ASSESSMENT REPORT

Section 75W Modification
Orica Car Park Remediation Project (MP 06_0197 MOD 4)

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1. BACKGROUND

Orica Australia Pty Ltd (Orica) is an Australian based global company that produces mining, chemical and consumer products. Orica has been manufacturing chemicals in Banksmeadow since 1941.

The area in Banksmeadow, comprising the Orica facility as well as the adjacent industrial plants operated by Qenos and Huntsman, has been collectively referred to as the Botany Industrial Park (BIP) since 1996. The BIP occupies over 100 hectares and is bounded by Denison Street to the East, Beauchamp Road to the south, and the Botany Rail Goods line to the west (see Figure 1).

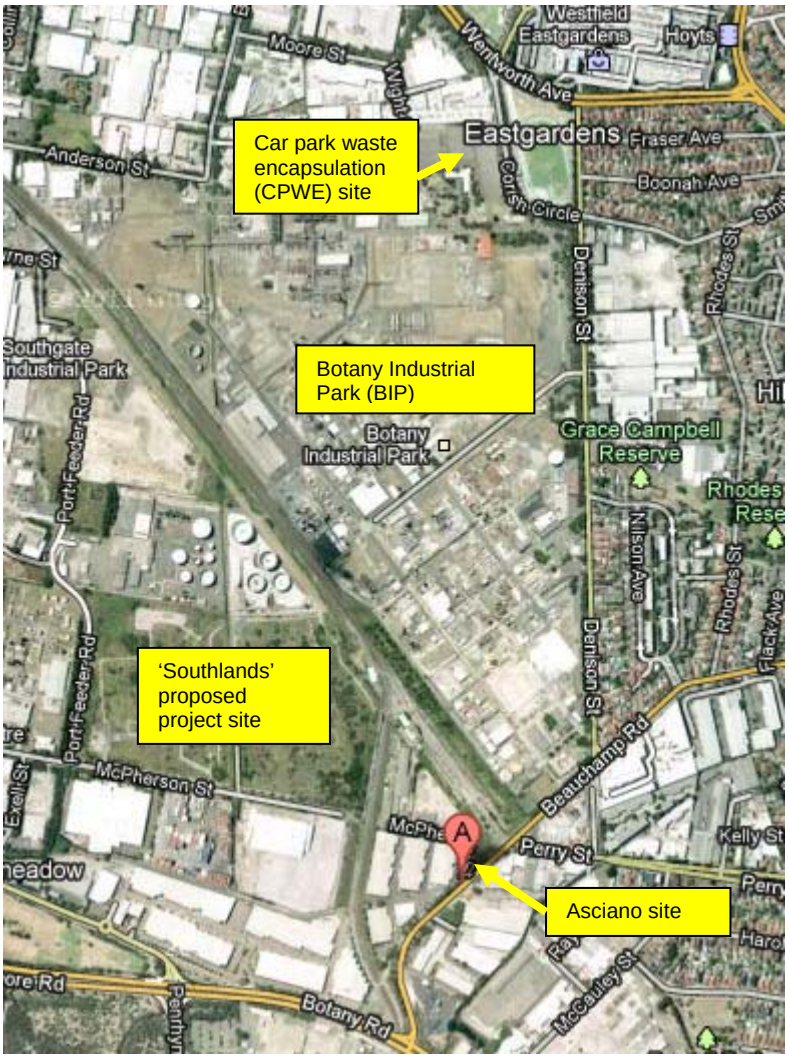

Figure 1 – *site locations (note the Asciano site is 'A' on the map)*

Between 1960 and 1991, Orica operated a solvents plant on the BIP site. This plant produced chlorinated solvents for use as dry cleaning fluids and refrigerants. Waste products from the plant were stored in drums located on a bed of boiler ash. Over time, the drums corroded and contaminated the ash bed and underlying soil with chlorinated hydrocarbons.

Car Park Waste Encapsulation Project

In 1980, the contaminated ash and soil was excavated and buried within a synthetic liner in the north-eastern corner of the BIP site. The area was then covered with bitumen and used as a car park. The Car Park Waste Encapsulation (CPWE) site, as it is now referred to, comprised 1.4 hectares of land within the north eastern corner of the BIP (see Figure 1) and contained an estimated 90,000 tonnes of contaminated material.

On 12 November 2009, the Director-General (as delegate of the then Minister for Planning) approved a project application from Orica under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the remediation of the CPWE site.

Under this approval, Orica is permitted to:

- construct an Excavation Soil Building on top of the contaminated material;;
- excavate the contaminated material within the Excavation Soil Building and transfer the material to a Feed Soil Building (see Figure 2) for further screening, drying and testing to determine contaminant concentrations;
- treat the contaminated material in a Directly-heated Thermal Desorption (DTD) plant at very high temperatures;
- test the remediated material to ensure that it is suitable for reuse; and
- stockpile the soil within the Botany Industrial Park before using it to refill the excavated car park site or removing the soil to a licensed landfilling facility.

In its Environmental Assessment for the Project, Orica identified that mercury emissions from the DTD stack might not comply with the EPA's regulatory limit of 0.2 milligrams per cubic metre. Subsequently, the EPA granted Orica an exemption to set the regulatory limit for mercury emissions of up to 1.0 milligram per cubic metre. The EPA was satisfied that a 1.0 milligram per cubic metre limit would not result in any health or environmental impacts. The exemption expired on 31 December 2011.

The remediation works and the operation of the DTD plant are activities licensed and regulated by the Environment Protection Authority (EPA) under the *Protection of the Environment Operations Act 1997* and the *Environmentally Hazardous Chemicals Act, 1985*. Orica commenced full operation of the DTD plant in September 2011 following commissioning and 'Proof of Performance' trials, which proved the DTD plant's ability to meet all EPA performance and emission criteria.

In addition to the strict air quality emission criteria, including the mercury limits, the approval conditions and EPL also stipulate that Orica must ensure the maximum concentration of feed soil material is 4000 mg/kg HCB and HCBD, ensure the feed rate does not exceed 27 tonnes material per hour and maintain specific treatment temperature and PH. The conditions also required Orica to establish and fund an Independent Expert Panel for the project. The Panel provides independent technical advice on performance of the DTD Plant and reviews monitoring and reporting information at the request of the Director-General and the community.

So far, approximately 68,700 tonnes of soil has been treated and it is anticipated that all material will be treated by May 2012.

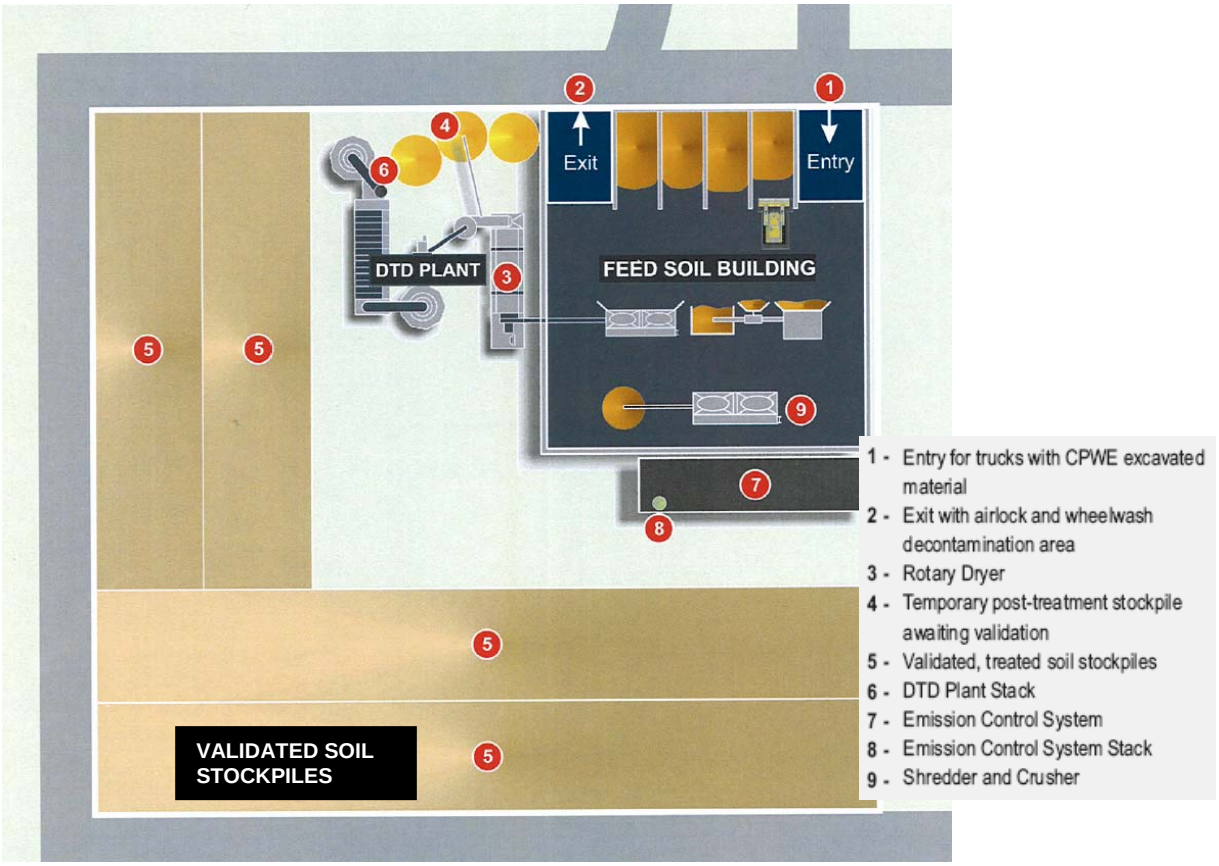

Figure 2 – Feed Soil Building, Directly-Heated Thermal Desorption Plant and Treated Soil Stockpiles

Modifications

In June 2010, Orica submitted an application (MP 06_0197 MOD 1) to reduce the two stacks on the Excavation Soil Building and the Feed soil Building Emission Control Systems from 30 metres to 21.5 metres. This application, however, was later withdrawn.

The CPWE Project approval (MP 06_0197) has been modified twice as follows:

- on the 7 July 2011 - Orica received approval (of MP 06_0197 MOD 2) to allow an additional 1,000 tonnes of low level scheduled waste from HCB stores from within the BIP to be treated in the DTD plant; and
- on 4 November 2011 - the Department approved a modification (of MP 06_0197 MOD 3) to allow the temporary storage of around 60,000 m^3 of surplus DTD treated and validated soil on another Orica owned parcel of land known as Southlands (see Figure 1). The Southlands site is currently vacant except for equipment and infrastructure required by Orica to maintain their Botany Groundwater Cleanup (BGC) Project.

  A separate application (06_0191) known as the 'Southlands Project', is with the Department to redevelop the Southlands site for warehousing and distribution purposes.

2. PROPOSED MODIFICATION

On 30 November 2011, Orica submitted a fourth modification application (MP 06_0197 MOD 4) under 75W of the EP&A Act (see **Appendix A** for a copy of application supporting the proposal).

This application sought to amend the Project Approval to allow for the treatment of additional material at the CPWE. This included:

1. up to 8,200 tonnes of contaminated material from the Southlands site; and
2. a further 270 tonnes of contaminated material from the nearby Asciano site (see Figure 1).

In late 2011, Orica encountered soil with a higher contaminant concentration than had previously been treated to date. Orica's monitoring during the required supplementary proof of performance test (undertaken to demonstrate these higher concentrations could be successfully treated in the DTD plant) identified elevated mercury levels in the DTD stack samples taken on 14 to 16 December 2011 (0.49 and 0.32 milligrams per cubic metre respectively).

Following investigations, including rounds of full stack monitoring, and "restricted Start-Up Operations", the EPA has amended Orica's licence to allow Orica to proceed with "precautionary operations" for the remainder of the project. Stack testing confirmed that the DTD Plant is emitting mercury levels well below the EPL limit of 0.2 milligrams per cubic metre respectively (ie more than x20 lower than the emission limit). In addition to its licence conditions that were in place prior to 14 December 2011, this requires Orica to:

- use a chemical (trimercaptotriazine or TMT) in the scrubber; and
- acid wash the scrubber during routine maintenance shut downs.

Notwithstanding, Professor Priestly, the health expert on the Independent Expert Panel, indicated that he was satisfied with the EPA's assessment that there were no significant health risks associated with these emissions.

However, on 10 February, 2012 Orica reconsidered its application and withdrew the component to treat the Southlands material. This was due to concerns about the mercury concentrations (up to 343 mg/m^3 in this material - see **Appendix A**). Even if the Southlands material was blended with the existing CPWE material, Orica doubted they would be able to meet their EPL mercury stack limit of 0.2 mg/m^3.

Therefore, this application now relates only to the treatment of material from the Asciano site only.

Asciano own a site near the BIP which contains a former rail terminal that was opened in 1924. In 1995, geotechnical investigations found that the soils contained HCB, likely to be a result of operations on the former ICI (now Orica) site. As a result, Orica agreed to treat the Asciano material which, following classification and disposal of the less contaminated material, equates to some 160 m^3, or about 270 t.

These soils are currently stockpiled on the Asciano site. The EPL for this stockpile allows for the transport of material to an approved location for treatment or disposal (therefore allowing the transport to the DTD plant subject to planning approval).

The contaminated material is proposed to be transported in $12m^3$ loads on trucks that are currently used for the transport of the contaminated CPWE material within the BIP site. The trucks would be covered whilst in transit.

Figure 3: *The Southlands and Asciano truck routes*

The proposed truck route from the Asciano site is depicted in Figure 3 above, and is approximately 1.7 km on local roads. Orica estimates that the transport of 270 tonnes of material from the Asciano site would take 2 hours to fully complete (23 truckloads in total).

Excavated contaminated material would be transported to the Feed Soil Building (see Figure 2) for screening, drying and testing to confirm contaminant concentrations. A comparison of some key contaminants in the Asciano stockpile and the CPWE material is demonstrated in Table 1 below:

Table 1: *Comparison contaminants in the additional materials versus CPWE materials*

Material	Estimated tonnes	Maximum measured concentration mg/kg				
		HCB	HCBD	Mercury	Lead	Zinc
Asciano	270	860	320	26	280	530
CPWE	70,000	3,880	11,700	14.7	59	764

Orica would blend the Asciano material with the contaminated CPWE material to ensure that the levels of contamination in the feed soil are appropriate for treatment in the DTD Plant. The Asciano material does, however, contain concentrations of up to 26 mg/kg of mercury. Notwithstanding, the total quantity of material is so low (less than 1.5% of the remaining car park soil) that Orica are confident that it can be appropriately blended with the car park material to reduce the overall concentration of mercury to be fed through the plant.

Following treatment, the soil would join the stockpile of treated car park soil to be used as fill on the BIP site or at Southlands. That backfilling is likely occur by June 2012.

3. STATUTORY CONTEXT

Approval Authority

The Minister was the approval authority for the original project approval, and is consequently the approval authority for this application.

The Minister has delegated his functions to determine Section 75W modifications to the Department where:

- the council has not made an objection;
- there are less than 10 public submissions objecting to the proposal; and

- a political disclosure statement has not been made in relation to the application.

There have been no submissions received from the public and council has not made an objection to the proposal. There has also been no political disclosure statement made for this application or for any previous related applications, and no disclosures made by any persons who have lodged an objection to this application.

Accordingly the application is able to be determined by the Executive Director, Major Projects Assessment under delegation.

Section 75W

In accordance with Clause 3 of Schedule 6A of the EP&A Act, section 75W of the Act as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A, continues to apply to transitional Part 3A projects.

Under Section 75W of the EP&A Act, the Minister is obliged to be satisfied that what is proposed is indeed a modification of the original proposal, rather than being a new project in its own right.

The Department has reviewed the scale and nature of the proposed modification, and is satisfied that it can be characterised as a genuine modification of the original project as:

- it involves only minor changes to the approved project to allow the treatment of a small amount of additional contaminated material utilising existing infrastructure;
- there are management measures already in place within the project approval and EPL to ensure compliance with existing air quality and remediation goals; and
- the project as modified could be carried out with some minor amendments to the existing conditions of approval.

4. CONSULTATION

The Department made the EA of the proposal publicly available on its website and sought submissions from the Environment Protection Authority (EPA) and Botany Bay City Council (Council). Consultation with other government agencies and neighbouring sites was considered to be unnecessary as the environmental impacts of the proposal would essentially remain unchanged.

The **EPA** considers that with the stringent EPL conditions in place, the DTD Plant would be able to process the Asciano material in an environmentally appropriate manner. The EPA is satisfied that all impacts can be managed subject to Orica addressing potential air quality issues related to the transportation and obtaining the necessary planning approvals.

Council did not object to the proposal and recommended conditions of approval related to the excavation and transportation of contaminated material.

Copies of these submissions can be found in **Appendix B.**

5. ASSESSMENT

During its assessment of the merits of the proposed modification, the Department has reviewed the:

- Environmental Assessment of the original proposal;
- existing conditions of approval;
- Environmental Assessment of the proposed modification;
- submissions on the proposed modification; and
- Relevant policies and guidelines.

The conclusions of this assessment are summarised in Table 2 below.

Table 2 – *Assessment of Key Issues*

Issue	Consideration	Recommendation
Air Quality	• As discussed in Section 1, Orica commenced full operation of the DTD plant in September 2011; • In December 2011, there was an elevated reading for Mercury at the DTD plant stack which was caused by insufficient blending of a small amount of spent carbon, which contained up to 30 mg/m^3 of Mercury.	No additional conditions relating to Air have been recommended. The Department undertook a comprehensive environmental assessment

Issue	Consideration	Recommendation
	• As a result of this, Orica has committed to the EPA to sufficiently blend the Asciano material (which contains up to 26 mg/m^3 of Mercury) with the car park (CPWE) material (which typically has 1.5 mg/m^3 Mercury), so that there is no more than 4.5 mg/m^3 Mercury in the feed going into the DTD plant. • The EPA has advised the addition of TMT to the scrubber and acid washing of the scrubber will ensure Orica can meet their EPL stack limit for Mercury of 0.2 mg/m^3. • The EPA is also confident that any other substances of concern such as lead could be treated successfully. Appropriate blending would be demonstrated by sampling the blended feed material to show that the metals concentrations (such as lead) are consistent with the proven feed concentrations for the Direct Thermal Desorption Plant. • In addition, the existing conditions requires Orica to undertake supplementary Proof of Performance trials if the material to be treated contains levels of contaminants that exceed the criteria established in the original CPoP, and/or contaminants not tested in the original CPoP. The supplementary PoP trials, if required, would test the effectiveness of the emission controls. • The Department is confident that the existing conditions as well as management of the feed soil prior to treatment (i.e. blending and testing of the material) would ensure compliance with the existing air quality goals.	of the approved Car Park Waste Encapsulation Project. The existing conditions are sufficient to manage any air emissions.
Traffic impacts	• Estimated trip generation and travel route is described in Section 2 above. • The travel routes would be on local roads within an industrial zone, already used by a large number of heavy vehicles. • The latest road surveys show average hourly vehicle movements of 715 for Beauchamp Road and 405 for Botany Road. 23 truck movements over 2 hours would be generated by the modified project. • The Department considers that the additional truck movements resulting from the modification are minor and short term. • Notwithstanding, to reduce the potential for any impacts on traffic flows and capacity of the surrounding road network, the Department recommends that the transport of material is undertaken outside of peak hours.	Recommended conditions require the Proponent to: • Include a condition limiting the transport of treated material to outside of peak hours* between Monday and Friday and on Saturdays between 9am and 4 pm, with no transport allowed on Sundays.
Transport of contaminated material	• The packaging and transportation of contaminated material could generate minor dust emissions, vapour and odour emissions. • These potential emissions can be controlled through standard mitigation measures such as: o water sprays; o collection and treatment of wastewater; o the implementation of Orica's standard procedures for the transport of contaminated material around the BIP site; • The EPA recommended the implementation of an Air Quality Management Plan to address potential air quality impacts such as fugitive dust emissions generated from the handling and relocation of the contaminated material. • Council requested a Transport Management Plan addressing the use of the public road network for the	Recommended conditions require the Proponent to: • Update the existing Relocation Management Plan to incorporate the transfer of contaminated material from the Asciano site to the DTD plant in consultation with EPA to the satisfaction of the Department.

Issue	Consideration	Recommendation
	transport of contaminated material. • The Department has recommended that the existing condition requiring a Relocation Management Plan (which was initially required to minimise the potential impacts associated a previous modification) is updated to reflect the risks (such as dust emissions) and proposed management measures relating to moving contaminated material from the Asciano site to the DTD Plant.	
Remediation of contaminated material	• The EPA is satisfied that the DTD Plant can successfully treat the additional material. • Existing conditions require Orica to undertake supplementary PoP trials if the material to be treated contains levels of contaminants that exceed the criteria established in the original CPoP, and/or contaminants not tested in the original CPoP. Thereby ensuring the additional material is treated appropriately. • In addition, the validation process requires Orica to demonstrate the treated materials meet the remediation criteria. • The Department is satisfied that the project as modified would comply with the existing remediation goals outlined in the project approval.	No change to existing conditions of approval.
Community Consultation	• Both the EPA and the Department require Orica to regularly consult with the community on activities in the BIP and surrounds via the Community Participation and Review Committee (CPRC) and make documentation available to the public; • It is noted that the matter was raised at the CPRC meeting on Tuesday 8 November 2011, to which there were no objections. • EPA and the Department are satisfied that appropriate community consultation has been undertaken.	No change to existing conditions.

*Peak hour defined as 7 – 9am and 4 – 6pm Monday to Friday

6. CONCLUSION

The Department has assessed the merits of the proposal in accordance with the requirements of the EP&A Act.

This assessment has found that:

- the contaminated material could be transferred from the Asciano site to the DTD plant with negligible environmental impact, subject to the implementation of appropriate management measures;
- the EPA would ensure that remediation occurs with an appropriate level of environmental performance through amendments to the EPL; and
- the proposal is in the public interest as it treats the contaminants of concerns and reduces waste to landfill.

Consequently the Department believes the proposal should be approved subject to some minor amendments to the existing conditions of approval.

7. RECOMMENDATION

It is RECOMMENDED that, as delegate for the Minister, the Deputy Director-General:

- **consider** the findings and recommendations of this report;
- **determine** that the proposed modification is within the scope of section 75W of the EP&A Act;
- **approve** the application subject to conditions; and
- **sign** the attached notice of modification **(Appendix C)**.

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16/4/12

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APPENDIX A ORICA'S REQUEST

APPENDIX B SUBMISSIONS

APPENDIX C NOTICE OF MODIFICAATION