

Remediation of 2 Christina Road Villawood, NSW – Environmental Assessment Submissions Report

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Prepared for:
Orica Australia Pty Ltd

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1.0 INTRODUCTION

1.1 Proposal Overview

The proposed project is the remediation of part of the former chemical manufacturing facility at 2 Christina Road Villawood, in the Bankstown Local Government Area (LGA). It was initially part of a much larger site owned by the Commonwealth of Australia, subsequently purchased by Taubmans and then ICIANZ Pty Ltd. Later, Orica Pty Ltd formed out of ICIANZ Pty Ltd. The site was used to formulate a wide range of agricultural and pharmaceutical chemicals until it was closed in 2000.

On 22 April 2005 the EPA declared the site to be a remediation site and issued a Remediation Order (RO) (No 23019, Area 3200) to Orica on 2 November 2005 which states that the Site is contaminated with:

*“Total Petroleum Hydrocarbons (TPH);
Benzene;
DDT (and its degradation products DDD and DDE)¹;
1,2-dichloroethane (1,2-DCA)²;
Trichloroethene (TCE);
Chlorobenzene (MCB);
1,4-dichlorobenzene (1,4-DCB)
Hexachlorobenzene (HCB);
Lindane (α-BHC);
Polycyclic Aromatic Hydrocarbons (PAHs), including Benzo(a)pyrene (BaP); and
Cyanide”.*

Because cyanide was not identified in soil and groundwater on the site it is not, however, considered to be a Contaminant of Potential Concern (CoPC) for the Site.

During this EA process, the NSW legislation has undergone significant changes in relation to how the proposed works are considered and regulated. At the commencement of the process, the proposed remediation works fell within the type of development identified in Group 9 of Schedule 1 to State Environmental Planning Policy (Major Projects) 2005 (SEPP 2005) and were therefore eligible for assessment under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). On 27 June 2011, the EP&A Act was amended, and specifically moved to repeal the Part 3A process (*Environmental Planning and Assessment Amendment (Part 3A Repeal) Act 2011*). The Repeal Act separates major development (previously known as ‘designated development’) into two new categories: State Significant Development (SSD) and State Significant Infrastructure (SSI). The Act also allows for projects that were substantially progressed through the existing process to be considered as a ‘Part 3A transitional project’. As the process of the Repeal Act is on-going, further information is expected to be given in relation to these “transitional projects” in the forthcoming *Environmental Planning and Assessment Regulation 2000*.

Based on advice from the Department of Planning and considering that the EA has already been completed, a Part 3A transitional project approval is therefore being sought for the proposed works.

¹ DDT and its degradation products will be referred to as DDX throughout this report

² 1,2-dichloroethane will be referred to as EDC throughout this report

The proposed remediation works would allow the site to be returned to productive use in line with the zoning and surrounding land uses.

The project involves the remediation of the contaminated soil using Directly-heated Thermal Desorption (DTD) technology. The detailed design of the DTD plant has not yet been finalised, therefore the EA presents the preliminary details of the remediation project.

The remediation project is expected to take approximately 12 to 14 months to complete including site establishment, pre-treatment, treatment, validation, decommissioning and reinstatement.

1.2 Overview of Environmental Impact Assessment Process

Based on the proposed project being classified as a “transitional Part 3A project”, the works require approval under Part 3A of the EP&A Act and, as such, the Minister for Planning is the approval authority. The proposal is deemed a ‘major project’ under the Act. Section 75(F) of the Act requires that, for a major project, a Project Application must be accompanied by an EA prepared by or on behalf of the applicant. It is understood that under the new system, the site would be considered a State Significant Development, but since the environmental assessment requirements were issued prior to the changes in legislation the project will be considered a “transitional Part 3A project”.

An EA is part of a larger assessment process in which the proponent of a project:

- Identifies a need;
- Considers alternatives and identifies a preferred option;
- Assesses the likely environmental impacts and identifies mitigation measures; and
- Presents the EA to the Department of Planning (DoP) for public exhibition.

The DoP:

- Exhibits the EA and notifies stakeholders in accordance with statutory requirements;
- Seeks comments from other government agencies;
- Considers public comments on the EA and prepares an assessment report recommending one of the following:
 - support for the proposal in the EA;
 - rejection of the proposal in the EA;
 - support for the proposal, with modifications.

Under the EP&A Act, the EA is required to be publicly exhibited for a minimum of 30 days for review by the public. Given the complex nature of the technology proposed, Orica agreed to allow the submission to be displayed for a total of six weeks, from the 5th of May to the 20th of June 2011.

1.3 Structure of Representations Report

This Submissions Report has been structured in a manner that clearly sets out the issues raised in the submissions on the EA and addresses each issue.

Section 2 of the Submissions Report provides a summary of the issues raised during the public exhibition of the EA and identifies the relevant section in the report where the issues have been addressed.

Section 3 provides a detailed response to the issues raised.

2.0 SUMMARY OF ISSUES RAISED

A total of four submissions were received comprising government organisations. No submissions were received from local or neighbouring residents, private or non-government organisations/businesses.

Issues raised during the public exhibition of the EA have been summarised and set out in **Table 2-1** of this report. The table identifies the submission, provides a summary of the issues raised and identifies the section in this report where the issue has been addressed.

In a number of instances, comments received were replicated in a number of submissions. The authors have therefore, in some instances, recorded the comment which sets out the general concern rather than repeat the issue several times. It is noted, however, that this approach is adopted only on a few occasions.

Table 2-1: Government Agency Requirements and EA Reference

Ref. No.	Requirement	EA Reference/ Comment
A	Office of Environment and Heritage	
	The OEH provided detailed comments in respect of the project with regards to: • Waste Management • Water • Air – Emissions and Odour • Handling and Treatment • Noise	Section 3
A.1	Waste Management	
	<u>Removal and Disposal of Materials from the Site</u> The EA states that waste will be classified in accordance with the NSW EPA (2004) Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes however the most current document is the NSW DECCW Waste Classification Guidelines (2009). <u>Management of Bonded Asbestos Contaminated Materials</u> Section 23.1.4 of the EA does not include reference to the Protection of the Environment Operations Act (1997) which provides requirements for the transport, handling and disposal of asbestos contaminated material.	Section 3.8 Section 3.8.1

Ref. No.	Requirement	EA Reference/ Comment
A.2	Water	
	It appears water reuse criteria were not part of the Remediation Action Plan or Human Health and Environmental Risk Assessment, therefore a risk assessment is required to develop criteria for whatever reuse applications are proposed. These criteria should then be included in the Water Management Plan with supporting controls that are needed to manage any risks. No discharges to surface waters/stormwater systems are proposed other than clean stormwater from rooftops. Reuse or sewer discharge, post water treatment plant, is proposed for all other water generated at the site. If treated water is to be discharged to sewer, the Water Treatment Plant must meet Sydney Water's requirements or a permit from Sydney Water must be obtained before the commencement of work.	Section 3.6.1
A.3	Air – Emissions and Odour	
	In general, the Air Quality Impact Assessment is consistent with OEH's requirements as outlined in the <i>Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales</i>, however there are a number of errors or deficiencies in the EA and these are detailed below. The EA refers to excavation being undertaken at a "slow rate". An explanation should be provided as to what excavation at a "slow rate" means. The AQIA states that the Feed Soil Building (FSB) and the DTD will operate 24 hours a day 6 days a week; given that fugitive emissions cannot be stopped, this is not acceptable. Experience has shown at similar remediation sites that turning off the emission control system (ECS) can lead to unacceptable emissions. Therefore a plan for contingency and management of emissions, including during periods of power loss, is required. The information (operation estimates and source locations) in Tables 1, 2, 9 and Appendix A of Air Health Risk Assessment (AHRA) is inconsistent and confusing. There are a number of minor errors in the report (summarised below – TABLE OMITTED FROM THIS REPORT), otherwise the data in these tables (although not clearly described) appears sound. The inconsistency and confusion arises due to the use of both excavation zones (Zones) and source IDs to describe the contaminated materials and their locations. The excavation zones are not depicted in a figure and it is hard to picture how they correspond to the source ID's. Ideally both the zones and sources should be plotted on a single figure. They should also be clearly defined in the text. Combining the tables to avoid repeating information and using a consistent location descriptor of the soil source would make interpretation of data easier.	Section 3.4.1 Section 3.4.1 Section 3.4.1 Section 3.4.1 Noted

Ref. No.	Requirement	EA Reference/ Comment
	Report errors: - Figure 2 is stated (p3) as showing the source zones summarised in Table 1, however Figure 2 only shows the 8 contaminated soil source areas (Source ID's). - Volume of Pre-treatment stockpile in Appendix A should be 25,760 (not 15,760). - Estimated volume of soil is 26,540m³, however DTD estimate of 165m³/day soil for 156 days gives only 25,760m³ of treated soil. - Justification is lacking in the AHRA why "the maximum mean soil chemical concentration over all sources" (in the determination of volatile chemical emission rates) was used for the assessment rather than the maximum soil concentration measured. The Proponent has proposed to manage fugitive volatile emissions and odours from stockpiles by covering them using a range of methods including clean soil, spray grass, odour suppressant sprays or foams. This is of concern to OEH as previous experience has shown these methods to be ineffective in managing fugitive emissions and odours from stockpiles. The OEH will require the Proponent to cover stockpiles as a condition of the Environmental Protection Licence using covers such as HDPE plastic sheeting or tarpaulins to provide more effective emission control.	Noted Section 3.4.2
A.4	Handling and Treatment	
	<u>Direct Thermal Treatment</u> OEH considers the ranking of the treatment options and the conclusion that the DTD plant as the most appropriate is acceptable. The related sections of the EA and appendices (eg Appendix E) outline the appropriate conceptual details. However, the assessment is preliminary as the detailed design will be assessed as part of the Technology Assessment (TA) as required under the <i>Environmentally Hazardous Chemicals Act (1985)</i>. <u>Soil Treatment Criteria</u> The Proponent is proposing to treat the waste to meet the proposed treatment criteria listed in Table 8.2. Those treatment criteria are a mix of the requirements of the <i>Chemical Control Order in Relation Scheduled Chemical Wastes (2004)</i> ("CCO") and the Risk Based Site Wide Criteria (RBSWC). Using the RBSWC as treatment criteria is of concern to OEH as many of the proposed criteria are relatively high and they were calculated using human exposure scenarios where the soil was to be left in place at the site. OEH will address this issue for most chemicals not listed in the scheduled waste CCO via controls in the licence on the operation of the DTD plant as defined in the Proof of Performance trial (PoP).	Noted Section 3.3.2

Ref. No.	Requirement	EA Reference/ Comment
	This matter is of particular concern with regard to DDX. For DDX, Orica has proposed using the RBSWC of 2000 mg/kg as a treatment criteria if the plant is unable to meet the <2 mg/kg (aggregate) treatment criteria as specified in the CCO. This is not acceptable to the OEH. Whilst there may be analytical difficulties in meeting the CCO value of <2 mg/kg, it is not acceptable for the alternate criteria to be 2000 mg/kg. The DTD plant is the technology of choice and it has been demonstrated to be appropriate for treating soil containing a range of chemicals found at this site to a very low level. If the CCO value of <2 mg/kg cannot be achieved in the POP the proponent may propose a revised criteria, but any proposal should clearly demonstrate that the DTD plant is optimised and is being operated in a manner to ensure the removal of the chemicals to the maximum extent practicable. <u>Treated Soil Sampling</u> The Proponent has proposed that the analysis of 1 composite sample/500m³ stockpile of treated material. The composite will consist of 3 samples collected at 8 hour intervals (over a 24 hour period). Ultimately the final agreed rate will be determined by results from the PoP testing. OEH will require that a published statistical approach such as the Victorian EPA Soil Sampling Guideline be used to sample treated soil during the PoP trials to demonstrate that the Upper 95% confidence limit (UCL) derived from the treated soil samples satisfies the soil treatment criteria be used. In order to develop a 95% UCL from the data set, samples should be analysed as individual samples at least during proof of performance stage. The guideline suggests a minimum sampling rate of 1 sample per 25m³ or a minimum of 10 samples for a 500m³ stockpile. The calculated UCL can then be compared to the treatment criteria to determine satisfactory treatment. Once the UCL has been established, a sampling regime during commercial operation can be determined. Although the details will be developed at the TA stage onwards, the principle needs to be stated at this point of EA review. <u>Mercury</u> It should be noted that the potential for Hg desorption from the DTD may result in levels at a concentration that are sufficient to exceed the Clean Air Regulation limits. However, at this stage it would be premature to assess this issue further and it is expected that this will be reflected in the TA for more detailed consideration. Appropriate emission levels will be determined and reviewed during the commissioning stage and the PoP trial and additional clarification on the proposed concentrations may also be sought during the TA.	Noted Noted

Ref. No.	Requirement	EA Reference/ Comment
A.5	Noise	
	The Noise Impact Assessment in the Appendix includes a prediction for 61dBA at the Villawood Detention Centre during rock breaking, but this is not mentioned in the main EA. This does not exceed the “highly noise affected” level in the Interim Construction Noise Guideline, but it is expected that any Noise Management Strategy the Proponent adopts will include appropriate notification of the timing and duration.	Section 3.6
A.6	Attachment B – Recommended Conditions of Approval	
	As part of the submission to the Department of Planning, OEH also drafted an interim set of licence requirements for the project. In general, Orica does not have an issue with these except as noted below: • Condition O5.1 – Soil that is determined to not meet the treatment criteria post validation sampling, must only be stockpiled inside the FSB. • Condition O9.1 – The licensee is required to operate the FSB ECS 24 x 7 in a manner so that air pollutants do not exceed criteria. • Condition O9.2 – The licensee must only excavate one area at a time. • Condition O9.6 – The licensee must ensure that all stockpiles of excavated (contaminated or otherwise) soil are covered at all times with tarpaulins or plastic sheeting if left outside the feed soil building for more than 24 hours. • Condition O9.7 – The licensee must ensure that excavations to be covered with tarpaulins/plastic sheeting at the end of each day. • Condition L6.9 – For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.	Section 3.14 Section 3.14, Section 3.6
B	Department of Health	
B.1	Asbestos	
	Handling and removal of asbestos containing material must be carried out in accordance with NSW WorkCover Authority requirements and the WorkCover “Working with Asbestos Guide 2008” as required. The transport, handling and disposal of asbestos contaminated material is carried out in accordance with the requirements of the Protection of the Environment Operations Act (1997).	Noted

Ref. No.	Requirement	EA Reference/ Comment
B.2	Water	
	Any water reuse on site needs to be carried out in accordance with a Water Management Plan for the site. The Office of Environment and Heritage (OEH) has made recommendations in their submission which the Public Health Unit (PHU) support. A detailed risk assessment needs to develop criteria for the reuse applications proposed that cover human health and environmental risks. The contingencies should cover potential human exposure and pathway to different levels of contaminated water and what measures are taken.	Section 3.5.1
B.3	Air – Emissions and Odour	
	The PHU notes the concerns the OEH raised regarding fugitive emissions in the event the Directly-heated Thermal Desorption process stops and supports the request for a contingency management plan to address potential fugitive emissions. There should be no odours generated off site. The management of stockpiles is important. The PHU concur with the OEH that work areas be limited and stockpiles generated outside the processing shed be adequately covered. The proposed methods to cover stockpiles can be problematic and the advice of OEH is supported – that HDPE plastic sheeting or tarpaulins provide more effective emission control. Experience from stockpile management of the Rhodes site supports this view. An Air Quality Management Plan should be prepared as described by the OEH for ambient air monitoring. There should be consultation on the number and placement of onsite and offsite air monitoring stations. The Plan should also cover alert levels to the OEH and public in the event emission limits were exceeded.	Section 3.4.2
B.4	Contaminated Material Handling and Treatment	
	The PHU notes the OEH supports the use of Direct Thermal Treatment technology. The PHU shares the OEH concerns regarding the proposed treatment criteria of 2000mg/kg for dichlorodiphenyltrichloroethane (DDT) and related compounds DDX and supports the OEH recommendation of <2 mg/kg.	Section 3.8
B.5	Noise	
	If noise is managed in accordance with the OEH recommendations, then this should minimise the issues likely to arise concerning noise management.	Noted
B.6	Community Consultation	
	An adequate community relations management process needs to be developed to keep the community informed, manage complaints, incidents and provide feedback on matters raised. The model	Section 3.12

Ref. No.	Requirement	EA Reference/ Comment
	developed for the Rhodes remediation project was an effective process.	
B.7	Emergency Management	
	A site emergency management plan needs to be developed to manage any significant incidents or events (eg. A fire, explosion, plant failure). It should also address any offsite impacts and specifically health risks to the community. Consideration of how to alert the surrounding community quickly should also be considered.	Section 3.13
B.8	Traffic Management	
	The issues raised by Bankstown Council and the Roads and Traffic Authority are noted and supported.	Noted
C	Bankstown City Council	
	Council had several queries in regards to the EA, which can be summarised as follows: • The statutory planning basis for the proposal; • Some procedural issues concerning the decontamination process, including the fact that a Site Audit Statement has not been made available with the EAR; • Biodiversity issues; • Traffic Issues; • Air quality impacts including impacts on sensitive land uses; • Water Management; • Noise; • Sustainability Issues.	Section 3
C.1	Statutory Planning	
	The Council is concerned that the statutory basis for undertaking the remediation works is somewhat unclear, and we make the following observations in this regard: a) The permissibility of the proposal under the Bankstown LEP 2001 is not sufficiently established. Remediation is an innominate use under the LEP, and whilst it could be considered under Clause 12 of the LEP, the evidence presented in the EA for doing so is not sufficient as it has not been shown that there are no other clauses in the LEP that invalidate the use of Clause 12. In our experience, resorting to clause 12 to establish the permissibility of a development is fraught with difficulty and is not recommended for a proposal as significant as this one.	Section 3.2

Ref. No.	Requirement	EA Reference/ Comment
	b) We therefore suggest that other planning instruments be considered to establish this proposal's permissibility, in particular, consideration could be given to whether or not the proposal is permissible under Clause 8 of SEPP 55 - Remediation of Land. Another alternative may be for the proposal to be declared by the Minister under the Major Development SEPP or the proposal approved under Part 3A of the Act. Council recommends that this section of the EA be reviewed to clarify the statutory basis for the proposal.	
C.2	Contamination	
	Council is not in a position to carry out a technical review of the contamination assessment and Remediation Plan, and we are relying on other authorities with the required level of expertise to do this, and to confirm that the site will be remediated to a standard appropriate to the proposed level of use. However, Council is concerned that the EA refers to earlier comments provided by Bankstown City Council including our request that "a peer review of the proposed remediation techniques by an accredited site auditor, and an assessment of their adequacy and a confirmation that the site will be suitable for the intended use when the remediation has been completed" (Table 6-3, page 6-18). Table 6.3 of the EA suggests that this matter has been addressed in the assessment and refers to Appendix D which includes a letter from Site Auditor Chris Jewell, dated 27 August 2010. This letter implies that a site audit report was prepared, although it was not included in the EA. Council has discussed this matter with the site auditor and he confirmed that the site audit report has not been completed. Hence, Council again requests that a NSW EPA accredited site auditor reviews the current Remedial Action Plan (RAP) and submits a site audit report and statement (Section B) to certify that the RAP is appropriate and will render the site suitable for continued industrial use once implemented. In view of the nature of the contaminants on site, and the remediation technology involved, Council believes that it is essential that the audit report be prepared as part of the Environmental Assessment process and is not deferred to a condition of approval, as it is only in this way that a sufficient level of assurance about the adequacy of the remediation process can be obtained. Council also requests that the requirement for a site auditor to review the remediation/ validation of the site is required as a condition of approval.	Section 3.3 Section 3.3.1

Ref. No.	Requirement	EA Reference/ Comment
	Further to this, Council also requests the opportunity to review and provide comment on the conditions of Development Consent prior to determination by the Department.	
C.3	Traffic Issues	
	It is noted that the report has briefly reviewed the traffic and transportation issues associated with the proposal. However, we consider that the information provided has not adequately addressed the issue and we request that the following additional information be provided: • A traffic impact study to compare the previous industrial uses to the proposed remediation; • A Traffic Management Plan to address the traffic and safety measures during the life of the proposal; • Details on the number and layout of on-site car parking spaces, which should be in accordance with Councils requirements; • Confirmation (via a "swept path" approach) that shows the longest vehicles can access the site from Christina Rd, and can manoeuvre safely within the site;	Section 3.9
C.4	Air Quality	
	Council is not convinced that there will be no impact as a result of air borne dispersal of contaminants. This is because the air quality assessment (Appendix H) is based entirely on a quantitative methodology, and does not include a qualitative assessment of impacts on specific land uses, including any sensitive land uses in the area. In this regard Councils letter of 4th January 2010 did ask that the EA include an identification of sensitive land uses and whether these need any specific measures to manage the impacts. This type of analysis is not included in the EA and we request that it be reviewed to address this matter, and mitigation measures included in the Statement of Commitments if necessary. Further in relation to air quality we note that there are no proposals to model the air emissions off site. We believe that some modelling stations should be installed off site to confirm the air quality modelling, and hence that the predicted impact is correct.	Section 3.4 Section 3.4.3 Section 3.13
C.5	Flora and Fauna	
	Council's letter of 4 January 2010 requested that the EA address the proposal's impact on items of ecological value, including the impact on any nearby threatened species or endangered ecological communities. In general, Council considers that the conclusions of the EA report (Section 9.4 (pg. 9-3)) in relation to significant flora and fauna and habitat impacts are sound, however there are some deficiencies in the EA report recommendations that we would like to be improved in	Section 3.10

Ref. No.	Requirement	EA Reference/ Comment
	order to ensure that impacts on flora and fauna remain as 'not significant'. In this regard we recommend the following: The Statement of Commitments (section 10.2 of the EA Report) needs to include specific commitments in relation to protection of trees and the remnant endangered ecological community on the site. Key points to be included in the statement of commitment are: 1. The proposed Construction Environmental Management Plan (CEMP) be extended to include the following matters: • Protection measures for areas of landscaping vegetation (including individual trees to be retained) to be installed and maintained for the duration of the project; • Protection measures for the area of regrowth vegetation on undisturbed ground on the western boundary (remnant EEC) to be installed and maintained for the duration of the project. 2. A "Vegetation Management and Rehabilitation Plan" is to be prepared by an experienced bushland ecologist and implemented by the proponent. This plan is to cover the 4m high bank of clay fill (on the eastern side of the remnant EEC) which is to be excavated and reinstated during the remediation works. Rehabilitation is to focus on the creation (post decontamination) of a vegetated 'buffer' zone in this area composed of locally indigenous species; 3. Recommendations contained within the Orica Australia Pty Ltd "BUSHLAND MANAGEMENT PLAN" (Lister, 2003) are to be fully implemented as part of the site rehabilitation works. This recommendation is consistent with the EA report reference to the Bushland Management Plan in section 6.2.1; 4. The "Vegetation Management and Rehabilitation Plan" and implementation of works recommended in the "Bushland Management Plan" (Lister, 2003) are to be consistent with the following publications from the NSW Office of Environment and Heritage: • <u>Protecting and restoring Cooks River Castlereagh Ironbark Forest</u> • <u>Best practice guidelines: Cooks River Castlereagh Ironbark Forest</u>	
C.6	Sustainability	
	It is noted that the estimated green house gas emissions are very high, although attempts will be made to minimise these through the design of the DTD. Whilst Council agrees that the predicted emission level is not significant in relation to the total amounts to be emitted by Australia, we believe that this issue is significant enough to warrant	Noted – This is not addressed herein as there is

Ref. No.	Requirement	EA Reference/ Comment
	that it be included in the Statement Of Commitments (SoC). The SoC should include measures to monitor greenhouse gas emissions, and report on what design measures have been investigated to minimise these emissions.	already a requirement to destroy PoPs
C.7	Noise	
	Councils has no concerns with the noise assessment subject to the noise emission levels being as predicted, and that any approval include conditions to ensure that no works area undertaken in the evening, and that OEH will investigate any noise complaints.	Noted
C.8	Water Management	
	It is not clear how stormwater during a rain event will be prevented from mixing with contaminated material, as neither the EA or the Statement of Commitments includes a clear measure. Council considers that bunding to contain the 100 year flood should be included to separate contaminated water from uncontaminated water and only water from clean areas of the site should be allowed to flow offsite during a rain event.	Section 3.5.1
D	Office of Water	
D.1	Groundwater	
	The EA indicates that the proposed excavation works associated with the remediation would not encroach upon the watertable but if water is encountered during excavation works it would be removed for treatment at the WTP. Section 2.2.7 of the EA notes a licence under Part 5 of the <i>Water Act 1912</i> (WA 1912) will be required to authorise the short and medium term groundwater monitoring bores which are required to demonstrate the natural attenuation of contaminants in site groundwater post remediation. The site currently has an existing groundwater monitoring bore licence (10BL165244) which was issued under the WA 1912 in July 2005. It is noted no bore logs have been received yet by NOW. All proposed groundwater works, including bores for the purpose of investigation, extraction, dewatering, testing or monitoring must be identified and an approval under relevant water legislation be obtained from NOW prior to their installation. Please note on 1 July 2011, the Water Sharing Plan (WSP) for the <i>Greater Metropolitan Region Groundwater Sources</i> which covers the project area commenced. Upon plan commencement, the licensing provisions of the <i>Water Management Act 2000</i> (WMA 2000) also came into effect in the plan area. Under WMA 2000, groundwater monitoring bores will now require an aquifer interference approval.	Section 3.5.2

Ref. No.	Requirement	EA Reference/ Comment
	However, in the absence of a formal Aquifer Interference Policy, monitoring bores are still required to be processed under the WA 1912. The Aquifer Interference Policy is likely to be finalised later this year and at this time this type of activity will require an aquifer interference approval. In the interim, the proponent must ensure all works that intercept groundwater for monitoring, dewatering and test purposes are authorised under Part 5 of the WA 1912.	
E	NSW Transport Roads and Traffic Authority (RTA)	
E.1	Traffic	
	The RTA has reviewed the subject EA application and raises no objection as Christina Road is a non-classified regional road under the care and control of Council. The following comments are provided as advisory for the Department of Planning to consider. 1. The construction access for the works will require submission of a detailed Traffic Management Plan (TMP) and associated Traffic Control Plan (TCP) undertaken by a certified practitioner. The detailed TMP shall include such details as construction vehicle routes, number of trucks, hours of operation, access arrangements and traffic control and shall be forwarded to Council and the Department of Planning and Infrastructure for review. 2. The swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, shall be in accordance with AUSTROADS. 3. All vehicles are to enter and leave the site in a forward direction. 4. All vehicles should be wholly contained on site before being required to stop. 5. All demolition and construction vehicles are to be contained wholly within the site.	Section 3.9

3.0 COMMENTS ON ISSUES RAISED

3.1 Scope of the Proposal

The primary objective of the project is to remediate the Site to allow ongoing commercial/industrial use.

It is proposed to remediate contaminated soil on the site including insitu soil in several impacted soil zones, an encapsulated stockpile of soil from Chester Hill and contaminated soil stored in a Secure Soil Facility (SSF) on the site. The remediation would include the following steps:

- Mobilisation to site and set up of an onsite soil treatment facility (STF) comprising a Water Treatment Plant (WTP), a Feed Soil Building (FSB) and associated Emission Control System (ECS), a Directly-heated Thermal Desorption (DTD) plant, hardstand areas, environmental controls, and internal haulage roads;
- Sequential targeted excavation of contaminated soil across the Site exceeding site specific reuse criteria and transport to the STF;
- Pre-treatment of the excavated soil in the FSB including screening to remove oversized materials, mixing of the excavated, stockpiled and stored soil, testing of contaminated materials and feeding of contaminated material into the DTD Plant.
- Treatment of the pre-treated soil in the DTD plant;
- Validation testing of remaining unexcavated soil and of treated soil;
- Stockpiling of treated material;
- Reinstatement of the excavated areas with validated material; and
- Decontamination and decommissioning of plant and buildings.

The material surrounding and beneath the impacted soil zones would be tested and assessed against the Remediation Goals. If the material does not meet the Remediation Goals, then it would be treated in the DTD Plant. If it does meet the Remediation Goals, it would remain insitu. The Remediation Goals are detailed in **Section 7** of the **Remedial Action Plan** (RAP), in accordance with the Director-General's requirements.

The remediation project will be undertaken such that it is protective of human health and the environment, and will meet regulatory standards for residues and emissions by the implementation of best practices.

There were a number of queries raised in regard to the remediation of the groundwater contamination and operation of groundwater production bores. It should be noted that the present proposal only considers the hot spots, soil located in SSF and the Chester Hill material at the site. Remediation of this material will effectively remove the primary source of ongoing groundwater impact; however, the project does not include remediation of groundwater, or contaminated material where the source of the contamination is not within the site and not related to industrial activities undertaken by Orica. Orica, therefore, considers that it is more appropriate to manage the groundwater contamination as a separate issue.

Consequently, limited responses will be provided in regard to the queries relating to groundwater contamination. Monitoring will continue to be undertaken and reported to the OEH and the community. Any other issues raised in regard to this will also be discussed with OEH and the community.

3.2 Statutory Planning

As detailed in Section 2 of the EA, the proposed remediation was declared a designated development and subject to the Department of Planning approval. The state legislation is currently undergoing revisions that may affect the proposed project. At the time of this submission, the project is being considered as a “transitional Part 3A project”, which effectively means the project will likely proceed as detailed in the EA. The following subsections summarise all of the local, state and federal legislation that are pertinent to the remediation.

3.2.1 Bankstown Local Environmental Plan 2001

The Bankstown Local Environmental Plan (LEP) 2001 is the principal local environmental planning instrument that applies to the site. Under the provisions of LEP 2001 the Site is zoned 4(a) General Industry.

The objectives of the 4(a) General Industry zone are:

- “(a) to permit primarily industrial uses or uses which are inappropriate in other zones, and*
- (b) to limit retail development, except where:*
 - (i) it is ancillary to an industrial use of land, or*
 - (ii) it services the daily convenience needs of the local workforce and does not have an adverse impact on the viability of the business areas of the City of Bankstown, and*
- (c) to promote a high standard of:*
 - (i) building design (particularly along arterial roads), and*
 - (ii) environmental management, energy efficiency and resource conservation, and*
- (d) to allow bulky goods salesrooms or showrooms only where they will not have an adverse impact on the viability of the business areas of the City of Bankstown.”*

The proposed remediation project is consistent with the objectives of the 4(a) General Industry zone.

The proposed project consists of the remediation of land, which is not defined under LEP 2001. However, Clause 12 of LEP 2001 allows the consent authority to grant consent to development that is not so defined (or would otherwise be prohibited), where it is satisfied that the proposed development:

- “(a) is of a nature (whether by reason of its design, scale, manner of operation or otherwise) that would, in the absence of this clause, justify an amendment to this plan in order to permit the particular development, and*
- (b) is not inconsistent with the objectives of the zone in which the development site is situated, and*
- (c) is not inconsistent with the provisions of any other environmental planning instrument, and*
- (d) will not have an adverse effect on other land in the vicinity.”*

The proposed remediation project satisfies clause 12 of LEP 2001, and is therefore permissible with consent in the 4(a) General Industry Zone.

Clause 52 of LEP 2001 specifies matters which must be taken into consideration by the consent authority prior to granting consent to development in the industrial zones. The matters relevant to the current project are:

“(c) whether the proposed development will contribute to the maintenance or improvement of the character and appearance of the locality,...

...(e) whether goods, plant, equipment and other material used in carrying out the proposed development will be suitably stored or screened,...”

The proposed remediation project will contribute to the improvement of the locality by ameliorating the identified levels of soil contamination and removing the source of groundwater contamination at the Site. Storage and screening of the remediation plant and equipment has been considered in the planning of the proposed project.

3.2.2 Development Control Plan 2005

Part D6 of Development Control Plan (DCP) 2005 relates to industrial zones, the objectives of which include:

“... (b) to minimise pollution and environmental risk, and enhance ecological values;

(c) to protect the amenity of residential zoned land that adjoin the industrial precincts...”

The proposed remediation project will reduce the environmental risk posed by the Site, and the Site is remote from residentially zoned land.

No other clauses relevant to the remediation of land are included in DCP 2005.

3.2.3 Major Project

State Environmental Planning Policy 55 – Remediation of Land (SEPP 55) is also relevant. Clause 8(1) of SEPP 55 states that:

A person may carry out a remediation work in accordance with this Policy, despite any provision to the contrary in an environmental planning instrument, except as provided by clause 19 (3).

As outlined previously, approval is required for the proposed project under Part 3A of the EP&A Act and the proposed project has been declared a ‘Major Project’ under that Act. The Minister for Planning is the approval authority for the proposed remediation works. Although this legislation is currently being repealed under the *Repeal Act 2011*, the proposed works are likely to be grandfathered under the old system given how far along the process the project is.

Transitional Part 3A projects are also subject to any SEPP or other instrument made under Part 3A as in force on Part 3A’s repeal and as amended after Part 3A’s repeal. As detailed in Section 2, further details regarding transitional projects are expected to be contained in an amendment to the *Environmental Planning and Assessment Regulation 2000*, which has not been released at the time of this submission.

Further, Orica has engaged an independent site auditor accredited under the *Contaminated Land Management Act 1997* (CLM Act) to endorse the Remedial Action Plan (RAP), to comment as required for the duration of the remediation, and to undertake a site audit upon completion of remediation of the Site.

3.3 Remedial Action Plan

As previously indicated, the RAP has been reviewed by an independent OEH accredited site auditor, Mr Chris Jewell of C. M. Jewell & Associates (Contaminated Land Auditor). As the Contaminated Land Auditor has already reviewed and endorsed the RAP, his letter of approval to proceed was included with the RAP in the appendices of the EA. Based on this submission and the final decision by the Department of Planning, the Contaminated Land Auditor may have to review and endorse any modifications or revisions to the RAP. The RAP, including any modifications or revisions, would also be reviewed by OEH.

3.3.1 Auditor Process

With the finalisation of both the Human Health and Environmental Risk Assessment (HHERA) and RAP documents, the auditor, Chris Jewell, will prepare a site audit report and statement (Section B) to certify that the HHERA and RAP are appropriate and that the proposed remediation activities will render the site suitable for continued industrial use once implemented. A Section A Site Audit Report and Site Audit Statement will also be prepared and issued at the completion of site works to confirm that the site is suitable for commercial/industrial use.

3.3.2 Scope and Application of Risk Based Soil Concentrations

The RBSWC have been calculated using the HHIA methodology in combination with additional models for assessment of skin contact and soil ingestion endorsed by NSW Health and the OEH. The RBSWC provide soil values that represent a negligible risk to the health of the users of the site after completion of the remediation works. These values are then incorporated into the RAP as part of the development of remediation strategies and site validation. Alternate concentrations may be used as part of the validation process to address issues such as groundwater protection, odour and toxicity to plants. The RBSWC are therefore used to identify the maximum values allowable for the protection of human health only.

Thermally treated contaminated soil will meet the RBSWC. However, for the purpose of clarity, it is not intended to use the RBSWC as treatment criteria for the thermal treatment plant. The treatment criteria for the thermal plant will include the RBSWC and an aggregate of <2 mg/kg for Scheduled Chemical Waste (SCW) compounds (organochlorine pesticides – principally DDT) in the feed soil.

If it is not possible to meet the SCW criterion due to practicability considerations (including time and cost), an alternative low standard would be proposed for approval by the OEH as set out in the SCW CCO. Because DDT is the main contaminant on site and is also an SCW compound, treating the soil with the objective of meeting the SCW criterion will mean that non-SCW compounds will also be treated to levels well below the RBSWC.

3.3.3 Occupational Health and Safety

A significant number of concerns were raised in regard to worker safety for the duration of the project. Orica has identified that a high level of personal protective equipment (PPE) will be required to prevent unacceptable exposure to dust and vapour. The level of PPE and rules for its use is a matter of detail that will be assessed by an independent qualified occupational hygienist and documented in an OH&S Plan to be prepared prior to works commencing.

An outline of what the OH&S Plan would include is contained in the RAP. Key components will include: communication protocols and training procedures, establishment of PPE standards and

mandatory safe work procedures, site and health monitoring and site evacuation procedures. Orica has committed to preparing this Plan (see revised SoCs).

It should be noted that Orica has made a commitment to notify WorkCover NSW of the commencement date for the site works and provide workCover with a copy of the OH&S Plan (see revised SoCs).

3.4 Air Quality

3.4.1 Specific Queries from OEH

The following section details Orica's response to specific questions that were raised as part of the submission regarding Air Quality in the OEH letter dated 30 June 2011. Specifically, these comments are to address the section in Attachment A, "Air – Emissions and Odour."

Paragraph 2 "The EA refers to excavation being undertaken at a "slow rate. An explanation should be provided as to what excavation at a "slow rate" means."

The reference to a "slow rate" in the EA was relative to typical bulk earthwork rates, which may be much greater than 100 m³/hour. The human health air risk assessment emission modelling assumes a conservative excavation rate of 500 m³/day (900 tonnes/day) for a 10 hr day (Section 3.1 Table 2) or 50 m³/hr (90 tonnes/hr). The modelled daily excavation rate is a conservative overestimate because it equates to a thermal plant treatment rate of 47 tonnes/hr (assuming 80% availability). The maximum treatment rate for the thermal plants available to undertake the project given the high moisture content of the clay soil would be around 25 tonnes/hr which is a slow rate and well below the maximum modelled rate.

Paragraph 3 "The AQIA states that the Feed Soil Building (FSB) and the DTD will operate 24 hours a day 6 days a week; given that fugitive emissions cannot be stopped, this is not acceptable. Experience has shown at similar remediation sites that turning off the emission control system (ECS) can lead to unacceptable emissions. Therefore a plan for contingency and management of emissions, including during periods of power loss, is required."

The DTD would typically operate for 6 days/week allowing on average one shutdown day/week for maintenance. The FSB would operate 7 days a week. For convenience, the AQIA modelling assumed that the FSB operation would match the DTD operation. The non-cancer risk estimate is not affected by changing the FSB emissions from 6 days per week to 7 days per week because the calculations do not consider the number of days, only the total emission on a given day. The cancer risk estimate is affected because it is based on the total number of days of exposure (156 days or 6 days/week for 26 weeks). The cancer risk estimate for operation of the FSB ECS can be adjusted for 7 days/week operation by scaling linearly by 7/6. Table 10 of the HRA shows that the estimated contribution of this source to cancer risk was 7.2×10^{-10} for the maximum exposed individual (MEI). This would increase to 8.4×10^{-10} (an increase of 1.2×10^{-10}). Given that the estimated risk at the MEI is 2.7×10^{-7} , the increased risk is considered to be insignificant.

The design of the FSB includes sealing of air gaps around wall intersections, air locks to allow entry and exit of vehicles and louvers to allow for inflow of air during operation of the ECS. The FSB commissioning plan includes smoke testing prior to operation and subsequent sealing of any gaps identified. A contingency plan would also be prepared to minimise potential emission during planned and unplanned shutdowns, including covering of exposed soil surfaces within the FSB.

Paragraph 4 “The information (operation estimates and source locations) in Tables 1, 2, 9 and Appendix A of Air Health Risk Assessment (AHRA) is inconsistent and confusing. There are a number of minor errors in the report (summarised below), otherwise the data in these tables (although not clearly described) appears sound. The inconsistency and confusion arises due to the use of both excavation zones (Zones) and source IDs to describe the contaminated materials and their locations. The excavation zones are not depicted in a figure and it is hard to picture how they correspond to the source ID's (table below compares the data in each table and Appendix A. – confirming they do “match”)..... Ideally both the zones and sources should be plotted on a single figure. They should also be clearly defined in the text. Combining the tables to avoid repeating information and using a consistent location descriptor of the soil source would also make interpretation of the data easier.”

The Impacted Soil Zones (ISZs) were named by AECOM in the RAP. Not all the ISZs have been identified as requiring remediation based on the RBSWC. The Source IDs were separately and sequentially named by PAEH as part of the air dispersion modelling. This is why there are differences in the ISZ and Source IDs. While this can be confusing, the derivation of each is clear in the documents that name them and the relationship is as described in the OEH submission.

Paragraph 5 “Figure 2 is stated (p3) as showing the source zones summarised in Table 1, however Figure 2 only shows the 8 contaminated soil source areas (Source ID's).”

The correct title for Figure 2 is “Locations of contamination emission sources by Source ID” because it refers to emission sources used in the emission modelling and not the ISZs.

Paragraph 5 “Volume of Pre-treatment stockpile in Appendix A should be 25,760 (not 15,760).”

The pre-treatment stockpile is contained in an extension of (or annex to) the Secure Storage Facility (SSF) which is currently full. The Feed Soil Building (SSF plus annex) contains the 25,760m³ comprising 10,000m³ of soil in the SSF and 15,760m³ in the annex. Emissions for the SSF and annex pass through a single Emission Control System (ECS).

Paragraph 5 “Estimated volume of soil is 26,540m³, however DTD estimate of 165m³/day soil for 156 days gives only 25,760m³ of soil treated.”

This appears to be an oversight. The difference may be the result of changes to the extents of the ISZs as the RAP was refined in response to previous OEH questions and replacing the ISZ criteria with the RBSWC. The consequence is that health risks from the DTD would increase by a factor of 26540/25760 or 3%. For cancer risk, the DTD contributes less than 1% of the total risk to the MEI (Table 10) so the increased risk is not significant. For non-cancer risk, given that the DTD emission is based on maximum throughput, the emission per day does not increase, but the number of days of emission will increase (5 days of operation). This has no effect on the non-cancer risks as these are based on the daily exposure rate, not the cumulative exposure over the project.

Paragraph 5 “Justification is lacking in the AHRA why “the maximum mean soil chemical concentration over all sources” (in the determination of volatile chemical emission rates) was used for the assessment rather than the maximum soil concentration measured.”

The same maximum mean concentrations were used for all sources to provide conservatism in terms of the number of and mean concentrations of compounds present. The health risk assessment has estimated cancer and non-cancer risks over the life of the project. These are based on chronic exposure and chronic toxicity endpoints. Where large scale areas are being

excavated it is not appropriate to use the maximum reported concentration across the entire site as the peak emission may only occur over a few hours, not days. Chronic-based toxicity reference values should not be applied in this case, only acute based toxicity values. The assumption that the maximum average concentration of any excavation zone applies to all zones is conservative because many zones contain only a few compounds but the same maximum mean has been used for all ISZs.

3.4.2 Management of Emissions

Management of emissions was raised by several agencies, specifically with reference to stockpiles, odour releases and emergency situations. The SOC for the project was changed prior to final submission to reflect the OEH concerns regarding fugitive emissions to state the following:

- Excavated raw materials will be covered during transportation.
- In case of power failure of the DTD plant, excavation of raw materials will be stopped.
- Maintain the optimum control efficiency of ECS and DTD stacks.
- During excavation an individual will conduct an odour survey at the site boundary at regular intervals.
- If any odour is observed during the survey, the potential odour source will be identified and appropriate control such as covering or temporary enclosure will be applied as appropriate to minimise the odour.
- If any odour complaints are made by the neighbouring residents, site manager will take immediate action to identify and control the relevant odour source followed by an odour survey along the site boundary.

Odour

Orica note that the AQIA shows that using the data available, the predicted odour levels are only 2% of the NSW EPA criteria. Given this information, it would appear reasonable to assume that NSW EPA odour criteria are unlikely to be exceeded due to the potential combined total odour from site operations.

It has also been suggested that the various range of suppression methods are ineffective and that plastic sheeting is the preferred method for odour and dust suppression. While Orica agrees that the use of plastic sheeting or tarpaulins are very effective at controlling dust and odour, there are other mitigating circumstances which may prevent their use. These include, but are not limited to high wind conditions, OHS issues with workers during installation of covers on stockpiles and during wet weather when the plastic sheeting becomes very slippery and waste generation because the sheets are not reusable. While none of these is considered to make the use of sheeting impractical, our experience is that a variety of controls in combination can provide an equivalent or better solution to emission control.

As noted in previously submitted Air Quality and Odour Management Plans, control of emissions is an iterative process. The proposed method of control is as follows:

- Alteration in the works program to minimise in the extent of disturbed open areas;
- Prompt removal and treatment of heavily contaminated materials that have been exposed and are identified to have caused the emissions;
- Conducting the work in more favourable weather conditions;
- Use of alternate work practices to minimise the period of impact of the emissions;

- Use of additional features to control emissions from plant and equipment;
- Use of alternate work practices such as using modified equipment;
- Relocation of offending plant and equipment to less sensitive on-site areas;
- Reducing the number of plant and equipment items on-site;
- Use of odour suppressing methods (i.e. application of PVA, hydromulch or sprays/foams) to cover the surface and mitigate volatile emissions;
- Use of a deodorant within water sprays at locations on-site and at Site boundaries provided the chemicals do not pose a contamination or OH&S hazard; and
- Use of HDPE plastic sheeting and/or tarpaulins to cover the surface and mitigate volatile emissions.

3.4.3 Sensitive Land

The social impacts of the proposal relate to the effect that it may impose on people. They include how it may alter their way of life, the character, cohesion and demography of the community or their customs and values. Social impacts may be quantitative, such as the effects on employment or population, or they may be qualitative, such as effects on the amenity of the area, and the perception of the community towards the proposal.

For this proposal, social impacts would relate mainly to amenity impacts such as visual, traffic and noise during construction and operation, impacts associated with hazards and risks and economic impacts related to future employment opportunities.

The primary objective of the proposal is to remove contaminants existing within the site to a standard suitable for ongoing commercial / industrial land use. This would provide social benefits related to:

- the prevention of further spread of contaminants to surrounding soil and groundwater;
- elimination of potential hazards associated with emissions to the environment from the Site;
- return of the land to a productive use, with associated employment opportunities; and
- subsequent improvements in the general amenity of the local area.

The proposed project is permissible in the zone and the end use is considered to be appropriate and efficient use of the land. On completion the land would be returned to commercial/industrial use. Given the temporary nature of the proposed project and return of the remediated land to commercial/industrial land use, the proposal is not expected to have significant adverse impact on surrounding land uses

3.5 Water

3.5.1 Reuse

A number of queries were raised in regard to the reuse of water during the project. To clarify, contaminated water is not being proposed for reuse on site. The only reuse option proposed is uncontaminated rainwater. Surface water captured on building roofs at the Site will be considered to be free from contamination and will be discharged directly to the stormwater system during the remediation works or reused for dust mitigation purposes. Surface water

collected from the treatment and excavation areas will be recovered and directed to the on-site WTP. After treatment, the water will be discharged to the sewer system under the approval of Sydney Water.

A Water Management Program will be implemented at the Site to minimise the volume of contaminated water generated and to manage the water in the most efficient manner possible in compliance with regulatory requirements. The program would also detail the design of protection and containment measures for the separation of dirty and clean areas, as well as the requirements for discharging water from the site.

3.5.2 Groundwater

A number of queries were raised in regard to groundwater quality, more specifically details of the proposed groundwater monitoring program and how the groundwater will be protected during remediation.

As discussed in the EA and Section 5.1 of the revised RAP, remediation of the site soil will remove any primary ongoing sources of groundwater contamination from the site. However the project does not include remediation of groundwater.

Groundwater monitoring has been conducted at the site since 2000. The monitoring has confirmed that the site has DDT and chlorinated solvents in groundwater that have migrated off site. The concentrations have been assessed in the HHERA, with the concentrations considered to not pose a significant risk to human health and/or the environment. Risk based groundwater criteria have been developed for the ongoing management of the groundwater issue.

Given that remediation of the groundwater is not included in the project proposal, Orica considers that it is more appropriate to manage this as a separate issue, with ongoing monitoring and assessment to be undertaken as part of the Voluntary Management Plan which will be prepared following the remediation of the site soil.

In regard to ensuring that the project does not have an impact on groundwater, it should be noted that groundwater monitoring has indicated that the groundwater table is located below the base of the proposed excavation depths. Given the depth, excavation works associated with the remediation of the site would not encroach on the water table. However, a number of safeguards are recommended and have been committed to by Orica to reduce this risk. These safeguards are outlined in the Water and Soils revised SOC's. Orica has also committed to preparing a CEMP, which will provide additional detail regarding the ongoing management of water quality issues during the project (during construction and operation).

3.6 Noise

A Noise Impact Assessment was undertaken as part of the EA and found that the proposal would generally meet daytime and night-time criteria with potential short-term exceedances based on construction activities.

Orica has committed to completing a Noise and Vibration Management Plan (NVMP), as indicated in the SOC's which includes the details of the noise mitigation measures adopted and the noise reductions to be achieved.

Noise monitoring will be undertaken regularly during the construction and operation phases to ensure compliance with the noise limits defined in Orica's EPL. If an exceedance is detected, mitigation measures will be implemented.

The only note of concern is the proposed EPL licence condition L6.9, which states that *For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.*

In reference Condition L6.9, we feel that the NSW Department of Environment and Climate Change – NSW *Interim Construction Noise Guideline* (ICNG), July 2009 is the more applicable guideline to be adopted in NSW for the assessment of noise from construction sites. The NSW Environment Protection Authority – NSW *Environmental Noise Management – Industrial Noise Policy* (INP), January 2000 and relevant application notes deals specifically with industrial noise sources and does not deal with construction activities. This is outlined in Section 1.3 – Scope of Policy on page 2 of the INP. In applying the ICNG there are sections of the INP which are relevant, this is the case for those referenced in the EPL. Chapter 11 of the INP deals with performance review and Chapter 4 with modification factors that may be applied in determining site noise level contributions for comparison against the noise limits.

In considering that the EPL Noise Limits refer specifically to 'residences in the vicinity of the premises' and the application ICNG criteria is applicable for other receiver types not considered in the EPL, Orica would request that the ICNG also be added as a reference under this condition.

3.7 Waste Management

It is noted that there were several incorrect or outdated references for the classification of wastes. As recommended by OEH, Orica will update all references to the most current versions. Specifically, wastes will be classified in accordance with the *NSW DECCW Waste Classification Guidelines (2009)*.

3.7.1 Asbestos Containing Material

Due to the age of the site, the presence of asbestos containing material (ACM) is likely to be encountered. Any asbestos waste from the piping or building fabric will be removed, contained and transported to a licensed landfill in accordance with all relevant standards and practices. These include the requirements of the NSW WorkCover Working with Asbestos Guide (2008), the NSW Occupational Health & Safety Regulation Act (2001), the requirements of the NSW Occupational Health and Safety Commission (NOHSC) Asbestos Code of Practice and Guidance Notes and the Protection of the Environment Operations Act (1997).

3.8 Contaminated Material Handling and Treatment

As stated in the EA, given that the emissions resulting from the proposed remediation works are below the OEH assessment criteria, there is no requirement for additional specific environmental safeguards to be implemented, above those built into the design of the FSB and DTD plant. These measures include the enclosure of contaminated material handling activities in the FSB. The FSB would incorporate emission control systems, which include carbon adsorption and dust filters.

A number of queries were raised in regard to contaminated materials management. A summary of the issues and responses are detailed below:

- Appropriate management of wastes – Details in regard to the management have been clarified in Sections 3.7. As indicated, if material is proposed to be disposed of off-site to an appropriate landfill, it will be classified in accordance with the *NSW DECCW Waste Classification Guidelines (2009)*.
- Material identified as requiring remediation will be excavated, screened and then tested. If the material meets the Remediation Goals, it will be used to reinstate the site. If the material does not meet the Remediation Goals, it will be treated in the DTD Plant or classified in accordance with the *NSW DECCW Waste Classification Guidelines (2009)* and disposed of off-site. If the material is treated it will be validated against the Remediation Goals. In addition, walls and bases of the excavation will also be validated against the Remediation Goals.
- Oversize material will be stockpiled and tested appropriately before being either disposed of to an appropriate waste facility, recycled (if appropriate) or treated in the DTD Plant. Any oversize material to be disposed of off-site will be classified in accordance with the *NSW DECCW Waste Classification Guidelines (2009)*. Materials treated in the Plant will be validated against the Remediation Goals.
- Orica is committed to preventing or minimising external contamination of trucks and minimising the potential for contaminated soil coming into contact with trafficable surfaces. As indicated, wheel washes and other handling procedures have been discussed in the EA to address this issue. During the detailed design stage, ongoing consideration will be given to other possible measures and, if appropriate, these will be included in the relevant plans.

3.9 Traffic and Transport

As stated within the EA, vehicles travelling to and from the site will be limited to employees, delivery of plant and equipment and deliveries of consumables. Primary routes to the site would be as follows:

- Inbound from the west (only) – drive along Woodville Road turning onto Christina Road and accessing the Site via Gate 1;
- Outbound to the west – exit via Gate 1 along Christina Road and turn onto Woodville Road; and
- Outbound to the east – exit via Gate 1 to the left along Christina Road.

As all truck transport would be retained on the site for the duration of works, it is expected that there would be no significant impact on traffic volumes on arterial roads surrounding the project site. As such, Orica does not believe that a full traffic impact study is warranted.

Traffic generated by the proposed remediation works will be largely internal to the site. The main internal traffic generating activities during excavation and soil treatment will involve the transportation of contaminated materials from the hot spot excavations to the FSB. This will be done via a fleet of one to three 12 tonne tip trucks, along designated internal haul roads. Contaminated material is unloaded within the FSB and trucks decontaminated before returning to the excavation for the next load. It is anticipated that these trucks would operate on the site 12 hours per day, six days per week and would remain on-site out of operational hours for the duration of the works.

One of the concerns that the RTA and Council had was in regard to large trucks and delivery of items to site. Specifically, it was requested that a swept path analysis be completed to confirm that trucks coming in do not block the roadway as they enter the gate. As the gates at the site are set back with enough approach, the trucks can turn all the way to the gatehouse (approximately 20 metres within the property boundary) without overhanging onto the road. In addition, there is ample space within the site in areas which are not being remediated where trucks can turn and drive out in a forward direction. Given this information, a swept path analysis at this stage is not warranted.

In regards to car parking, there are thirty-six spaces available at Gate 1 (main parking area). In addition, there is plenty of overflow parking within the site at Gate 2 (located at the back of the lab and if necessary, on the roadway to the Pharmaceuticals Building).

As discussed in the EA, there is expected to be a maximum of 45 personnel at any one time during the site establishment and construction period. During operation, it is anticipated that there would be a maximum of 30 employees on the Site and no more than 5 deliveries per day. It is assumed that all employees would travel by private car to work. As detailed above, parking onsite is sufficient to accommodate the works without encroaching on any Council roads.

As part of their review, the RTA suggested that Orica completes a traffic impact study for the proposed works. As detailed above and in the EA, no impact to traffic or the surrounding arterial roads is predicted given the short duration of the works and the limited amount of staff predicted to be onsite. By way of comparison, when the site was an active facility, there were up to 300 people working on site each day. Orica has also reported that in 1999 150 employees and over 30 truck movements a day were typical with no impacts to the local traffic. Based on this, Orica submits that a traffic impact study is not warranted as was stated and discussed in submission to the Planning Department, when determining the assessment requirements for the proposed project.

Other issues were raised and are summarised below:

- SOC 26 requires a Traffic Management Plan (TMP) to be prepared prior to site establishment and construction. The TMP will include designated haulage routes within the site for heavy vehicle movements. In addition, existing workforce parking and vehicle unloading areas within the site will be used. The SOC will also be revised to ensure the TMP will identify designated haulage routes external to the site within the Bankstown LGA.
- Traffic movements and potential impacts are assessed in the EA and there are not expected to be significant traffic impacts with the implementation of the environmental safeguards, as mentioned in the EA. In addition, preparation of a TMP is committed to be prepared prior to the project commencing.

3.10 Flora and Fauna

Vegetation, including individual trees, will be protected during the project unless contamination levels require tree removal. No removal of any regrowth indigenous vegetation in the western side of Area B will be carried out.

For trees greater than 5 m in the remainder of the site that require removal, a request will be made to BCC under their Tree Preservation Scheme.

Individual trees that will be retained will be barricaded during any nearby excavation works.

The regrowth vegetation on the western boundary of Area B will be barricaded during any nearby excavation works.

A "Vegetation Management and Rehabilitation Plan" is to be prepared by an experienced bushland ecologist and implemented by Orica Australia prior to excavation of the existing 4 m high clay bank.

All rehabilitation will be consistent with the following publications from the NSW Office of Environment and Heritage:

- Protecting and restoring Cooks River Castlereagh Ironbark Forest
- Best practice guidelines: Cooks River Castlereagh Ironbark Forest

3.11 Planning and Regulatory Issues

The following information addresses the queries raised in regard to planning and regulatory issues:

- Progression from approvals to licensing involves submittal of increasing levels of detail with respect to plant commissioning and operation and verification of compliance with emission limits. Additional details on plant commissioning and operation and verification of emissions will be submitted to OEH in the Technology Application prior to commissioning and prior to operation of the DTD Plant. Orica has committed to preparing and submitting the Technology Application (SOC 1).
- A Section 73 Compliance Certificate would be obtained from Sydney Water.
- Although it is possible to make broad generalisations based on other sites and projects and equipment, experience has shown that site, matrix, contaminant and equipment specific characteristics may result in different outcomes compared with absolute criteria. While Orica is committed to meeting the absolute standards specified in relevant NSW regulations, we note that mechanisms and criteria exist with these and / or the associated Acts, to apply for modifications should the appropriate circumstances arise. Orica properly reserves its rights under these instruments, as has already been raised for the matter of the mercury stack emission limit concentration.

3.12 Consultation

There were a number of queries raised in regard to consultation. The responses to these queries are presented below:

- Prior to establishment, WorkCover NSW will be notified of the proposed commencement date. There is an opportunity for the DoP to refer the EA to Workcover NSW for comment if considered necessary. In addition the revised SOC will include a commitment to sending the Occupational Health and Safety Plan to Workcover.
- The SoC's in the EA will ensure that appropriate community consultation, monitoring and reporting occurs. As indicated previously, Orica has made a commitment to undertake ongoing consultation with the local community (including businesses and residents in close proximity to the site) for the duration of the project. However, Orica has not confirmed what the consultation approach will be. Orica feels that it is important to involve all stakeholders in establishing the preferred consultation approach.
- Detailed design will be undertaken prior to commencement. Details will be provided to DoP and OEH.

3.13 Environmental Management/Monitoring and Reporting

There were a number of queries raised in regard to environmental management, monitoring and reporting. The responses to these queries are presented below:

- Inspection and maintenance for preventative control will be undertaken daily during construction and operation works. 24 hour operations are usually monitored/inspected at least once per shift however thermal plant and related operations are constantly monitored via a manned control room.
- Orica has committed to preparing various plans, such as the EMP, NVMP, OH&S Plan, a Voluntary Management Plan (for groundwater), a TMP, the Commissioning and Proof of Performance Plan, Construction EMP, Community Liaison Plan, as well as the Vegetation Management and Rehabilitation Plan, which will ensure that processes and safeguards that are required to be in place will be prior to construction commencing. Environmental management, monitoring and reporting during the operational phase of the project will also be detailed in the Plans, which are to be submitted to DoP, NSW EPA and Workcover (in the case of the OH&S Plan) prior to the project commencing.
- As part of the overall site management plan, an emergency management plan will be incorporated to manage any minor, moderate and significant incidents. The site management plan will also include community engagement and notification protocols.
- No further information in relation to air and noise emissions is expected to be available on the actual performance of the plant until it is commissioned.

3.14 Recommended Conditions of Approval

The OEH as part of their submission included recommended conditions of approval for the governing Environmental Protection Licence. In principal, Orica does not have any objections to the proposed conditions except as noted below:

- *Condition O5.1 – Soil that is determined to not meet the treatment criteria post validation sampling, must only be stockpiled inside the FSB.*

Because the FSB is currently 100% full it would not be practicable to store treated material in it until well into the project. Given the short term nature of the treated soil stockpiles Orica suggests that the phrasing of this be amended to address that the stockpiles will be stored outside and covered or sealed to prevent dust emissions whilst the validation sampling is undertaken. Based on the results, if a stockpile failed the validation criteria, it would be relocated into the FSB.

- *Condition O9.1 – The licensee is required to operate the FSB ECS 24 x 7 in a manner so that air pollutants do not exceed criteria.*

This is not practical due to schedule maintenance requirements such as carbon changeout and/or process upsets. It has been noted in the SOC, however, that contingency plans will be in place prior to the commencement of activities. Further, the detailed operation of the FSB and associated plant details that in the event of a process upset or other matter in which the ECS is required to be turned off, all the louvres are to be closed and the FSB is to remain sealed until such time as the ECS is operational again. In addition to the physical controls, the boundary monitoring would still be in place and additional sample points may be implemented based on site conditions.

- *Condition O9.2 – The licensee must only excavate one area at a time.*

This condition unreasonably places constraints on the execution of the works. Excavation of more than one area at a time may be required to allow mixing of soil types and contaminant types and concentrations. Orica has committed to stay with excavation rate and exposed area limits used to assess environmental impacts for the works. It is not material if these are spread over one or several excavations providing the limits in aggregate are not exceeded.

- *Condition O9.6 – The licensee must ensure that all stockpiles of excavated (contaminated or otherwise) soil are covered at all times with tarpaulins or plastic sheeting if left outside the feed soil building for more than 24 hours.*

As detailed above, this is not a practical from a safety and operational perspective. While Orica agrees that the use of plastic sheeting or tarpaulins are very effective at controlling dust and odour, there are other mitigating circumstances which may prevent their use. These include, but are not limited to, high wind conditions, OHS issue with workers on uneven stockpiles, waste generation (sheets are not reusable) and/or availability of large quantities of sheeting. While none of these is considered to make the use of sheeting impractical, our experience is that a variety of controls in combination can provide an equivalent outcome for emission control.

As noted in Section 3.4.2, Orica's preferred method to control dust and emissions from stockpiles should be based on an iterative approach.

- *Condition O9.7 – The licensee must ensure that excavations to be covered with tarpaulins/plastic sheeting at the end of each day.*

As detailed above this is not considered to be practical from a safety and operational perspective.

- Condition L6.9 – For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

Based on advice from several acoustic consultants within NSW, Orica would request that in addition to the INP, the ICNG also be added as a reference for all the community monitoring.

4.0 STATEMENT OF COMMITMENTS

In accordance with the Director-General's requirements issued under Part 3A of the EP&A Act, the following draft Statement of Commitments (SoC) is provided with new amendments based on the submissions received. The SoC is in a draft form because it anticipates that it will be possible to comply with the DoP's conditions of consent and the DCCW's EPL for the project. The draft SoC states Orica's environmental commitments and details on the environmental management and monitoring of the proposed project during its construction and operational activities.

Orica commits to the preparation and implementation of the environmental management and monitoring plans and environmental mitigation measures detailed in the draft SoC for the proposed remediation works as detailed below.

Table 4-1: Statement of Commitments

Environmental Issue	Commitment
Statutory Requirements	1 Prior to the issue of an Environment Protection Licence (EPL) for the project, OEH shall be provided with sufficient and appropriate documentation for a Technology Assessment to be undertaken by the OEH in accordance with the <i>National Protocol Approval/Licensing of Technologies for the Treatment/Disposal of Schedule X Wastes</i> and the <i>National Protocol Approval/Licensing of Commercial-Scale Facilities for the Treatment/Disposal of Schedule X Wastes</i>. Orica shall construct and operate the development generally in accordance with the specification outlined in the Technology Assessment document provided to the OEH, unless otherwise agreed by the OEH. (Note that the TA is plant specific).
Soil Remediation Requirements	2 Materials shall only be processed through the DTD Plant where those materials have matrices, contaminant constituents and contaminant concentrations which have been proven as acceptable for processing during Commissioning and Proof of Performance (CPoP) trials. - Orica shall manage all materials and wastes containing Scheduled Chemical Waste (SCW) and Polychlorinated Biphenyls (PCBs) in accordance with the applicable Chemical Control Orders, or in accordance with a licence under the <i>Environmentally Hazardous Chemicals Act 1985</i>. (Note : dioxins and furans and PCBs are not compounds of concern from the site). 3 Orica shall treat all materials on the site that do not meet the Remediation Goals detailed in the Remedial Action Plan (RAP), and any scheduled wastes generated by the treatment process until the materials / wastes meet: - A statistical average dioxin, furan and dioxin-like PCB WHO-TWQ of less than 1 µg/kg; - An aggregate concentration of SCW constituents of less than 2 mg/kg; - A PCB concentration of less than 2 mg/kg; and

Environmental Issue	Commitment
	The Remediation Goals specified in the RAP. Note: If the treatment criteria in the DGRs cannot be practically achieved due to technical or economic limitations, an alternative best practice standard would be proposed to OEH for their approval. Note: dioxins and furans and PCBs are not compounds of concern from the site.
Air Quality	4 Plant associated with the remediation works shall be selected and operated so that stack emissions are below the maximum allowable emission concentrations discussed in Section 8.3 of the Environmental Assessment (EA), or if that is not possible to an agreed best practice standard. 5 The application of best practice to minimise emissions to the maximum extent practicable, however low concentrations may be, will include: - Excavating at an aggregate rate below the maximum included in the environmental assessment; - Minimising the exposed surface of contaminated soil during excavation; - Covering exposed surfaces of contaminated soil at the end of each day; - Minimising stockpiles of excavated contaminated soil; - Covering loads during transport of contaminated soil; - Undertaking pre-treatment of contaminated soil in an enclosure with an emission control system; - Operating the emission control system noted above to minimize emissions from the building; - Treating the contaminants in a plant with a high inherent destruction efficiency; and - Operating the emission control system of the plant to maximise destruction efficiency of contaminants. 6 Feed soil preparation activities including crushing, screening and mixing shall be completely enclosed within the Feed Soil Building (FSB). 7 Orica shall design, construct, operate and maintain a ventilation system for the FSB so that air flow is drawn into the buildings and discharged via the emission control systems. 8 The thermal oxidiser (being the major piece of emission control equipment) shall be designed to meet the requirements of best practice in terms of destruction efficiency

Environmental Issue	Commitment
	and stack emissions. 9 Air monitoring/air discharge point sources for monitoring will include the: • DTD Plant exhaust stack; and • FSB emission control system stack. 10 Orica shall prepare and submit a Commissioning and Proof of Performance (CPoP) Plan to OEH for approval prior to commencing Operations on the site. The CPoP Plan shall provide a program to quantitatively confirm that that facility will meet the environmental performance described in the EA. 11 On approval of the OEH Orica shall undertake CPoP trials in accordance with the approved CPoP Plan. 12 During CPoP trials, Orica shall undertake monitoring of parameters and compounds for sources below as required and within 28 days of completion of the commissioning trials shall submit a report OEH analysing the results of monitoring during the commissioning trials and providing justification for the maximum concentration limits and reference conditions that will apply to the operation of the project. • Monitoring of FSB and DTD Plant and emission control system components for specified flows, pressures and temperatures; • Continuous monitoring of the FSB emission control system for parameters such as relative humidity, pressure, temperature and volatile organic compounds (VOCs); • Continuous monitoring of the DTD Plant stack for flow rate, temperature, oxygen, oxides of nitrogen (NO_x) and carbon monoxide (CO) concentrations (CO provides feedback on the efficiency of combustion in the thermal oxidiser); and • Periodic discrete sampling of the FSB and DTD stacks for a range of combustion pollutants and/or contaminants.

Environmental Issue	Commitment
	13 During operation of the project, a monitoring program shall be designed for each of the FSB and DTD emission control systems and stacks. The monitoring programs shall include the parameters outlined above in Commitment 12. 14 The treatment plant stacks shall be fitted with sampling port(s) in accordance with the relevant Australian Standard and safe access provided for stack sampling. 15 An ambient monitoring program shall be conducted to monitor fugitive emissions from the treatment plant and open excavations to ensure that all site emissions limits are complied with. 16 Orica shall design, construct, commission, operate and maintain the DTD Plant to ensure that concentration of pollutants do not exceed maximum allowable discharge concentration limit specified in the EPL. 17 Orica shall design, construct, operate and maintain all stacks associated with the project in accordance with detail provided in this EA as well as good engineering practice in order to minimise the effects of stack tip downwash and building wake effects on ground-level air pollutant concentrations. 18 Orica shall not permit any offensive odour to be emitted from the remediation works beyond the boundary of the site, as defined under section 129 of the <i>Protection of the Environment Operations Act 1997</i>. 19 Orica shall design, construct, commission, operate, maintain and decommission the project in a manner that minimises or prevents dust emissions from the Site. Orica shall seek to ensure that the system is designed such that there are no visible dust emissions from the Site. 20 A Construction Environmental Management Plan (CEMP) shall be prepared in respect of the proposed remediation works detailing mitigation measures to be implemented during the construction period including: • Access to the Site via existing sealed roadways only; • Water (or other appropriate control measure) shall be used to suppress particles potentially generated during the erection of boundary fences, barriers and screens; • Land clearing activities shall be controlled using water suppression where necessary; • Areas of disturbed soil shall be minimised during the construction period; • Water (or other appropriate control measure) shall be used to suppress dust emissions during dry windy periods (as required); • The height from which dust generating material is dropped shall be minimised;

Environmental Issue	Commitment
	- Loaded trucks carrying contaminated materials shall be covered at all times; - The cutting/grinding of materials on site shall be kept to a minimum. Where cutting or grinding is necessary equipment and techniques to minimise dust will be used; - Soil stockpiles shall be treated with surface binding agents or sealed by seeding or surfacing with vegetation or covered with secured tarpaulins or other suitable material; - Heavily used areas shall be covered, sealed or paved; - Paved areas shall be swept when necessary using a vacuum sweeper; - Wheels of site plant and vehicles shall be cleaned to minimise the spread of mud onto surrounding roads; - Exhaust emissions from mobile plant shall not discharge straight at the ground; - Construction plant and vehicles will be well maintained and regularly serviced. Visible smoke from plant should be avoided. Defective plant will not be used; - Engines shall be switched off when vehicles are not in use and refuelling areas will be away from areas of public access; and - Loading and unloading shall take place within the Site.
21	Waste removed from site will be disposed to an appropriately licensed waste facility.

Environmental Issue	Commitment
Noise	22 The DTD Plant and associated plant shall be sourced / designed with the objective of achieving the noise goals set out in Orica's EPL. The following general mitigation measures shall be considered in the detailed design of the plant in order to achieve the required noise reductions. - Plant layout and orientation shall be designed to minimise noise impacts. - ECS and DTD Plant fans to incorporate silencers and enclosures to achieve appropriate noise reductions. Specifically, an acoustic enclosure or silencer will be required on the DTD Plant fan as dictated by the Noise Modelling Assessment (Appendix J). - Solid barriers shall be incorporated, wherever reasonably practicable at noise sources at a height. - Plant items shall be located at lower heights where reasonably practicable such that noise shielding from the FSB is maximised. - A flexible connection may be used between the fan and ductwork in the DTD Plant stack. The connection may be encased to control break out noise. - Ductwork, including the stacks shall be acoustically lagged if required. This shall be confirmed with measurement once operational and lagging retrofitted if needed. Note: Details of the above measures and noise reductions achieved shall be provided to the Department of Planning (DoP) during the detailed design stage of the project. 23 Orica shall prepare a Noise and Vibration Management Plan (NVMP) in respect of the project addressing the following: - Appropriate noise monitoring program for the project including details of periodic noise and vibration testing to be undertaken during activities deemed likely to generate high noise and vibration levels; - Management of vibration during any use of piling rig and roller; - Notification to all those impacted by works likely to cause excessive vibration and noise (e.g. if sheet piling is required); and - Provision of a 24 hour community hotline to allow the local community to register complaints regarding noise at the Site.

Environmental Issue	Commitment
	24 Orica shall ensure that works on the Site are carried out in accordance with the following: • All excavation operations shall be undertaken between the hours of 7.00am and 7.00pm from Monday to Saturday; • All other works including stockpile management, maintenance of drainage and environmental control measures, and the maintenance of haul roads will be undertaken between the hours of 7.00am and 7.00pm from Monday to Saturday, unless prior approval has been granted by BCC; • Operations undertaken within the FSB (screening, crushing, blending of stockpiled materials and feeding material to the DTD Plant) and the operation of the DTD Plant and FSB ECS may be undertaken 24 hours per day, seven days per week; • All equipment and plant used on-site will be maintained in good order in accordance with manufacturers recommendations; and • All construction vehicles will enter and exit the Site in accordance with the Site entry controls specified in the EA and RAP prepared for the project.
Social	25 An ongoing consultation program will be undertaken with the local community for the duration of the project. A Community Liaison Plan will be prepared for the project including the following key components; • A record shall be prepared identifying all key stakeholders in the proposed remediation works. Over the course of the project, the record shall be updated regularly and will be used to document communications with key stakeholders and interested parties. • Appropriate communications tools will be used to distribute information to identified stakeholders prior to establishment of works at the Site. The tools shall contain information relating to the proposed remediation works, a project program showing the anticipated duration of works, opportunities for key stakeholder participation and contact details for more information. • Regular meetings, focusing solely on the remediation of the site, will be held to disseminate information on the progress of the works including information on incidents, issues and operational conditions, and be attended by technical specialists, where necessary, to address any specific concerns or issues that may arise. These meetings will be open for anyone to attend.

Environmental Issue	Commitment
	- Newsletters shall be prepared and distributed to key stakeholders to communicate project information. The newsletters shall provide an avenue for communicating specific information on the progress of the remediation works where appropriate. Feedback on the information shall be collected via the consultation methods described above. - A dedicated 24-hour 1800 telephone number/service shall be established to answer queries on the project and to receive comments and shall be available throughout the duration of the project. - A notice board shall be posted at the main site entrance containing information about the project and contact details.
Traffic	26 A Traffic Management Plan (TMP) shall be prepared for the project prior to site establishment and construction. The TMP shall include: - The use of existing workforce car parking and heavy vehicle unloading areas within the Site; - Designated haulage routes within the site for heavy vehicle movements; - Designated haulage routes within the BCC LGA; and - Compliance with designated speed limits and load limits specified for heavy vehicle routes.
Water and Soils	27 Orica shall apply all practicable measures to reduce the quantity of dirty water, and the concentration of contaminants contained in dirty water, produced as a result of site establishment, construction, operation and decommissioning works for the project. 28 Orica shall take all practicable measures to: - Minimise soil erosion and the discharge of sediments and pollutants from the Site; and - Reduce both the concentration of contaminants contained in dirty water and the total quantity of dirty water produced as a result of site establishment, construction, operation and decommissioning works for the project.

Environmental Issue	Commitment
	29 In relation to the management of the water cycle on the Site, Orica shall implement measures designed to ensure that: - Stormwater from contaminated areas within the Site is transferred to the on-site water treatment plant associated with the project and is not permitted to contaminate clean areas of the Site; - All contaminated water within the Site is collected and treated in an on-site water treatment plant, or disposed of off-site to a wastewater treatment facility lawfully permitted to accept such waste; - Only uncontaminated rainwater would be permitted to flow to stormwater drains; and - Water to be reused on the Site meets the criteria specified in the Environmental Management Plan developed in accordance with Commitment 43. 30 Orica shall ensure that material that is to be stockpiled on site is stabilised to prevent contamination, erosion or dispersal of the material. 31 With respect to the reuse of wastewater Orica shall ensure that: - Wastewater/effluent is applied to the Site strictly in accordance with an approved Environmental Management Plan (EMP) as described in Commitment 43 with respect to water volumes, quantities and application areas; - Reuse of contaminated water/effluent on site meets the requirements of NSW Health and WorkCover NSW as relevant; - Contaminated water/effluent to be reused on site is tested and verified as safe for site workers and local residents, and will not contaminate clean areas. 32 In the event that wastewater from the Site is to be discharged to sewer, Orica shall establish a (or modify an existing) Trade Waste Agreement with Sydney Water Corporation, which will regulate the allowable wastewater discharges.
Hazards and Risks	33 Prior to the commencement of commissioning of the treatment plant (DTD Plant) as part of the Technology Assessment, Orica shall submit to the Director-General a full description of the treatment process, together with process flow diagrams and other relevant information at various points in the process, such as temperatures, pressures, flow rates and contaminants with their physical state.

Environmental Issue	Commitment
	34 Prior to the commencement of commissioning of the development, in accordance with an approved CPoP Program, the following documents will be prepared: • an Emergency Plan for the development. The Plan shall be prepared in accordance with the Department's publication <i>Hazardous Industry Planning Advisory Paper No. 1 – Industry Emergency Planning Guidelines</i>. The Plan shall be developed in consultation with relevant emergency services, community, neighbours and the OEH; • a Safety Management System, covering all parts of the project and any associated transport activities involving hazardous materials. The System shall clearly specify all safety-related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to safety procedures. The System shall be developed in accordance with the Department's publication <i>Hazardous Industry Planning Advisory Paper No. 9 – Safety Management</i>. 35 Orica shall successfully rehearse the Emergency Plan referred to under Commitment 34 of this Statement of Commitments on at least one occasion during the commissioning of the treatment plant or proof of performance trials. The rehearsal shall include a simulated response to a full-scale emergency at the development and shall involve relevant key stakeholders. 36 Prior to site establishment, appropriate Occupational Health and Safety (OH&S) and planning activities will be completed, documented and approved, where necessary. These activities include: • Verifying the OH&S training of all employees and subcontractors scheduled to work at the Site; • Medical examinations for all employees and subcontractors who are to work at the Site and are exposed to contamination; • Documented attendance at an on-site safety induction briefing for all employees and subcontractors scheduled to work at the Site; • Appointment of a Site Safety Officer (SSO); • Provision of first aid and medical facilities and supplies at the Site; • The procurement, provision and training in the use of PPE detailed in the OH&S Plan and works procedures; • Completion of all quality assurance (QA) and maintenance checks on all electrical equipment, plant and tools to be used at the Site at the commencement of works. Scheduled ongoing checks will be performed on all plant and equipment brought on-site;

Environmental Issue	Commitment
	- Installation of decontamination units at the specified areas on the Site, as detailed in the OH&S Plan and the design drawings; and - All activities required to provide a safe and healthy work environment for all personnel who work or visit the Site. 37 Prior to site establishment, WorkCover NSW shall be notified of the proposed commencement date for site works. WorkCover will be provided a copy of the OH&S Plan. 38 Prior to the commencement of construction on the Site, the following studies shall be prepared: - a Fire Safety Study for the project, covering all aspects detailed in the Department's publication Hazardous Industry Planning Advisory Paper No. 2 – Fire Safety Guidelines and the NSW Government's Best Practice Guidelines for Contaminated Water Retention and Treatment Systems. The Study shall include a strict maintenance schedule for essential services and other safety measures. The Study shall be submitted for the approval of the Commissioner of the NSW Fire Brigades prior to submission to the Director-General; - a Hazard and Operability Study (HAZOP) and Control Hazard and Operability Study (CHAZOP) of the project chaired by an independent, qualified person or team. The independent person or team shall be approved by the Director-General. The Study shall be carried out in accordance with the Department's publication Hazardous Industry Planning Advisory Paper No 8 – HAZOP Guidelines; - a Construction Safety Study for the project, prepared in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 7 – Construction Safety Standards. 39 The construction and operation of the proposed project shall be undertaken using an appropriate OH&SP for construction workers on the Site as well as long-term employees at the facility. The plan shall include the preparation of safe work method statements to address specific activities as outlined within the Preliminary Hazard Analysis (PHA) prepared for the proposal.
Completion of Works	40 Orica shall engage an independent site auditor accredited under the <i>Contaminated Land Management Act 1997</i> to endorse the RAP and for the duration of the remediation of the site, ultimately providing 'sign-off' for the site audit statement.

Environmental Issue	Commitment
Environmental Management	41 Standard operating procedures (SOPs) shall be developed for all plant items relating to the development, including but not limited to procedures for the handling of contaminated soils, operation of major process units and operation of pollution control equipment. The SOPs shall identify critical operating parameters for each item of plant, identifying appropriate operating levels for each parameter and indicating how these parameters will be monitored. Subject to confidentiality, copies of the Procedures shall be made available for inspection by the Director-General, the OEH and the community on request. 42 Operation of the development shall be conducted strictly in accordance with the SOPs referred to in Commitment 41 at all times. SOPs shall be updated to reflect significant changes to operations that may occur from time to time. Orica shall periodically notify the Director-General and the OEH of any update of the SOPs, indicating the scope and nature of the update.
Environmental Management Plans	43 Prior to the commencement of site preparation or construction works on the Site, an EMP shall be prepared to identify key issues and to provide a management strategy to effectively manage the environment for the duration of the project and the remediation activities considered to potentially have an adverse impact on the environment. The EMP will address the following key issues: • Surface water management; • Management of water in excavations; • Air quality management including dust, gaseous emissions and odours; • Noise management; • Vibration; • Waste management; • Equipment operation; and • Traffic control.
Environmental Reporting	44 Orica shall notify the OEH and the Director-General of any environmental incident occurring during the project with actual or potential significant off-site impacts on people or the biophysical environment as soon as practicable after becoming aware of the incident. Orica shall provide full written details of the incident to the OEH and the Director-General within seven days of the date on which the incident occurred. Orica shall make a copy of the report available for public inspection on request.

Environmental Issue	Commitment
	45 If Orica identifies, through monitoring or otherwise, an exceedance of environmental or safety limits specified in this SoC or the EPL for the Site, Orica will take all necessary steps to cease and prevent the recurrence of the exceedance (subject to safe shutdown procedures). Unless the exceedance can be rectified within a reasonable period of time, Orica shall notify the Director-General and the OEH of the cause of the required shutdown and identify additional measures to be applied to address the cause of the exceedance and identify additional measures to be applied to address the cause. 46 Orica shall, throughout the life of the project, prepare and submit to the Director-General and the OEH, a Monthly Performance Report. The Report shall review the performance of the development against the relevant requirements set out in this SoC and the EPL and shall include: • All monitoring data collected for the development during the month; • A copy of the complaints register for the month and how these complaints were addressed and resolved; • Identification of any non-compliance with the conditions of approval or the EPL; and • Details of additional measures to be implemented to address any non-compliance with the conditions of approval or the EPL.