PROPOSED RELOCATION OF SODIUM HYPOCHLORITE MANUFACTURING FACILITIES AT ORICA CHLORALKALI PLANT, BOTANY INDUSTRIAL PARK

Document Supporting Application to Modify Development Consent DA35/98
S96(1A) Application

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CONTENTS

List of Abbreviations

CoBB	City of Botany Bay Council
DCS	Distributed Control System
DECC	Department of Environment and Climate Change
DIPNR	Department of Infrastructure, Planning and Natural Resources
DoP	Department of Planning
EMP	Environmental Management Plan
EP&A Act	Environmental Planning and Assessment Act, 1979
PPE	Personal Protective Equipment

SUMMARY
In November 1998 Orica received development consent from the NSW Department of Planning (DoP) under Part 4 of the Environmental Planning and Assessment Act, 1979 (EP&A Act) for the construction and operation of a replacement ChlorAlkali Plant. The new plant commenced operation in 2002, replacing 1940's a facility.

Whilst much of the former ChlorAlkali Plant has been demolished, certain components remain in operation as integral components of Orica's chlorine & associated manufacturing process at the Botany Industrial Park (BIP). One such component is the sodium hypochlorite manufacturing plant (the Hypo Plant).

Orica now proposes to relocate its existing Hypo Plant to an adjacent area, still within the Orica ChlorAlkali Plant complex at BIP.

It is necessary to relocate the Hypo Plant facilities because:

- The section of the structure supporting the existing facilities has deteriorated with age and corrosion and can no longer be feasibly repaired.
- Improvements are required to meet current NSW Department of Environment and Climate Change (DECC) bunding requirements.
- The roof cladding of the existing area consists of asbestos cement sheeting more than 50 years old, which has become friable through weathering.

Orica has assessed that this development is substantially the same as that approved under DA35/98 [and as modified 7/6/06 (MOD 12-1-2006) and 9/1/06 (MOD-180-11-2005-i)] as it is the logical extension of the improvements already made.

No new production facilities are proposed and separation distances to off-site (non-BIP) land uses do not decrease.

It is therefore considered that the proposed works meet the conditions for application for a modification to development consent under s.96(1A) of the EP&A Act and Orica seeks consent of the modification from the DoP.

In conducting this project, Orica will apply stringent environmental controls to minimise potential impacts upon the environment. Its completion will deliver permanent benefits by:

- Providing full containment of the area used for the manufacture of sodium hypochlorite;
- Excluding rainwater from the manufacturing area, so reducing the volume of potentially contaminated rainwater disposed to sewer;
- Eliminating friable asbestos-cement cladding from this part of the ChlorAlkali Plant area; and
- Replacing severely corroded structures with safe, new structures.

This project continues the trend at Botany for Orica to modernise and improve the operating efficiencies, to the benefit of both its shareholders and the local community.

1. Introduction

Orica proposes to relocate its existing sodium hypochlorite ("Hypo") Plant to an adjacent location, within the ChlorAlkali Plant complex at BIP.

The ChlorAlkali Plant complex has several sub-plants:

- Hypo loading bay (commissioned 2008)
- Electrolysis area (commissioned 2002)
- HCl plant (commissioned 1992)
- Ferric Chloride Plant (commissioned 1992)
- Hypo Plant (commissioned ca 1944)

These sub-plants are ancillary to the current ChlorAlkali Plant approved by the DoP on 6 November 1998. The following modifications have been processed by DoP to date:

- Mod-12-1-2006 to demolish the decommissioned Chlor Alkali plant buildings at BIP
- Mod-180-11-2005 for replacement of the hypo loading bay, upgrade of the hypo tank farm and replacement of the technicians' change room.

The upgrade of the hypo tank farm approved by Mod-180-11-2005 did not proceed due to economic constraints that were imposed on the business at the time.

Most of the 1944-vintage ChlorAlkali Plant was removed in 2007/8 as part of approved demolition works. The commissioning of the new Hypo loading bay (in 2008) has freed the former loading bay site for other purposes.

The existing Hypo Plant was constructed in the 1940s as an adjunct to the old mercury-based manufacturing facility. Hydrogen gas, chlorine gas and caustic soda are produced by the ChlorAlkali Plant. The Hypo Plant is a downstream function that takes the chlorine and caustic soda and adds water to produce hypochlorite (otherwise known as bleach). The Hypo Plant consists of a packed tower, circulation tank, circulation pump, heat exchanger and fan. The Hypo Plant operates in continuous mode. Hypo is stored and supplied to customers by road tanker. The Hypo Plant is an automated distributed control system (DCS) controlled plant controlled by plant operators from a control room located near to the plant.

The existing Hypo Plant is housed, along side a control room and laboratory, in a steel, concrete and asbestos-cement supporting structure. The section of this structure where the Hypo Plant is located is approximately 4 stories tall. The connected section that houses the control room and lab is about 1.5 stories tall. The existing structure has an asbestos roof, no walls and a concrete slab foundation.

The section of the support structure housing the existing Hypo Plant is severely weathered and corroded to the point where it needs to be replaced.

Orica seeks a modification under Section 96(1A) of the EP&A Act to the consent issued for the replacement ChlorAlkali Plant (DA35/98) to:

- relocate the Hypo Plant in a new steel and colorbond roofed support structure (and associated bund) to be erected at the site of the former hypo loading bay;
- install two additional hypo storage tanks within a dedicated bund and splash guarding (increasing the storage capacity by 300m^3 to a total of approximately 550 m^3) (as noted on the previous page, the upgrade of the hypo tank farm approved by Mod-180-11-2005 was not carried out);
- dismantle existing structures at the new location (including a steel gantry and concrete slab from the former hypo loading bay);
- dismantle the associated section of the old steel support structure down to floor level and remove the asbestos roofing across the existing Hypo Plant, lab and control room structure – shoring up the remaining parts of that structure; and
- installation of a unisex toilet.

1.1 Purpose and scope of report

This report has been prepared to support an Application to Modify Development Consent, submitted to the NSW Department of Planning (DoP).

The report provides a description and assessment of the proposed works and aims to demonstrate that:

- The proposed works will improve environmental and safety aspects of the current operations; and
- The development (as modified) is substantially the same as the approved development.

1.2 Methodology

This assessment has been carried out as follows:

- Identification of applicable statutory requirements;
- Outline of the proposed scope of works;
- Review of the environmental impacts and necessary mitigation measures associated with the proposed works.
- Review of the effect of proposed modifications on the existing Conditions of Consent for the replacement ChlorAlkali plant.

2. Background

2.1 Site location

The project location is within the BIP at Matraville in Sydney's south. The BIP is a fully operational chemical manufacturing site.

2.2 Current status of existing plant

The existing Hypo Plant was commissioned as part of the original Chlorine Plant of 1944, built under wartime conditions at the request of the Commonwealth Government. (ref. 1)

The Hypo Plant is still in full production, supplying sodium hypochlorite solution in bulk (by road tanker) to a range of commercial and wholesale activities. This product is an essential commodity, used in the disinfection of waters, in cleaning products and bleaches. It is classified under the Australian Code for the Transport of Dangerous Goods by Road & Rail (7th Edition) as a Class 8 (corrosive) dangerous good.

The steel framework supporting the heavy Hypo production equipment has corroded over time to the point where temporary reinforcement has been applied to maintain operator safety. Elevated concrete floors supported by the steel frames are affected by "concrete cancer". Existing repairs can only be temporary, as the structure's design does not facilitate long-term repairs and renewal.

While some roof cladding has been replaced by Colorbond sheets, much of the remaining external roof asbestos-cement cladding has aged and weathered and should also be removed in the interests of operator safety.

When the Hypo Plant was built, environmental standards were different to those of today. Full containment of potential spillage was not part of the original design. Some retrofitting of kerbs and concrete floors has occurred, but these do not meet current best practice and are also showing the effects of long use in a slightly corrosive environment.

3. Statutory context

3.1 Existing development consent

Orica received conditional Development Consent for a replacement ChlorAlkali plant, from the then Minister for Urban Affairs and Planning, in November 1998 (DA35/98). This was a State Significant Development determined under State Environmental Planning Policy No. 34 – Major Employment Generating Industrial Development. As noted in Section 1, two modifications have been processed to date.

3.2 Comparison to approved development

This application for the relocation of the existing Hypo Plant is a natural modification of the former consent which approved the replacement of 1944-vintage manufacturing facilities with modern equipment designed to comply with current environmental requirements.

3.3 EP&A Act requirements

The process for requesting modification to an existing consent is given in Section 96 of the EP&A Act – "modification of consents generally". Section 96(1A) allows for modifications involving minimal environmental impact where the consent authority (in this case the NSW DoP) is "satisfied that the proposed modification is of minimal environmental impact, and "is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all)"

DoP has recommended that Orica seek approval for relocation of the Hypo Plant by way of a modification application to DA35/98. Orica has prepared this document in support of that application in order to demonstrate that the proposed modification is of minimal environmental impact and substantially the same as the original development.

3.4 State Environmental Planning Policy (Major Development) 2005

The BIP falls within the "Port and Employment Related Lands" area listed as a "specified site" under Schedule 2 of State Environmental Planning Policy (SEPP) (Major Development) 2005 and depicted in Map 5 of that schedule.

Part 3A of the EP&A Act applies to development on the BIP, as listed in the following extract of Schedule 2 of the Major Development SEPP:

> **7 Port and Related Employment Lands**
>
> (1) **Botany**
>
> Development within the area identified on Map 5 to this Schedule for the purpose of:
>
> (a) a shipping berth, shipping terminal or associated building, structure or work, being development with a capital investment value of more than $5 million, or

(b) a facility that manufactures, stores or uses significant quantities of dangerous goods and meets the criteria in *State Environmental Planning Policy No 33—Hazardous and Offensive Development* of being potentially hazardous, or

(c) a waste facility that meets the criteria in *State Environmental Planning Policy No 33—Hazardous and Offensive Development* of being potentially hazardous.

As Part 3A of the EP&A Act had not been proclaimed at the time of the original approval, Orica understands that it is appropriate to consider this modification application under Part 4 of the EP&A Act.

3.5 State Environmental Planning Policy No 33 Hazardous and Offensive Development

Sodium hypochlorite is a Class 8 (Corrosive) Packaging Group III Dangerous Good. It is not combustible. It does not pose any chronic environmental risks as it is not toxic and does not bioaccumulate. The solution tends to break down over time, leaving salt (NaCl) and caustic soda (NaOH) in solution and evolving oxygen gas.

The hazard analysis for the ChlorAlkali plant and submitted with DA35/98, was prepared in accordance with SEPP33.

The proposed relocation works outlined herein do not change the process for the production of hypo.

This application seeks approval for an increased volume of on-site hypo storage from approx 250m^3 to a total of approximately 550 m^3. The modification application submitted on 31 October 2005 (and approved by Mod-180-11-2005) included an upgrade of the hypo storage facility with an associated hypo volume increase from 400 m^3 to 500 m^3. As previously mentioned, these works were not carried out. Two small hypo tanks have since been de-commissioned due to age, reducing the currently available volume from 400 m^3 to 250m^3.

The submission supporting the October 2005 modification application (prepared by Sherpa consulting and attached as Appendix D) assessed the increased hypo storage and concluded that a Preliminary Hazard Analysis was not required. Orica has reviewed that assessment in light of the modification outlined in this current application and believes that the same conclusions can be made and that a PHA is again not required.

It is noted that AS3780 *Storage and Handling of Corrosive Substances* was updated in 2008. The installation of additional tanks will be compliant with the intent of AS3780 and Orica will engage third party expertise in order to assess the proposal against AS3780.

4. Scope of proposed modifications

4.1 Description of work areas

This project will be confined to the northern half of the portion of the ChlorAlkali Plant bounded by 1st Street, 4th Avenue, 2nd Street and 3rd Ave at BIP – within the ChlorAlkali complex.

4.2 General scope of work

Appendix B provides the following drawings:

- B78323 – chlorine area
- B99904AP - Hypo relocation site layout
- B99836AP - Hypo relocation equipment layout

Orica proposes that the Hypo Plant be relocated to the old hypochlorite loading bay area (adjacent to the current Hypo plant location) and be housed in a new, dedicated and purpose built, bunded and roofed steel structure approximately three stories tall with a footprint of approximately 8m x 6m. The redundant hypo loading bay (which covers an approximately 2 x 3 meter footprint and is shown in a photograph in Appendix A) will be dismantled to make way for the proposed installation.

The proposed relocation of the Hypo Plant has a capital investment value of A$9M (plus demolition costs of approximately $1.5M). The works will create short term construction roles, but no new operational jobs.

The proposed new steel, roofed support structure will house existing equipment including both the primary hypo make tower as well as the ferric backing tower and associated recirculation tanks, pumps and heat exchangers.

The capacity of the hypo plant will remain at 38tpd (chlorine injection).

In order to minimise the risk to supply, the intent is to bring the new plant on line whilst the existing plant remains operational. This is possible as the existing hypo plant has two towers and Orica has determined that only one tower is required – as such one of the towers can remain operational in the existing structure until such time that a tower is fully commissioned in the new location.

Once the new plant is on line, the part of the structure that houses the existing plant will be dismantled to grade. No pilling or explosions are required – the dismantling simply involves cutting sections of steel and removing them. All asbestos on this structure will be removed by a licensed asbestos contractor. The remainder of the structure (approximately two thirds) houses the hypo control room and lab and is still in good condition. It will be strengthened and re-clad with colorbond sheeting. The control room and lab will both remain operational throughout relocation of the Hypo Plant.

The existing hypochlorite storage tank bund (housing tanks numbered 1x, 2x, 3x, 4x, 5x and 6x – refer to drawing B99836AP) lies between the current and

proposed Hypo Plant locations. This bund will also be upgraded to ensure that it meets with current bunding best practice.

In addition to this, it is proposed to install two additional fiberglass hypochlorite storage tanks within a dedicated bund adjacent to the proposed Hypo Plant location. The combined capacity of these storage tanks will be approximately 250 m^3 which will increase total hypochlorite storage capacity to approx 550 m^3. This will increase the total site hypochlorite storage to approx. 2 days storage during the peak production months (i.e summer).

The new storage tanks (labelled 9x and 10x on drawing B99836AP in Appendix C) will be housed within a dedicated storage bund built according to appropriate regulations and current best practice. These tanks will be notified to Work Cover as new Dangerous Goods storages.

A unisex toilet will also be installed in the vicinity of the Hypo Plant.

4.3 Detailed scope of work

Process equipment will be relocated to a new plant area to be constructed on the site of the former hypo loading bay which is now redundant. To do this the former hypo loading bay and its equipment will be dismantled and a new, fully bunded plant area and supporting steel platform with a roof will be constructed in its place. This supporting structure will be approximately three stories tall.

A spare make tower and recirculating tank will first be modified to mount the column on top of the recirculating tank, removing the need for the two gas/liquid separators and their interconnecting pipe work. Installing the make towers onto the top of the mixing tanks will prevent flooding and re-designing the air suction fans will improve maintainability.

The modified unit will then be installed into the new roofed supporting structure and commissioned using water. The combined column will be brought online in parallel with the other remaining column to maintain plant capacity.

The combined make towers and recirculating tanks will be subjected to full quality control, including detailed decontamination, welding trials and weld integrity testing.

Space shall be allowed in the new structure to relocate the following equipment:

- A total of one make tower.
- Backing tower, combined with recirculating tanks and associated recirculating pumps and heat exchangers

The proposed works do not result in any new emissions or any new discharge points.

The structure, columns and associated piping and equipment will be located such that a future expansion that requires an additional hypo tower can be added if/when required. This additional equipment will not be installed as part of this project and therefore does not need to be considered as part of this application.

4.4 Timing of work

Orica first advised the DoP of it's intention to relocate the Hypo Plant late last year and since that time has been developing the scope of works described herein. Orica seeks approval for this modification to facilitate commencement of works in the fourth quarter of 2009. This timetable is driven by the need to improve the structural integrity of the Hypo Plant.

5. Impact of proposed modification

5.1 Land use

The project area forms part of the ChlorAlklai complex situated in Lot 11 of DP1039919. The proposed new Hypo Plant location is opposite the replacement Hypo Loading Bay, which was approved as DA35/98, as modified 9/1/06 (MOD-180-11-2005-i). The land has been used for the production and dispatch of sodium hypochlorite since 1944. This project does not propose any change to that use.

5.2 Landuse and safety

The Preliminary Hazard Analysis and Final Hazard Anlalysis prepared for the replacement ChlorAlkali plant show that the risk is dominated by potential releases of chlorine.

The proposed project does not increase that risk, introduce any new risks, or increase the frequency of potential risks as its scope is merely to relocate existing integral manufacturing facilities to an adjacent location. From a hardware perspective, the proposed modification has the benefit of reducing net risks by improving the structural integrity of the Hypo Plant. The increased hypo storage capacity has minimal impact on safety or environmental risks.

In line with Orica's internal processes, a series of Hazard Studies has commenced for the works proposed as part of this modification application.

The following points are made in relation to landuse safety considerations associated with the proposed relocation of the Hypo Plant:

- Emergency Plan – no change required as a result of the proposed modification
- Safety Management System – no change required as a result of the proposed modification
- Fire Risk Management Plan - this Plan will be updated to note the new layout including the additional tanks.
- The requirement for ongoing Hazard Audits remains applicable to the wider ChlorAlkali operation.
- Works will be conducted in accordance with AS3780 (2008) *Storage and Handling of Corrosive Substances* (refer to discussion in Section 3.5).
- Leaks from the Hypo Plant equipment will be contained within bunded areas capable of retaining the largest inventory.

Orica will provide the following documents, specific to the scope of work outlined in the modification application, for the information of the DoP:

- Construction Safety Management Plan
- A list of Hazop study actions

5.3 Occupational health and safety

The section of the support structure housing the existing hypo facility is old, weathered and significantly affected by corrosion. Concrete cancer has

affected suspended floors resulting in splits exposing steel reinforcement to further corrosion. Significant spalling is evident. The steel framework supporting floors and manufacturing plant & equipment has deteriorated to the extent that temporary steel supports have been installed. Remaining asbestos cement cladding is brittle and showing the effects of many years' exposure to the elements and to a slightly corrosive atmosphere.

This project aims to replace and remove these aged structures as described in Section 4 to the benefit of worker safety.

A Construction Safety Management Plan will be prepared. A contractor experienced in the management of asbestos materials will be engaged to handle that component of the works.

5.4 Noise

Construction and dismantling works will be confined to 7am to 5pm Monday to Friday and 7am to 12pm on Saturday. No significant construction or dismantling noise is expected.

As noted in Section 4.2 dismantling the existing structure will involve cutting through steel and removing sections. No pilling or explosions or noticeable vibration is anticipated.

As this project aims to relocate existing manufacturing plant and equipment to a new support structure erected nearby, operational noise sources will essentially remain unchanged. Monitoring undertaken on site has confirmed that operation of the ChlorAlkali complex meets the noise conditions outlined in Orica's Environment Protection Licence (EPL2148). No change to operational noise contributions is anticipated as result of the relocation of the Hypo Plant.

5.5 Air quality

As this project mainly aims to relocate existing manufacturing plant and equipment to a new support structure erected nearby, no new emission point sources are proposed.

5.6 Waste management

Production of sodium hypochlorite requires the reaction of elemental chlorine with an aqueous solution of sodium hydroxide:

$$Cl_2 + 2NaOH \longrightarrow 2NaOCl + H_2O$$

There are no waste products from this process and so there will be no wastes to manage from the relocated facility (which will continue to operate in a similar manner).

Demolition wastes will include steel, concrete and asbestos-cement. Unlike other areas closer to the former mercury-based chlorine cells, this area is not significantly contaminated with mercury. Wastes will be tested and disposed of in accordance with their classification under current regulatory

requirements. It is likely that steel will be disposed for recycling and concrete and asbestos cement will be disposed to landfill.

5.7 Traffic and transportation

As this project is a relocation of plant within the BIP, there will be no change in the frequency of truck movements related to the dispatch of finished product. Whilst increased storage will be available, truck movement will not increase.

Demolition waste is estimated to comprise some 150 m^3, requiring approximately 15 truck loads to landfill or recycling.

Construction will stimulate approximately 35 loads of materials, over a period of about 20 weeks.

These traffic movements are not anticipated to be noticeable in the context of the high volumes of traffic moving to and fro the BIP, and in the surrounding industrial area, on a daily basis.

5.8 Water quality, wastewater and hydrology

The current and future production areas were designed in the 1940s. The original drainage was designed to flow to stormwater, although much of this was later altered to flow to sewer. This has resulted in a substantial flow of contaminated stormwater to sewer, to ensure it does not contaminate waterways.

The proposed Hypo Plant location will be completely roofed and bunded to ensure exclusion of stormwater and to prevent the loss of spillage to any drainage system. It will comply with the recommendations published by NSW DECC (Ref. 2).

5.9 Geology, soils and geotechnical

Excavation for tank and plant footings will take place. Any soil removed will be tested and disposed of according to its classification under the current regulatory requirements. It is anticipated that approximately 100 m^3 of soil will need to be removed.

5.10 Heritage

The Botany LEP, 1995 (as amended in 2005), lists the only heritage items on the BIP as the Orica main administration building on the corner of Beauchamp Road and Denision Street and a mature Ficus tree adjacent to that building. The proposed works will not affect these items.

Condition 46 of the Conditions of Consent for DA35/98 required that “any equipment or structure decommissioned or demolished as a result of this development consent should be fully documented.” The report (Ref. 3) that was submitted to the City of Botany Bay Council (CoBB) and DIPNR during 2000 did not include the current project area in its scope.

Orica is committed to arranging for a supplementary report to be prepared to document the existing Hypo Plant structure and will submit this to CoBB and DoP for information.

5.11 Visual

The project area is within the Orica ChlorAlkali complex at the BIP, adjacent to rail sidings. The existing shell of the Hypo Plant is well shielded from Denison Street by the Huntsman Surfactants Plant and the Orica salt stockpile. The replacement structure, to be constructed alongside it, will be of similar size and will not be visible from Denison Street. The aged structures will be replaced with new ones, fully clad with Colorbond sheeting.

5.12 Flora and fauna

The project area is within a fully developed industrial site, bearing no visible signs of its origin as a coastal wetlands area. This part of the BIP has been in constant use for the production and delivery of sodium hypochlorite since 1944. There is no native flora or fauna of any description inhabiting the project site. The only non-human inhabitants are feral pigeons. This project will have no effect upon any threatened species.

6. Existing consent conditions and proposed mitigation measures

The original Consent issued for the development of the replacement ChlorAlkali plant is included in Appendix B. It is considered that the proposed modification will have no significant effect upon the existing Conditions of Consent and that these remain applicable to the development, including the proposed modification.

6.1 Proposed mitigation measures

If approved, a supplementary Construction EMP will be prepared for these works, and submitted to the DoP in advance of the works, for information. It will include the following mitigation measures:

- Control of friable asbestos in accordance with current NSW WorkCover codes;
- Disposal of demolition wastes (including asbestos) in accordance with current NSW DECC requirements;
- Correct use of PPE;
- Installation of sediment traps to prevent contamination of BIP drainage systems from debris during both demolition and construction.

6.2 Consultation

Given the low impact of the proposed project, extensive community consultation is not considered necessary.

Orica will advise of the scope, timing and approvals approach for the proposed works at the BIP Community Consultative Committee meeting to be held on 29 July 2009 and respond to any questions raised in a timely manner. That meeting is generally attended by representatives of DECC, CoBB, local residents and local industry.

7. Conclusions & Commitments

The demolition and construction stages of this project will be subject to strict environmental controls to ensure no additional environmental impact upon the community and industrial neighbours.

The proposed modifications will improve the security of environmental controls and operator safety through the replacement of life-expired structures and equipment.

The development is substantially the same as the development approved in DA 35/98 (as modified) in that:

i) Relocation of the Hypo Plant is a natural step in the modernisation of the ChlorAlkali manufacturing facility foreshadowed on Page 1-3 of the EIS prepared for the replacement ChlorAlkali plant. (Ref. 4)
ii) No new production facilities are proposed
iii) Separation distances to off-site (non-BIP) land users do not increase.

It is therefore considered that the proposed changes meet the conditions for application of a modification to development consent under s.96(1A) of the EP&A Act.

Orica makes a commitment to undertake the following actions if the modification outlined herein is approved:

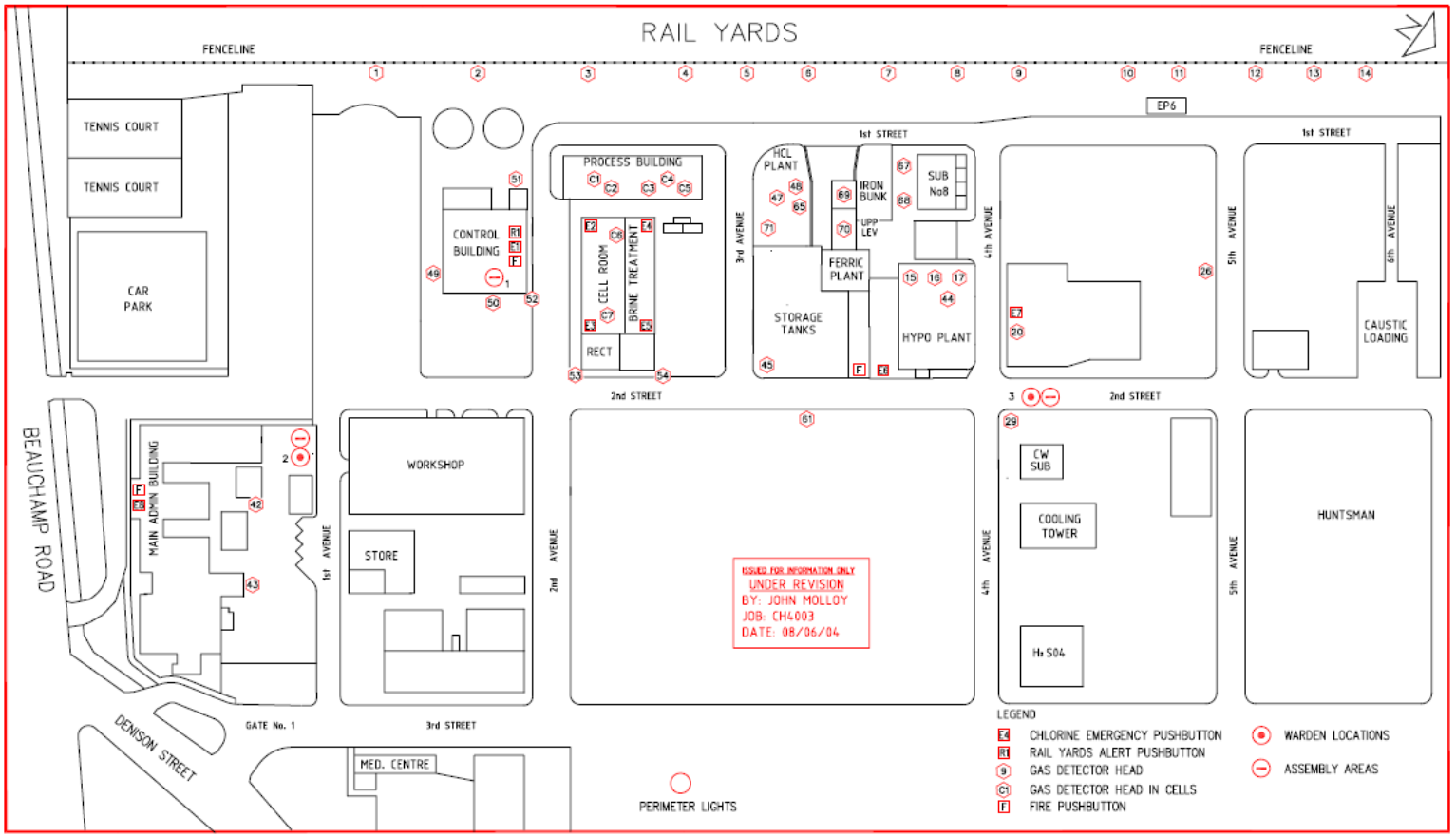
- To provide the following documents, prepared specifically for the scope of works relating to this modification, to the DoP for information:
    - Construction Environmental Management Plan (including the items listed in Section 6.1 above)
    - Construction Safety Management Plan
    - List of Hazop Study Actions
    - A supplementary report (to that prepared in accordance with Condition 46) to document the existing Hypo Plant structure (this would be submitted to CoBB also).

8. References

1. Mellor D P: "The Role of Science & Industry", Australian War Memorial, 1958
2. NSW DECC: “Storing and Handling Liquids: Environmental Protection Trainer’s Manual”, December 2007
3. Planning Workshop Australia: “Archival Record of the Chlor-alkali Plant at ICI Botany Chlorine Factory”, January 2000.
4. Dames and Moore: “Environmental Impact Statement Replacement Chlor-alkali Plant for Orica Australia Pty Ltd”, 25 June 1998.

Appendix A: Photo of old Hypo Loading bay

Appendix B: Drawings



REV.	MOD. No.	REVISION DESCRIPTION	DRAWN	CHECKED	PASSED	APPROVED	DATE	DRG. No.	DRG. TITLE
1	MCWHD	-	MODIFIED TO CLIENT INSTRUCTIONS	J. MOLLOY	J. WALL	T. Ng	C. GENT	15.11.02		
0	MCWHD	-	DRAWN TO CLIENT INSTRUCTIONS	J. MOLLOY	J. WALL	T. Ng	C. GENT	29.05.01	B03006	MIMIC PANEL DETECTOR LAYOUT

REVISIONS AND APPROVALS — REFERENCE DRAWINGS

Kellogg Brown & Root Pty Ltd
KBR

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DESIGN CHECKER	T. Ng	29.05.01
DRAFTING CHECKER	J. WALL	29.05.01
PROJECT DRAFTER	G. PRICE	29.05.01
DESIGN APPROVAL	-	
TECHNICAL APPROVAL	-	
PROJECT APPROVAL	-	
CLIENT APPROVAL	C. GENT	29.05.01

WORKS: BOTANY
PLANT: CHLORINE
SECTION: SITE
RES/PROJECT No.: WC9013
SCALES: NTS

ORICA Australia Pty Ltd (ACN. 004 909 093)

TITLE: EMERGENCY PLANS MAP CHLORINE AREA

PLANT	SEC	SUB	DRAWING No.	REV
B201	05	07	B78323	1

CAD DRAWING DO NOT MANUALLY ALTER THIS DRAWING

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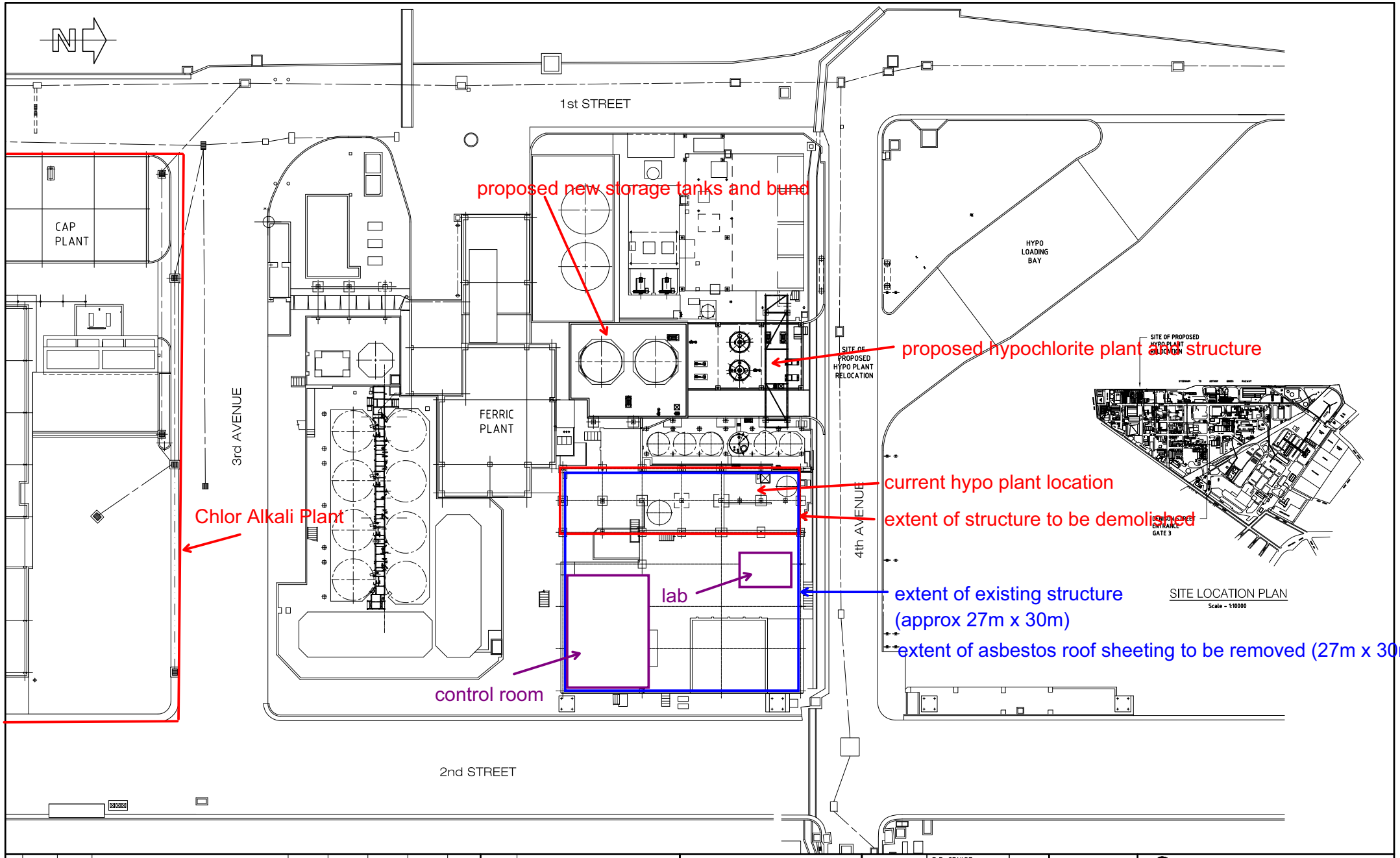
Appendix C: Consent DA35/98 for replacement ChlorAlkali Plant dated 6 November 1998

Appendix D: Modifications to Sodium Hypochlorite Plant, Sherpa Consulting, October 2005

DANGER



REV.	RES. No.	MOD. No.	REVISION DESCRIPTION	DRAWN	CHECKED	PASSED	APPROVED	DATE
A	SB9000-005	-	FIRST ISSUE	R.P. CRUISE	H. ROBINSON	R. ANDERSON	-	-

REVISIONS AND APPROVALS

DRG. No.	DRG. TITLE
-	-

REFERENCE DRAWINGS

Kellogg Brown & Root Pty Ltd
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DRAFTER	R.P. CRUISE	13.07.09
DESIGNER	-	
DESIGN CHECKER	-	
DRAFTING CHECKER	H. ROBINSON	-
PROJECT DRAFTER	H. ROBINSON	-
DESIGN APPROVAL	-	
TECHNICAL APPROVAL	-	
PROJECT APPROVAL	R. ANDERSON	-
CLIENT APPROVAL	-	

WORKS: BOTANY
PLANT: CHLORINE
SECTION: SODIUM HYPO/FERRIC
RES/PROJECT No.: SB9000
SCALES: 1:200

ORICA Australia Pty Ltd (ACN. 004 989 093)

TITLE: CHLORINE PLANT HYPO RELOCATION PROJECT SITE LAYOUT

PLANT	SEC	SUB	DRAWING No.	REV
B201	33	04	B99904AP	A

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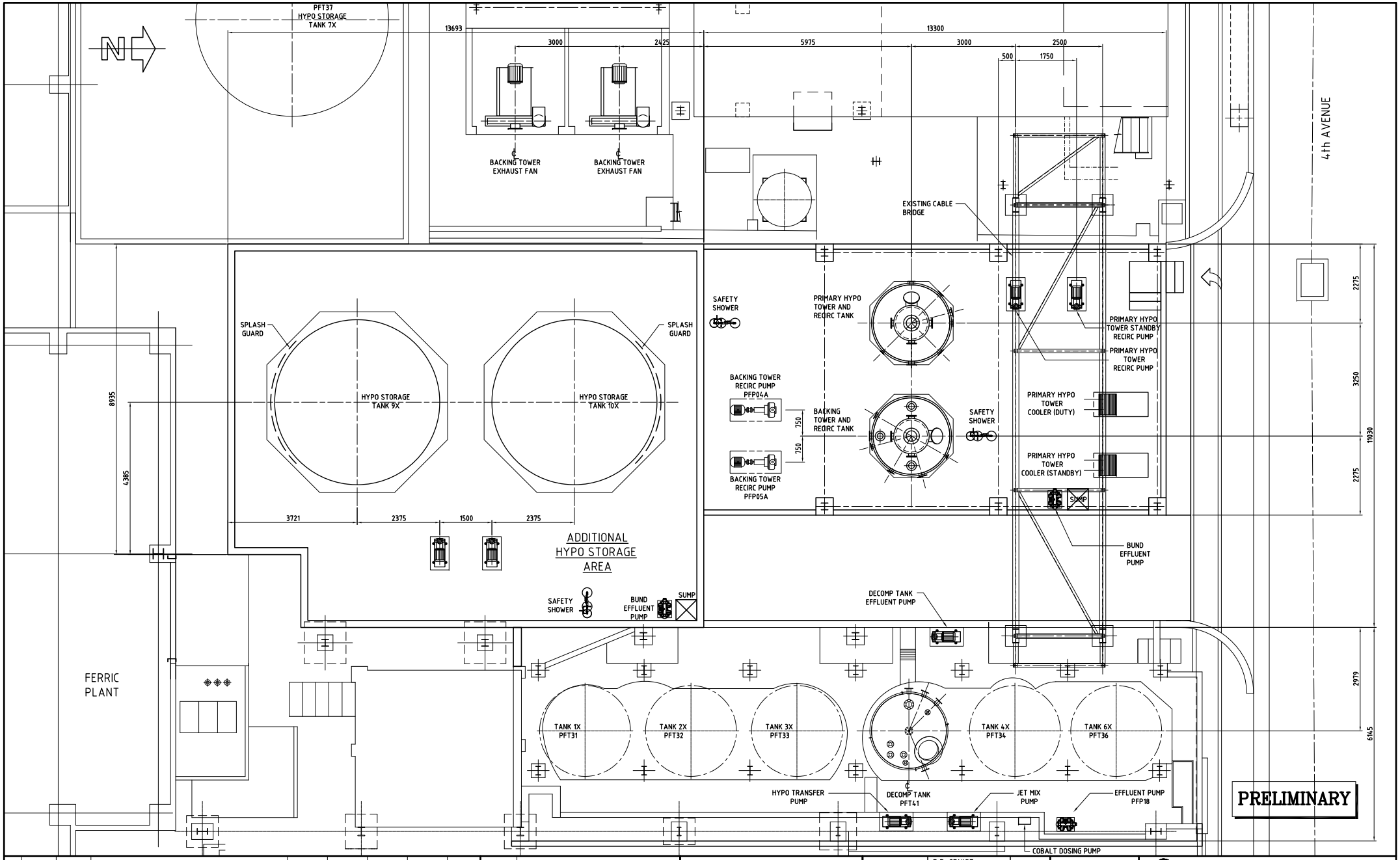

REVISIONS AND APPROVALS									REFERENCE DRAWINGS	
REV.	RES. No.	MOD. No.	REVISION DESCRIPTION	DRAWN	CHECKED	PASSED	APPROVED	DATE	DRG. No.	DRG. TITLE
C	SB9000-003	-	REVISED TO SHOW NEW PROJECT FOOTPRINT	R.P. CRUISE	H. ROBINSON	R. ANDERSON	-	-		
B	SB9000-003	-	REVISED INCORPORATING CLIENT COMMENTS	R.P. CRUISE	H. ROBINSON	R. ANDERSON	-	-		
A	SB9000-003	-	FIRST ISSUE - FOR COMMENT	R.P. CRUISE	H. ROBINSON	R. ANDERSON	-	-	-	-

Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd ABN 91 007 660 317

DRAFTER	R.P. CRUISE	29.05.09
DESIGNER	-	
DESIGN CHECKER	-	
DRAFTING CHECKER	H. ROBINSON	-
PROJECT DRAFTER	H. ROBINSON	-
DESIGN APPROVAL	-	
TECHNICAL APPROVAL	-	
PROJECT APPROVAL	R. ANDERSON	-
CLIENT APPROVAL	-	

WORKS: BOTANY
PLANT: CHLORINE
SECTION: SODIUM HYPO/FERRIC
RES/PROJECT No.: SB9000
SCALES: 1:50

ORICA Australia Pty Ltd (ACN. 004 989 093)

TITLE
CHLORINE PLANT
HYPO RELOCATION PROJECT
PROPOSED EQUIPMENT LAYOUT

PLANT	SEC	SUB	DRAWING No.	REV
B201	33	04	B99836AP	C

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New South Wales Government
Department of Urban Affairs and Planning

Mr E.R. Amor
Botany Site Planning Manager
Orica Australia Pty Ltd
16-20 Beauchamp Road
Matraville NSW 2036

Contact: Bronwyn Smith

Our Reference: R98/00010

Your Reference:

Dear Mr Amor,

NOTICE OF DETERMINATION
REPLACEMENT CHLOR-ALKALI PLANT AT BOTANY.

I refer to the Development Application and Environmental Impact Statement lodged by Orica Australia Pty Ltd. for determination under State Environmental Planning Policy No. 34 - Major Employment Generating Industrial Development.

I am pleased to advise that the Minister has now determined the application in accordance with Section 91 of the Unamended Environmental Planning and Assessment Act 1979 (the Act) by granting consent.

In granting consent, the Minister has imposed a total of 57 conditions which are designed to protect the environment and health of the community, ensure that potential hazards do not pose an unacceptable off-site risk minimise any adverse impact from construction and operation of the development.

A copy of the Minister's determination is enclosed. Under section 93(1) of the Act, the development consent takes effect and operates 28 days from the date of this letter. To ascertain the date upon which this consent is liable to lapse, refer to section 99 of the Act.

Should you require further information on this matter please contact Bronwyn Smith on (02) 9391 2027.

Yours Sincerely,

Geoffrey Noonan
Director
Development and Infrastructure Assessment

17 NOV 1998

Governor Macquarie Tower
1 Farrer Place, Sydney 2000
Box 3927 GPO, Sydney 2001

Telephone: (02) 9391 2000
Facsimile: (02) 9391 2111

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

DETERMINATION OF A DEVELOPMENT APPLICATION PURSUANT TO SECTION 91 OF THE "UNAMENDED" ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

I, the Minister for Urban Affairs and Planning, in pursuance of section 91 of the Unamended Environmental Planning and Assessment Act, 1979, and Clause 8 of State Environmental Planning Policy No. 34 – Major Employment Generating Industrial Development (SEPP 34), determine the development application referred to in Schedule 1 by granting consent to that application subject to the conditions set out in Schedule 2 (file R98/00010).

The reasons for the imposition of conditions are to ensure that potential hazards do not pose an unacceptable risk both on-site and off-site; ensure that best management practices and technology are adopted in the operation of the facility; provide for environmental monitoring and reporting of the future performance of the development; and protect the environmental and amenity of the locality during construction and operation of the plant.

Sydney, 6.11. 1998

Craig Knowles MP
Minister for Urban Affairs and Planning
Minister for Housing

SCHEDULE 1

Application made by:	Orica Australia Pty Ltd
To:	Minister for Urban Affairs and Planning
In respect of land being:	16-20 Beauchamp Road, Matraville NSW 2036 Lot 1, DP 608153
For the following development:	Installation of replacement Chlor-alkali plant to produce 35,000 tonnes per annum gaseous chlorine.
Development Application	The Development Application DA No. 35/98 lodged with the Department of Urban Affairs and Planning on 30 June, 1998 accompanied by the environmental impact statement (EIS) entitled "Replacement Chlor-Alkali Plant for Orica Australia Pty Ltd", June 1998, prepared by Dames & Moore Pty Ltd.

ABBREVIATIONS AND INTERPRETATION

The Department	Department of Urban Affairs and Planning
The Director-General	Director-General of the Department of Urban Affairs and Planning
The Council	Botany Bay City Council
The Applicant	Orica Australia Ltd
DA	Development application
DLWC	Department of Land and Water Conservation
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EP&A Act	Unamended Environmental Planning and Assessment Act, 1979
EPA	Environment Protection Authority
RAC	Rail Access Corporation
SAC	Sydney Airport Corporation
Site	Site of proposed development, being Lot 1 DP 608153
TMP	Transport Management Plan

SCHEDULE 2

CONDITIONS OF DEVELOPMENT CONSENT

1. The Applicant shall carry out the development generally in accordance with the environmental impact statement (EIS) dated June, 1998 prepared by Dames & Moore Pty Ltd, drawing number B73359 Rev A and as modified by the following conditions. Any alteration, variation or extension of the development shall require the further consent of the Minister for Urban Affairs and Planning.

2. At no time shall the existing Chlor-alkali plant and the proposed Chlor-alkali plant operate simultaneously.

3. The existing bulk chlorine storage tanks must be purged no later than 6 months after the date if commissioning of the proposed development.

4. Within 6 months from the date of this consent, the Applicant shall prepare for the approval of the Director-General a report detailing the proposed timetable and procedures for decommissioning the existing Chlor-alkali plant and commissioning of the proposed Chlor-alkali plant.

COMPLIANCE

5. The Applicant shall comply with all the reasonable requirements of the Director-General of Urban Affairs and Planning (the Director-General) in respect of the implementation of measures arising from the following conditions of development consent. Further, the Applicant shall bring to the attention of the Director-General any matter that may require further investigation and the issuing of instructions from the Director-General. The Applicant shall implement those instructions to the satisfaction of the Director-General within such time as the Director-General may specify.

6. The Applicant shall meet reasonable requirements of all public authorities having statutory responsibilities in respect of the proposed development.

COMPLIANCE REPORT

7. PRE-CONSTRUCTION

At least one month prior to the commencement of substantial construction, or within such period as otherwise agreed by the Director-General, the Applicant shall submit for the approval of the Director-General a compliance report detailing compliance with all the relevant conditions that apply prior to the commencement of substantial construction. The pre-construction compliance report should include:

(a) the dates of submissions of the various studies and/or requirements of various conditions, and of their approvals and terms of approvals;

(b) action taken or proposed to implement the recommendations made in terms of approvals and/or studies;

8. PRE-OPERATION

At least one month prior to the commencement of substantial operation, or within such period as otherwise agreed by the Director-General, the Applicant shall submit for the approval of the Director-General a compliance report detailing compliance with all the relevant conditions that apply prior to the commencement of substantial operation. The pre-operation compliance report should include:

(a) the dates of submissions of the various studies and/or requirements of various conditions, and of their approvals and terms of approvals;

(b) action taken or proposed to implement the recommendations made in terms of approvals and/or studies;

HAZARD MANAGEMENT

9. PRE-CONSTRUCTION

At least one month prior to the commencement of construction (except for construction of preliminary works that are outside the scope of the hazard studies) of the proposed development, or within such further period as the Director-General or her nominee may agree, the Applicant shall prepare and submit for the approval of the Director-General the following studies:

(a) Fire Safety Study

A fire safety study for the proposed development and for the existing operations affected by it. This study shall cover all aspects detailed in the Department's Hazardous Industry Planning Advisory Paper No. 2, *Fire Safety Study Guidelines*. The study shall also be submitted for the approval of the New South Wales Fire Brigades. The study shall take into account the New South Wales Government's *Best Practice Guidelines for Contaminated Water Retention and Treatment Systems*. Where there is an existing plant

or site study, the condition of consent will be considered to be satisfied by the updating of that study.

In undertaking this study, or updating an existing study, the Applicant shall ensure the following matters are included:

- An outline of all fire prevention, protection and fire fighting measures proposed, together with the effect on existing installed fire suppression systems
- Details of the type, capacity and proposed location upon the site of all appliances and the reasons for their suitability as proposed
- Details of availability of fire fighting water, location of connection and rates of application, supported by full hydraulic calculations
- An outline of essential services maintenance procedures.

(b) Hazard And Operability Study

A Hazard and Operability Study (HAZOP) for the proposed development, chaired by an independent qualified person approved by the Director-General. The study should be carried out in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 8, *HAZOP Guidelines*.

(c) Final Hazard Analysis

A final hazard analysis of the proposed development as well as any existing operations affected by it. The analysis should be prepared in accordance with the Department of Urban Affairs and Planning's Hazardous Industry Planning Advisory Paper No. 6, *Guidelines for Hazard Analysis*.

(d) Construction Safety Study

A construction safety study prepared in accordance with Hazardous Industry Planning Advisory Paper No. 7, *Construction Safety Study Guidelines*.

10. PRE-OPERATION

At least two months prior to the commencement of operation of the proposed development, or within such further period as the Director-General may agree, the Applicant shall prepare and submit for the approval of the Director-General:

(a) Emergency Plan

A comprehensive emergency plan and detailed emergency procedures for the proposed development. This plan should include detailed procedures for the safety of people in areas outside the development. The plan should be in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 1, Industry *Emergency Planning Guidelines*. Where there is an existing plant or site plan, the condition of consent will be considered to be satisfied by the updating of that plan.

(b) Safety Management System

A comprehensive safety management system, covering all operations on-site and associated transport activities. The system should clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to procedures. Records must be kept on-site and should be available for inspection by the Director-General upon request. The Safety Management System should be developed in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 9, *Safety Management*. Where there is an existing plant or site system, the condition of consent will be considered to be satisfied by the updating of that system.

The Safety Management System shall also detail the procedures for testing and ensuring continuous time and date functionality of all systems including embedded systems associated with the Chlor-alkali and Derivatives complex.

11. ONGOING HAZARDS MANAGEMENT

Three years after the commencement of operations of the proposed development or within such further period as the Director-General may agree, the Applicant shall update the hazard analysis for the Chlor-alkali and derivatives complex at the Applicant's expense. This analysis shall be forwarded to the Director-General for approval. Further updates will be required every three years or as may be requested by the Director-General. The analysis shall be prepared in accordance with the Department of Urban Affairs and Planning's Hazardous Industry Planning Advisory Paper No. 6, *Guidelines for Hazard Analysis*. This report shall cover individual fatality, injury and irritation risk and societal risk using the most recently available population and meteorological data.

Note: the Applicant shall comply with all reasonable requirements of the Director-General in respect of the implementation of any measures arising from the studies undertaken as a result of Condition 11 and shall implement those instructions to the satisfaction of the Director-General within such time as the Director-General may specify

12. INCIDENT REPORTING

Within 24 hours of any incident or near incident with actual or potential significant off-site impacts on people or the biophysical environment, a report shall be supplied to the Department outlining the basic facts. A further detailed report shall be prepared and submitted following investigations of the causes and identification of necessary additional preventative measures.

13. HAZARD AUDIT

Twelve months after the commencement of operations of the proposed development or within such further period as the Director-General may agree, the Applicant shall carry out a comprehensive hazard audit of the proposed development and submit a report on the audit to the Director-General. This audit is to be carried out at the Applicant's expense by a duly qualified independent person or team to be approved by the Director-General. Further audits will be required every three years or as may be requested by the Director-General. Hazard audits should be carried out in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 5, *Hazard Audit Guidelines*. This audit

shall also contain confirmation that time and date functionality of all systems have been tested in accordance with the Safety management System specified in condition 10(b).

BUILDING HEIGHT

14. Prior to lodging application for construction, the Applicant shall seek the approval of Sydney Airport Corporation and the Civil Aviation Safety Authority (CASA) in respect of any structure, inclusive of vents, chimneys, aerials, TV antennae and construction which exceeds the height at which approval is required under the Civil Aviation (Buildings Control) Regulations. This includes any temporary structure and/or equipment planned to be used during construction. This application must include the following information:

    (a) The nature of the proposed structure/activity

    (b) The proposed location of the structure/activity relative to Mapping Grid of Australia 1994 (MGA94)

    (c) The maximum overall height of the proposed structure/activity relative to Australian Height Datum (AHD)

    (d) The purpose for which the structure/activity is intended to be used;

    (e) The maximum height, relative to AHD of any temporary structure or equipment including construction cranes, intended to be used in the erection of the proposed building/structure

    (f) The period of the proposed operation and desired operating hours for any temporary structures.

TRAFFIC AND TRANSPORT

15. No later that two months prior to the commencement of commissioning of the proposed development, or within such further period as the Director-General may agree, the Applicant shall prepare and submit for the approval of the Director-General a Traffic Management Plan (TMP) outlining management measures to ensure that road tanker drivers will predominantly use the main arterial roads – namely Foreshore Drive, General Holmes Drive and Wentworth Avenue, except for local deliveries. The Applicant shall endeavour to enter into contractual arrangements with transport companies to require their trucks to use the routes determined under the TMP.

16. On-site parking shall be provided for all vehicles associated with the operation and construction of the proposed development. This shall include vehicles transporting equipment, materials, contractors and workers. Under no circumstances shall vehicles transporting equipment or materials queue or park in neighbouring streets.

17. No more than one full (13 tonnes) road tanker of chlorine shall be parked on site at any given time. The total amount of time a full road tanker is present on site shall not exceed 4380 hours in any 12 month period. The tanker is to be parked in a dedicated area away from any main thoroughfare.

18. All parking spaces shall be drained, sealed and line marked to the satisfaction of Botany Bay City Council.

ENVIRONMENTAL MANAGEMENT

19. One month prior to commencement of construction work, the Applicant shall prepare an Environmental Management Plan (EMP) in consultation with the Environment Protection Authority (EPA) and Department of Land and Water Conservation (DLWC) for the approval of the Director-General. The EMP shall be implemented during the construction phase of the upgrade to the satisfaction of the Director-General. The EMP should be submitted as a supporting document for the application of the Pollution Control Approval from the EPA.

20. The EMP should address but not be limited to:

    (a) Details of the soil and groundwater investigation to be carried out in the area proposed for earthworks

    (b) Details of the management strategy for the handling , treatment and disposal of any acid sulphate soils and any contaminated material;

    (c) Soil sediment control measures

    (d) Surface run-off control

    (e) Dust management plan

    (f) Quality of excess water from construction site and monitoring

    (g) Methods and discharges or use of excess water including criteria for discharge of stormwater to sewer, stormwater or treatment

    (h) Groundwater protection

    (i) The manner in which air and noise management and environmental monitoring will be implemented in relation to the new facilities.

    No site works involving ground disturbance shall commence prior to approval of the plan.

21. During construction, excavated soils shall undergo a physical examination by a suitably qualified person to assess the possibility of contamination. Should there be reason to suspect contamination based on the physical examination, sampling and laboratory testing of the material shall be undertaken to allow the formation of appropriate management procedures to the satisfaction of the EPA.

22. The Applicant shall ensure that the proposed development, during construction and operation, does not impact on the neighbouring rail embankments. Details of drainage and stormwater management must be discussed with Rail Access Corporation (RAC) and Rail Estate to ensure that there is no impact on the operation of rail.

23. The Applicant shall submit for the approval of the Director-General, evidence that the environmental management of the proposed facilities has been integrated into the existing site Safety, Health and Environment Procedures.

24. At 3 year intervals, from the date of commencement of operations of the development, or as required by the Director-General, the Applicant shall submit an independent environmental audit of the development in accordance with ISO 14011 – Procedures for Environmental Auditing (or equivalent).

The audit shall be carried out at the Applicant's expense and be undertaken by a duly qualified independent person or team approved by the Director-General. The Applicant shall comply with all reasonable requirements of the Director-General in respect of the implementation of any measures arising from the studies undertaken as a result of Condition 22 and shall implement those instructions to the satisfaction of the Director-General within such time as the Director-General may specify

POLLUTION CONTROL APPROVALS AND LICENSES

25. The Applicant shall obtain from the EPA all statutory approvals and licenses required under the Clean Air, Clean Waters, and Noise Control Acts and shall renew and maintain the licenses for the life of the development.

WORKCOVER REQUIREMENTS

26. The Development shall comply with the requirements of the Dangerous Goods Act 1975, as administered by WorkCover NSW, and if necessary be licensed under this Act.

27. One month prior to the commencement of operation, the Applicant shall inform the Director-General in writing of the dangerous goods requirements for the in-transit storage of Chlorine in bulk road tankers.

NOISE

28. No later than one month prior to the start of construction, the Applicant shall develop, to the satisfaction of the EPA, a Construction Noise Management Plan. This shall provide details of noise control measures to be undertaken during construction. This plan shall be developed in accordance with the requirements of the EPA Noise Control Manual.

29. All construction activities, likely to generate perceivable noise offsite, shall be restricted to the hours 7.00am to 6.00pm, Monday to Friday, and 7.00am to 1.00pm, Saturday, unless otherwise agreed to in writing by the EPA on a case by case basis.

30. The technique used for piling during construction shall be "auger piling" to ensure that there will be no vibration effects on nearby buildings or surrounding properties.

31. During construction the Applicant shall ensure that the L_{10} noise level (measured over a period of not less than 15 minutes when the construction site is in operation) does not exceed the background level by more than 5 dB(A) at residential boundaries and beyond, under prevailing meteorological conditions weather conditions.

32. The Applicant shall ensure that the noise emission from the operation of all plant and equipment associated with the proposed development shall conform to the Orica Pollution Control Licence No 2148 noise conditions. In addition:

    (a) The operation of all new equipment in the Chlor-Alkali plant when assessed on any residential boundary shall not give rise to a sound pressure level that exceeds (L_{A10}) 40dB(A) night time and (L_{A10}) 50dB(A) day time.

(b) The operation of all reused equipment in the Chlor-Alkali plant when assessed on any residential boundary shall not give risk to a sound pressure level that exceeds (L_{A90}) 47dB(A) night time and (L_{A10}) 60dB(A) day time.

New and reused equipment is as defined in the EIS "Replacement Chlor-Alkali Plant" (Dames & Moore dated 25 June 1998).

33. The Applicant shall ensure that the noise emission from the operation of all plant and equipment shall not give rise to a sound pressure level that exceeds L_{A10} 65dB(A) (when assessed on any neighbouring commercial/industrial premises).

Note: For assessment purposes, L_{A10} sound levels shall be assessed over a period of 10-15 minutes. Where the sound contains prominent tonal or frequency varying characteristics or is impulsive, a correction factor of 5dB(A) shall be added to the measured levels.

The noise emission limits apply for prevailing meteorological conditions, except under conditions of temperature inversions. Noise impacts that may be enhanced by temperature inversions must be addressed by

(a) documenting noise complaints received to identify any higher level of impacts or patterns of temperature inversions;

(b) where levels of noise complaints indicate a higher level of impact then actions to quantify and ameliorate any enhanced impacts under temperature inversions conditions should be detailed in the noise management protocol.

34. Where practicable, during the commissioning of the Chlor-alkali plant, the Applicant shall ensure that test runs are conducted during daytime.

35. No later than one month prior to the start of operation, the Applicant shall prepare to the satisfaction of the EPA, a Noise Management Plan to address operating the proposed development in accordance with the Site Noise Reduction Program.

36. All machinery shall be installed and/or housed in such a manner as to prevent the emission of noise and transmission of vibration outside the premises.

AMENITY

37. The premises and operations shall be conducted in such a manner as not to interfere with, or materially affect, the amenity of the neighbourhood by reason of noise, vibration, smell, fumes, vapour, steam, soot, ash, dust, waste water, waste products, grit, oil, or otherwise.

38. The occupier of the premises shall not cause, permit, or allow the emission of any odorous air impurity from the development such that it can be detected outside the property boundaries by its odour.

39. All raw materials, manufactured goods and machinery shall be stored wholly within the development and not in adjacent forecourts, yards, access ways, car parking areas, or on Council's footpath.

40. All work shall be carried out inside the development and not in adjacent forecourts, yards, access ways, car parking areas, or on Council's footpath.

41. The Applicant shall screen or direct all on-site lighting away from residences and roadways to the satisfaction of Council.

42. Prior to construction, a colour scheme for the Chlor-alkali plant shall be prepared by the Applicant consistent with the aims and objectives of the Botany Bay City Council's "Environmental Improvement Program – Banksmeadow Industrial Area" submitted to and approved by the Director-General.

43. Any temporary structure erected on the southern or western side of the site shall be removed within 3 months being completed. Further, the temporary parking area for the contractors shall cease being used within one month of the plant commissioning being completed.

LANDSCAPING

44. Prior to seeking a construction certificate the Applicant shall prepare a detailed landscape plan for the development to be implemented within 6 months of the commissioning of the proposed development to the satisfaction of Botany Bay City Council.

UTILITY SERVICES

45. Any necessary alterations to public utility installations shall be made at the Applicant's own expense and shall meet the requirements of both the Council and the relevant authority/s.

HERITAGE

46. Any equipment or structure decommissioned or demolished as a result of this development consent should be fully documented. A report detailing the chemical and manufacturing processes should be maintained together with any oral history, flow diagrams of the manufacturing process, photographic records and documentation including scale drawings in accordance with the Guidelines from the Heritage Office. . Three copies of this report to be forwarded to Council.

ANNUAL REPORT

47. The Applicant shall submit an annual report to Director-General in respect of the implementation and effectiveness of the conditions contained in this consent and compliance with the EIS and shall bring to the notice of the Director-General those matters which the Applicant considers may require further investigation. The first report shall be submitted one year from the date of this consent, and subsequent reports shall be submitted on the anniversary of this date or such period as the Director-General may agree.

    This report shall include a record of commercial traffic movements into and out of the site annually from the date of commencement of operation. The report shall also include details of the hours spent by loaded chlorine road tankers on site.

48. The Applicant shall prepare an annual report to be distributed to the public detailing environmental performance, details of annual vehicle movements including dangerous goods, and compliance with conditions of consent. This report shall include details of the types and number of community complaints received during the year.

YEAR 2000 CONFORMITY

49. One month prior to the commencement of commissioning, the Applicant shall provide the Director-General with a report confirming that all automated systems, including embedded systems, used for plant operation, pollution control, fire safety and monitoring have been tested in accordance with the most recent edition of BSI/DISC PD2000-1 to confirmed continuous time and date functionality of those systems.

GENERAL

50. Adequate provision shall be made within the development for the storage, collection and disposal of waste and recyclable materials to the satisfaction of the Council of Botany Bay. A Waste Management Plan shall be submitted to Council at the commencement of construction detailing the type and quantity of waste to be generated by the development; materials to be reused or recycled; facilities/procedures for the storage, collection and disposal of waste and on-going management of waste.

51. Prior to the commencement of construction the Applicant shall implement an advertised 24-hour telephone service to handle complaints from members of the public during the construction period.

52. During the construction period the Applicant shall maintain a Complaints Register which shall be used to record details of all complaints received and actions taken by the Applicant in response to such complaints. The Register shall be available for inspection to all relevant approval/consent authorities.

53. The Applicant shall ensure the facility is built to withstand rail related vibration from the neighbouring rail yards.

54. The Applicant shall also ensure that no adverse impacts from construction and operation of the development on the nearby rail corridor and railway land.

55. Any dispute arising between any of the parties in respect to these conditions shall be referred to the Director-General for resolution.

56. Before commencing construction, the Applicant shall install and maintain vibration monitoring equipment in areas of vibration sensitive equipment on any neighbouring plants. This equipment shall be maintained and monitored over the life of the construction and commissioning of the proposed development.

57. This approval and consent does not relieve the Applicant of the obligation to obtain any other approval under the Local Government Act, 1993 as amended, the Ordinance made thereunder or any other Act.

RIGHT OF APPEAL

If you are dissatisfied with this decision, section 97 of the Unamended Environmental Planning and Assessment Act, 1979 gives you the right to appeal to the Land and Environment Court within 12 months of the date of receipt of this notice.

Note: (a) This consent operates from the date endorsed on the notice of determination of the development application (see Section 93 of the Unamended Environmental Planning and Assessment Act, 1979); and

(b) This consent lapses 5 years after the date from which it operates (see Section 99 of the Unamended Environmental Planning and Assessment Act, 1979). The conditions of consent will however continue to be valid for the full operating life of the development.

MODIFICATIONS TO SODIUM HYPOCHLORITE PLANT

ORICA BOTANY INDUSTRIAL PARK

SUPPORTING INFORMATION FOR S96(1A) APPLICATION

ORICA AUSTRALIA PTY LTD

PREPARED FOR : Carey Gent, Orica

DOCUMENT NO : J20040-001
REVISION : 0
DATE : 31 October 2005

Sherpa Consulting Pty Ltd (ABN 40 110 961 898)
Phone: 61 2 9412 4555
Fax: 61 2 9412 4556
Web: www.sherpaconsulting.com

DOCUMENT REVISION RECORD

REV	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED	METHOD OF ISSUE
DRAFT	26/9/2005	Internal review	J Polich	-	-	-
A	28/9/2005	Draft for client comment	J Polich	G Peach	J Polich	Email MS Word
0	31/10/2005	Final Issue	J Polich	G Peach	J Polich	Email PDF

Title: **Modifications to Sodium Hypochlorite Plant** **Orica Botany Industrial Park** **Supporting Information for S96(1A) Application**	**QA Verified:** J Bertram **Date:** 31 October 2005

CONTENTS

TABLES

ABBREVIATIONS

BIP	Botany Industrial Park
DA	Development Application
DEC	Department of Environment and Conservation
DG	Dangerous Good
DoP	Department of Planning
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority (now DEC)
EP&A	Environmental Planning and Assessment Act
FHA	Final Hazard Analysis
FSS	Fire Safety Study
HAZID	Hazard identification
HAZOP	Hazard and Operability
Hypo	Sodium Hypochlorite
OHS	Occupational Health and Safety
PHA	Preliminary Hazard Analysis
QRA	Quantitative Risk Assessment
SEPP	State Environmental Planning Policy
SH&E	Safety Health and Environment

1. INTRODUCTION

1.1. Background

Orica is proposing to undertake three projects at the Chloralkali Plant, Botany Industrial Park (BIP) site:

1. Replacement of the Hypo Loading Bay
2. Upgrade of the Hypo Storage Facility
3. Replacement of the Technician Changing Room

The Department of Planning (DoP) has suggested that these projects be addressed via a modification under Section 96(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to the consent issued for the replacement chloralkali plant (DA35/98) (Ref 1).

Orica has retained Sherpa Consulting Pty Ltd (Sherpa) to prepare an impact assessment of the proposed changes and prepare a report that can be submitted to the Department with Orica's application for development consent.

1.2. Scope and Purpose of this Report

This report covers the three projects. The objectives of the report are to demonstrate:

- the proposed modifications will have minimal adverse environmental or safety impacts.
- the development (as modified) is substantially the same as the approved development.

Hence demonstrate that an application for modification to an existing consent under S96(1A) is the appropriate process for obtaining approval for the projects.

1.3. Methodology

The assessment has been carried out as follows:

1. Identification of applicable statutory requirements in the EP&A Act S96(1A) and State Environmental Planning Policy (State Significant Development) 2005.
2. Comparison of the use and location of the proposed equipment with the plant description contained in the EIS for the replacement chloralkali plant (Ref 2).
3. Review of environmental impacts of the modified operations. This is presented in tabular format using the main headings in the EIS with a brief description of the effect of the modifications and a qualitative description of impact (eg "none", "benefit", "minor" etc).
4. Review of the HAZOP carried out for the modifications to identify potentially significant issues (Ref 3).

5. Review of the hazard identification (HAZID) information in the most recent version of the BIP site Quantitative Risk Assessment (QRA), and a qualitative assessment of the impact of the proposed changes on offsite risk levels from the BIP .
6. Review of the effect of proposed modifications on the existing Conditions of Consent set for the replacement chloralkali plant.

1.4. Summary of Projects

Table 1.1 gives an overview of the proposed projects. Note that these projects will not be undertaken at the same time.

TABLE 1.1: PROJECT SUMMARY

Description	Modifications	Approximate Capital Cost	Full time jobs created	Construction Workforce
Replacement of Hypo Loading Bay	Provide covered loading area, fall protection and improved bunding.	$970,000	0	Approx 4
Upgrade Hypo Storage Facility	Increase total storage from 400,000L to 500,000L by provision of two new 100,000L tanks to replace a number of smaller tanks.	$500,000	0	Approx 4
Replace Technician Changing Room	Updated amenities building.	$200,000	0	Approx 4

2. STATUTORY CONTEXT

2.1. Existing consent

The replacement chloralkali plant was a state significant development and was granted consent under the EP&A Act 1979 by the then Minister on 6/11/1998 (DA35/98), subject to conditions (Refer to Section 5.3 for comments on the existing conditions).

Note that the proposed changes do not increase the plant capacity or increase the number of road tanker movements.

2.2. EP&A Act Requirements

The process for requesting modification to an existing consent is given in Section 96 of the EP&A Act. A modification can fall into the main categories as shown by the extract below:

(1) Modifications involving minor error, misdescription or miscalculation

(1A) Modifications involving minimal environmental impact

(2) Other modifications

Section 96(1A) is considered the applicable avenue for the proposed modifications.

It is noted that the recently enacted *Environmental Planning and Assessment Amendment (Infrastructure and Other Planning Reform) Act 2005*. has altered or repealed many of the provisions of the EP&A Act 1979. However the changes do not affect S96(1A) as applied to the proposal for modifications to the Hypo Plant area.

2.3. State Significant Development

The BIP falls within an area (Map 5) listed as a "specified site" under Schedule 2 of the *State Environmental Planning Policy (State Significant Development) 2005.* Some types of development on the BIP site may be classed as "State Significant" as listed in the following extract:

> **7 Port and Related Employment Lands**
> (1) **Botany**
> Development within the area identified on Map 5 to this Schedule for the purpose of:
> (a) a shipping berth, shipping terminal or associated building,
> structure or work, or
> (b) a facility that manufactures, stores or uses significant quantities of dangerous goods and meets the criteria in *State Environmental Planning Policy No 33—Hazardous and Offensive Development* of being potentially hazardous, or
> (c) a waste facility that meets the criteria in *State Environmental Planning Policy No 33—Hazardous and Offensive Development* of being potentially hazardous.

In this case b) may apply as discussed in the following section.

2.4. Applicability of SEPP 33

SEPP 33 applies to proposals falling under the policy's definition of "potentially offensive" (related to pollution potential) or "potentially hazardous" (which is related to

the potential to pose a risk to surrounding land uses). The screening test for "potentially hazardous" developments is based on the quantity of Dangerous Goods (DG) stored or transported, and the separation distances to site boundaries.

2.4.1. Existing Consent

The replacement chloralkali plant met the "potentially hazardous" and "potentially offensive" policy definitions. Therefore, as required under SEPP33, a Preliminary Hazard Analysis (PHA) was prepared and EPA licence conditions were set.

A Final Hazard Analysis (FHA), which contained a Quantitative Risk Assessment (QRA) was also prepared after approval was obtained. These assessments covered both the replacement chloralkali plant and the derivatives plants (including hypo manufacture, storage and handling).

There were no significant risks or offsite impacts associated with hypo storage and transport identified in these studies. There are no environmental licence (EPA / DEC) conditions specifically set for the hypo storage and loading area.

2.4.2. Proposed Modifications

Sodium hypochlorite (12.5wt% aqueous solution) is a Class 8 (Corrosive) Packaging Group III DG. It is not combustible. It does not pose any chronic environmental risks as it is not toxic and does not bioaccumulate. The solution tends to break down over time, leaving salt (NaCl) and caustic soda (NaOH) in solution and evolving oxygen gas.

Hypo is currently manufactured at chloralkali, and is stored and handled in very similar equipment and quantities to the proposed arrangements.

Neither the Replacement of the Hypo Loading Bay or the Replacement Change Room project meets the definition of "potentially offensive" or "potentially hazardous" as they involve no storage of DGs, and no increase in DG quantities transported.

The proposed Upgrade of the Hypo Storage facility involves an increase of total storage capacity from 400,000L to 500,000L. The guidelines for SEPP33 (used to establish whether the "potentially hazardous" definition applies) give a screening threshold of 50m^3 for storage of Class 8 PGIII chemicals (Ref 4).

This could be interpreted to mean that the increase in storage is a "potentially hazardous" development. However given that the existing consent was for a "potentially hazardous" development, and the hazard analyses identified no significant risks associated with hypo storage, a PHA for the proposed modifications is not considered to be warranted.

Instead, a qualitative assessment of the potential impacts of the modifications and a comparison with the relevant sections of the most recent version of the QRA is included in Section 4 of this report.

3. PROPOSED MODIFICATIONS

3.1. Location

All modifications will be made within the footprint of the existing chloralkali plant. A site layout showing the location of the three modifications is given in APPENDIX 1.

3.2. Replacement of Sodium Hypochlorite Loading Bay

The existing sodium hypochlorite loading bay no longer complies with best practice Safety Health and Environmental standards for loading bays. This was identified in the Independent Hazard Audit carried out in 2003 (as part of the Conditions of Consent for DA 35/98) with a recommendation made to upgrade or replace it.

As a result of the audit, it is proposed to build a new loading bay. This will be in a new location, on land made vacant by the demolition of the liquefaction building opposite the existing loading bay. This new loading bay will be a drive-through facility built to the high standards of other on-site bays, for example the caustic tanker loading bay built as part of the replacement chloralkali plant project. It will be in full compliance with statutory requirements and shall include a covered loading area structure, fall protection and improved containment, aimed at reducing the potential for an OHS or environmental incident.

The new loading bay shall have the same capacity as the existing facility.

3.3. Upgrade Hypo Storage Facility

It is proposed to install two new 100,000L fibreglass tanks for storage of sodium hypochlorite (pool chlorine) to replace a number of older smaller tanks that are past their useful life and also to increase capacity to meet market growth in the sodium hypochlorite market. The amount of storage capacity will increase from approximately 400,000L to 500,000L.

The project will be carried out in 2 stages and will utilise an area made vacant from old plant and the current hypo loading bay. The tanks will be fully bunded and will be designed to meet NSW Dangerous Goods storage requirements and comply with *AS3780 (1994) Storage and Handling of Corrosive Substances.*

3.4. Replace Technician Changing Room

It is proposed to replace the existing change rooms for technicians. The existing change rooms are old and in poor condition. New change rooms will be built close to the existing ones and will be smaller reflecting the reduction in personnel at the Chloralkali plant.

This is a building only and has no interfaces with the process.

3.5. Construction Activities

Construction activities for each project would involve a workforce of approximately 4 people over a period of weeks to a month. The projects would not be undertaken concurrently. The timing is not yet finalised.

All construction activities will occur within the chloralkali plot boundaries. Minimal excavation (depths of less than 50cm) will be required. No spoil that requires disposal off site will be generated.

Traffic increase will be minimal and temporary, and no oversize equipment will be delivered to or removed from the site.

All construction activities will be conducted in accordance with existing Orica and BIP procedures. Contractors will be managed in accordance with the Orica Safety Health and Environment Management System (SHEMS).

3.6. Comparison to Approved Development

Condition 1 of the consent (for DA35/98) specified that *"The Applicant shall carry out the development generally in accordance with the environmental impact statement (EIS) dated June, 1998 prepared by Dames & Moore Pty Ltd, drawing number B73359 Rev A and as modified by the following conditions. Any alteration, variation or extension of the development shall require the further consent of the Minister for Urban Affairs and Planning".*

The process equipment and associated storage for the replacement chloralkali plant and existing derivatives plants was described in the EIS and also summarised as a process flow diagram (dwg no B73359). A copy of this drawing is included in 0.

The proposed modifications are general upgrades aimed at improving the operability of the plant, smoothing out tanker loading patterns and minimising potential OHS issues. They do not alter the production capacity or the general plant descriptions contained in the EIS. All replacement equipment will be within the existing chloralkali plot area. The process flow diagram does not require alteration to reflect the proposed changes as it already includes hypo storage and tanker loadout. Tanker numbers will remain the same as currently.

The chloralkali plant including the proposed modifications to the hypo area is therefore considered to be substantially the same as the approved development.

4. IMPACT OF PROPOSED CHANGES

4.1. Method

A qualitative assessment of potential impacts associated with the construction activities and ongoing modified operations is given in Table 4.2 and Table 4.3 for the three projects. The impact categories listed are the same as those considered in the EIS for the replacement chloralkali plant.

The following definitions were used to rate the impacts:

TABLE 4.1: IMPACT RATINGS

Level	Definition
-	No impact - Unaffected by proposed modifications
Minor	Short term and localised impact. No effect outside the immediate vicinity within the Chloralkali plant area
Moderate	Short term effect Contained within the BIP site
Major	Longer term effect Impact outside the BIP site
Benefit	Positive impact

4.2. Construction

The construction activities associated with the three modifications are relatively small scale. An assessment of potential impacts is given in Table 4.2. Overall only very minor, short duration impacts are anticipated. Good construction management practices are expected to provide an adequate level of control.

TABLE 4.2: IMPACT ASSESSMENT (CONSTRUCTION)

Impact Category	Comments	Project impact assessment		
		New tanker loading bay	Storage Upgrade	Change Room
Material Usage	Use of construction materials (small quantities of steel, concrete etc).	Minor	Minor	Minor
Land Use	No impact All works within existing chloralkali plot.	-	-	-
Atmospheric Environment	No impact. No dust or other emissions expected.	-	-	-
Noise	Short term small increase in noise level in immediate plant surrounds during construction. No increase expected in BIP boundary noise levels.	Minor	Minor	Minor

Impact Category	Comments	Project impact assessment		
		New tanker loading bay	Storage Upgrade	Change Room
Water management	No impact Runoff from work areas will be managed via the existing BIP stormwater and effluent systems	-	-	-
Wastes	No significant wastes generated. Some building material offcuts.	Minor	Minor	Minor
Soil and groundwater	Groundwater depth is 2-3m. Maximum excavation is about 50cm, hence no groundwater anticipated. Minimal disturbance to soil and generation of spoil. No offsite spoil disposal required. Up to 60m^3 in total from levelling activities will be replaced in area.	Minor	Minor	Minor
Traffic and transport	Minor increase in number of cars coming to site and some truck deliveries for a short period. No oversize equipment deliveries required.	Minor	Minor	Minor
Visual amenity	No impact Construction equipment typically utilised within industrial sites will be used. No very large cranes required	-	-	-
Flora and fauna	No additional impact. Existing industrial site	-	-	-
Cultural heritage	No additional impact. Existing industrial site	-	-	-
Socio-economic	No significant changes to employment levels / job creation	-	-	-

4.3. Ongoing Operations

An assessment of potential impacts associated with ongoing operations with the proposed modifications in place is given in Table 4.3.

Overall it can be concluded that there is no adverse impact associated with the operations of the plant taking into account the proposed modifications, and that there should be some on-site benefits from an OHS and environmental perspective.

TABLE 4.3: IMPACT ASSESSMENT (MODIFIED OPERATIONS)

Impact Category	Comments	Project impact assessment		
		New tanker loading bay	Storage Upgrade	Change Room
Material Usage	No impact. Raw materials, water and energy use will remain the same. More efficient building design, hence lower energy and water usage for new amenities.	-	-	Benefit
Land Use	No impact All works within existing chloralkali plot. Separation distances to other DGs, site boundaries, protected works required within AS3780 are achieved	-	-	-
Atmospheric Environment	No impact	-	-	-
Noise	No impact No noise generating equipment introduced	-	-	-
Water management	No impact Runoff from new hardstanding / roofed areas will be managed via the existing BIP stormwater and effluent systems	-	-	-
Wastes	No new wastes generated.	-	-	-
Soil and groundwater	Larger capacity, higher integrity bunding / kerbing for tanker loading bay and storage.	Benefit	Benefit	-
Traffic and transport	No impact. Hypo tanker movements will not increase because of these projects. Larger capacity tanks and less congested loading bay area will allow more flexibility in scheduling.	-	-	-
Visual amenity	No impact Equipment of similar height and size, well within existing industrial landscape	-	-	-
Flora and fauna	No additional impact. Existing industrial site	-	-	-
Cultural heritage	No additional impact. Existing industrial site	-	-	-
Socio-economic	No changes to employment levels / job creation	-	-	-

4.4. Separation Distances

AS3780 (1994) Storage and Handling of Corrosive Substances defines the required separation distances from bulk corrosive facilities to protected works and site boundaries. These are summarised in Table 4.4. The proposed facilities are at least 20m from the nearest chloralkali boundary (along the rail easement).

TABLE 4.4: AS3780 REQUIRED SEPARATION DISTANCES

Item	AS3780 :1994 Clause	Required Separation Distance	Applicable to	Complies?
Distance from transfer points for PGIII from any protected works or the boundary of the premises	5.4.7	3m	Tanker loading point	Yes
Minimum distance between storage tanks	5.8.2.2	0.6m	Adjacent storage tanks	Yes
Minimum distance from the top inside perimeter of the bund and protected works and boundaries	5.8.2.2	3m	Bulk storage	Yes
Minimum distance from bulk storage (PGIII, > 50,000L) and protected works and boundaries	Table 3	8m (Note 1)	Bulk storage	Yes
Notes: 1. Separation distances to onsite protected works that are an integral part of storage, processing or handling of corrosive substances may be reduced subject to appropriate risk identification, assessment and control.				

4.5. Hazard and Risk Analysis

4.5.1. Existing Risk Chloralkali Plant Risk Level

The PHA and FHA prepared for the replacement chloralkali plant show that the risk from the chloralkali plant is dominated by potential releases of chlorine. The hypo storage and handling area is not a significant risk contributor. The latest revision of the BIP site QRA[1] (which incorporates the chloralkali plant and supersedes the QRA contained in the FHA) reaches the same conclusion (Ref 5).

4.5.2. Potential Incident Scenarios at Hypo Storage and Loading Bay

The hazard identification component of the site QRA relevant to the hypo storage and unloading area includes the potential incident scenarios listed below.

- Leak of hypo from bulk storage due to overfill or catastrophic tank failure
- Leak of hypo at tanker loading bay (due to hose failure or driveaway)

[1] Note that the site QRA is expected to be finalised by December 2005 and submitted to the Department

- Hypo and acid reacting in drainage system to form chlorine

The HAZOP for the new tanker loading bay and storage upgrade identified similar scenarios. Further details are contained in a Hazard Identification Word Diagram (extracted from the site QRA) in APPENDIX 2 which shows the identified causes, consequences and control measures in place to reduce the likelihood and/or severity of the potential incident scenarios.

The new loading bay and storage tanks include improved design safety features such as actuated isolation valves and high level detection and trips to minimise the likelihood and quantity of any loss of containment. (These controls are lacking with the current arrangements).

Leaks from the hypo storage or loading bay areas will be contained within bunded areas capable of retaining the largest inventory, hence is extremely unlikely to reach any soil or groundwater.

Mixing of incompatible materials in drainage systems is very unlikely as there separate collection systems.

No offsite effects associated with a spill of hypo were identified. No scenarios with escalation potential have been identified.

4.5.3. Replacement Change Room

No significant risk issues associated with the new Change Room have been identified. This will be provided with appropriate exits, ventilation, smoke detection and fire protection as required by the Building Code of Australia. General chloralkali plant alarms (eg chlorine leak) will be audible within the new building.

4.6. Effect on Offsite Risk Levels from BIP

Hypo storage and handling does not contribute to offsite risk (safety or biophysical environment) from the chloralkali plant, hence have no impact on cumulative offsite risk levels from the BIP site.

5. CONCLUSIONS

5.1. Impacts

The assessment demonstrates that the proposed modifications have minimal adverse impact on safety or the environmental risks from the chloralkali plant. The proposed modifications do not affect offsite risk levels from the BIP site.

There is likely to be an on-site benefit from an OHS and environmental perspective.

The development is substantially the same as the development approved under D35/98 in that:

- The proposed process equipment is very similar to that approved for the replacement chloralkali plant, and will be located within the existing ChlorAlkali plot area.
- The FHA prepared for the replacement plant covered the derivatives plants, including hypo storage and handling. The most recent QRA for the plant does not require a specific update.
- Separation distances to offsite (non-BIP) land uses do not decrease.
- The increase in hypo storage volume from 400,000L to 500,000L has minimal impact of safety or environmental risks.

It is therefore considered that the proposed changes meet the conditions for application of a modification to development consent under S96(1A) of the EP&A Act.

5.2. Consultation Requirements

Given the low impact of the proposed project during both the construction and operational phases, community consultation is not considered to be required.

Building approvals will be done through the Department of Planning as per the replacement chloralkali plant conditions of consent.

5.3. Effect on Existing Conditions of Consent

The Conditions of Consent set for the development of the replacement chloralkali plant are listed in APPENDIX 3, together with comments on the impact of the proposed modifications.

The Fire Safety Study and Emergency Plans (both BIP and chloralkali plant) do not require a specific update to cover the modifications. In line with Orica's internal processes, a HAZOP for the process aspects of the projects has been completed. The requirement for a Hazard Audit and Environmental Audit by an independent auditor remains applicable.

Overall it is considered that proposed modifications have no significant effect on the existing Conditions of Consent, and that these remain applicable to the development including the proposed modifications.

APPENDIX 1. DRAWINGS

1. Location of Proposed change on Site Layout (Dwg No B96322AP)
2. Process Flow Diagram Included with DA35/98 (Dwg no B73359)