



NSW GOVERNMENT  
**Department of Planning**

## ***ENVIRONMENTAL ASSESSMENT: BlueScope Steel Cogeneration Plant Port Kembla Steelworks***



Director-General's  
Environmental Assessment Report  
Section 75W of the  
*Environmental Planning and Assessment Act 1979*

December 2008

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## EXECUTIVE SUMMARY

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BlueScope Steel Limited (AIS) Pty Ltd (BlueScope) proposes to modify its development consent for a new 225 megawatt cogeneration plant and associated infrastructure at the Port Kembla Steelworks (Steelworks).

The cogeneration plant was approved by Wollongong City Council in 2002 to capture by-product gasses, to enable the Steelworks to become self sufficient in its electricity needs, through utilising steelmaking by-product gasses for electricity generation.

BlueScope has commenced the construction of the plant, however it is substantially unconstructed. Due to various operational changes within the Steelworks since 2002, BlueScope now proposes to modify some aspects of the cogeneration plant.

The project has a capital cost of \$750 million, and would employ up to 300 workers during construction and up to 30 workers during operation.

During the exhibition period, the Department received eight submissions on the proposed modification, all from public authorities. None of these submissions objected to the proposed modification, however Council and the Port Kembla Port Corporation raised some issues concerning aquatic ecology, water quality, and air quality.

The Department has assessed the merits of the proposed modification in detail, and has sought the advice of an independent aquatic ecology expert to review the aquatic ecology impacts associated with the proposal.

Following this assessment, the Department is satisfied that the environmental impacts of the proposal can be mitigated and/or managed to ensure an acceptable level of environmental performance.

With regards to aquatic ecology, the Department has recommended a number of conditions that would require BlueScope to verify predictions made in the Environmental Assessment, comply with the project specific saltwater intake and discharge limits, monitor the ongoing performance of the cogeneration plant and implement contingency measures if subsequent monitoring shows that the project is having adverse effect on the aquatic ecology. With the implementation of these measures, the Department is satisfied that the proposal would maintain the aquatic ecology values of the Port Kembla Harbour and Allans Creek.

Importantly, the Department recognises that the project would assist with the delivery of the State Plan, and the *South Coast* and the *Illawarra Regional Strategies*, as the site is located within the strategies' designated employment lands and would employ 300 workers during construction and 30 workers during operation. The Project would also reduce the greenhouse gas emissions of the Steelworks by up to 880,000 tonnes of carbon dioxide equivalent per year, making the cogeneration plant one of the single biggest greenhouse gas emission reduction projects in Australia.

On balance, the Department is satisfied that the benefits of the proposal outweigh its residual costs, and that it is in the public interest and should be approved subject to strict conditions.

# 1. PROPOSED DEVELOPMENT

## 1.1 Background

BlueScope Steel Limited (AIS) Pty Ltd (BlueScope) operates the Port Kembla Steelworks (Steelworks), approximately 10 kilometres south of Sydney, in the Wollongong local government area (refer to Figure 1).

The Steelworks are located on around 742 hectares of land adjacent to the Port Kembla Harbour and some residential suburbs (see Figure 1). Due to the industrial nature of the Steelworks, the Port Kembla Harbour has been highly modified to support the industrial uses, with various port related infrastructure, some discharges into the waterway and stormwater flows entering the Port.

The Steelworks' iron and steelmaking processes result in the generation of combustible by-product gases, including blast furnace gas (BFG) and coke oven gas (COG), which currently satisfy approximately 15 percent of the Steelworks' power needs, and Basic Oxygen Steelmaking (BOS) off-gas, which is currently flared to atmosphere.



Figure 1: Location of proposed cogeneration plant

On 9 August 2002, Wollongong City Council (Council) approved a new 225 megawatt (MW) cogeneration plant and associated infrastructure under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in order to utilise these by-product gases to enable the Steelworks to become electricity self sufficient. BlueScope commenced construction, however the plant remains substantially unconstructed.

## 1.2 Proposed Project

BlueScope proposes to modify the approved project as a result of various onsite operational changes since the project was approved in 2002. The key change involves a change to the cooling system for the plant. The plant as approved proposed to use treated effluent from the Wollongong Sewage Treatment Plant as feed water for the plant. BlueScope now proposes to adopt a saltwater cooling system, using seawater from Port Kembla Harbour, to reduce reliance on fresh and recycled water supplies. The major components of the approved versus proposed development are summarised in Table 1, illustrated in Figures 2 and 3 respectively, and detailed in the Environmental Assessment (EA) for the project (see Appendix E).

Table 1: Major Components of the Approved versus Modified Development

| Approved Development   | Proposed Development  |
|--|---|
| 225MW capacity   | 225MW capacity  |
| 4 new boilers  | 3 new boilers and reuse of an existing boiler No. 25  |
| BOS off-gas collection system including a gas holder (70m x 40m)   | BOS off-gas collection system including a relocated and enlarged gas holder (65m x 65m)   |
| A cooling tower system using tertiary treated effluent from the Wollongong Sewage Treatment Plant as feed water                        | A cooling tower system using saltwater from the Port Kembla Inner Harbour and discharging spent cooling water back into Allans Creek  |
| Southern and northern construction laydown areas off Christy Drive and off Springhill road respectively                                | Relocation of both construction laydown areas to the west of Springhill Road  |
| A high voltage substation north of Five Islands Road and transmission lines from the cogeneration plant to the high voltage substation | Relocation of the high voltage substation to the east of Springhill Road at Area 18 and transmission lines from the cogeneration plant to the high voltage substation to the existing Integral substation off Five Islands Road |



Figure 2: Approved Project Layout

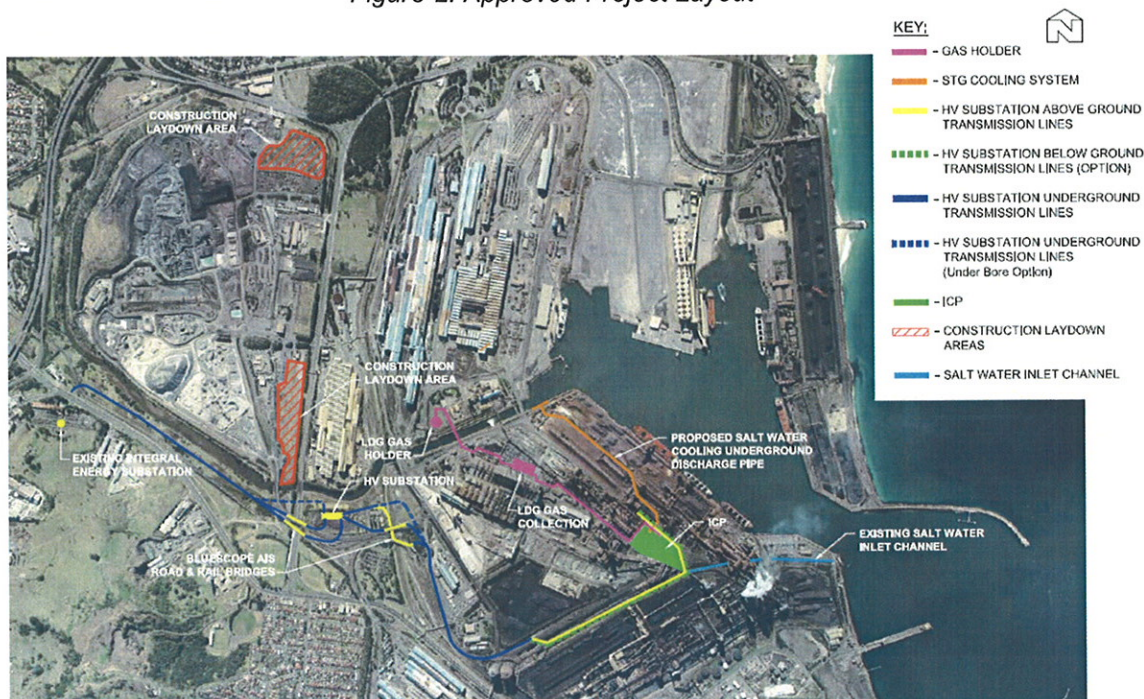


Figure 3: Proposed Project Layout

The project has a capital value of \$750 million and it would employ 300 workers during construction and 30 workers during operation. It would be constructed over a period of 39 months and once operational it would result in a reduction of approximately 880,000 tonnes of carbon dioxide equivalent (CO<sub>2-e</sub>) per year.

## **1.2 Project Need and Justification**

BlueScope proposes to modify the development consent for the cogeneration plant approved by the Council in 2002 due to a number of operational changes within the Steelworks, including:

- a \$14 million upgrade to the existing No. 25 Boiler;
- reduced availability of COG due to its use elsewhere within the Steelworks;
- BlueScope's commitment to reduce dam water consumption;
- changes in NSW State Government policy for water and energy conservation, and regional air quality goals; and
- an agreement between BlueScope and the NSW Government of 16 November 2006 to reduce greenhouse gas (GHG) emissions, application of the NSW GHG Abatement Scheme for the project, and consequences arising from the potential introduction of a state based emissions trading scheme.

Additionally, once operational, the cogeneration plant would not only ensure Steelworks' electricity self sufficiency, but it will also result in a number of other benefits, including:

- reduction of approximately 880,000 tonnes of carbon dioxide equivalent (CO<sub>2-e</sub>) per year, making the cogeneration plant one of the single biggest GHG emission reduction projects in Australia;
- improvement in visual amenity due to reduced flaring;
- attraction of a capital investment of \$750 million; and
- employment of 300 workers during construction and 30 workers during operation.

## **1.4 State Plan and South Coast and the Illawarra Regional Strategies**

The project is consistent with the goals and priorities of the State Plan, and in particular priorities P1 (increased business investment), P6 (increased business investment in rural and regional NSW), E3 (cleaner air and progress on greenhouse gas reductions) and E5 (jobs closer to home).

The project is also consistent with the goals and priorities of the *South Coast* and the *Illawarra Regional Strategies*, as the site is located within the strategies' designated employment lands which aim to maximise community access to services and employment opportunities.

## **1.3 Alternatives to the Proposal**

BlueScope considered a number of alternative design options, specifically for the:

- layout of the cogeneration plant and associated infrastructure; and
- design and maintenance of the water cooling system.

The modified layout of the cogeneration plant and associated infrastructure was selected based on available space and integration of the facility into the overall Steelworks site.

A salt water cooling system was selected for the modified proposal to reduce reliance on fresh and recycled water. The location of the water discharge point at Allans Creek was selected to reduce interactions with other site services, avoid re-circulation of heated water in the system, and allow tidal dispersion with minimal risk of sediment disturbance and erosion. A 30m long discharge device was selected, as it would promote the mixing of the spent cooling water through the water column and result in the most limited impacts on Allans Creek. BlueScope has selected a combination of methods to control macro-fouling in the salt water cooling system, including mechanical screens and filters, physical cleaning, and a recirculated thermal treatment, with intermittent doses of a chemical agent, Clamtrol II, if required.

## 2. STATUTORY CONTEXT

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### 2.1 Assessment Process

Under clause 8J(8)(b) of the *Environmental Planning and Assessment Regulation 2000*, a development consent in force immediately before the commencement of Part 3A of the EP&A Act may be modified under section 75W of the EP&A Act as if the consent were an approval under Part 3A, but only if:

- a) *the consent was granted with respect to development that would be project to which Part 3A of the Act applies but for the operation of clause 6(2)(a) of State Environmental Planning Policy (Major Projects) 2005, and*
- b) *the Minister approves of the development consent being treated as an approval for the purposes of section 75W of the Act.*

On 30 November 2007, the then Minister for Planning, the Hon. Frank Sartor, MP granted his approval for the cogeneration plant to be treated as an approval under Part 3A of the EP&A Act so that the consent could be modified under Section 75W of the EP&A Act.

This decision made the Minister, as opposed to Wollongong Council, the approval authority for the proposed modification to the development consent.

Nevertheless, Clause 8J(8) stipulates that the modified consent will remain a consent under Part 4 of the Act with Wollongong City Council remaining the consent authority.

### 2.2 Permissibility

The approved and modified cogeneration plant site location is zoned 4 (b) Industrial under the *Wollongong Local Environment Plan 1990* and is permissible with consent in this zone.

Consequently, the Minister may approve the project.

### 2.3 Exhibition

The Director-General is not required to publically exhibit modification application under Section 75W of the EP&A Act. However, given the significance of the proposed modifications, the Department:

- made it publicly available from Tuesday 22 July 2008 until Friday 22 August 2008:
  - on the Department's website;
  - at the Department's Information Centre;
  - at the Wollongong City Council's Offices; and
  - at the Nature Conservation Council Offices in Sydney.
- notified relevant State government authorities and Wollongong City Council by letter;
- notified landowners in the vicinity of the site about the exhibition period by letter; and
- advertised the exhibition period in the Illawarra Mercury.

During the assessment process the Department also made a number of documents available for download on the Department's website. These documents included the:

- project application;
- Director General's requirements for the environmental assessment of the project; and
- EA.

### 2.4 Environmental Planning Instruments

Under Section 75I of the EP&A Act, the Director-General's report is to include a copy of or reference to the provisions of any *State Environmental Planning Policy* (SEPP) that substantially govern the carrying out of the modified development.

While this provision does not automatically apply to the proposed modification, the Department has assessed the proposal against the relevant provisions of several environmental planning instruments and is satisfied that none of these SEPPs substantially govern the carrying out of the modified development (see Appendix F).

## **2.5 Objects of the Environmental Planning and Assessment Act, 1979**

The Minister's consideration and determination of the application must be consistent with the relevant provisions of the EP&A Act, including the objects set out in the Act's section 5. The objects of most relevance to the Minister's decision on whether or not to approve the proposed modifications are found in section 5(a)(i), (ii), (vi) and (vii). They are:

*'The objects of this Act are:*

- (a) to encourage:*
  - (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
  - (ii) the promotion and co-ordination of the orderly and economic use and development of land,*
  - (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
  - (vii) ecologically sustainable development".*

The Department has fully considered the objects of the EP&A Act, including the encouragement of ESD, in its assessment of the application. The assessment integrates all significant economic and environmental considerations and seeks to avoid any potential serious or irreversible damage to the environment, based on an assessment of risk-weighted consequences. BlueScope has undertaken an environmental risk analysis of the project, and considered the project in the light of the principles of ESD.

## **2.6 Statement of Compliance**

Under Section 75I of the EP&A Act, the Director-General's report is required to include a statement relating to compliance with the environmental assessment requirements for the project.

While this provision does not automatically apply to the proposed modification, the Department is satisfied that the environmental assessment requirements have been complied with.

# **3. ISSUES RAISED IN SUBMISSIONS**

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During the exhibition period, the Department received eight submissions on the proposal (see Appendix C), all from public authorities (Department of Environment and Climate Change [DECC], the Department of Primary Industries [Fisheries], the Department of Water and Energy, Wollongong City Council [Council], Roads and Traffic Authority, NSW Fire Brigades, Port Kembla Port Corporation [PKPC]), and Rail Corporation New South Wales). No submissions were received from the general public.

None of these submissions objected to the project.

Nevertheless, the DECC raised issues concerning the potential impacts from slat water cooling discharges on aquatic ecology and water quality, and both Council and the PKPC raised issues about water quality, bioaccumulation of pollutants in sediment, impacts on aquatic ecology, and air quality, including impacts from sulphur dioxide on the surface of cargo.

The Department has considered these concerns carefully during its assessment of the project (see Section 4), and where necessary, recommended conditions of approval to address any residual concerns. It has also incorporated the general recommendations of the various agencies into the recommended conditions of approval.

## **4. ASSESSMENT**

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The Department has assessed the project, in accordance with the requirements of Clause 8B of the *Environmental Planning and Assessment Regulation 2000*, and considers the key issues to be water quality and aquatic ecology, and air quality. Consideration of impacts is presented below.

### **4.1 Water Quality and Aquatic Ecology**

BlueScope proposes to replace the approved cooling tower system using tertiary treated effluent (TTE) from the Wollongong Sewage Treatment Plant as feed water with a cooling tower system using saltwater from the Port Kembla Inner Harbour and discharging spent cooling water back into Allans Creek (refer to Figure 3).

BlueScope proposes to extract up to 60,000m<sup>3</sup> per hour of salt water from Port Kembla Harbour via its existing salt water channel to use as cooling water in the cogeneration plant before discharging it into Allan's Creek. The use of this salt water would introduce aquatic plants, algae and macro-organisms, into the cooling system causing restrictions within the cooling pipes, reducing coolant flow and efficiencies within the plant. BlueScope proposes to control this macro-fouling by a process of thermal treatment whereby salt water would be superheated to remove this growth by recirculating it through the system periodically for 4-8 hours before discharging it into Allans Creek, at a maximum flow rate of 2.78 cubic metres per second during summer maximum heat load conditions, with a maximum outlet temperature of 40 degrees Celsius (°C).

If required, BlueScope also proposes to supplement thermal macro-fouling treatment with the chemical agent Clamtrol II whereby the steam turbine generator condenser would be dosed at a rate of 1 milligram per litre periodically for a period of 24 hours.

This proposed saltwater cooling system would result in the discharge of thermal effluent and chemical contaminant (Clamtrol II) in the Port Kembla Harbour, and entrainment and subsequent mortality of plankton in the intake water. These issues are assessed in detail below. The Department's assessment also included a specialist advice on aquatic ecology (see Appendix D).

### **Additional Heat Load**

In 2006, BlueScope undertook an initial assessment to determine whether the salt water cooling system will impact on the aquatic ecology and water quality of Allans Creek and Port Kembla Harbour. The assessment included a desk top study, a literature review of the aquatic ecology of Port Kembla Harbour and modelling stipulated by the DECC in accordance with the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (2000). This assessment found that the Port Kembla harbour is a highly modified estuary. Additionally, the assessment predicted there is unlikely to be an impact on aquatic ecology if the water temperature is kept below 3°C, whereas some potential changes in species abundance and changes to the composition of the species assemblages may be detectable for temperature increases above 3°C. As a result of that assessment, BlueScope designed the discharge device for the salt water cooling system to ensure water temperature in Allans Creek does not rise above 3°C.

BlueScope has verified this initial assessment in the EA by modelling a variety of scenarios relating to discharge and increases in water temperatures, namely:

- pre-cogeneration plant summer and winter average heat loads;
- post- cogeneration plant summer and winter typical loads; and

- post- cogeneration plant summer maximum heat loads.

Temperature modelling of surface, middle and the bottom layers of the water column was undertaken at six locations in Port Kembla Harbour and Allan's Creek (refer to Figure 4).

The modelling results concluded that:

- water temperature would increase over 3°C in an initial mixing zone of 30m-40m around the discharge point (Allans Creek), in the top water column layer, however it would rapidly decrease beyond this point;
- a maximum increase of 2.6°C in water temperature would occur at location 22,67 (approximately 50m from the discharge point, see Figure 4) during the post-cogeneration plant summer maximum heat load scenario; and
- an increase of less than 1°C in water temperature would occur at all six modelled locations during the post-cogeneration plant typical summer and winter scenarios (see Figure 4).

Nevertheless, both Council and PKPC raised concerns regarding the uncertainties about actual ecological impacts. Additionally, PRPC raised concerns regarding the uncertainties on the effects of temperature increase on the bioavailability of contaminants. The DECC noted that current knowledge on the impacts of temperature increase on the bioavailability of contaminants is limited, however, additional studies on this matter would have limited value.

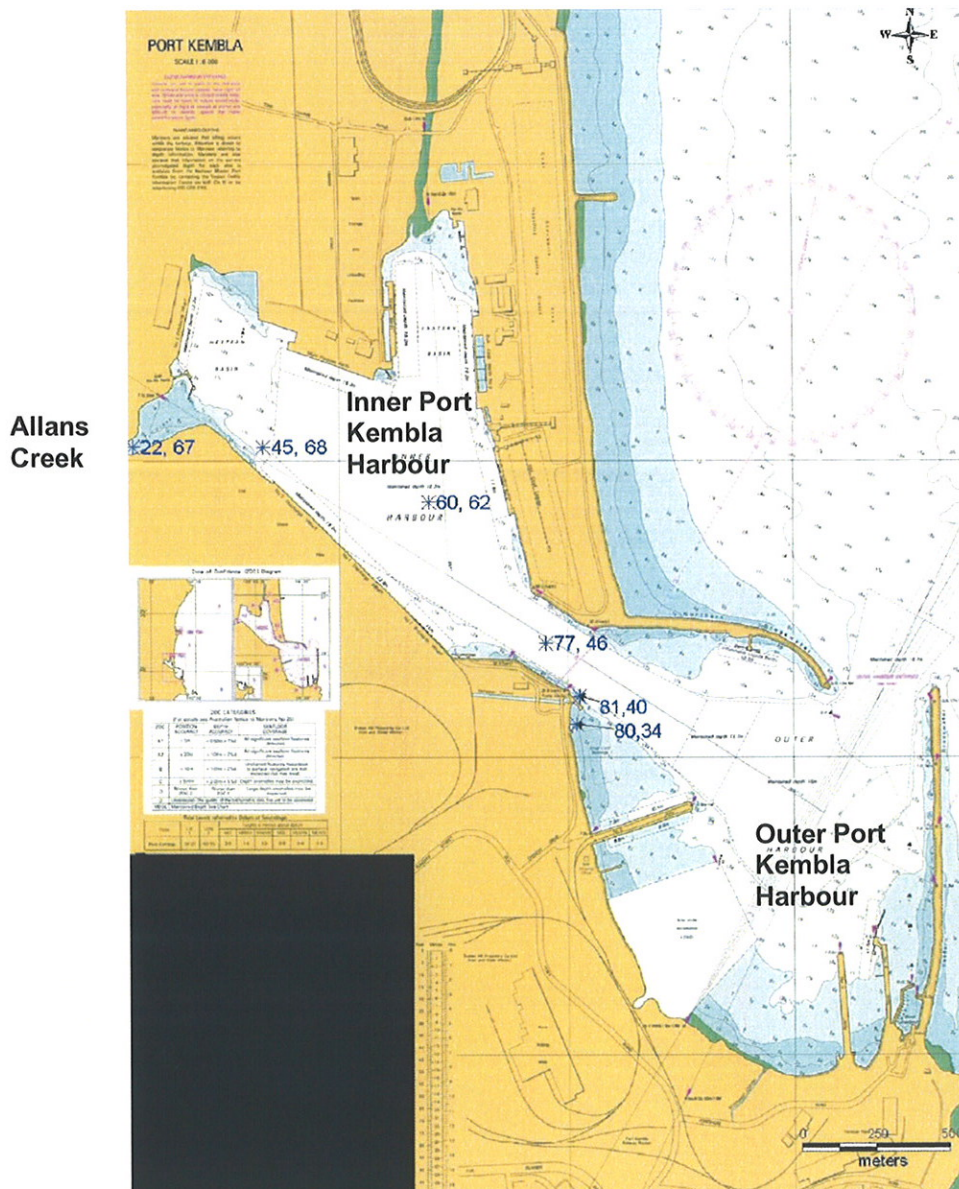


Figure 4: Temperature modelling locations

Whilst, there is still some uncertainty regarding actual ecological impacts due to the ambient water temperature above 3°C, both the Department and the DECC agree that the proposal is unlikely to result in increases in the ambient water temperature above 3°C, outside the initial mixing zone, and that impacts on aquatic ecology and water quality are therefore unlikely provided:

- a pre and post commissioning field study is undertaken to validate predictions in the EA;
- verification of thermal macro-fouling system effectiveness in removing macro-fouling organisms is undertaken prior to construction commencing;
- ongoing monitoring of the cooling discharge water temperature is undertaken; and
- the project specific cooling discharge water temperature limits are complied with.

These requirements have therefore been included in the recommended conditions of consent.

Additionally, the Department considers that there is a range of contingency measures that could be implemented, such as the implementation of a more effective heat dissipation structure, to improve the saltwater cooling system if subsequent monitoring shows that it is having adverse effect on either the water quality or the aquatic ecology.

### **Macro-fouling Control (Clamtrol II)**

BlueScope assessed the potential impacts associated with the use of Clamtrol II as a supplement to thermal micro-fouling control which indicated that its use would be effective in controlling macro-fouling and that impacts are unlikely, based on its current use in No. 1 Power House and No. 2 Blower Station.

Both the Department and DECC consider that even though there is a level of uncertainty about ecological impacts of Clamtrol II and its effectiveness in controlling macro-fouling, these impacts can be limited provided:

- ongoing monitoring of the concentration of Clamtrol II at the cooling water discharge point is undertaken; and
- the project specific Clamtrol II discharge limit is complied with.

These requirements have therefore been included in the recommended conditions of consent.

Additionally, the Department considers that there is a range of contingency measures that could be implemented, such as varying Clamtrol II dosing and frequency rates and coordinating dosing timing with other approved dosing points on the site, or using an alternative chemical agent, to improve the saltwater cooling system if subsequent monitoring shows that the use Clamtrol II is having adverse effect on either the water quality or the aquatic ecology.

### **Plankton Entrainment**

BlueScope undertook an assessment to determine the impact on plankton and flow on effect on the aquatic ecology due to its entrainment and subsequent mortality due to proposed salt water cooling system. Whilst the assessment identified uncertainties regarding the rate and the likelihood of entrainment, a 100 percent mortality rate of plankton entrained into the system was assumed, as requested by DECC.

The Department considers that the assumed plankton mortality rate of 100 percent in the EA is a reasonable and conservative approach and is consistent with application of the precautionary principle. Both the Department and the DECC consider that there is an uncertainty about the ecological impact on Port Kembla Harbour from the plankton entrainment and subsequent mortality, however potential impacts can be managed provided:

- a pre and post commissioning field study is undertaken to validate findings in the EA; and
- mitigation measures are developed and implemented, if required.

The requirement for a pre and post commissioning field study has therefore been included in the recommended conditions of consent.

Additionally, the Department considers that there is a range of contingency measures that could be implemented, such as varying the depth of the saltwater intake to minimise plankton entrainment, if subsequent monitoring shows that the proposed salt water cooling system is having adverse effect on the aquatic ecology due to its entrainment and subsequent mortality.

With these measures in place, the Department is satisfied that potential impacts associated with discharge of thermal effluent and chemical contaminant (Clamtrol II) in the Port Kembla Harbour, and entrainment and subsequent mortality of plankton in the intake water would be adequately managed to ensure an acceptable level of environmental performance.

## **4.2 Air Quality**

Due to the various design changes (i.e. boiler and BOS off-gas collection system), BlueScope revised the original air quality assessment. The assessment included modelling of 7 different operating scenarios, in consultation with DECC, based on frequency of occurrence and magnitude of mass emission rates, using CALPUFF dispersion modelling, to compare the pre and post cogeneration plant emissions. The assessment predicted that the most significant emissions from the cogeneration plant are nitrogen dioxide (NO<sub>2</sub>), particulate matter less than 10µm (PM<sub>10</sub>) and sulphur dioxide (SO<sub>2</sub>).

The assessment concluded that whilst DECC's criteria for NO<sub>2</sub> and PM<sub>10</sub> would be met for all operating scenarios, the one hour SO<sub>2</sub> ground level concentration (GLC) criteria was exceeded at two offsite locations for one of the modelled operating scenarios (scenario 34). As BlueScope has committed to exclude this operating scenario from operation, DECC is satisfied that the one hour SO<sub>2</sub> GLC criteria could be met. All other emissions, including air toxics, metals sulfuric acid mist and hydrochloric acid emissions are predicted to be within the relevant air quality criteria.

Both Council and PKPC raised concerns regarding the SO<sub>2</sub> emissions and associated impacts. Council also raised concerns that load based SO<sub>2</sub>, and coarse and fine particulates emission limits had not been included in DECC's recommended general terms of approval. The DECC has advised that the load based emission limits for SO<sub>2</sub>, and coarse and fine particulates were originally required to distinguish between the two proponents, BlueScope and the then Duke Energy, which at the time required two separate EPLs. This is no longer relevant as BlueScope is the sole proponent for the proposed modification. In its assessment, DECC has considered the cogeneration plant as part of the existing EPL for the site and is satisfied that the relevant emission criteria can be met. Nevertheless, BlueScope will be required to demonstrate this through an Air Quality Monitoring Program within 6 months of the end of commissioning. In the unlikely event that the emissions criteria is exceeded, DECC will develop and implement emission limits in the EPL and request BlueScope to develop mitigation measures to meet these limits.

The Department therefore considers that the potential air quality impacts are unlikely provided an Air Quality Monitoring Program is undertaken within 6 months of the end of commissioning to verify air emissions predictions in the EA and mitigation measures implemented, if required.

The requirement for an Air Quality Monitoring Program has therefore been included in the recommended conditions of consent.

With these measures in place, the Department is satisfied that potential air quality impacts would be adequately managed.

## **4.3 Other Issues**

The Department is satisfied that the other impacts of the project can be suitably managed to ensure an acceptable level of environmental performance (see Table 2).

Table 2: Assessment of Other Impacts

| Issue                       | Consideration   | Recommendation  |
|-----------------------------|---|---|
| Construction Noise          | <ul style="list-style-type: none"> <li>The Department considers that the proposal is unlikely to result in construction noise impacts on nearby residences provided construction hours limits are complied with.</li> </ul>   | <ul style="list-style-type: none"> <li>To minimise impacts on receivers, the Department has recommended a condition requiring BlueScope to: <ul style="list-style-type: none"> <li>➤ comply with strict construction hours (i.e. daytime only, with no construction on Sundays or Public Holidays).</li> </ul> </li> </ul>  |
| Operational Noise           | <ul style="list-style-type: none"> <li>The assessment indicates that the modified proposal complies with the DECC operational noise assessment criteria.</li> <li>The Department, therefore considers the operation noise impacts are acceptable provided conditions are met.</li> </ul>  | <ul style="list-style-type: none"> <li>The Department has recommended conditions requiring BlueScope to: <ul style="list-style-type: none"> <li>➤ prepare a Noise Monitoring Program to validate the noise emissions and monitor the ongoing performance of the ICP; and</li> <li>➤ comply with operational noise limits.</li> </ul> </li> </ul>  |
| Construction Soil and Water | <ul style="list-style-type: none"> <li>A controlled activity approval for the construction works within 40m of the Allans Creek has been issued by the DWE.</li> <li>The Department considers that the proposal is unlikely to result in soil and water impacts due to construction of the salt water cooling system discharge device near the mouth of Allan's Creek, provided conditions are met.</li> </ul>  | <ul style="list-style-type: none"> <li>The Department has recommended conditions requiring BlueScope to prepare: <ul style="list-style-type: none"> <li>➤ an Erosion and Sediment Control Plan for the construction works that complies with the Landcom's Managing Urban Stormwater: Soils and Construction guidelines; and</li> <li>➤ a detailed Stormwater Management Scheme which would detail provisions for the management of stormwater run-off from and within the site.</li> </ul> </li> </ul> |
| Hazards and Risks           | <ul style="list-style-type: none"> <li>An updated preliminary hazard analysis concluded project would comply with the Department's criteria for Hazard and Risk.</li> <li>The Department considers that proposal is unlikely to generate off-site hazardous risks, provided conditions are met.</li> </ul>  | <ul style="list-style-type: none"> <li>The Department has recommended conditions requiring BlueScope to prepare: <ul style="list-style-type: none"> <li>➤ a Fire Safety Study, Hazard and Operability Study, Final Hazard Analysis and Construction Safety Study prior to construction to minimise hazard impacts; and</li> <li>➤ an Emergency Plan and Safety Management System prior to the operation to ensure adequate systems are in place to manage hazardous risks.</li> </ul> </li> </ul>       |
| Terrestrial Ecology         | <ul style="list-style-type: none"> <li>No vegetation is proposed to be cleared during construction of the proposed modifications.</li> <li>The construction site includes suitable habitat for the Green and Golden Bell Frog (GGBF), however no GGBF have been found.</li> <li>No significant impact on the GGBF would occur provided the GGBF Management Plan is implemented.</li> </ul>  | <ul style="list-style-type: none"> <li>BlueScope must comply with its Statement of Commitments which require implementation of the GGBF Management Plan.</li> </ul>   |
| Waste                       | <ul style="list-style-type: none"> <li>Cogeneration plant would result in various liquid waste streams, including by-product fuel condensates, wastewater from the Power Plant Demineralisation Plant, boiler blowdown streams and maintenance drains and stormwater.</li> <li>Liquid waste streams, not contaminated with salt water or chlorides, would be reused in existing iron and steelmaking processes, and contaminated liquid waste streams would be discharged into the No. 2 Blower Station Salt Water Inlet Channel or licensed discharge points at Ironmaking East Drain or the No. 2 Blower Station Drain.</li> <li>As BlueScope has committed to develop and implement a BOS off-gas condensate management plan that will detail opportunities for reuse on site, the Department considers that the liquid waste recycling/reuse would be maximised.</li> </ul> | <ul style="list-style-type: none"> <li>BlueScope must comply with its Statement of Commitments, which require implementation of a BOS off-gas condensate management plan.</li> </ul>  |

| Issue                                  | Consideration  | Recommendation   |
|--|--|--|
| Traffic                                | <ul style="list-style-type: none"> <li>Adequate parking is available onsite during construction and operation.</li> <li>The local road network has sufficient capacity to accept these additional vehicle movements.</li> </ul>  | <ul style="list-style-type: none"> <li>None required.</li> </ul> |
| Aboriginal and Non-Aboriginal Heritage | <ul style="list-style-type: none"> <li>An initial Heritage assessment in 2001 indicated that No. 1 Power House and No. 2 Blower Station had the heritage significance, however these buildings would not be demolished as part of this project.</li> <li>Impacts on Aboriginal Heritage are unlikely.</li> <li>The Department therefore considers that impacts on heritage are unlikely.</li> </ul>  | <ul style="list-style-type: none"> <li>None required.</li> </ul> |
| Visual                                 | <ul style="list-style-type: none"> <li>The visual assessment indicated that the modified cogeneration plant was unlikely to impact nearby residences as it would be sited within existing Steelworks site and lighting associated with the proposed high voltage substation would not impact motorists along the Five Islands Road or the nearby residences.</li> <li>The Department therefore considers that the visual impacts are minimal.</li> </ul> | <ul style="list-style-type: none"> <li>None required.</li> </ul> |

## 5. RECOMMENDED CONDITIONS OF CONSENT

The Department has prepared recommended conditions of consent for the project which are summarised in Appendix A and included in Appendix B.

These conditions are required to:

- prevent, minimise, and/or offset adverse impacts of the project;
- set standards and performance measures for acceptable environmental performance;
- ensure regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

BlueScope does not object to the imposition of the recommended conditions.

## 6. CONCLUSION

The Department has assessed the EA and submissions on the project in accordance with the requirements under the EP&A Act.

This assessment has found that the potential environmental impacts can be managed to ensure an acceptable level of environmental performance. The recommended conditions require Bluescope to undertake detailed water quality and ecological monitoring and for contingency measures to be implemented if this monitoring shows that the project is having an adverse impact.

It has also found that the project would provide a range of economic, social and environmental benefits, including:

- attracting about \$750 million worth of investment to the Illawarra region;
- reducing approximately 880,000 tonnes of carbon dioxide equivalent (CO<sub>2</sub>e) per year; and
- creating 300 construction jobs and 30 operational jobs in the Illawarra region.

Consequently, the Department believes the project is in the public interest and should be approved subject to conditions.

## 7. RECOMMENDATION

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It is RECOMMENDED that the Minister:

- **consider** the findings and recommendations of this report;
- **approve** the project subject to conditions; and
- **sign** the instrument of approval (see Appendix B).

*DKitto 15/12/08*

David Kitto  
**Director**  
**Major Development Assessment**

*[Signature]* 15.12.08

Chris Wilson  
**Executive Director**  
**Major Project Assessment**

Georgia Ivancevic  
MDA  
Tel: 9228 6457

*SHaddad*

Sam Haddad  
**Director-General**

*15/12/2008.*

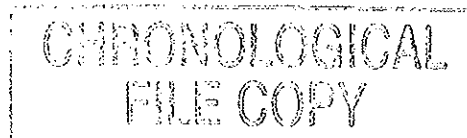
## APPENDIX A – SUMMARY OF CONDITIONS OF CONSENT

| <i>Aspect</i>  | <i>Condition</i> | <i>Requirement</i>   |
|--|------------------|--|
| <b><i>Schedule 2: Administrative Conditions</i></b>                        |                  |  |
| <i>Protection of Public Infrastructure</i>                                 | 7                | Requires repair/relocation of public infrastructure in the event of any damage.  |
| <b><i>Schedule 3: Specific Environmental Conditions</i></b>                |                  |  |
| <i>Noise</i>   | 1-4              | Provides operating hours, sets noise limits for operation and requires noise emissions verification and ongoing monitoring.  |
| <i>Air Quality</i>   | 5-10             | Sets air quality emissions limits and requires air emissions verification and ongoing monitoring.  |
| <i>Water</i>   | 11-18            | Provides intake and discharge limits, monitoring requirements, and requires verification of the slat water cooling modelling results and the effectiveness of the thermal macro-fouling system as well as for an Erosion and Sediment Control Plan and a Stormwater Management Plan. |
| <i>Hazards</i>   | 19-22            | Requires for a Construction Safety Study, Fire Safety Study, Hazard and Operability Study, and Final Hazard Analysis prior to construction and for an Emergency Plan and a Safety Management System prior to commissioning.  |
| <i>Aquatic Ecology Field Study</i>   | 23               | Requires an Aquatic Ecology Filed Study of Allans Creek and the Port Kembla Inner Harbour.   |
| <i>Commissioning Plan</i>  | 24               | Provides a Commissioning Plan requirements.  |
| <b><i>Schedule 4: Environmental Management, Reporting and Auditing</i></b> |                  |  |
| <i>Environmental Management Strategy</i>                                   | 1                | Requirements for the environmental management strategy for the project.  |
| <i>Reporting</i>   | 2-3              | Provides incident and annual reporting requirements.   |
| <i>Auditing</i>  | 4-5              | Provides an Independent Environmental Audit requirements.  |

## **APPENDIX B – CONDITIONS OF CONSENT**

## **APPENDIX C – SUBMISSIONS**

---



Our reference : FIL08/1519:DOC08/33240:GN  
Contact : Greg Newman, (02) 4224 4100

Department of Planning  
(Attention: Georgia Ivancevic)  
GPO Box 39  
SYDNEY NSW 2001

Dear Madam

**PROPOSED MODIFICATION, ILLAWARRA COGENERATION PROJECT (MP 08 0031)**

We refer to the Project Application, Environmental Assessment and accompanying information provided for the above proposal, received by the Department of Environment and Climate Change (DECC) on 16 July 2008. This proposal is a modification of the development consent issued by Wollongong City Council on 1 July 2005. DECC provided General Terms of Approval (GTA) which were incorporated into this consent.

DECC has reviewed the information provided and has determined that it is able to support the proposal subject to the conditions included as Attachment 1. These conditions are derived from the original GTA and have been developed with consideration of the modified proposal, the Company's existing Environment Protection Licence (EPL) No 6092, and consultation with the proponent. It is expected that DECC will be given an opportunity to review the draft Director-General's Environmental Assessment Report for this proposal.

It is noted that the project will need a modification to the existing EPL. The proponent will need to make a separate application to DECC to obtain this modification should development project approval be granted. There are also some conditions on the existing EPL which relate to this development. These conditions will not be subject to variation, however, to ensure that the consent is consistent with the existing EPL, the Department of Planning should consider these licence conditions when drafting any approval for the project.

If you have any questions please contact Greg Newman on (02) 4224 4100.

Yours sincerely

**PETER BLOEM**  
**Acting Manager Illawarra**  
**Environment Protection and Regulation**

Attachment: Conditions

cc: Illawarra Cogeneration Plant Project  
(Attention: Steve Shaw)  
PO Box 1854  
WOLLONGONG NSW 2500

(N:\EPRO\PART 3\AEA Assessments\Cogen\doc08-33240 BSL scp gte.doc)

The Department of Environment and Conservation NSW is now known as  
the Department of Environment and Climate Change NSW

PO Box 513, Wollongong NSW 2520  
Level 3, 84 Crown Street, Wollongong NSW  
Tel: (02) 4224 4100 Fax: (02) 4224 4110  
ABN 30 841 387 271  
[www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

### Emission Limits

**L2.2** For each monitoring/discharge point specified in the table below the emission of a pollutant discharged at that point must not exceed the emission limits specified for that pollutant in the table.

#### Points 126, 127, and 128

| Pollutant   | Units of measure  | 100 % limit     | Reference conditions  | Averaging period       |
|---|-------------------|-----------------|---|------------------------|
| Dioxins and furans  | ng/m <sup>3</sup> | 0.1             | dry, 273 K, 101.3 kPa, 7% O <sub>2</sub>  | As per test method     |
| Hazardous substances  | mg/m <sup>3</sup> | 5               | dry, 273 K, 101.3 kPa, 7% O <sub>2</sub>  | As per test method     |
| Nitrogen dioxide (NO <sub>2</sub> ) or nitric oxide (NO), or both (as NO <sub>2</sub> ) | mg/m <sup>3</sup> | 270<br>(note 1) | dry, 273 K, 101.3 kPa, 3% O <sub>2</sub>  | As per test method     |
| Opacity   | %                 | 20              | Gas stream temperature above dew point. Path length corrected to stack exit diameter. | Block 6-minute average |
| Solid particles   | mg/m <sup>3</sup> | 50<br>(note 1)  | dry, 273 K, 101.3 kPa, 7% O <sub>2</sub>  | As per test method     |

Note 1: These limits may be reviewed on completion of the Air Emissions Validation Program

#### Point 130

| Pollutant   | Units of measure | 100 % limit       | Reference conditions        | Averaging period |
|-------------|------------------|-------------------|-----------------------------|------------------|
| Biocide     | mg/L             | 0.25              | During chemical antifouling | (note 1)         |
| Temperature | Deg Cel          | Ambient plus 10.5 | Saltwater intake            | Continuous       |
| Temperature | Deg Cel          | 40<br>(note 2)    | During thermal antifouling  | Continuous       |

Note 1: A protocol for biocide dosing will be developed by the Proponent in consultation with the EPA.

Note 2: This limit may be reviewed on completion of the Thermal Macrofouling System Investigation and the Verification of ICP Salt Water Cooling modelling outcomes.

### Mass Limits

**L2.3** The load of a pollutant discharged from the ICP must not exceed the limit specified for the pollutant in the table below.

| Pollutant  | Mass limit (tonnes per annum) |
|--|-------------------------------|
| Nitrogen dioxide (NO <sub>2</sub> ) or nitric oxide (NO), or both as nitrogen dioxide (NO <sub>2</sub> ) | 1080 (note 1)                 |

Note 1: Compliance against the above limit will be assessed against combined emissions from the following licensed discharge points stacks:

- 126, 127, 128 - ICP boiler stacks
- 24, 25, 26 BOS (No1, 2, and 3) Flare Stacks
- 40 - No. 25 boiler emissions
- 42 - No 5 Blast furnace BFG excess gas bleeder stack
- 43 - No 6 Blast furnace BFG excess gas bleeder stack
- 44 - No 1 COG (30") excess bleeder stack
- 45 - No 2 COG (42") excess bleeder stack

## Operating conditions

### Bunding

- O1 All liquid chemicals, fuels and oils must be stored in containers inside suitable bund(s). Bund(s) are to be designed, constructed and maintained in accordance with EPA Technical Guidelines "Bunding and Spill Management".

## Monitoring and recording conditions

### M1 Air

#### Requirement to monitor concentration of pollutants discharged

- M1.1 For each monitoring/discharge point specified below, the proponent must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The proponent must use the sampling method, units of measure and sample at the frequency, specified opposite in the other columns:

#### Source Emissions Sampling and Analysis Requirements

##### Points 126, 127, and 128

| Pollutant <sup>1</sup>  | Units of measure  | Frequency <sup>1</sup>        | Sampling Method <sup>1</sup> |
|---|-------------------|-------------------------------|------------------------------|
| Coarse particulates   | mg/m <sup>3</sup> | Post commissioning, quarterly | OM-9                         |
| Dioxins and furans  | ng/m <sup>3</sup> | Post commissioning, annually  | TM-18                        |
| Fine particulates   | mg/m <sup>3</sup> | Post commissioning, quarterly | OM-5                         |
| Hazardous substances  | mg/m <sup>3</sup> | Post commissioning, quarterly | TM-12, 13 & 14               |
| Hydrogen chloride (HCl)   | mg/m <sup>3</sup> | Post commissioning, quarterly | TM-7 & 8                     |
| Hydrogen fluoride (HF)  | mg/m <sup>3</sup> | Post commissioning, quarterly | TM-9                         |
| Polycyclic aromatic hydrocarbons (PAH)  | ng/m <sup>3</sup> | Post commissioning, quarterly | OM-6                         |
| Solid particles   | mg/m <sup>3</sup> | Post commissioning, quarterly | TM-15                        |
| Sulphuric acid mist (H <sub>2</sub> SO <sub>4</sub> ) or sulphur trioxide (SO <sub>3</sub> ), or both (as SO <sub>3</sub> ) | mg/m <sup>3</sup> | Post commissioning, quarterly | TM-3                         |
| Volatile organic compounds (VOC)  | mg/m <sup>3</sup> | Post commissioning, quarterly | OM-2                         |
| Dry gas density   | kg/m <sup>3</sup> | Post commissioning, quarterly | TM-23                        |
| Moisture  | %                 | Post commissioning, quarterly | TM-22                        |
| Molecular weight of stack gases   | g/g.mole          | Post commissioning, quarterly | TM-23                        |
| Oxygen  | %                 | Post commissioning, quarterly | TM-25                        |
| Temperature   | K                 | Post commissioning, quarterly | TM-2                         |
| Velocity  | m/s               | Post commissioning, quarterly | TM-2                         |
| Volumetric flow rate  | m <sup>3</sup> /s | Post commissioning, quarterly | TM-2                         |
| Other   | Units of measure  | Frequency                     | Sampling method              |
| Selection of sampling positions   | NA                | NA                            | TM-1                         |

Note: <sup>1</sup>Or as otherwise approved in writing by the EPA.

#### Continuous Source Emissions Monitoring Requirements

##### Points 126, 127, and 128

| Pollutant <sup>1</sup>  | Units of measure  | Frequency <sup>1</sup> | Sampling method <sup>1</sup> |
|---|-------------------|------------------------|------------------------------|
| Carbon monoxide (CO)  | mg/m <sup>3</sup> | Continuous             | CEM-4                        |
| Nitrogen dioxide (NO <sub>2</sub> ) or nitric oxide (NO), or both (as NO <sub>2</sub> ) | mg/m <sup>3</sup> | Continuous             | CEM-2                        |
| Opacity   | %                 | Continuous             | CEM-1                        |
| Sulphur dioxide (SO <sub>2</sub> )  | mg/m <sup>3</sup> | Continuous             | CEM-2                        |

### **E3: Verification of ICP Salt Water Cooling modelling outcomes.**

By 12 months following the end of commissioning of the ICP salt water cooling system the Proponent must submit a report to the EPA on a post commissioning investigation to validate the findings of the *ICP Proposed Salt Water Cooling Numerical Cooling Water Studies*. The report must include a discussion on any effects on water circulation between the Inner and Outer Harbours. The report must be developed in consultation with the EPA.

### **E4: Noise Compliance Procedure**

1. The Proponent must undertake a program to confirm the noise performance of the Project as referred to in condition L3.1. The noise program must include, but not necessarily be limited to:
  - a) noise monitoring, consistent with the guidelines provided in the *New South Wales Industrial Noise Policy* (EPA, 2000), to assess compliance with condition L3.1 of this Approval.
  - b) methodologies, locations and frequencies for noise monitoring;
  - c) identification of monitoring sites at which pre- and post-Project noise levels can be ascertained;
  - d) details of any complaints and enquiries received in relation to noise generated by the Project within the first three months of operation;
  - e) a statement of whether the Project is in compliance with noise limits in condition L3.1; and
  - f) any additional noise mitigation measures and timetables for implementation.

The noise program must be documented in a report which must be submitted in accordance with the condition below.

2. The Proponent must provide the EPA with a report which includes the noise monitoring procedures and monitoring results referred to under condition 1 of this approval. The timing and scope of the report must be developed in consultation with the EPA. The report is to be provided:
  - a) six months prior to commencement of commissioning (draft monitoring procedures);
  - b) three months prior to the commencement of commissioning (monitoring results);
  - c) three months after the end of commissioning of the Project (monitoring results).

If the noise monitoring report identifies any non-compliance with the noise limits imposed under this approval (refer to condition L3.1), the Proponent must detail what additional measures would be implemented to ensure compliance, clearly indicating who would implement these measures, when these measures would be implemented, and how the effectiveness of these measures would be measured and reported to the EPA.

### **E5. Air Emissions Validation Program**

1. The Proponent must conduct an air emissions validation program which must include but need not be limited to the following:
  - a) Take into account a range of representative operating conditions, including high mass emissions and high concentration emission scenarios which relate to the project.
  - b) Assess compliance with requirements with the EPL and any other approval conditions relating to the Project.
  - c) Demonstrate the manufacturer's performance guarantees have been met with a comparison of air pollutant emissions from all sources against the emission limits specified in the EPL.

## DEFINITIONS

In these General Terms of Approval except in so far as the context or subject matter otherwise indicates or requires

"Commissioning" means the commencement of the initial firing of the boilers and ends when the tuning of all boilers is completed. Commercial operation will follow the end of commissioning.

"dB(A)" means the units used to measure "A weighted " sound pressure levels. A-weighted is an adjustment made to sound level measurement to approximate the response to the human ear

"EPL" means Environment Protection Licence

"EIS" means Environmental Impact Statement

"EPA" means the NSW Environment Protection Authority

"GTA" means General Terms of Approval

"ICP" means Illawarra Cogeneration Project

"LAeq(15 minute)" means the equivalent continuous A weighted sound pressure level measured over a 15 minute period

"LA1(1 minute) " means the sound pressure level that is exceeded for one per cent of the time when measured over a 1-minute period

"m/s" means metres per second

"m<sup>3</sup>/s " means meters cubed per second

"Project" means Illawarra Cogeneration Project

"Proponent" means BlueScope Steel

"°C" means degrees Celsius

"Kg/m<sup>3</sup> " means Kilogram per cubic metre

"g/s" means grams per second

"mg/m<sup>3</sup>" means milligrams per cubic metre

"POEO" means Protection of the Environment Operations Act 1997.

41 Burelli Street Wollongong • Post Locked Bag 8821 Wollongong NSW 2500 • Phone (02) 4227 7111 • Fax (02) 4227 7277  
DX 27811 Wollongong Court • Email [council@wollongong.nsw.gov.au](mailto:council@wollongong.nsw.gov.au) • Web [www.wollongong.nsw.gov.au](http://www.wollongong.nsw.gov.au) • ABN 63 139 525 939 • GST Registered

Major Development Assessment  
Department of Planning  
GPO Box 39  
SYDNEY 2001

Attention: Georgia Ivancevic

|          |                           |
|----------|---------------------------|
| Your Ref | MP 08_0031 Mod 1,         |
| Our Ref  | RH                        |
| File     | MP-2008/31/A, DA-2001/767 |
| Date     | 22 August 2008            |

Dear Madam

## **Proposed Modification, Bluescope Steelworks Cogeneration Plant - MP 08\_0031 Mod 1**

I refer to the Major Project currently lodged with the Department of Planning for the modification to Bluescope Steelworks Cogeneration Plant and the exhibition period inviting comments and conditions ending on the 22 August 2008.

Council has undertaken an assessment of the Environmental Assessment prepared by CH2MHILL for BlueScope Steel Limited, volumes 1-3, as well as Department of Environment and Climate Change (DECC) General Terms of Approval (GTA) and the DECC's minutes of correspondence with BlueScope regarding the proposed modification. Whilst Council concurs with DECC GTA in general, the following specific issues require careful consideration:

1. A limit of 124 t/annum for coarse and fine particulates, and 2597 t/annum for Sulphur dioxide were imposed in DECC's 2001 GTA, but these mass limits were removed from the new GTA. This will potentially result in the Cogeneration Plant having a greater discharge in the local air shed. The southern locked air shed of Wollongong LGA is known to have a very poor dispersive capacity and the air quality in the area located between Warrawong and Albion Park could be affected by discharge from Cogeneration Plant. In addition, with the future expansion of Tallawarra power station and other industrial development in the southern region of the city, these developments could compound the effects of the proposed development on the air quality in the region.
2. Regular discharge of the high temperature cooling water as well as periodic discharge of very high temperature thermal Macrofouling treatment water at the mouth of Alan Creek may impact and further degrade the creek and its adjoining shallow embayment benthic and plankton fauna. In the last 10 years the inner harbour fauna and flora had gradually recovered from several decades of neglect. The thermal plume from the proposed project has the potential for an ongoing impact on the marine biota in the vicinity of the thermal discharge in particular and the inner harbour in general.

Whilst Council was the Consent Authority and issued the consent for the Co-Generation Plant under Part 4 of the *Environment Planning and Assessment Act 1979* (the Act) dated 9 August 2002 (DA-2001/767), the proposed modification to this application is considered as a Part 3A Major Project pursuant to the provisions of section 75W of the Act. The Minister for Planning is therefore the determining authority to amend the Council issued consent. It is acknowledged



21 July 2008

Chris Ritchie  
Manager – Manufacturing and Rural Industries  
Major Development Assessment  
NSW Department of Planning  
GPO Box 39  
SYDNEY NSW 2001

Your ref: S00/01435

Attention: Georgia Ivancevic

Dear Mr Ritchie,

**Re: Proposed Bluescope Steel Cogeneration Plant, Port Kembla  
Modification of Development Consent DA767/01A (MP08\_0031 Mod 1) -  
Environmental Assessment**

I refer to your letter of 28 April, and enclosed Environmental Assessment Report by CH2M HILL P/L (dated July 2008), requesting comments by the Department of Primary Industries (DPI).

**Issues Related to Fisheries**

DPI has responsibility for the management of fish and fish habitats in NSW under the *Fisheries Management Act 1994*.

DPI (Fisheries) has reviewed the Environmental Assessment Report (dated July 2008) and Appendices Volumes 1 and 2, provided by the applicant and makes the following comments.

DPI notes that the site of the development is located adjacent to Port Kembla Inner Harbour and Allans Creek.

DPI concurs with the proposal to monitor the ecological impacts of the operation of the Illawarra Cogeneration Plant (ICP) on Port Kembla Harbour and Allans Creek through implementation of Pollution Reduction Program (PRP) 146 – Port Kembla Inner Harbour Flora and Fauna Study. DPI requests that Bluescope Steel also provides DPI (Fisheries) with copies of the PRP 146 Study Plan (by 31 July 2009) and PRP 146 Study Report (by 30 June 2012).

DPI also concurs with the proposal (Section 12 – 3.6, p.165) for Bluescope Steel to conduct one pre and one post ICP aquatic study including of the ecology, health and distribution of plankton and other organisms in the Inner and Outer Harbour. However DPI requests that Bluescope Steel also consult

# NEW SOUTH WALES FIRE BRIGADES

## COMMUNITY SAFETY DIVISION STRUCTURAL FIRE SAFETY

Amarina Avenue Greenacre NSW 2190

Locked Bag 12 Greenacre NSW 2190

Telephone: (02) 9742 7400 Facsimile: (02) 9742 7486

www.fire.nsw.gov.au info@fire.nsw.gov.au ABN: 12 593 473 110

RECEIVED  
28 AUG 2008



BY: \_\_\_\_\_

Your Reference: 332533

File No: NFB/2734

Contact Officer: G. Symonds/ka

Telephone: (02) 9742 7400

Facsimile: (02) 9742 7483

Email: firesafety.nswfb@fire.nsw.gov.au

26 AUG 2008

CH2MHill  
PO Box 5392,  
CHATSWOOD NSW 1515

Attention: Jacqueline Roberts

Dear Madam

**Bluescope Steel Cogeneration Plant  
Springhill Road  
PORT KEMBLA**

I refer to your correspondence dated 22 July 2008, regarding the above premises.

The NSW Fire Brigades (NSWFB) has reviewed the submitted Environmental Assessment (EA) and Preliminary Hazard Analysis (PHA) and provides the ensuing comments and recommendations:

It is noted that the Minister for Planning has approved treating the Development Consent (DA767/01A) as an approval under Part 3A of the EP&A Act for the purposes of the modification application process under section 75W of the EP&A Act. Wollongong City Council remains the consent authority for the project. The project is also captured under State Environmental Planning Policy (SEPP) 33 – Hazardous and Offensive Developments.

In regards to the issues to be considered in the EA and PHA the NSWFB is of the opinion that both documents have adequately addressed all anticipated hazards for the site. However, it is not within the scope of the EA or PHA to provide information regarding fire related issues in detail.

Therefore, the NSWFB recommends that a Fire Safety Study (FSS) be provided in due course as part of the project approval process.

**Chris Ritchie - MP 08\_0031 - BlueScope Steelworks Cogeneration Plant**

---

**From:** MILLET Christopher P <Christopher\_MILLET@rta.nsw.gov.au>  
**To:** <georgia.ivancevic@planning.nsw.gov.au>  
**Date:** 22/08/2008 4:43 PM  
**Subject:** MP 08\_0031 - BlueScope Steelworks Cogeneration Plant

---

Georgia

Reference is made to the subject major project.

The RTA notes the comments in Section 2.1.6 of the EA. The RTA has no additional comments.

Cheers

*Chris Millet*  
Manager, Land Use Development Impacts  
Southern Region  
Roads and Traffic Authority

P - 4221 2570  
F - 4221 2777

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22 August 2008

Major Development Assessment  
Department of Planning  
GPO Box 39  
SYDNEY NSW 2001

Dear Sir/Madam

**Proposed Modifications to the BlueScope Steelworks Cogeneration Plant Project,  
Port Kembla (MP 08\_0031 MOD 1)**

Thank you for the opportunity to review and comment upon the Environmental Assessment (EA) for the above project that is currently on exhibition.

As a trade and logistics facilitator Port Kembla Port Corporation (PKPC) provides infrastructure and manages port operations in Port Kembla, including the maintenance of shipping channels. As such PKPC has a keen interest in achieving water and sediment quality improvements in Port Kembla Harbour.

PKPC acknowledges the considerable environmental and operational benefits that the cogeneration plant offers, particularly in terms of reduced greenhouse emissions and reduced demand on external energy and water resources.

PKPC is, however, concerned that the proposed modifications may pose significant risks to the health of the aquatic ecosystem in Port Kembla Harbour, particularly the Inner Harbour. The specialist studies undertaken for the EA reveal a high and unsatisfactory level of uncertainty regarding the potential ecological impacts of the proposed saltwater cooling system. Key areas of uncertainty are briefly described in the attached document. If saltwater cooling is to proceed, it should be subject to stringent monitoring conditions and the proponent should make allowance for the potential need to modify the cooling system if it is found to cause unacceptable ecological impacts.

It is pleasing to note that the proponent is pursuing options for reuse of non-salty wastewaters from the proposed cogeneration plant. However, the EA does not fully explain the impact of wastewater discharges on pollutant levels in harbour waters and sediments. The load of pollutants expected to enter the harbour as a result of the proposal and the potential for pollutant accumulation in harbour sediments should be assessed. PKPC seeks assurance that there will be no additional load of metals, polycyclic aromatic hydrocarbons (PAH) or any other pollutant that has the potential to accumulate in harbour sediments as a result of the cogeneration plant.

## **Attachment**

### **Uncertainties Regarding the Potential Impacts on Port Kembla Harbour of Proposed Cooling Water Discharges from the BlueScope Cogeneration Plant**

#### **1. Ecological impact of water temperature increases**

NSG Consulting (refer to Appendix F of the Salt Water Cooling report) identify significant uncertainties regarding the ecological impact of water temperature increases resulting from cooling water discharges. The relevant issues include:

- the tolerance of aquatic organisms present within the Inner Harbour to temperature change – NSG infer that the abundances of 14 species could be affected by temperature increases;
- potential to increase bioavailability of contaminants in harbour waters and sediments leading to increased bioaccumulation – this may have implications for routine disturbance of harbour sediments associated with port operations;
- potential to increase the toxicity of biocide added to cooling water;
- potential for establishment of introduced marine pests – NSG infer that temperature increases may favour the establishment of 4 exotic species that are recognised as potential invasive threats to Australian waters.

#### **2. Ecological impact of plankton entrainment**

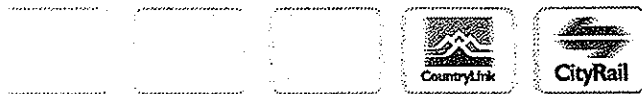
Plankton is of fundamental importance to the health of aquatic ecosystems. UNSW Global and Cardno Lawson Treloar (refer to Appendices G, H & I of the Salt Water Cooling report) identify that the uptake of salt water for cooling is likely to entrain a significant proportion of the harbour's plankton population. Plankton that is entrained within cooling water will be exposed to high temperatures, biocide and mechanical disturbance. This has the potential to cause significant plankton mortality and follow-on effects for the ecology of the harbour, although the extent of these impacts is not known. UNSW Global refers to a study on the impacts of cooling water entrainment on plankton communities in a similar environment that had a significant effect over a broad area and conclude that "a similar scenario is likely to occur in the Inner Harbour of Port Kembla".

#### **3. Ecological impact of biocide use**

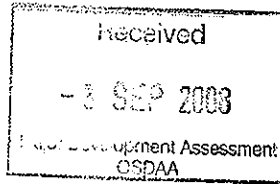
CH2MHill refer to the results of ecotoxicity testing for the biocide Clamtrol II that was undertaken by CSIRO. However, the CSIRO report is not provided as an appendix to the report.

The expected discharge concentration of the biocide Clamtrol II in cooling water is more than an order of magnitude above the concentration at which sea urchin fertilisation and scallop larval development are affected. CH2MHill do not discuss the significance of these potential toxic effects. Instead they focus on less sensitive receptors such as marine bacteria, microalgae and fish larvae whose toxicity thresholds are at or above the expected discharge concentration.

The EA should include a clear statement as to the potential toxic effects of Clamtrol discharges and consider whether its use is justified.



# RailCorp



**RailCorp Property**  
GPO Box 47  
Sydney NSW 2001  
DX 390 SYDNEY  
Tel: (02) 9224 3930 Fax: (02) 9224 3962  
Email: emily.o'sullivan@railcorp.nsw.gov.au

3 September 2008

The General Manager  
Department of Planning  
GPO Box 39  
Sydney NSW 2001

**ATTENTION: Georgia Ivancevic**

Dear Sir/Madam,

**DEVELOPMENT APPLICATION – S00/01435  
Pot Kembla**

I refer to Council's letter dated 16 July 2008 regarding the proposed development at the above address.

Rail Corporation New South Wales (RailCorp) has reviewed the proposal and asks that the following issues be addressed in the conditions for this proposed development.

**1. Property & Title Search and Survey**

In order to protect RailCorp's facilities, it is important that the Applicant accurately defines and locates the property boundaries between the development and RailCorp's facilities, and defines the location of the proposed works/development in relation to RailCorp's facilities. This requires the Applicant to undertake a full Property & Title search and physical surveys and to provide the information to RailCorp. This information is critical to the assessment by RailCorp of all aspects of the development proposal. It is therefore requested that Council include the following condition of consent:

- *The Applicant shall provide an accurate survey locating the development with respect to the rail boundary and rail infrastructure. This work is to be undertaken by a registered surveyor, to the satisfaction of RailCorp's representative.*

**2. Services Searches**

It is imperative that the Applicant identifies the existence of any existing RailCorp services (such as pipes and cables) and structures within their development area by initiating the appropriate service searches. Where RailCorp services exist within the development site, the Applicant must enter into discussion, and reach agreement with RailCorp regarding the accommodation of the services.

In addition, where physical intrusion into the corridor is required (e.g. stormwater connections, rock anchors) there may be conflict with existing RailCorp services in the corridor. It is imperative that the Applicant identifies the existence of any RailCorp services and structures within the area of the corridor affected. It is therefore requested that Council include the following condition of consent:



# RailCorp

## **5. Stray Currents and Electrolysis from Rail Operations**

Stray currents as a result of rail operations may impact on the structure of the development. Electric currents on overhead wiring pass through the train's motor and return to the power substation via the rail tracks. Occasionally, these currents may stray from the tracks and into the ground. Depending on the type and condition of the ground, these may be passed to the nearest conductive material (concrete reinforcement, piling, conduits, pipework and earthing rods) accelerating corrosion of metals and leading to concrete cancer. Therefore, the Applicant should consider this possible impact, and engage an expert consultant when designing its buildings. It is requested that Council include the following condition of consent:

- *The Applicant is to procure a report on the Electrolysis Risk to the development from stray currents, and the measures that will be taken to control that risk. The Applicant is advised to consult an Electrolysis expert. The expert's report must be submitted to RailCorp for review by the Senior Electrolysis Engineer or nominated Electrolysis Section personnel.*

## **6. Geotechnical and Structural Stability and Integrity**

RailCorp needs to be assured that the development has no adverse effects on the geotechnical and structural stability and integrity of RailCorp's facilities. It is requested that Council include the following condition of consent:

- *The Applicant shall provide a Geotechnical Engineering report to RailCorp for review by RailCorp's Geotechnical section prior to the commencement of works. The report shall demonstrate that the development has no negative impact on the rail corridor or the integrity of the infrastructure through its loading and ground deformation and shall contain structural design details/analysis for review by RailCorp. The report shall include the potential impact of demolition and excavation, and demolition- and excavation-induced vibration in rail facilities, and loadings imposed on RailCorp facilities by the development.*

## **7. Building Set Backs and Design**

### **LEP/DCP clauses**

The placement of buildings and structures in relation to RailCorp's facilities should enable continued access for maintenance of RailCorp's facilities.

To ensure the safety of passenger rail services, balconies and windows in the proposed development, must be designed to prevent objects being thrown onto RailCorp's facilities. Alien objects can damage overhead power lines, cause injury to others and initiate derailment.

In order to maintain the safety of the occupants of the new development, all balcony and window design should meet the relevant BCA standards, and the RailCorp Electrical Standards. These standards will provide appropriate separation of the building and its occupants from the electrified infrastructure.

Balconies overlooking RailCorp's facilities should not be serviced with outside taps, and



# RailCorp

*provision of on-site Safe Working supervision for certain aspects of the works.*

- *Should, according to RailCorp's Representative, any unforeseen risks to rail infrastructure become apparent (e.g. falling material) the Applicant/Contractor will be required to submit information relating to the attenuation of that risk for approval by RailCorp's Representative.*
- *The use of any crane, plant or machinery shall comply with the RailCorp Electrical Safety Manual and all relevant RailCorp Standards and Guidelines. Construction equipment such as scaffolding shall not impinge over the rail corridor.*
- *No metal ladders, tapes, scaffolding and plant/machinery, or conductive material are to be used within 6 horizontal metres of any live electrical equipment. This applies to the train pantographs and 1500V catenary, contact and pull-off wires of the adjacent tracks, and to any high voltage aerial supplies within or adjacent to the rail corridor. No metal ladders are to be used within the rail corridor.*
- *No excavation or boring is permitted within 2.0 metres (measured horizontally) of high voltage underground cable and 1.0 metre (measured horizontally) for low voltage cables.*
- *No plant or vehicle is permitted to encroach upon the ballast shoulder or track without prior arrangements being made to certify the track for the effects of disturbance.*
- *No infrastructure or equipment is to be placed or installed on the rail corridor without proper assessment by authorised persons to ensure no impact will occur to rail infrastructure. E.g. signal sighting, safety signage, emergency access.*
- *As large-scale excavation is involved, the Applicant is required to put in place a vibration monitoring system to monitor vibration levels on the adjoining rail corridor for the duration of the works. The plan for this is to be submitted to RailCorp for review prior to the commencement of works.*
- *Details of any proposed piling, sheet piling, batter and anchors should be provided to RailCorp for review and comment prior to work commencing. RailCorp may require the removal of such construction aids.*

## **12. Crane and Other Aerial Operations**

During construction, the use of cranes and other equipment capable of intruding into the airspace above the corridor and of operating over any overhead wiring or transmission lines must be strictly controlled. The developer must demonstrate to the satisfaction of RailCorp that all crane and other overhead operations are properly managed, and enter into an agreement with RailCorp for such operation. It is requested that Council include the following condition of consent:

- *No crane or other aerial equipment is to be operated with the potential to reach over the rail corridor. If a crane is to be used, the developer will be required to enter into an agreement with RailCorp, prior to the operation of the crane.*
- *No crane or other aerial equipment is to be operated within a vertical envelope defined as three (3) metres (horizontally) from any electrified infrastructure. The developer will be required to gain approval, in the form of a Standard Waiver, from*



# RailCorp

## **15. Physical Access to RailCorp's Facilities**

The Applicant appears to need physical access to the rail corridor in order to undertake the construction and installation works. RailCorp needs to ensure that if any access to or works within the rail corridor are required, that this is done in a safe and controlled manner. In this regard Council is requested to include the following conditions of consent:

- *No work is permitted within the rail corridor, or its easements, at any time unless prior approval or an Access Deed has been entered into with RailCorp. The Applicant is required to approach RailCorp to determine whether such a Deed is required. It should be noted that the cost of supervision, design checks, meetings, approvals and service searches is to be borne by the Applicant.*
- *Should the Applicant require access to the rail corridor prior to entering into a Rail Deed, the Applicant is required to enter into a Release & Indemnity agreement, which will cover all railway parties from any possible claims whilst the Applicant is carrying out any work within or adjacent to the railway corridor.*
- *All works are to be carried out in accordance with railway Safeworking rules and regulations, including the Network Rules and Procedures. It should be noted that RailCorp's representative might impose conditions on the methods to be used and require the provision of on-site Safeworking supervision for certain aspects of the works.*

## **16. Graffiti, Screening and Landscaping**

RailCorp wishes to improve the overall condition of its facilities for passengers and public. With adjacent developments it is important to carefully consider the options for reducing graffiti and vandalism at the design stage, thereby reducing long-term costs and improving the aesthetic appearance of RailCorp's facilities and the development. It is requested that council include the following condition of consent:

- *To ensure that graffiti can be easily removed, the Applicant is to ensure that fencing along the rail corridor is coated with anti-graffiti paint or other coating.*

## **17. Fencing**

To ensure that unauthorised entry into the rail corridor is prevented from this development, RailCorp considers it appropriate to replace/retain the current fencing. Thus RailCorp requests that Council include the following condition of consent:

- *The current fencing separating this development from the rail corridor is to be replaced with a 2 metre high fence at the developer's cost. Details of the type of fencing and the method of erection are to be submitted to RailCorp for review and comment prior to the fencing work being undertaken. RailCorp will provide supervision for the erection of the new fencing.*

## **18. Maintenance of Development**

Maintenance activities must not impact adversely on RailCorp's facilities or operations. It is requested that council include the following condition of consent:

- *The developer must provide a plan of future maintenance activities that will require*

## **APPENDIX D – SPECIALIST ADVICE**

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23 September 2008

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File: 301001-00088 00 EN REP  
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Georgia Ivancevic  
Major Development Assessment  
Department of Planning  
GPO Box 39 Sydney NSW 2001

Dear Georgia

## BLUESCOPE STEEL MARINE ECOLOGY IMPACT REVIEW

I have previously provided advice to the Department on the draft of the *Application for Modification of Wollongong City Council Development Consent DA767/01A Environmental Assessment* (herein referred to as the final application) prepared by CH2MHILL and have discussed the application directly with the CH2MHILL project manager (Jacqueline Roberts).

I have reviewed the final application and am pleased to say that the draft was modified to take into consideration my previous suggestions/corrections. I have some points that I wish to reiterate or add to.

In terms of impact on plankton entrainment, there is uncertainty regarding the rate and likelihood of plankton entrainment. To deal with this uncertainty, the final application took a precautionary approach and assumed that a mortality rate of 100% would occur across all taxa. This is a fair and reasonable approach to dealing with uncertainty and is consistent with application of the precautionary principle. Predicting the ecological impact on Port Kembla as a whole from this plankton entrainment is extremely difficult to model and represents a long term and leading edge research question. The only way to obtain the empirical information necessary to build the model is to apply the disturbance (entrainment) and monitor the relevant components of the environment. As such the issue should be addressed thoroughly in empirical studies included in the EMP and provisions for additional mitigation/offsets attached to trigger values should be included in the EMP.

In terms of assessing the ecological impact of thermal discharge, the report has sufficiently summarised available information from other power stations that discharge thermal effluent to the inshore environment. The report identifies that pre ICP and post ICP monitoring will occur to assess the impacts in the current instance. The study plan for this monitoring is to be presented to the DECC for review by July 2009 and the study will be completed and written up by June 2012. The approach and timeframes are appropriate, but the crux is in the design of the survey, what is to be considered a significant impact, and what mitigation/offsets can be undertaken should the impacts be significant. The flow on effects to fisheries beyond the location impacted by the proposed development should be considered when interpreting results.

## **APPENDIX E – ENVIRONMENTAL ASSESSMENT**

## APPENDIX F – CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

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Section 75(2) of the *Environmental Planning and Assessment Act 1979* requires that reference be made to the provisions of any environmental planning instrument that would (but for Part 3A of the Act) substantially govern the carrying out of the project. Consideration of the proposed development in the context of the objectives and provisions of the relevant environmental planning instruments is provided below.

### **State Environmental Planning Policy (Infrastructure) 2007**

*State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) commenced in January 2008, consolidating and updating a number of State planning instruments, including the SEPP 11 – Traffic Generating Developments. The Infrastructure SEPP details planning provision and development controls for infrastructure works and development located adjacent to particular types of infrastructure development. The project was referred to the RTA and Council for comment in accordance with the Infrastructure SEPP.

### **State Environmental Planning Policy No. 33 – Hazardous and Offensive Development**

SEPP 33 applies to the facility as a potentially hazardous industry. SEPP 33 aims to identify proposed developments with the potential for significant off-site impacts, in terms of risk and/ or offence (odour, noise etc). A development is defined as potentially hazardous and/ or potentially offensive if, without mitigating measures in place, the development would have a significant risk and/ or offence impact, on off-site receptors. A Preliminary Hazard Analysis undertaken in 2001 as part of the approved development application was updated to assess the hazards and risks associated with the proposal. The analysis indicated that the project would comply with the relevant guidelines for hazard and risk and the Department is satisfied with this analysis.

### **State Environmental Planning Policy No. 55 – Remediation of Land**

*State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55) applies to the site. SEPP 55 aims to ensure that potential contamination issues are considered in the determination of a development application.

The proposal would be located within the existing Port Kembla Steelworks in the heavy industrial subdivision. Minor excavation of potentially contaminated spoil would be undertaken as part of the proposal.

The Department is satisfied that contamination is not a significant issue for this site.

### **State Environmental Planning Policy No. 71 – Coastal Protection**

*State Environmental Planning Policy No. 71 – Coastal Protection* (SEPP 71) applies to the site as it is within the coastal zone. SEPP 71 aims to protect and manage the NSW coast through improving public access, protecting Aboriginal cultural heritage, protecting visual amenity and coastal habitats and managing the scale, bulk and height of development along the coast.

The Department is satisfied that the proposed development is broadly consistent with the aims and other matters for consideration in the SEPP 71. The Department considers that the site is suitable for the proposed cogeneration plant and the project would be compatible with surrounding industrial uses. It would have a negligible impact on scenic qualities and water quality protection measures would ensure that adequate protection is provided for aquatic flora and fauna including the Allan's Creek and the Inner Port Kembla Harbour. The site is unlikely to contain any Aboriginal sites and does not contain other items of heritage/historic significance.

### **Wollongong Local Environmental Plan 1990**

*Wollongong Local Environmental Plan 1990* (LEP) provides development controls for development in the Wollongong local government area. The proposed cogeneration plant is located in land zoned 4(b) Heavy Industrial. The objectives of the zone are to make the best use of public utilities and infrastructure required by substantial enterprises, and to allow some diversity of activities that will not significantly detract from the operation of existing or proposed industrial enterprises. The Department is satisfied that the proposed facility is consistent with the objectives of the zone.