NO.5 BLAST FURNACE RELINE PROJECT

PLANNING FOCUS MEETING

A BRIEFING PAPER

BlueScope Steel (AIS) Pty Limited

1. Briefing Paper Objectives

1.1 The purpose of this Briefing Paper is to describe the proposal for relining the No.5 Blast Furnace and upgrading of the Sinter Plant in sufficient detail to allow the Director General and New South Wales (NSW) government agencies to identify their requirements as to:

a) the form and content of an Environmental Impact Statement (EIS); and
b) making the EIS available for public comment;

which requirements will be issued as Director General's Requirements ("DGR's") for this Project.

1.2 The planning of the Sinter Plant project is not as far advanced as the No.5 Blast Furnace Reline project and it is possible that it will not go ahead. However if it does go ahead, it will be done in conjunction with the No.5 Blast Furnace reline project. Therefore, BlueScope Steel seeks DGR's for the following alternatives:

a) DGR's for the No.5 Blast Furnace Reline project and the Sinter Plant Project (Project 1); and
b) DGR's for the No.5 Blast Furnace Reline project alone (Project 2).

A decision will be made later which of Projects 1 or 2 will be proceeded with.

2. Introduction and Background

2.1 BlueScope Steel (AIS) Pty Ltd ("**BlueScope Steel**") is a wholly owned subsidiary of BlueScope Steel Ltd (formerly known as "BHP Steel"). BlueScope Steel operates an integrated steelworks at Port Kembla. An overview of the Port Kembla Steelworks (PKSW) site is shown in Figure 1. The PKSW is considered internationally as one of the more innovative, technically advanced, low cost producers of quality carbon steel.

Figure 1. Port Kembla Steelworks

2.2 The PKSW can be subdivided into several operational plant areas. They include:

- Cokemaking
- Ironmaking
- Slabmaking
- Packaging products (not shown, on the left of the above photo)
- Hot strip and plate mills (not shown, on the left of the above photo)

2.3 The PKSW has a nominal capacity to produce 5.3 million tonnes of raw steel per annum. The flow chart for producing steel is shown in Figure 2.

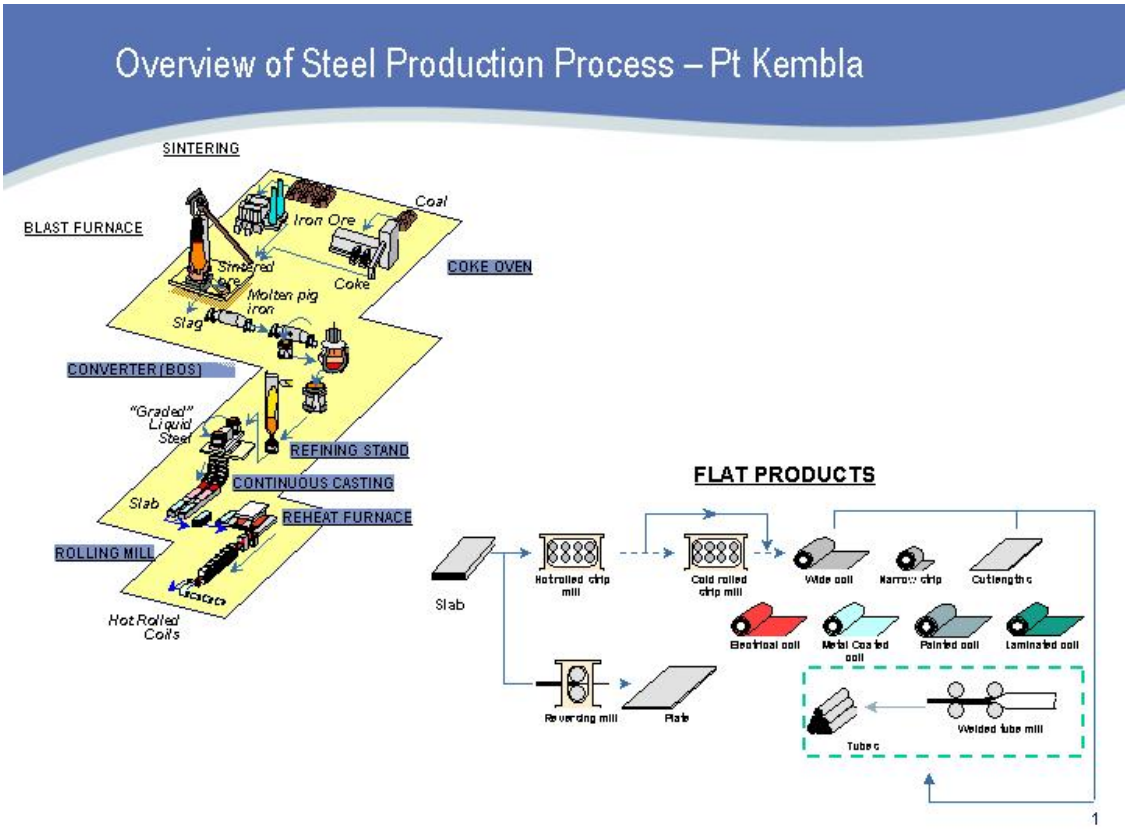


Figure 2. Overview of Steel Production

3. Rationale of the Blast Furnace Reline

3.1 The No.5 Blast Furnace was commissioned as a new facility in 1972. Blast Furnaces are often subjected to extreme physical stress resulting in deterioration of the interior, thus requiring periodic repair. The major repair in a Blast Furnace's campaign life is the replacement of the lining traditionally known as a "reline". Since its commission, No.5 Blast Furnace has undergone 2 relines, the latest of which was in 1991. It is assessed that based on its current condition the furnace will need to be relined again in the latter half of the 2007 year, thereby commencing its fourth campaign.

3.2 Relines involve removing as much of the raw materials inside the furnace as possible, cooling the remaining materials by water quenching and cleaning out the inside of the furnace by removing all the remaining burden material, iron skull, worn out and damaged refractory and cooling elements. This requires the total shut down of the Blast Furnace for an extended period, nominally in the order of 3 months. Due to the financial

implication of the shutdown on the business, the down-time is planned to be kept to the very minimum whilst at the same time fully utilising the opportunity to replace and/or repair sections or ancillary equipment involved in the production process during this event not accessible during operation or more economic and safer to repair during the reline down period.

4. Economic Implications

4.1 BlueScope Steel is NSW's largest manufacturer and exporter of manufactured product. The PKSW exports approximately two million tonnes of steel valued at more than A$1 billion per annum.

4.2 The Nos. 5 & 6 Blast Furnaces are central to the viability of PKSW. Each contributes equally to the total iron make. Without No.5 Blast Furnace, the PKSW would be uneconomical.

The PKSW is a significant contributor to the Illawarra Region. It directly employs approximately 4,200 people and provides work for approximately 2,000 contractors at the Port Kembla site alone.

4.4 A recent report from IRIS Research indicates BlueScope Steel's economic impact upon the Illawarra region, including flow on effects to be:

- Some 16,000 jobs across the region;
- $1.86bn in gross regional product; and

$0.9bn in household income.

5. Scope of Work for the Reline

5.1 The existing No.5 Blast Furnace at the PKSW and its ancillary structures are depicted in Figures 3 and 4.

5.2 The reline of No.5 Blast Furnace will involve replacing the existing worn out and damaged refractory brickwork and replacing all the damaged internal cooling elements. This will allow the furnace to maintain its current production, which is estimated at around 2.6 million tonnes per annum. This maintenance work will require working on the furnace's interior with the outer steel shell remaining largely intact. As such, the furnace foundation will be maintained.

5.3 The process flow diagram through No.5 Blast Furnace is provided at Figure 5.

5.4 As part of the reline work, the following sections of the process will be reviewed and assessed for the need to further improve current equipment efficiency or integrity.

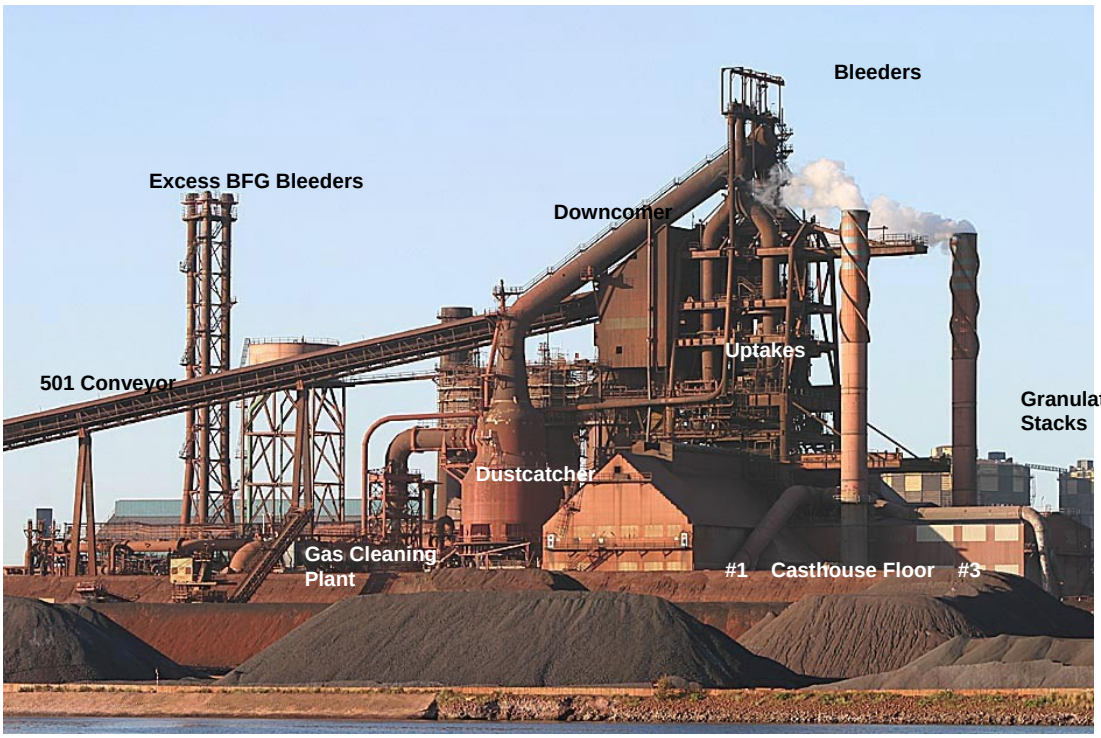
5.4.1 Raw Materials Stockhouse

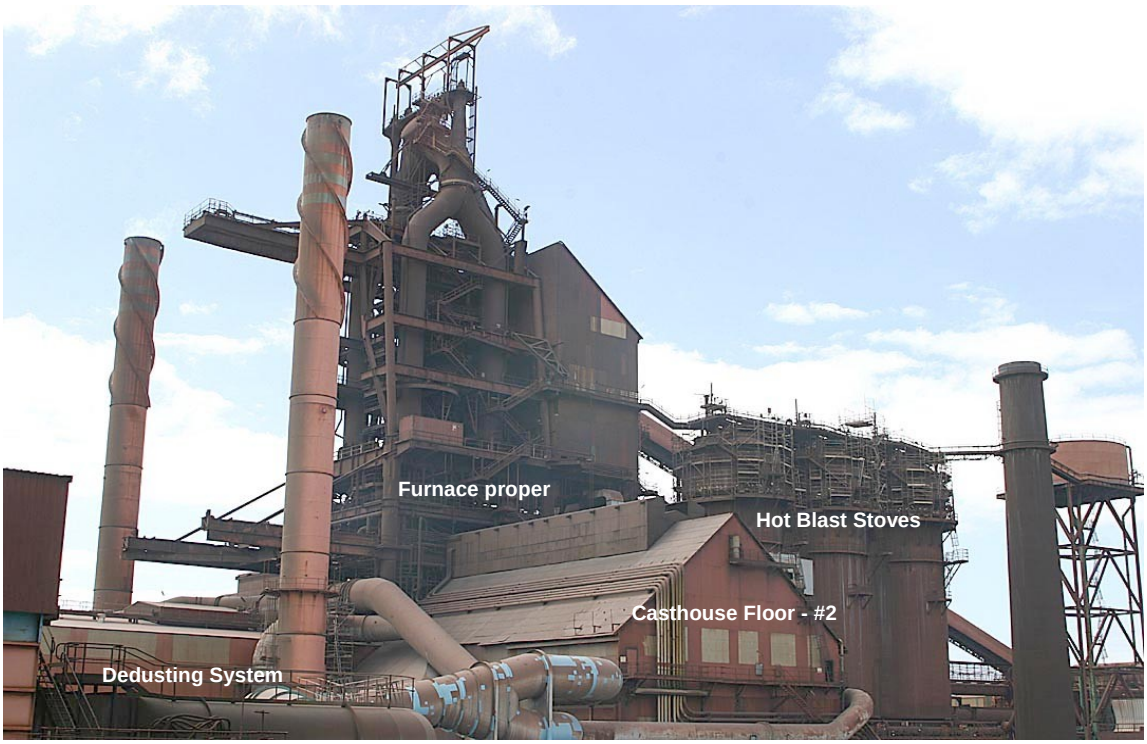
The major raw materials utilised in iron making are iron ore and coke. These materials are prepared at the ore preparation plant, sinter plant and coke making facilities respectively. After preparation, they are transported via conveyor belts to the storage bins. Other raw materials, such as limestone, lump iron ore and iron ore pellets, are also transported from the stockpiles into the storage bins at the Blast Furnace stockhouse. From the storage bins, they are automatically weighed and transported via covered conveyors and charged into the Blast Furnace. Approximately 13,000 tonnes of ore and 2,900 tonnes of coke are charged into the furnace every day. Other than necessary maintenance work the stockhouse and charging system will be retained in their current form.

However, during the design stage, the efficiency, load limit and reliability of the conveyor system will be investigated and modified, if necessary.

A bag filter is utilised to ensure that fine airborne dust particulates emitted during the transfer of raw materials from the stockhouse are collected. The dust is filtered and collected for recycling. No modification of this system is foreseen.

Figures 3 & 4. Existing No.5 Blast Furnace and its Ancillary structures





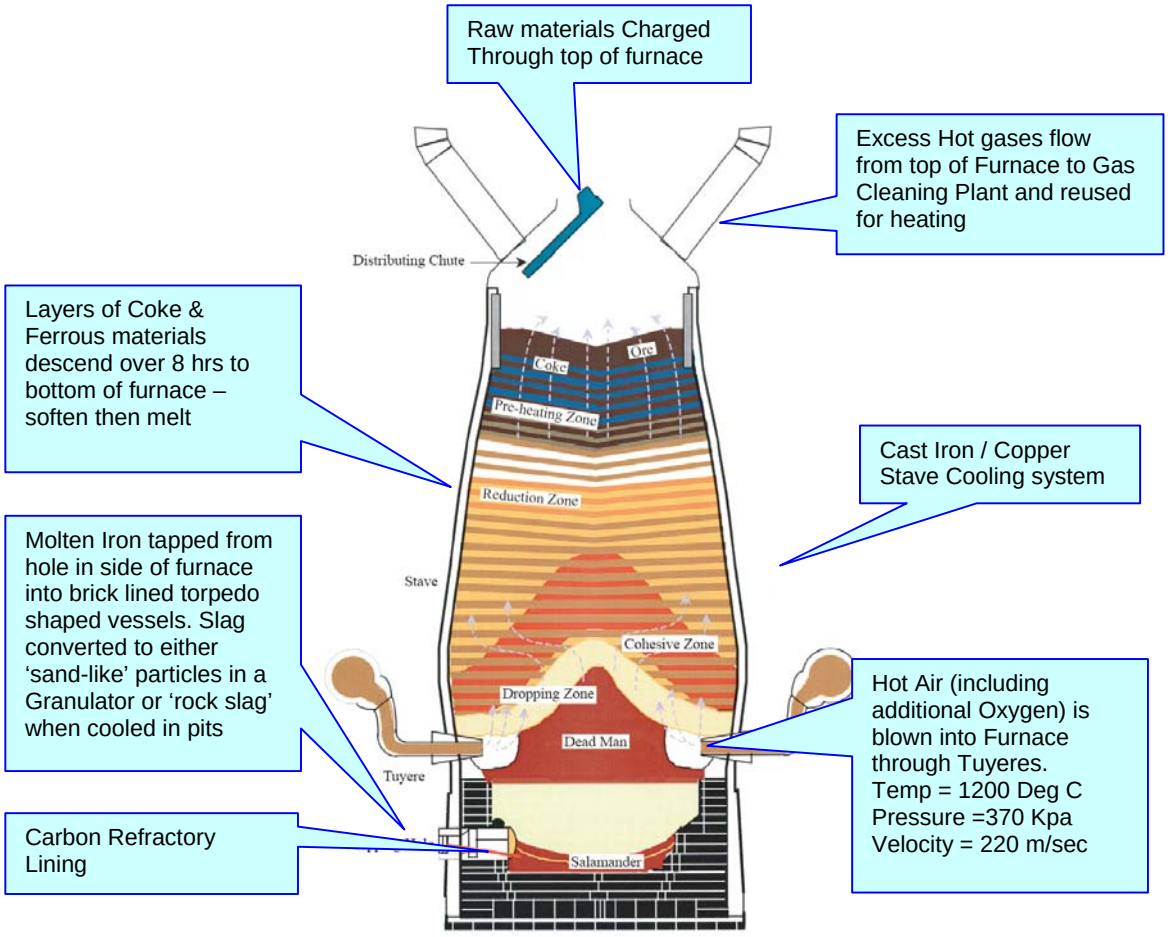


Figure 5 Process flow through No.5 Blast Furnace

5.4.2 Blast Furnace

The Blast Furnace is a vertical shaft of circular cross-section and stands approximately 40 m high (although the overall facility approaches 100 m). The vessel is internally lined with cooling elements and refractory bricks and blocks. Iron ore, coke and fluxes are charged into the furnace to produce molten iron and slag. The Blast Furnace operates continuously with molten iron and slag being cast out of the furnace regularly, by tapping three (3) tapholes in the hearth in sequence every 2 to 3 hours. To ensure that good iron quality is produced in the furnace, the temperature within the melting zone of the furnace is maintained at 1500^{o}C. This requires that the refractory lining of the furnace hearth and cooling elements are of high quality and can resist thermal spalling and

chemical attack for a long period of time. Normally, Blast Furnace refractory linings can efficiently operate for a period of 15 years or more before they need to be replaced.

The planned reline will involve replacing the existing refractory brickwork and cooling elements after quenching and cleaning out the Blast Furnace shell. Extensive studies still have to be completed to determine the exact quality, quantity and dimensions of this installation, but the nominal iron production capability of the furnace will not change.

Cooling water is also necessary in the process to protect the cooling elements within the Blast Furnace and consequently the shell integrity. Between the furnace steel shell and the refractory lining in the hearth are cast iron cooling elements called staves that house the cooling water pipes. Similarly the rest of the furnace shell is also internally lined with staves. The material of manufacture of these staves is important to the performance and longevity of the furnace and detailed studies are yet to be completed to finalise this matter. Currently the system uses recirculated water that goes through a heat exchanger. A cooling tower then cools the water on the other side of the heat exchanger. Make-up water from our process water system of approximately 0.75 ML/day is required. The capability of this cooling system is being assessed although it is expected there will not be major modification to it.

5.4.3 Hot Blast System

Pre-heated air (hot blast) is blown into the Blast Furnace to react with the iron ore and coke materials. Using turbo blowers, atmospheric air is charged to heating chambers called hot blast stoves. The air is heated to a temperature of 1200 °C, and piped to the Blast Furnace through the hot blast main. There are three (3) stoves that operate in a cyclic manner to provide a continuous supply of hot blast. The cleaned gas generated by the Blast Furnace is used to reheat the stoves after each blast cycle. The volume of hot air introduced into the Blast Furnace is approximately 300,000 Normal cubic metres per hour. The hot blast system operates at a pressure of 370 kPag. During the reline, it is intended to replace the expansion joints on the hot blast main, carry out some shell repairs, provide a new refractory lining and additional pipe work and connections for the provision of another stove to provide for operational security in the future.

5.4.4 Gas Cleaning System

Gases generated during the reduction process in the Blast Furnace pass through the Gas Cleaning System. Furnace off-gases firstly pass through a dust catcher to remove the large dust particles, then through a gas scrubber and finally electrostatic precipitators to remove the fine particulates and other gas impurities. Clean gases are piped to other areas in the steelworks for re-use as heating gas. The pressure energy in the gas from the furnace is recovered in a turbine and generates about 9MW of electricity that is re used internally. Currently once-through seawater is used in cleaning the gases. Approximately 10,000 m^3 of seawater is utilised per day. The seawater goes to a thickener where the dust and chemicals are treated before the treated water is discharged to the blower station drain and the inner harbour. The recovered dust is recycled internally after being briquetted. The capability of the existing gas cleaning system is being evaluated although its functionality will remain the same. The overall implication of changing this system to a recirculated fresh water system is being assessed and evaluated.

5.4.5 Cast house

From the furnace, molten iron and slag is drained (cast) into a refractory lined trough on the cast house floor. Using a skimmer, the slag is separated from the molten iron. Approximately 750 tonnes of molten iron and 200 tonnes of slag are tapped at each cast, and there are nominally 10 casts per day. Molten iron is transported to the Basic Oxygen Steel making (BOS) furnace by rail using torpedo ladles for processing, whilst slag is quenched with water to solidify the material then stored as by-product. During the tapping, dust, kish, and SO_2 are generated. An extraction system is placed along the trough and pouring positions to remove the airborne materials out of the plant and into dedusting equipment. The efficiency of the dedusting equipment will be reviewed.

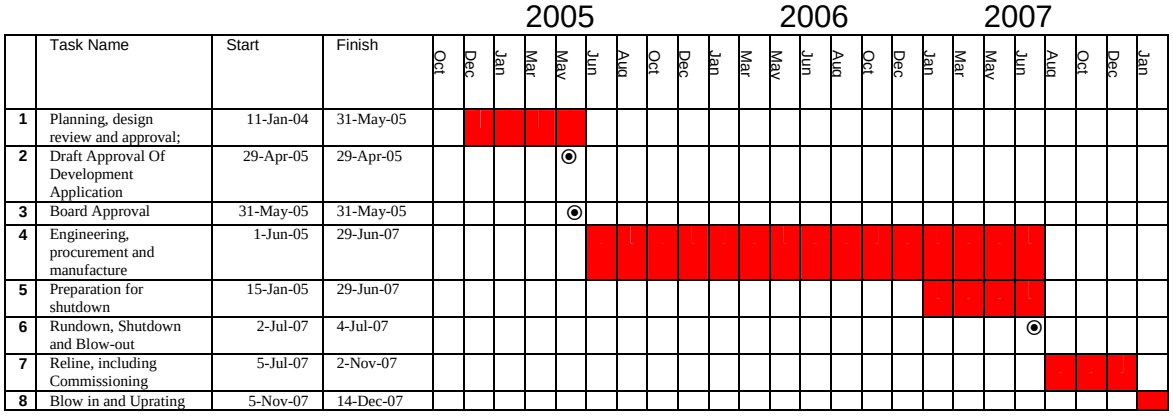
Slag is a mixture of mineral impurities from the iron ore and coke as well as from the fluxes. The current methods of solidifying the slag at No.5 Blast Furnace are by quenching it with water in a pit or quenching it and granulating it with a high pressure jet of water. Granulated slag has similar properties to cement and can be used as a cement replacement dependent on market conditions. The rock slag from the pit can be utilised as road base and road surface material and other uses in the construction industry. Rock slag and granulated slag are both made at this furnace. The production of these slag products results in the emission of certain levels of H_2S and SO_2. Minor modifications to these systems are envisaged.

Large amounts of the slag produced are sold into the marketplace but at times production exceeds demand. BlueScope Steel is focused on continually researching for additional means of reusing the slag. However, this will involve significant amount of time and planning. A marketing plan is being developed to determine the options and strategies for sustainable long term recycling of all slag produced.

6. Implementation Approach and Timing

6.1 Based on the current condition of No.5 Blast Furnace, it is assessed that the reline will be required prior to the end of 2007; otherwise, its safe and efficient operation cannot be guaranteed. A significant amount of preparation time is required for a reline. The bulk of the preparation will be devoted to designing, engineering, procuring and manufacturing the replacement equipment needed for the reline. Most of the required equipment has a long lead time from order to delivery. The hearth refractory blocks, for example, are made-to-order and requires approximately a year and a half to make. A lot of this equipment is sourced off shore. Actual reline work will be in the order of 90 days but there will be many weeks and months of manufacture and pre-preparation prior to the actual reline. The planning to safely undertake such a project with intensive continuous work over this extended period and at multi levels will take a considerable time to plan and likely involve international expertise. Figure 6 shows a timeframe required for achieving reline commencement at July 2007, noting that draft approval of the Development Application will be needed by April 2005 which is the milestone required to commence the ordering of the various replacement equipment.

Figure 6. Timetable for Reline.



	Task Name	Start	Finish
1	Planning, design review and approval;	11-Jan-04	31-May-05
2	Draft Approval Of Development Application	29-Apr-05	29-Apr-05
3	Board Approval	31-May-05	31-May-05
4	Engineering, procurement and manufacture	1-Jun-05	29-Jun-07
5	Preparation for shutdown	15-Jan-05	29-Jun-07
6	Rundown, Shutdown and Blow-out	2-Jul-07	4-Jul-07
7	Reline, including Commissioning	5-Jul-07	2-Nov-07
8	Blow in and Uprating	5-Nov-07	14-Dec-07

Following are the stages involved in the reline project:

6.1.1 Pre Reline Business Management

As a consequence of the furnace being off-line for approximately 90 days, the significant reduction in total steel production will impact all major customers. Consequently strategies to minimise this impact are being assessed, and could include:

- Increased production several months ahead of the outage in order to stockpile slabs,
- Importing slabs to cover customers needs,
- Sharing / trading slabs with other companies.

In addition, it may be necessary to secure higher tonnages of ferrous supplies, particularly pellets, to cater for a possible planned maintenance outage of the Sinter plant and raw materials handling facilities. Evaluations are presently underway to determine whether an upgrade in sintering capacity is viable. (See section 8.0 below)

6.1.2 Design Phase

The refractory brick, blocks and cooling elements are the major items that need to be designed and purchased. Tenders to select and approve the suppliers of the refractory bricks and other replacement materials will require several months to accomplish. Designing the materials to fit into the Blast Furnace and producing them is estimated to take about 18 months.

6.1.3 Rundown

Rundown involves removing all the burden within the Blast Furnace. Upon commencement, no materials will be charged into the system and the reduction process allowed to continue to produce molten iron until almost the entire burden is consumed. Water is sprayed into the burden to prevent overheating inside the furnace. The remaining molten iron and slag mixture in the hearth, called a salamander, will be cast from the furnace through a series of holes drilled into the hearth, run into, and be cooled in a specially constructed sand pit. Following this, the hot furnace refractory and remaining burden material will be quenched with water. The rundown and quench will be conducted and managed by BlueScope Steel personnel with assistance from contractors. Rundown and quench normally takes about 3-4 days.

Excess water that will be utilised for quenching of the blast furnace during the rundown stage and draining of the system during the reline will be treated before discharge to drain.

During the rundown the material dumped as the salamander will be collected and recycled.

6.1.4 Reline

Major construction work will be performed within the Blast Furnace and surrounding facilities. Actual construction work will involve removing the remaining burden materials, refractory bricks and blocks and cooling elements within the interior of the Blast Furnace for replacement. Other ancillary equipment or structures requiring repair or replacement will also be attended to during this period. A qualified contractor will be employed by BlueScope Steel to perform the reline work. Construction timeframe is estimated to be of the order of 90 days.

6.1.5 Commissioning and Start Up

Following commissioning the start up will involve heating the Blast Furnace using firing materials, e.g. firewood and coke. Once the appropriate temperature is achieved, charging of raw Ironmaking materials will commence. Initial products obtained will have low quality iron with high impurities and will be treated normally as off specification material. It is estimated that the commissioning will take about 3-4 days before the right consistency of the product is achieved. Startup of the plant will be under the direction and control of BlueScope Steel personnel.

The material made in the first 4 days of operation will be collected and recycled.

7. Other Potential Environmental Impacts and Mitigating Measures

7.1 Land Modifications

The reline will involve utilising the same site as the current No.5 Blast Furnace. The area will have minimal layout modifications. Temporary land area may be utilised during the rundown, reline, and commissioning. Minor excavation may be done on site. Should groundwater be encountered during the excavation, these will be analysed to confirm if it is suitable for disposal to drain. Measures will be adopted to ensure that

acceptable turbidity levels are obtained before disposal. Similarly, soils will be analysed for contamination to ensure appropriate disposal.

7.2 Stormwater

It is expected that no changes to existing stormwater management systems will be required as a result of the reline.

7.3 Terrestrial and Aquatic Ecology

The proposed Project has no major impact on the terrestrial and ecology as there are no significant changes to the process or land use.

7.4 Hazards, Risk and Human Health

A hazard and risk study will be conducted to ensure that all significant issues are addressed. One known issue is SO_2 exposure at the casthouse floor. Studies are underway to address this issue.

7.5 Noise and Traffic

The impact of noise during the construction will be limited to the approximately 90 days reline period. No significant increase in traffic or noise due to delivery of replacement equipment is expected. An increase in noise levels from the gas emissions during the commissioning phase may be experienced for several hours. The current noise levels during operation would be similar to that when the reline has been completed.

7.6 Visual Amenity

It is not envisaged that the skyline of the Steelworks will be altered by the reline. Modifications to be made to other structures within the Blast Furnace area will be minor and will have little impact on visual amenity.

7.7 Heritage

There is no heritage value in the facilities that are being removed. All the facilities are less than 50 years old.

8. Raw Materials Handling and Sinter Plant Operations during the Reline Period

An opportunity exists to evaluate an increase in Sinter Plant capacity from 5.5 to 6.6 Mtpa during the down time of the reline. However, at this stage,

this is still under financial and technical evaluation. The possible proposed increase in sinter plant capacity would require significant modification to several key areas of the sinter machine, and key sections of the raw material yards, during a 30-35 day shutdown. These modifications are listed generally below, however detailed design or assessment of such is yet to be carried out**.**

8.1 Sinter Plant Process Description and Proposed Modifications

The Sinter Plant's function is to prepare non-lump iron ore for feeding into blast furnaces. Port Kembla has one sinter machine. No.3. The iron ore is blended with various other materials in the blending yards prior to being feed into a rolling drum granulator where it is moistened. The rolling drum produces 700 tonnes an hour of mixture which is spread as a layer up to 500mm thick on a travelling grate (called a strand), which is 5m wide and 85 m long. At the start of the strand, there is an ignition hood, which initiates combustion, and this converts the mixture to sinter. At the end of the strand, the hot sinter falls into a cooler bed. After the cooler it is sent to Nos. 5 or 6 Blast Furnace or to stock.

8.1.1 Feed Preparation - Granulation

It is not proposed to change anything in this area.

8.1.2 Strand Feeding

Changes will be required to equipment at the feed end of the strand to facilitate either, higher bed height up to 700mm side plates, or a pallet 250mm wider on each side. A smaller feed roll will also be reviewed. Some additional instrumentation may be added to feed gates on the feed roll. Remote motor drives on each feed gate are planned. An ultrasonic sensor corresponding to each gate is also planned.

8.1.3 Ignition Hood.

A wider ignition hood will be required to accommodate the wider pallets. A separate but related project is under consideration to change the ignition hood. The alternative design may be installed before the strand capacity increase.

8.1.3 Strand Proper

It is planned to evaluate proposals to increase strand volume, primarily via increase in width. This will also require assessment of the ignition system, waste gas system, strand discharge area, and cooler performance. No increase in strand length is proposed at this time.

8.1.5 Waste Gas System

No development is proposed for the waste gas system. There are significant Repair and Maintenance (R&M) projects that may be done at the same time on the waste gas system, but they are not linked to the capacity increase for justification. Major R&M projects are: replace Electrostatic Precipitators internals; Add internals to zone 1 - this will be capital, replace all dust hoppers below waste gas main; replace some sections of the waste gas main - this could extend to the whole of the two mains. Main fan impellors, casings and motors will require replacement. This may be done at the same time.

8.1.6 Cooler

The sinter cooler will be rebuilt. The existing steelwork above the concrete plenum chamber will be removed. The steelwork will all be rebuilt with wider pans. The 3 existing 1.25MW fans will be removed. 2

new 3MW fans will be installed to replace the old fans. Hot air exhausted from the cooler may be dedusted. A range of proposals are being evaluated. These include: Electrostatic precipitator; high temperature baghouse; hot air recycling to the sinter strand.

8.1.7 Room Dedusting

It is planned to review potential for improvement to minimise emissions from the building. No uprating of this system is planned at this stage. However, proposals are being evaluated to consider this system in conjunction with cooler dedusting.

8.1.8 Raw Materials Handling

The Raw Materials Handling facilities stock and deliver raw materials to both the Sinter Plant and Nos.5 and 6 Blast Furnaces. While the No.6 Blast Furnace must continue to operate throughout the reline, this period also provides a critical opportunity for maintenance and improvement of Raw Materials Handling facilities. Under the capacity increase proposal Carol Lake Pellets would be removed from supply. This No.4 stacker area would then be available for the increased fines required. Additional infrastructure required would be limited to a reclaim and elevation sequence to take ore from No.4 stacker area to the fine ore bins at the sinter plant. The main material going to this yard would likely be Yandicoogina fines as it is naturally highly consistent, maintains its handleability in wet weather and can be used at very high proportions in sintering. Therefore, the site allows improved security to the Sinter Plant in extreme weather conditions. These fines currently comprise some 30% of the current sinter ore blend and such a proposal would therefore allow the life of secondary yard piles to be significantly extended to 25 or more days. This would not only have logistic and sequencing benefits but would also reduce the frequency of process disruptive bed changeovers.

9. Next Steps

On the 22 November 2004, BlueScope Steel will meet with relevant NSW government agencies to discuss the proposals and to provide more information to help the regulatory authorities in there preparation of the DGR's for this Project.

9.2 As this Project is "integrated development", BlueScope Steel requires the regulators responsible for the administration of approval process to advise BlueScope Steel of their requirements for the purposes of obtaining DGR's for the Project.

NOTICE

This Briefing Paper for the No.5 Blast Furnace Reline Project ("Briefing Paper") is issued by BlueScope Steel (AIS) Pty Ltd ("**BlueScope Steel**"). It is for the use of certain New South Wales Regulators ("**Recipients**") and their advisers to assist the Recipients in considering their requirement for the issue of appropriate Director General's Requirements for the reline of the No.5 Blast Furnace ("**Project**").

The contents of this Briefing Paper are confidential and are made available to each Recipient for the sole purpose of assessing the Project to formulate Director General requirements. It is not, nor does it purport to be, all-inclusive nor to contain all the information that Recipients may require to evaluate the Project

All questions and queries about this Briefing Paper or the Project should be directed to the following BlueScope Steel representative:

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Date	Monday 14th March 2005	**Project Number**	335588

Project BlueScope Steel EIAs

- No. 5 Blast Furnace Reline Proposal
- Pickle Line Cold Mill Upgrade Proposal
- Sinter Plant Upgrade Proposal

Location Wollongong City Council **Start time** **1700** **Finish time** **1740**

Purpose of Meeting To brief members of Councilors and Council Executive Committee on the capital investment proposals BlueScope Steel is currently evaluating in the Port Kembla Steelworks Region

Present at Meeting

Name	Organisation	Suburb
Mike Archer	BSL	
Darryle Lathlean	BSL	
Tom O'Toole	BSL	Wollongong
Sandy Galos	BSL	
Fiona Gainsford	CH2MHILL	Sydney

Items Discussed

1 BlueScope Steel presented the following information on potential developments at Port Kembla Steelworks:

- Context of BlueScope Steel in the region;
- Purpose of the consultation;
- BlueScope Steel's operations and service locations;
- Details regarding Port Kembla Steelworks;
- Possible developments at Port Kembla Steelworks and (approximate dates of implementation) including the Hot Strip Mill (approved 2007), No. 5 Blast Furnace Reline (2008), Pickle Line/Cold Mill Upgrade (2007), Sinter Plant Upgrade (2008) and Co-generation Plant (2008-09);

• Regional employment implications of the proposed projects;
• Approvals processes for projects including NSW environmental planning, involvement of Wollongong City Council, DEC and DIPNR, and approval requirements of the BlueScope Steel Board;
• Technical descriptions of the existing arrangements and possible development proposals for No. 5 Blast Furnace Reline Project, Sinter Plant and Pickle Line Cold Mill;
• Critical considerations in the planning of projects including long lead times for equipment procurements and labour resource implications;
• BlueScope Steels' impact on the Illawarra economy.
2 The floor was opened for general discussion and the attendees were invited to ask questions regarding the material presented. The matters discussed are captured below:
3 Following question time, BSL was thanked for the presentation and Council continued with its business.

Item	Matters Discussed	Action
1	Query received relating to the timing of BSL board approval.	DL responded
2	Query received relating to consultation with the EPA. Response: clarification was given about the EPA's name-change to DEC.	
3	Question related to the planning cycle of the projects. BSL responded that the Blast Furnace No. 5 proposal was in feasibility stage, whilst the Sinter Plant Upgrade proposal is in pre-feasibility stage.	Answered by DL
4	Question received regarding the age of the Sinter Plant	Answered by DL
5	Question received about the use of the word "refractory" and its meaning	Answered by DL
6	Concern was raised about potential impact on local tourism. Ie. If the construction activities (requiring a large number of contractors from beyond the local area)at PKSW coincide with a major, local tourism event there could be conflicting demands on accommodation services in the Wollongong area.	BSL to consult with Tourism Wollongong

Date	24th October 2005	**Project Number**	335588

Project BlueScope Steel – Ore Preparation Upgrade Proposal EA

- Upgrade to Sinter Plant and Raw Materials Handling Area

Location DEC Office, Wollongong **Start time** **10.00am** **Finish time** **12.00pm**

Purpose of Meeting

- A meeting was held which was aimed at providing an update to government departments involved in the Proposal, decide on Proposal timing and determine key issues

Present at Meeting

Name	Organisation	Suburb
Tom O'Toole	BlueScope Steel Ltd (BSL)	Wollongong
Alan O'Brien	BlueScope Steel Ltd (BSL)	Wollongong
Murray Smith	BlueScope Steel Ltd (BSL)	Wollongong
Kim Morgan	Hatch Engineering	Wollongong
Trevor Jones	DEC	Wollongong
Peter Bloom	DEC	Wollongong
Rachael Harrison	WCC	Wollongong
Laurie Zammit	Environmental Prof. - Iron Making	Wollongong
Dugal McFarlane	CH2M HILL	Sydney

Items Discussed

QUESTIONS/COMMENTS

General

- Difficult to get Council approval by Christmas
- Just received the DGR's
- PFM planned for November
- Scope of Work – increase capacity from current 5.5 Mt/annum to 6.6Mt/annum (20% increase), deeper and wider strand (wider by 0.5m and deeper by 0.2m), extend cooler bed, No.9 in waste gas system, use existing fan,
- Fix "air-leakage" – will give extra capacity
- Some work will need to be done before and after reline to minimize clashes/labour issues
- No5. reline is September, October and November – 3 months and approximately 500 people
- Sinter plant – 20 Days and 200 people in 4 shifts

DEC Concerns

- Sinter Cooler – de-dusting and energy recovery are key issues
- Holmes Air Science modeling to show dust deposition out of PKSW boundary, cost to capture ($27million) out of proportion
- Need to look at dust deposition on new car imports
- Need to talk with Ports
- Cooler Rebuild – make wider (wider but shallower)
- Conveyor – install new conveyor to improve porosity and full height feed chute

Raw Material Handling

- Are dust controls being reviewed? TS
- Sprays should be able to be maintained KM
- How efficient and effective are systems now? How can this be demonstrated? TS
- Use tertiary treated water? KM
- Track the process and circuit ASAP and when you have a firm idea, provide to the DEC, CH2M HILL and Holmes Air Sciences. Start at sources of raw materials and follow process around – 1st November 0800 4 hrs?
- Will identify areas from complaints, observations and look at problems and seek solutions

Process

- DEC to talk to DIPNR
- Email from Scott: Comment from old process to new TOT
- Will occur under Part 3A (converted from DGR's)
- TJ wants to review DGR's, pick up everything that is relevant to final scope

Timing

- GTA's May 2006
- Consent by May 2006
- Work back from GTA's
- TOT to check with Scott at DoP to ensure Sinter Plant can come separate to BF No.5 EIA?
- TJ wants an update on plant wide projects to advise Minister on what projects are active and which are beneficial. Run this by the DEC.
- DEC will write draft based on scope sent to KM via Alan O'Brien.
- Don't have to import pellets, can make on site
- When will it go into the public arena?

Date	Tuesday, 1st November 2005	**Project Number**	335588

Project BlueScope Steel – Sinter Machine EA

- Upgrade to Sinter Machine and Raw Materials Handling Area

Location BlueScope Steel, Raw Materials Handling Area Site Offices, Port Kembla **Start time 0900am** **Finish time 12.30pm**

Purpose of Meeting

- For BlueScope Steel to brief DEC and WCC on the scope of the proposed upgrades in the Raw Materials Handling Area and in the Sinter Machine;
- For DEC and WCC to undertake a site inspection of the facilities proposed to be upgraded;
- To provide DEC and WCC with a further opportunity to identify key issues regarding the proposal and aspects that will need to be addressed as part of the environmental assessment.

Present at Meeting

Name	Organisation	Suburb
Trevor Jones	Department of Environment and Conservation (DEC)	Wollongong
Peter Bloem	DEC	Wollongong
Paul Wearne	DEC	Wollongong
William Dove	DEC	Wollongong
Peter Jamison	DEC	Wollongong
Rachael Harrison	Wollongong City Council (WCC)	Wollongong
Tom O'Toole	BlueScope Steel Ltd (BSL)	Wollongong
Kim Morgan	Hatch Engineering	Wollongong
Andrew Spence	BSL – Operations Manager Sinter Plant	Wollongong
Glen Sheppard	BSL – Operations Manager Ore Preparation Area	Wollongong
Bruce Ward	BSL	Wollongong
David Brace	BSL	Wollongong
Lawry Zammit	BSL	Wollongong
Dugal McFarlane	CH2M HILL	Sydney
Rob Salisbury	CH2M HILL	Sydney

Jeff Mann	CH2M HILL	Sydney
Jackie Roberts	CH2M HILL	Sydney

Items Discussed

GENERAL OVERVIEW

- The upgrade will consist of multiple discrete projects;
- Sinter currently comprises 60% of Blast Furnace burden;
- 40% is iron ore - lump and pellets;
- Raw Materials Handling – uses 10 Mtpa of ore, pellets and fluxes;
- 17 blended piles per year each 270,000t of primary ore and 30,000t of secondary/recycled material.
- Pellets imported from off-site are a significant cost to the production of sinter. The upgrade will replace pellets with sinter which will reduce cost and increase the reuse of material on site.
- Sinter Machine
  - New strand feeding technology
  - Strand widened by 500mm, height increased by 200mm to increase production by approximately 20%
- Waste Gas Precipitators
  - Currently 90-120mg/Nm^3 – 3 plates
  - Proposal 50-60mg/Nm^3 – 4 plates
- Room de-dusting plant
  - large refurbishment and maintenance operation including replacing plates
  - Waste Gas Cleaning Plant (formerly known as SMERP) has a treatment capacity of 1.4Mm^3 – will receive less flow than this after upgrade as a result of repair of leakage points from the waste gas main, windlegs and electrostatic precipitators

DEC/WCC QUESTIONS/COMMENTS

Sinter Plant

- Supportive in principle of replacing pellets with sinter

Dust

- De-dusting and general housekeeping of dust spillage management;
- Sinter Cooler - Main focus should be on incident analysis rather than day-to-day analysis. Need to know environmental impacts (especially dust impacts) if there is, for example a:
  - short circuit;
  - increase in fan speeds; and/or
  - strong winds
- What is the zone of impact?
- Holmes to look at signature particle size
- What are the effects if increase production?
- What are the effects of higher fan speeds/higher velocities
- What heat recovery options have been considered and why have any been discounted?
- In the event of wind tunneling – high velocity in small area – what are the off-site impacts?
- Alternatives – if the electrostatic precipitator upgrade estimated at $27 million was found not to be economical, discuss why, what other alternatives to reduce dust are available?
- Define what emissions are coming off Sinter Cooler – zones influenced?
- Will dust generated increase proportionately to the increase in Sinter Plant output?
- Will the Waste Gas Cleaning Plant be matched with revised Sinter Plant output – show mass balance;
- What are the impacts on the sulfur recovery plant?
- What are the operational benefits of getting dust from cooler (e.g. better hygiene)
- Previous impact area was residential areas within 1.5km radius. What will be the effect in 2009 when the new car handling area is developed in the adjacent port lands?

Room de-dusting plant

- dust spillage control
- Increase in production – mass balance of air pollutants will change – need to match with SMERP
- Impact of SRP (sulphur recovery plant)
- Mass emissions of NOX especially with Natural gas firing – what are the effects of the proposal on this?

Noise

- What noise increases/decreases will result from the proposal?
- What will be the effect of the proposal on noise generated from the Sinter Plant?
- Modelling - If poor climatic conditions, will this enhance transmission of noise generated?
- intermittent complaint especially tonal component of ID fans contribute to noise signature of plant
- effect of an increase in cooler fan size?

Waste

- What is the overall waste profile?
- Will the overall waste generated increase? If yes, how will it be managed?
- Is plant designed to maximum capacity of Waste Gas Cleaning Plant?
- Provide an analysis of the off-sets to cost (e.g. decrease in cleaning costs) if waste gases are treated
- Does increase in production mean increase dust loading from Waste Gas Cleaning Plant?
- Is it possible to take waste gas from electro-static precipitators?
- Waste Gas Cleaning Plant water treatment plant of SRG scrubber and sulphur plant (complete April/May 2006) Needs to be designed to match maximum capacity

Raw Materials Handling Area

(BlueScope's summary)

- No expected change in tonnage/materials
- No.1 Berth unchanged (nominal 7000t/year difference)
- No.2 berth tonnage unchanged – 1 M tonnes of pellets replaced with 1 M tonnes of fine and lump ore instead
- The proposal will decrease delays to ship discharge from RMH process
- Ships currently have a load of 135,000t to 140,000t to unload at a time
- The proposal will have the ability to halve the ship loads

2 main changes to RMHA

1) New bypass system - new conveyors linking berths to secondary yards
- Will free up No.2 stacker reclaimer

2) No.4 stacker yard – currently stores Canadian pellets, Yandi fines from W.A.
- construct new wall under #4 stacker
- new reclaim hopper and reclaim sequence to feed sinter machine fine ore bins
- i.e. second system to feed 1M tonnes of ore without taking up capacity of other systems

Current stormwater management

- two large soak away pits on northern end near lumps, number 4 stacker area south, north
- 4 drains to handle run-off

DEC/WCC COMMENTS/QUESTIONS ON RMHA

Generally

- Identify equipment and infrastructure impacted by the proposal and the linkages of changes E.g. the change in operations of pellets will increase handling of fine material
- Potential environmental impacts by an increase in throughput
- Positive impacts – use of conveyor instead of trucks

Dust

- Management of dust control and fugitives
- Link project to overall site dust management strategy
- Opportunities to decrease dust emissions
- What is the existing dust strategy?
- Mitigation of hot sinter, steam and dust coming off conveyors
- Management of unprotected ends of stockpiles
- Stacker dust control systems – especially in hot weather
- Dust impact on inner harbour upgrade
- Wind tunneling in fine ore area – will this result in an increase in dust emissions?

Truck/Tanker Issues

- Investigation should include a decrease in truck movements which transport materials over unsealed roads
- Change of truck movements (positive and negative given introduction of additional conveyers)
- Opportunity to decrease truck movements in stockpiles/generally

Stormwater controls

- Capacity of existing systems
- Maintenance schedules – will they change as a result of the increase in fine ore handling?
- Increase in fine ore handling – will this change the stormwater strategy?

Noise

- Characterise new potential noise as a result of proposed changes.
- Different types of noise sources (quantitative/tanker movements)
- Increase/decrease in tanker/truck movement?

- If increase throughput show:
  - current adequacy of system for dust control
  - Capacity for it to cope under new arrangements
  - Truck washes and their effectiveness

Process

- DEC to consider existing DGR's and outcomes of today's discussions and observations
- BSL will continue to liaise with DEC
- DEC to liaise with Dept of Planning to provide input of today's discussions into 3A revision of existing DGR's
- BSL will seek input from the community following feasibility approval from the BSL board
- BSL maintains open internal communications with its workforce which liaises informally with the community. This informal consultation is an effective conduit for keeping the community informed about projects that BSL is considering. Once approved a more formal consultation will be undertaken.

Date	Tuesday, 18th November 2005	**Project Number**	335588

Project BlueScope Steel – Sinter Machine EA

- Upgrade to Sinter Machine and Raw Materials Handling Area

Location DEC Office, Wollongong **Start time** **1.00pm** **Finish time** **3.00pm**

Purpose of Meeting

- To provide the DEC with a further opportunity to identify key issues regarding the proposal and aspects that will need to be addressed as part of the environmental assessment.

Present at Meeting

Name	Organisation	Suburb
Trevor Jones	Department of Environment and Conservation (DEC)	Wollongong
Tom O'Toole	BlueScope Steel Ltd (BSL)	Wollongong
Kim Morgan	Hatch Engineering	Wollongong
David Brace	BSL	Wollongong
Alan O'Brien	BSL	Wollongong
Dugal McFarlane	CH2M HILL	Sydney
Katrina van Lint	CH2M HILL	Sydney
Judith Cox	HAS	Sydney

Items Discussed
QUESTIONS/COMMENTS RAISED
Cooler De-dusting • Will the proposed new cooler ring increase fallout on the community? • $27m to install a baghouse and stack to meet new CAPER regulations is seen as too much. • Will the new feed system give better size distribution on the cooler bed? • Cooler Dust could be an emerging issue. Must get it correct as cooler dust has been found in the community.
SMERP • Can the Waste Gas Cleaning Plant handle the increase in sinter production? • Will it handle increased NO_x, SO_x and dust?
Room De-Dusting • Areas where there is spillage need to be addressed. • Look at secondary entrainment of dust. • Examine linking with the Cooler.
Raw Materials • Dust Management. • Changes must not increase the dust 'signature'.
LCA • Check with the Department of Planning as a LCA is not required by the DGR's.
Alternatives • Energy Optimise Sintering (EOS) opportunities are to be considered with this upgrade. • Look at stormwater run-off - are there any changes?

Date	23rd March 2006	**Project Number**	335588

Project BlueScope Steel – Sinter Machine EA

- Upgrade to Sinter Machine and Raw Materials Handling Area

Location DEC Office, Wollongong **Start time** **1.00pm** **Finish time** **4.30pm**

Purpose of Meeting

- To report back the findings of the issues raised by relevant government departments in the previous meetings.
- To provide the DEC with a further opportunity to discuss the key issues regarding the proposal.

Present at Meeting

Name	**Organisation**	**Suburb**
Tom O'Toole	BlueScope Steel Ltd (BSL)	Wollongong
Darryle Lathlean	BlueScope Steel Ltd (BSL)	Wollongong
Kim Morgan	Hatch Engineering	Wollongong
Jim Fresh	Hatch Engineering	Wollongong
Kate Hopkins	DEC	Wollongong
Peter Jamieson	DEC	Wollongong
Paul Wearne	DEC	Wollongong
Trevor Jones	DEC	Wollongong
Judith Cox	HAS	Sydney
Dugal McFarlane	CH2M HILL	Sydney
Mathew Williams	CH2M HILL	Sydney

Items Discussed

QUESTIONS/COMMENTS

Cooler De-dusting

- Air quality - Will the proposed new cooler ring increase dust fallout on the local community?
- Noise - Check that tones and harmonics will not cause a problem. Gate's likely to be very similar to that provided for No.5 BF Reline conditions.
- Water - Ensure that stormwater collection and reuse is shown in the EA and consistent with "BlueWater" initiatives.

Room De-Dusting

- Air Quality - Dust fallout needs to be modeled - must meet the CAPER regulations.
- EA must show the most cost effective option for minimising the "puff" of dust from the final rap.
- Noise - Check that tones and harmonics will not cause be an issue to the local community. Review fan sizing.

WGGP (SMERP)

- Air Quality - Can the WGCP handle the increase in NO_x, SO_x and dust concentration limits?
- Air Quality - The WGCP will remove the increased SO_x but not all of the NO_x.
- New ignition hood will use Natural gas not Coke Ovens Gas.
- Waste - Ensure that the extra dust from the EP's are disposed of effectively and that the contaminant signature of the dust fits with the current and proposed practice.
- Process control of inlet temperature to WGCP is critical and how this is done after the upgrade, must be explained in the EA.
- EA must also show how the increase in raw material mix to the sinter plant will not have an adverse effect on ability to control Sulphur, Chlorides etc.
- Schedule a meeting with DIPNR and DEC as soon as practicable. Provide DEC with a copy of DRAFT EA ASAP.

Date	5th April 2006	**Project Number**	335588

Project BlueScope Steel – Ore Preparation Upgrade Proposal EA

- Upgrade to Sinter Plant and Raw Materials Handling Area

Location DoP Office, Sydney **Start time** **10.00am** **Finish time** **12.00pm**

Purpose of Meeting

- To discuss with the DoP the 3A process, expectations of scope for the Upgrade Proposal, sign-off / Statement of Commitments and associated corporate responsibilities for BSL and DA approval timeframe.

Present at Meeting

Name	Organisation	Suburb
Tom O'Toole	BlueScope Steel Ltd (BSL)	Wollongong
Alan O'Brien	BlueScope Steel Ltd (BSL)	Wollongong
Craig Tidermann	BlueScope Steel Ltd (BSL)	Wollongong
Scott Jeffries	DoP	Sydney
Rob Salisbury	CH2M HILL	Sydney
Dugal McFarlane	CH2M HILL	Sydney

Items Discussed

QUESTIONS/COMMENTS

General

- DA Approval timeframe is 2-3 months from date of submission.
- EAR's will be reverting back to DGR's in the future.
- Upgrade Proposal probably will not require PPR.
- A "concept plan approach" is not appropriate for the Ore Preparation Upgrade Proposal. However, it may be appropriate for future projects.
- Pre-evaluation sent back because the general guidelines were ignored, missed simple aspects of EAR's e.g. statement of completeness.
- There is an expectation to consult with government agencies.
- Refer to "Fact sheet – Project Approval under Part 3A".

Statement of Commitments

- Proposal should include a Statement of Commitments.
- Refer to No.5 BF conditions of consent.
- Is there a formalized sign off process? EA should include.

Risk Assessment

- What are DoP expecting (risk assessment, level of effort?).
- Provide as small a document (Risk Assessment) as possible that will enable the Minister to make a decision.

Changes of scope/modifications

- What if the project changes/needs modification?
- Is there a process to discuss modifications to scope? Changes to scope will need re-consultation.
- What is significant change? – Changes to technology are significant.
- What is application process?
- What is the timing?
- Existing EAR's discuss changes of scope and timing.