Australian & New Zealand Steel Manufacturing Businesses

Port Kembla Steelworks

Application for Modification of Wollongong City Council Development Consent DA767/01

Environmental Assessment

December 2009

Major project application

NSW GOVERNMENT
Department of Planning

Date duly made: ____/____/____ Project application no. _____

1. Before you lodge

This form is required to apply for the approval of the Minister to carry out a project to which Part 3A of the *Environmental Planning and Assessment Act 1979* (the Act) applies.

Before lodging this application, it is recommended that you first consult with the Department of Planning (the Department) concerning your project.

A Planning Focus Meeting may need to be held for this project involving the Department, relevant agencies, council or other groups identified by the Department. If a Planning Focus Meeting is held, the Department will issue the Director-General's requirements for the Environmental Assessment following the meeting.

Disclosure statement

Persons lodging applications are required to declare reportable political donations (including donations of or more than $1,000) made in the previous two years.

For more details, including a disclosure form, go to **www.planning.nsw.gov.au/donations**.

Lodgement

All applications must be lodged with the Director-General of the Department of Planning, by courier or mail. An electronic copy should also be emailed to the assessment contact officer assigned to the project.

NSW Department of Planning
Ground floor, 23–33 Bridge Street, Sydney NSW 2000
GPO Box 39 Sydney NSW 2001
Phone 1300 305 695.

2. Details of the proponent

Company/organisation/agency: BLUESCOPE STEEL LIMITED

ABN: 16 000 011 058

☒ Mr ☐ Ms ☐ Mrs ☐ Dr ☐ Other

First name: STEPHEN

Family name: SHAW

Position: PROJECT MANAGER

STREET ADDRESS

Unit/street no.:

Street name: FIVE ISLANDS ROAD

Suburb or town: PORT KEMBLA

State: NSW

Postcode: 2505

POSTAL ADDRESS (or mark 'as above')

PO Box 1854

Suburb or town: WOLLONGONG

State: NSW

Postcode: 2500

Daytime telephone: (02) 4275 7522

Fax: (02) 4275 4982

Mobile: 0408 003 157

Email: Steve.shaw@bluescopesteel.com

3. Identify the land you propose to develop

STREET ADDRESS (where relevant)

Unit/street no.

Street or property name: FIVE ISLANDS RD - PORT KEMBLA STEELWORKS

Suburb, town or locality: PORT KEMBLA, NSW

Postcode: 2505

Local government area(s): WOLLONGONG CITY COUNCIL

State electorate(s)

REAL PROPERTY DESCRIPTION

LOT 1 / DP 606434, LOT 1 / DP 606430

Note: The real property description is found on a map of the land or on the title documents for the land. If you are unsure of the real property description, you should contact the Department of Lands.

Please ensure that you place a slash (/) to distinguish between the lot, section, DP and strata numbers. If the project applies to more than one piece of land, please use a comma to distinguish between each real property description.

OR detailed description of land attached. ☐

MAP: A map of the site and locality should also be submitted with this application.

4. Major project description and other requirements

Provide a brief title for your project.

ILLAWARRA COGENERATION PLANT PROJECT - MODIFICATION OF DEVELOPMENT CONSENT NO. D767/01 UNDER PART 3A, SECTION 75W OF THE EP&A ACT 1979

PROJECT APPROVAL

If you are applying for approval of a project, include in the project title, all significant components for which approval is being sought. If the application relates to part only of a project, the project title should reflect this.

Is the application for approval of a project? ☐ Yes ☐ No

Is the application related to part only of a project? ☐ Yes ☐ No

CONCEPT PLAN APPROVAL

If you are applying for approval of a concept plan, include in the project title, all components for which approval 'in concept' is being sought. If the application also relates to approval of a project, a description of this should also be included in the project title.

Is the application for approval of a Concept Plan? ☐ Yes ☒ No

Is a project application being made concurrently for all or part of the project? ☐ Yes ☒ No

You are also required to provide a Project Description and address any matters required by the Director-General in accordance with section 75E or section 75M of the Act. Failure to do so may lead to your application being rejected.

Is a Project Description attached? ☒ Yes ☐ No

Does the Project Description include any additional matters required by the Director-General under section 75E or section 75M of the Act? ☐ Yes ☒ No

Note: An electronic copy of the project description is also required as all applications must be provided on the Department's website. You should contact the Department on the correct electronic format.

ESTIMATED CAPITAL INVESTMENT VALUE

Please indicate the estimated capital investment value (CIV) of the project. The CIV includes all costs necessary to establish and operate the project, including the design and construction of buildings, structures, associated infrastructure and fixed or mobile plant and equipment (but excluding GST and land costs).

$ 34,116,540

EQUIVALENT FULL-TIME JOBS

Please indicate the number of jobs created by the project. This should be expressed as a proportion of full time jobs over a full year.

Construction jobs (full-time equivalent)	50
Operational jobs (full-time equivalent)	—

5. Approvals from State agencies

Does the project require any of the following: (tick all that are appropriate)

- ☐ an aquaculture permit under section 144 of the *Fisheries Management Act 1994*
- ☐ an approval under section 15 of the *Mine Subsidence Compensation Act 1961*
- ☐ a mining lease under the *Mining Act 1992*
- ☐ a production lease under the *Petroleum (Onshore) Act 1991*
- ☒ an environment protection licence under Chapter 3 of the *Protection of the Environment Operations Act 1997* (for any of the purposes referred to in section 43 of that Act)
- ☐ a consent under section 138 of the *Roads Act 1993*
- ☐ a licence under the *Pipelines Act 1967*

6. Landowner's consent or notification

As the owner(s) of the above property, I/we consent to this application being made on our behalf by the proponent:

Land	Land
Signature	Signature
Name: STEPHEN SHAW	Name
Date: 21-12-09	Date

Note: Under clause 8F of the *Environmental Planning and Assessment Regulation 2000* (the Regulation), certain applications for approval under Part 3A of the Act do not require the consent of the landowner, however, the proponent is required to give notice of the application:

- in the case of linear infrastructure projects, by notice in a newspaper circulating in the locality prior to the commencement of the public consultation period,
- in the case of mining or petroleum production projects, by notice in a newspaper circulating in the locality within 14 days of this application being made,
- in the case of critical infrastructure projects, to the owner of the land within 14 days of this application being made, and
- in other cases, to the owner of the land at any time before the application is made.

7. Political donation disclosure statement

Persons lodging applications are required to declare reportable political donations (including donations of or more than $1,000) made in the previous two years. Disclosure statements are to be submitted with your application or request.

Have you attached a disclosure statement to this application?

☒ Yes
☐ No

Note: For more details about political donation disclosure requirements, including a disclosure form, go to **www.planning.nsw.gov.au/donations**.

8. Proponent's signature

As the proponent(s) of the project and in signing below, I/we hereby:

- provide a description of the project and address all matters required by the Director-General pursuant to section 75E and/or section 75M of the Act, and
- apply, subject to satisfying clause 8D of the Environmental Planning and Assessment Regulation, for the Director-General's environmental assessment requirements pursuant to Part 3A of the Act, and
- declare that all information contained within this application is accurate at the time of signing.

Signature

Name
STEPHEN SHAW

Date
21 - 12 - 09

In what capacity are you signing if you are not the proponent
PROJECT MANAGER

Name, if you are not the proponent

Political donations disclosure statement

NSW GOVERNMENT
Department of Planning

Office use only:

Date received: ____/____/____ Planning application no. _____

This form may be used to make a political donations disclosure under section 147(3) of the *Environmental Planning Assessment Act 1979* for applications or public submissions to the Minister or the Director-General.

Please read the following information before filling out the Disclosure Statement on pages 3 and 4 of this form. Also refer to the 'Glossary of terms' provided overleaf (for definitions of terms in *italics* below). Once completed, please attach the completed declaration to your planning application or submission.

Explanatory information

Making a planning application or a public submission to the Minister or the Director-General
Under section 147(3) of the Environmental Planning and Assessment Act 1979 ('the Act') a person:

(a) who makes a *relevant planning application* to the Minister or the Director-General is required to disclose all *reportable political donations* (if any) made within the *relevant period* to anyone by any *person with a financial interest* in the application, or

(b) who makes a *relevant public submission* to the Minister or the Director-General in relation to the application is required to disclose all *reportable political donations* (if any) made within the *relevant period* to anyone by the person making the submission or any *associate of that person*.

How and when do you make a disclosure?
The disclosure to the Minister or the Director-General of a *reportable political donation* under section 147 of the Act is to be made:

(a) in, or in a statement accompanying, the relevant planning application or submission if the donation is made before the application or submission is made, or

(b) if the donation is made afterwards, in a statement of the person to whom the relevant planning application or submission was made within 7 days after the donation is made.

What information needs to be included in a disclosure?
The information requirements of a disclosure of reportable political donations are outlined in section 147(9) of the Act.

Pages 3 and 4 of this document include a Disclosure Statement Template which outlines the information requirements for disclosures to the Minister or to the Director-General of the Department of Planning.

Note: A separate Disclosure Statement Template is available for disclosures to councils.

Warning: A person is guilty of an offence under section 125 of the *Environmental Planning and Assessment Act 1979* in connection with the obligations under section 147 only if the person fails to make a disclosure of a political donation or gift in accordance with section 147 that the person knows, or ought reasonably to know, was made and is required to be disclosed under section 147.

The maximum penalty for any such offence is the maximum penalty under Part 6 of the *Election Funding and Disclosures Act 1981* for making a false statement in a declaration of disclosures lodged under that Part.

Note: The maximum penalty is currently 200 penalty units (currently $22,000) or imprisonment for 12 months, or both.

Glossary of terms (under section 147 of the *Environmental Planning and Assessment Act 1979*)

gift means a gift within the meaning of Part 6 of the *Election Funding and Disclosures Act 1981*. Note. A gift includes a gift of money or the provision of any other valuable thing or service for no consideration or inadequate consideration.

Note: Under section 84(1) of *the Election Funding and Disclosures Act 1981* gift is defined as follows:

gift means any disposition of property made by a person to another person, otherwise than by will, being a disposition made without consideration in money or money's worth or with inadequate consideration, and includes the provision of a service (other than volunteer labour) for no consideration or for inadequate consideration.

local councillor means a councillor (including the mayor) of the council of a local government area.

relevant planning application means:

a) a formal request to the Minister, a council or the Director-General to initiate the making of an environmental planning instrument or development control plan in relation to development on a particular site, or
b) a formal request to the Minister or the Director-General for development on a particular site to be made State significant development or declared a project to which Part 3A applies, or
c) an application for approval of a concept plan or project under Part 3A (or for the modification of a concept plan or of the approval for a project), or
d) an application for development consent under Part 4 (or for the modification of a development consent), or
e) any other application or request under or for the purposes of this Act that is prescribed by the regulations as a relevant planning application,

but does not include:

f) an application for (or for the modification of) a complying development certificate, or
g) an application or request made by a public authority on its own behalf or made on behalf of a public authority, or
h) any other application or request that is excluded from this definition by the regulations.

relevant period is the period commencing 2 years before the application or submission is made and ending when the application is determined.

relevant public submission means a written submission made by a person objecting to or supporting a relevant planning application or any development that would be authorised by the granting of the application.

reportable political donation means a reportable political donation within the meaning of Part 6 of the *Election Funding and Disclosures Act 1981* that is required to be disclosed under that Part. Note. Reportable political donations include those of or above $1,000.

Note: Under section 86 of *the Election Funding and Disclosuros Act 1981* reportable political donation is defined as follows:

86 Meaning of "reportable political donation"

(1) For the purposes of this Act, a reportable political donation is:
  (a) in the case of disclosures under this Part by a party, elected member, group or candidate—a political donation of or exceeding $1,000 made to or for the benefit of the party, elected member, group or candidate, or
  (b) in the case of disclosures under this Part by a major political donor—a political donation of or exceeding $1,000:
    (i) made by the major political donor to or for the benefit of a party, elected member, group or candidate, or
    (ii) made to the major political donor.

(2) A political donation of less than an amount specified in subsection (1) made by an entity or other person is to be treated as a reportable political donation if that and other separate political donations made by that entity or other person to the same party, elected member, group, candidate or person within the same financial year (ending 30 June) would, if aggregated, constitute a reportable political donation under subsection (1).

(3) A political donation of less than an amount specified in subsection (1) made by an entity or other person to a party is to be treated as a reportable political donation if that and other separate political donations made by that entity or person to an associated party within the same financial year (ending 30 June) would, if aggregated, constitute a reportable political donation under subsection (1). This subsection does not apply in connection with disclosures of political donations by parties.

(4) For the purposes of subsection (3), parties are associated parties if endorsed candidates of both parties were included in the same group in the last periodic Council election or are to be included in the same group in the next periodic Council election.

a person has a financial interest in a relevant planning application if:

a) the person is the applicant or the person on whose behalf the application is made, or
b) the person is an owner of the site to which the application relates or has entered into an agreement to acquire the site or any part of it, or
c) the person is associated with a person referred to in paragraph (a) or (b) and is likely to obtain a financial gain if development that would be authorised by the application is authorised or carried out (other than a gain merely as a shareholder in a company listed on a stock exchange), or
d) the person has any other interest relating to the application, the site or the owner of the site that is prescribed by the regulations.

persons are associated with each other if:

a) they carry on a business together in connection with the relevant planning application (in the case of the making of any such application) or they carry on a business together that may be affected by the granting of the application (in the case of a relevant planning submission), or
b) they are related bodies corporate under the *Corporations Act 2001* of the Commonwealth, or
c) one is a director of a corporation and the other is any such related corporation or a director of any such related corporation, or
d) they have any other relationship prescribed by the regulations.

Political Donations Disclosure Statement to Minister or the Director-General

If you are required under section 147(3) of the Environmental Planning and Assessment Act 1979 *to disclose any political donations (see Page 1 for details), please fill in this form and sign below.*

Disclosure statement details

Name of person making this disclosure	Planning application reference (e.g. DA number, planning application title or reference, property address or other description)
BLUESCOPE STEEL LIMITED	Illawarra Cogeneration Project

Your interest in the planning application (circle relevant option below)

You are the APPLICANT (YES) / NO OR You are a PERSON MAKING A SUBMISSION IN RELATION TO AN APPLICATION YES / NO

Reportable political donations made by person making this declaration or by other relevant persons

* *State below any reportable political donations you have made over the 'relevant period' (see glossary on page 2). If the donation was made by an entity (and not by you as an individual) include the Australian Business Number (ABN).*

* *If you are the applicant of a relevant planning application state below any reportable political donations that you know, or ought reasonably to know, were made by any persons with a financial interest in the planning application, OR*

* *If you are a person making a submission in relation to an application, state below any reportable political donations that you know, or ought reasonably to know, were made by an associate.*

Name of donor (or ABN if an entity)	Donor's residential address or entity's registered address or other official office of the donor	Name of party or person for whose benefit the donation was made	Date donation made	Amount/ value of donation
Bluescope Steel Limited ABN 16 000 011 058	Level 11, 120 Collins Street, Melbourne Vic 3000	ALP (Noreen Hay Campaign Account)	7.2.08	$400
As above	As above	David Campbell Keira Campaign	12.2.08	$1500
As above	As above	David Campbell Keira Campaign	18.2.08	$1500
As above	As above	Lylea Mc Mahon Campaign Account	25.2.08	$200

Please list all reportable political donations—additional space is provided overleaf if required.

By signing below, I/we hereby declare that all information contained within this statement is accurate at the time of signing.

Signature(s) and Date

Name(s)

Cont...

Political Donations Disclosure Statement to Minister or the Director-General

Name of donor (or ABN if an entity)	Donor's residential address or entity's registered address or other official office of the donor	Name of party or person for whose benefit the donation was made	Date donation made	Amount/ value of donation
As above	As above	ALP (NSW branch)	6.3.08	$550
As above	As above	David Campbell Keira Campaign	14.3.08	$750
As above	As above	ALP (NSW branch)	22.5.08	$550
As above	As above	ALP (NSW Premier + Cabinet dinner)	26.2.09	$1500

Form 2

Submission of Environmental Assessment (EA)

Prepared under Part 3A of the
Environmental Planning and Assessment Act 1979

EA prepared by

name and qualifications	Stephen Shaw
	B. Eng (Hons)
address	PO Box 1854
	Wollongong NSW 2500

in respect of

development application

	Modification Application to Wollongong City Council Development Consent (DA 767/01A) – Illawarra Cogeneration Plant
applicant name	BlueScope Steel Limited ABN 16 000 011 058
applicant address	Five Islands Road, Port Kembla NSW 2505 PO Box 1854 Wollongong NSW 2500
land to be developed	Port Kembla Steelworks
lot no., DP/MPS, vol/fol etc	Part Lot 1, DP 606434 and Part Lot 1, DP 606430
	Or
proposed development	
	☑ map(s) attached

certificate

an Environmental Assessment (EA) is attached

I certify that I have prepared the contents of this EA and to the best of my knowledge:

(i) the EA has been prepared in accordance with section 75W of the *Environmental Planning and Assessment Act 1979* and *Regulations*;

(ii) the EA contains all available information that is relevant to the assessment of the Project to which the EA relates, and

(iii) the information contained in the EA is neither false nor misleading.

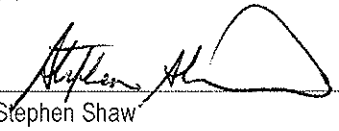
Signature	
Name	Stephen Shaw
Date	December 2009

Table of Contents

EXECUTIVE SUMMARY

This Environmental Assessment (EA) has been prepared for the Department of Planning (DoP) on behalf of BlueScope Steel Limited (BlueScope Steel) to support an application under Section 75W of the *Environmental Planning and Assessment Act* 1979 (EP&A Act) and clause 8J(8) of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation) for the modification of an existing development consent for the Illawarra Cogeneration Plant Project (ICP Project).

The ICP Project involves the construction and operation of a cogeneration plant at the Port Kembla Steelworks (PKSW).

The history of this Development Consent is as follows:

August	2002	Wollongong City Council (WCC) granted Duke Energy (under contractual arrangement with BHP Steel) approval to construct and operate the ICP Project.
October	2002	Duke Energy withdrew from the project. BlueScope Steel decided to develop the project.
	2005	Development Consent modified by WCC on request by BlueScope Steel to enable construction of the project in two stages.
	2005	Stage 1 of the project completed.
December	2008	Development Consent modified by NSW Minister for Planning on request by BlueScope Steel.

The 2008 Development Consent modifications included:

- Installation of three new boilers instead of four new boilers.
- Changing the location of the proposed LDG holder to another location within the PKSW site.
- Changing the size of the LDG holder.
- Replacing the recirculated fresh water cooling system and cooling towers for the ICP Project with the use of once-through salt water, discharging spent water into Port Kembla Inner Harbour.
- Amending the layout and connection configurations of the ICP Project having regard to the above changes, consolidating the ICP Project footprint and relocating construction laydown areas.

The ICP Project is an important development for BlueScope Steel and is designed to ensure the on-going viability of the PKSW by providing the PKSW with sufficient steam and energy to meet its requirements whilst proactively creating tangible and significant environmental benefits.

The benefits of the ICP Project include:

- Significant greenhouse gas (GHG) emission abatement - approximately 880 000 tonnes per year CO_2-e (and up to 1 075 000 tonnes per year CO_2-e) through less electricity needing to be produced by offsite generators to meet the demands of the PKSW, making the ICP Project one of the single biggest GHG emission abatement projects in Australia.
- The capture and re-use of most of the by-product gases (from iron and steel making operations) currently flared.
- Significant reduction in BlueScope Steel's physical reliance on electricity from the New South Wales (NSW) power supply grid. The ICP Project will ensure the PKSW is largely electricity self-sufficient.
- Improvement in visual amenity as a result of reduced flaring.
- Reduction in boundary noise levels as a result of the decommissioning of the No. 1 Power House.

In April 2009 BlueScope Steel decided:

- To defer the commencement of the implementation of the major part of the ICP Project, given the impact of the Global Financial Crisis on the steel industry.
- To move towards the staged implementation of the ICP Project, implementing a lower cost interim solution as the next stage, in order to address operational needs until the major part of the ICP Project can be restarted when business conditions are more favourable.

The interim project involves progressing a limited number of critical elements from the ICP Project scope in addition to the installation of two natural gas-fired "package" boilers each capable of producing up to 90 tonnes per hour of high pressure steam. The package boilers were not part of the original ICP Project scope and hence are considered a modification to the ICP Project. The installation of the package boilers will allow the retirement of the two oldest boilers (90 tph each) in No. 2 Blower Station.

The key objectives of the proposed modification are to:

- Ensure the ongoing economic viability of BlueScope Steel's Port Kembla Steelworks by deferring the high cost of the ICP Project until the market improves from an unprecedented market downturn.
- Improve the reliability and security of steam supply to the PKSW in the period until market conditions improve and the ICP Project can be completed.
- Allow the decommissioning of some of the oldest steam generating and distribution equipment at BlueScope Steel's PKSW, thereby ensuring ongoing operational security and the safety of personnel.
- Not do anything in the short term which would preclude the subsequent completion of the ICP Project.

KEY ENVIRONMENTAL ISSUES

A risk assessment has been undertaken by BlueScope Steel to identify the significant environmental issues associated with the proposed modifications to the ICP Project. The main findings of the assessment are outlined below.

Air Quality

Assessments have been previously undertaken of the air quality impacts associated with the ICP Project. The assessment found that the ICP Project would not impact upon the air quality of the Illawarra Region.

It is considered that the only significant pollutants to be emitted from the proposed natural gas-fired package boilers would be NO_x species. A review of the potential impacts of the package boilers has concluded that the risk of unacceptable NO_x impacts is negligible.

Greenhouse Gas Emissions

A greenhouse gas (GHG) impact assessment was undertaken to provide an estimation of the changes in GHG emissions as a direct result of the operation of the proposed package boilers.

The Scope 1 emissions caused by the firing of additional natural gas in the proposed package boilers were estimated to be approximately 44,000 t CO_2-e per annum.

Water Quality

No unacceptable environmental impacts are expected due to operation of the proposed package boilers.

To minimise any potential construction related impact on the water quality of Allan's Creek or Port Kembla Harbour, control measures, as outlined in the project Environmental Management Plan, will be implemented during the construction phase.

Hazard and Risk

Potential explosions and fires associated with the package boilers have been reviewed. None of these events are considered to have potential off-site consequences. There is not considered to be any land use safety concerns associated with the modified ICP Project.

Visual Amenity

The visual amenity assessment that was undertaken as part of the EA concluded that the proposed package boilers would not have a significant impact upon the visual amenity of surrounding residents.

The assessment determined that, due to the location of the package boilers, their size relative to surrounding buildings and structures, and the high visual absorption capacity of the PKSW, there is not expected to be a significant impact upon the visual amenity of residents in the surrounding suburbs.

It was also concluded that casual observers would not detect the additional flaring of Blast Furnace Gas and Coke Oven Gas caused by the decommissioning of Nos. 21 and 22 Boilers.

Noise

Construction and operation of the proposed package boilers will comply with the current ICP consent conditions.

Economic Considerations

The installation of the proposed package boilers will provide a range of economic benefits for the Port Kembla industrial area and the Illawarra Region. The proposed immediate investment in PKSW is expected to secure operations at the site and improve its viability by deferring the high cost of the ICP Project until the market improves from an unprecedented downturn.

The interim work proposed has a total value of $50 million of which approximately $29 million will be paid to local, Illawarra Region companies. In addition, it is estimated that the engineering and installation of the interim project will provide employment for around 100 people.

CONCLUSIONS

BlueScope Steel is seeking to modify the existing Development Consent under Section 75W, 'Modification of Minister's Approval', of the EP&A Act through the application of Clause 8J(8) of the EP&A Regulation.

This EA addresses the potential environmental impacts associated with the proposed modifications. These potential impacts include:

- Air quality
- Greenhouse gas and energy efficiency
- Water quality
- Hazards and risks
- Visual amenity
- Noise

No significant adverse environmental impacts associated with the installation or operation of the proposed package boilers have been identified during the preparation of this EA. The deferral of the implementation of the major part of the ICP Project for a period of 2-4 years will, however, produce a delay in the realisation of the significant environmental, social and economic benefits of the ICP including:

- GHG emission abatement benefits of approximately 880 000 t CO_2-e per annum (and up to 1 075 000 t CO_2-e per annum) making it one of the single biggest GHG emission abatement projects in Australia
- Recovery of otherwise wasted heat energy
- Reduction in flaring events
- Improvement in visual amenity as a result of reduced flaring
- Reduction in electrical power transmission losses
- Securing the steam supply for the PKSW with less operational risk
- Improvements to the efficiency and productivity of the PKSW
- Capacity to increase electricity generation to meet periods of increased demand in the NSW electricity grid
- Provide significant investment and employment opportunities for the Illawarra Region and NSW

Whilst the benefits are deferred, this modification does not detract from the ultimate benefits of the ICP project which will represent an investment of approximately $1,200M in the PKSW and will improve the environmental performance and operational security of the PKSW. The by-product gases are already produced and burned at PKSW and will continue to be generated over the life of the PKSW. The Project will result in the recovery and re-use of the energy contained in those gases. The by-product gases will be captured and burned in a cleaner, more efficient manner to reduce flaring and produce steam and electricity for the PKSW.

Hence, the proposed modifications are ultimately delivering the same functional and operational outcomes as intended and approved in the existing Development Consent (DA767/01A as modified on 15 December, 2008).

The proposed modification is necessary to ensure the ongoing economic viability of BlueScope Steel's Port Kembla Steelworks by deferring the high cost of the ICP Project until the market improves from an unprecedented market downturn.

1. INTRODUCTION

This Environmental Assessment (EA) has been prepared for the New South Wales Department of Planning (DoP) by BlueScope Steel Limited (BlueScope Steel) to support an application made under Section 75W for modification of Wollongong City Council's Development Consent (DA767/01A) under Part 3A of the *Environmental Planning and Assessment Act* 1979 (NSW) (EP&A Act) and clause 8J(8) of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation).

The purpose of the EA is to:

- Provide a detailed description of the proposed modifications to the Illawarra Cogeneration Plant Project (ICP Project) located at BlueScope Steel's Port Kembla Steelworks (PKSW) New South Wales.
- Identify the key potential environmental impacts associated with the proposed modifications.
- Assess the key potential environmental impacts associated with the proposed modifications.
- Outline mitigative measures to reduce any potential environmental impacts identified.
- Outline BlueScope Steel's commitment to manage, where possible, any potential impacts identified.

The EA has been prepared in accordance with Division 5, Part 3A of the EP&A Act and the EP&A Regulation.

1.1 BACKGROUND

In 2002, Wollongong City Council approved the construction and operation of a cogeneration plant at the PKSW. The project was called the "Illawarra Cogeneration Plant Project" (ICP Project). The ICP will produce steam and electricity for the PKSW whilst generating surplus electricity that will be returned to the NSW grid for utilisation by other customers. In December 2008, the NSW Minister for Planning approved a modification to the ICP Project which involved changes in the proposed equipment configuration and its location on the Port Kembla Steelworks site.

The ICP Project is an important development for BlueScope Steel, designed to secure the ongoing viability of PKSW whilst proactively creating tangible and significant environmental benefits.

In April 2009 BlueScope Steel decided:

- To defer the commencement of the implementation of the major part of the ICP Project, given the impact of the Global Financial Crisis on the steel industry.
- To move towards the staged implementation of the ICP Project, implementing a lower cost interim solution as the next stage, in order to address operational needs until the major part of the ICP Project can be restarted when business conditions are more favourable.

1.2 SCOPE OF PROPOSED MODIFICATION

The proposed modification involves the deferral of the major part of the ICP Project for a period of two to four years by implementing an interim solution which involves the installation of equipment which is necessary for the ongoing safe operation of PKSW in the period until the ICP Project can be recommenced.

The scope of the proposed interim solution (which will be the next stage of the modified project to be implemented) is:

1. The installation of replacement sections of high pressure steam main and associated equipment within the No. 2 Blower Station (to replace those current carbon steel sections which require replacement) and extending the mains to the boundary of the proposed ICP site.
   This scope was part of the original approved ICP Project. Consequently, this work will be progressed under the current ICP Development Consent (as modified in 2008) and will not be considered in this Environmental Assessment.
2. The installation of two natural gas-fired "package" boilers each capable of producing up to 90 tonnes per hour of high pressure steam. This will allow the retirement of the two oldest boilers (90 tph each) in No. 2 Blower Station. This is new work which was not contemplated in the 2008 modification of the ICP Project and will be the subject of this Environmental Assessment.

It is expected that the package boilers will remain in service as back-up steam sources until all existing boilers are replaced by the proposed ICP boilers.

1.3 OBJECTIVES OF PROPOSED MODIFICATION

The key objectives of the interim solution are to:

- Ensure the ongoing economic viability of BlueScope Steel's Port Kembla Steelworks by deferring the high cost of the ICP Project until the steel market improves from an unprecedented downturn.
- Improve the reliability and security of steam supply to the PKSW in the period until market conditions improve and the ICP Project can be completed.
- Allow the decommissioning of some of the oldest steam generating and distribution equipment at BlueScope Steel's PKSW, thereby ensuring ongoing operational security and safety of personnel.
- Not do anything in the short term which would preclude the subsequent completion of the ICP Project.

1.4 BENEFITS OF PROPOSED MODIFICATION

The interim solution will deliver the following benefits:

- Keeps PKSW financially viable during the downturn period.
- Keeps PKSW operational by dealing with the most pressing process safety and operational security issues.
- Maintains the ability to recommence the full ICP Project when market conditions allow.

1.5 HISTORY OF THE PROJECT DEVELOPMENT CONSENT

In 1999, BHP Steel Limited (now BlueScope Steel Limited) entered a contractual arrangement with Duke Energy International (DEI) under which DEI would develop the Project on behalf of BHP Steel.

In May 2001, DEI submitted a development application to Wollongong City Council (WCC), the consent authority, to build and operate a cogeneration plant at the PKSW, a 742 hectare heavy industrial site 80 km south of Sydney (see Figure 1-1). The project was called the "Illawarra Cogeneration Plant" (ICP). The development application (DA) was supported by an environmental impact statement (EIS); *Illawarra Cogeneration Project Environmental Impact Statement Volume 1 and 2 – Appendices* (CH2M HILL, 2001).

WCC granted consent for the construction and operation of the ICP in August 2002 (*Notice of Determination of Integrated Development Application No. D767/01*) (the Development Consent).

In October 2002, DEI ceased its involvement in the ICP Project. BlueScope Steel is now sole developer of the ICP Project.

The Development Consent was subsequently modified (D767/01A) to allow for a phased construction of the Project. BlueScope Steel completed construction of Stage 1 of the ICP Project in 2005.

In December 2008 the NSW Minister for Planning approved a further modification which involved:

- Installation of three new boilers instead of four new boilers.
- Changing the location of the proposed LDG holder to another location within the PKSW site.
- Changing the size of the LDG holder.
- Replacing the recirculated fresh water cooling system and cooling towers for the ICP Project with the use of once-through salt water, discharging spent water into Port Kembla Inner Harbour.
- Amending the layout and connection configurations of the ICP Project having regard to the above changes, consolidating the ICP Project footprint and relocating construction laydown areas.

Approval for this modification was granted by the Minister on 15 December 2008.

In summary, the history of this development is as follows:

Year	Description	Hereinafter referred to as:
2002	Original consent	Original 2002 Consent
2005	Modification to execute the project in two stages	2005 Modification
2008	Modifications to change equipment configuration and plant layout	2008 Modification
2009	This proposed modification	2009 Modification

1.6 PROPONENT NAME AND ADDRESS

Details of the Proponent are as follows:

Name: BlueScope Steel Limited

Contact: Steve Shaw

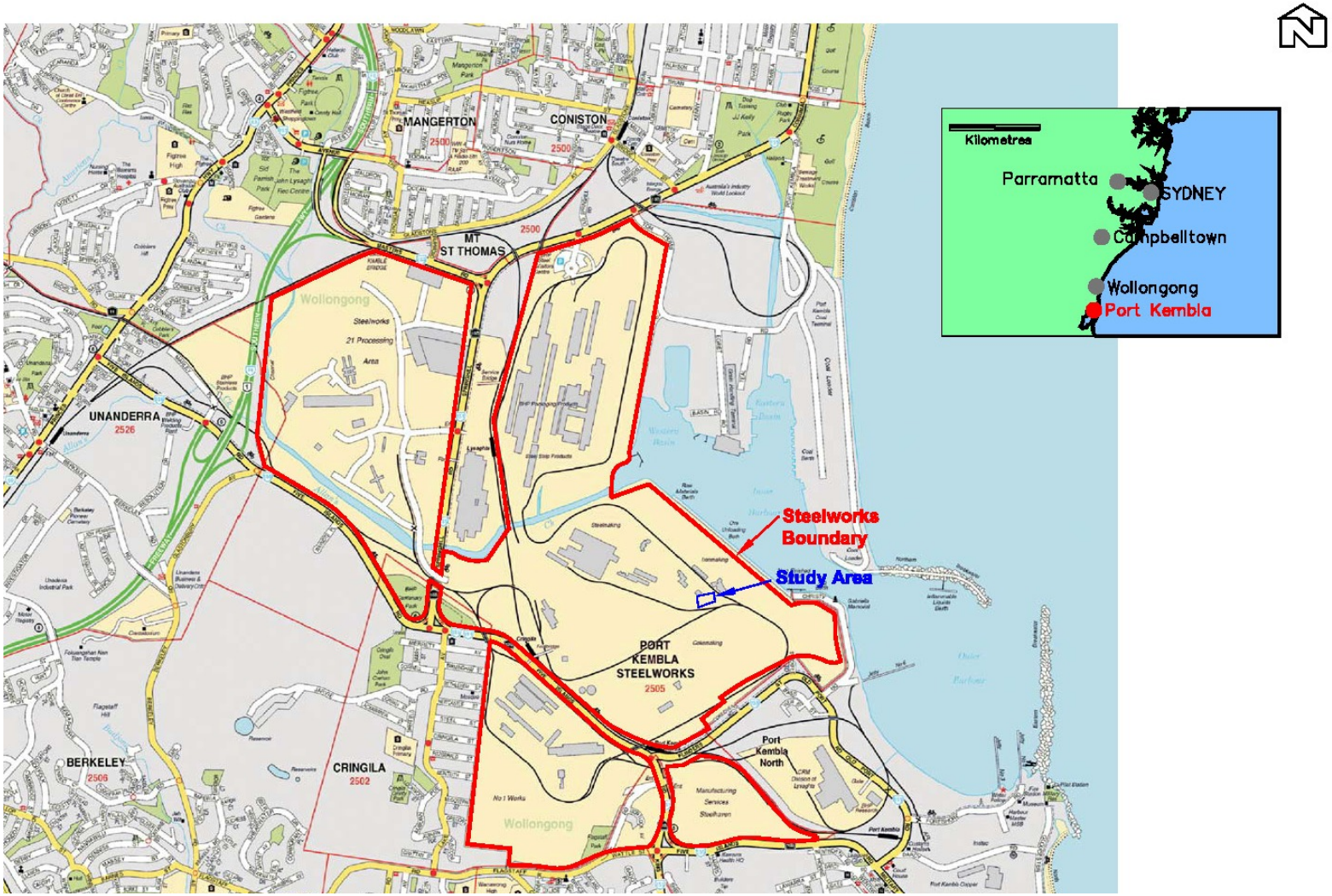
Phone: (02) 4275 3813

Address: PO Box 1854, Wollongong NSW 2500

1.7 LAND OWNER'S CONSENT

The Proponent, BlueScope Steel Limited, has received consent from the relevant landowners, BlueScope Steel (AIS) Pty Ltd, to make the application for modification to the Development Consent.

Figure 1-1 Locality Plan



2. CONSULTATION

2.1 CONSULTATION WITH GOVERNMENT AGENCIES

The following agencies were consulted regarding the proposed modifications to the ICP Project:

- Department of Planning
- Department of Environment, Climate Change and Water

2.1.1 Consultation with the Department of Planning

BlueScope Steel has had several meetings with the NSW Department of Planning to establish the approach to be followed given the deferral of the major part of the ICP Project and the interim stage now proposed.

2.1.2 Consultation with the Department of Environment and Climate Change

Regular consultation has occurred between the Department of Environment and Climate Change and Water (DECCW) and BlueScope Steel. These regular meetings have allowed BlueScope Steel to discuss the proposed modifications, to clarify the assessment requirements, and to report on the status of environmental impact assessments. Various options for mitigating the environmental impact of the proposed change were discussed to allow for project optimisation. In addition, these meetings have provided DECCW with the opportunity to raise questions, queries and concerns regarding the proposed modifications for BlueScope Steel to consider and address.

2.2 COMMUNITY CONSULTATION

BlueScope Steel recognises the importance of community consultation not only during the planning approvals process but during the construction and commissioning phases of the ICP Project.

During the ICP Project's inception and during the original planning approvals process, BlueScope Steel undertook considerable measures to ensure the community was well informed of the proposed project. These measures included the identification of stakeholders affected or interested in the ICP Project and the instigation of forums to facilitate open communication and discussion. In addition, a toll-free Community Affairs Hotline was set up so the community could have any questions or queries responded to by the ICP Project team directly.

Given the proposed modifications as outlined in this EA, BlueScope Steel will continue to ensure that the community is well informed of the proposed modifications.

3. EXISTING ENVIRONMENT AND EXISTING DEVELOPMENT CONSENT

3.1 EXISTING ENVIRONMENT

The PKSW is a 742 ha industrial site located in the Wollongong Local Government Area (see Fig 1-1). Approximately 80km from Sydney and 2.5km from the City of Wollongong, the PKSW is the largest steel production facility in Australia. The PKSW specialises in the production of flat steel products, including slab, hot rolled coil, cold rolled coil, plate and value-added metallic coated and painted steel products.

The site comprises the No.1 Works, No.2 Works, Steelhaven and the Recycling Area. The No.2 Works is divided into two sections by Allan's Creek. The southern half of the No.2 Works comprises the Cokemaking, Ironmaking and Steelmaking Facilities, while the northern half contains the Recycling Area and the Packaging Products section (see Fig 3-1).

The PKSW operates under the existing Environment Protection Licence (EPL) 6092 (see Section 5.1.4).

All sections of the PKSW are internally linked by road and rail and are currently provided with electricity, water and gas services.

3.2 DESCRIPTION OF THE EXISTING DEVELOPMENT CONSENT (DA 767/01)

The main components of the existing Development Consent (DA No. 767/01) issued by WCC and modified by "Notice of Modification – Section 75W of the Environmental Planning and Assessment Act 1979, 15 December, 2008" (2008 Modification) to construct and operate the ICP Project are:

- A 225 MW condensing steam turbine generator (STG)
- Three boilers generating approximately 1,100 tonnes per hour (tph) of steam, and auxiliary equipment required for the operation of the plant
- A substation and electrical connection (132 kV and 33 kV powerlines) from the cogeneration plant to the substation
- Basic Oxygen Steelmaking (BOS) Off-Gas collection system including a 60 m high by 66 m diameter gas holder
- A once-through salt water cooling system discharging spent water into Port Kembla Inner Harbour
- Piping and infrastructure connections from the ICP to BlueScope Steel infrastructure.

Figure 3-1 Port Kembla Steelworks

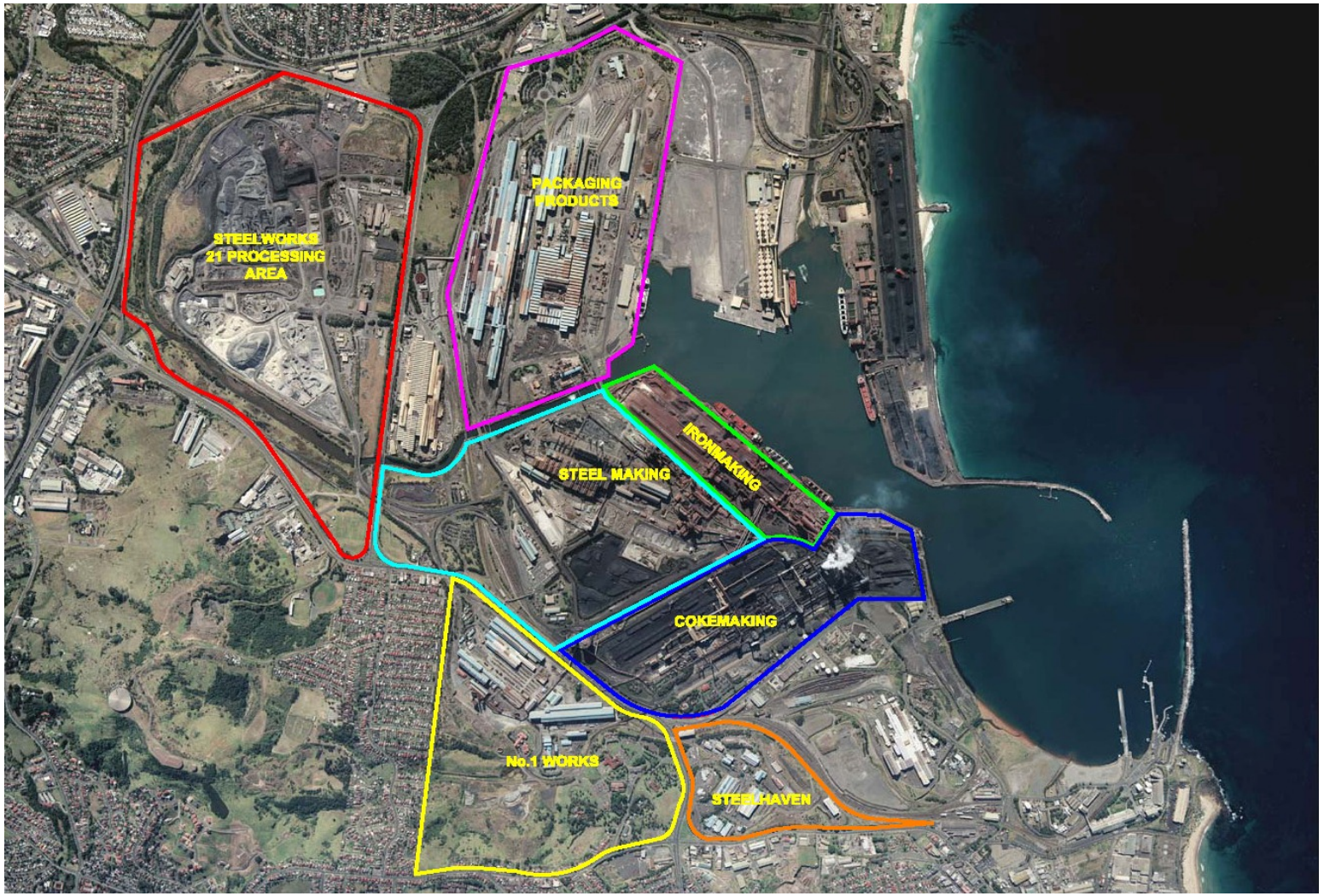
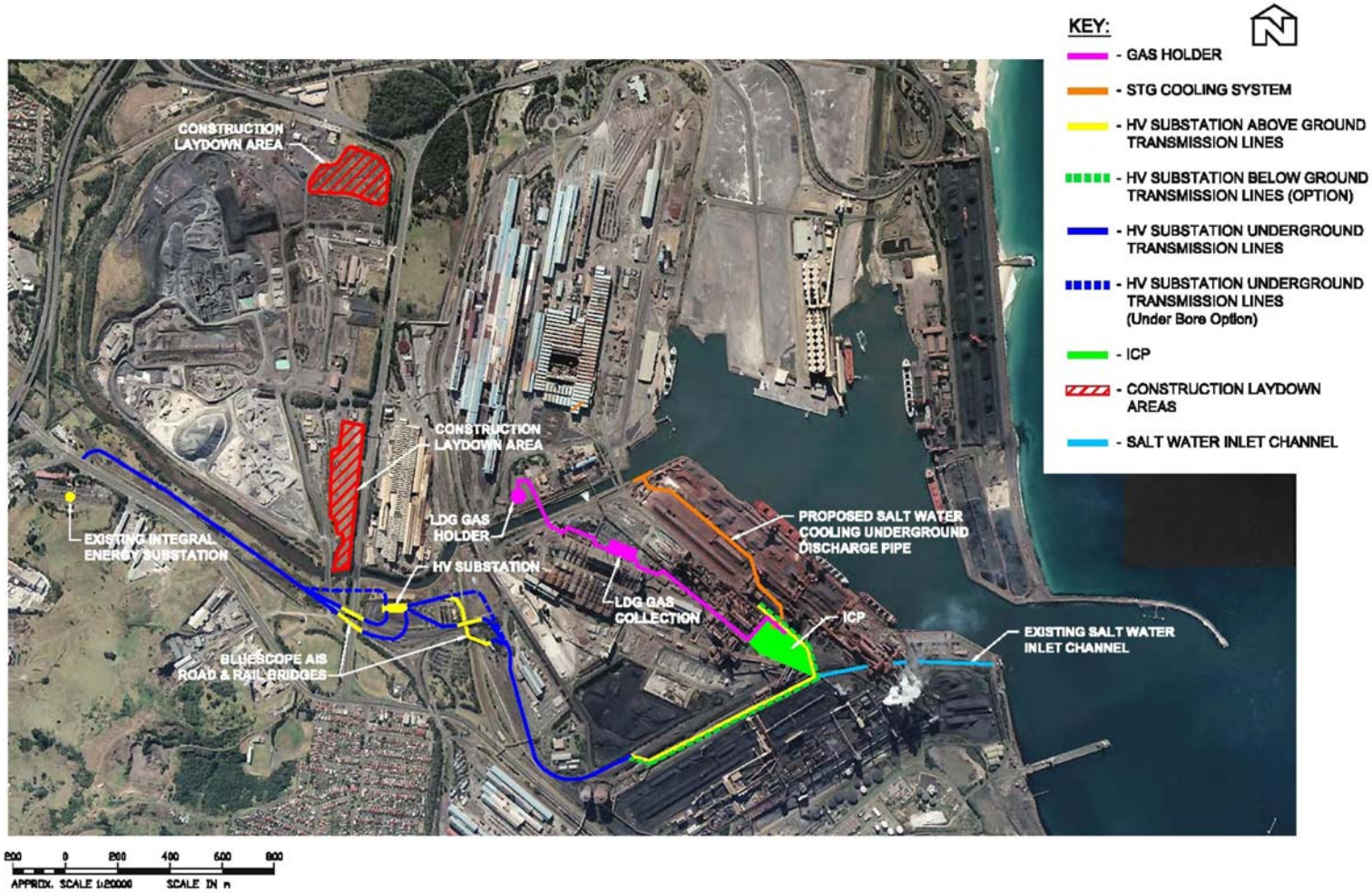


Figure 3-2 Approved Illawarra Cogeneration Plant Project



4. PROPOSED MODIFICATIONS AND ASSOCIATED BENEFITS

4.1 BACKGROUND

A reliable supply of steam is critical to maintaining steel production at PKSW, as much of the equipment required for the iron and steel making processes is driven by steam turbines. Some of the existing steam generation equipment is approaching the end of its design life and needs to be replaced.

BlueScope Steel has for some time been proposing to build the Illawarra Cogeneration Plant as a comprehensive solution to the steam generation issues, in conjunction with providing significant environmental benefits.

In August 2008, BlueScope decided to commence work on the 2008 Modification of the ICP Project. This work was paused in December 2008 given the advent of the Global Financial Crisis (GFC)

The GFC has had a significant impact on the steel industry globally and BlueScope Steel has also felt this impact in Australia. In response to these difficult economic circumstances it was necessary to take steps to ensure the long term viability of the business. Consequently, in April 2009, BlueScope Steel decided to defer the major part of the project for a period of 2 to 4 years.

In order to address the process safety and operational security issues in the interim period until the ICP Project can be recommenced, it is proposed to continue with a limited amount of the original ICP scope and to modify the Development Consent to allow installation of interim equipment to deal with the immediate operational issues.

The most pressing safety and security issues are believed to be associated with the existing carbon steel high pressure steam main and the two oldest boilers (B21 and B22). It was decided that work should progress towards decommissioning the carbon steel high pressure steam main and boilers B21 and B22.

In order to decommission B21 and B22, it is necessary to replace the steam generation capacity of these boilers. Accordingly, it is proposed to install natural gas-fired “package boilers” as replacement capacity for the retired boilers.

The arrangement of boilers, the high pressure steam main and the main steam driven turbines in the No. 2 Blower Station is shown schematically in Figure 4-1 below. The figure shows the existing equipment which will remain, that which will be decommissioned, and the proposed package boilers and new steam mains.

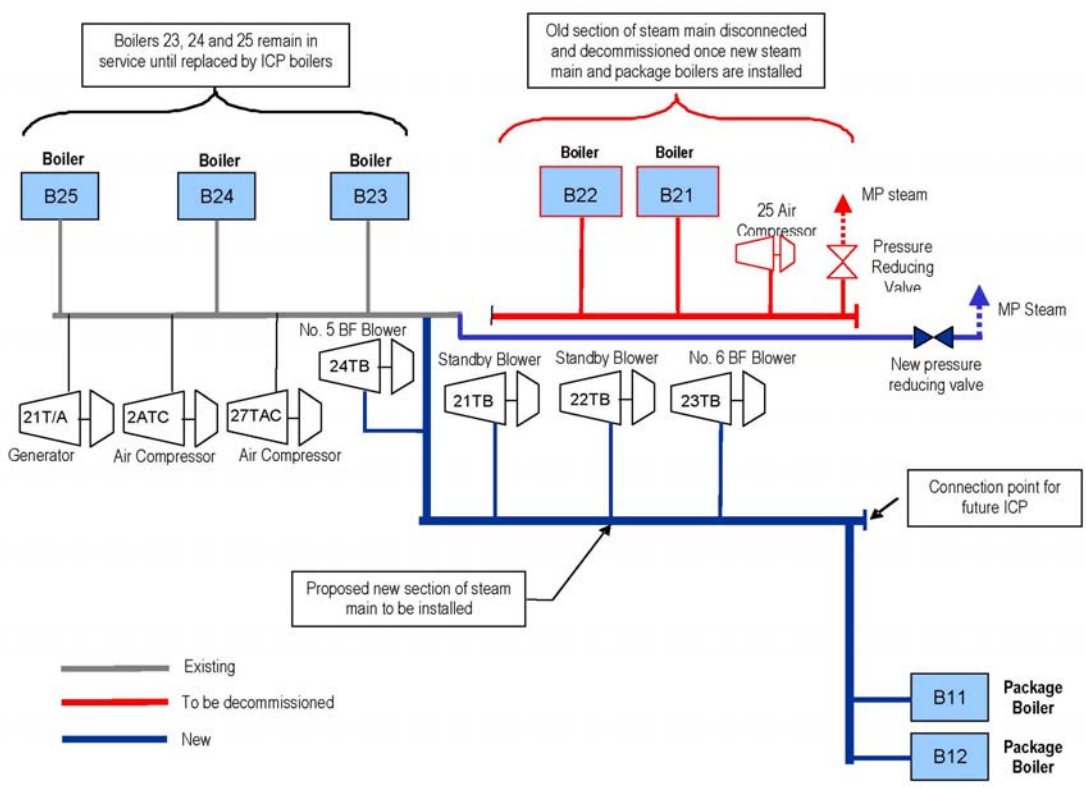


Figure 4-1 Interim Arrangement of Equipment at No 2 Blower Station

4.2 SCOPE OF MODIFICATION

The proposed modification involves the installation of two new package boilers to replace Boilers 21 and 22 (which will be decommissioned in accordance with the original ICP Project scope). The remaining existing Boilers 23, 24 and 25 would continue to operate until able to be replaced with ICP boilers.

In the approved ICP Project plan, the existing aged boilers at Port Kembla Steelworks were to be replaced by new 365 tph by-products gas fired boilers. Given the deferral of ICP, this will not happen for some time. In the interim, until the major part of the ICP project can be restarted, it will be necessary to offset the loss in steam capacity resulting from the retirement of boilers 21 and 22 by some other means.

To provide steam capacity in this interim period, it is proposed to install natural gas-fired, "package boilers". Existing Boilers 21 and 22 each have the capacity to produce 90 tonnes per hour of high pressure steam and the new boilers will have the same capacity.

The de-commissioning of boilers 21 and 22 will lead to the flaring of additional by-product fuels.

Package boilers are so called as they are delivered to site as a complete package with most of the assembly work being completed in the workshop, with limited site assembly required to get them operational. For this reason, they can be fabricated cost effectively and be put into operation much more quickly than a conventional, site-assembled boiler.

Package boilers capable of firing steelworks by-products gases are not commercially available in the capacity required. Consequently, the proposed boilers will be fired with natural gas. Given the cost of natural gas, the remaining by-products gas boilers will be used in preference to the package boilers. Substantial use of the package boilers will generally be limited to times when the by-products gas-fired boilers are shut down for maintenance or other operational reasons.

The package boilers will require some additional infrastructure in order to operate, in the form of electrical switchrooms, interconnecting pipework to the required services and connection to the new high pressure steam main.

Figure 4-2 shows a three dimensional representation of the package boiler layout and Figure 4-3 shows a view of the proposed arrangement from above.

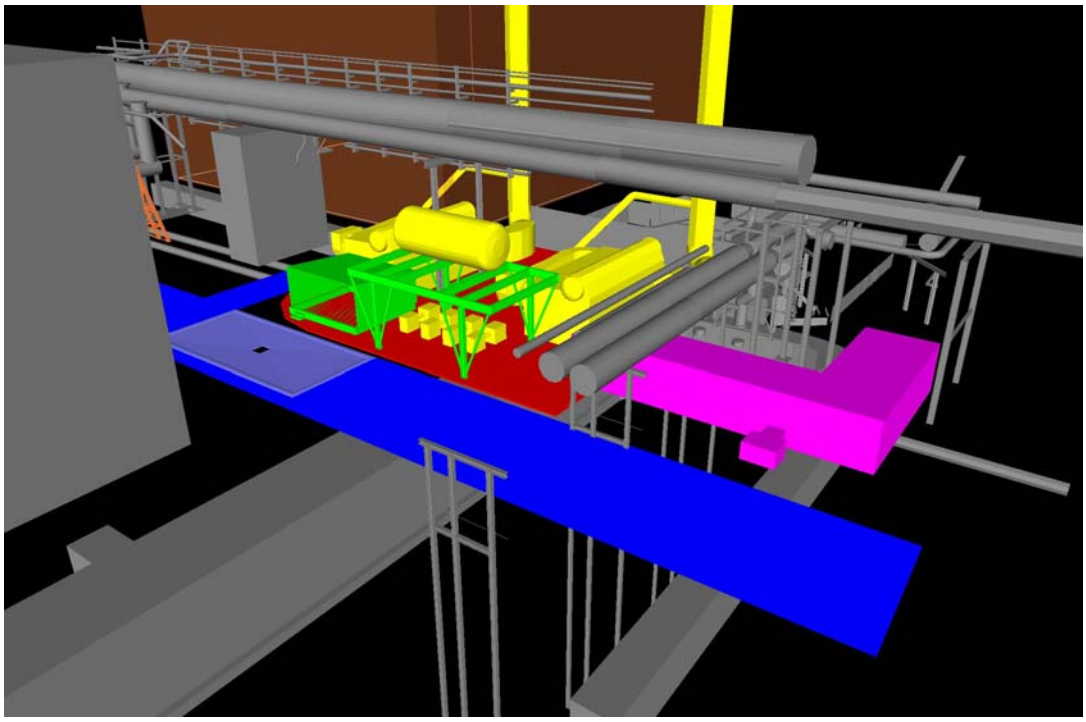


Figure 4-2 Package Boiler Layout – 3D View

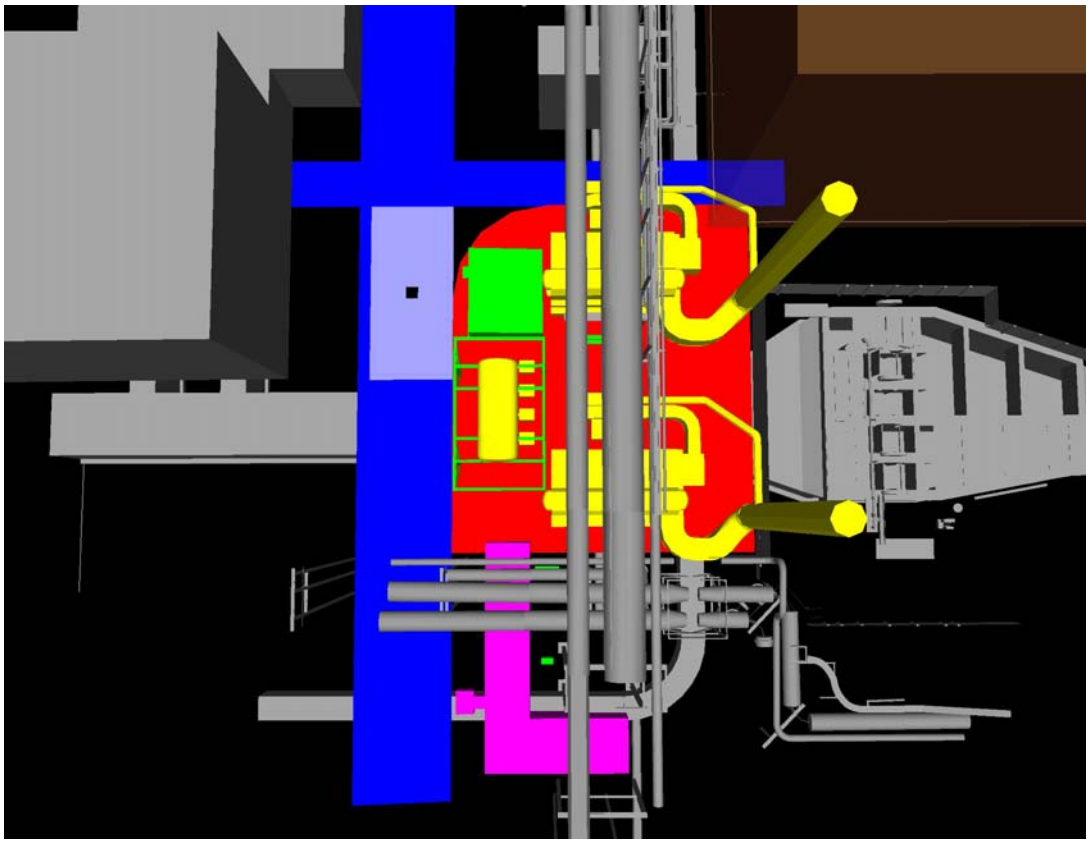


Figure 4-3 Package Boiler Layout – View From Above

5. PLANNING AND LEGISLATIVE REQUIREMENTS

5.1 PLANNING APPROVAL PROCESS

5.1.1 Overview

The Environmental Planning and Assessment Act 1979 (EP&A Act) provides the framework for the assessment of the environmental impact of development proposals in NSW prior to the granting of development consents or other planning approvals.

5.1.2 Development Consent

The Development Consent (No.D767/01) was granted by Wollongong City Council under Part 4 of the EP&A Act for the construction and operation of the ICP Project in 2002. On BlueScope Steel's Limited's application, the Development Consent has subsequently been modified:

(a) by Wollongong City Council in 2005 to enable construction of the ICP Project in two stages; and

(b) by the Minister for Planning in 2008 to allow, amongst other things, modification to the approved boilers, relocation and resizing of the approved gas holder and modification to the steam turbine generator cooling system.

5.1.3 Modification of consent under Part 3A

The Development Consent was originally granted before commencement of Part 3A of the EP&A Act. Clause 8J(8) of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation) provides a mechanism for a development consent for a project which would have been subject to Part 3A as a major project if approval for the development was being sought today, to be modified under section 75W of the EP&A Act.

Under clause 6 and Item 24 of Schedule 1 of State Environmental Planning Policy (SEPP)(Major Development) 2005, the following development is declared to be a major project under Part 3A:

> *"Development for the purpose of a facility for the generation of electricity or heat or their co-generation (using any energy source, including gas, coal, bio-fuel, distillate and waste and hydro, wave, solar or wind power), being development that:*
>
> (a) has a capital investment value of more than $30 million, or
>
> (b) has a capital investment value of more than $5 million and is located in an environmental sensitive area of State significance."

Under those provisions, the ICP Project, as a co-generation plant with a capital investment value over $30 million, would have been subject to Part 3A if approval for the ICP Project were being sought today.

The mechanism in clause 8J(8) is only available where the Minister approves of the development consent being treated as an approval granted under Part 3A for the purposes of section 75W. The Minister has given her approval for the Development Consent for the ICP Project being treated as an approval under Part 3A for the purposes of this further modification. However, it is noted that although the modification process is a Part 3A process, the Development Consent for the ICP Project as modified will remain a consent granted under Part 4 of the EP&A Act.

5.1.4 Licensing and Permits

5.1.4.1 Licensing

Under section 55 of the *Protection of the Environment Operations Act* 1997 (POEO Act), BlueScope Steel (AIS) Pty Ltd is the holder of the existing Environment Protection Licence (EPL) No. 6092 for a Scheduled Activity (Premises Based). BlueScope Steel will apply for modification of EPL No. 6092 to incorporate the ICP Project, including the Project as modified, if this application is approved.

DECCW has regularly been consulted during the planning process and is aware of the requirement for BlueScope Steel (AIS) Pty Ltd to modify its existing EPL to incorporate operation and management of the ICP Project.

5.1.4.2 Permits/Approvals

Permits and approvals required for the current Development Consent, as modified, will not be affected by the currently proposed modification.

5.2 NSW PLANNING INSTRUMENTS

State Environmental Planning Policies (SEPPs) identified as being applicable to the ICP project in previous EA documents remain relevant to the modified project.

The following NSW Environmental Planning Instruments no longer apply to PKSW:

- Illawarra Regional Environmental Plan No. 1, 1998
- Wollongong Local Environment Plan, 1990
- Wollongong Development Control Plan No. 6 Commercial and Industrial Premises.

PKSW is now subject to Part 20 of Schedule 3 to State Environmental Planning Policy (Major Development) 2005 (previously called SEPP (Major Projects) 2005). The site is zoned IN3 Heavy Industrial under Part 20 of Schedule 3 of the Major Development SEPP. Clause 8 of Part 20 requires the consent authority to have regard to the objectives for development in a zone when determining a development application in respect of land within the zone. The objectives and categories of permissible development are set out in clause 10 of Part 20 as follows:

> *10 Zone IN3 Heavy Industrial*
>
> *(1) The objectives of Zone IN3 Heavy Industrial are as follows:*
>
> *(a) to provide suitable areas for those industries that need to be separated from other land uses,*

(b) to encourage employment opportunities,

(c) to minimise any adverse effect of heavy industries on other land uses,

(d) to provide transport infrastructure and intermodal facilities,

(e) to allow some diversity of activities that will not significantly detract from the operation of existing or proposed industries.

(2) …

(3) Development for any of the following purposes is permitted only with development consent on land within Zone IN3 Heavy Industrial:

Depots; food and drink premises; freight transport facilities; heavy industries; port facilities; roads; transport depots; warehouse or distribution centres; waste or resource management facilities.

The ICP Project, as currently approved, and with the currently proposed modification, is permissible with consent within the IN3 Heavy Industrial zoning and is also consistent with the objectives of the IN3 Heavy Industrial zone.

5.3 COMMONWEALTH POLICES/PLANNING INSTRUMENTS

Commonwealth Legislation and National Environment Protection Measures (NEPMs), including the Ambient Air Quality NEPM and Air Toxics NEPM, identified as being applicable to the ICP Project in previous EA documents, remain relevant to the modified project.

The air quality assessment for the introduction of the proposed package boilers can be found in Section 9.1 of this document.

It is noted that the National Pollution Inventory (NPI) no longer includes reporting on GHG emissions. Those emissions are now reported under the National Greenhouse and Energy Reporting Act 2007 (Cth).

The greenhouse gas assessment for the introduction of the proposed package boilers can be found in Section 9.2 of this document.

6. ALTERNATIVES CONSIDERED

During the project planning process, alternatives were considered for:

- Size and number of package boilers
- Location of the package boilers
- NO_x emission control technology fitted to the boilers

6.1 SIZE AND NUMBER OF PACKAGE BOILERS

The installation of package boiler(s) in conjunction with the replacement of the existing carbon steel section of the high pressure steam main will enable the decommissioning of Boilers 21 and 22 and associated equipment and piping systems.

It was proposed that the package boiler(s) be sized at around 180 tph steam flow capacity at 42 barg pressure (high pressure) to provide a complete replacement of steam capacity removed with the retirement of 21 and 22 Boilers which are each of 90 tph capacity.

Initially, consideration was given to a package boiler which produced steam at medium pressure (interworks) steam pressure. Modelling quickly concluded that this was not a good option for operational security when both 21 & 22 boilers are shut down.

An assessment was made of the availability of package boilers of 180 tph capacity and it was determined that this was a very large package boiler and that very few suppliers were able to offer a package boiler of that capacity.

Having two boilers provides additional operational security and flexibility, minimises the amount of natural gas consumed (and hence NO_x produced) when one boiler is at minimum load while on standby for operation.

Given these major factors it was decided to install two 90 tph, 42 bar boilers.

6.2 LOCATION OF PACKAGE BOILERS

6.2.1 Criteria for location

The following criteria were considered in determining the location of the package boilers:

a) Proximity to connection to the high pressure steam system at No.2 Blower Station;

b) Proximity to suitable feedwater;

c) Proximity to the existing NG supply network;

d) Proximity to electrical supplies for boiler auxiliaries;

e) Adequate footprint area for construction, operations and maintenance;

f) Ease of access for operations (assuming remote un-manned operation);

g) Access for construction, particularly the ability to transport to site as a complete boiler module;

6.2.2 Options for Location of a Package Boiler

Numerous location options were considered for the proposed package boilers. Figure 6-1 provides an overview of all sites. Table 6-1 provides a description of each site.

The locations marked I-10, I-12, I-30 and A-27 are switchrooms representing potential sources of electrical power for the package boilers.

Site Option	Description
A1	Adjacent to No.25 Boiler on the old Coke Ovens Gas Compression Plant site (on the proposed ICP Water Treatment Plant site)
A2	Adjacent to the old Coke Ovens Gas Compression Plant site NW of new Energy Services offices
B	Eastern end of ICP site on part of proposed turbine hall footprint
C	Western end of ICP site on No.31 Boiler footprint extending under No. 6 Blast Furnace conveyors
D	No.4 Blast Furnace (partially demolished) site
E	Adjacent to the Gasholders and No.2 Pump Station.
F	No.1 Works adjacent to service bridge to No.1 Power House
G	Off SW corner of ICP site adjacent to bandscreens and under 6BF service mains
H	Car park area between turbine hall, No. 25 boiler and new Energy Services offices

Table 6-1 Description of Package Boiler Location Options

6.2.3 Summary of locations and preferred site

Table 6-2 provides a summary of the characteristics considered for each site. Site options E and F are not included in the summary table, as these sites were only economically suitable for medium pressure boilers.

Site G was chosen as the preferred site for the following reasons:

- Does not prevent the construction and commissioning of the remainder of the ICP facilities;
- New HP steam main is fed from its design feed end and consequently keeps complete main warm;
- No significant difference in cost of providing services to this site compared to the other low cost sites;
- Good construction laydown area on the adjacent ICP site.

There are a number of issues associated with this site, however, which will require attention during design:

- Increased foundation complexity due to saltwater inlet channel under the site;

- More restricted construction and maintenance access due to No. 6 Blast Furnace services overhead;
- Minor re-design work will be required for proposed ICP saltwater cooling pipework and associated foundations.

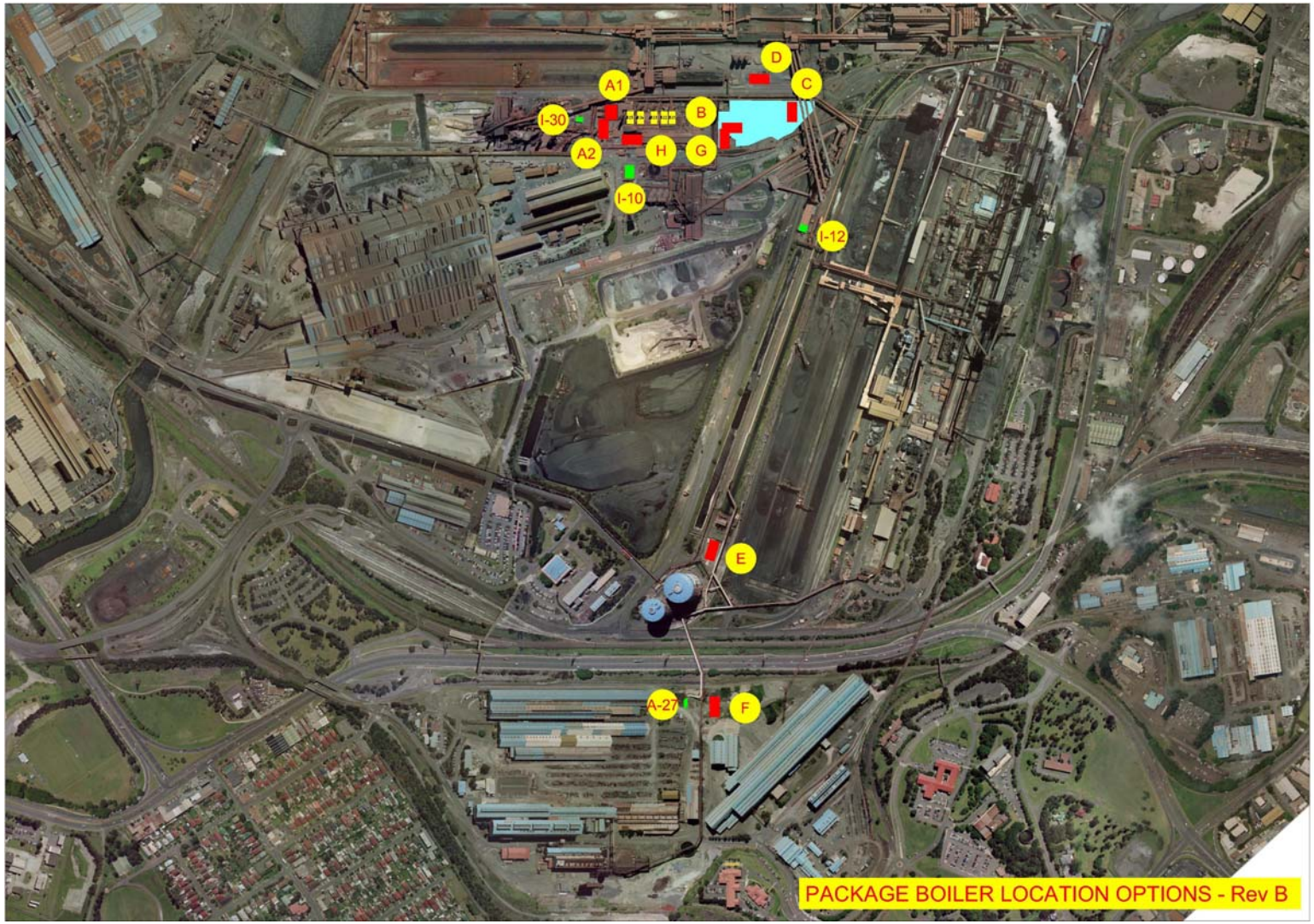


Figure 6-1 – Package Boiler Location Options

Table 6-2 Summary of Package Boiler Location Options

Criteria	Option						
	A1	A2	B	C	D	G	H
Proximity to connection to the HP Steam system	65m	65m	20m Assumes new HP steam mains installed	190m Assumes new HP steam mains installed	130m Assumes new HP steam mains installed	40m Assumes new HP steam mains installed	30m
Proximity to suitable feedwater	65m	65m	65m	255m	200m	85m	30m
Proximity to the existing NG supply network	10m	10m	50m	10m	65m	70m	85m
Proximity to HV electrical supplies	185m	185m	280m	385m	510m	260m	220m
Adequate footprint area for construction, operations and maintenance	Good Site 30m x 25m Adjacent 40m x 20m Laydown / construction area.	Good Site 40m x 20m Adjacent 30m x 25m Laydown / construction area.	Excellent Site 40m x 20m (or bigger if needed) Whole SCP site as Laydown / construction area.	Excellent Site 40m x 20m (or bigger if needed) Whole SCP site as Laydown / construction area.	Excellent Site 40m x 20m (or bigger if needed) Whole 4 BF site as Laydown / construction area.	Tight Site 30m x 25m Whole SCP site as Laydown / construction area. Height restrictions under 6 BF service mains. Saltwater inlet channel below.	No Site 25m x 20m No adjacent Laydown / construction area. Very cramped
Ease of access for operations (assuming remote un-manned operation)	Good	Good	Good	Adequate	Adequate	Good	Excellent

Criteria	Option						
	A1	A2	B	C	D	G	H
Access for construction, particularly the ability to transport to site as a complete boiler module	Height limitation under gas mains	Height limitation under gas mains	Height limitation under gas mains	Height limitation under gas mains	Probably the best of all options	Height limitation under gas mains	Poor Craneage over mains for many items
Future SCP compromised	MINOR - May require modification to GE Water WTP layout and building.	MINOR - May require modification to GE Water WTP layout and building.	MAJOR – If it prohibits ability to build STG with first boiler, prevents SCP from starting with island plant for commissioning.	MAJOR – May require modifications to SCP design if cost limits make pipework more intrusive to site than desired.	No	MINOR - May require modifications to SW cooling pipework.	No
Can package boiler remain in service during SCP construction / commissioning	Yes	Yes	For some of period if SCP staged	For some of period if SCP staged	Yes	Yes	Yes
Other Benefits	Allows containment of HP main on ES site.	Allows containment of HP main on ES site.	Allows containment of HP main on ES site. Keeps HP main dead-leg to ST12 warm.	Allows containment of HP main on ES site. Keeps HP main dead-leg to ST12 warm.	Keeps HP main dead-leg to ST12 warm.	Allows containment of HP main on ES site. Keeps HP main dead-leg to ST12 warm.	Allows containment of HP main on ES site.
Other Issues	New HP main designed to be supplied from eastern end of blower station.	New HP main designed to be supplied from eastern end of blower station.			Results in potential HP steam vulnerability as main and other services crossing Iron Ore Rd.		New HP main designed to be supplied from eastern end of blower station.

6.3 NO_X CONTROL TECHNOLOGY OPTIONS

The emission of nitrogen oxides has been determined to be the only significant environmental issue associated with the installation of the package boilers. Consequently, the selection of the appropriate technology to minimise the NO_x emission whilst maintaining the reliability, operability and cost effectiveness of the package boilers was given careful consideration.

6.3.1 NO_x Control Technologies Considered

The following technologies were evaluated in the course of the boiler technology selection:

- Low NO_x burners
- Flue gas recirculation
- Over-fire air (staging)
- Ultra low NO_x burners
- Selective catalytic reduction (SCR)
- Selective non-catalytic reduction (SNCR)

It was found that not all of these technologies are available, or technically feasible, for use on a package boiler.

6.3.1.1 Low NO_x Burners

There are many different types of low NO_x burners available. Most control the formation of thermal NO_x by staging the combustion and diluting the mixture in subsequent stages with flue gases from previous stages in order to reduce the flame temperature. Use of Low NO_x burners in package boilers is somewhat limited by the compact design of the boiler and the flame length produced by the burner – some low NO_x burners have very long flame lengths which cannot be accommodated in the package boiler combustion chamber.

The operating strategy proposed for the package boilers is to run the boilers as infrequently as possible and have them turned down as low as possible. Consequently, a burner with a significant turndown ratio is also required. This also limits the range of low NO_x burners available.

Low NO_x burners for this application are available for moderate cost. Given the very effective NO_x reduction performance, particularly when combined with flue gas recirculation, low NO_x burners offer a very cost effective NO_x reduction solution.

6.3.1.2 Flue Gas Recirculation

Flue gas recirculation systems use a recycling of flue gas into the combustion air for the burner, reducing the oxygen content of the combustion air and thereby reducing flame temperature. The side stream of flue gas requires either a separate fan or use of a larger forced draft fan which, whilst providing a NO_x reduction benefit, reduces the overall efficiency of the boiler (given the consumption of electricity for the fan) and increases Scope 2 greenhouse gas emissions. Additional ductwork and dampers are also required which can complicate the physical layout of the boiler where space is constrained.

When used in conjunction with low NO_x burners, flue gas recirculation can provide a cost effective reduction in NO_x emissions.

6.3.1.3 Over-fire air (staging)

In a vertically arranged boiler, the fuel/air mixture at the burner can be kept to a sub-stoichiometric ratio (keeping the flame temperature down), with additional combustion air ("over-fire air") introduced through ports in the wall of the furnace above the burner to complete combustion.

Package boilers are typically arranged horizontally due to transport restrictions and hence this method of NO_x control is not suitable for package boilers.

6.3.1.4 Ultra low NO_x burners

"Ultra" low NO_x burners are relatively new technology which work on the same principles as the low NO_x burner but take these several steps further. They are characterised by multiple gas injectors, each adjustable for fuel/air ratio. NO_x emissions as low as 30mg/Nm3 @ 3% O_2 are possible under some circumstances during stable operation.

Investigations have shown that ultra low NO_x burners can create difficulties on start up – a problem given that the package boilers will only be run when required and started and stopped frequently. Ultra low NO_x burners are also more suited to stable operation and these boilers are required to provide steam to a significantly fluctuating load. Burners of this type are also prohibitively expensive, adding approximately $1,000,000 to the cost of the boilers.

6.3.1.6 Selective catalytic reduction

Selective Catalytic Reduction (SCR) is a post combustion control where ammonia is injected into the flue gas stream to react with NO_x in the presence of a catalyst. The products of the reaction are molecular nitrogen and water. The SCR process is best suited to a very stable operating situation mainly due to the temperature dependency of the catalytic NO_x -ammonia reaction.

The reaction is effective only within a very narrow temperature range of around 290ºC to 400ºC. The requirement for a temperature of at least 290ºC means that the SCR cannot be installed in the duct before the stack. Rather, the only location where the SCR would operate is prior to the boiler economiser which would result in a custom designed boiler which would no longer be a "package boiler".

In addition, a straight, 10 metre length of vertical duct is required prior to the reactor and this must flow from top to bottom. Hence, it would be necessary to install a large 13 m high inverted "u" in the ductwork. Given the proposed location of the boiler underneath the services mains to No. 6 Blast Furnace this would be very difficult (if not impossible) to fit on the existing site. The result would be that the boilers would have to be moved onto the proposed ICP site, making the future implementation of the ICP Project much more difficult.

The guarantee on NO_x provided by the SCR supplier is 50 mg/Nm^3. The capital cost of these units is in excess of $1,000,000. This level should be capable of being achieved with low NO_x burners combined with flue gas recirculation.

The cost of operating these units includes the cost of reagents (estimated at $1.5M p.a.) and catalyst replacement. Catalysts are expensive and also require costly disposal of the exotic metals in the spent catalysts.

Other issues associated with the use of SCR include:
- risk of exhaust emissions containing excess, un-reacted ammonia (ammonia slip);

- increased storage and safe handling risks associated with ammonia; and
- safe disposal of spent catalysts which typically contain heavy metal oxides.

6.3.1.5 Selective non-catalytic reduction (SNCR)

In SNCR systems, ammonia or urea is injected into the flue gas in the furnace in a location where the gas is between 900°C and 1,100°C, without the presence of a catalyst. Emissions of NO_x can be reduced by 30% to 50%. The NO_x and reagent react to form nitrogen and water. The higher stoichiometric ratios required mean that three or four times as much reagent is used compared to SCR systems to achieve similar NO_x reductions (cost of reagent approx. $4.5 - 6.0M p.a.).

Ammonia slip from SNCR systems is difficult to control and occurs either from injection at temperatures too low for effective reaction with NO_x or from over-injection of reagent (which can easily occur as there is no opportunity for effective feedback to control reagent injection).

6.3.2 NOx control technology selected

Each of the technologies listed above were evaluated for the package boiler application. Some of the technologies were found to be unsuitable or unavailable for package boilers.

The following table outlines the cost versus NO_x reduction effectiveness of various options. Note that a price for SNCR was not obtained for this project. It is recognised, however, that the cost of that option would be between that of ultra low NOx burners and SCR.

Technology		$\frac{mg\ NO_x}{Nm^3\ @\ 3\%O_2}$	Average Expected Operation tonne/yr	Incremental Cost* from Low NO_x base	Cost of NO_x Abatement $/tonne/yr
Burner	Other				
Low NO_x		128.6	36.8		
Low NO_x	Flue Gas Recirculation	64.3	18.65	$240,000	$ 17,631
Ultra Low NO_x	Flue Gas Recirculation	38.6	11.05	$1,000,000	$ 38,835
Low NO_x	SCR	19.3	5.55	$2,525,000	$ 80,800

*Capital cost only. Operating costs are not included.

It was decided that the use of low NO_x burners combined with flue gas recirculation was the most practical and cost effective way of achieving the appropriate level of NO_x reduction for this application.

The start up and tuning difficulties of ultra low NO_x burners ruled them out for this particular application. They are also best suited for stable operation – the package boilers will be set up to operate only when required and will be constantly ramping up and down.

The use of SCR significantly increases the footprint of the boilers, resulting in the boilers not fitting on the proposed site. The cost per tonne of abatement is prohibitive for this application, before the operating costs associated with ammonia and replacement of catalysts are factored in.

Similarly, SNCR is not suited to this application, given the fluctuating loads and increased risk of ammonia slip.

7. TIMING OF PROPOSED MODIFICATIONS

Final Board approval for the capital cost of the interim solution was received in June 2009. This approval set the timing of the implementation of interim solution as shown in the following table.

	Start Date	End Date
Steam mains installation	November 2009	January 2011
Cutovers complete and new steam mains in operation		July 2011
Package boiler installation	June 2010	December 2011

Timing is, however, dependent on construction constraints and other unforeseeable events.

The timing for recommencement of the ICP Project proper is unknown at this stage, being dependent on business conditions in the steel industry improving to the point where the company is able to proceed. At this stage, the deferred period is estimated at between two and four years.

8. ENVIRONMENTAL ISSUES AND RISK ASSESSMENT

8.1 ENVIRONMENTAL ISSUES

A comprehensive EIS in relation to the ICP Project was submitted and assessed as part of the original development application to WCC for approval of the ICP Project.

Environmental issues associated with the 2008 Modification were addressed in the Environmental Assessment submitted at that time.

Environmental impacts and management strategies associated with the original ICP Project and the modifications proposed in 2008 were assessed and determined to be acceptable.

A risk assessment has been undertaken to identify the potential key environmental issues associated with the currently proposed modifications.

The risk assessment classified each potential environmental impact and its associated aspect as Key, Moderate or Low Risk based on the likelihood and consequence of each aspect. In addition, changes which are expected to result in an environmental benefit were identified.

Appendix A contains the details of the risk assessment process, risk definitions and environmental issue classification.

The nature of the current modifications, compared to the overall scale of the ICP Project, together with the fact that the ICP Project is located in the middle of a major heavy industrial facility means that material environmental impacts of the proposed modifications are limited to a few environmental issues. The proposed modifications are not expected to have any material adverse impact on the following:

- Surface water quality
- Hydrology and flooding
- Hydrogeology and groundwater
- Soils
- Socio-economic setting
- Human health
- Noise and Vibration
- Water Quality / Water Resource
- Flora and Fauna (Aquatic and Terrestrial)
- Hazard and Risk Assessment
- Traffic and transportation
- Indigenous and Non-indigenous Heritage.

The following environmental issues were identified from the risk assessment as Key environmental issues arising from the modifications:

- Air Quality
- GHG Emissions

The following environmental issues were identified from the risk assessment as Low Risk environmental issues arising from the modifications:

- Hazard and Risk Assessment
- Visual Impact
- Noise
- Water Quality

A discussion of these environmental issues and further assessment is contained in Section 9.

The other environmental issues assessed as Low Risk in Appendix A are not considered to be relevant to the proposed modifications. Assessments in earlier Environmental Assessments related to those issues (for the full ICP) remain valid.

9. ASSESSMENT OF ENVIRONMENTAL ISSUES

9.1 AIR QUALITY

BlueScope Steel currently burns a combination of by-product gases which are generated from the iron and steelmaking operations at the PKSW. These by-product gases are currently burnt in various process uses throughput the PKSW and at the No. 2 Blower Station and include Blast Furnace Gas (BFG) and Coke Ovens Gas (COG). All basic oxygen steelmaking (BOS) off-gas which is also produced as a result of the steelmaking operations at the PKSW is currently flared.

BOS off-gas is produced during oxygen blowing in the BOS process. It is produced intermittently due to the batch operation of the three BOS vessels. BFG is produced by the No. 5 and No. 6 Blast Furnaces and COG is produced by the four coke oven batteries (Nos 4, 5, 6 and 7A). Excess BFG and COG that cannot be used across the PKSW is also flared.

9.1.1 Air Quality Impact Assessment – Approved ICP Project

In 2001, Holmes Air Sciences (Holmes) was engaged to undertake an air quality impact assessment to assess the environmental impacts associated with construction and operation of the ICP Project at the PKSW, as part of the work for the Original 2002 Consent.

The US EPA industrial source complex model ISCST3 and CALPUFF model were used to undertake the assessment.

The approach taken for the assessment compared the existing operations i.e. emissions from the No.1 Power House and No.2 Blower Station (pre-ICP) with the predicted emissions from the operation of the ICP (post-ICP). The post-ICP case included the decommissioning of the No.1 Power House and No. 2 Blower Station boilers. This would produce a net result, identifying the change in emissions associated with the ICP Project.

Holmes Air Sciences was re-engaged to undertake an air quality impact assessment as part of the EA for the 2008 Modification. The same approach was undertaken, which involved a comparison with the existing emissions pre-ICP from the No. 2 Blower Station with the predicted emissions from the ICP, taking into consideration decommissioning of boilers from the No. 2 Blower Station. This produced a net result, identifying the change in emissions associated with the modified ICP Project.

The assessment concluded that air quality impacts of NO_x, PM_{10} and SO_2 emissions from the ICP were predicted to be close to or slightly lower than the current operations, for comparable scenarios. The most common operational ICP scenarios were unlikely to cause exceedances of the DECC's ambient air quality criteria.

9.1.2 Air Quality Impact Assessment – Currently Proposed Modifications to ICP Project

The introduction of natural gas fired package boilers is not expected to introduce any additional emissions of SO_2. The air quality assessment has therefore been limited to NO_x and PM_{10} impacts.

NO_x

Discussions have been held with the Department of Environment, Climate Change and Water regarding the appropriate NO_x control combustion technology to be applied, and the potential impacts resulting from that technology and the proposed operating strategy of the package boilers.

As described in Section 6.3, the boilers will be equipped with "low NOx" burner technology and "flue gas recirculation". The boiler supplier has not yet been selected. Current indication from boiler vendors is that a stack NOx concentration of 65 mg/Nm3 @ 3% oxygen is achievable at steady loads between 25% and 100% MCR. During load changes, and at the minimum possible operating load, the stack concentration will be higher. The maximum emission concentration predicted by the boiler vendors is 200 mg/Nm3 @ 3% oxygen, which complies with relevant legislation.

BlueScope Steel intends to minimise the environmental impacts and natural gas costs associated with operating the package boilers by operating them at the lowest possible loads consistent with maintaining reliable steam supplies to the process consumers. Due to both the normal variation in process steam demand and the lower steam generation from the remaining by-product fuel boilers ie. 23, 24 and 25 Boilers – see Figure 4-1, when one of them is out of service, the package boiler load will vary significantly. Scheduled outages of the by-product boilers are on a two yearly cycle ie. there is a scheduled outage of 24 Boiler in 2011/12 FY and scheduled outages of both 23 and 25 Boilers in 2012/13 FY. The two yearly pattern will be repeated until those boilers are de-commissioned, when replaced by the ICP boilers. The expected package boiler load profile for two years, showing that variation, is given in Figure 9-1.

The high number of hours per year at low load (20-40 tonnes steam/hr) represents the operation of one package boiler at minimum load whenever all of the remaining by-product fuel boilers are in service. The minimum load on the boiler will depend on the following, which may vary between suppliers:

- Burner turndown (burner stability at low load),
- Steam temperature at low load (impact on steam consumers), and
- Minimum load at which acceptable NO_x emission concentration is achievable.

Figure 9-1 assumes that the minimum possible boiler load is 25% of the Maximum Continuous Rating (MCR) ie 22.5 tonne/hr. Using an assumed NO_x emission concentration of 65 mg/Nm^3 @3%O_2, Figure 9-2 shows the expected distribution of NO_x mass emissions.

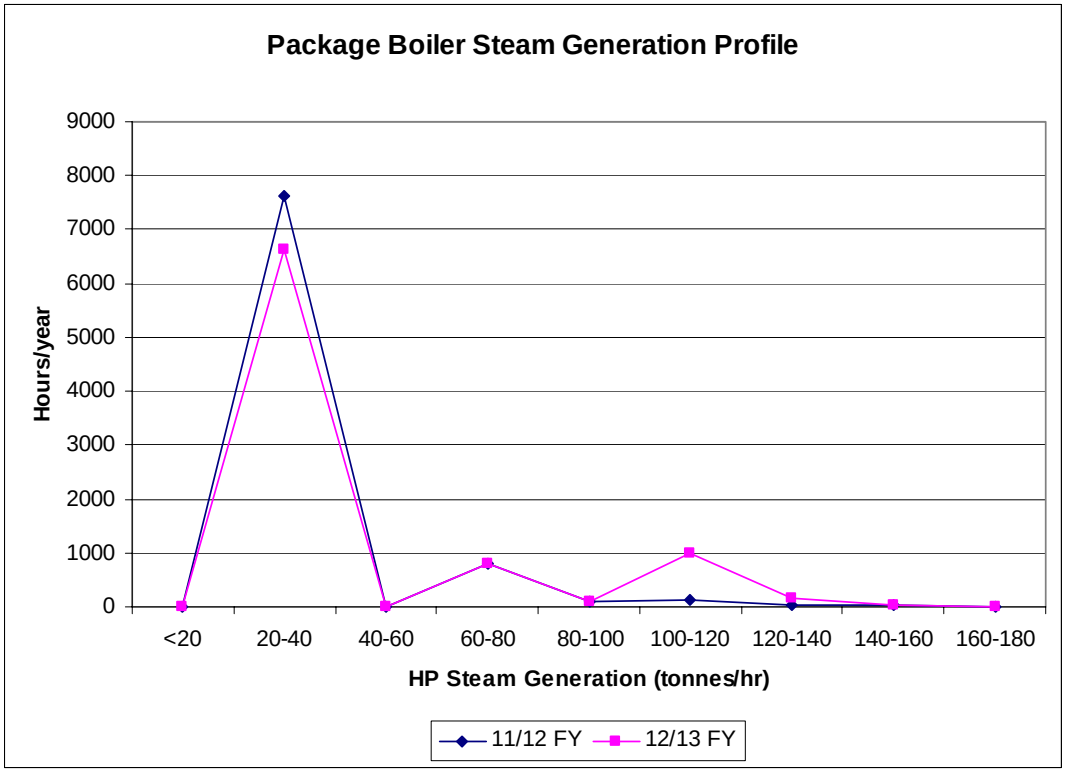


Figure 9-1 Expected Package Boiler Steam Load Profile

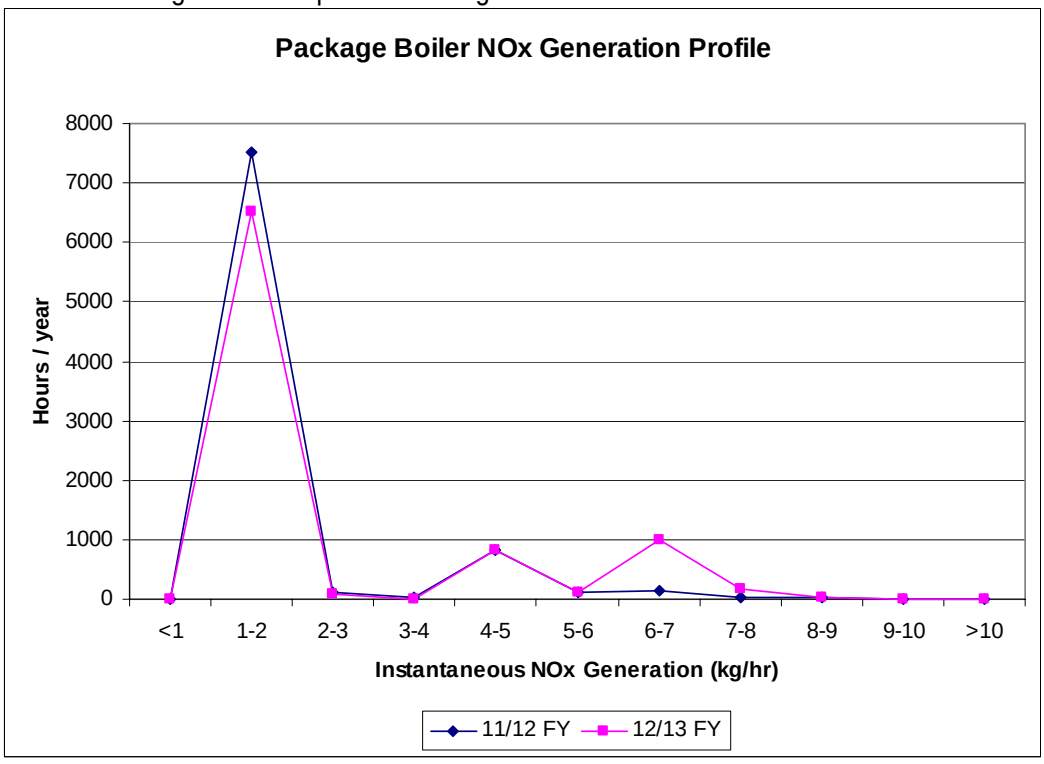


Figure 9-2 Expected Package Boiler NO_x Emission Profile

The maximum mass emission of 9.4 kg/hr occurs when both boilers are operating at MCR, which is expected to occur for an average of 3 hrs/yr.

It is possible that, due to their age and condition, the by-product fuel boilers may require outage periods longer than those modelled. Considering the planned boiler outage pattern, and the possible variation in stack emission concentration, it is expected that the total mass emissions of NO_x from SAUP will not exceed 40 tonnes/yr, which represents 0.5% of the PKSW site licence load limit.

The selected boiler vendor's guarantee values for NO_x stack emission concentration at steady load, expected values during load changes (which will not be guaranteed), and any impact on the estimated annual mass emissions will be discussed with DECCW, and used as the basis for licence conditions for the package boilers.

Due to both package boilers being identical, it is expected that the NO_x emission performance of each boiler will be the same. Representative periodic stack analysis will be possible from either one of the boilers.

DECCW have been consulted on the potential impacts of the predicted NO_x emissions, including comparison with previously modelled emission rates and dispersion model results. DECCW (refer email from DECCW dated 4/09/09) concluded that:

"*Given:*

1. *That the use of the package boilers is an interim measure:*
2. *The package boilers are to replace existing boilers 21 and 22.*
3. *The impact assessment for the cogen proposal included an assessment of base-case emissions that included the No 21 and 22 boilers.*
4. *Base case impacts were predicted to be ~65% of the NO_2 impact assessment criteria – including background.*
5. *The maximum (3 hrs/year) increase in mass emissions due to the proposed package boilers is a 5.5% increase on the base case*

Provided the stacks serving the package boilers are well designed to avoid stack tip downwash, and building wake effects – the risk of unacceptable NO_2 impacts is negligible, and has been adequately demonstrated without an impact assessment."

The application of the proposed NO_x control technology, and the intended operation of the package boilers, is likely to produce negligible environmental impacts and is unlikely to be detectable.

Based on normal PKSW production of 5.3 Mtpa, the package boilers are not expected to cause an exceedance of the PKSW NO_x mass emission limit included in the current licence (EPL 6092).

PM_{10}

It has been estimated that the firing of natural gas in the proposed package boilers will generate 3-4 tonnes of PM_{10} emissions per year, producing an increase of approximately 0.2-0.3% of normal site emissions. Such an increase is likely to produce negligible environmental impacts and is unlikely to be detectable.

9.2 GREENHOUSE GAS IMPACT ASSESSMENT

9.2.1 Greenhouse Gas Impact Assessment – Modified Proposal

The GHG assessment for the approved development is included in Appendix H of the 2008 Modification Environmental Assessment (CH2M HILL 2008).

This assessment is limited to the change in GHG emissions related to the use of the proposed package boilers, and the retirement of Nos. 21 & 22 Boilers, in the period prior to the implementation of the approved ICP.

Note that there will be no change in GHG emissions associated with combustion of by-product fuels during this period. Due to the retirement of Nos. 21 & 22 Boilers, additional by-product fuel will be flared ie. still combusted on the site.

Based on advice from DECCW, the assessment will be limited to scope 1 emissions only, dealing with:

Scope 1: Direct Energy Use Greenhouse Gas Emissions

Changes in natural gas consumption as a result of the introduction of the package boilers and retirement of Nos. 21 and 22 Boilers have been estimated using the emission factor for natural gas NSW and ACT – NGA Factors June 2009, and shown in Table 9-1. "Interim" in the table represents the period following the commissioning of the package boilers and decommissioning of Boilers 21 and 22, but prior to the implementation of the remainder of the ICP scope.

	Units	Current	Interim	Change
Package Boiler natural gas consumption (average 1,096,295GJ/yr @ 0.0513 tCO_2-e/GJ)	t CO_2-e / year	0	56,273	56,273
21/22 Boiler natural gas consumption (236,523GJ for 2007/08 FY @ 0.0513 tCO_2-e/GJ)	t CO_2-e / year	12,141	0	-12,037
Net Change	t CO_2-e / year	12,141	56,273	44,132

Table 9-1 – Scope 1 Greenhouse Gas Emissions

The additional Greenhouse Gas Emissions during the interim period prior to the implementation of the full ICP represent an increase in total site emissions of approximately 0.4%.

9.3 HAZARD AND RISK ASSESSMENT

9.3.1 Preliminary Hazard Analysis - Update

The original PHA was reviewed and updated to assess the off-site risk to people, property and the environment in light of the proposed 2008 modifications. That assessment can be found in Appendix L of the 2008 Modification Environmental Assessment (CH2M HILL 2008).

Preliminary consequence calculations have been carried out for a fuel / air explosion in one of the package boilers. Using the damage (14kPa), fatality (21kPa) and injury (7kPa) consequences levels for such an explosion from the previous Preliminary Hazard Analysis (CH2M HILL March 2008), the estimated distances to those consequences were found to be:

Damage:	<25m
Fatality:	<20m
Injury:	<40m

Given the distance to the site boundary (approximately 300m from Port Kembla Harbour, 800m to Flinders St and over 1km to Five Islands Rd, it is considered that the package boilers would not pose unacceptable off-site risks to people, property, or the environment.

It is also proposed to install explosion vents which would, in the unlikely event of a combustion chamber explosion, direct blast energy away from nearby services pipework. Toxic releases of Blast Furnace Gas and Coke Ovens Gas from similar pipework has been considered in previous ICP PHAs, and found not to produce unacceptable off-site risks.

Natural gas fires would be expected to have only local impacts, and natural gas is non-toxic.

As outlined in the original PHA, the proposed safety systems (both hardware and software) are to be finalised for individual plant items. As the design is detailed, the integrity, need and performance of such systems will be specifically considered through formal safety reviews such as Hazard and Operability (HAZOP) studies.

9.4 VISUAL IMPACT ASSESSMENT

9.4.1 Visual Amenity – Visibility and Visual Absorption

The proposed package boilers are to be located adjacent to the No. 2 Blower Station, approximately 300m from Port Kembla Harbour, 800m to Flinders St and over 1km to Five Islands Rd.

Other than the stack, each boiler will be approximately 6m tall, considerably lower than surrounding buildings and elevated large diameter pipework. The boiler stacks are expected to be no more than 30m tall, with no visible plume. The boiler stacks will be no taller than buildings immediately to the west (No 2 Blower Station) and the south (No 6 Blast Furnace casthouses and hot blast stoves). Other process plant and equipment will shield the boiler stacks from view from other directions.

In summary, the boilers are not expected to have a significant impact on the visual amenity of the residents in the surrounding suburbs due to:

- The siting of the proposed boilers within the existing PKSW site, in close proximity to other structures of significantly greater height and similar colourings.
- The high visual absorption capacity of PKSW and its ability to allow additional infrastructure without significantly altering the context of existing views

Blast Furnace Gas (BFG) is currently being flared between 75% and 100% of the time, at varying rates. The BFG flare flame is generally only visible at night, due to its low calorific value and therefore, low luminosity. It is likely that some quantity of BFG will be flared 100% of the time following the shutting down of Boilers 21 and 22. It is unlikely that a casual observer would detect the change in flaring patterns.

During periods of maximum coke production, Coke Ovens Gas (COG) is flared between 15% and 70% of the time, mainly due to production delays in COG consuming operating departments. If coke production is near maximum levels following the de-commissioning of Boilers 21 and 22, it is possible that the percentage of the time COG is flared will increase slightly. It is more likely, however, that the flaring rate will increase during flaring periods. In any case, it is unlikely that a casual observer would detect the change in COG flaring patterns.

9.5 NOISE ASSESSMENT

The currently proposed modification involves the installation and operation of two 90 tonne/hr package boilers. These boilers would replace the 180 tonne/hr capacity of the existing Nos. 21 and 22 Boilers. Noise generating equipment such as fans and pumps will be of similar capacity to those being taken out of service. Given the location of the package boilers, and the specification of equipment to comply with Occupational Noise limits, it is not expected that any changes to boundary noise levels would be discernable.

9.5.1 Construction and Commissioning Noise Impacts

Construction and commissioning activities associated with the proposed package boilers will be similar, but of a smaller scale, to those assessed in the original Illawarra Cogeneration Project EIS (CH2M HILL, May 2001).

The noise impact assessment concluded that all construction noise (including noise generated during peak construction periods and/or during the use of significant noise generating machinery) would not exceed noise criteria in residential and industrial areas. Peak construction traffic was estimated to produce an additional temporary 1 dB on most roads in the area.

To ensure construction debris and corrosion products in the new steam mains from the package boilers to the HP steam system do not cause damage to the downstream turbo machinery, it will be necessary to blow out the debris with high volumes of steam. Successive heating and cooling cycles promotes the dislodging of internal pipe corrosion products. Multiple steam "blows" will therefore be required.

A temporary silencer will be designed and installed at the discharge point of the steam blows in order to achieve the following recommended sound level objectives:

- Exclusion Zone edge: 80 dB(A)
- Steelworks operations zone: 80 dB(A)
- Industrial boundary zone: 65 dB(A) = INP daytime acceptable sound level for industrial areas.
- Residential boundary zone: 55 dB(A) = INP daytime acceptable sound level for suburban areas.

9.5.2 Noise Impacts (Construction) – Mitigation Measures

A Construction Noise Management Plan was prepared to identify and control any noise impacts during the construction and commissioning phases. The complete Noise Management Pan is provided in Appendix H in the original Illawarra Cogeneration Project EIS (CH2M HILL, May 2001). The main components of the plan include:

- Procedures for handling community complaints during construction and commissioning
- Time restrictions
- Procedures to handle steam blowing noise (as well as traffic noise)
- Noise and vibration monitoring requirements.

The requirements of this plan will be incorporated into the modified ICP Project's Environment Management Plan.

9.5.3 Noise Impacts (Operational) - Mitigation Measures

It is considered that no additional mitigation measures outside those outlined in the original DA 767/01A will be required. Mitigation measures will be outlined in detail in the Construction Noise Management Plan and will be in accordance with the Conditions of Consent outlined in the original DA 767/01A.

9.6 WATER QUALITY

Water quality in Allan's Creek and Port Kembla Harbour could potentially be impacted as a result of the proposed modifications during both the construction phase and operation phase of the ICP Project.

The proposed site for the package boilers is approximately 400m from Port Kembla Harbour and 800m from Allan's Creek. The proposed construction of the package boilers will require minor excavation and civil works. These activities have a slight potential to impact upon the water quality of Allan's Creek and Port Kembla Harbour through soil erosion and sedimentation resulting from excavation, movements of construction machinery and general construction activities, via the steelworks drainage system. To minimise any potential impact on the water quality of Allan's Creek or Port Kembla Harbour, control measures will be implemented during the construction phase. These measures will be outlined in the project Environmental Management Plan (EMP) which will be in accordance with the req uirements of Development Consent DA767/01A. The EMP will be updated to incorporate changes associated with the currently proposed modifications.

During operation of the package boilers, waste water will be generated ie. blowdown and maintenance drain flows. These streams will be discharged into Allan's Creek (via the steelworks drainage system) where is it not expected to have an impact on the aquatic ecology. The package boilers will be replacing existing boilers with identical waste streams and chemical treatment regimes, and larger inventories than the package boilers. The discharge will comply with the existing licence conditions.

10. ECOLOGICALLY SUSTAINABLE DEVELOPMENT

In 1992 a National Strategy for Ecologically Sustainable Development (ESD) was developed and endorsed by the Council of Australian Governments (CoAG) along with an Inter-governmental Agreement on the Environment (IGAE). The agreement stated that all relevant policies should take place within the context of the National Strategy for ESD. In response to this requirement the NSW Government incorporated consideration of the principles of ESD into the objectives of the EP&A Act.

The most common and broadest definition of Ecologically Sustainable Development (ESD) is "development that improves the quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends" (National Strategy for ESD, 1992).

The ICP Project must be considered having regard to the four principles of ESD as outlined in section 6(2) of the *Protection of the Environment Administration Act* 1991 (as amended by the POEO Act 1997 and Schedule 2 of the EP&A Regulation 2000).

These principles are:

- The precautionary principle – if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- Intergenerational equity –the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations
- Conservation of biological diversity and ecological integrity – conservation of biological diversity and ecological integrity should be a fundamental consideration
- Improved valuation, pricing and incentive mechanisms – that users pay for their products or services, including their full life-cycle impacts, and cost-effective market mechanisms to attribute externalities will be implemented.

The EA for the 2008 Modification provides detailed discussion on how the ICP Project is consistent with the principles of ESD.

It is acknowledged that the delay in the implementation of the full ICP Project will also delay the associated environmental benefits. The proposed modification will not affect the long-term sustainability benefits resulting from the ICP Project.

11. PROJECT JUSTIFICATION AND CONCLUSIONS

11.1 PROJECT JUSTIFICATION

11.1.1 Environmental Considerations

Environmental aspects of the proposed modifications to the ICP Project were identified and assessed in this EA. The main findings are addressed below.

11.1.1.1 Air Quality

Assessments have been previously undertaken of the air quality impacts associated with the ICP Project. The assessment found that the ICP Project would not impact upon the air quality of the Illawarra Region.

It is considered that the only significant pollutants to be emitted from the proposed natural gas-fired package boilers would be NO_x species. A review of the potential impacts of the package boilers has concluded that the risk of unacceptable NO_x impacts is negligible.

11.1.1.2 Greenhouse Gas Emissions

A greenhouse gas (GHG) impact assessment was undertaken to provide an estimation of the changes in GHG emissions as a direct result of the operation of the proposed package boilers.

The Scope 1 emissions caused by the firing of additional natural gas were estimated to be approximately 44,000 t CO_2-e per annum, which represents a 0.4% increase in emissions from PKSW during the interim stage prior to the implementation of the full ICP project..

11.1.1.3 Hazard and Risk

Potential explosions and fires associated with the package boilers have been reviewed. None of these events are considered to have potential off-site consequences. There is not considered to be any land use safety concerns associated with the modified ICP Project.

11.1.1.4 Visual Amenity

The visual amenity assessment that was undertaken as part of the EA concluded that the proposed package boilers would not have a significant impact upon the visual amenity of surrounding residents.

The assessment determined that, due to the location of the package boilers, their size relative to surrounding buildings and structures, and the high visual absorption capacity of the PKSW, there is not expected to be a significant impact upon the visual amenity of residents in the surrounding suburbs.

It was also concluded that casual observers would not detect the additional flaring of Blast Furnace Gas and Coke Oven Gas caused by the de-commissioning of Nos. 21 and 22 Boilers.

11.1.1.5 Noise

The assessment of noise impacts from construction and operation of the proposed package boilers concluded that noise limits would not be exceeded in the surrounding industrial and residential areas.

11.1.1.6 Water Quality

No unacceptable environmental impacts are expected due to operation of the proposed package boilers.

To minimise any potential construction related impact on the water quality of Allan's Creek or Port Kembla Harbour, control measures, as outlined in the project Environmental Management Plan, will be implemented during the construction phase.

11.1.2 Economic Considerations

The installation of the proposed package boilers will provide a range of economic benefits for the Port Kembla industrial area and the Illawarra Region. The proposed immediate investment in PKSW is expected to secure operations at the site and improve its viability by deferring the high cost of the ICP Project until the market improves from an unprecedented downturn.

In terms of employment, the construction phase of the ICP Project as modified will generate a significant number of jobs. A proportion of the capital cost of the package boilers will be spent in the Illawarra Region, including the payment of direct income to the local workforce. Other indirect economic benefits will derive from the purchase of materials, payment of licence fees, stamp duties and taxes.

11.2 CONCLUSIONS

BlueScope Steel is seeking to modify the existing Development Consent under Section 75W, 'Modification of Minister's Approval', of the EP&A Act through the application of Clause 8J(8) of the EP&A Regulation.

This EA addresses the potential environmental impacts associated with the proposed modifications. These potential impacts include:

- Air Quality
- Greenhouse Gas and Energy Efficiency
- Hazards and Risks
- Visual Amenity
- Noise
- Water Quality

The proposed modified ICP represents an investment of approximately $1200M in the PKSW and will improve the environmental performance and operational security of the PKSW. The by-product gases are already produced and burned at PKSW and will continue to be generated over the life of the PKSW. The ICP Project will result in the recovery and re-use of the energy contained in those gases. The by-product gases will be captured and burned in a cleaner, more efficient manner to reduce flaring and produce steam and electricity for the PKSW.

The operation of the ICP will result in GHG emission abatement in the order of approximately 880 000 tonnes of CO_2-e per year (and up to 1 075 000 tonnes of CO_2-e per year), making it one of the largest industrial greenhouse gas reduction projects in Australia.

The proposed modifications will ultimately deliver the same functional and operational outcomes as intended and approved in the existing Development Consent (DA767/01A as modified on 15 December, 2008), but over a longer timeframe. The delay in realising those benefits has resulted from the impact on the steel industry of the global financial crisis. The interim measures proposed have negligible environmental impact and allow for the business to remain operationally secure until the ICP Project can be restarted.

12. STATEMENT OF COMMITMENTS

The Statement of Commitments contained in the current ICP consent remains valid for the ICP Project, including the proposed modifications.

In addition to those commitments, the following Statement of Commitments details the commitments that BlueScope Steel will undertake as part of the proposed modifications.

1. Flaring Emission Investigation

   BlueScope Steel in consultation with the DECCW will carry out an investigation into emission factors for flaring of steelworks by-product fuels, and compare existing by-product fuel flares design with “Best Available Technology”.

2. EPL NO_x Reporting

   BlueScope Steel will submit a six monthly NO_x mass emission report to DECCW to track compliance against the licence NO_x limit.

Signed: _____ Date:_____

Andrew Purvis

Vice President Environment

BlueScope Steel

13. REFERENCES

Department of Planning (NSW), Draft Guidelines for Energy and Greenhouse in EIA, 2002

The Australian Department of Climate Change, National Greenhouse Accounts Factors (NGA, 2008)

APPENDIX A - RISK ASSESSMENT

A1 Environmental Setting

To avoid repetition of the original EIS and 2008 modification EA here, a general risk analysis of the currently proposed modifications only has been undertaken to assist in the identification of key environmental issues to be addressed.

A2 Identification of Environmental Aspects and Impacts

Table A-2 identifies environmental aspects and environmental impacts from each proposed modification from the currently approved development. Once identified, each environmental impact is ranked from 1-5 which identifies the likelihood (L) of the impact occurring. A consequence ranking (C) is then given for the magnitude the consequence will have on the environment. Added together, the inherent risk is calculated (see Table A-1 for the risk definitions).

A3 Key Environmental Issues for Assessment

The environmental impacts which are identified as having a "high" (>6) inherent risk are considered to be key issues. Those impacts which have a risk ranking of 5 are considered to have a moderate inherent risk and those that have a ranking from 1-4 are considered to have a low inherent risk. The impacts which are deemed to be beneficial are identified with a "B".

Table A-1 Risk Definitions

Likelihood (L)		
1	Rare	Event may occur but only under exceptional circumstances.
2	Unlikely	Event could occur at some time.
3	Possible	Event should occur at some time.
4	Likely	Event will probably occur in most circumstances.
5	Almost certain	Event expected to occur in most circumstances.
Consequence (C)		
1	Negligible	No detectable effect on or off site.
2	Minor	Detectable effects with minimal impact on site.
3	Moderate	Effects on and off site requiring attention.
4	Major	Sizable effects warranting immediate attention.
5	Critical	Sizable effects with a large impact warranting immediate attention.
Risk Level (L+C)		
2-4 Low		
5 Moderate		
6+ High (Key issues)		
B Benefits resulting from the proposed modifications are identified with a “B” and will be addressed further.		

Table A-2 Identification of Environmental Aspects and Impacts Associated with Currently Proposed Modifications

Environmental Issue	Environmental Aspect	Environmental Impact	L (1-5)	C (1-5)	R (L-H)	Comment
Air Quality	Interim addition of natural gas fired package boilers	Additional firing of natural gas, mainly during outages of by-product fuel fired boilers would result in minor additional air emissions.	5	1	6	This is considered a key environmental issue.
Greenhouse Gas Emissions	Interim addition of natural gas fired package boilers	Additional firing of natural gas, mainly during outages of by-product fuel fired boilers would result in minor additional greenhouse gas emissions.	5	1	6	This is considered a key environmental issue.
Noise	Operation of pumps and fans associated with package boilers	Potential local noise impacts	2	2	4	Equipment design will ensure compliance with current consent conditions – it is not expected that the noise will be discernible at the site boundary. This is considered to be a low risk environmental issue.
Water Quality	Construction activities	Potential during construction for spills to impact Port Kembla Harbour	2	2	4	With the implementation of an Environment Management Plan (EMP). This is considered to be a low risk

Environmental Issue	Environmental Aspect	Environmental Impact	L (1-5)	C (1-5)	R (L-H)	Comment
						environmental issue.
	Package boiler drains and blowdown streams	Waste streams may impact Allan's Creek	1	3	4	The package boilers will be replacing existing boilers with identical chemical treatment regimes and larger inventories than package boilers. This is considered to be a low risk environmental issue.
Water Resource	N/A					
Human Health	N/A					
Terrestrial Flora and Fauna	Interim addition of natural gas fired package boilers	Construction of package boilers may disturb terrestrial flora and fauna	1	1	2	Package boilers to be installed under existing elevated services pipework. The location is a highly modified industrial area and has little terrestrial flora and fauna. This is considered to be a low risk environmental impact.
Aquatic Flora and Fauna	Package boiler drains and blowdown streams	Waste streams may impact Allan's Creek	1	3	4	The package boilers will be replacing existing boilers with identical chemical treatment regimes and larger inventories than package boilers.

Environmental Issue	Environmental Aspect	Environmental Impact	L (1-5)	C (1-5)	R (L-H)	Comment
						This is considered to be a low risk environmental issue.
Hazard and Risk Assessment (Land Use Safety)	Interim addition of natural gas fired package boilers	Package boiler explosion	2	2	4	The consequences of a boiler explosion are unlikely to reach site boundaries. This is considered to be a low risk environmental issue.
Indigenous and Non-Indigenous Heritage	Interim addition of natural gas fired package boilers	The site may contain items of non-indigenous heritage	1	1	2	The majority of the package boiler site is sealed, the remainder contains a garden and the foundations of a previous ablutions block. The NSW Heritage Register, National Parks and Wildlife Services Aboriginal Sites Register does not record any items of heritage significance within PKSW. This is considered to be a low risk environmental issue.
Visual Amenity	Interim addition of natural gas fired package boilers	The addition of the package boilers may impact on the visual amenity of local residences	1	2	3	Package boilers to be generally lower than surrounding plant & equipment. Two 30m tall stacks will not be

Environmental Issue	Environmental Aspect	Environmental Impact	L (1-5)	C (1-5)	R (L-H)	Comment
						noticeably taller than adjacent buildings, will be painted a neutral shade, and should not affect the visual amenity of surrounding areas. Additional flaring of by-product gases will result from the de-commissioning of No 21 & 22 Boilers. It is unlikely, however, that a casual observer would detect the change in flaring patterns. This is considered to be a low risk environmental issue.
Socio-Economic Impacts	Interim addition of natural gas fired package boilers	Construction of the package boilers will require a temporary workforce			B	This is a beneficial socioeconomic impact.
Traffic and Transportation	Interim addition of natural gas fired package boilers	Additional traffic	2	2	4	Movement of any large loads on public roads will be planned to minimize impacts. This is considered to be a low risk environmental issue.
Soil/Land Contamination	Construction phase of package boilers	Possible disturbance of contaminated soil during the construction	2	2	4	During the construction phase, appropriate mitigative measures would

Environmental Issue	Environmental Aspect	Environmental Impact	L (1-5)	C (1-5)	R (L-H)	Comment
		phase				be used to construct the package boilers. Mitigation measures for the possible disturbance of contaminated soil are outlined in the original EIS. This is considered to be a low risk environmental issue.
Waste Water	Liquid waste water generated from operation of the ICP Project	Liquid waste water generated will be discharged into Allan's Creek	3	1	4	During operation of the package boilers, waste water will be generated ie. blowdown and maintenance drain flows. These streams will be discharged into Allan's Creek where is it not expected to have an impact on the aquatic ecology. The package boilers will be replacing existing boilers with identical waste streams and chemical treatment regimes, and larger inventories than the package boilers. The discharge will comply with the existing licence conditions.

Environmental Issue	Environmental Aspect	Environmental Impact	L (1-5)	C (1-5)	R (L-H)	Comment
						This is considered to be a low risk environmental issue.
Climate Change	Change in meteorological conditions in the Illawarra region	A change in the meteorological conditions in the Illawarra region may impact upon the dispersion of air emissions.	1	1	2	Changes in temperature or wind patterns as a result of climate change is expected to have a very minor impact on air dispersion. This issue is considered to be a low risk environmental issue.

APPENDIX B – APPLICABILITY OF CURRENT CONSENT CONDITIONS TO INTERIM SOLUTION

The following Tables include the Conditions in the current Development Consent, and their applicability to the proposed interim project.

Table B-1 SCHEDULE 2 – ADMINISTRATIVE CONDITIONS

		Applicable for Interim Solution
1.	Obligation to Minimise Harm to the Environment	Yes
2.	Terms of the Development Consent	Yes
3.	Priority of Conditions of Consent	Yes
4.	Compliance with Director General's Reasonable Requirements	Yes
5.	Structural Adequacy	Yes
6.	Demolition	Yes
7.	Protection of Public Infrastructure	No
8.	Operation of Plant and Equipment	Yes
9.	Progressive Submission of Documents	Yes

Table B-2 SCHEDULE 3 – SPECIFIC ENVIRONMENTAL CONDITIONS

		Applicable for Interim Solution
	NOISE	
1.	Hours of Operation	Yes
2.	Construction	Yes
3.	Noise Limits	Yes
4.	Monitoring	Yes
	AIR QUALITY	
5.	Construction	Yes
6.	Emission Limits – New Boilers	No
7.	Mass Limits – ICP	Yes
8.	By-Product Gas	No
9.	Monitoring	No
10.	Air Quality Monitoring Program	No
	WATER	

11.	ICP Intake and Discharge Limits	No
12.	Bunding	Yes
13.	Erosion and Sediment Control Plan	Yes
14.	Stormwater Management Plan	Yes
15.	Investigation of the Proposed Thermal Macro-Fouling System	No
16.	Investigation to Validate the ICP Salt Water Cooling Modelling Results	No
17.	Monitoring	No
18.	Water Monitoring Program	No
	HAZARDS	
19.	Pre-Construction Hazard Studies	Yes
20.	Commencement of Construction	Yes
21.	Pre-Commissioning Hazard Studies	Yes
22.	Commencement of Commissioning	Yes
	AQUATIC ECOLOGY FIELD STUDY	
23.	Field Study to Validate Predicted Ecological Impacts	No
	COMMISSIONING PLAN	
24.	Development of Commissioning Plan	Yes

Table B-3 SCHEDULE 4 – ENVIRONMENTAL MANAGEMENT< REPORTING & AUDITING

		Applicable for Interim Solution
	ENVIRONMENTAL MANAGEMENT STRATEGY	
1.	Preparation and Implementation of an Environmental Management Strategy	Yes
	REPORTING	Yes
2.	Incident Reporting	Yes
3.	Annual reporting	No
	AUDITING	
4.	Independent Environmental Audit	No
5.	Submission of Independent Environmental Audit and Response to Recommendations	No