust on their houses and cars and report the emission of dark clouds from Alcoa's chimneys especially at night-time. There seems to be higher proportion of asthma among children in the local schools surrounding Yennora. Whether the area has an increased number of residents suffering or dying of Leukemia can only be investigated by a health-study. (page 4)</p>	<p>The ground level concentrations of air contaminants measured in plant emissions have been determined by computer modelling and have all been found to be within health guidelines set by the relevant authorities. This means it is very unlikely that plant emissions are giving rise to health impacts.</p> <p>The health conditions listed here occur in any community. While an appropriately designed and conducted community health study might determine whether or not the prevalence of health conditions is higher than expected, the cause of any variation in prevalence is likely to be complex and multifactorial. This is supported by the comparison of emission data with ambient concentrations which found that the contribution made by AARP emissions to background levels was very small.</p> <p>Given that the modelled ground level concentrations are well within health guidelines there seems to be no reasonable rationale for a community</p>

Health Impacts Inquiry of Air Pollution in the Sydney Basin

Issue Category	Comments	Response																					
	<p>According to HLA-Envirosciences Pty Ltd (a company involved in environmental chemistry in Newcastle) the emission from aluminium plants pollution result in the following health effects:</p> <table border="1" data-bbox="480 864 895 1704"> <thead> <tr> <th>Health Effect</th> <th>Health Effect</th> <th>Health Effect</th> </tr> </thead> <tbody> <tr> <td>Increased mortality</td> <td>Increased mortality</td> <td>Increased rates of bronchitis, reduced lung function, reduced survival, reduced life expectancy</td> </tr> <tr> <td>Asthma, reduced lung function</td> <td>Asthma, reduced lung function</td> <td>Increased rates of bronchitis, reduced lung function, reduced survival, reduced life expectancy</td> </tr> <tr> <td>Reduced lung capacity, respiratory tract irritation, asthma, cough, bronchitis, emphysema</td> <td>Reduced lung capacity, respiratory tract irritation, asthma, cough, bronchitis, emphysema</td> <td>Asthma, lung function disorders, emphysema, teeth and bone disorders, occupational asthma.</td> </tr> <tr> <td>Bioaccumulation, skin lesions, chlor-acne, liver function damage</td> <td>Bioaccumulation, skin lesions, chlor-acne, liver function damage</td> <td>Immune system impact, endocrine disruption, DNA modification in foetus, known carcinogen.</td> </tr> <tr> <td>Increased mortality, asthma, pulmonary disease</td> <td>Increased mortality, asthma, pulmonary disease</td> <td>Chronic respiratory disease, increased mortality, asthma.</td> </tr> <tr> <td>Known carcinogens</td> <td>Known carcinogens</td> <td>Chronic pulmonary disease, bone marrow depression, leukaemia, human carcinogen.</td> </tr> </tbody> </table> <p>Source: Christopher McClung, HLA-Envirosciences Pty Limited, 18 Warabrook Boulevard, Warabrook, NSW 2304 (2005). (page 8)</p> <p>The Western Sydney Clean Air and Water Action Group have many serious concerns regarding the Yennora plant and the health impacts of the air pollution it emits including:</p> <ul style="list-style-type: none"> ■ Increased reports of residents about smell, clouds of dark smoke from chimneys skin-rashes, respiratory problems and cancer-occurrences in young people. ■ proximity of the plant to the large population in Guildford, Yennora, Fairfield and Chester Hill areas and its location near a river basin, a creek running directly into the Georges River; ■ proximity of the plant to community facilities used by children including eight schools, Guildford Leagues Club, six sports grounds and ten nursing homes (refer to Appendix III); ■ wind blowing pollution particulates into the Prospect reservoir; ■ concerns that Fluoride, Sulphur Oxide, and Nitrogen, are not being independently monitored from the stack of the rotary furnace No 3 and from 	Health Effect	Health Effect	Health Effect	Increased mortality	Increased mortality	Increased rates of bronchitis, reduced lung function, reduced survival, reduced life expectancy	Asthma, reduced lung function	Asthma, reduced lung function	Increased rates of bronchitis, reduced lung function, reduced survival, reduced life expectancy	Reduced lung capacity, respiratory tract irritation, asthma, cough, bronchitis, emphysema	Reduced lung capacity, respiratory tract irritation, asthma, cough, bronchitis, emphysema	Asthma, lung function disorders, emphysema, teeth and bone disorders, occupational asthma.	Bioaccumulation, skin lesions, chlor-acne, liver function damage	Bioaccumulation, skin lesions, chlor-acne, liver function damage	Immune system impact, endocrine disruption, DNA modification in foetus, known carcinogen.	Increased mortality, asthma, pulmonary disease	Increased mortality, asthma, pulmonary disease	Chronic respiratory disease, increased mortality, asthma.	Known carcinogens	Known carcinogens	Chronic pulmonary disease, bone marrow depression, leukaemia, human carcinogen.	<p>health study focussed on Yennora.</p> <p>The risk of any health effects occurring in relation to the contaminants listed in this table is minimised by the application of a range of control measures..</p> <p>The modelled ground level concentrations of all these contaminants are within the health guidelines set by the relevant authorities. This means the health effects listed in the table are very unlikely to be caused by emissions from the plant.</p> <p>The technical summary of air quality management at Alcoa's Yennora plant is addressed in the proceeding sections of this report. Specific responses to specific issues raised by CAWAG are detailed in the following sections of this table (Table 7-1).</p> <p>Emissions monitoring, computer modelling and background sampling shows the AARP facility makes a very small contribution to background concentrations of particulates. On this basis it is implausible that the facility could cause any significant deterioration in Prospect Reservoir water quality.</p>
Health Effect	Health Effect	Health Effect																					
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Health Impacts Inquiry of Air Pollution in the Sydney Basin

Issue Category	Comments	Response
	<p>Exhaust Stack No 8 Remelt, particularly at night when emissions increase;</p> <ul style="list-style-type: none"> ■ concerns that other pollutants including dioxins are not being independently measured from the No 3 Remelt furnace which does not have pollution control equipment i.e. dust collectors; ■ concerns that solid particles are not being independently monitored continuously; ■ concerns that pollutant levels are not independently verified nor monitored; (page 9) <p>In particular, residents have noticed that on occasion Alcoa has been releasing large clouds of emissions late at night which has been verified by many residents and in a statutory declaration (refer Appendix I). The local residents have the impression that these emissions are done at night to make them less noticeable.</p> <p>For literature about the health effects of pollution from aluminium smelters please refer to Appendix IX. (page 10)</p> <p>The Western Sydney Clean Air and Water Action group recommends that a health study be undertaken on local residents concerning the health impacts. Anecdotal evidence gathered by the group has revealed high incidence of eye and skin irritation, skin rashes, respiratory complaints, and also a higher than normal incidence of cancers including leukemia and other blood anomalies.</p> <p>According to independent HLA-Envirosiences Pty Ltd, emission of pollutants by the Alcoa plant in Yennora can lead to serious health effects in the short to long term including:</p> <ul style="list-style-type: none"> ■ Eye and skin irritations ■ Skin rashes ■ increased rates of bronchitis; ■ reduced lung function; ■ asthma; ■ respiratory tract irritation; ■ bronchitis; ■ emphysema; ■ pulmonary disease; ■ leukemia; 	<p>Emission monitoring required under the EPL are independently monitored by an NATA accredited company and the results reported to the DEC.</p> <p>There are no differences in operations and therefore emissions between daylight and night time. Alcoa does not increase emissions at night-time.</p> <p>The EIS air quality impact assessment modelling results considered scenarios for both "processing" and "not processing" Port Henry dross. The modelling found that the proposal had little effect to air quality. On the basis of the results of air dispersion modelling DBA concluded that the remelting operations of the site would not have significant impact on the health and amenity of the surrounding community of Yennora (refer to Section 6.6 and Appendix C).</p>

Health Impacts Inquiry of Air Pollution in the Sydney Basin

Issue Category	Comments	Response
	<ul style="list-style-type: none"> ■ liver function damage; ■ Bioaccumulation; ■ skin rashes and skin lesions; ■ chlor-acne; ■ endocrine disruption; ■ DNA modification in foetus; ■ known carcinogen; ■ teeth and bone disorders; ■ bone marrow depression; ■ human carcinogen; and ■ reduced life expectancy. (page 21) 	
Background to Organisation	<p>The Western Sydney Clean Air & Water Action Group was formed in November 2004 to advocate on behalf of local residents to improve local air and water quality. The action group is chaired by Chaplain Len Stephens, who was nominated by Westmead Hospital in 2006 for Australian of the Year.</p> <p>Around 190 members of the local community are supporting this group by:</p> <ul style="list-style-type: none"> ■ writing letters to Holroyd Council opposing Alcoa's DA ■ signing letters to Holroyd Council opposing the DA ■ attending a Community Meeting on 29.7.2006 to talk about their experiences with Alcoa. <p>The action group was formed to help protect the community from air and water pollutants affecting Prospect Creek and Prospect Reservoir which directly affects Sydney's drinking water. (page 4)</p> <p>Some residents in the action group have resided in the area for around 40 years, before the Alcoa plant was established in 1969. They report changes of the air, indicating acidic smell at night or early in the morning in the last years.</p> <p>This indicates, that Alcoa's reassurances of not polluting the area cannot be accepted by residents. Alcoa reports their own measurements of pollution to the EPA, which are taken over by the EPA without further checks or measurements. (page 5)</p>	<p>Alcoa acknowledges the commitment of the Western Sydney Clean Air & Water Action Group (WSCAWAG) although the size of its stated support base is well in excess of what is believed to be the case.</p> <p>Representatives of the Western Sydney Clean Air & Water Action Group participate on the Community Consultation Network, established by Alcoa. All issues raised by the group are addressed and meeting notes are recorded and distributed to the group and any other participants of the meeting.</p>
Plant Operations & Emissions	<p>Alcoa's Yennora plant is located within Western Sydney's basin and a key contributor to pollution in the local area. The plant has been operating since 1969. The plant is in a basin of the lower old Guildford, Yennora and Fairfield area. The</p>	<p>The Yennora plant is actually a minor contributor to air pollution in the Sydney area. Table 6-8 shows that the Yennora operations emit less than 0.6 % of</p>

Health Impacts Inquiry of Air Pollution in the Sydney Basin

Issue Category	Comments	Response
	<p>plant is used by Alcoa to melt aluminium and recycle aluminium scrap and dross imported from Victoria. This recycling process uses most pollution-intense material: The Aluminium scrap contains plastic lining and paint, is often contaminated with oil and other plastics, comes on wooden or plastic crates also inserted into the remelt furnaces. There are 3 remelt furnaces of 40, 40 and 60 tons of remelt capacity. This scrap-metal together with dross (a highly toxic powder-like by-product of Aluminium smelting, see Appendix IV) are the main source of pollution. The remelt furnaces have currently no dust collectors on their chimneys. Therefore all emissions are propelled unfiltered into the air and blown by the wind into the area of Prospect reservoir, which supplies Sydney with drinking water. Therefore all dust and pollution including dioxins ends up into our drinking water in Prospect Reservoir.</p> <p>The rotary furnace at the Yennora plant has one bag house processing 25,000 tonnes of material per annum. There are another three furnaces at the remelt in Loftus Street which melt up to 90,000 tonnes of aluminium scrap, a large portion of which is contaminated scrap melted with no dust collectors.</p> <p>The emissions from the production are distributed by air in the surrounding area of Guildford, Fairfield and Chester Hill, a residential area of around 130 000 residents. It is also carried via the Prospect Creek behind the factory into Georges River and down into Botany Bay. (page 6)</p>	<p>Industrial and less than 0.1 % of total Sydney basin air emissions for particulates, oxides of nitrogen and volatile organic carbons respectively.</p> <p>The location has 3 melting furnaces and 1 holding furnace located in the remelt building. In addition to the remelt facility there is a recycling building within is 1 rotating tilting furnace for use with scrap aluminium which is "contaminated" contaminated scrap aluminium includes used beverage containers (cans) dross and any other aluminium which may have a coating attached. The Rotating tilting furnace has a lime injected scrubber designed to capture and scrub out emissions.</p> <p>Only uncontaminated scrap is loaded into the melters in the remelt facility it is for this reason there is no requirement for any scrubbing system the melting process generates products of combustion only. Aluminium scrap is received at the site and sorted generally as contaminated or clean. Internal procedures require that all packaging material be removed from the scrap prior to loading into the furnace. Over 470 tonnes of timber pallets were removed and recycled in 2005.</p>
DA Application	<p>Alcoa has a DA application before Holroyd Council and is seeking retrospective approval for the last 6 years and for the future to expand operations to process unlimited tonnes of contaminated aluminium scrap, dross and smelter waste. This matter is also being examined by the Environment Protection Authority (EPA). (page 6)</p>	<p>A large number of development consents apply to the land now owned by Alcoa at Yennora. A summary of the approvals for the land now forming Alcoa's Yennora site is set out in Appendix A.</p>

Health Impacts Inquiry of Air Pollution in the Sydney Basin

Issue Category	Comments	Response
Lack of DA approval	<p>The Western Sydney Clean Air and Water Action group is vehemently against Alcoa's development application due to the amount of pollution and its impact on the local area. (page 9)</p> <p>The Western Sydney Clean Air and Water Action Group have many serious concerns regarding the Yennora plant and the health impacts of the air pollution it emits including:</p> <ul style="list-style-type: none"> ■ since 2001/2002 Alcoa has recycled imparted aluminium dross and mixed contaminated aluminium scrap without development approval ■ an incomplete EIS has been prepared and the unlawful activity continues without development approval from Holroyd Council. (page 9) 	<p>The air quality impact assessment undertaken as part of the EIS and Addendum report found that there would be minimal impact from the proposal. Refer to Section 6.6 and Appendix C and for further information.</p> <p>Refer to Section 6.6 for a summary of the EIS and Appendix A for a summary of development consent.</p> <p>The dross that AARP Yennora has processed from Pt Henry over the past 6 years is the same as that produced and processed at Yennora. The Yennora location has been processing its own dross for 40 years.</p> <p>The DEC, Council and Alcoa were all of the belief that the existing development approval allowed for Alcoa to process a range of feedstocks including dross sourced from both its Yennora and Pt Henry operations. The issue of what the DA allows for is currently subject to litigation initiated by a competitor. In the meantime, the courts have not directed Alcoa to cease or curtail current operations in any way. In order to clarify the issue, Alcoa has applied for a DA covering the range of feedstock it uses and has done this in consultation with the community, Council and DEC. Alcoa has met all requirements for the DA submission required by both the DEC and Council. The DA is now before the Land and Environment Court with support for the application coming from the Council. Alcoa disputes the</p>

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Issue Category	Comments	Response																																			
EIS	<p>Alcoa's EIS states they would like to melt dross, pot bottoms and other by-products of aluminium smelting over and above the aluminium cans and clean mill scrap (i.e. scrap from their own plant, not used or contaminated before). This will result in unchecked tonnage of material being brought to the plant from across Australia and may be imported from overseas. Alcoa reports that the Yennora plant is the biggest recycler of aluminium scrap in Australia. (page 6)</p>	<p>assertion that it has operated illegally. This issue is subject to current litigation with one of Alcoa's competitors.</p> <p>All material entering the site is weighed and loads are checked. Our current licence limit for the import of dross is 5000 tonnes on no occasion has the limit been exceeded.</p>																																			
Emission Levels	<p>The following table describes the emissions from Alcoa from 1999 to 2003. For data in 2004 see Alcoa's report "Sustainability profile including environment improvement plan 2006 — 2007" at http://www.alcoa.com/australia/en/info_page/EIP.asp.</p> <p>Corrected Load Based Limits for Alcoa for 1999 to 2003, published by the EPA on 12 7. 2006 (EPA reference SRFI 5598)</p> <table border="1" data-bbox="783 887 1090 1709"> <thead> <tr> <th>Assessable Pollutants</th> <th>1999/2000</th> <th>2000/2001</th> <th>2001/2002</th> <th>2002/2003</th> </tr> </thead> <tbody> <tr> <td>Coarse Particulate</td> <td>17,557 kg</td> <td>18,470 kg</td> <td>20,136 kg</td> <td>20,180 kg</td> </tr> <tr> <td>Fine Particulate</td> <td>7,205 kg</td> <td>7,588 kg</td> <td>8,263 kg</td> <td>8,584 kg</td> </tr> <tr> <td>Fluoride</td> <td>705 kg</td> <td>742 kg</td> <td>808 kg</td> <td>839 kg</td> </tr> <tr> <td>Nitrogen Oxides</td> <td>65,546 kg</td> <td>69,028 kg</td> <td>75,173 kg</td> <td>78,676 kg</td> </tr> <tr> <td>Sulphur Oxides</td> <td>20,380 kg</td> <td>21,462 kg</td> <td>23,373 kg</td> <td>24,195 kg</td> </tr> <tr> <td>Volatile Organic Comp.</td> <td>87,323 kg</td> <td>91,962 kg</td> <td>100,148 kg</td> <td>103,826 kg</td> </tr> </tbody> </table> <p>Alcoa reported in their report from 8. May 2006 for the year 2004/2005 an output of 241 tons of pollution to the EPA.</p> <p>Mr Ross Carter from the Department of Environment and Conservation has admitted to the action group on Monday 3 July 2006 that pollution levels could be three times higher than those declared in the above diagram. He indicated the figures may have been estimated from only "one shed" or building.</p> <p>The reason for this estimate can be that Alcoa originally processed aluminium sheets and recycled only their own scrap and dross from the early 1980's to 2001, but then expanded operations from 2001/02 to include imported aluminium dross and</p>	Assessable Pollutants	1999/2000	2000/2001	2001/2002	2002/2003	Coarse Particulate	17,557 kg	18,470 kg	20,136 kg	20,180 kg	Fine Particulate	7,205 kg	7,588 kg	8,263 kg	8,584 kg	Fluoride	705 kg	742 kg	808 kg	839 kg	Nitrogen Oxides	65,546 kg	69,028 kg	75,173 kg	78,676 kg	Sulphur Oxides	20,380 kg	21,462 kg	23,373 kg	24,195 kg	Volatile Organic Comp.	87,323 kg	91,962 kg	100,148 kg	103,826 kg	<p>Refer to Section 6.4 and Appendix B.</p> <p>All load limits reported either in the EPL Annual Return or EIP remain under the load limits as stipulated in the EPL.</p> <p>The figures in the table are from our LBL reporting to the EPA and is based on our licence period which starts in Dec and ends in Nov. The figures in the EIP are from the NPI report and relate to the period Jul thru Jun. Depending on the production rates there will be a variation as the loads are extrapolated from energy use, tonnes produced and waste movements.</p> <p>It can be seen from the data presented in Appendix B that while in recent years there has been an overall increase in emissions, and this is a function of the increase in production, in general there is a decrease in emissions per tonne of aluminium produced, an indication of the site achieving cleaner production. Emissions remain within the licence</p>
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Issue Category	Comments	Response																																			
Recommend a Health Study	<p>The Action Group therefore demands a health study in the area in comparison to NSW average data. (page 5)</p>	<p>The ground level concentrations of air contaminants measured in plant emissions have been determined by computer modelling and have all been found to be within health guidelines set by the relevant authorities. This means it is very unlikely that plant emissions are giving rise to health impacts. The health conditions mentioned by the action group occur in any community.</p>																																			
	<p>contaminated scrap without development consent, the Department's figures clearly reveal increases in emission levels, particularly in coarse particulates over 1999-2004. This has resulted in increased pollution levels in the local area.</p> <p>The following emission data are taken from ALCOA's report called "Sustainability profiles including environment improvement plan 2006 — 2007". It is part of a list of 20 substances which Alcoa reports to the NPI (National Pollutant Inventory). (page 7)</p> <p>ALCOA emitted per year:</p> <table border="1" data-bbox="611 896 938 1713"> <thead> <tr> <th>Substance</th> <th>2002/2003</th> <th>2003/2004</th> <th>2004/2005</th> <th>Changes 2002 to 2005</th> </tr> </thead> <tbody> <tr> <td>Carbon Monoxide</td> <td>36913kg</td> <td>58241kg</td> <td>63207kg</td> <td>Nearly doubled</td> </tr> <tr> <td>Hydrochloric Acid</td> <td>(no data)</td> <td>3 1 71kg</td> <td>7 698 kg</td> <td>More than doubled</td> </tr> <tr> <td>Oxides of Nitrogen</td> <td>76 589 kg</td> <td>80 568 kg</td> <td>82 322 kg</td> <td>Increase</td> </tr> <tr> <td>Sulphur Dioxide</td> <td>28 439 kg</td> <td>25 757 kg</td> <td>26 369 kg</td> <td>Slight decrease</td> </tr> <tr> <td>Volatile Organic Compounds</td> <td>120 000 kg</td> <td>103 970 kg</td> <td>109 134 kg</td> <td>Slight decrease then increase</td> </tr> <tr> <td>Chromium (III)</td> <td>0.07 kg</td> <td>9.38 kg</td> <td>26.98 kg</td> <td>More than 385 times as much</td> </tr> </tbody> </table> <p>(page 8)</p>	Substance	2002/2003	2003/2004	2004/2005	Changes 2002 to 2005	Carbon Monoxide	36913kg	58241kg	63207kg	Nearly doubled	Hydrochloric Acid	(no data)	3 1 71kg	7 698 kg	More than doubled	Oxides of Nitrogen	76 589 kg	80 568 kg	82 322 kg	Increase	Sulphur Dioxide	28 439 kg	25 757 kg	26 369 kg	Slight decrease	Volatile Organic Compounds	120 000 kg	103 970 kg	109 134 kg	Slight decrease then increase	Chromium (III)	0.07 kg	9.38 kg	26.98 kg	More than 385 times as much	<p>requirements and it is entirely appropriate for licence limits to increase with production capacity, provided the levels remain below those required to ensure appropriate environmental health outcomes.</p>
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Health Impacts Inquiry of Air Pollution in the Sydney Basin

Issue Category	Comments	Response
<p>Incidents / Complaints</p>	<p>The Yennora factory has a history of explosions (in 1997 the furnace exploded) and is a primary concern for terrorist attacks: A single serve of carbonated soft-drink can explode a big furnace with devastating results in the plant and the surrounding area including schools and nursing homes. (page 6)</p> <p>On around 60 percent of days in a month there has been significant smoke emitting from the Rotary furnace building and the remelt building, so much so that it pours out of the eaves of the buildings and the whole area is shrouded like a fog. This activity is very often observed at night.</p> <p>Alcoa has also revealed in correspondence to the action group dated 3 March 2006 that and verbally during Community-network meetings that:</p> <ul style="list-style-type: none"> ■ Fumes have escaped through the eaves of the building; and ■ Use of wooden pallets and plastic film in scrap metal, as causes of fuming. <p>At the last community network meeting on 8 June 2006 Alcoa reported 15 complaints from the community to Alcoa regarding bad odour and smoke emissions since 6 April. Alcoa admits that partly standard procedures were not followed by their personnel (See Appendix VIII: Minutes of the community consulting meeting on 8TH June 2006). (page 9)</p> <p>The plant in Yennora was given development consent in 1968.</p> <p>The rolling mills and a small melting plant were located at the railway lines beside Yennora Railway station, which is near Yennora Public School.</p> <p>An explosion happened in 1979 which resulted in an explosion whereby the smelter</p>	<p>While an appropriately designed and conducted community health study might determine whether or not the prevalence of health conditions is higher than expected, the cause of any variation in prevalence is likely to be complex and multifactorial. Given that the modelled ground level concentrations are well within health guidelines there seems to be no reasonable rationale for a community health study focussed on Yennora.</p> <p>State Environmental Planning Policy No. 33 (SEPP 33) requires a Hazard Analysis to be undertaken as part of the EIS (refer to Section 6 of the EIS).</p> <p>The Preliminary Hazard Analysis found that the most likely cause of explosion would be from water contact with molten metal from foreign objects such as cans, bottles and other containers.</p> <p>From explosion calculations undertaken as part of this analysis it was determined that, "The 7kPa explosion over pressure would not reach the nearest residences for an explosion incident at any of the building, therefore the explosion overpressure criteria is satisfied."</p> <p>A summary of the development consents for the Alcoa Yennora site are detailed in Appendix A.</p> <p>In 1997 the only application was for the</p>

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	<p>furnaces were decimated and two workers being injured. The explosion spread debris as far as the Yennora Public School and numerous school playgrounds.</p> <p>In the early 1980's, an application was submitted to Holroyd City Council to relocate furnaces to Loftus Street.</p> <p>In 1997, an application licence was approved to melt cans and aluminium scrap from the rolling mill section of the plant.</p> <p>From 2001/02 operations were expanded without development consent to include processing aluminium dross and contaminated scrap. Since then there has been a noticeable increase in smog, dust and smell, which occurs around three kilometres from the mill.</p> <p>In May 2006 Alcoa had to supply corrected pollution values for the years 1999 and 2000 to EPA. Originally the data supplied in November 2005 showed only 1/20 of the data supplied later. They had no explanation for the reason they underreported so blatantly in November 2005.</p> <p>In August 2006 the Land and Environment Court held that Alcoa did not have development approval to melt materials in their rotary furnaces except part of their own internal dross and internal scrap.</p> <p>In a record of a conversation between Pastor Len Stephen, Chair of the action group, and Alcoa employee Ms Helen Campbell, Community Relations Officer, on 14 February 2006. Ms Campbell confirmed that the plant at Yennora had been operating, "40-60 percent over its pollution limits." Ms Campbell no longer remains in that position (refer to Appendix I).</p>	<p>installation of melter 8 in the remelt building. This was for the melting of clean used aluminium.</p> <p>Alcoa's Yennora operations were not expanded in 2001/2002 we applied for a variation to receive and process dross. The EPA varied the licence. The Licence allows for 5000 tonnes of dross to be received at the location this would displace other feedstock such as UBC's</p> <p>The corrected LBL results were provided to the EPA after consultation with the EPA inspector on November 28, 2003 and not May 2006 as stated in the comments.</p> <p>The LEC decision is currently a matter for the Courts Alcoa has and continues to ascertain that consent is in place and we are awaiting appeal.</p> <p>Alcoa rejects that Ms Campbell made the alleged comments relating to pollution limits. Ms Campbell remains an Alcoa employee and has since been promoted within the Company. The inference that Ms Campbell has been somehow silenced or removed due to these alleged comments is entirely incorrect.</p>

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<p>ToR – (a) Changes in the emissions of various air pollutants & the impact of those</p>	<p>The following table displays similar events at other Alcoa factories in Australia:</p> <table border="1"> <tr> <td data-bbox="367 1534 622 1713">2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022</td> <td data-bbox="622 1534 678 1713">Alcoa's Bauxite production south east of Perth has resulted in the clearing of Western Australia's Jarrah forests. Jarrah forests are unique and under threat from many areas.</td> </tr> <tr> <td data-bbox="678 1534 734 1713">2001/02</td> <td data-bbox="734 1534 790 1713">Operations at the Yennora plant, Western Sydney were expanded to include processing aluminium dross and contaminated scrap without development consent.</td> </tr> <tr> <td data-bbox="790 1534 845 1713">2002</td> <td data-bbox="845 1534 901 1713">Arsenic was detected in Kwinana refinery ambient air.</td> </tr> </table> <p>(page 11)</p> <table border="1"> <tr> <td data-bbox="901 1534 957 1713">2003</td> <td data-bbox="957 1534 1013 1713">Alcoa lost its self-policing rights for dust after it was disclosed that an employee had falsified dust level recordings on a database and Alcoa was fined for breaching dust emissions.</td> </tr> <tr> <td data-bbox="1013 1534 1069 1713">2004</td> <td data-bbox="1069 1534 1125 1713">Alcoa's expansion of its Wagerup alumina refinery south of Perth has a history of emitting noxious odours, noises and dust pollution and was subject to a WA Parliamentary Inquiry. 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It says the concentration of formaldehyde is approaching a level likely to cause irritation.</td> </tr> </table> <p>(page 12)</p> <p>The NSW Environment and Protection Authority (EPA), operates a number of ambient air quality monitoring stations within the Sydney Basin. Air pollutants monitored at the sites in Chullora, Liverpool and St Mary's include:</p> <ul style="list-style-type: none"> ■ ozone; ■ oxides of nitrogen, including nitrous oxide (NO), nitrogen dioxide (NO₂) and total 	2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022	Alcoa's Bauxite production south east of Perth has resulted in the clearing of Western Australia's Jarrah forests. 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It says the concentration of formaldehyde is approaching a level likely to cause irritation.	<p>Wagerup refinery has been the subject of an unprecedented level of independent emission and environmental health investigations, including studies conducted by world leaders in environmental monitoring, air dispersion modelling and health assessment.</p> <p>This work has found that the refinery air emissions comply with world class environmental health criteria and health risk standards. The work has also found the air quality in townships surrounding the refinery is typical of a rural environment.</p> <p>The refinery has significantly reduced noise emissions in recent years and continues to work towards consistent compliance with stringent noise criteria in liaison with the Western Australian EPA</p> <p>The comments made here by CAWAG suggest increasing trends in ambient air pollution within the Sydney region over the period (1998 – 2005) as measured at monitoring stations at Chullora,</p>
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<p>changes on air quality in the Sydney basin over the past three decades, including any hotspots where pollution is concentrated.</p>	<ul style="list-style-type: none"> ■ oxides of nitrogen (NO_x); ■ particulate matter, including Total Suspended Particulates, (TSP), PM₁₀ and PM_{2.5} (particulate matter with an aerodynamic diameter of less than 10 µm and 2.5 µm respectively); ■ sulphur dioxide (SO₂); ■ carbon monoxide (CO); ■ metals (including cadmium and lead); and ■ Regional Pollution Index (RPI). <p>Air quality monitoring has been performed to varying degrees since 1975. Most recent data (from 1998 on) is available in the form of quarterly reports from the NSW EPA website (http://www.epa.nsw.gov.au/air/databereports.htm).</p> <p>Ambient air quality monitoring data for the period 1998 to mid-2005 were reviewed from three sites in the vicinity of Yennora, and along the dominant northwest-southeast wind axis. These sites were Chullora, Liverpool and St Mary's. Changes observed in ground-level concentrations of key pollutants (including oxides of nitrogen and particulate matter) are of particular interest to the residents of Yennora. A summary of these annual monitoring data is presented below: (page 13)</p>	<p>Liverpool and St Mary's are as a consequence (at least partly) to increasing emissions from Alcoa's Yennora operations over the same period. This is inferred as being the case particularly for particulates (PM₁₀) and oxides of nitrogen (NO_x).</p> <p>As documented in Section 6.4 total emissions from Alcoa's Yennora site are less than 0.1 % of total Sydney emissions, and the small incremental change in Alcoa emissions from one year to the next would be far less than this 0.1 %. As such there is no scientific basis to justify that changes in Alcoa emissions loads as reported under the LBL and NPI Schemes in anyway directly influence regional air quality within Sydney.</p>

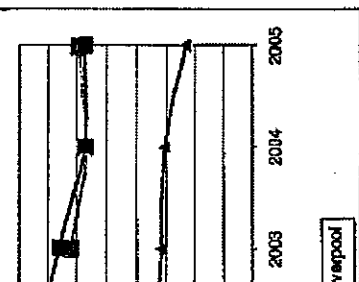
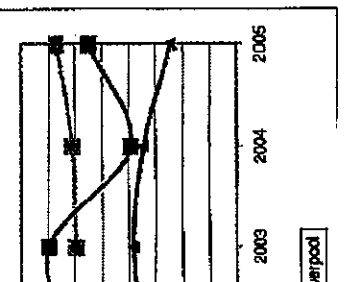
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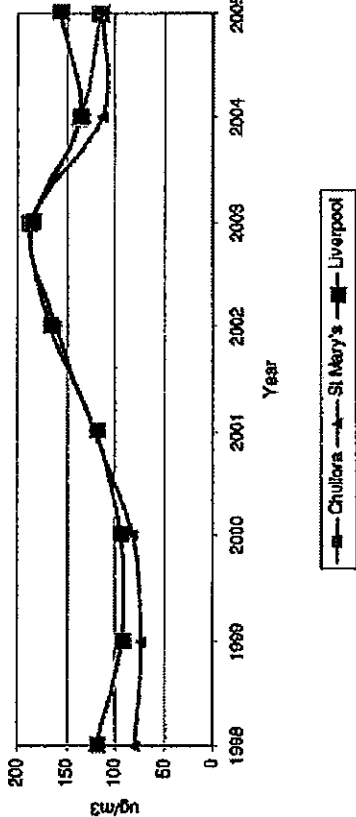
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Issue Category	Comments	Response																																																																								
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Issue Category	Comments	Response
	<p data-bbox="395 1160 443 1391">Particulate matter (TEOM PM10) Average of Daily 1 Hr maxima</p>  <p data-bbox="847 1025 874 1704">A review of the 1998 – 2005 monitoring data reveals the following:</p> <ul data-bbox="882 853 1070 1704" style="list-style-type: none"> <li data-bbox="882 853 959 1704">Average PM₁₀ levels have gradually increased since 1998 at Liverpool and St Mary's. Overall increases in average PM₁₀ levels at Liverpool and St Mary's are approximately 32% and 35% respectively. <li data-bbox="967 1093 994 1704">Average PM₁₀ concentrations were highest during 2002. <li data-bbox="1002 846 1070 1704">Reports of levels exceeding the NEPM Standard of 50 g/m³ of PM₁₀ have been made at Chullora (8 events during 2003 - 2004), St Mary's (22 events during 1999 - 2003) and at Liverpool (24 events during 2001 - 2005). <p data-bbox="1078 846 1155 1704">These data should also be considered in the context of emission loads and regulatory non compliances reported to the NSW EPA for the Alcoa Australian Rolled Products (AARP) Yennora facility.</p> <p data-bbox="1163 1285 1190 1704">Air Pollutant Emission Loads of Alcoa:</p> <ul data-bbox="1198 891 1361 1704" style="list-style-type: none"> <li data-bbox="1198 891 1305 1704">Total emission loads of coarse and fine particulates from the Alcoa Yennora facility have consistently increased annually during the period 2003 to 2005 from 20,180 kg to 24,074 kg. This translates to an increase of 19 percent of total particulate emissions from the facility. <li data-bbox="1313 909 1361 1704">Annual increases in loads of oxides of nitrogen emissions have also been reported by Alcoa Yennora during this period from 78,676 kg to 83,806 kg. 	

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Issue Category	Comments	Response
	<p>■ Sulphur oxide emission loads from the Alcoa Yennora facility have increased annually from 24,195 kg in 2003 to 26,294 kg in 2005. Increases have been significantly compared to 1999/2000 figures.</p> <p>■ Volatile Organic Compound (VOC) emission loads from the Alcoa Yennora facility are significant - 103,826 kg in 2003, 105,511kg in 2004 and 108,810 kg in 2005. (page 18)</p> <p>Regulatory Non-Compliances Relating to Air Pollutants</p> <p>2000 Reporting Period:</p> <ul style="list-style-type: none"> ■ Condition L2.2 of Alcoa Yennora's Environment Protection Licence (EPL No. 642) was breached for the 2000 reporting period whereby the actual load of assessable pollutants were not assessed in accordance with the relevant load calculation protocol. ■ Records for obscuration monitoring have not been kept for four years. ■ Percent opacity was not monitored continuously throughout the licence period. ■ Opacity records for two smelters were not date marked every 24 hours. <p>2003 Reporting Period:</p> <ul style="list-style-type: none"> ■ Section 120 of the Protection of the Environment Operations Act, 1997, was breached during the period November 2002 and November 2003 whereby fumes and smoke was emitted from the AARP premises as a result of slag being poured into thermittng slag. <p>2005 Reporting Period:</p> <ul style="list-style-type: none"> ■ Condition L3.3 of EPL 642 was breached on two occasions in 2005 whereby the opacity limit of 20 percent specified in the EPL was exceeded (22.5 percent on 3 August and 55.5 percent on 9 October). <p>Such absolute emission loads, notable increases of emissions and nature of regulatory non compliance suggests that Alcoa Yennora facility may be a significant contributor of air pollutant emissions in the local area. The finding that emission loads of air pollutants from the Alcoa Yennora facility are the highest reported of all licence holders in the Yennora area further supports the assertion that Alcoa Yennora is an air quality 'hot spot'.</p> <p>It is therefore reasonable to expect that greater regulatory attention should be given to significant air polluters to closely monitor emission performance, enforce the utilisation of best available technologies to minimise air quality contributions, and closely monitor the community exposed to air pollutants to better assess the</p>	<p>AARP Yennora regrets that some relatively minor non-compliances have occurred at the facility from time to time. In each case these incidents are reported promptly to the regulatory authority and addressed within the site's operating procedures. However, these non-compliances have posed no threat to regional air quality or the health of surrounding communities. The scientific evaluations summarised in this report have shown that the AARP Yennora facility makes only a very small contribution to air pollution in either the local area or the Sydney Basin. None of these scientific evaluations support an emotive claim that the area is an "air quality hot spot"</p> <p>Alcoa supports the view that regulatory attention should be paid to "significant air polluters", however, the available scientific data shows the AARP Yennora</p>

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Issue Category	Comments	Response
<p>ToR – (b) The impact of NSW air pollution laws on air quality over the past three decades.</p>	<p>associated impacts to human health. These emissions are expected to cause health effects. A health study in 1994 revealed, that hospital admissions showing respiratory diseases were up to two times higher in residents near a primary aluminium smelter plant compared with the NSW average. (Source: http://www.hnehealth.nsw.gov.au/hnepth/EHM/SmelterKurri.htm) (page 19)</p> <p>The Western Sydney Clean Air and Water Action Group is of the view the influence of the air pollution laws have had limited impact and are not enforced properly. The EPA amended the Alcoa licence three times between 200 1-2003 without a reference too DA, which was necessary. Such behaviour undermines the whole legal process where companies can start activities which can cause pollution without following the proper planning process.</p> <p>The EPA should take action against breaches of its licence. The EPA currently does not take any action. The EPA hotline for complaints is nearly daily recording complaints about the Alcoa smelter and doesn't seem to be willing to follow up the complaints or install their own investigations.</p> <p>Hoiroyd City Council as the community's elected body should be enforcing planning laws. They should have taken action to stop Alcoa from acting illegally. They did not take any action against Alcoa.</p> <p>The ability for the EPA to police compliance has significantly reduced. EPA's role has changed from working with polluters to reduce emissions to relatively inexperienced people implementing policies and guidelines. For example when our group reported Alcoa's Yennora plant was emitting smoke when melting contaminated scrap at night, no checks were done at night, rather than during the daytime.</p> <p>This has resulted in the impression those that abuse the laws remain unpunished and unchecked. (page 20)</p>	<p>facility does not fit into this category.</p>
		<p>The DEC, Council and Alcoa were all of the belief that the existing development consent allowed for Alcoa to process a range of feedstocks including dross sourced from both its Yennora and Pt Henry operations. The issue of what the DA allows for is currently subject to litigation initiated by a competitor. In the meantime, the courts have not directed Alcoa to cease or curtail current operations in any way. In order to clarify the issue, Alcoa has applied for a DA covering the range of feedstock it uses and has done this in consultation with the community, Council and DEC. Alcoa has met all requirements for the DA submission required by both the DEC and Council. The DA is now before the Land and Environment Court with support for the application coming from the Council. Alcoa disputes the assertion that it has operated illegally. This issue is subject to current litigation with one of Alcoa's competitors.</p> <p>Refer to Appendix A for a summary of development consents for the Alcoa Yennora site.</p>

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Issue Category	Comments	Response
<p>ToR – (c) The causes of air pollution in the Sydney basin over the past three decades.</p>	<p>The Alcoa plant in Yennora is one of the causes of air pollution in the Western Sydney over the past three decades. Further pollution emitting from the Yennora plant has increased substantially since 2000/2001 after operations were expanded to include imported processing aluminium dross and contaminated scrap without development consent without proper pollution equipment. (page 20)</p>	<p>These allegations have been addressed in previous responses and in summary the recent EIS air quality impact assessment modelling results considered scenarios for both "processing" and "not processing" Port Henry dross. The modelling found that the proposal had little effect to air pollution emissions. On the basis of the results of air dispersion modelling DBA concluded that the remelting operations of the site would not have significant impact on the health and amenity of the surrounding community of Yennora.</p>
<p>ToR – (d) The health impacts of air pollution on any 'at risk' groups.</p>	<p>'At risk' groups in the case of Alcoa in Yennora are:</p> <ol style="list-style-type: none"> 1) all residents within a radius of 3,000 meters around the plant, who are experiencing odour from the factory, see the smoke coming from the chimneys and are gutted with heavy smoke from the factory. 2) all children in the surrounding eight schools. 3) all residents with pre-existing illnesses 4) all old people living in the area or in nursing homes within 5 kms radius of the factory 5) all residents within 5 km radius who experience 'acidic' air and dust from the factory 6) 'At risk' is also the drinking water reservoir Prospect, which lies at a distance of 3.5 km from the factory and provides drinking Water for major areas of Sydney. 7) Therefore not only thousands but maybe a million of residents in Sydney belong to the 'at risk' group. (page 20) 	<p>As per the response above, the assessment of air quality impacts undertaken as part of the recent EIS considered air quality impacts within a large area surrounding radius the site and at key receptor locations including Yennora Primary School and residential locations.</p> <p>On the basis of the results of air dispersion modelling DBA concluded that the remelting operations of the site would not have significant impact on the health and amenity of the surrounding community of Yennora (refer to Section 6.6 and Appendix C).</p> <p>It is inflammatory in the extreme to suggest millions of residents in Sydney may be "at risk" from emissions from the facility. Independently collected and evaluated data show the facility poses no significant risk to the health of people in the immediate vicinity or further afield.</p>

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Issue Category	Comments	Response
<p>ToR – (e) The financial impacts of air pollution on the NSW health system.</p>	<p>Information derived from the NSW DEC's 2005 publication, Air Pollution Economics: Health Costs of Air Pollution in the Greater Sydney Metropolitan Region, is offered below.</p> <ul style="list-style-type: none"> ■ Continuous exposure to elevated levels of air pollutants such as ozone, oxides of nitrogen, carbon monoxide and particulate matter is of great concern. Those living within capital cities, including the elderly, the very young and those with pre-existing health conditions are particularly at risk of cardiovascular and respiratory diseases and even premature death. ■ The financial impact associated with air pollution is quite significant, resulting from premature deaths, quality of life impacts, healthcare costs and lost productivity. 	<p>The Yennora plant is a minor contributor to air pollution in the Sydney area. Table 6-8 shows that the Yennora operations emit less than 0.6 % of industrial and less than 0.1 % of total Sydney basin air emissions for particulates, oxides of nitrogen and volatile organic carbons respectively.</p> <p>The EIS air quality assessment concluded that the remelting operations of the site would not have significant impact on the health and amenity of the surrounding community of Yennora.</p>
<p>ToR – (f) The effectiveness of current laws and programs for mitigating air pollution.</p>	<p>Older plants are permitted to operate under lower performance standards and high emission rates which is a concern of current laws.</p> <p>Alcoa's Yennora plant expansion was approved in the EPA licence when a DA was not issued for the proposed works.</p> <p>EPA audits and inspections of the Yennora facility have not been undertaken after 12 midnight, when excessive emissions and breaches are taking place.</p> <p>The ability for the EPA to police compliance has significantly reduced. The EPA role has changed from working with polluters to reduce emissions to relatively inexperienced people implementing policies and guidelines. For example when our group reported Alcoa's plant was melting contaminated scrap at night, no checks were done at night rather during the daytime.</p> <p>Proposed changes to environmental legislation will require among other things, Government and industry to consult with the community on their activities. In proposed changes to planning legislation, a health impact assessment should play a much greater role when assessing new developments.</p> <p>An issue of concern is the apparent lack of relationship between the Development Approval Process of the Department of Planning (DoP) and the licence requirement of the DEC.</p> <p>This lack of complementary development application and licensing approval was and is still evident at the Alcoa Australia Rolled Products Pty Ltd (AARP) Yennora facility.</p>	<p>At present the Alcoa ARP Yennora site is classified as a Group 5 scheduled premises, however, as discussed in Section 6.7 more stringent emission limits will apply to the site, specifically RF No.3 in the near future.</p> <p>Refer to Sections 6.4 and Appendix A for how the EPL and <i>Protection of the Environment Operations (Clean Air) Regulations 2002</i> relate to operations at the Alcoa Yennora Site and a summary of the development consents.</p> <p>The issue of development consents has been addressed in earlier responses and Alcoa contends it has the necessary consents for the activities undertaken at the site.</p>

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Issue Category	Comments	Response
<p>ToR – (g) Strategies to reduce the health impacts of air pollution.</p>	<p>Alcoa Yennora is now seeking consent to clearly define the nature of feedstock that can be used in Rotary Furnace 3 (RF3). It is interesting to note the Alcoa Yennora have in fact implemented the matters they are now seeking approval for prior to any DA being lodged or any approval being issued by Holroyd City Council. Alcoa Yennora is therefore now acknowledging that a complete review of environmental issues associated with the development has not been undertaken prior to the development being implemented. (pages 22-25)</p> <p>The Western Sydney Clean Air and Water Action group recommends a number of strategies to reduce health impacts of air pollution, these include:</p> <ul style="list-style-type: none"> ■ NSW Health to undertake a health study on local residents to monitor health impacts. ■ community ambient monitoring station run by independent consultants and paid for by local industry focusing on pollutants of concern generated by the local industries should be established. Review of results obtained would establish if pollution guidelines/standards are being exceeded and assist in focusing pollution control effort on a particular pollutant or industry. Eliminating exceedances of guidelines/standards on a local/regional level or by focusing on a particular industry will reduce pollution levels and associated health impacts. The community will also be better informed about pollution levels and would assist the DEC in ensuring compliance. ■ the community ambient monitoring stations would also help to target pollution control. If a particular industry is causing concern then it could become the focus for control. The limited DEC resources could then be directed towards the control (or ultimate closure) of poorly performing facilities. ■ land-use planning to take into account the health impacts of industrial emissions—for example, separation distances between what are now recognised as incompatible land uses, such as close proximity to drinking water; ■ environmental impact assessment of industrial expansion and urban growth or encroachment; and ■ community members who raise issues about the health impacts of pollution find it very difficult to get anyone to take their concern seriously. The people being exposed to the pollutants are the true receptors. There must be an avenue established to permit health concerns to be raised. The local medical practitioners are not able to have such an overview due to limited resources. Resources should be provided to allow health concerns to be raised, reviewed 	<p>The ground level concentrations of air contaminants measured in plant emissions have been determined by computer modelling and have all been found to be within health guidelines set by the relevant authorities. This means it is very unlikely that plant emissions are giving rise to health impacts.</p> <p>The health conditions mentioned by the action group occur in any community. While an appropriately designed and conducted community health study might determine whether or not the prevalence of health conditions is higher than expected, the cause of any variation in prevalence is likely to be complex and multifactorial. Given that the modelled ground level concentrations are well within health guidelines there seems to be no reasonable rationale for a community health study focussed on this issue.</p> <p>Alcoa agrees regulatory resources should be prioritised towards emission sources posing the greatest potential risk to environmental values and community health. The work done on evaluating AARP Yennora emissions in the context of other sources and</p>

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Issue Category	Comments	Response
	<p>and acted upon. (page 25-26)</p>	<p>background concentrations clearly shows this facility poses very little risk to environmental or health values. Alcoa have a complaints management system in place that allows all issues to be raised. Issues are then forwarded to relevant members of the staff and measures to mitigate impacts are implemented as required. This process is an effective system that allows tracking of issues to identify reoccurring problems. Refer to Section 5.2 for more information on the complaints handling process.</p>
<p>Community Relations / Consultation</p>	<p>We are also concerned about Alcoa's community relations: According to Alcoa's licence 642 under paragraph M5.2 and M5.3 the plant is required to notify the public of the complaints line telephone number, so that the impacted community know how to make a complaint. Alcoa has not done that so far. Alcoa's complaints line connects the caller to their security guard and Alcoa doesn't follow up the call to explain to the caller what the issue was and what action had been taken about the complaint. (page 26)</p>	<p>The complaints hotline is provided on the quarterly newsletter that is sent out to neighbouring residents and businesses. Around 3,500 copies of this letter are distributed. All calls are connected to the security guard as a centralised point of contact. Calls are then forwarded to the relevant Alcoa staff to deal with the matter. Issues are investigated immediately and appropriate action is taken. Complainants are contacted by Alcoa staff initially to understand the issue of concern and following actions to inform complainant of the action taken. Circumstances where the complainants are not followed up are due to contact details having not been provided by the complainant. This has occurred on few occasions only. All other complaints</p>

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Issue Category	Comments	Response
		<p>have been followed up with the complainants.</p> <p>Issues raised by complainants are also reported to the Community Consultation Network and the actions taken are also discussed with the group.</p> <p>Refer to Section 5.2 for more information on Alcoa's complaint handling processes.</p>
<p>Recommendations to Inquiry</p>	<p>The Western Sydney Clean Air and Water Action group and Concerned Residents of Guildford are strongly against increased levels of pollution being emitted from the Alcoa Yennora plant which is resulting in harmful health effects on local residents. Alcoa has a history of environmental violations and local residents are extremely concerned of the health impacts of the plant in Yennora.</p> <p>The Western Sydney Clean Air & Water Action Group and Concerned Residents of Guildford ask the inquiry to consider the following recommendations as part of their report:</p> <ul style="list-style-type: none"> ■ Independently audited EPA monitoring station placed at Yennora Public school. ■ That NSW Health undertake a health study on local residents to monitor health impacts. ■ Improved planning measures by the Department of Planning to consider all similar plants that emit high levels of pollution be located away from residents and children, low lying basins, and water supplies. ■ Consider health impact assessments having a much greater role when assessing new developments. ■ Development of legislative and policy frameworks for the environmental assessment of incremental industrial expansion. ■ Full disclosure of company environmental performance, including community relations. ■ Clarification of the roles and responsibilities of local and state governments in environmental protection and response to community complaints. ■ Innovative policy tools to encourage continuous improvement in industry's environmental performance — for example, the use of the financial and insurance sectors and supply chains as surrogate regulators. ■ Alcoa Yennora plant not be allowed to process aluminium dross and 	<p>Claims that emissions from the AARP Yennora facility are 'resulting in harmful health effects on local residents are entirely unsubstantiated and not supported by the available scientific data which indicates that these emissions pose no significant threat to community health and make a relatively minor contribution to surrounding air quality.</p> <p>The issue of development consent has been dealt with above on several occasions (above) and Alcoa disputes the claim that appropriate development consents are not in place for activities at the site.</p> <p>Alcoa sets a high standard for openness and the sharing of information with community stakeholders, as evidenced by the establishment of the Yennora CCN and other regular communication initiatives.</p>

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Issue Category	Comments	Response
	<p>contaminated scrap without development consent.</p> <ul style="list-style-type: none"> ■ Alcoa Yennora plant be penalised for illegally exceeding pollution levels over and above the level safe and endangering lives of the local community and residents. ■ Alcoa Yennora immediately install dust collectors on all its melting furnaces and monitoring equipment on its stacks. ■ Alcoa Yennora install hydrogen fluoride scrubber on its rotary furnace. ■ Community ambient monitoring stations run by independent consultants and paid for by local industry focusing on pollutants of concern generated by the local industries should be established. ■ Complaints made to the EPA pollution hot-line are often being redirected to the company making the pollution. This is obviously not the intent of the hot-line. DEC Pollution Control Officers should be required to investigate the concerns of the community. ■ Training DEC Officers to be technically familiar with the industry and process of facilities they are inspecting. (page 27) 	<p>Alcoa continues to invest in emission controls at the Yennora facility and will continue to ensure emissions comply with regulatory approvals.</p> <p>Alcoa will also continue to maintain a responsive and transparent complaints handling process that encourages stakeholder input and continuous improvement.</p>

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Table 7-2 Weston Aluminium Submission

Issue Category	Comments	Response
<p>ToR – (b) The impact of NSW air pollution laws on air quality over the past three decades.</p>	<p>Over the past three decades there is no doubt that the legislative and regulatory environment has been tightened. The parallel evolution of the regulator, from the SPCC (a branch of the old Health Commission), through the EPA, to the current structure under the Department of Environment and Conservation (DEC) umbrella, has mirrored the shift towards a more legalistic (litigious) approach to compliance.</p> <p>A consequence of this shift has been the gradual loss of experience and 'corporate memory' in the EPA. This has been compounded by the series of redundancies offered as each restructure occurred. The net result is an organisation with relatively inexperienced staff implementing policy, interpreting guidelines and regulating industry.</p> <p>As the EPA has evolved, there has been a substantial shift in the organisation's role from one of having the technical competence and expertise enabling them to work with polluters to reduce emissions and or provide advice and guidance, to a situation where the EPA has limited ability to provide anything more than an application of the relevant Act or regulation. This has the consequence of a loss of respect for the technical capabilities of the organisation among sections of the air quality professions.</p> <p>The following case study illustrates a difficulty in understanding the licensing approach taken for two plants processing secondary aluminium, using substantially the same processes, and with the same administration fee for Load Based Licensing purposes (i.e. both plants process similar tonnages from a licensing perspective). The major difference between the plants is that Plant 1 also houses a rolling facility. Plant 1 is located in the Western Sydney and Plant 2 in the lower Hunter Valley.</p> <p>Table 1 lists the assessable pollutants and load limit for each plant, taken from their current EPA licences.</p>	<p>In terms of the Case Study put up by Weston Aluminium (WA), it discusses a facility processing secondary aluminium in Western Sydney. The plant is not mentioned by WA as being the Alcoa plant at Yennora, but this seems obvious, hence the response as follows by Alcoa.</p> <p>Alcoa generally acknowledge the comparison of emission loads between the WA facility and the Alcoa facility.</p>

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	<p>Table 1: Assessable Pollutant Load Limits (kg)</p> <table border="1" data-bbox="419 1028 678 1702"> <thead> <tr> <th>Assessable Pollutant</th> <th>Plant 1 Load Limit (kg)</th> <th>Plant 2 Load Limit (kg)</th> </tr> </thead> <tbody> <tr> <td>Coarse Particulates</td> <td>29000</td> <td>3234</td> </tr> <tr> <td>Fine Particulates</td> <td>12000</td> <td>9220</td> </tr> <tr> <td>Fluoride</td> <td>1200</td> <td>1544</td> </tr> <tr> <td>Nitrogen Oxides</td> <td>108000</td> <td>22803</td> </tr> <tr> <td>Sulfur Oxides</td> <td>34000</td> <td>14935</td> </tr> <tr> <td>Volatile Organic Compounds</td> <td>145000</td> <td>3984</td> </tr> </tbody> </table> <p>Table 2 shows the actual annual load from each plant for the last three available years, taken from the EPA annual return.</p> <p>Table 2: Actual Annual Load (kg)</p> <table border="1" data-bbox="780 1055 1082 1518"> <thead> <tr> <th>Assessable Pollutant</th> <th>Plant 1 2003</th> <th>Plant 1 2004</th> <th>Plant 1 2005</th> <th>Plant 2 2003</th> <th>Plant 2 2004</th> <th>Plant 2 2005</th> </tr> </thead> <tbody> <tr> <td>Coarse Particulates</td> <td>30189</td> <td>21543</td> <td>24074</td> <td>3709</td> <td>0</td> <td>4333</td> </tr> <tr> <td>Fine Particulates</td> <td>8384</td> <td>8992</td> <td>9240</td> <td>10836</td> <td>5121</td> <td>5489</td> </tr> <tr> <td>Fluoride</td> <td>839</td> <td>424</td> <td>427</td> <td>2230</td> <td>864</td> <td>554</td> </tr> <tr> <td>Nitrogen Oxides</td> <td>76876</td> <td>79407</td> <td>83806</td> <td>22083</td> <td>24894</td> <td>15338</td> </tr> <tr> <td>Sulfur Oxides</td> <td>24195</td> <td>23974</td> <td>26294</td> <td>4665</td> <td>4408</td> <td>1123</td> </tr> <tr> <td>Volatile Organic Compounds</td> <td>103826</td> <td>105311</td> <td>108810</td> <td>513</td> <td>645</td> <td>186</td> </tr> </tbody> </table> <p>Table 3 and 4 list the air monitoring requirements for both plants. Plant 1 has 4 identified air discharge points and Plant 2 has 5.</p> <p>Table 3: Plant 1 Monitoring Requirements</p> <table border="1" data-bbox="1153 1055 1329 1518"> <thead> <tr> <th></th> <th>Point 3</th> <th>Point 4</th> <th>Point 5</th> <th>Point 6</th> </tr> </thead> <tbody> <tr> <td>Particulates</td> <td>Urban</td> <td>Remot</td> <td>Remot</td> <td>Remot</td> </tr> <tr> <td></td> <td>mg/m3</td> <td>mg/m3</td> <td>mg/m3</td> <td>mg/m3</td> </tr> <tr> <td>Solid particulates</td> <td></td> <td></td> <td></td> <td>yearly</td> </tr> <tr> <td>Opacity</td> <td>%</td> <td>continuous</td> <td>continuous</td> <td></td> </tr> <tr> <td>Nitrogen Dioxide</td> <td>mg/m3</td> <td></td> <td></td> <td>yearly</td> </tr> <tr> <td>Carbon Monoxide</td> <td>mg/m3</td> <td></td> <td></td> <td>quarterly</td> </tr> </tbody> </table>	Assessable Pollutant	Plant 1 Load Limit (kg)	Plant 2 Load Limit (kg)	Coarse Particulates	29000	3234	Fine Particulates	12000	9220	Fluoride	1200	1544	Nitrogen Oxides	108000	22803	Sulfur Oxides	34000	14935	Volatile Organic Compounds	145000	3984	Assessable Pollutant	Plant 1 2003	Plant 1 2004	Plant 1 2005	Plant 2 2003	Plant 2 2004	Plant 2 2005	Coarse Particulates	30189	21543	24074	3709	0	4333	Fine Particulates	8384	8992	9240	10836	5121	5489	Fluoride	839	424	427	2230	864	554	Nitrogen Oxides	76876	79407	83806	22083	24894	15338	Sulfur Oxides	24195	23974	26294	4665	4408	1123	Volatile Organic Compounds	103826	105311	108810	513	645	186		Point 3	Point 4	Point 5	Point 6	Particulates	Urban	Remot	Remot	Remot		mg/m3	mg/m3	mg/m3	mg/m3	Solid particulates				yearly	Opacity	%	continuous	continuous		Nitrogen Dioxide	mg/m3			yearly	Carbon Monoxide	mg/m3			quarterly	
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	<p>¹The Coarse Particulate load of 0 kg quoted for the 2004 reporting period is confirmed. This relates to the nature of sample determinations for the testing event whereby the 'fine particulate' sample mass was greater than the 'coarse particulate catch. The total particulate emission was therefore attributed to the fine particulate fraction.</p> <p><i>Table 4: Plant 2 Monitoring requirements</i></p> <table border="1" data-bbox="592 882 1262 1682"> <thead> <tr> <th>Pollutant</th> <th>units</th> <th>Point 1 Rotary Furnace</th> <th>Point 2 Baghouse</th> <th>Point 3 Baghouse</th> <th>Point 4 Baghouse</th> <th>Point 13 Remelt Furnace</th> </tr> </thead> <tbody> <tr> <td>Carbon Monoxide</td> <td>ppm</td> <td>yearly</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Gaseous fluoride</td> <td>mg/m³</td> <td>continuous</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Hazardous Substances</td> <td>mg/m³</td> <td>yearly</td> <td></td> <td></td> <td></td> <td>yearly</td> </tr> <tr> <td>Hydrogen Chloride</td> <td>mg/m³</td> <td>yearly</td> <td></td> <td></td> <td></td> <td>quarterly</td> </tr> <tr> <td>Nitrogen Oxides</td> <td>mg/m³</td> <td>yearly</td> <td></td> <td></td> <td></td> <td>yearly</td> </tr> <tr> <td>Solid Particles</td> <td>mg/m³</td> <td>yearly</td> <td>yearly</td> <td>yearly</td> <td>yearly</td> <td>quarterly</td> </tr> <tr> <td>Sulfuric acid mist and sulphur trioxide as SO₃</td> <td>mg/m³</td> <td>yearly</td> <td></td> <td></td> <td></td> <td>yearly</td> </tr> <tr> <td>Dioxins and Furans</td> <td>ng/m³</td> <td></td> <td></td> <td></td> <td></td> <td>quarterly</td> </tr> <tr> <td>Fluorides</td> <td>mg/m³</td> <td></td> <td></td> <td></td> <td></td> <td>yearly</td> </tr> <tr> <td>Volatile Organic Compounds</td> <td>mg/m³</td> <td></td> <td></td> <td></td> <td></td> <td>quarterly</td> </tr> </tbody> </table> <p>Table 1 shows a discrepancy between the allowable emission performances of both plants.</p>	Pollutant	units	Point 1 Rotary Furnace	Point 2 Baghouse	Point 3 Baghouse	Point 4 Baghouse	Point 13 Remelt Furnace	Carbon Monoxide	ppm	yearly					Gaseous fluoride	mg/m ³	continuous					Hazardous Substances	mg/m ³	yearly				yearly	Hydrogen Chloride	mg/m ³	yearly				quarterly	Nitrogen Oxides	mg/m ³	yearly				yearly	Solid Particles	mg/m ³	yearly	yearly	yearly	yearly	quarterly	Sulfuric acid mist and sulphur trioxide as SO ₃	mg/m ³	yearly				yearly	Dioxins and Furans	ng/m ³					quarterly	Fluorides	mg/m ³					yearly	Volatile Organic Compounds	mg/m ³					quarterly	
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<p>ToR – (f) The effectiveness of current laws and programs for mitigating air pollution.</p>	<p>Table 2 illustrates the differences in emission performance over three years. Plant 1 operates in the upper band of its allowed emission envelope, with emission trending up each year, for each assessable pollutant. Plant 2, with the exception of the coarse particulate fraction, has shown a downward trend in assessable pollutants over the same period, and lower aggregate emissions, despite commissioning a new furnace (point 13) in the interval.</p> <p>Tables 3 and 4 highlight a marked difference in the intensity and extent of monitoring required of both plants.</p> <p>The point of the case study is to highlight the inconsistency in the treatment of the two plants in terms of EPA expectations. The analysis is by its nature simplistic, and cannot take account of all the differing factors between the plants. Nevertheless, the significant differences in Annual Load, and the monitoring requirements suggest a lack of expertise in the regulator. (page 5-7)</p>	<p>Alcoa does not, see any discrepancy between the Load Limits presented in Table 1, and reported emission loads as presented in Table 2, with the difference in loads reflecting the relative size and nature of two facilities. It is noted, however, that Alcoa emission loads have not exceeded LBL load limits, whereas an inspection of WA's Licence summary for the period December 2004 to December 2005 showed an exceedance of Load Limit for coarse particulates.</p> <p>With respect to differences in WA's and Alcoa's air emission monitoring requirements as presented in Tables 3 and 4, the differences in monitoring requirements between the two facilities is acknowledged by Alcoa. It is, however, noted that Alcoa is required to monitor particulates (as opacity) on three of their four licensed discharge points on a continuous basis. This is not required by WA at their facility. Further, the General Terms of Approval (GTA's) recently provided by the DEC for Alcoa's Remelt Furnace No.3 provide for similar monitoring requirements as those required by WA.</p>
	<p>Ambient environmental monitoring provides the most reliable indication of pollution levels for the community. Unfortunately the ambient monitoring network is very restricted in number and in the pollutants being monitored. Residents concerned about the impact of an industry or activity on their health often don't have relevant, reliable data to assess. They must rely on infrequent point source monitoring undertaken by the industry to indicate whether the polluter is exceeding licence limits. What goes out of a stack means very little to what is being experienced at the</p>	<p>Alcoa is not in a position to respond to issues relating to DEC complaint management processes and establishment of consultation committees.</p> <p>Alcoa's Community Consultation Network (CCN) has been established to</p>

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	<p>ground level.</p> <p>The DEC should consider monitoring in regard to plants that have attracted ongoing community complaint.</p> <p>DEC should consider the following:</p> <ul style="list-style-type: none"> ■ Require industry to monitor emissions from stacks continuously and to have the monitoring data available on a web site for community review. ■ Require industry to have their emissions monitored on a regular basis by independent stack monitoring consultants approved of by the DEC and paid for by the industry. ■ Require all industries of the same type to monitor the same pollutants. The pollutants to be monitored to be established by a panel of experts so that relatively inexperienced DEC Officers don't miss a pollutant of concern when issuing licences. ■ Require industry to establish, operate and pay for ambient monitoring networks at sensitive receptors surrounding their facility. The equipment to be operated by independent consultants with the results provide to the community and industry at the same time. ■ Establish community environmental committees with representatives from the DEC, Council, community, local health practitioners and industry to review and recommend actions to be taken by industry (to be included on DEC licences as PRPs). The attendance at such regular meetings to be compulsory for all government and industry representatives. ■ Provide environmental awareness educational training forums to the community surrounding industry to inform them of the activity being undertaken, the potential emissions sources and the composition of such emissions, the equipment used to control the emissions, the potential impact of the emissions on community health, the likely ambient concentrations for pollutants of concern and the actions available to be taken should they have any concerns. <p>The above actions would result in a more informed community with access to independent monitoring results. This transparent approach may also increase the trust level between the community, DEC and industry.</p> <p>The Protection of the Environment Operations Act 1997 specifies that a licence cannot be granted or varied by the appropriate regulatory authority unless development consent has been granted for the development.</p> <p>How does DEC check that Development Consent is required or has been granted for</p>	<p>discuss community issues relating to Alcoa's operations in Yennora.</p> <p>Alcoa considers this forum is effective in allowing two way communication opportunities for the community and for Alcoa to understand the community better and issues of importance to the community.</p> <p>Alcoa encourages the participation of government regulatory agencies in the CCN process and has found this to be an effective mechanism in building understanding, confidence and trust.</p> <p>Refer to Section 4.1 for more information on the CCN.</p>

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	<p>an existing facility that is seeking to vary its licence to increase production or to vary what it is processing? (page 8)</p> <p>There have been instances where the DEC has approved expansion of a facility without checking that Development Consent was required and had not been sought or granted. In one particular case, the Land and Environment Court agreed that the facility did not have approval to carry out the processing that is was conducting, however no action was taken by the Land and Environment Court, DoP, DEC or Council to require the company to cease that part of its operation not approved until approval was obtained. How can unapproved developments be controlled or censured?</p> <p>Weston Aluminium recognises the importance of maintaining and upholding laws that ensure reducing air pollution.</p> <p>The NSW Government introduced the Waste Minimisation Management Regulation 1996 to establish an efficient and effective means of reducing the environmental impacts of waste generation, storage, transport, reprocessing, treatment and disposal throughout NSW.</p> <p>The Regulation involves a two-tiered system with statewide licensing, under the direction of the Environmental Protection Authority (EPA). This system considers waste activities which have the greatest potential to harm the environment. These have been determined according to the type of activity, the quantity and nature of the waste involved and the location of the activity.</p> <p>Weston Aluminium understands the importance of taking corporate responsibility for maintaining environmental safety standards. The company has undergone a comprehensive hazard audit to ensure the systems, procedures and equipment used in its operation are in line with current legislation.</p> <p>However, the current legislation doesn't reflect the need for waste disposal organisations, particular those involved with Aluminium smelting, to take responsibility for keeping up to date with legislation and hence, maintaining clean air in NSW. We recommend the onus for auditing hazardous waste emission is not only on the EPA, but also the company itself.</p> <p>It is evident that legislation needs to be strengthened to address breaches of the licences handed out by the EPA.</p> <p>Need for a uniform legislation:</p> <p>The Environment Protection Authority issues 'environment protection licences', to</p>	

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	<p>authorise 'scheduled activities'. In this case, the 'scheduled activity' is an aluminium waste disposal facility.</p> <p>Weston Aluminium understands that older plants are permitted to operate under lower performance standards and higher emission rates. This doesn't reflect the high standards in environmental safety set by the DEC.</p> <p>Weston Aluminium recommends these standards reflect actual predicted Ground Level Concentrations (GLC) at sensitive receptors rather than emission concentrations.</p> <p>Stronger regulation authorities:</p> <p>According to the Protection of the Environment Operations Act 1997, the Environment Protection Authority is required to take into account a relevant environmental impact statement, or other statement of environmental effects prepared or obtained by the applicant under the Environmental Planning and Assessment Act 1979, before issuing a licence. (page 9)</p> <p>This legislation should be tightened so as to take into account any changes or expansion the applicant may have undertaken during a particular timeframe.</p> <p>There also needs to be stronger policing of the legislation through increasing the amount of regulators and the frequency of their visits. This would encourage organisations to continuously improve their environmental safety standards.</p> <p>In deciding whether or not to issue a licence, the Environment Protection Authority must consider:</p> <ul style="list-style-type: none"> ■ the pollution likely to be caused by the activity; ■ the likely impact of the pollution on the environment; ■ practical measures to prevent or mitigate the pollution; ■ practical measures to protect the environment from damage by the pollution; and ■ whether the applicant is a fit and proper person to hold the licence. <p>In regards to licence applications, the EPA is required to consider public submissions received regarding the application, but there is no requirement to advertise licence applications.</p> <p>Timing of Audits and inspections:</p>	<p>Alcoa agrees the determination of GLCs is an important method of determining risk to neighbouring communities. In 2005 Alcoa commissioned independent specialist modelling of emissions from the AARP Yennora facility to predict GLCs in the surrounding area. This work concluded the GLCs resulting from AARP emissions were within accepted health guidelines. This means it is very unlikely that plant emissions are giving rise to health impacts.</p>

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	<p>The specified criteria in compliance audits conducted by the DEC are generally the legal and regulatory requirements DEC administers.</p> <p>DEC uses compliance audits as one of its regulatory tools, to assess the extent to which a licensee or other regulated entity is complying with its legal requirements, and to review achievable environmental standards. (page 10)</p> <p>Timing of the audits needs to be taken into account, as on occasion illegally excessive emissions are produced at night, when audits are normally not conducted.</p> <p>Competency/experience of EPA officers to police environmental performance:</p> <p>According to NSW legislation, auditors should have the necessary knowledge and skills to apply audit principles, procedures and techniques when undertaking compliance audits. DEC has its own internal environmental auditor training program.</p> <p>A DEC officer 'Mio has undertaken the training and has demonstrated that they have the required competencies to undertake compliance audits is eligible for certification as a 'Provisional Environmental Auditor' with RABQSA International. The auditors will have the knowledge and ability to conduct audits in accordance with this handbook and any other internal work procedures.</p> <p>Weston Aluminium is of the view that there is a lack of monitoring by the EPA to identify, compliance of performance at aluminium smelting plants. Especially when a plant is receiving regular complaints from the community. This is a significant issue that needs to be addressed.</p> <p>The legislation states that EPA officers are required to be competent, however there needs to be more EPA officers in order to continuously regulate plants. This could be addressed by forcing plants to carry out their own monitoring program similar to Weston Aluminium's world's best practices. (page 11)</p>	<p>A separate submission from Western Sydney Clean Air and Water Action Group claimed emissions from the AARP Yennora facility increased at night. This is incorrect, there are no differences in operations and therefore emissions between daylight and night time. Alcoa does not increase emissions at night-time.</p>
<p>ToR – (g) Strategies to reduce the health impacts of air pollution.</p>	<p>Of major concern to communities surrounding industry is that they know very little about what the industries do, what emissions they produce, the concentration of these emissions in the community environment and the potential health impacts of such emissions. Communities are forced to rely upon limited data supplied by the company to the DEC and made available, if at all, to the community many months after being measured.</p> <p>Strategies to reduce health impacts of air pollution on the community should include the following:</p> <ul style="list-style-type: none"> ■ All industry should be required to upgrade and operate their facility using Best 	<p>While WA do not specifically implicate Alcoa in this comment we note that Alcoa has worked closely with the community surrounding the Yennora plant for a number of years. Partnerships and collaborative programs have been established to support children, hospitals, local businesses and individuals.</p>

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	<p>Available Control Technology. It is not acceptable that because an industry is old and has older, less efficient technology that it be allowed to pollute to a greater level. "Older" plants also tend to be surrounded by encroaching communities whereas new plants are either designed to have more efficient pollution control equipment or are located in purpose-designed industrial areas or industrial zones where the communities are more remote.</p> <p>This would ensure that communities are exposed to lower pollution levels and resultant health effects are reduced.</p> <ul style="list-style-type: none"> ■ Education of the community in the local industry processes, likely emissions and potential health impacts would assist then in being able to identify potential health impacts. Observed or perceived health impacts in the community coupled with independent monitoring results would again assist agencies to focus on pollutants of concern of the industry emitting pollutants of concern, ultimately reducing that pollutant in the environment. Health impacts from the pollutants of concern should also then be reduced. ■ Community Health Studies should be routinely undertaken. The ultimate determination of health impacts on a community possibly caused by air pollution is to be able to measure and compare the various health issues such as asthma, bronchial issues, eye irritation, skin problems etc. <p>It would appear that health studies are only undertaken when a problem is known to exist. Surely more regular health studies in recognised high pollution level "hot spots" on populations of concern (aged and very young) coupled with ambient monitoring results from community monitoring stations would help to focus pollution control strategies. The reduction in pollution levels following the implementation of focused strategies would contribute towards a reduction in health impacts. (page 12)</p>	<p>Open days and school tours have been undertaken to invite the community to understand the operations of the plant and in particular be more familiar with local businesses within the community.</p> <p>Through the various forums, programs and events, Alcoa has established a good relationship with residents and neighbouring businesses and has contributed funds and other resources to the economic, social and cultural environment of the Western Suburbs.</p> <p>The Community Consultation Network has been established in more recent years as a response to community feedback. Alcoa has embraced the opportunity for consultation with the community as this is an effective means of understanding the community values, needs and any issues that may need to be addressed.</p> <p>Alcoa responds to issues raised through the CNN meetings as well as individually via the complaints handling processes.</p> <p>See Section 4.2 for more details on the programs and consultation initiatives that Alcoa has established.</p>
<p>Recommendations to the Inquiry</p>	<p>Weston Aluminium advocates the following recommendations for the inquiry:</p> <ul style="list-style-type: none"> ■ Development of legislative and policy frameworks for the environmental assessment of incremental industrial expansion. ■ The EPA advertise licence applications to ensure further accountability and transparency. ■ Full disclosure of company environmental performance. 	<p>Alcoa do not provide any response to this comment as it relates to the DEC/EPA.</p>

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Issue Category	Comments	Response
	<ul style="list-style-type: none"> ■ Clarification of the roles and responsibilities of local and state governments in environmental protection. ■ Strengthening of regulators aimed to encourage continuous improvement in industry's environmental performance—for example, the use of the financial and insurance sectors and supply chains as surrogate regulators. ■ DEC standards reflect actual predicted Ground Level Concentrations (GLC) at sensitive receptors rather than emission concentrations. (Older plants are permitted to operate under lower performance standards and higher emission rates). ■ Auditing hazardous waste emission not only be the responsibility of the EPA, but also the company itself. ■ Require industry to monitor emissions from stacks continuously and to have the monitoring data available on a website for community review. ■ Require all industries of the same type to monitor the same pollutants. The pollutants to be monitored to be established by a panel of experts so that relatively inexperienced DEC Officers don't miss a pollutant of concern when issuing licences. ■ Establish community environmental committees with representatives from the DEC, Council, community, local health practitioners and industry to review and recommend actions to be taken by industry (to be included on DEC licences as PRPs). The attendance at such regular meetings to be compulsory for all government and industry representatives. ■ Provide environmental awareness educational training forums to the community surrounding industry to inform them of the activity being undertaken, the potential emissions sources and the composition of such emissions, the equipment used to control the emissions, the potential impact of the emissions on community health, the likely ambient concentrations for pollutants of concern and the actions available to be taken should they have any concerns. ■ All industry should be required to upgrade and operate their facility using Best Available Control Technology. ■ In instances where community complaints have been consistent and sustained over a period of time, then: ■ Stronger policing of the legislation through increasing the amount of regulators and the frequency of their visits. This would encourage organisations to 	<p>With respect to the point made about "DEC standards reflect actual predicted Ground Level Concentrations (GLC) at sensitive receptors rather than emission concentrations" Alcoa comment that the air quality impact assessment undertaken as part of the recent EIS which was based on predicted GLCs concluded that the remelting operations of the site would not have significant impact on the health and amenity of the surrounding community of Yennora.</p>

Health Impacts Inquiry of Air Pollution in the Sydney Basin

Issue Category	Comments	Response
	<p>continuously improve their environmental safety standards, and EPA Audits and inspections to be conducted outside of business hours. (page 13)</p> <ul style="list-style-type: none"> ■ Require industry to have their emissions monitored on a regular basis by independent stack monitoring consultants approved of by the DEC and paid for by the industry. ■ Require industry to establish, operate and pay for ambient monitoring networks at sensitive receptors surrounding their facility. The equipment to be operated by independent consultants with the results provide to the community and industry at the same time. (page 14) 	

8. Conclusions

1. Alcoa ARP Yennora complies with NSW regulatory obligations

The Alcoa ARP Yennora site operates under Environmental Protection Licence (EPL) No. 642 issued by the Department of Environment and Conservation. The site consistently complies with the requirements of the EPL.

The site also monitors air emissions on a continuous basis and through quarterly stack monitoring. The results are routinely reported to the DEC and Environment Australia (for National Pollutant Inventory reporting).

The development consent for the scope of the site's activities is currently subject to litigation initiated by Weston Aluminium (a competitor of Alcoa ARP). Furthermore, a Development Application is now before the Land and Environment Court. The Courts have not directed Alcoa ARP to cease or curtail current operations in any way.

2. Air emissions from AARP Yennora have negligible affect on air quality in the Sydney Basin and the health and amenity of communities surrounding the plant.

Alcoa ARP Yennora's most significant emissions are particulates, oxides of nitrogen and volatile organic carbons. Overall, in a worst-case estimate, Alcoa ARP Yennora is responsible for less than 0.1% of the same emission categories in the Sydney Basin.

In 2005 Alcoa ARP Yennora commissioned specialist computer-assisted modelling of the dispersion of air emissions from the site and the resulting concentrations of a wide range of compounds at ground level.

The predicted concentrations resulting from Alcoa ARP Yennora's emissions were all within the relevant environmental health criteria, and many by orders of magnitude.

3. Alcoa ARP's Yennora operations play an important role in sustainable resource use.

Alcoa ARP is Australia's largest recycler of aluminium products and is the largest supplier of rolled aluminium products (sheet aluminium) to the domestic market.

Recycling aluminium uses only 5% of the energy as making aluminium from raw materials and as a result significantly reduces greenhouse gas emissions. By recycling aluminium, Alcoa preserves important finite resources such as energy, metals and landfill space.

Alcoa ARP Yennora earned ISO 14001 certification for its environmental systems and management in December 2005.

4. AARP Yennora has established a modern community engagement program and is committed to maintaining an open and honest relationship with community stakeholders

There are approximately 350 people employed at the Yennora site and Alcoa ARP is considered an important employer and contributor to the local and regional economy. The business is engaged in a diverse range of partnerships to create opportunities for people, institutions and businesses to contribute to the economic, social and cultural fabric of the Western Sydney community.

Overall

The Alcoa AARP facility at Yennora makes a valuable contribution to the local and regional community through its employment of 350 people (and flow-on economic benefits) and diverse community partnership programs.

The recycling of aluminium undertaken at the site also helps provide a more sustainable global future through minimising resource consumption and maximising aluminium reuse.

An independent scientific evaluation of air emissions at Alcoa ARP Yennora confirms the site:

- Consistently complies with its obligations under the Environmental Protection Licence;
- Makes very little contribution to air pollution in the Sydney Basin or the local area; and
- Is very unlikely to give rise to health impacts on the surrounding community.

9. References

- Alcoa Australian Rolled Product NSW Environmental Protection Authority Licence No. 642, Review Data not later than 01-Oct-2005.
- AARP (2006): Industrial Emissions Inventory Questionnaire submitted by Alcoa Australia Rolled Products to DEC for the facility ID: 642, Alcoa Australia Rolled Products, 31 January, 2005.
- DEC (2006): R. B. Wilkins, Director-General, The Cabinet Office - New South Wales, Submission Number 25 to Parliamentary Inquiry into Health Impacts of Air Pollution in the Sydney Basin, date received 11/08/2006.
- EIS (2005): Dick Benbow & Associates Pty Ltd, March 2005, Environmental Impact Statement for North Remelt Facility Alcoa Australia Rolled Products Pty Ltd.
- EIS Addendum (2005): Dick Benbow & Associates Pty Ltd, March 2005, Addedndum Environmental Impact Statement for North Remelt Facility Alcoa Australia Rolled Products Pty Ltd.
- Dick Benbow & Associates Pty Ltd, April 2006, response to CH2M Hill Australia Pty Ltd Addendum Report No. 3 Alcoa Environmental Impact Statement for North Remelt Facility Alcoa Australia Rolled Products Pty Ltd.
- NSWG (1998): Action for Air, NSW Government's 25-Year Air Quality Management Plan, Published by Environment Protection Authority, Chatswood NSW, ISBN 0 7313 0160 9, EPA 98/16, February 1998
- Protection of the Environment Operations (Clean Air) Regulation 2002.
- Report of Proceedings before General Purpose Standing Committee No.2, 16th August 2006, Inquiry into Health Impacts of Air Pollution in the Sydney Basin.
- Western Sydney Clean Air & Water Action Group, 3rd August 2006, Submission No. 18, Inquiry Into Health Impacts of Air Pollution in the Sydney Basin.
- Weston Aluminium Pty Ltd, 3rd August 2006, Submission No. 6, Inquiry into Health Impacts of Air Pollution in the Sydney Basin.

Appendix A Development Consent Summary

As per information provided by Holding Redlich dated the 29th August 2006:

ALCOA:YENNORA: DEVELOPMENT CONSENTS

- 1) A large number of development consents apply to the land now owned by Alcoa at Yennora.
- 2) A history of the approvals for the land now forming Alcoa's Yennora site is set out in the attached document prepared by Dick Benbow & Associates Pty Limited dated 18 October 2005, entitled "Attachment 2: History of Development Application Approvals issued for land now forming Alcoa's Yennora Site".
- 3) The report was given to Holroyd City Council in response to Council's request for further information concerning Alcoa's development application of March 2006.
- 4) As will be seen from Attachment 2, industrial development on the site commenced in 1958 when Cumberland Brass and Aluminium Mills – a division of Austral Bronze Pty Limited commenced a brass and copper rolling operation.
- 5) In 1963 Comalco Aluminium Limited acquired the south eastern portion of the site and constructed the first section of the existing aluminium re-melt and semi fabrication facility.
- 6) Over time, the facility has grown and changed.
- 7) Some of the development consents listed in the table relate to parts of the overall site which are leased to others.
- 8) The re-melting facilities (including a rotary furnace) were originally located on the southern part of the site.
- 9) Commencing with a development consent given in 1978 and followed by consents given in 1980 and 1981 the re-melting facilities were moved to the northern part of the site and the southern re-melting facilities were decommissioned.
- 10) Prior to the relocation, Comalco used a variety of aluminium products as feedstock in its rotary furnace and other melters. Its earlier development consents for the remelt facility on the southern part of the site did not limit the type or nature of feedstock which could be used.
- 11) Comalco continued to use a range of different aluminium feedstock in its newer remelting operations on the northern part of the site.
- 12) Alcoa, Holroyd Council and the EPA also understood that the relevant development consents did not limit the type of feedstock that could be used.
- 13) In proceedings commenced by Weston Aluminium, a commercial rival, Mr Justice Lloyd in the Land and Environment Court found, on 20 August 2004, that Alcoa has "a can reclamation plant with a rotary furnace processing cans, as it is permitted to do, and processing dross from the remelt facility on the adjoining land as it is not only permitted but required to do. That is

the extent to which (Alcoa) is permitted to have an input by way of feedstock into the plant at the can reclamation plant".

- 14) Notwithstanding the application of Weston Aluminium, His Honour declined to make any declarations or orders preventing Alcoa from continuing to use the types of feedstock complained of by Weston Aluminium.
- 15) The Court of Appeal also declined Weston Aluminium's application to overturn directions given by Justice Lloyd which were aimed at postponing any further consideration of Weston Aluminium's Court proceedings until the environmental impacts of the use of the range of aluminium feedstock had been determined in accordance with the designated development procedures under the Environment Planning and Assessment Act (EPA Act). That is, the Court gave Alcoa time to prepare an environmental impact statement and lodge a development application, and time for the Council to exhibit and determine the application.
- 16) His Honour appeared to give great weight to the fact that Alcoa was operating in accordance with a licence granted under the Protection of the Environment Operations Act (PEO Act).
- 17) The proceedings are listed for further call-over before the Land & Environment Court on 15 September 2006. They had been listed for hearing in March 2006, but those hearing dates were vacated at the initiative of Weston Aluminium.
- 18) Weston Aluminium also challenged the validity of the PEO Act licence in the Land and Environment Court. Weston Aluminium's application was refused by Her Honour Justice Pain.
- 19) Weston Aluminium has appealed the decision of Justice Pain. The appeal is due to be heard on 6 and 7 of September 2006. Alcoa has also taken the opportunity given by Weston Aluminium's appeal to appeal the findings of Justice Lloyd.
- 20) In summary, the Land & Environment Court has determined that Alcoa has a valid licence under the PEO Act and that, at least for the time being, Alcoa will not be ordered to cease its operations in relation to matters arising under the EPA Act.
- 21) Alcoa's designated development application was considered by Holroyd Council on 1 August 2006.
- 22) Alcoa had, earlier lodged an appeal against the deemed refusal by Council of the development application, to safeguard its position if Council did not determine the development application.
- 23) As it was, Council determined to agree to consent orders in the Land and Environment Court, whereby the Court will grant development consent subject to the imposition of a number of conditions of development consent. That is, Council has in effect agreed that Alcoa's operations are worthy of approval and is satisfied that air emissions and other aspects of the operations are environmentally acceptable.
- 24) In forming this view, Council has taken into account not only the views of its own officers but also the expert opinion of independent consultants.

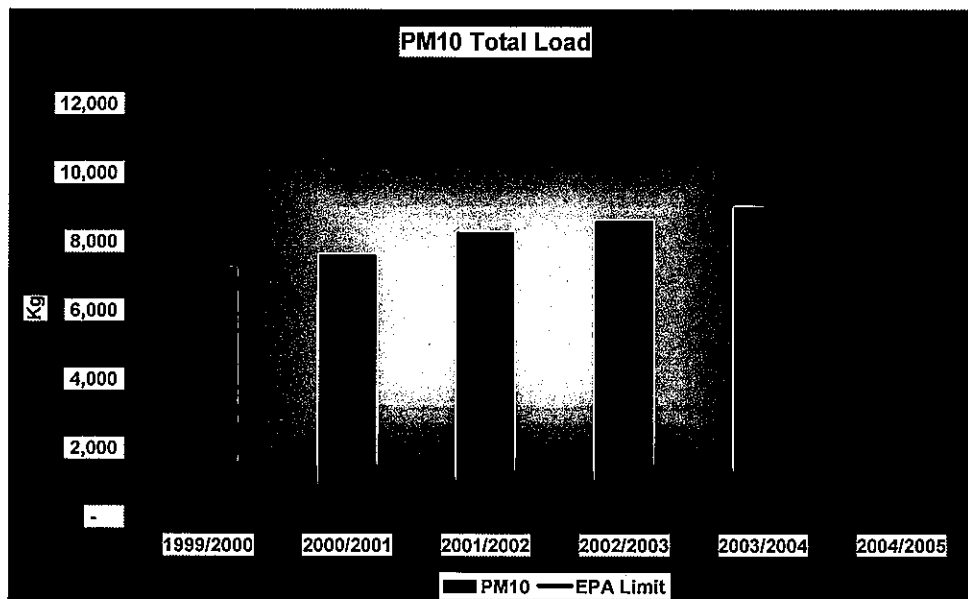
- 25) The EPA has also issued its general terms of approval, indicating that it is satisfied with Alcoa's proposal, and in particular to Alcoa using Victorian dross and general aluminium scrap as feedstock in its rotary furnace.
- 26) But for the active opposition of Weston Aluminium, a new development consent would have issued, putting to rest any concerns as to the lawfulness of the current operations.
- 27) Alcoa's legal advice is that there are reasonable grounds to expect that the Land and Environment Court will grant development consent and that the legal actions brought by Weston Aluminium will be dismissed.

Appendix B Total Load Emissions

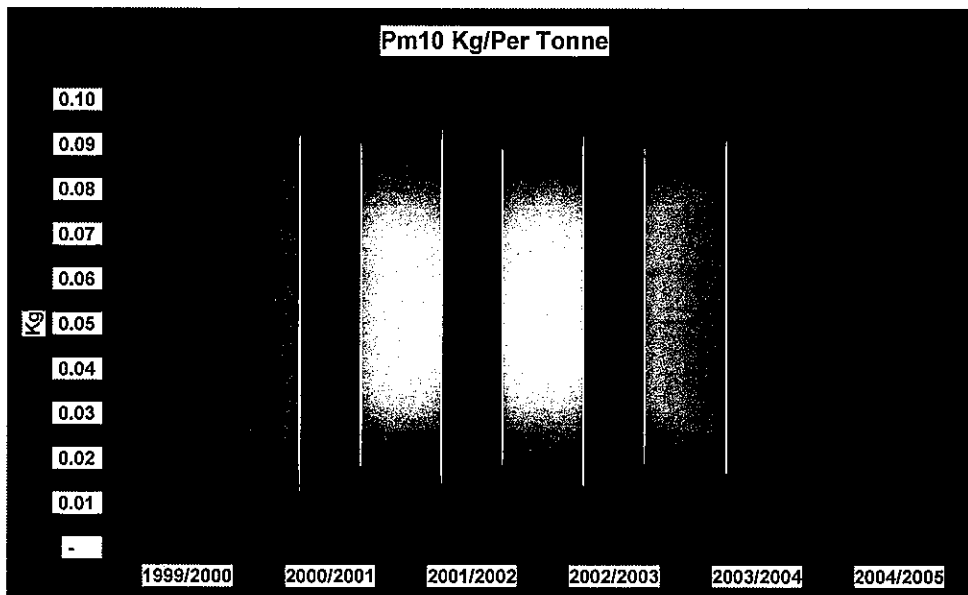
As per information provided by Alcoa.

B.1 Particulate Matter (PM₁₀)

- Figure 9-1 PM₁₀ Total Load

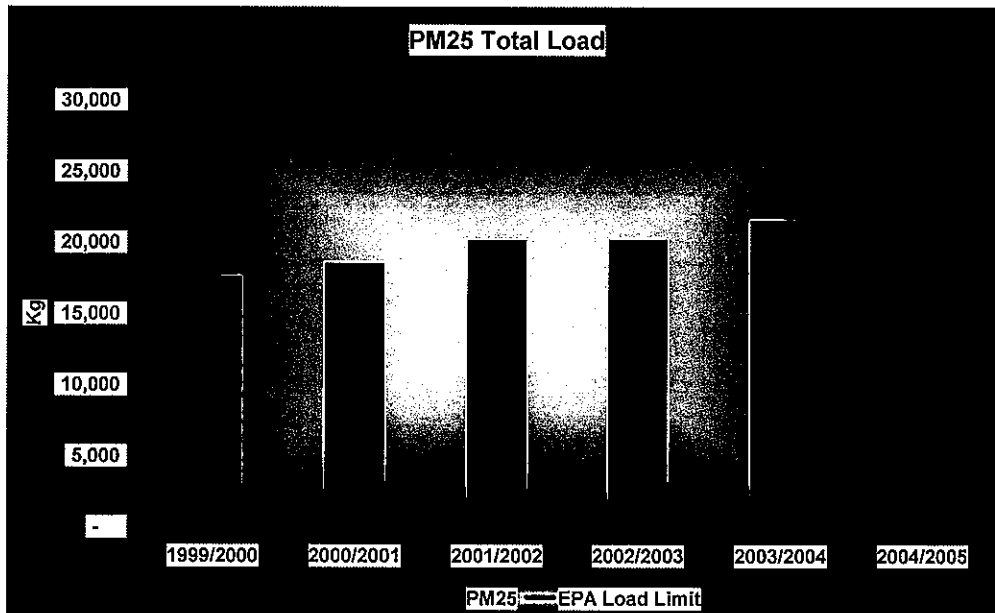


- Figure 9-2 PM₁₀ Kg per Tonne

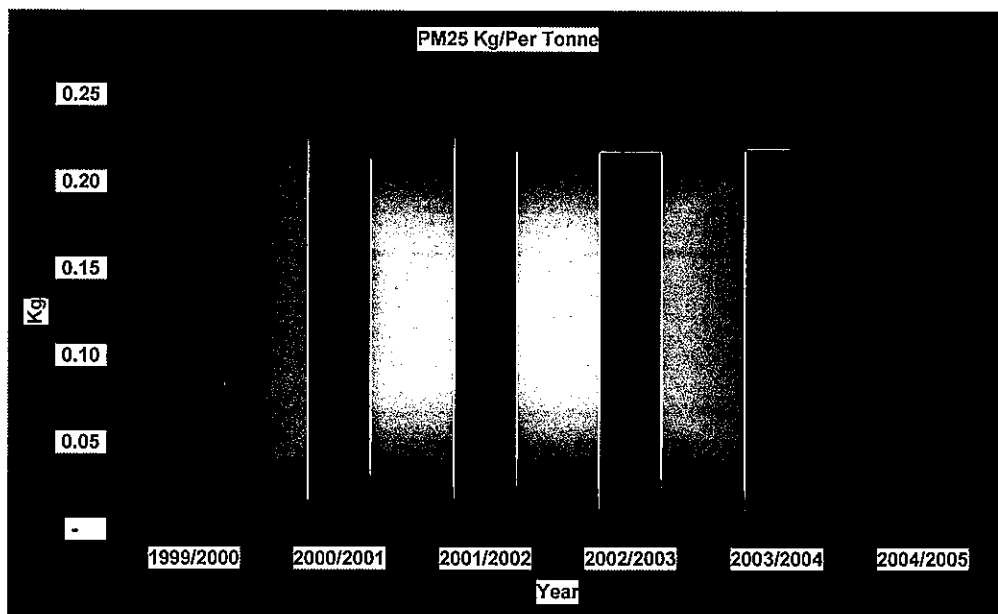


B.2 Particulate Matter (PM2.5)

■ **Figure 9-3 PM_{2.5} Total Load**

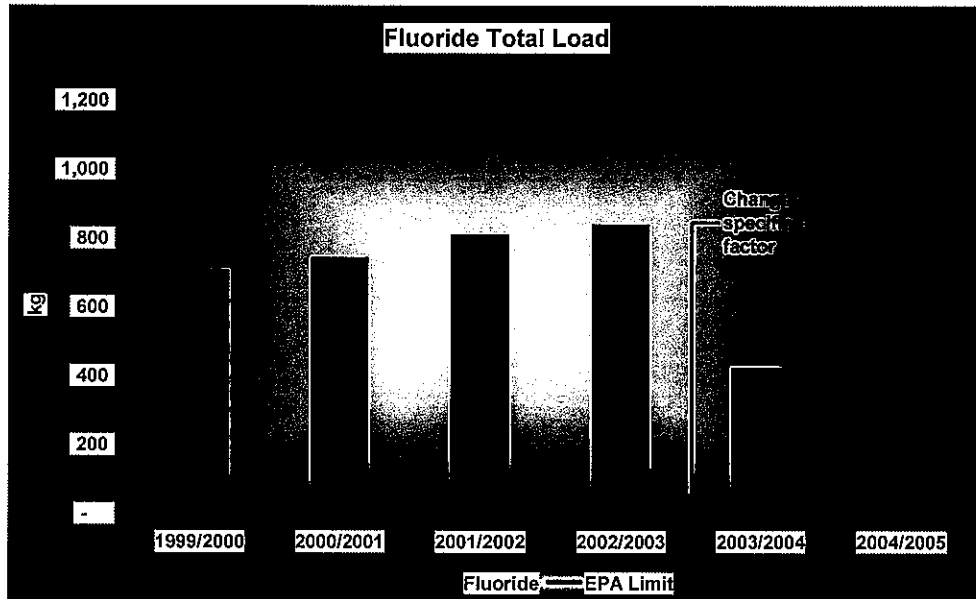


■ **Figure 9-4 PM_{2.5} Kg per Tonne**

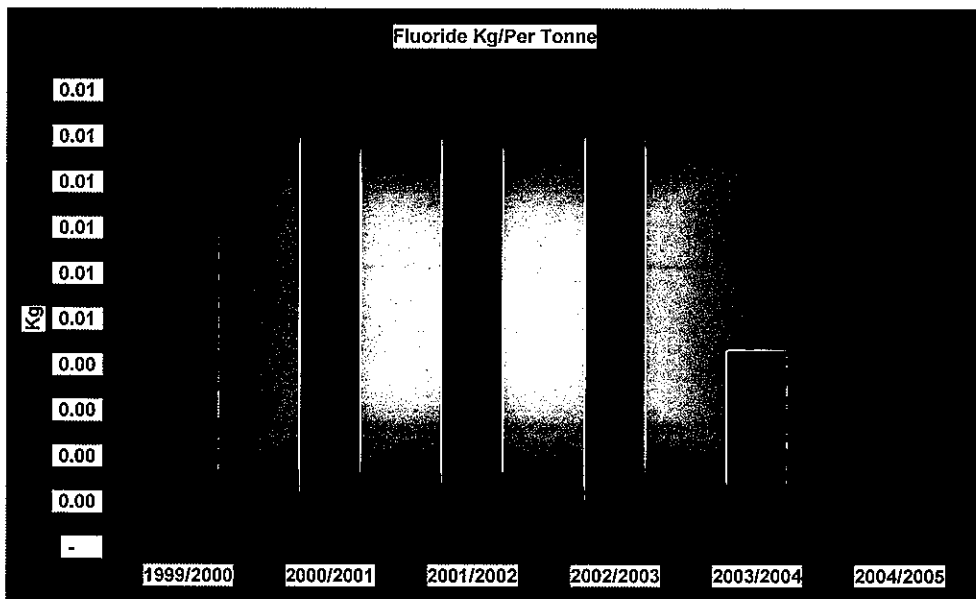


B.3 Fluoride

■ **Figure 9-5 Fluoride Total Load**

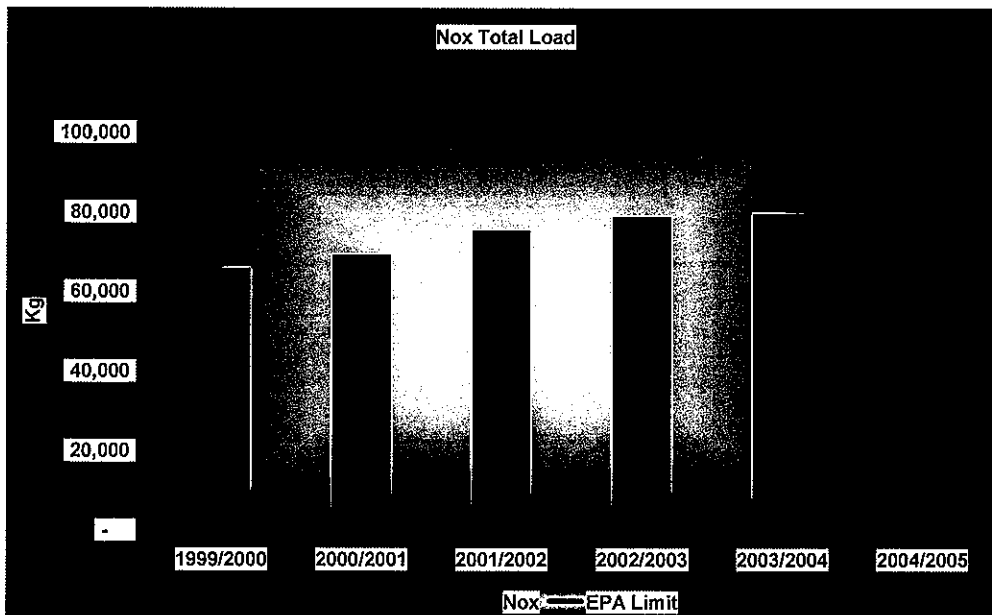


■ **Figure 9-6 Fluoride Kg per Load**

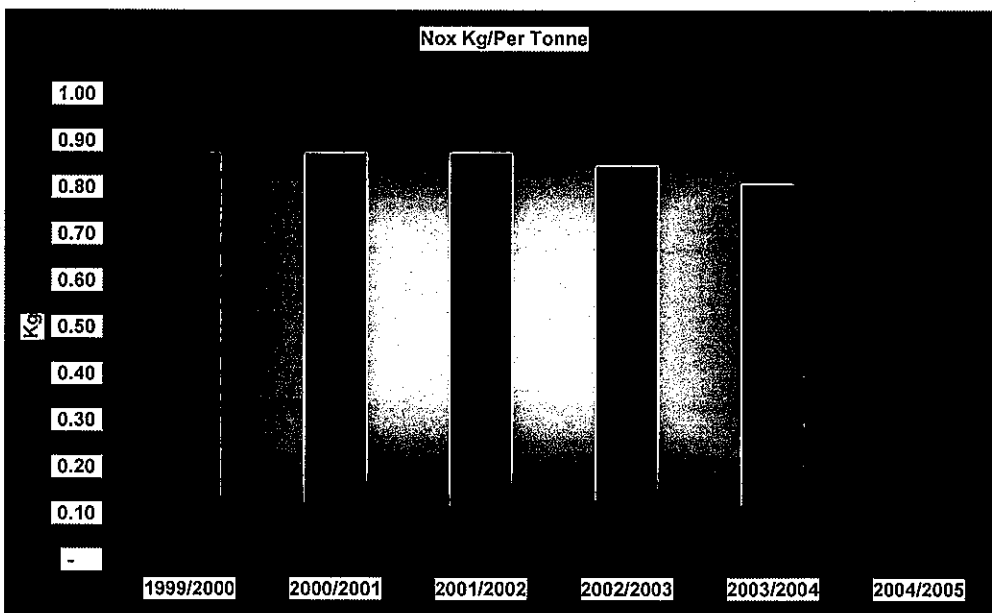


B.4 Nitrous Oxides

■ **Figure 9-7 Nitrous Oxides Total Load**

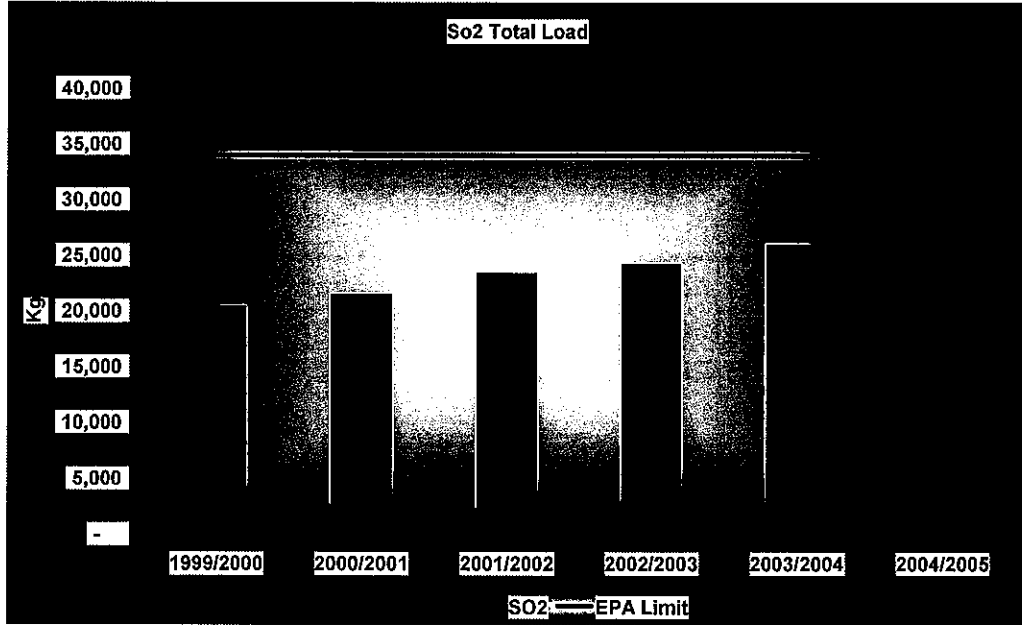


■ **Figure 9-8 Nitrous Oxides Kg per Tonne**

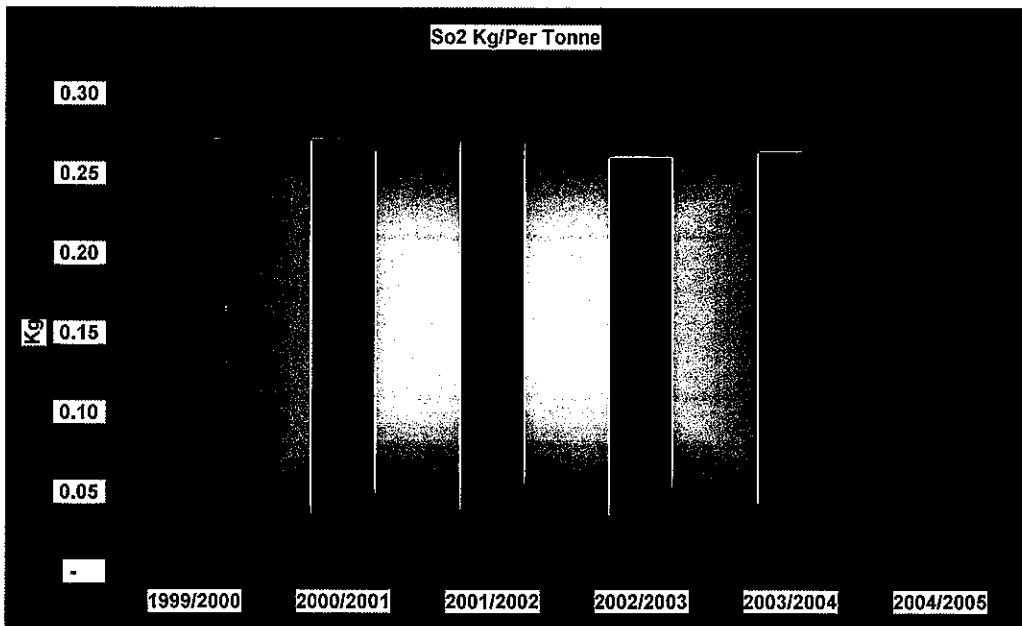


B.5 Sulfur Dioxide (SO₂)

■ **Figure 9-9 Sulfur Dioxide Total Load**

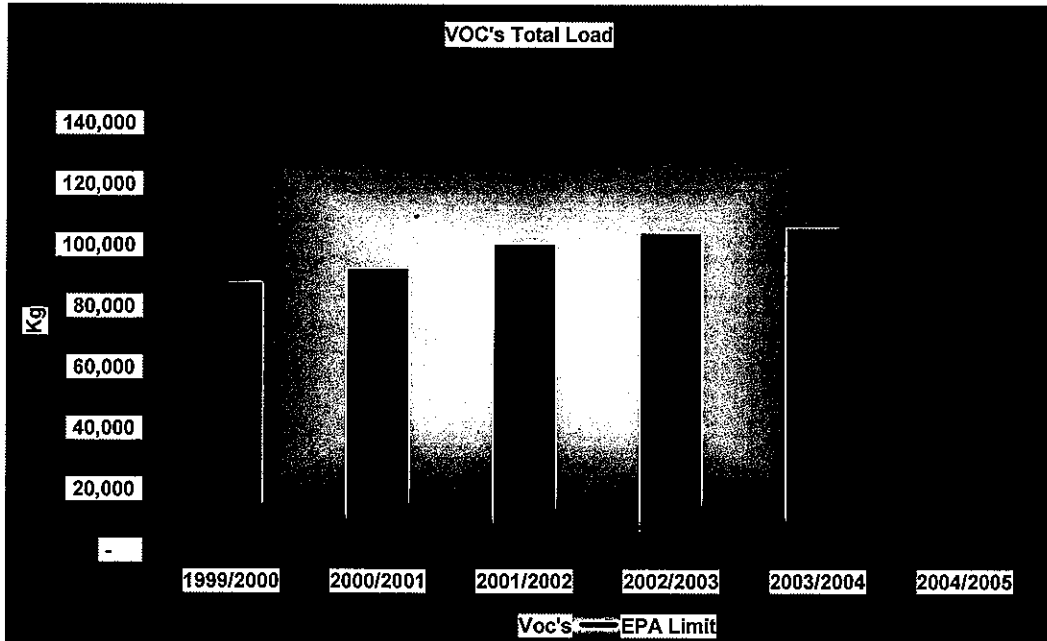


■ **Figure 9-10 Sulfur Dioxide Kg per Tonne**

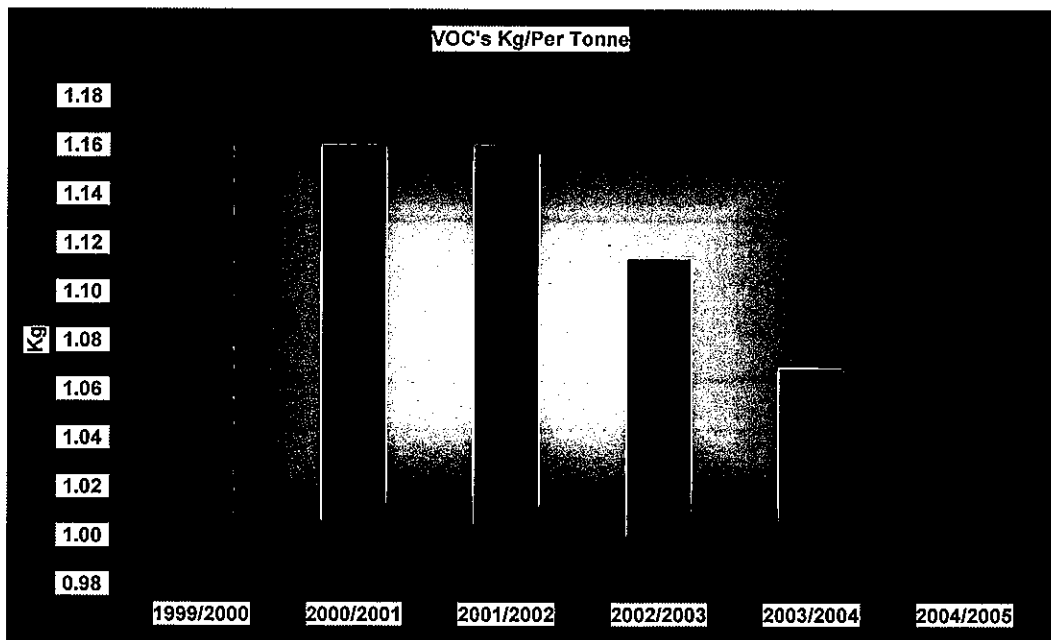


B.6 Volatile Organic Carbon (VOC)

■ **Figure 9-11 VOC Total Load**



■ **Figure 9-12 VOC Kg per Tonne**



B.7 Tabulated Emissions Information

■ **Table 9-1 Alcoa Yennora Total Load Limit**

Graphs	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005
PM_{2.5}						
EPA Load	17,557	18,490	20,136	20,180	21,543	24,074
Limit	29,000	29,000	29,000	29,000	29,000	29,000
Kg/Tonne	0.23	0.23	0.23	0.22	0.22	0.23
PM₁₀						
EPA Limit	7,205	7,588	8,263	8,584	8,992	9,240
Kg/ Tonne	12,000	12,000	12,000	12,000	12,000	12,000
	0.10	0.10	0.10	0.09	0.09	0.09
Graphs						
Fluoride						
EPA Limit	705	742	808	839	424	427
Kg/Tonne	1,200	1,200	1,200	1,200	1,200	1,200
	0.01	0.01	0.01	0.01	0.00	0.00
Graphs						
NOx						
EPA Limit	65,546	69,028	75,173	78,676	79,407	83,806
Kg/Tonne	108,000	108,000	108,000	108,000	108,000	108,000
	0.87	0.87	0.87	0.84	0.80	0.81
Graphs						
SO₂						
EPA Limit	20,380	21,462	23,373	24,195	25,974	26,294
Kg/Tonne	34,000	34,000	34,000	34,000	34,000	34,000
	0.27	0.27	0.27	0.26	0.26	0.25
Graphs						
VOC's						
EPA Limit	87,323	91,962	100,148	103,826	105,511	108,810
Kg/Tonne	145,000	145,000	145,000	145,000	145,000	145,000
	1.16	1.16	1.16	1.11	1.07	1.05
Sold Tonnes						
	75,300	79,300	86,359	93,273	98,772	103,564

Appendix C Air Dispersion Modelling

EIS Addendum (2005) DBA: Concentrations listed in the tables are 99.9th percentile values, as required in section 3 of the AMMAAP. These were calculated with the statistics Utility built into AUSPLUME.



Table 8: Revised Comparison of Modelled Results for the 'Before Proposal' Case, 'After Proposal' Case, and the Change Between Them (Receptors A-C)

Substance	Estimated Concentration (mg/m ³ unless stated otherwise) at Discrete Receptors												Criteria (mg/m ³)	Averaging Time
	A			B			C			Before	After	Change		
	Before	After	Change	Before	After	Change	Before	After	Change					
Acrylonitrile	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	0.008	1 hour			
Arsenic	1.61E-06	1.61E-06	0	6.42E-07	6.42E-07	0	7.33E-07	7.33E-07	0	9.0E-10 ^s	1 hour			
Acetone	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	22	1 hour			
Benzene	3.2E-03	3.2E-03	0	3.2E-03	3.2E-03	0	3.2E-03	3.2E-03	0	0.029	1 hour			
Beryllium	1.61E-06	1.61E-06	0	6.42E-07	6.42E-07	0	7.33E-07	7.33E-07	0	4.0E-10 ^s	1 hour			
Benzoyl Chloride	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	0.009	1 hour			
n-Butyl Acetate	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	1.02	1 hour			
Cadmium	3.80E-07	3.80E-07	0	1.47E-07	1.47E-07	0	1.71E-07	1.71E-07	0	1.8E-10 ^s	1 hour			
CO (Background)	3.3	3.3	0	3.3	3.3	0	3.3	3.3	0	100	15 minutes			
CO (No Background)	0.062	0.062	0	0.064	0.064	0	0.043	0.043	0					
CO (Background)	3.3	3.3	0	3.3	3.3	0	3.3	3.3	0	30	1 hour			
CO (No Background)	0.062	0.062	0	0.064	0.064	0	0.039	0.039	0					
CO (Background)	2.48	2.48	0	2.5	2.5	0	2.47	2.47	0	10	8 hours			
CO (No Background)	0.03	0.03	0	0.037	0.037	0	0.019	0.019	0					
Carbon Tetrachloride	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	0.012	1 hour			
Chlorobenzene	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	0.1	1 hour			
Chromium Total	2.73E-06	2.73E-06	0	1.43E-06	1.43E-06	0	1.72E-06	1.72E-06	0	0.009	1 hour			
Chromium (VI)	3.42E-05	3.42E-05	0	1.21E-05	1.21E-05	0	1.84E-05	1.84E-05	0	9.0E-10 ^s	1 hour			
Copper (fumes)	4.62E-06	4.62E-06	0	2.98E-06	2.98E-06	0	2.78E-06	2.78E-06	0	3.7E-10 ^s	1 hour			
Cyclohexane	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	19	1 hour			
Cyclohexanone	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	0.26	1 hour			

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Table 9: Revised Comparison of Modelled Results for the "Before Proposal" Case, "After Proposal" Case, and the Change Between Them (Receptors A-C)

Substance	A			B			C			Criteria (mg/m ³)	Averaging Time
	Before	After	Change	Before	After	Change	Before	After	Change		
o-Dichlorobenzene	2.9E-05	2.9E-05	0	8.8E-06	8.8E-06	0	8.2E-06	8.2E-06	0	5.5	1 hour
Dioxins and Furans	3.4E-15	3.4E-15	0	1.2E-15	1.2E-15	0	1.4E-15	1.4E-15	0	2.0x10 ³	1 hour
Epilichlorhydrin	2.9E-05	2.9E-05	0	6.8E-05	6.8E-05	0	8.2E-05	8.2E-05	0	0.014	1 hour
Ethyl Acetate	2.9E-05	2.9E-05	0	6.8E-05	6.8E-05	0	8.2E-05	8.2E-05	0	12.1	1 hour
Ethyl Acrylate	2.9E-05	2.9E-05	0	6.8E-05	6.8E-05	0	8.2E-05	8.2E-05	0	0.0004	1 hour
Ethyl Benzene	2.9E-05	2.9E-05	0	6.8E-05	6.8E-05	0	8.2E-05	8.2E-05	0	8.0	1 hour
n-Hexane	1.89E-04	1.89E-04	0	8.9E-05	8.9E-05	0	8.2E-05	8.2E-05	0	3.2	1 hour
HCl	1.50E-02	1.50E-02	0	5.04E-03	5.04E-03	0	6.72E-03	6.72E-03	0	0.14	1 hour
HF	3.91E-04	3.91E-04	0	1.37E-04	1.37E-04	0	1.19E-04	1.19E-04	0	1.5 x10 ³	24 hours
	1.05E-04	1.05E-04	0	4.2E-05	4.2E-05	0	4.8E-05	4.8E-05	0	8.0x10 ⁻⁴	7 days
	2.79E-06	2.79E-06	0	1.41E-06	1.41E-06	0	1.74E-06	1.74E-06	0	2.5x10 ⁻⁴	90 days
Lead	3.78E-05	3.78E-05	0	1.30E-06	1.30E-06	0	1.08E-06	1.08E-06	0	5.0x10 ⁻⁴	1 hour
MnO	8.68E-06	8.70E-06	2.00E-07	5.59E-06	5.59E-06	4.00E-07	4.97E-06	6.09E-06	1.20E-06	0.18	1 hour
Mercury (inorganic)	2.4E-04	2.4E-04	0	8.1E-05	8.1E-05	0	9.8E-05	9.8E-05	0	1.8x10 ³	1 hour
Methylalkylketone	2.9E-05	2.9E-05	0	6.8E-05	6.8E-05	0	8.2E-05	8.2E-05	0	3.2	1 hour
Methylisobutylketone	2.9E-05	2.9E-05	0	6.8E-05	6.8E-05	0	8.2E-05	8.2E-05	0	0.23	1 hour
Methylstyrene	2.9E-05	2.9E-05	0	6.8E-05	6.8E-05	0	8.2E-05	8.2E-05	0	0.14	1 hour
Nickel	1.21E-06	1.21E-08	0	8.38E-07	8.38E-07	0	7.30E-07	7.30E-07	0	1.8x10 ⁻⁴	1 hour
NO ₂ (Background)	0.11	0.11	0	0.14	0.14	0	0.10	0.10	0	0.246	1 hour
NO ₂ (No background)	0.044	0.044	0	0.065	0.065	0	0.046	0.046	0		
NO _x (Background)	0.032	0.032	0	0.036	0.036	0	0.029	0.029	0	0.062	1 year
NO _x (No background)	0.0046	0.0046	0	0.0082	0.0082	0	0.0019	0.0019	0		

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Table 9: Revised Comparison of Modelled Results for the "Before Proposal" Case, "After Proposal" Case, and the Change Between Them (Receptors A-C)

Substance	Estimated Concentration (µg/m ³ unless stated otherwise) at Discrete Receptors									Criteria (µg/m ³)	Averaging Time
	A			B			C				
	Before	After	Change	Before	After	Change	Before	After	Change		
PM ₁₀ (Background)	0.19	0.19	0	0.19	0.19	0	0.19	0.19	0	0.05	24 hours
PM ₁₀ (No background)	2.3E-04	2.3E-04	0	2.1E-04	2.1E-04	0	1.2E-04	1.2E-04	0		
PM ₁₀ (Background)	0.019	0.019	0	0.019	0.019	0	0.019	0.019	0	0.03	1 year
PM ₁₀ (No background)	3.4E-05	3.4E-05	0	7.5E-05	7.5E-05	0	5.1E-05	5.1E-05	0		
Perchloroethylene	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	3.5	1 hour
Propylene Oxide	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	0.09	1 hour
PAHs	1.61E-05	1.61E-05	0	6.42E-07	6.42E-07	0	7.35E-07	7.35E-07	0	4.0E-04	1 hour
SO ₂ (Background)	0.05	0.05	0	0.047	0.047	0	0.047	0.047	0	0.712	10 minutes
SO ₂ (No Background)	0.025	0.025	0	0.017	0.017	0	0.017	0.017	0		
SO ₂ (Background)	0.03	0.03	0	0.03	0.03	0	0.03	0.03	0	0.570	1 hour
SO ₂ (No Background)	0.021	0.021	0	0.013	0.013	0	0.011	0.011	0		
SO ₂ (Background)	0.015	0.015	0	0.013	0.013	0	0.012	0.012	0	0.228	24 hours
SO ₂ (No Background)	0.01	0.01	0	0.005	0.005	0	0.004	0.004	0		
SO ₂ (Background)	0.004	0.004	0	0.003	0.003	0	0.003	0.003	0	0.60	1 year
SO ₂ (No Background)	0.0011	0.0011	0	2.51E-04	2.51E-04	0	1.72E-04	1.72E-04	0	0.018	1 hour
Styrene Acid	1.50E-03	1.50E-03	0	8.1E-04	8.1E-04	0	9.9E-04	9.9E-04	0	0.12	1 hour
Styrene	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0	0.08	1 year
TSP (Background)	0.18	0.18	0	0.078	0.078	0	0.067	0.067	0		
TSP (No Background)	0.15	0.15	0	0.039	0.039	0	0.029	0.029	0		
TSP (Dust) Deposition	0.25	0.25	0	0.030	0.030	0	0.014	0.014	0	2 g/m ² /month	1 year
Toluene	1.1E-02	1.1E-02	0	1.0E-02	1.0E-02	0	1.1E-02	1.1E-02	0	0.36	1 hour

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Table 8: Revised Comparison of Modelled Results for the 'Before Proposal' Case, 'After Proposal' Case, and the Change Between Them (Receptors A-C)

Substance	Estimated Concentration (mg/m ³ unless stated otherwise) at Discrete Receptors						Criteria (mg/m ³)	Averaging Time	
	A			B					C
	Before	After	Change	Before	After	Change	Before	After	Change
Trichloroethylene	2.9E-05	2.9E-05	0	6.6E-05	6.6E-05	0	8.2E-05	8.2E-05	0
Xylenes	8.1E-05	8.1E-05	0	3.0E-05	3.0E-05	0	3.8E-05	3.8E-05	0

Notes: Some values are expressed in exponential form, 1.5E-03 = 0.0015, while 1.5E+05 = 0.000015. A condensed expression of values in the format (mantissa)(exponent) is equivalent to (mantissa)x10(exponent). For example, 1E-3 = 1x10⁻³ = 0.001, so 1 is the mantissa and -3 is the exponent. Sometimes a zero is included in front of the exponent when it is less than 10, e.g. 1E-03. The added zero does not alter the meaning of the notation.



Table 10: Revised Comparison of Modelled Results for the 'Before Proposal' Case, 'After Proposal' Case, and the Change Between Them (Receptors D-F)

Substance	Estimated Concentration (mg/m ³) at Diurnal Receptors						Criteria (mg/m ³)	Averaging Time
	D			E				
	Before	After	Change	Before	After	Change		
Acrylonitrile	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	0.006	1 hour
Arsenic	6.93E-07	6.93E-07	0	8.32E-07	8.32E-07	0	9.0E-05	1 hour
Azoxone	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	22	1 hour
Benzene	3.5E-03	3.5E-03	0	3.5E-03	3.5E-03	0	0.029	1 hour
Beryllium	6.93E-07	6.93E-07	0	8.32E-07	8.32E-07	0	4.0E-04	1 hour
Benzoyl Chloride	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	0.009	1 hour
n-Butyl Acetate	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	1.02	1 hour
Cadmium	1.94E-07	1.94E-07	0	1.94E-07	1.94E-07	0	1.8E-05	1 hour
CO (Background)	3.3	3.3	0	3.3	3.3	0	100	15 minutes
CO (No Background)	0.049	0.049	0	0.047	0.047	0	0.059	1 hour
CO (Background)	3.3	3.3	0	3.3	3.3	0	30	1 hour
CO (No Background)	0.043	0.043	0	0.044	0.044	0	0.054	1 hour
CO (Background)	2.47	2.47	0	2.47	2.47	0	10	8 hours
CO (No Background)	0.018	0.018	0	0.018	0.018	0	0.024	1 hour
Carbon Tetrachloride	7.9E-05	7.9E-05	0	8.9E-05	8.9E-05	0	0.00013	1 hour
Chlorobenzene	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	0.1	1 hour
Chromium (Total)	2.09E-06	2.09E-06	0	1.86E-06	1.86E-06	0	0.009	1 hour
Chromium (VI)	1.99E-05	1.99E-05	0	1.79E-05	1.79E-05	0	9.0E-05	1 hour
Copper (Ames)	3.14E-06	3.14E-06	0	3.65E-06	3.65E-06	0	3.7E-05	1 hour
Cyclohexane	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	19	1 hour
Cyclohexanone	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	0.26	1 hour

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Table 10: Revised Comparison of Modelled Results for the 'Before Proposal' Case, 'After Proposal' Case, and the Change Between Them (Receptors D-F)

Substance	Estimated Concentration (µg/m ³) at Dicrete Receptors						Criteria (µg/m ³)	Averaging Time	
	D			E					F
	Before	After	Change	Before	After	Change	Before	After	Change
o-Dichlorobenzene	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
Dioxins and Furans	1.9E-16	1.9E-16	0	1.8E-15	1.8E-15	0	2.8E-15	2.8E-15	0
Enochlorhydrin	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
Ethyl Acetate	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
Ethyl Acrylate	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
Ethyl Benzene	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
n-Hexane	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
HCl	6.33E-03	6.33E-03	0	6.99E-03	6.99E-03	0	1.05E-02	1.05E-02	0
HF	1.3E-04	1.3E-04	0	2.7E-04	2.7E-04	0	3.2E-04	3.2E-04	0
	2.4E-05	2.4E-05	0	3.5E-05	3.5E-05	0	9.0E-05	9.0E-05	0
	2.21E-05	2.21E-05	0	3.69E-05	3.69E-05	0	6E-05	6E-05	0
Lead	1.4E-05	1.4E-05	0	2.2E-05	2.2E-05	0	4.4E-05	4.4E-05	0
MgO	5.90E-05	6.03E-05	1.30E-06	6.99E-05	6.87E-05	2.00E-07	6.97E-05	7.1E-05	1.7E-06
Mercury (Inorganic)	1.3E-04	1.3E-04	0	1.2E-04	1.2E-04	0	1.9E-04	1.8E-04	0
Methyl Methane	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
Methylsulphonylketone	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
Methylstyrene	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
Nickel	7.75E-07	7.75E-07	0	6.18E-07	6.18E-07	0	1.79E-06	1.79E-06	0
NO _x (Background)	0.11	0.11	0	0.11	0.11	0	0.11	0.11	0
NO _x (No background)	0.052	0.052	0	0.067	0.067	0	0.044	0.044	0
NO ₂ (Background)	0.028	0.028	0	0.029	0.029	0	0.029	0.029	0
NO ₂ (No background)	0.0011	0.0011	0	0.0012	0.0012	0	0.0021	0.0021	0

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Table 10: Revised Comparison of Modelled Results for the 'Before Proposal' Case, 'After Proposal' Case and the Change Between Them (Receptors D-F)

Substance	Estimated Concentration (mg/m ³) at District Receptors						Criteria (mg/m ³)	Averaging Time	
	D			E					
	Before	After	Change	Before	After	Change			
PM ₁₀ (Background)	0.19	0.19	0	0.19	0.19	0	0.05	24 hours	
PM ₁₀ (No background)	6.9E-05	6.9E-05	0	9.9E-05	9.8E-05	0	2.4E-04	2.4E-04	0
PM ₁₀ (Background)	0.019	0.019	0	0.019	0.019	0	0.019	0.019	0
PM ₁₀ (No background)	6.7E-06	6.7E-06	0	1.1E-05	1.1E-05	0	2.2E-05	2.2E-05	0
Perchloroethylene	1.2E-05	1.2E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
Propylene Oxide	1.2E-05	1.2E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
PAHs	6.2E-07	6.9E-07	0	8.3E-07	8.3E-07	0	2.1E-05	2.1E-05	0
SO ₂ (Background)	0.047	0.047	0	0.047	0.047	0	0.048	0.048	0
SO ₂ (No background)	0.018	0.018	0	0.02	0.02	0	0.02	0.02	0
SO ₂ (Background)	0.03	0.03	0	0.03	0.03	0	0.03	0.03	0
SO ₂ (No background)	0.013	0.013	0	0.017	0.017	0	0.015	0.015	0
SO ₂ (Background)	0.012	0.012	0	0.013	0.013	0	0.013	0.013	0
SO ₂ (No background)	0.004	0.004	0	0.007	0.007	0	0.005	0.005	0
SO ₂ (Background)	0.003	0.003	0	0.003	0.003	0	0.003	0.003	0
SO ₂ (No background)	2.15E-04	2.15E-04	0	3.38E-04	3.38E-04	0	6.37E-04	6.37E-04	0
Sulphuric Acid	1.3E-03	1.3E-03	0	1.0E-03	1.0E-03	0	1.7E-03	1.7E-03	0
Styrene	1.5E-05	1.5E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
TSP (Background)	0.073	0.073	0	0.095	0.095	0	0.13	0.13	0
TSP (No Background)	0.036	0.036	0	0.057	0.057	0	0.095	0.095	0
TSP (Dust) Deposition	0.017	0.017	0	0.074	0.074	0	0.065	0.065	0
Toluene	0.017	0.017	0	0.074	0.074	0	0.065	0.065	0
	7.8E-03	7.8E-03	0	7.3E-03	7.3E-03	0	7.9E-03	7.9E-03	0
									0.36
									1 hour

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Table 10: Revised Comparison of Modelled Results for the "Before Proposal" Case, "After Proposal" Case, and the Change Between Them (Receptors D-F)

Substance	Estimated Concentration (mg/m ³) at Discrete Receptors						Criteria (mg/m ³)	Averaging Time	
	D			E					F
	Before	After	Change	Before	After	Change	Before	After	Change
Tetrachloroethylene	1.2E-05	1.0E-05	0	1.4E-05	1.4E-05	0	2.1E-05	2.1E-05	0
Xylenes	4.4E-05	4.4E-05	0	4.4E-05	4.4E-05	0	5.1E-05	5.1E-05	0

Notes: Some values are expressed in exponential form, 1.5x10⁻³ = 0.0015, while 1.5x10⁻⁵ = 0.0000015. A condensed expression of values in the format (mantissa)(exponent) is equivalent to (mantissa)(exponent). For example, 1E-3 = 1x10⁻³ = 0.001, so 1 is the mantissa and -3 is the exponent. Sometimes a zero is included in front of the exponent when it is less than 10, e.g. 1E-03. The added zero does not alter the meaning of the notation.