



ASSESSMENT REPORT

Tomago Aluminium Smelter Section 96(2) Modification – Proposed Increase in Production Rate

BACKGROUND

The Tomago Aluminium smelter (the smelter) is operated by the Tomago Aluminium Company (TAC), at Tomago in the Port Stephens local government area. The smelter has been operational since 1983 (see Figure 1), and manufactures aluminium ingots, billets and slabs with a production capacity of up to 530,000 tonnes per annum.

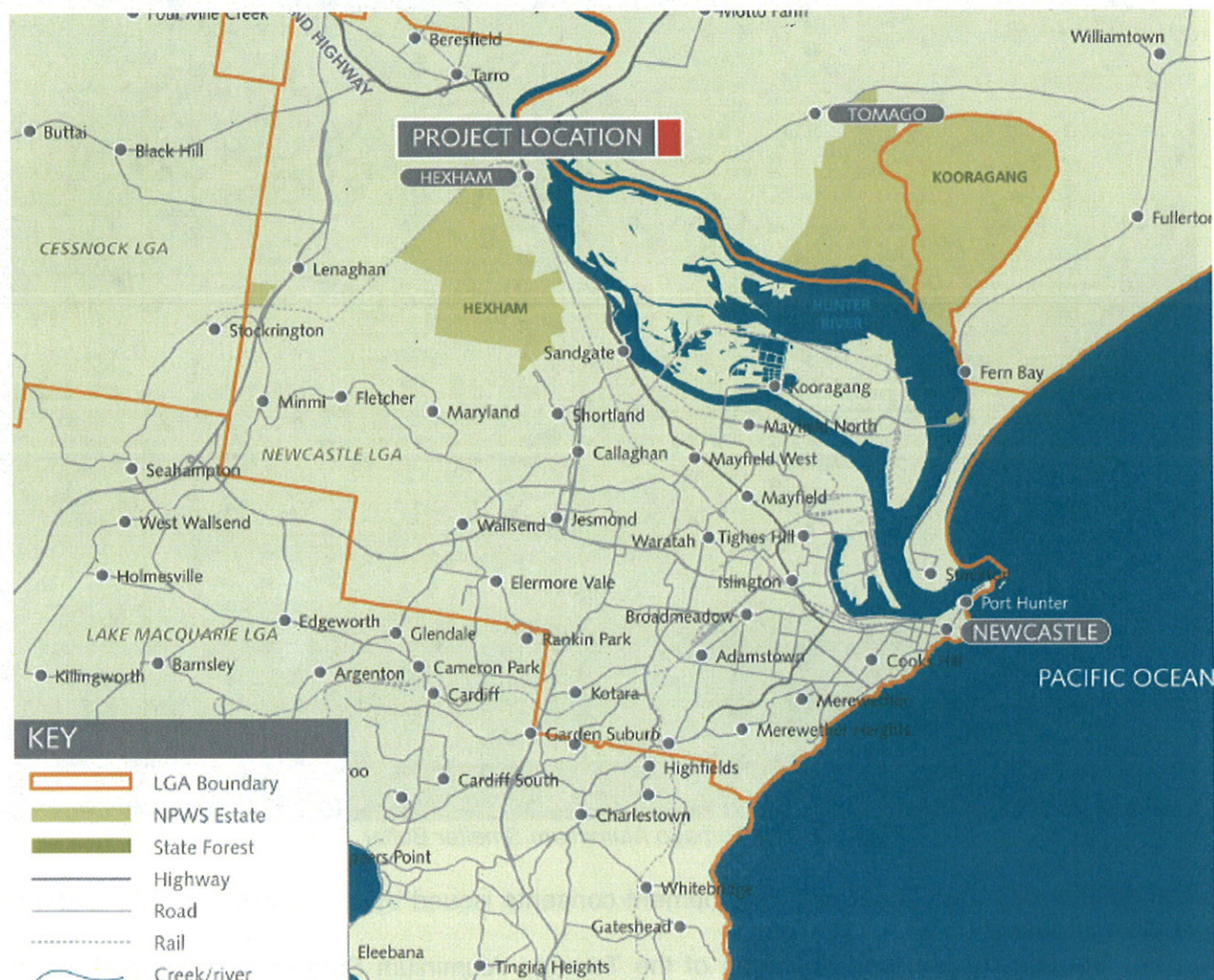


Figure 1: Site Location – Regional Context

The smelter site is approximately 110 hectares and is surrounded by a buffer area extending 4 kilometres around the site (See Figure 2). An increasing number of small to medium industrial facilities are also located adjacent to the plant. Nearby premises recently approved by the Minister

include the Tropic asphalt batching plant, the Sandvik mining equipment factory, Regain Services Spent Potliner Recycling Facility (within the grounds of the smelter) and the Redlake Enterprises Industrial Estate. Other nearby facilities and services include the Tomago Weekend Detention Centre (500m to the south), the Tomago Bowling Club (400m to the south-west) and the heritage listed Tomago House (1km to the south-east).

The closest resident is approximately 1.2km to the south east of the site at Tomago House (see Figure 2).

Other land uses in the locality include:

- the Hunter Botanic Gardens (approximately 2km north);
- the Tomago Sandbeds (a drinking water source); and
- the Tomago Village Caravan Park (approximately 1.5km to the west).

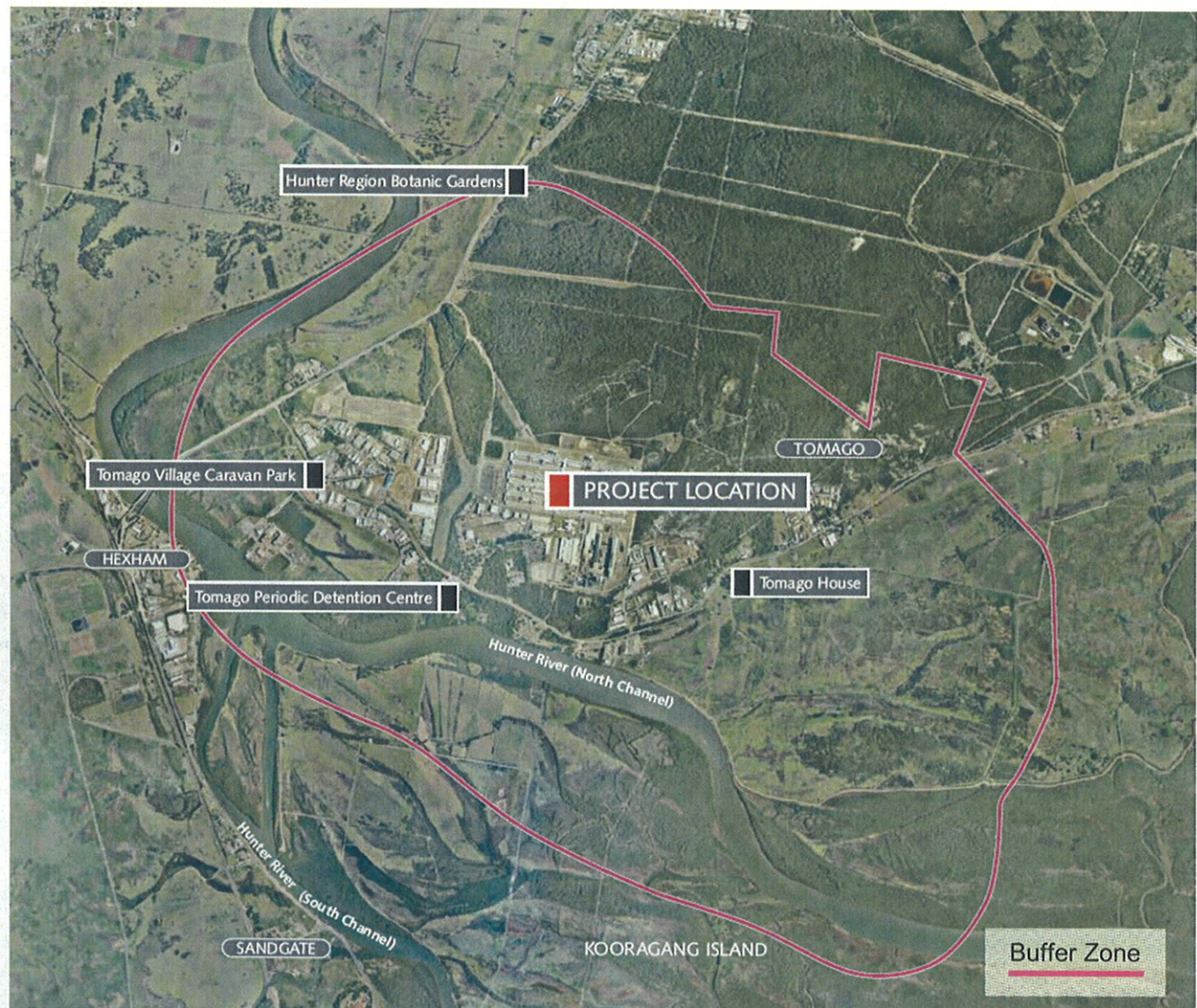


Figure 2: The Tomago Aluminium Smelter Buffer Zone

The smelter operates under two development consents issued by the Minister in 1981 and 1991 which authorised:

- the construction and operation of the Tomago Aluminium Smelter with two potlines and 480 pots with a total production capacity of up to 220,000 tonnes per annum of aluminium (on 6 March 1981); and
- an expansion of the Tomago Aluminium Smelter to 840 pots with a production capacity of 420,000 tonnes per annum. This was achieved through the construction of a third additional potline (on January 11 1991).

The original consents have since been modified in:

- February 1995, in relation to management of buffer zone properties; and
- August 2001, to increase the smelter's production capacity to 530,000 tonnes per annum by 2007.

The smelter currently produces approximately 530,000 tonnes of aluminium per year. Raw materials and product are dispatched via truck to and from the smelter via the Pacific Highway and Old Punt Road. These trucks are restricted to this transport route by the conditions of consent.

In order to meet the market demand for aluminium production and improve the operational efficiency of its facility TAC, is now seeking to further increase the current metal production capacity.

PROPOSED MODIFICATION

Increase Production

TAC is seeking to modify its existing consents to enable it to increase the production capacity of the smelter by 8.5%, from 530,000 to 575,000 tonnes per annum (tpa) of aluminium progressively by 2014.

TAC predicts that this increase in production would be mainly achieved by an incremental increase in amperage (strength of electrical current passed through the pots) from the existing level of 228 kiloamps (kA) to 245 kA over five years from 2009 to 2014.

The proposed production increase would result from refinements to the production process, and as such requires no expansion of existing infrastructure and no new structures on site.

Emergency Route

TAC also proposes to utilise an alternate transport route during emergency situations for the transfer of raw materials between storage silos on Kooragang Island and the TAC smelter. Under the existing conditions of consent, TAC is required to transfer raw materials via the Pacific Highway and Old Punt Road. At the time of the original application, this route was the only designated B-double route to the site from the Port. The modification seeks to use Tomago Road and the Stockton Bridge during these emergency situations (eg road closures or vehicular accident) on the existing approved route. The existing haulage route and the alternate haulage route are depicted in Figures 3 and 4.

As both the 1981 and 1991 consents apply to the smelter and proposed changes, TAC is applying to modify both consents.



Figure 3: Existing TAC smelter haulage route

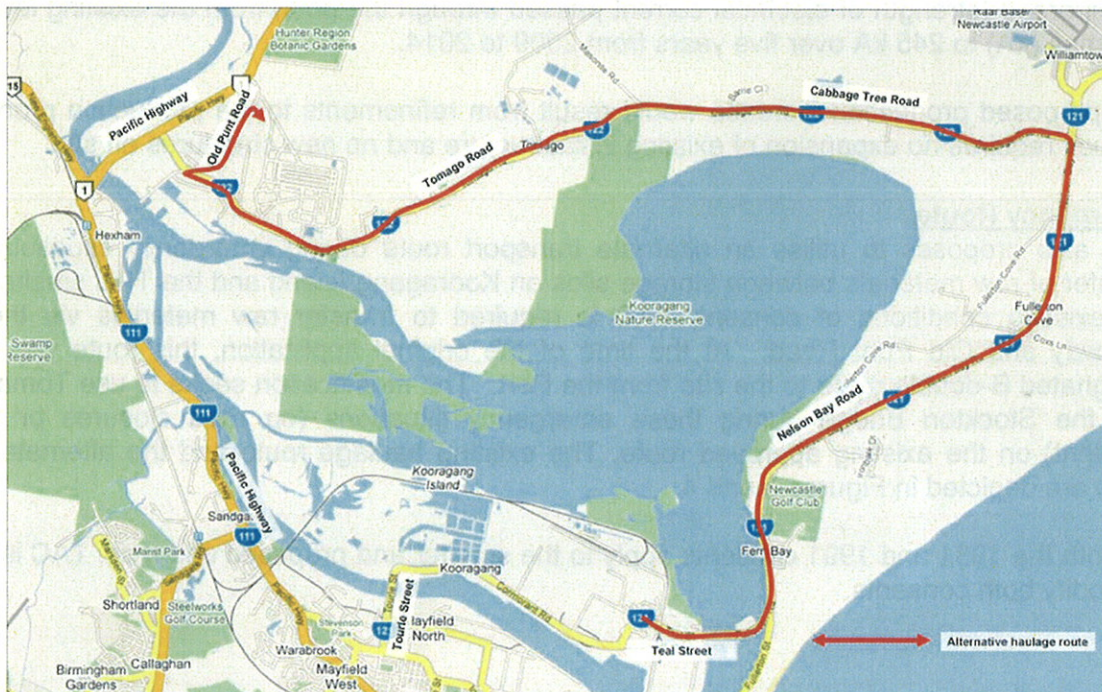


Figure 4: Proposed alternate TAC smelter haulage route

STATUTORY CONTEXT

Consent Authority

The Minister was the consent authority for the original development applications, and is consequently the consent authority for the modification application. However, the Executive Director, Major Project Assessments, may determine the application under the Minister's delegation of 4 March 2009.

Section 96

Under section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act), a consent authority may modify a development consent if:

"it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all)".

The Department has assessed the application, and is satisfied that the proposed modification is substantially the same development. The function and footprint of the smelter would remain unchanged as a result of the proposal as no additional infrastructure is required. The overall energy efficiency of the smelter is expected to improve as a result of the proposed modification and any environmental impacts are expected to be negligible. As such, the Department is satisfied that the consent as modified is substantially the same development.

CONSULTATION

After accepting the Statement of Environmental Effects (SEE) for the proposed modification, the Department:

- made it publicly available for a period of 16 days from 18 June until 3 July 2009 at:
 - the Department of Planning's Newcastle Office, Level 2, 26 Honeysuckle Dr, Newcastle, NSW;
 - the Department's Information Centre, 22-33 Bridge St, Sydney, NSW;
 - Port Stephens Council, 116 Adelaide St (Old Pacific Highway), Raymond Terrace; and
 - the Nature Conservation Council, Level 2, 301 Kent St, Sydney.
- notified relevant State government agencies by letter;
- notified the submitters of the original development applications; and
- advertised the exhibition in the Port Stephens Examiner and Newcastle Herald.

During the exhibition period, the Department received 10 submissions including:

- 8 submissions from public authorities (the Department of Environment and Climate Change (DECC, now known as DECCW), the Department of Water and Energy (DWE, now part of DECCW), the Department of Primary Industries (DPI, now known as the Department of Industry and Investment or DII), Newcastle Port Corporation, Hunter Water, Port Stephens Council, the Roads and Traffic Authority (RTA), NSW Fire Brigade (NSWFB); and
- 2 submissions from special interest groups (the NSW Nature Conservation Council and the Hunter Regional Botanic Gardens (HRBG)).

None of the agencies objected to the proposal. However, the DECCW noted the potential for air quality issues and exceedences in ground level criteria for sulphur dioxide and fluoride at sensitive receivers. DWE raised concerns about stormwater management and the potential for groundwater contamination and Port Stephens Council (council) noted the potential for increased energy consumption, increased greenhouse gas emissions, noise, air and water quality impacts.

Hunter Water requested more information regarding increased water usage estimates and the capacity of the existing water supply system to service the proposed increase in production.

The RTA, DPI, NSWFB and Newcastle Ports Corporation raised no specific concerns with the proposed development.

The Department notes that the smelter has been operating for nearly 30 years. Many of the issues raised by the public authorities concern the ongoing monitoring and management of the existing operations, rather than issues specific to this modification application.

None of the special interest groups objected to the proposal. However, the Nature Conservation Council of NSW requested that any increase in production capacity should include the incorporation of renewable energy as a source of power. The HRBG supported the proposal provided TAC continue to conduct regular monitoring and reporting of air emissions and notify HRBG immediately in the event of any rise in emission levels.

No submissions from the general public were received.

ASSESSMENT

The Department has assessed the application and submissions in accordance with the relevant requirements of the EP&A Act. The key issues for the proposed modification are discussed below.

Air Quality

The air quality impact assessment indicates that the primary emissions from the TAC smelter are Fluoride, Sulphur Dioxide (SO₂), Nitrogen Oxides (NO_x) and fine particulates. The main concerns resulting from the proposed modification is the potential increase in the levels of Fluoride and SO₂ emissions.

No additional air pollution emission point sources (stacks or roof vents) are required as part of the modification, however the proposed expansion would increase air emissions by around 8.5% which is in proportion to the increase in production. Total SO₂ emissions would increase from 9,565 to 10,379 tonnes per annum (tpa) (within the existing Environmental Protection Licence (EPL) Limit of 11,900 tpa) and Fluoride emissions would increase from 257 to 279 tpa (within the EPL limit of 298 tpa).

Despite remaining within the load limits specified in the EPL, modelling indicates the Ground Level Criteria (GLC) for SO₂ and Fluoride may be marginally exceeded at a number of sensitive receivers (such as the Caravan Park on Tomago Road, residences on School Drive and 'The Farm' monitoring station off Tomago Road).

The modelling suggests the GLC is already exceeded at 10 locations for SO₂ under existing conditions, and that the modification would result in marginal exceedences at 2 additional sensitive receivers (1 of which would be outside the TAC buffer zone). Modelling of Fluoride levels suggest the GLC is already exceeded at 22 locations, and that the modification would result in 3 additional exceedences (2 of which would be outside the TAC buffer zone).

It is important to note that the TAC has been monitoring air quality emissions from the smelter for many years and has not identified any exceedences of the limits within the existing EPL. Furthermore, measured emission concentrations are much lower than predicted by the modelling and with the exception of 'The Farm' monitoring site, do not exceed the GLC.

The DECCW raised concerns about these potential exceedences predicted by the modelling however acknowledged that the modelling was likely to be conservative. In order to confirm the GLC would not be exceeded, the DECCW has recommended conditions requiring the establishment of additional monitoring sites. The Department has incorporated the DECCW's recommendations into the recommended conditions of consent.

These conditions would require TAC to install three additional SO₂ monitoring sites, one to the south west of the site, one to the north west of the site as well as an additional monitoring site in the vicinity of the 'The Farm' monitor. TAC would also be required to undertake a comprehensive program to monitor, report and verify air quality for the proposed development including any contingency measures that would be implemented should monitoring identify any non-compliances/exceedences.

Additionally, the DECCW has requested that TAC implement a Pollution Reduction Program (PRP) for the smelter to undertake specific monitoring and reporting on SO₂ ground level concentrations. The PRP requires TAC to undertake monitoring between April 2010 to April 2013 and report on emissions by May 2013. In the meantime, should TAC identify any exceedences in ambient SO₂ ground level concentrations, they are required to notify the DECCW within 7 days of the exceedence being identified.

The Department considers that the expected increase in concentrations is relatively minor and unlikely to exceed as the modelling is conservative and exceedences have not occurred previously, despite increases in production capacity. The TAC buffer zone has been established for the purpose of managing air emissions and options to minimise and manage air pollutants should monitoring identify any exceedences have been addressed through recommended conditions of consent. In addition, the PRP imposed on TAC would also assist in ensuring that any SO₂ emissions are managed effectively.

The air quality impact assessment indicates that background PM₁₀ concentrations are already exceeding the DECC assessment criteria. Modelling indicates that background PM₁₀ concentrations are expected to increase 0.04 µgm³ as a result of the expansion. This is not considered to be significant and the Department deems this acceptable. All predicted concentrations of NO_x and other emissions were well below the regulatory limits.

Consequently, the Department is satisfied that the proposed expansion of the smelter would result in only a small increase in air emissions with emissions meeting the EPL limits. In addition, the recommended conditions of approval would require the total emission levels to be monitored and managed to ensure impacts are minimised and kept within the existing buffer zone. The Department is therefore satisfied that the impacts on air quality resulting from the proposed modification would be minimal.

Other Issues

Other issues raised during the assessment process and the Department's consideration of the issues are summarised in Table 1 below.

Table 1: Summary of Other Impacts

Issue	Consideration	Recommended Conditions of Consent
Energy Consumption and Greenhouse Gas (GHG) Emissions	<ul style="list-style-type: none"> Daily electricity use would increase from 880MW to 917MW (or approximately 4.2%) as a result of the proposed modification. The Nature Conservation Council did not object to the proposal, but has requested that any increase in production capacity should include the incorporation of renewable energy as a source of power. Port Stephens Council also noted that there had been no consideration of renewable energy as a source of power. Overall, a less than proportional increase in GHG emissions is expected from the proposed production increase due to future GHG savings projects and process efficiency gains that form part of this proposal. Energy consumption and GHG emissions have gradually increased since the commencement of operations with the increase in the smelters production capacity; however, energy efficiency and emission intensity per tonne of aluminum produced has improved since 1990. The proposed modification would improve the energy efficiency of the smelter by reducing electricity consumption by 5.9% per tonne of Aluminium produced. Additionally, TAC is involved in numerous government (State and Federal) programs aimed at abatement of GHG emissions. 	<ul style="list-style-type: none"> N/A

	<ul style="list-style-type: none"> The Department is therefore satisfied that this production increase would improve the energy efficiency of the smelter. 	
Water	<ul style="list-style-type: none"> The proposal has the potential to impact upon surface water and the regional groundwater supply system, in particular the Tomago Sandbeds Water Supply Works (Tomago Sandbeds), predominately through deposition of fluoride. The DWE raised some issues concerning groundwater contamination; however, concluded DWE has indicated that groundwater can be managed through recommended conditions of approval. The Department notes that groundwater fluoride levels would increase by 8.5% and DWE's concerns are primarily related to the existing operations, rather than this small increase in fluoride levels. Groundwater impacts are expected to be extremely localised, not affecting the quality of the regional groundwater system, and in particular the Tomago Sandbeds. Hunter Water did not raise any concerns with the proposal. Port Stephens Council raised concerns regarding the discharge of contaminated stormwater into the Hunter River and the effects this might have on local aquaculture industries. It is expected that process water use would increase proportionally to production increase (8.5%) but would be offset by general water saving initiatives currently being investigated by Tomago Aluminum. No change to the existing stormwater management system is required and increase in fluoride levels in stormwater as a result of the proposed modification is expected to be minimal. The Department is satisfied that water can be effectively managed on site through recommended conditions of consent. Furthermore, impacts on the Hunter River as a result of the proposed modification would be minimal. 	<ul style="list-style-type: none"> Recommended conditions of consent would require TAC to prepare an updated Water Management Plan for the site requiring: <ul style="list-style-type: none"> details of the stormwater, wastewater and irrigation management systems on site; a comprehensive program to monitor and report on regional groundwater quality, effluent discharge and irrigation areas on site; options to manage, minimise and control erosion, prevent water contamination and comply with surface water discharge limits; and contingency measures should monitoring indicate exceedences of the relevant criteria.
Traffic	<ul style="list-style-type: none"> A net increase of 36 truck movements to 454 per day is expected as a result of the proposed modification. Additionally, a net increase of 3 ships to 47 per year is expected at Newcastle Port for raw materials for the smelter. The Additional truck movements represent less than 0.5% of the existing traffic on all roads. An alternate transport route is also proposed for transfer of raw materials between storage silos on Kooragang Island and the TAC smelter, but would only be used in emergency situations (eg a road closure or vehicular accident). The RTA did not raise any concerns with the proposed alternate transport route. The Department is satisfied that the existing road network has sufficient capacity to accept the additional traffic without compromising traffic flows and safety. Furthermore, the alternate transport route proposed is suitable and would only be used for short periods in case of emergency. 	<ul style="list-style-type: none"> Recommended a condition of consent that would allow TAC to use Tomago Road as an approved transport route in case of unavoidable events such as a road closure or vehicular accident on the existing approved transport route.
Waste	<ul style="list-style-type: none"> The main wastes produced by the TAC smelter include Spent Pot Lining (SPL), Dross, Refractory Bricks and Fluorinated Wastes. It is expected that the rate of SPL waste generated would remain at the current level of 8,000 – 10,000 tonnes per annum. The proposed production capacity increase would be achieved through advances in technology and requires no change to the number or size of existing pots. However, the concentration of contaminants in the SPL is 	<ul style="list-style-type: none"> Recommended a condition of consent that would require TAC to prepare a revised Waste Management Plan for the site.

	<p>expected to increase slightly. The proponent has advised that this can be handled in the SPL recycling process.</p> <ul style="list-style-type: none"> • It is anticipated that 100 per cent of Dross and Refractory Brick Waste would continue to be recycled despite the proposed production capacity increase. • TAC smelter has significantly reduced the quantity of waste generated by the facility since the original development consent. • The Department is therefore satisfied that any increase in waste generated by the proposal would be minimal. 	
Flora and Fauna	<ul style="list-style-type: none"> • Fluoride emissions from the smelter have the potential to impact on surrounding vegetation. • Fluoride emissions are expected to increase proportionally (8.5%) but are expected to remain within existing fluoride emission limits (298 tonnes per annum). • Air quality monitoring indicates that predicted fluoride exceedences would be predominately contained within the existing vegetation buffer zone (see Figure 2), and consequently, no long term impacts on the environment beyond the TAC smelter buffer zone are expected. • Impacts on flora and fauna due to fluoride emissions would continue to be monitored. • The Department is therefore satisfied that the proposed modification would not significantly change the developments existing impacts on flora and fauna. 	<ul style="list-style-type: none"> • Recommended a condition of consent that would require TAC to prepare a Flora and Fauna Monitoring Plan for the site.
Noise	<ul style="list-style-type: none"> • Current recorded noise levels at the three survey sites are similar to what they were in 1997/1999 despite a production increase of over 90,000 tonnes of aluminum since then. Therefore, no increase in noise is expected as a result of the proposed production increase. • The Department is therefore satisfied that noise generated as a result of the proposed modification would be minimal. 	<ul style="list-style-type: none"> • Recommended conditions of consent would require TAC to conduct pre and post modification noise monitoring surveys to ensure noise from the facility is effectively managed.

RECOMMENDED CONDITIONS

The Department has reviewed the existing consent for the operations and has drafted recommended conditions for the proposed modification. TAC has accepted these conditions.

CONCLUSION

The Department has assessed the application in accordance with the requirements in section 79C of the EP&A Act, and is satisfied that:

- The development as modified would remain consistent with the aims, objectives and requirements of the relevant environmental planning instruments;
- The proposal would have minimal environmental impacts and result in a lower greenhouse gas emissions intensity per tonne of aluminium produced;
- The site is suitable for the development; and
- The proposal is generally in the public interest.

The Department's assessment found that the modification would facilitate the continued operation of the smelter, which is a significant industry in the region and NSW.

The proposal is unlikely to result in any significant environmental impacts. The smelter has been in operation for nearly 30 years. Many of the issues raised concern the ongoing monitoring and management of the existing operations, rather than the minor modification proposed to the development.

Consequently, the Department is satisfied that the proposed modification should be approved.

RECOMMENDATION

It is recommended that the Executive Director Major Project Assessments, as delegate of the Minister:

- consider the findings and recommendations of this report;
- determine that the development to which the consent, as modified, relates is substantially the same development for which consent was originally granted;
- approve the proposed modification under section 96(2) of the EP&A Act; and
- sign the attached notice of modification.

Andrew Hartcher
Environmental Planning Officer



Chris Ritchie
**Manager - Industry
Mining and Industry**

6/12/09



Chris Wilson
**Executive Director
Major Project Assessments**

7.12.09



Planning

APPENDIX 1 STATUTORY CONSIDERATION - SECTION 96 (2) OF EP&A ACT

Under section 96(2) of the EP&A Act, a consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if:

Provision	Comment
a) it is satisfied that the proposed modification is of minimal environment impact.	Complies (refer to Section 5 above).
b) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all).	Complies (refer to Section 3 above).
c) it has notified the application in accordance with: <ul style="list-style-type: none"> i) the regulations, if the regulations so require, or ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent. 	Complies (refer to Section 4 above).
d) it has considered any submissions made concerning the proposed modification within any period prescribed by the regulations or provided by the development control plan, as the case may be.	Complies (refer to Section 4 above).

In determining an application for modification of a consent under this section, the consent authority must take into consideration such of the matters referred to in section 79C(1) as are of relevance to the development which is the subject of the application:

Provision	Comment
a) the provisions of: <ul style="list-style-type: none"> i) any environmental planning instrument, and ii) any draft environmental planning instrument that is or has been placed on public exhibition and details of which have been notified to the consent authority (unless the Director-General has notified the consent authority that the making of the draft instrument has been deferred indefinitely or has not been approved), and iii) any development control plan, and iiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and iv) the regulations (to the extent that they prescribe matters for the purpose of this paragraph: <ul style="list-style-type: none"> • in the case of a development application for the carrying out of development in a local government area referred to in section 92 of the EP&A Regulation and on land to which the Government Coastal Policy applies, the provisions of that Policy, • in the case of a development application for the demolition of a building, the provisions of AS 2601. 	<p>The following environmental planning instruments (EPIs) apply to the proposed modification:</p> <ul style="list-style-type: none"> • <i>Environmental Planning and Assessment Act, 1979;</i> • <i>State Environmental Planning Policy (Major Development);</i> • <i>State Environmental Planning Policy (SEPP) 14 – Coastal Wetlands;</i> • <i>SEPP 33 – Hazardous and Offensive Development;</i> • <i>SEPP 44 – Koala Habitat Protection;</i> • <i>SEPP 55 – Remediation of Land;</i> • <i>Protection of the Environment Operations Act, 1997;</i> • <i>Hunter Regional Environmental Plan, 1989;</i> • <i>Lower Hunter Regional Strategy, 2006;</i> • <i>Hunter Water (Special Areas) Regulation, 2003;</i> • <i>Port Stephens Local Environmental Plan (LEP), 2000; and</i> • <i>Port Stephens Council Development Control Plan (DCP), 2007.</i> <p>The proposed modification is not inconsistent with these EPIs.</p>

b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality.	Refer to Section 5 above.
c) the suitability of the site for the development.	The site remains suitable for the proposed development.
d) any submissions made in accordance with this Act or the regulations.	Not applicable.
e) the public interest.	The proposed modification is generally in the public interest as it would facilitate the operation of the facility with minimal changes to the environmental impacts of the approved development.