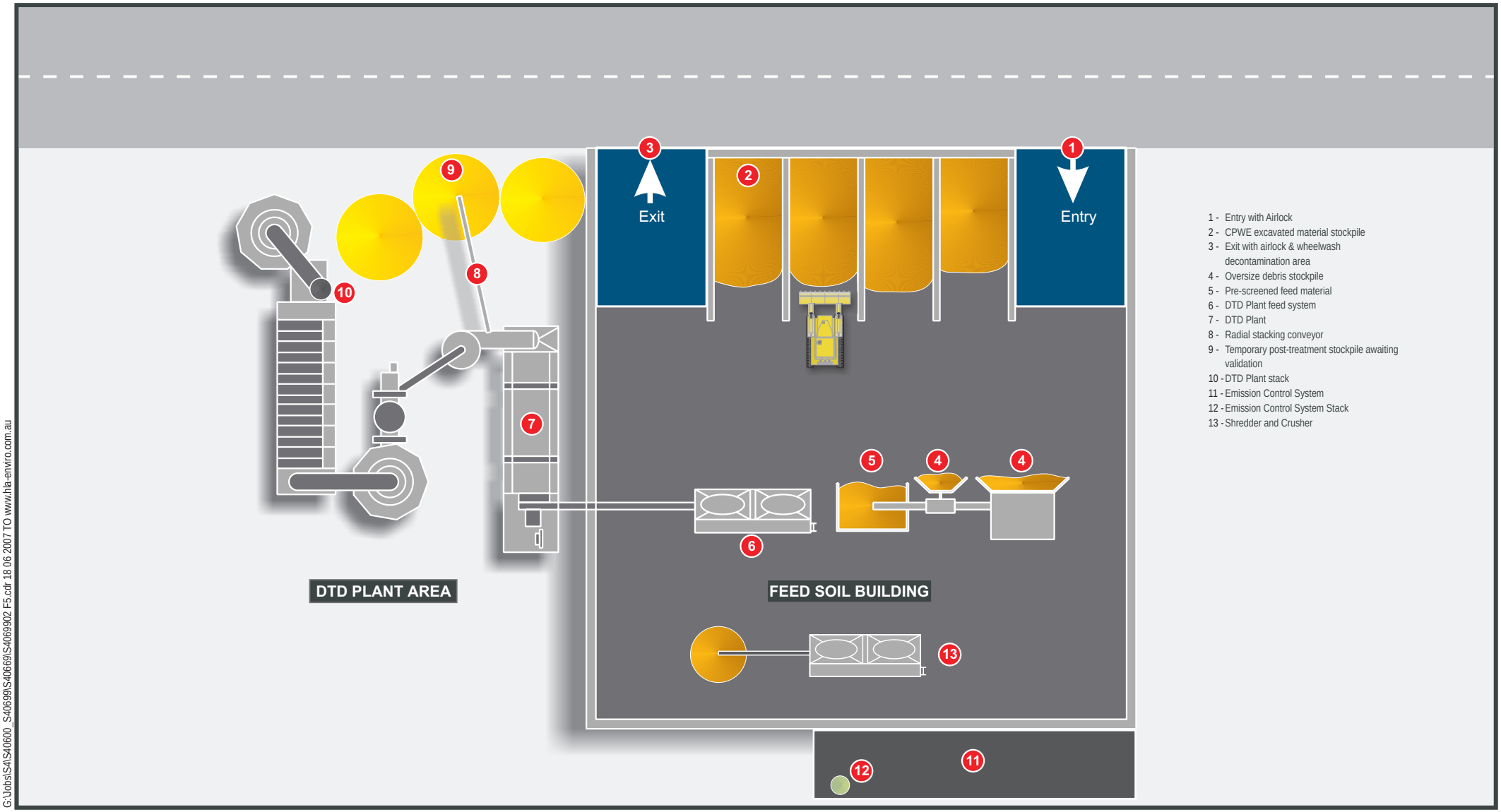


G:\Jobs\S4\S40600_S40699\S40669\S4069902 F5.cdr 18 06 2007 TO www.hla-enviro.com.au

HLA

Figure 5

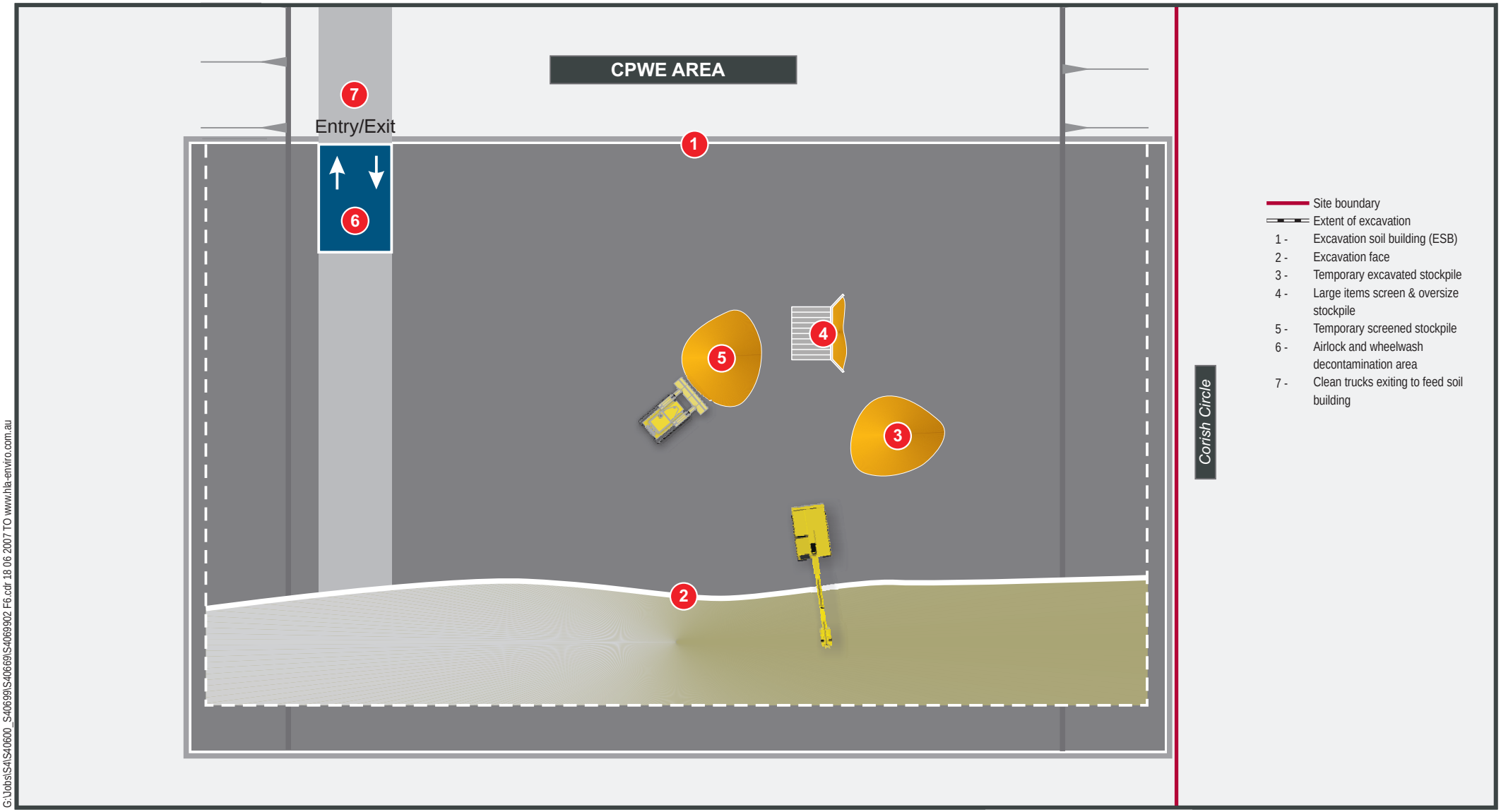
Conceptual Feed Soil Building Layout

Orica Australia Pty Ltd

Orica Car Park Waste Encapsulation -

Remedial Action Plan

Botany Industrial Park, Matraville NSW



G:\Jobs\S4\S40600_S40699\S40669\S4069902 F6.cdr 18 06 2007 TO www.hla-enviro.com.au

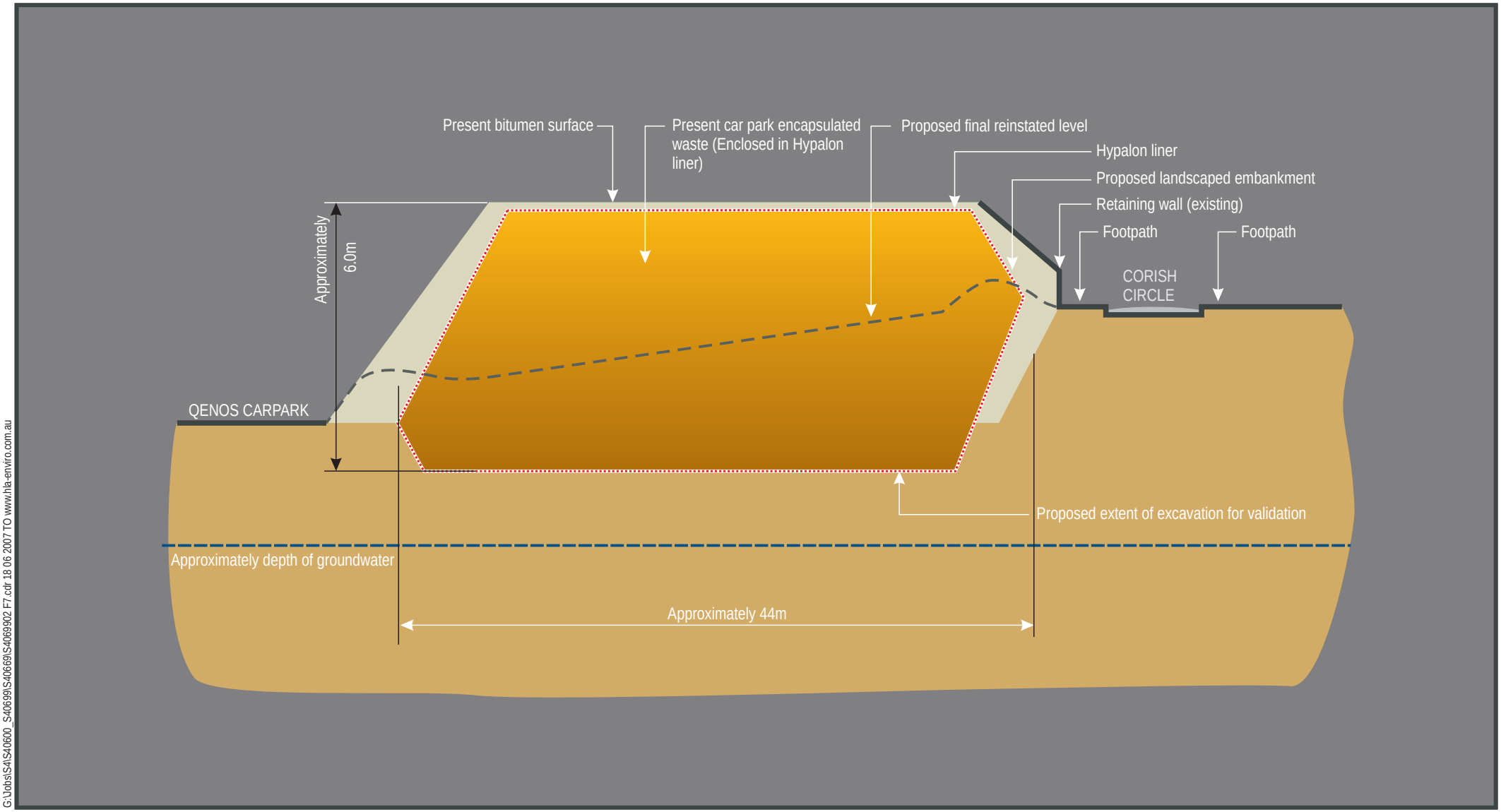
HLA

Figure 6

Conceptual Excavation Soil Building Layout

Orica Australia Pty Ltd

Orica Car Park Waste Encapsulation -
Remedial Action Plan
Botany Industrial Park, Matraville NSW



G:\Jobs\S4\S40600_S40699\S40669\S4069902 F7.cdr 18 06 2007 TO www.hla-enviro.com.au

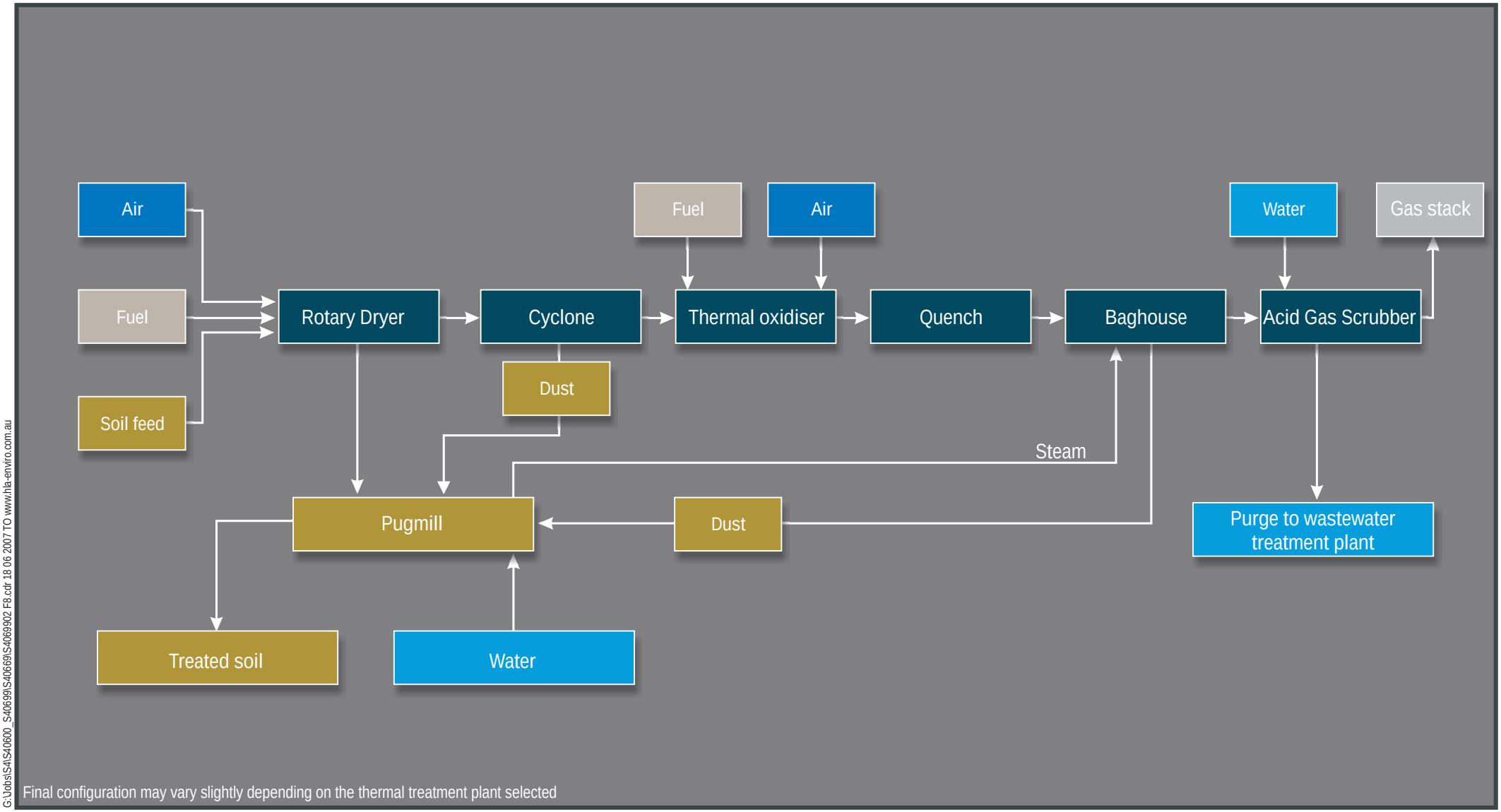
HLA

Figure 7

Conceptual Cross Section of Excavation and Reinstatement of Site

Orica Australia Pty Ltd

Orica Car Park Waste Encapsulation -
Remedial Action Plan
Botany Industrial Park, Matraville NSW



G:\Jobs\S4\S40600_S40699\S40669\S4069902 F8.cdr 18 06 2007 TO www.hla-enviro.com.au

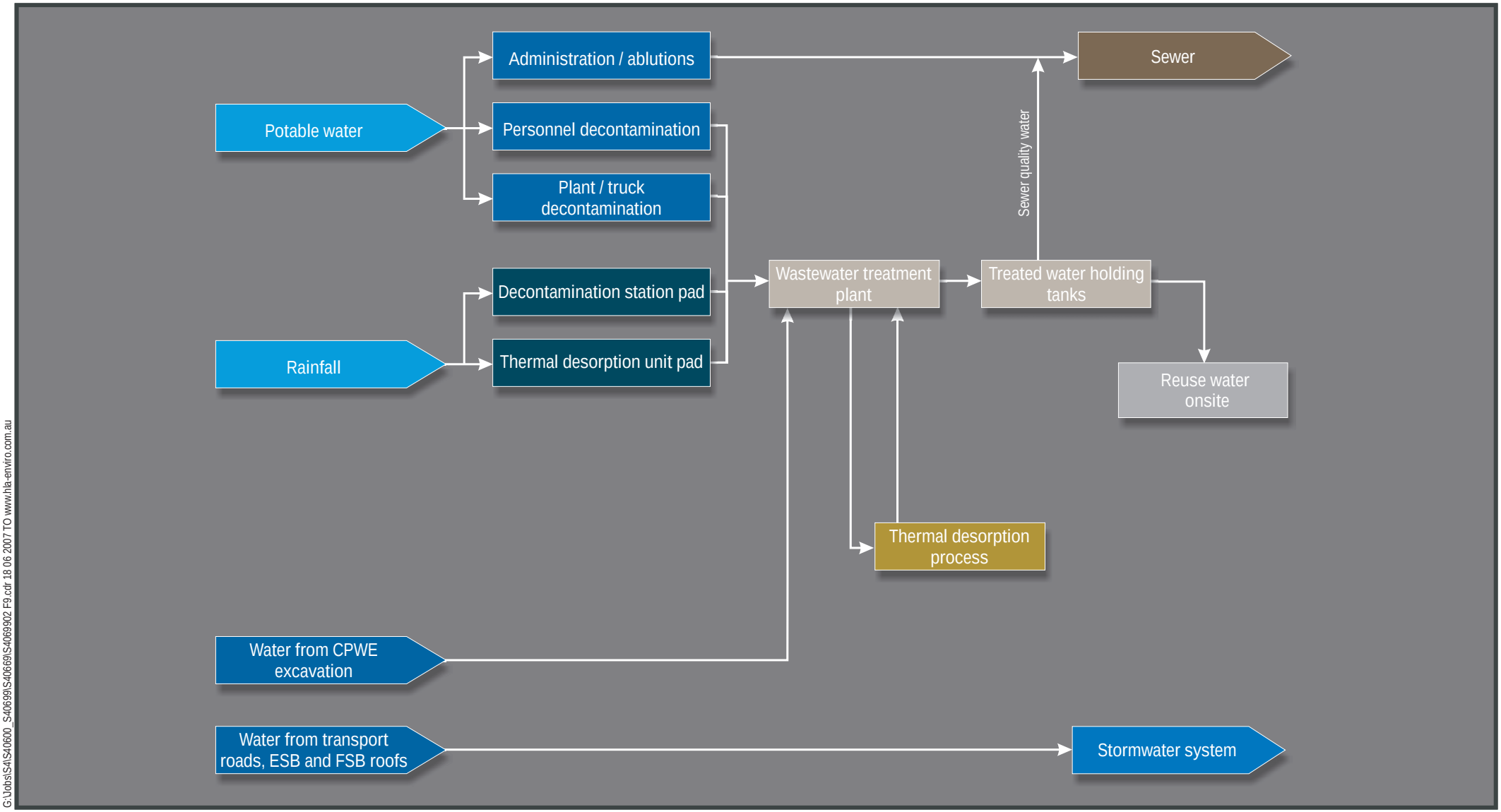
HLA

Figure 8

DTD Treatment Process

Orica Australia Pty Ltd

Orica Car Park Waste Encapsulation -
Remedial Action Plan
Botany Industrial Park, Matraville NSW



G:\Jobs\S4\S40600_S40699\S40669\S4069902 F9.cdr 18 06 2007 TO www.hla-enviro.com.au

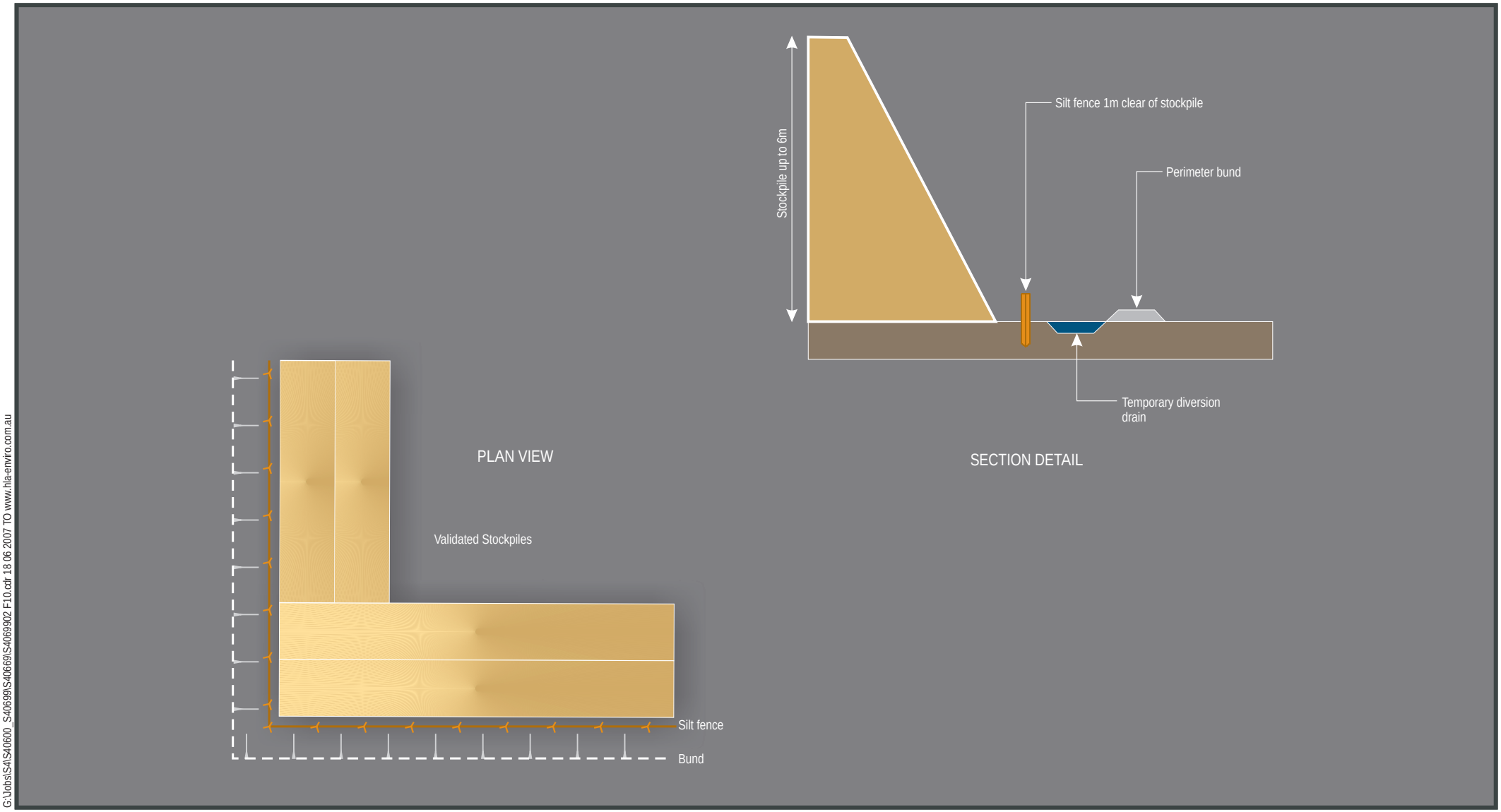
HLA

Figure 9

Water Management

Orica Australia Pty Ltd

Orica Car Park Waste Encapsulation -
Remedial Action Plan
Botany Industrial Park, Matraville NSW



G:\Jobs\S4\S40600_S40699\S40669\S4069902 F10.cdr 18 06 2007 TO www.hla-enviro.com.au

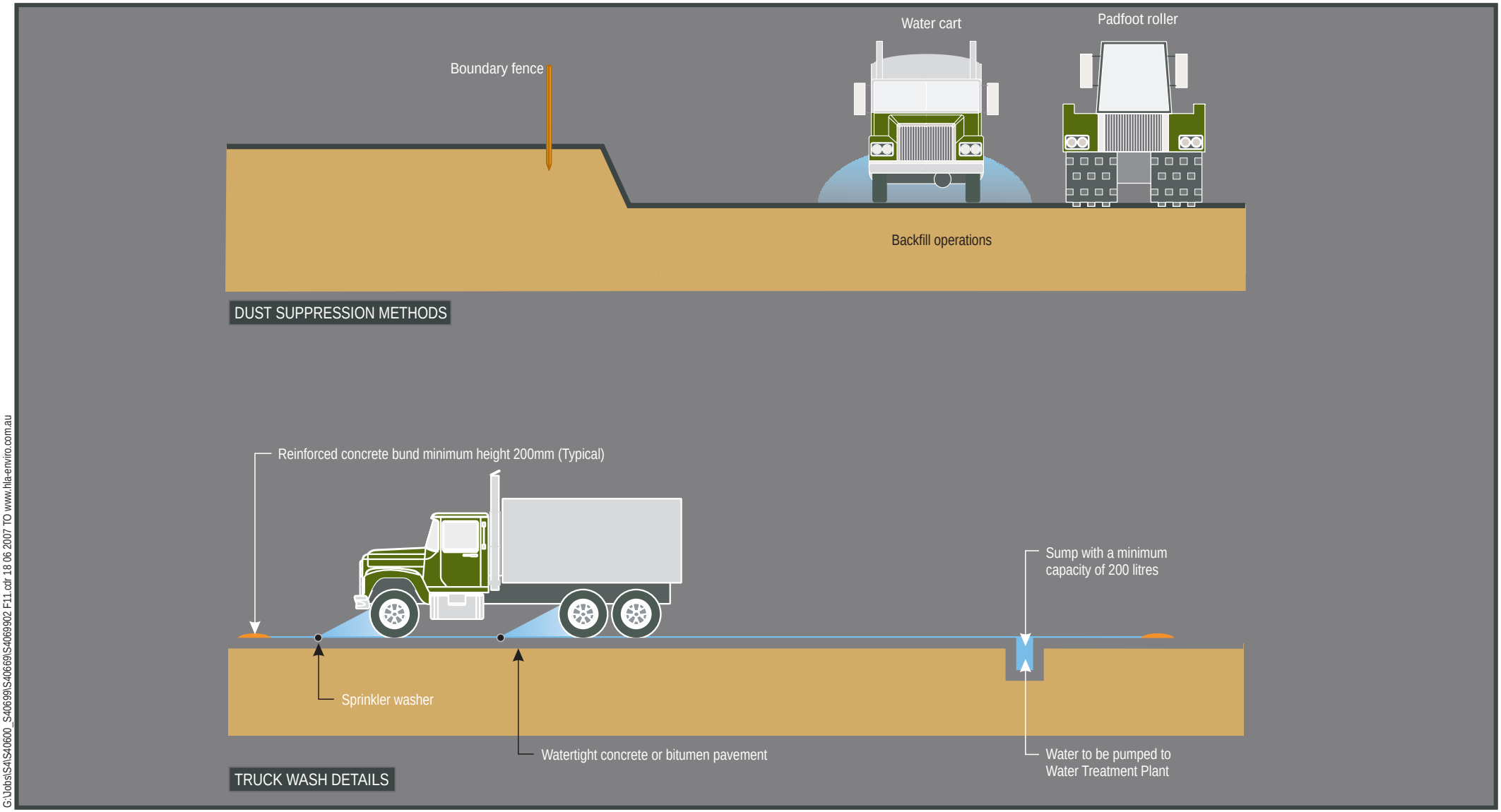
HLA

Figure 10

Conceptual Stockpile Management

Orica Australia Pty Ltd

Orica Car Park Waste Encapsulation -
Remedial Action Plan
Botany Industrial Park, Matraville NSW



G:\Jobs\S4\S40600_S40699\S40669\S4069902 F11.cdr 18 06 2007 TO www.hla-enviro.com.au

HLA

Figure 11

Conceptual Civil Works Environmental Controls

Orica Australia Pty Ltd

Orica Car Park Waste Encapsulation -
Remedial Action Plan
Botany Industrial Park, Matraville NSW

"This page has been left blank intentionally"

Appendix A: Environmental Protection Licence 2148

"This page has been left blank intentionally"

Section 55 Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 2148

Department of **Environment & Climate Change** NSW

Licence Details	
Number:	2148
Anniversary Date:	21-July
Review Due Date:	22-Dec-2008

Licensee

ORICA AUSTRALIA PTY LTD
16-20 BEAUCHAMP ROAD
MATRAVILLE NSW 2036

Licence Type

Premises

Premises

ORICA AUSTRALIA PTY LTD
16-20 BEAUCHAMP ROAD
MATRAVILLE NSW 2036

Scheduled Activity

Chemical Storage Facilities
Waste Activities
Chemical Industries or Works - other
Waste Facilities - HIGAB processing

Fee Based Activity	**Scale**
Other Chemical Processing (24)	> 25000 - T produced
Chemical Storage - Other Chemical Storage (25)	> 5000 - 100000 kL of active storage capacity
Hazardous, Industrial or Group A Waste Generation or Storage (73)	> 500 - T
Hazardous, Industrial or Group A or Group B Waste Processing (75)	0 - All

Region

Metropolitan
Level 3, NSW Govt Offices, 84 Crown Street
WOLLONGONG NSW 2500
Phone: 02 4224 4100
Fax: 02 4224 4110

PO Box 513 WOLLONGONG EAST
NSW 2520

Environment Protection Licence

Licence - 2148

Department of Environment & Climate Change NSW

Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act); and
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

The EPA publication "A Guide to Licensing" contains information about how to calculate your licence fees.

The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

ORICA AUSTRALIA PTY LTD
16-20 BEAUCHAMP ROAD
MATRAVILLE NSW 2036

subject to the conditions which follow.

1 Administrative conditions

A1 What the licence authorises and regulates

A1.1 Not applicable.

A1.2 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity
Chemical Storage Facilities
Waste Activities
Chemical Industries or Works - other
Waste Facilities - HIGAB processing

Fee Based Activity	Scale
Other Chemical Processing (24)	> 25000 - T produced
Chemical Storage - Other Chemical Storage (25)	> 5000 - 100000 kL of active storage capacity
Hazardous, Industrial or Group A Waste Generation or Storage (73)	> 500 - T
Hazardous, Industrial or Group A or Group B Waste Processing (75)	0 - All

A1.3 Not applicable.

A2 Premises to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
ORICA AUSTRALIA PTY LTD
16-20 BEAUCHAMP ROAD
MATRAVILLE
NSW
2036

Environment Protection Licence

Premises Details
LOTS 2,4 & 9 DP 1016112, LOTS 2,5 DP 206413, LOT 11 DP 1039919, LOT 1 DP 85542, LOT 11 DP 109505, LOT 1 DP1078077, LOT 1 DP 740704
As defined in a letter to DEC's Sydney Industry, dated 14 September 2005, and drawing No B87201 Rev14 , titled "Botany Site Plan - Sub-Division Boundary Plots', and dated 14/03/05

A3 Other activities

A3.1 Not applicable.

A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
(a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
(b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to air and water and applications to land

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

Environment Protection Licence

Licence - 2148

Air

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Description of Location
3	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Vent from the hypochlorite backing tower marked "monitoring point 3" on Drawing No. B78323 submitted as an attachment to the letter to the EPA dated 21 March 2003.
4	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Vent duct from the absorbtion tail tower marked "monitoring point 4" on Drawing No. B78323 submitted as an attachment to the letter to the EPA dated 21 March 2003.
7	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Emergency chlorine vent marked "monitoring point 7" on Drawing No. B78323 submitted as an attachment to the letter to the EPA dated 21 March 2003.
8	Discharge to Air Air emissions monitoring	Discharge to Air Air emissions monitoring	Discharge from the Stack of the Vapour Emissions Capture (VEC) system of the Steam Stripping Unit (SSU) as shown on drawing No B96306 Rev0 submitted to DEC on 29 September 2005
9	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Stack serving GTP labelled "Point 9 - Discharge to air" on drawing number B96283 Rev2 submitted to DEC on 20 June 2006.
10	Parameter monitoring		Thermal oxidation unit labelled "Point 10 - Parameter monitoring temperatue" on drawing number B96283 Rev2 submitted to DEC on 20 June 2006.
12	Weather monitoring		Weather monitoring station labelled "Point 12 - Weather Monitoring" on drawing No B96283 Rev2 submitted to DEC on 20 June 2006
13	Parameter monitoring		Pipe serving the GTP thermal oxidiser, labelled "Point 13 - Thermal Oxidiser Flow (Residence Time) Monitoring Point" on drawing number B96283 Rev2 submitted to DEC on 20 June 2006

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Description of Location
23	Discharge to air Air emission monitoring	Discharge to air Air emission monitoring	Stack serving the HCL storage tank labelled "Point 23 - Discharge to air" on drawing No B96283 Rev2 submitted to DEC on 20 June 2006
24	parameter monitoring	parameter monitoring	Heat exchanger unit immediately downstream of the thermal oxidiser labelled "Point 24 - Parameter monitoring temperatue" on drawing number B96283 Rev2 submitted to DEC on 20 June 2006
25	Discharge to air Air emission monitoring	Discharge to air Air emission monitoring	Stack serving the vapour extraction system labellled as "Exhaust to atmosphere (single, short stack, approx. 3m above ground)" on drawing No B96878 RevB submitted to DEC on 26 June 2006
26	Discharge to air. Air emissions monitoring	Discharge to air. Air emissions monitoring	Common stack from building housing HCB repackaging plant and new Store J
27	Discharge to air. Air emissions monitoring.	Discharge to air. Air emissions monitoring.	Stack from temporary enclosure of Store H
28	Discharge to air. Air emissions monitoring	Discharge to air. Air emissions monitoring	Stack from temporary enclosure of Store E
29	In-pipe monitoring		Store J interstage point between the two activated charcoal filters on extraction pipe 1.
30	In-pipe monitoring		Store J interstage point between the two activated charcoal filters on extraction pipe 2.
31	In-pipe monitoring		Store H interstage point between the two activated charcoal filters on the extraction pipe.
32	In-pipe monitoring		Store E interstage point between the two activated charcoal filters on the extraction pipe.
33	In-pipe monitoring		Store J interstage point between the two activated charcoal filters on the extraction pipe. (Note - this is the same as Point 29).

EPA Identi-fication no.	Type of Monitoring Point	Type of Discharge Point	Description of Location
34	In-pipe monitoring		Store J interstage point between the two activated charcoal filters on the extraction pipe. (Note - this is the same as Point 30).
35	In-pipe monitoring		Store H interstage point between the two activated charcoal filters on the extraction pipe. (Note - this is the same as Point 31).
36	In-pipe monitoring		Store E interstage point between the two activated charcoal filters on the extraction pipe. (Note - this is the same as Point 32).

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

P1.3 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

Water and land

EPA identi-fication no.	Type of monitoring point	Type of discharge point	Description of location
11		**Discharge to waters**	**Drain outlet serving the GTP labelled "Point 11- Water Discharge Point" on drawing number B96284 Rev0 submitted to DEC on 14 September 2005**
14	**Effluent quality monitoring**		**Drain outlet serving the GTP labelled "Point 14 - Water Discharge Composition" on drawing No B96283 Rev2 submitted to DEC on 20 June 2006**
15	**Effluent quality monitoring**		**Drain outlet serving the GTP labelled "Point 15 - Water Discharge Conductivity" on drawing No B96283 Rev2 submitted to DEC on 20 June 2006**
16	**Effluent quality and volume monitoring**		**Drain outlet serving the GTP labelled "Point 16 - Water Discharge Temperature & Flow" on drawing No B96284 Rev0 submitted to DEC on 14 September 2005**
22	**Effluent quality monitoring**		**Drain outlet serving the SSU labelled "Point 22 - Penryn Estuary Monitoring Location" as shown on drawing No 43217284_f1 RevA submitted to DEC on 29 September 2005**

3 Limit conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Load limits

L2.1 Not applicable.

L2.2 Not applicable.

L3 Concentration limits

L3.1 For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L3.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L3.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table/s.

Air

POINT 3

Pollutant	Units of measure	100 percentile concentration limit
Chlorine	mg/m3	200

POINT 4

Pollutant	Units of measure	100 percentile concentration limit
Hydrogen chloride	mg/m3	30

POINT 8

Pollutant	Units of measure	100 percentile concentration limit
1,2-Dichloroethane	ppm	128
Volatile organic compounds	ppm	150
Vinyl chloride	ppm	41

POINT 9

Pollutant	Units of measure	100 percentile concentration limit
1,2-Dichloroethane	mg/m3	8 Note 1
Chlorine	mg/m3	30
Nitrogen Oxides	mg/m3	400
Volatile organic compounds	mg/m3	10 Note 1
Hydrogen Sulfide	mg/m3	2
Dioxins & Furans	ng/m3	0.1 Note 2
Hydrogen chloride	mg/m3	30
Sulphur dioxide	mg/m3	100
Vinyl chloride	ppm	10
Solid Particles	mg/m3	20
Carbon monoxide	mg/m3	100

POINT 23

Pollutant	Units of measure	100 percentile concentration limit
Hydrochloric Acid (HCl)	mg/m3	30

POINT 25

Pollutant	Units of measure	100 percentile concentration limit
Mercury	ug/m3	30

POINTS 26,27,28

Pollutant	Units of measure	100 percentile concentration limit
Cadmium	mg/cubic metre	0.1
Hexachlorobenzene	mg/cubic metre	0.002
Mercury	mg/cubic metre	0.1
Volatile organic compounds	mg/cubic metre	10
Dioxins & Furans	ng/m3	0.1
Hazardous substances	mg/cubic metre	0.5
Total solids	mg/cubic metre	10
Hexachlorobutadiene	mg/cubic metre	0.21
Hexachloroethane	mg/cubic metre	9.7

Environment Protection Licence

Licence - 2148

Water and Land

POINT 11

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile Concentration Limit
1,2-Dichloroethane	mg/L				1.9
Arsenic	mg/L				0.013
Cadmium	mg/L				0.001
Carbon tetrachloride	mg/L				0.24
Copper	mg/L				0.01
Iron	mg/L				0.3
Lead	mg/L				0.0034
Manganese	mg/L				1.9
Mercury	mg/L				0.0005
Nickel	mg/L				0.011
pH	pH				6.5-8.5
Reactive Phosphorus	mg/L				0.05
Temperature	oC				15-25
Tetrachloroethene (tetrachloroethylene)	mg/L				0.07
Nitrogen (total)	mg/L				5 Note 4
Phosphorus (total)	mg/L				0.1Note 3
Trichloroethene (Trichloroethylene)	mg/L				0.33
Turbidity	NTU				10 Note 3
Zinc	mg/L				0.01
Nitrate + nitrite (oxidised nitrogen)	mg/L				0.1Note3
Benzene	mg/L				0.95
Chloroform	mg/L				0.37
Toluene	mg/L				0.18
Vinyl chloride	mg/L				0.1
Biochemical oxygen demand	mg/L				10
Chromium (total)	mg/L				0.01
Total residual chlorine	mg/L				0.1
NH3-N	mg/L				4.6Note 4

Note: The above air pollutant concentration limits apply to the stack emissions prior to the addition of any re-heat air.

Note 1: Expressed as total organic carbon. This should be determined by summing all individual components after being analysed by FTIR.

Note 2: Polychlorinated-dibenzo-p-dioxins (PCDD) and polychlorinated-dibenzofurans (PCDF) as 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD) equivalent calculated in accordance with the procedures included in Part 9, Clause 19 of the POEO (Clean Air) Regulation 2002.

Note 3: For the purposes of the table(s) above, Note 3 means that concentration limits may be subject to review and change once the final details are received on the treatment technology and the design of the discharge structure.

Note 4: For the purposes of the table above, Note 4 means that this concentration limit will be subject to review and change once the licensee has submitted the report as required in Condition U3 (Ammonia Concentration Reduction Strategy).

L3.4 For the concentration limits specified for Point 8 (above), the following reference conditions also apply:

Pollutant	Units of measure	100 percentile concentration limit	Reference Conditions	Averaging Period
Volatile organic compounds	ppm	150	Dry, 273K, 101.3kPa	1 hour
1,2-dichloroethane	ppm	128	Dry, 273K, 101.3kPa	1 hour
Vinyl Chloride	ppm	41	Dry, 273K, 101.3kPa	1 hour

Note 1: The EPA may vary the limits in the above table to those at or approaching best practice. The variation to these limits will apply from the date or dates as may be specified by the EPA by direction issued in accordance with Condition U2.2 of this licence.

L3.5 **Reference Condition**

For the concentration limits specified for Point 9 (above), the following reference conditions also apply:

Pollutant	Units of measure	100 percentile concentration limit	Reference Conditions	Averaging Period

Pollutant	Units of measure	100 percentile concentration limit	Reference Conditions	Averaging Period
1,2-Dichloroethane[1]	mg/m3	8	Dry, 273K, 101.3kPa, 11% O_2	Rolling 1 hour average
Chlorine	mg/m3	30	Dry, 273K, 101.3kPa, 11% O_2	As per test method
Nitrogen Oxides	mg/m3	400	Dry, 273K, 101.3kPa, 11% O_2	Rolling 1 hour average
Volatile organic compounds[1]	mg/m3	10	Dry, 273K, 101.3kPa, 11% O_2	Rolling 1 hour average
Hydrogen Sulfide	mg/m3	2	Dry, 273K, 101.3kPa, 11% O_2	As per test method
Dioxins & Furans[2]	ng/m3	0.1	I-TEQ, Dry, 273K, 101.3kPa, 11% O_2	As per test method
Hydrogen chloride	mg/m3	30	Dry, 273K, 101.3kPa, 11% O_2	Rolling 1 hour average
Sulfur dioxide	mg/m3	100	Dry, 273K, 101.3kPa, 11% O_2	As per test method
Vinyl chloride	ppm	10	Dry, 273K, 101.3kPa, 11% O_2	Rolling 3 hour average
Solid Particles	mg/m3	20	Dry, 273K, 101.3kPa, 11% O_2	As per test method
Carbon monoxide	mg/m3	100	Dry, 273K, 101.3kPa, 11% O_2	Rolling 1 hour average

Note The above limits apply to the stack emissions prior to the addition of any re-heat air.

[1] Expressed as total organic carbon.

[2] Polychlorinated-dibenzo-p-dioxins (PCDD) and polychlorinated-dibenzofurans (PCDF) as 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD) equivalent calculated in accordance with the procedures included in the Protection of the Environment Operations (Clean Air) Regulation 2002.

L3.6 **Reference conditions for Points 26, 27 and 28.**

For the concentration limits specified for Points 26, 27 and 28 (above), the following reference conditions also apply:

Pollutant	Units of measure	100 percentile concentration limit	Reference Conditions
Total solids	mg/m^3	10	Dry, 273K, 101.3kPa
Hazardous substances (aggregate of Sb, As, Be, Cd, Cr, Co, Pb, Mn, Hg, Ni, Se, Sn and V)	mg/m^3	0.5	Dry, 273K, 101.3kPa
Volatile Organic Compounds	mg/m^3	10	Dry, 273K, 101.3kPa
Cadmium	mg/m^3	0.1	Dry, 273K, 101.3kPa
Mercury	mg/m^3	0.1	Dry, 273K, 101.3kPa

Pollutant	Units of measure	100 percentile concentration limit	Reference Conditions
Hexachlorobenzene (HCB)	mg/m^3	0.002	Dry, 273K, 101.3kPa
Hexachlorobutadiene (HCBD)	mg/m^3	0.21	Dry, 273K, 101.3kPa
Hexachloroethane (HCE)	mg/m^3	9.7	Dry, 273K, 101.3kPa
Dioxins and Furans	ng/m^3	0.1	I-TEQ, Dry, 273K, 101.3kPa

Note: For the purpose of monitoring and determining compliance with this condition, 'Dioxins and Furans' are polychlorinated-dibenzo-p-dioxins (PCDD) and polychlorinated-dibenzofurans (PCDF) as 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD) equivalent and calculated in accordance with the procedures included in the Protection of the Environment Operations (Clean Air) Regulation 2002.

L3.7 Thermal Oxidiser and Heat Exchanger Lower Limits

For each monitoring/discharge point or utilisation area specified in the tables below (by point number), the parameter must be equal to or greater than the lower limits specified for that parameter in that table.

Point 10

Parameter	Units of measure	Lower Limit	Averaging period
Temperature	°C	950	Instantaneous

Point 13

Parameter	Units of measure	Lower Limit	Averaging period
Residence time	s	2	Instantaneous

Point 24

Parameter	Units of measure	Lower Limit	Averaging period
Temperature combined	°C	450	Instantaneous

Parameter	Units of measure	Lower Limit	Averaging period
Temperature individual	°C	420	Instantaneous

L3.8 Whenever a combustion failure occurs in the thermal oxidiser, both the Air Stripping Unit and the

Thermal Oxidiser must be shut down and all emissions must cease as soon as safely possible, but in no case later than 10 minutes after the start of the failure.

L4 Volume and mass limits

L4.1 For each discharge point or utilisation area specified below (by a point number), the volume/mass of:

(a) liquids discharged to water; or;

(b) solids or liquids applied to the area;

must not exceed the volume/mass limit specified for that discharge point or area.

Point	Unit of measure	Volume/Mass Limit
11	kL/day	13500

L4.2 For each discharge point or utilisation area specified in the table/s below, the mass of a pollutant discharged at that point, or applied to that area, must not exceed the limits specified for that pollutant in the table.

POINT 8

Air

Pollutant	Units of measure	Mass limit
Volatile organic compound	g per hour	TBD
1,2-dichloroethane	g per hour	TBD
Vinyl Chloride	g per hour	TBD

L4.3 To avoid any doubt, this condition does not authorise the discharge or emission of any other pollutants.

L4.4 For the purposes of the above tables, TBD means 100 percentile load limits to be determined by the EPA after the licensee has submitted the report as required by Conditions E6.2 and E7.2.

L4.5 The EPA may vary the limits in the above table to those at or approaching best practice. The variation to these limits will apply from the date or dates as may be specified by the EPA by direction issued in accordance with Condition U2.2 of this licence.

L5 Waste

L5.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

L5.2 This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if it requires an environment protection licence.

L5.3 Except as provided by any other condition of this licence, only the hazardous and or industrial and/or Group A waste listed below may be treated, processed or reprocessed at the premises.

(a) Ferrous chloride (pickle liquor);

(b) Mercury compounds; and

(c) Waste chemical substances arising from research and development activities.

(d) Halogenated organic solvents;

(e) Residues from industrial waste treatment/disposal operations;

(f) Soils contaminated with a controlled waste;

L5.4 Not applicable.

L5.5 Except as provided by any other condition of this licence, only the hazardous and/or industrial and/or Group A waste listed below may be generated and/or stored at the premises.

(a) Basic solutions or bases in solid form;

(b) Mercury; mercury compounds;

(c) Organic solvents excluding halogenated solvents;

(d) Halogenated organic solvents;

(e) Waste from manufacture, formulation and use of wood-preserving chemicals;

(f) Waste mineral oils unfit for their original intended use;

(g) Waste oil/water, hydrocarbons/water mixtures or emulsions;

(h) Waste substances and articles containing or contaminated with polychlorinated biphenyls ((PCB's), polychlorinated napthalenes (PCN's), polychlorinated terphenyls (PCT's) and/or polybrominated biphenyls (PBB's);

(i) Organohalogenated compounds - other than substances referred to in Appendix 1 of this licence;

(j) Soils contaminated with a controlled waste;

(k) Encapsulated, chemically-fixed, solidified or polymerised wastes;

(l) Residues from industrial waste treatment/disposal operations;

(m) Clinical and related wastes;

(n) Acidic solutions or acids in solid form;

(o) Waste chemical substances arising from research and development activities;

(p) Filter cake;

(q) Containers and drums contaminated with substances in the list in Appendix 1 of this licence; and

(r) Perchlorates.

L6 Noise Limits

L6.1 For the area known as 'Southlands' and the associated wells and reticulation system for the SSU operation the noise limit conditions L6.1.1 to L6.1.4 inclusively, apply:

L6.1.1 The operation of all plant and equipment must not give rise to an equivalent continuous (L_{Aeq}) sound pressure level at any point on any residential property greater than 5dB(A) above the existing background L_{A90} level (in the absence of the noise under consideration).

L6.1.2 The operation of all plant and equipment must not give rise to an LA1, 1minute or LAMax sound pressure level at any point on any residential property greater than 15dB(A) above the existing background LA90 level (in the absence of the noise under consideration) during night time.

L6.1.3 The operation of all plant and equipment when assessed on any residential property must not give rise to a sound pressure level that exceeds LAeq 50dB(A) day/evening time, and LAeq 40 dB(A) night time.

L6.1.4 The operation of all plant and equipment when assessed on any neighbouring commercial/industrial premises must not give rise to a sound pressure level that exceeds LAeq 65dB(A) day/evening time and night time.

Note 1: For assessment purposes, the above L_{Aeq} sound levels must be assessed over a period of 10-15 minutes. The modification factors presented in Section 4 of the NSW Industrial Noise Policy must be applied to the measured noise levels where applicable.

Note 2: The area known as 'Southlands' and the associated wells and reticulation system for the SSU operation is defined by Lot 2 DP 528680; Lot 11, DP 109505; and Lot 1 DP85542 as shown on drawing titled "Botany Site Plan Sub-division Boundary Plots", drawing no. B87201 Rev 12 4/03 and the reticulation layout shown on drawing B96310 RevA dated 15.10.05 submitted to DEC on 4 November 2005.

L6.2 For the operation of the steam stripping unit and associated plant and equipment, located at Botany Industrial Park (BIP) premises the following conditions L6.2.1 to L6.2.3 inclusively apply:

L6.2.1 Noise emissions emanating from all active Plants in the BIP premises, including loading and unloading of material in or above the premises and when determined as a sound level contribution, shall not exceed the following amenity LAeq criteria when measured or computed at any point within one metre of the nearest boundary of any residence in the vicinity of the premises, using the "FAST" response on the sound level meter.

Time of Day	LAeq
Day	65
Evening	55
Night	50

L6.2.2 The intrusive noise criterion for all active plants in the BIP shall be that the LAeq15minute noise levels shall not exceed the amenity LAeq noise levels by more than 5 dB(A) when measured or computed at any point within one metre of the nearest boundary of any residence in the vicinity of the premises, using the "FAST" response on the sound level meter.

L6.2.3 Each existing BIP Plant shall ensure that new or replacement equipment is selected and/or installed so that no increase in noise emissions is thereby created when measured or computed at any point within one metre of the nearest boundary of any residence in the vicinity of the premises, using the "FAST" response on the sound level meter.

Note 3: The operation of the steam stripping unit and associated plant and equipment, located at Botany Industrial Park (BIP) premises is defined by all Lot and DPs, excluding the 'Southlands' area, listed on "Botany Site Plan Sub-division Boundary Plots", drawing no. B87201 Rev 12 4/03).

L6.3 A report for all BIP Licences (L7494 Huntsman Corporation; L 2148 Orica Pty Ltd and L10000 Qenos Pty Ltd) demonstrating compliance with the noise conditions listed at Condition L6.1 to L6.2 must be appended to the Annual Return for Qenos L10000.

L6.4 Noise generated by activities associated with the Groundwater Cleanup Project, other than those accepted by the DEC as being "construction" at the premises must not exceed the noise goal level presented in the Table 6.4 below:

Table 6.4 - Noise Design Goal Limits (dB(A))

Location	Day	Evening	Night
	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$
Nearest affected receivers	*35 dB(A)*	*35 dB(A)*	*35 dB(A)*

surrounding the Groundwater Cleanup Project			

L6.5 For the purpose of Condition L6.1, L6.2 and L6.4:

- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays,
- Evening is defined as the period from 6pm to 10pm, and
- Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays

L6.6 Noise from the premises is to be measured at the most affected point on or within the residential boundary to determine compliance with the LAeq(15 minute) noise limits in condition L6.4.

Where it can be demonstrated that direct measurement of noise from the premises is impractical, the EPA may accept alternative means of determining compliance. See Chapter 11 of the NSW Industrial Noise Policy.

The modification factors presented in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise level where applicable

L6.7 The noise emission limits identified in condition L6.4 apply under meteorological conditions of:

- wind speeds up to 3 m/s at 10 metres above ground level; or
- temperature inversion conditions of up to 3^{o}C/100m and wind speeds up to 2m/s at 10 metres above ground level.

L6.8 **Hours of operation – Construction**

All construction work at the premises must only be conducted between 7:00am to 6:00pm Monday to Friday, 8:00am to 1:00pm Saturdays, with no construction activities on Sundays or Public Holidays. Construction is permitted any time if it is not audible at the nearest affected receivers. Audible means that it can be heard by a person at the nearest affected receivers.

L6.9 Activities at the premises, other than construction work, that meet the noise goal provided in L6.4 may be conducted on a continuous basis.

L6.10 The following activities may be carried out at the premises outside the hours specified in conditions L6.8:

(a) the delivery of materials as requested by Police or other authorities for safety reasons; and
(b) emergency work to avoid the loss of lives, property and/or to prevent environmental harm.

L7 Polychlorinated Biphenyls (PCBs)

Note: The licensee must comply with the conditions as specified in this licence or where no specific conditions are outlined in this licence, the licensee must comply with the "Chemical Control Order in Relation to Materials and Wastes Containing Polychlorinated Biphenyl, 1997".

4 Operating conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:
(a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
(b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
(a) must be maintained in a proper and efficient condition; and
(b) must be operated in a proper and efficient manner.

O3 Emergency Response

O3.1 Within 3 months of the date of the issue of this licence, the licensee must develop, or update, an emergency response plan which documents the procedures to deal with all types of incidents (eg spill, explosions or fire) that may occur at the premises or outside of the premises (eg during transfer) which are likely to cause harm to the environment.

O4 Processes and management

O4.1 The licensee must ensure that all liquid and/or non-liquid waste generated and/or stored and/or treated and/or on the premises is assessed and classified in accordance with the Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes (DEC 2004) or any future guideline that may supersede that document.

O4.2 The licensee must ensure that waste identified for recycling is stored separately from other waste.

O4.3 All above ground tanks containing material that is likely to cause environmental harm must be bunded or have an alternative spill containment system in-place.

O4.4 The licensee must ensure that suitable measures (e.g. high/low alarms, control valves with interlock control, one way valves) are installed on all tanks, ponds or clarifiers and associated pipes and hoses to prevent the spillage of waste.

O5 Asbestos Wastes

O5.1 The licensee must manage any asbestos or asbestos-contaminated materials that may be uncovered during the construction, commissioning and operation of all activities undertaken at the premises strictly in accordance with the requirements under the *Protection of the Environment Operations (Waste) Regulation 2005* and any guidelines or requirements issued by the EPA in relation to those materials.

O6 Odour

O6.1 The licensee must not cause, permit or allow the emission of offensive odour beyond the boundary of the premises.

O6.2 No condition of this licence identifies a potentially offensive odour for the purposes of Section 129 of the Protection of the Environment Operations Act 1997.

O7 Steam Stripper Unit and associated groundwater piping system emissions

O7.1 The licensee must operate the Steam Stripping Unit and associated groundwater transfer system plant at all times to minimise the concentration and mass of total VOCs, 1-2 dichloroethane and vinyl chloride emissions.

O8 Dust

O8.1 Activities occurring at the premises must be carried out in a manner that will minimise emissions of dust from the premises.

O8.2 Loaded trucks must be covered at all times, except during loading and unloading of material.

O9 Stormwater management – construction phase

O9.1 An Environment Management Plan or Sediment Control Plan (ESCP) must be prepared and implemented. A copy of the ESCP must be submitted to the Manager Sydney Industry at PO box 668 Parramatta NSW 2124 preferably **prior to the commencement of any construction works and in any case within 14 days of the commencement of construction works.** The plan must describe the measures that will be employed to minimise soil erosion and the discharge of sediment and other pollutants to lands and/or waters during construction activities. The EMP and ESCP should be prepared in accordance with the requirements for such plans such as those outlined in Guidelines for Preparation of EMPs Final Draft Aug 2003 (available from DIPNR); and Managing

Urban Stormwater: Soils and Construction (available from the Department of Housing) respectively.

O9.2 A dewatering and spill plan must be prepared and implemented. A copy of the plan must be submitted to the Manager Sydney Industry at PO box 668 Parramatta NSW 2124 preferably **prior to the commencement of any construction works and in any case within 14 days of the commencement of construction works.** The plan must describe the measures that will be employed to prevent pollution of waters and achieve best practice for dewatering and spill management activities during construction works.

O9.3 An acid sulfate management plan must be prepared and implemented. A copy of the plan must be submitted to the Manager Sydney Industry at PO box 668 Parramatta NSW 2124 preferably **prior to the commencement of any construction works and in any case within 14 days of the commencement of construction works.** The plan must describe the measures that will be employed to detect the presence of acid sulfate soils and the management of excavation activities where acid sulfate soils are detected The plan must be developed to achieve best practice for acid sulfate soil management during construction works.

O10 Stormwater management – operation phase

O10.1 A Stormwater Management Scheme (SWMP) must be prepared for the development and must be implemented. A copy of the SWMP **must be submitted to the Manager Sydney Industry at PO Box 668 Parramatta NSW 2124 at least 28 days** prior to the commencement of normal operations. Implementation of the Scheme must mitigate the impacts of stormwater run-off from and within the premises following the completion of construction activities. The Scheme should be consistent with the Stormwater Management Plan for the catchment. Where a Stormwater Management Plan has not yet been prepared the Scheme should be consistent with the guidance contained in Managing Urban Stormwater: Council Handbook (available from the EPA).

O10.2 A spill management plan must be prepared and implemented. A copy of the plan **must be submitted to the Manager Sydney Industry at PO Box 668 Parramatta NSW 2124 at least 28 days** prior to the commencement of normal operations. The plan must describe the measures that will be employed to prevent pollution of waters and achieve best practice for spill management activities during operations. In particular, the plan must address management practices associated with the proposed truck loading facility and the EPA's bunding requirements for such facilities.

O11 Thermal Oxidiser Operating Conditions

O11.1 The licensee must revert to an uncontaminated feed to the GTP as soon as the temperature at the heat exchanger unit (point 24) falls below:
(i) 420 ^{o}C during normal operation for individual thermocouple readings; or
(ii) 450 ^{o}C for readings measuring the combined flow.

O11.2 The licensee must make further adjustments to the gas flows in the heat exchanger to ensure that the temperature is maintained at all times above 420 ^{o}C for each individual thermocouple during normal operation.

O11.3 The licensee must revert to an uncontaminated feed to the GTP as soon as the temperature at the thermal oxidiser (point 10) falls below 950 ^{o}C during normal operation.

Note: The DEC intends to review the minimum operating temperatures once the plant performance is demonstrated.

5 Monitoring and recording conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
(a) in a legible form, or in a form that can readily be reduced to a legible form;
(b) kept for at least 4 years after the monitoring or event to which they relate took place; and
(c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
(a) the date(s) on which the sample was taken;
(b) the time(s) at which the sample was collected;
(c) the point at which the sample was taken; and
(d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

POINT 3

Pollutant	Units of measure	Frequency	Sampling Method
Chlorine	mg/m3	Continuous	In line instrumentation

POINT 4

Pollutant	Units of measure	Frequency	Sampling Method
Hydrogen chloride	mg/m3	Quarterly	Method approved in writing by the Authority

POINT 7

Pollutant	Units of measure	Frequency	Sampling Method
Chlorine	mg/m3	Continuous	In line instrumentation

POINT 8

Pollutant	Units of measure	Frequency	Sampling Method
1,2-Dichloroethane	ppm	Daily	TM-34
Moisture	%	Daily	TM-22
Speciated organic compounds	mg/m3	Quarterly	TM-34
Temperature	oC	Daily	TM-2
Vinyl chloride	ppm	Daily	TM-34
Volatile organic compounds	ppm	Daily	TM-34
Volumetric flowrate	m3/s	Daily	By Calculation (volume flow rate or pump capacity multiplied by operating time)

POINT 9

Pollutant	Units of measure	Frequency	Sampling Method
1,2-Dichloroethane	mg/m3	Special Frequency 13	CEM-10
Carbon monoxide	mg/m3	Special Frequency 13	CEM-4
Chlorine	mg/m3	Quarterly	TM-7 & TM-8
Dioxins & Furans	ng/m3	Special Frequency 2	TM-18
Dry gas density	kg/m3	Quarterly	TM-23
Hydrogen Sulfide	mg/Nm3	Quarterly	TM-5
Hydrogen chloride	mg/m3	Special Frequency 13	CEM-10
Moisture content	%	Special Frequency 13	TM-22
Molecular weight of stack gases	g/g-mole	Quarterly	TM-23
Nitrogen Oxides	mg/m3	Quarterly	TM-11
Oxygen (O2)	%	Continuous	CEM-3
Solid Particles	mg/m3	Special Frequency 3	TM-15
Sulphur dioxide	mg/m3	Special Frequency 3	TM-4
Temperature	oC	Continuous	TM-2
Velocity	m/s	Continuous	CEM-6
Vinyl chloride	ppm	Special Frequency 13	CEM-10
Volatile organic compounds	mg/m3	Special Frequency 13	CEM-10
Volumetric flowrate	m3/s	Continuous	CEM-6

POINT 10

Pollutant	Units of measure	Frequency	Sampling Method
Temperature	oC	Continuous	TM-2

POINT 13

Pollutant	Units of measure	Frequency	Sampling Method
Volumetric flowrate	m3/s	Continuous	CEM-6

POINT 14

Pollutant	Units of measure	Frequency	Sampling Method
1,2-Dichloroethane	mg/L	Weekly	Special Method 2
Arsenic	mg/L	Weekly	24 hour composite sample
Benzene	mg/L	Weekly	Special Method 2
Biochemical oxygen demand	mg/L	Weekly	24 hour composite sample
Cadmium	mg/L	Weekly	24 hour composite sample
Carbon tetrachloride	mg/L	Weekly	Special Method 2
Chloroform	mg/L	Weekly	Special Method 2
Chromium (total)	mg/L	Weekly	24 hour composite sample
Copper	mg/L	Weekly	24 hour composite sample
Iron	mg/L	Weekly	24 hour composite sample
Lead	mg/L	Weekly	24 hour composite sample
Manganese	mg/L	Weekly	24 hour composite sample
Mercury	mg/L	Weekly	24 hour composite sample
Nickel	mg/L	Weekly	24 hour composite sample
Nitrate + nitrite (oxidised nitrogen)	mg/L	Weekly	24 hour composite sample
Nitrogen (ammonia)	mg/L	Weekly	24 hour composite sample
Nitrogen (total)	mg/L	Weekly	24 hour composite sample
Phosphorus (total)	mg/L	Weekly	24 hour composite sample
Reactive Phosphorus	mg/L	Weekly	24 hour composite sample
Tetrachloroethene (tetrachloroethylene)	mg/L	Weekly	Special Method 2
Toluene	mg/L	Weekly	Special Method 2
Total residual chlorine	mg/L	Weekly	Special Method 7
Trichloroethene (Trichloroethylene)	mg/L	Weekly	Special Method 2
Turbidity	NTU	Weekly	24 hour composite sample
Vinyl chloride	mg/L	Weekly	Special Method 2
Zinc	mg/L	Weekly	24 hour composite sample
pH	pH	Weekly	24 hour composite sample

POINT 15

Pollutant	Units of measure	Frequency	Sampling Method
Conductivity	uS/cm	Continuous	In line instrumentation

POINT 16

Pollutant	Units of measure	Frequency	Sampling Method
Temperature	oC	Continuous during discharge	In line instrumentation

POINT 22

Pollutant	Units of measure	Frequency	Sampling Method
Conductivity	uS/cm	Special Frequency 10	Grab sample
Sulfide (total)	mg/L	Special Frequency 11	Grab sample
Temperature	oC	Special Frequency 10	Grab sample
pH	pH	Special Frequency 10	Grab sample

POINT 23

Pollutant	Units of measure	Frequency	Sampling Method
Hydrochloric Acid (HCl)	mg/m3	Special Frequency 12	Special Method 5

POINT 24

Pollutant	Units of measure	Frequency	Sampling Method
Temperature	oC	Continuous	TM-2

POINT 25

Pollutant	Units of measure	Frequency	Sampling Method
Mercury	ug/m3	Daily	24 hour composite sample

POINTS 26,27,28

Pollutant	Units of measure	Frequency	Sampling Method
Cadmium	mg/cubic metre	Special Frequency 14	TM-14
Dioxins & Furans	ng/m3	Special Frequency 14	TM-18
Hazardous substances	mg/cubic metre	Special Frequency 14	TM-12 & TM-13
Hexachlorobenzene	mg/cubic metre	Special Frequency 15	TM-34
Hexachlorobutadiene	mg/cubic metre	Special Frequency 15	TM-34
Hexachloroethane	mg/cubic metre	Special Frequency 15	TM-34
Mercury	mg/cubic metre	Special Frequency 14	TM-14
Total solids	mg/cubic metre	Special Frequency 14	TM-15
Volatile organic compounds	mg/cubic metre	Special Frequency 15	TM-34

POINTS 29,30,31,32

Pollutant	Units of measure	Frequency	Sampling Method
Volatile organic compounds	mg/cubic metre	Continuous	Special Method 6

POINTS 33,34,35,36

Pollutant	Units of measure	Frequency	Sampling Method
Volatile organic compounds	mg/cubic metre	Special Frequency 15	TM-34

M2.2 For the purpose of the table(s) above:

- Emission monitoring for hydrogen chloride in point 4 must be undertaken when the burner is on line at such a steady rate as will facilitate sampling in accordance with the EPA's letter dated 20 August 2002.

- Emission monitoring for hydrogen chloride is TM 7 & TM 8 using site specific variations as outlined in the EPA's letter dated 20 August 2002 or any other methods approved in writing by the EPA.

- **Special Frequency 1** means samples must be collected and analysed continuously and reference samples must also be collected and analysed on a quarterly basis.

- **Special Frequency 2** is defined as monitoring monthly for the first 6 months and bimonthly

thereafter. This monitoring frequency could be reviewed after 2 years of normal operations of the plant.

- **Special Frequency 3** is defined as monitoring monthly for the first 6 months and quarterly thereafter. This monitoring frequency could be reviewed after 2 years of normal operations of the plant.

- **Special Frequency 4** is defined as monitoring continuously for the first two weeks. This monitoring frequency could be reviewed following assessment of results of the first two weeks.

- **Special Frequency 5** is defined as monitoring daily for first two weeks then weekly thereafter. This monitoring frequency could be reviewed following assessment of results of the first two weeks.

- **Special Frequency 6** is defined as monitoring continuously for the first two weeks only. This monitoring frequency could be reviewed following assessment of results of the first two weeks.

- **Special Frequency 7** is defined as monitoring daily for the first week then twice during the second week. This monitoring frequency could be reviewed following assessment of results of the first two weeks.

- **Special Frequency 8** is defined as monitoring daily for the first two weeks only. This monitoring frequency could be reviewed following assessment of results of the first two weeks.

- **Special Frequency 9** is defined as conducting a study (prepared using 5 individual samples) on one day prior to commencing discharge and then another 2 studies (prepared using 5 individual samples for each) during discharge. The two later studies would be conducted on a day in both the first and second weeks of discharge to Springvale drain.

- **Special Frequency 10** is defined as monitoring daily for the first two weeks only. This monitoring frequency could be reviewed following assessment of results of the first two weeks.

- **Special Frequency 11** is defined as monitoring daily for the first week and then twice in the second week. This monitoring frequency could be reviewed following assessment of results of the first two weeks.

- **Special Frequency 12** is defined as monitoring during the initial transfer of material to the storage tank.

- **Special Frequency 13** is defined as monitoring continuously at all times except when the Fourier Transform Infrared Spectrometer (FTIR) is taken off-line for service, repair, maintenance and/or calibration purposes only. During this off-line period, monitoring must be carried out on a daily basis for 1-hour composite samples in accordance with the EPA's Approved Methods. In these exceptional circumstances, the licensee may use the in-house laboratory for analysis of these samples.

- **Special Frequency 14**

  a) **For Store J**, is defined as monitoring on the same day of every week, and after three

consecutive rounds of monitoring show that no parameter listed for Points 26, 29, 30, 33 and 34 has exceeded its limit (including parameters monitored other than that at special frequency 14), thereafter special frequency 14 reverts to monitoring every quarter. Special frequency 14 may be reviewed by the EPA from time to time based on the results of monitoring of parameters for Store J.

b) **For Store E,** is defined as monitoring on every 5th working day of operation for Points 28, 32 and 36. Special frequency 14 may be reviewed by the EPA from time to time based on the results of monitoring of parameters for Store E.

c) **For Store H**, is defined as monitoring on every 5th working day of operation for Points 27, 31 and 35. Special frequency 14 may be reviewed by the EPA from time to time based on the results of monitoring of parameters for Store H.

- **Special Frequency 15**

a) **For Store J**, is defined as monitoring on the same day of every week, and after three consecutive rounds of monitoring show that no parameter listed for Points 26, 29, 30, 33 and 34 has exceeded its limit (including parameters monitored other than that at special frequency 15), thereafter special frequency 15 reverts to monitoring every quarter. Special frequency 15 may be reviewed by the EPA from time to time based on the results of monitoring of parameters for Store J.

d) **For Store E,** is defined as monitoring on every 5th working day of operation for Points 28, 32 and 36. Special frequency 15 may be reviewed by the EPA from time to time based on the results of monitoring of parameters for Store E.

e) **For Store H**, is defined as monitoring on every 5th working day of operation for Points 27, 31 and 35. Special frequency 15 may be reviewed by the EPA from time to time based on the results of monitoring of parameters for Store H.

- **Special Method 1** means continuous monitoring and analysis for 1,2-dichloroethane and vinyl chloride is CEM-10 while the quarterly method for 1,2-dichloroethane is OM-2 and the quarterly method for vinyl chloride is OM-2 or USEPA Method 106.

- **Special Method 2** means taking three (3) grab samples in any 24-hour period once per week. The result will be obtained by mathematically averaging the results of three grab samples after being analysed individually.

- **Special Method 3** means weekly analysis of a prepared composite sample obtained from 3 grab samples taken over a 24-hour period.

- **Special Method 4** means is defined as conducting a study (prepared using 5 individual samples) on one day prior to commencing discharge and then another 2 studies (prepared using 5 individual samples for each) during discharge. The two later studies would be conducted on a day in both the first and second weeks of discharge to Springvale drain.

- **Special Method 5** means that a single sample is taken in the centre of the stack, but with the sampling velocity adjusted to match the stack velocity. This special method should align as close as practicable with the test method TM-8.

- **Special Method 6** means CEM-8, CEM-9 or CEM-10 (as defined in *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW. EPA 2005*), or a continuous monitoring method otherwise approved by the EPA.

- **Special Method 7** means taking three (3) grab samples in any 24-hour period once per week. Each grab sample must be analysed on-site within minutes of the sample being collected as per Approved Methods. The result will be obtained by mathematically averaging the individual results of three grab samples.

M2.3 At Point 4, the licensee is required to take a grab sample during 4 startups and shutdowns to determine the concentration of HCl emissions during startup or shutdown conditions. In these circumstances, the licensee may use the in-house HCl sampling method.

M2.4 Monitoring positions used for determining the concentration and mass of pollutants discharged from Point 8 must comply with TM-1.

M2.5 In relation to monitoring requirements for Point 8, a performance specification test must be conducted for all continuous emissions monitoring systems at the time of installation, or soon after, and thereafter on a quarterly basis. The quarterly tests must be conducted at least two months apart for each continuous emissions monitoring system and in accordance with the requirements of the applicable CEMS protocol. The results of all performance specification tests must be submitted to the EPA within one month after completion of the tests.

M2.6 The number and location of the points at which the above monitoring must be performed will be specified by the EPA after submission of the report specified by Condition E7.2.

M2.7 As a minimum, the above monitoring must be performed at the common stack discharge point from the vapour recovery units attached to the steam stripper unit.

Note: Additional monitoring may be specified for other monitoring and/or discharge points as may be determined by the EPA to be appropriate based upon the information provided in reports provided in accordance with Conditions E6.2 and E7.2.

M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:

(a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or

(b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or

(c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing

taking place.

Note: The Protection of the Environment Operations (Clean Air) Regulation 2002 requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Recording of pollution complaints

M4.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M4.2 The record must include details of the following:
(a) the date and time of the complaint;
(b) the method by which the complaint was made;
(c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
(d) the nature of the complaint;
(e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
(f) if no action was taken by the licensee, the reasons why no action was taken.

M4.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M4.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M5 Telephone complaints line

M5.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M5.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M5.3 Conditions M5.1 and M5.2 do not apply until 3 months after:
(a) the date of the issue of this licence or
(b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

M6 Requirement to monitor volume or mass

M6.1 For each discharge point or utilisation area specified below, the licensee must monitor:

(a) the volume of liquids discharged to water or applied to the area;
(b) the mass of solids applied to the area;
(c) the mass of pollutants emitted to the air;

at the frequency and using the method and units of measure, specified below.

POINT 16

Frequency	Unit Of Measure	Sampling Method
Continuous during discharge	kL/day	Magnetic flow meter

M6.2 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the mass of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

POINT 8

Pollutant	Units of measure	Frequency	Sampling Method
Volatile organic compound	g per hour	Continuous	CEM-10
1,2-dichloroethane	g per hour	Continuous	CEM-10
Vinyl Chloride	g per hour	Continuous	CEM-10
Speciated Organic Compounds	g per hour	Quarterly	TM-34

M6.3 The number and location of the points at which the above monitoring must be performed will be specified by the EPA after submission of the report specified by Condition E7.2.

M6.4 As a minimum, the above monitoring must be performed at the common stack discharge point from the vapour recovery units attached to the steam stripper unit.

M7 Weather monitoring

M7.1 For each monitoring point specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the parameter specified in Column 1. The licensee must

use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns:

POINT 12

Parameter	Units of measure	Averaging period	Frequency	Sampling Method
Wind speed @ 10 m	m/s	1 hour	Continuously	AM-2 & AM-4
Wind direction @ 10 m	°	1 hour	Continuously	AM-2 & AM-4
Sigma Theta @ 10 m	°	1 hour	Continuously	AM-2 & AM-4
Additional Requirements				
Siting				AM-1 & AM-4
Measurement				AM-2 & AM-4

Note: Due to technical and topographical difficulties associated with the installation of the weather monitoring station, the licensee is required to align as close as possible to the sampling methods included in this condition for point 12.

6 Reporting conditions

R1 Annual return documents

What documents must an Annual Return contain?

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
(a) a Statement of Compliance; and
(b) a Monitoring and Complaints Summary.
A copy of the form in which the Annual Return must be supplied to the EPA accompanies this licence. Before the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

Period covered by Annual Return

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
(a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
(b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
(a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
(b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

Deadline for Annual Return

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

Notification where actual load can not be calculated

R1.6 Not applicable.

Licensee must retain copy of Annual Return

R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

Certifying of Statement of Compliance and signing of Monitoring and Complaints Summary

R1.8 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
(a) the licence holder; or
(b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.9 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

R2 Notification of environmental harm

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.1 Notifications must be made by telephoning the EPA's Pollution Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
(a) where this licence applies to premises, an event has occurred at the premises; or
(b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
(a) the cause, time and duration of the event;
(b) the type, volume and concentration of every pollutant discharged as a result of the event;
(c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
(d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
(e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
(f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
(g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

General conditions

G1 Copy of licence kept at the premises

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

G2 Signage

G2.1 Each monitoring and discharge point, located within the premises as defined in this licence, must be clearly marked by a sign that indicates the EPA point identification number used in this licence

and be located as close as practical to the point.

Pollution studies and reduction programs

Pollution Reduction Programs (PRPs) – Completed

PRP No	PRP	Description	Completed Date
1	U1	Noise Pollution reduction Program	December 2001
2	U2	Stormwater Pollution Reduction Program	Ongoing
3	U3	Steam Stripper Unit Optimisation Plan	30/09/04
4	U4	Steam Stripper Unit Optimisation	24/12/04
5	U5	Best Practice Benchmarking for Steam Stripper Unit	24/12/04
6	U6	Measures to achieve world's best practice	29/03/05
7	U7	Requirement to achieve world's best practice	Ongoing
8	U8	Air Stripping Unit	24/03/05

U1 Stormwater Pollution Reduction Program

U1.1 A continuous improvement program must be implemented to address issues associated with the stormwater system on any part of the premises. The stormwater improvement program must be consistent with the Botany Industrial Park stormwater improvement plan.

U1.2 A report must be forwarded to the EPA annually as an attachment to the Qenos P/L (Environment Protection Licence No. 10000) annual return, that details the following:

a) Issues associated with the stormwater system
b) Programs that have been and will be implemented to address areas requiring attention
c) Progress made towards the goals outlined in the stormwater improvement plan.

U2 Requirement to achieve worlds best practice

U2.1 **Objective**

The objective of this PRP is to ensure that emissions of 1,2-dichloroethane and vinyl chloride from the SSU satisfy or are close to satisfying worlds best practice should the SSU be required to operate beyond 31 December 2005 or sooner provided that it remains within two weeks from completion of GTP commissioning.

U2.2 **Issuing of a Direction to Improve SSU Performance towards Best Practice**

Based upon the report submitted to the EPA as required by Condition U4.2, the EPA may direct the licensee to undertake any necessary works to upgrade the SSU so that emissions of 1,2-dichloroethane and vinyl chloride achieve emission values approaching or able to achieve worlds best practice emission values within a timetable specified in accordance with this condition.

Under this direction, the EPA may also vary the licence limits as specified in Condition L3.6 and L4.5 from a date or dates as may be specified in the direction issued under this Condition.

U3 Ammonia Concentration Reduction Strategy

U3.1 Objective

The objective of this Pollution Reduction Program (PRP) is to reduce ammonia concentrations in the treated effluent of the Groundwater Treatment Plant at Point 11 to achieve the protection of aquatic ecosystems (95 percent species protection) in both the Perry Street Canal System and Botany Bay based on the ANZECC and ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* ('the ANZECC Guidelines').

For the purposes of this condition, the Perry Street Canal System is defined as the stormwater drainage system from the point near the intersection of Flack Avenue and Beauchamp Road Hillsdale (UBD Map Ref 276 M16) downstream to Brotherson Dock (including all associated formed channel structures, weirs and culverts) and the drainage system downstream of Discharge Point 11.

U3.2 Ammonia Concentration Reduction Report

On or before 1 September 2007, the licensee must develop and submit an Ammonia Concentration Reduction Report to the Manager Sydney Industry at PO Box 668 Parramatta NSW 2124.

This report must include, but not be limited to, the following:

a) an assessment of options that can be implemented by the licensee to achieve the objective set out in Condition U3.1;
b) based on the results of a), recommendations on the option(s) to be implemented by the licensee; and
c) timeframes for the implementations of the above options.

Note: Following the receipt of the above Ammonia Concentration Reduction Report, additional licence conditions may be added to the licence to require implementation of the options to achieve the objective in condition U3.1.

Special conditions

Preamble

a) The timeline provided in E3 is based on remediation of the Car Park Waste using one of the three methods described therein. Bioremediation of the Car Park Waste is not included. The licensee intends to develop a bioremediation solution in parallel with progressing development of a thermal treatment project. The timeline provided for the remediation of the CPWE may be modified depending on the information received from the EBCRC Bioremediation of Contaminated Sites project.

b) The timeline provided in E3 is based on treatment of an estimated volume of material, as defined in 'Stage 1 – Basis of Design' report prepared by Thiess Services Pty Ltd, GHD Pty Ltd and Focus Environmental Inc (March, 2005). Should the volume of material, required to be treated and/or disposed, increase or decrease the timeline may be modified.

c) Should the results of the current monitoring program indicate that more timely attention is required by Orica, the timeline provided for the remediation works may be modified.

d) The timeline provided in E3 is based on early community acceptance of a thermal treatment option. Based on previous experience the licensee has expressed to the Department of Environment and Conservation (DEC), its concerns about the approval process and the licensee's ability to have the proposal approved in a timely manner. An extension may be required if this will assist project approval and ultimately lead to a shorter implementation time.

e) For the purposes of all special condition(s) in Section E:

- '**Impacted materials'** is defined as: any materials contaminated by hexachlorobutadiene (HCBD) and/or associated compounds, within the immediate vicinity of the Car Park Waste Encapsulation cell.

- **'Car Park Waste Encapsulation (CPWE)' or 'HCB encapsulation cell'** is defined as: the encapsulation cell that lies beneath the car park on the North East boundary of the Botany Industrial Park (BIP) as shown on map Fig 4.1 from "HCB Encapsulation Groundwater Monitoring Report No 7" dated 28 August 2003.

- **'EBCRC'** is defined as: the Environmental Biotechnology Cooperative Research Centre (EBCRC). The EBCRC is carrying out the Bioremediation of Contaminated Sites project for the Car Park Waste and Impacted Materials.

- **'Car Park Waste'** is defined as: Approximately 45 000 cubic metres of a mixture of sand and coal ash containing hexachlorobenzene (HCB) and other chlorinated materials including HCBD, interred under a paved car park area containing approximately 0.18% of HCB and other chlorinated materials (Ref.: Hexachlorobenzene Waste Management Plan, Australian and New Zealand Environment Conservation Council (ANZECC), 1996).

- **'Remediation'** is defined as:

  (a) preparing a long-term management plan (if any) for the land, and

  (b) removing, destroying, reducing, mitigating or containing the contamination of the land, and

  (c) eliminating or reducing any hazard arising from the contamination of the land (including by preventing the entry of persons or animals on the land).

  Reference: Contaminated Land Management Act 1997 No 140

Note: (i) in this context "land" includes the Car Park Waste and Impacted Materials; (ii) the Scheduled Chemical Waste Chemical Control Order (CCO) does not permit 'dispersion' to meet limits; and (iii) the aim of these works also includes protection of groundwater.

Special Conditions – Issues/Programs Completed

SC No	SC	Description	Completed Date
1	E1	Delineation and remediation of the source of HCBD and associated compounds in the vicinity of HCB encapsulation cell (Partially completed)	23/04/2004
2	E2	Remediation of Car Park Waste and Impacted Materials	Ongoing
3	E3	Timetable for Remediation of Car Park Waste and Impacted Materials	Ongoing
4	E4	Progress reporting on remediation works to remove the source of HCBD and associated compounds – **new condition replaces former condition E2**	Ongoing
5	E5	Ongoing monitoring to confirm the integrity of the Car Park Waste Encapsulation (CPWE) – **new condition replaces former condition E3**	Ongoing
6	E6	Completion reporting	Ongoing
7	E7	Proposals for future works – **new condition replaces former condition E4**	01/12/2004
8	E8	Supply of air quality modeling report of air emissions – **new condition replaces former condition E5**	24/12/2004
9	E9	Emission Limits Based upon minimum plant performance – **new condition replaces former condition E6**	30/09/2004
10	E10	Emission monitoring plan – **new condition replaces former condition E7**	30/09/2004
11	E11	Emergency release emission management plan – **new condition replaces former condition E8**	30/09/2004
12	E12	Audits and Reviews	Ongoing
13	E13	Independent Monitoring Committee	Ongoing
14	E14	Financial Assurance	Ongoing
15	E15	In-Situ Bioremediation Pilot Scale Field Trial in Car Park Waste Encapsulation (CPWE) soil 2005/2006	Ongoing
16	E16	Modifications to the Thermal Oxidiser and Heat Exchanger Serving the Groundwater Treatment Plant	Ongoing

E1 Delineation and remediation of the source of Hexachlorobutadiene (HCBD) and associated compounds in the vicinity of the Hexachlorobenzene (HCB) encapsulation cell

E1.1 By **23 April 2004**, the licensee must submit a report to Manager Sydney Industry, PO Box 668 Parramatta 2124 containing the following information:

(a) A summary of all groundwater and soil sampling results to date relating to HCBD and associated compounds within the vicinity of the area known as the HCB encapsulation cell. All sampling methodology, analytical QA/QC results associated with the sampling and detection of HCBD and associated compounds must be included.

(b) An interpretation of those results to determine the extent of soil and groundwater contamination by HCBD and associated compounds, within the vicinity of the area known as the HCB car park encapsulation.

(c) An assessment of risk and classification of the impacted materials, as a waste material and with regard to potential for movement of groundwater contamination and environmental impacts off-site.

(d) Details of and justification for the remediation works option(s) proposed to remove and/or minimise the risks identified in condition E1.1 (c) above including timetables for completion of works, including further investigations as required to enable confirmation of the contamination mechanism to enable selection of effective remediation works option(s). This may include but is not limited to the option of removal and appropriate storage and/or disposal of all or part of the impacted materials in accordance with NSW waste regulations.

E2 Remediation of Car Park Waste and Impacted Materials

E2.1 By February 2006, the licensee must submit a report to Manager Sydney Industry, Department of Environment and Conservation, PO Box 668, Parramatta 2124, containing the following information:

(a) The preferred remediation option identified to remove and/or minimise the risks associated with the Car Park Waste and Impacted Materials. This may include but is not limited to the option of removal and appropriate storage with the agreement of the DEC under the authority of an appropriate licence and/or disposal of all or part of the impacted materials in accordance with the DEC's waste guidelines and Protection of the Environment Operations (Waste) Regulation 2005.

(b) Details of, and justification for, the remediation option identified in Condition E2.1 (a).

(c) Provide an update of the timetable provided in E3, based on the remediation option identified in Condition E2.1 (a).

E3 Timetable for Remediation of Car Park Waste and Impacted Materials

E3.1 The licensee must ensure the Car Park Waste and Impacted Materials are remediated and/or disposed of no later than 1 February 2009, and in accordance with the following timetable:

- September 2005 - Submission of the detailed options report, comprising a detailed evaluation of the three technologies (Indirect Thermal Desorption, Direct Thermal Desorption and In situ Electrical Heating) proposed for remediation of the Car Park Waste, to the NSW Department of Environment and Conservation (DEC) and the Community Participation and Review Committee (CPRC).

- September 2005 to February 2006 - Community consultation for the three remediation options proposed for the Car Park Waste.

- February 2006 - Community agreement on preferred option and commencement of an Environmental Impact Assessment (EIA) and detailed design.

- September 2005 to August 2006 - Preparation of the EIA, including community consultation.

- August 2006 to February 2007 - Issue of EIA. DEC review and approval. (Note: The EIA must be submitted to the DEC by 30 November 2006).

- By June 2007 – Commence mobilisation to site.

- June 2007 to February 2009 - Treatment of waste. Demobilisation of site equipment.

- February 2009 to July 2009 – Preparation of report which demonstrates complete remediation of the Car Park Waste material.

- 31 July 2009 – Submission of report to DEC.

Note: EIA means any comprehensive environmental impact assessment as determined by the relevant sections of the Environmental Planning and Assessment Act (as amended) .

E4 Progress reporting on remediation works to remove the source of hexachlorobutadiene (HCBD) and associated compounds

E4.1 Every six months after commencement of remediation works option identified in Condition E2.1 (a), the licensee must submit a report to Manager Sydney Industry, Department of Environment and Conservation, PO Box 668, Parramatta 2124 containing the following information:

(a) Progress report on remediation works identified in Condition E2.1;

(b) Confirmation that the works have been undertaken in accordance with the DEC's waste guidelines and POEO Waste Regulation 2005;

(c) Results of any additional monitoring or alternative works to demonstrate as far as practical that this action has been effective in removing the source that led to the detection of HCBD in groundwater at the groundwater monitoring point at WG95S;

(d) An interpretive report on the results of groundwater and/or soil monitoring and an assessment of the effectiveness of the remediation works to achieve an HCBD groundwater concentration not greater than 0.04µg/L at the boundary of the premises; and

(e) Any revisions to the project timetable (as a Gantt Chart or equivalent).

Note: the above concentration is a low reliability trigger value taken from ANZECC and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) 2000 water quality guidelines. Exceedances of such levels trigger further investigation.

E5 Ongoing monitoring to confirm the integrity of the Car Park Waste Encapsulation (CPWE)l

E5.1 **On a six monthly basis** until the completion of the remediation works option identified in E2.1 (a), (or 31 July 2009 whichever is earliest) the licensee must submit a progress report to Manager Sydney Industry, Department of Environment and Conservation, PO Box 668, Parramatta 2124 containing the following information:

(a) The results of the ongoing monitoring program (formerly required by condition E2) to demonstrate to the maximum extent practicable that there are no other HCBD sources outside of the cell in the vicinity of the encapsulation cell;

(b) A timetable for undertaking proposed monitoring, where the groundwater monitoring must be completed at a minimum of once every three months for the first year after remediation works commence and every six months thereafter, unless otherwise agreed in writing by the DEC;

(c) An interpretive comment on the monitoring results.

E6 Completion reporting

E6.1 By 31 July 2009 Orica must provide a report to DEC, the Community Participation and Review Committee (CPRC) and the Department of Environment and Heritage (DEH) demonstrating complete remediation of the Car Park Waste.

E7 Proposals for future works

E7.1 By **1 December 2004**, the licensee must submit a report to the Manager Sydney Industry, PO Box 668 Parramatta 2124, containing the following information :

a) Proposals, including timetables for any future works that may be implemented to more effectively rectify the HCBD groundwater and soil contamination.

b) Confirmation, to the maximum extent practicable, that the integrity of the HCB encapsulation cell is not compromised and that there are no other sources of impacted material outside of the cell.

c) Recommendations for any changes that should be made to the remediation works option identified in E2.1(a) together with timetables for implementation of those changes.

E8 Supply of air quality modelling report of air emissions

E8.1 **Objective**

The objective of this special condition is to require the supply of an air emission modelling report.

E8.2 **Air Emission Modelling Report**

On or before *1 October 2004,* the licensee must submit in writing to the *Manager Sydney Industry PO Box 668 Parramatta 2124*, a report containing the results of air emission modelling for air emissions from the steam stripper unit (SSU). The report must be prepared in accordance with the EPA's *Approved Methods and Guidance – For the Modelling and Assessment of Air Pollutants in New South Wales*. The report must provide all items as specified in Section 10 of that Guideline.

E9 Emission Limits Based upon minimum plant performance

E9.1 **Objective**

The objective of this Special Condition is to develop 100th percentile concentration limits for total VOCs, 1,2-dichloroethane and vinyl chloride, based on minimum plant performance for the steam stripper unit (SSU).

E9.2 **Emission Limits**

On or before *1 October 2004,* the licensee must submit in writing to the *Manager Sydney Industry PO Box 668 Parramatta 2124*, a report proposing emission limits for the SSU. The report must include, but not be limited to, the following:

I. emission limits based on the expected minimum plant performance for total VOCs, 1,2-dichloroethane (EDC) and vinyl chloride;

II. a justification that the emission limits represent the minimum level of performance that can be achieved by the SSU;

III. a demonstration that the emission limits are consistent with the proposed bed regeneration trigger level;

IV. a justification that the proposed bed regeneration trigger level is as low as practicable; and

V. a procedure for assessment of deterioration of bed performance and bed replacement program.

E10 Emission monitoring plan

E10.1 **Objective**

The objective of this special condition is to prepare a plan to continuously monitor the mass and concentration of 1,2-dichloroethane and vinyl chloride and other air pollutants from the SSU.

E10.2 **Emission Monitoring Plan**

On or before *1 October 2004,* the licensee must submit in writing to the *Manager Sydney Industry PO Box 668 Parramatta 2124*, a report detailing the proposed methods to continuously monitor VOCs and the mass and concentration of 1,2-dichloroethane and vinyl chloride emissions from the SSU. Published standard methods must be used wherever practicable. A detailed justification must be provided where it is not practicable to use a standard published method, or where a deviation from the method is required.

E11 Emergency release emission management plan

E11.1 **Objective**

The objective of this special condition is to prepare a plan for the licensee to develop a system for managing the operation of all emergency vent discharge points in the transfer piping and steam stripper unit (SSU). The management system must include an appropriate monitoring system that has been designed to assess the performance of the system against best practice.

E11.2 **Emergency Release Emission Management Plan**

On or before *1 October 2004,* the licensee must submit in writing to the *Manager Sydney Industry PO Box 668 Parramatta 2124*, a report detailing the system proposed to manage the incidence of emergency venting of air emissions from the groundwater piping system and SSU. The plan must outline an appropriate monitoring system to assess the performance of the management system against best practice. The management plan must also identify options to reduce air emissions from emergency venting activities.

For the purpose of this condition, an emergency release is any release of gaseous material from the piping and SSU other than from the discharge point associated with the vapour recovery unit.

E12 AUDITS AND REVIEWS

The objective of this condition is:

- To conduct a series of ongoing independent audits to validate the predictions contained in the Environmental Impact Statement (EIS) submitted to the Department of Environment and Conservation (DEC) on 15 November 2004 and compliance with this licence, and to the extent required by any other approval, compliance with those approval conditions relating to the project.
- To conduct environmental reviews with the aim of optimising performance; and
- To conduct engineering audits to ensure the performance of the plant will not deteriorate in the longer term
- To identify remedial measures that can be implemented in the event an audit shows a discrepancy between actual and predicted performance.

This condition comprises two parts:

- Part A - Validation Audit and Environmental Review
- Part B - Engineering Audit

PART A - VALIDATION AUDIT & ENVIRONMENTAL REVIEW

General Requirement

The licensee must undertake comprehensive validation audits and environmental reviews of the works undertaken in accordance with the EIS .

The auditor must prepare a written report on the validation audit and environmental review for submission to the DEC, Department of Infrastructure, Planning and Natural Resource (DIPNR), Sydney Ports Corporation, Sydney Water Corporation, NSW Maritime, City of Botany Council, Independent Monitoring Committee and make this report available for public inspection on request.

The single report must be submitted which includes all the validation audit and environmental review requirements of this licence and to the extent required by any other approval, compliance with those

approval conditions relating to the project.
The report must be submitted with each Annual Return for the first two reporting periods during which the groundwater treatment plant has commenced operation. The ongoing necessity for this requirement will be reviewed in consultation with the independent monitoring committee and taking into account the success of the performance of the groundwater treatment plant.
Note: The Environment Protection Authority (EPA) may require the licensee to undertake works to address the findings or recommendations presented in the Report as a requirement of this license. Any such works must be completed within such time as the EPA may agree.
Each Validation Audit and Environmental Review must include the following components specified in Conditions E12.1 and E12.2:

- Validation Audit
- Environmental Review

E12.1 VALIDATION AUDIT

The licensee must engage (and bear the full cost of), an independent and suitably qualified auditor to undertake comprehensive validation audits of the project.
The auditor must:

- be a certified environmental auditor who has gained certification from a certification body (such as Registrar Accreditation Board and Quality Society of Australasia international (RABQSA) formerly known as (QSA) who have been accredited by the Joint Accreditation Services Australia & New Zealand (JAS/ANZ);
- have Lead Environmental Auditor certification; and
- have held lead environmental certification for at least 2 years.

The licensee must consult with the Independent Monitoring Committee in the selection of the auditor.
The validation audit must:

(a) be carried out in accordance with *ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing;*

(b) take into account representative operating conditions including worst case scenarios which relate to the groundwater treatment plant;

(c) assess compliance with the requirements of this license, and to the extent required by any other approval, compliance with those approval conditions relating to the project;

(d) assess the project against the predictions made and conclusions drawn in the EIS and supporting documents prepared by the licensee; and

(e) include the following components:

- Air Emission Validation Program;
- Water Discharge Validation Program;
- Noise Validation Program; and
- Thermal Oxidation Unit Validation Program.

E12.1.1 **Air Emission Validation Program**

The licensee must conduct an Air Emissions Validation Program which includes but is not be limited to the following:

(a) Ensures the range of all air pollutants monitored are continually reviewed and modified where necessary to ensure the licensee is capable of detecting the presence of all significant air pollutants not already specified in the licence;

(b) Make recommendations about changes to existing monitoring, including substances monitored and frequency of monitoring;

(c) Validate the conclusions of the human health risk assessment that was undertaken as part of the EIS using monitoring data collected under this licence;

(d) Validate the conclusions of the air quality impact assessment that was undertaken as part of the EIS using monitoring data collected under this licence; and

(e) Preparation and implementation of a comprehensive odour detection program. This must include but not be limited to:

(i) A Leak Detection and Repair (LDAR) Program to detect and minimise fugitive Volatile Organic Compounds (VOC) emissions from the groundwater treatment plant and associated plant and equipment in accordance with US EPA Method 21 – Determination of Volatile Organic Compound Leaks (40 CFR Part 60, Appendix A, Method 21) or such other method agreed in writing by the EPA; and

(ii) An overall odour detection program, including representative offsite observations by independent and suitably qualified persons to identify and prevent unanticipated odour sources.

E12.1.2 **Water Discharge Validation Program**

The licensee must conduct a Water Discharge Validation Program which must include but not be limited to the following:

(a) Ensures the range of all water pollutants monitored are continually reviewed and modified where necessary to ensure the licensee is capable of detecting the presence of all significant water pollutants not already specified in the licence; and

(b) Make recommendations about changes to existing monitoring, including substances monitored and frequency of monitoring.

E12.1.3 **Noise Validation Program**

The licensee must conduct a Noise Validation Program which must include but not be limited to the following:

(a) Identification and ranking by sound power level (in 1/3 octave bands for any source with potentially undesirable noise character) all significant noise sources on the Groundwater Treatment Plant site;

(b) Identification of all noise sensitive receivers that may be affected by the operation of the Groundwater Treatment Plant, and select an appropriate number of representative receiver locations to represent all sensitive receivers;

(c) The results of all noise measurements undertaken to assess compliance with Condition L6.4 of the licence;

(d) A statement of whether noise levels from all activities at the Groundwater Treatment Plant site comply with the specified noise limits at the representative receiver locations. The statement

must take into account tonal, impulsive and short duration noises originating from the Groundwater Treatment Plant site;

(e) Where noise levels have been assessed as exceeding allowable licence limits, a statement explaining the reason why this has taken place; and

(f) A statement of what feasible and reasonable additional measures may be implemented to further reduce noise levels below those specified in the licence.

E12.1.4 **Thermal Oxidation Unit Validation Program**

The licensee must conduct an Thermal Oxidation Unit Validation Program which includes but is not be limited to the following:

(a) Ensures that all parameters monitored comply with the Thermal Oxidation Unit lower limits specified in Condition L3.6 in the licence;

(b) Reports the fraction of time the lower temperature limit specified in Condition L3.6 is not achieved within ±50°C;

(c) Correlates all dioxin air emissions data monitored at Point 9 in accordance with Condition M2.1 with temperature and flow rate data monitored at Point 10;

(d) Quantitatively assess dioxin air emissions at Point 9 with the thermal oxidiser operating at or near 950°C; and

(e) Where there are increases in dioxin air emissions at the lower temperature limit set at Point 10 (as investigated in (d) above), make recommendations to change the lower temperature limit set at Point 10 and associated operational procedures to prevent dioxin concentration increases at the recommended lower temperature limit.

Note: Quantitative assessment of dioxin at Point 9 is to be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW, 2000*, *unless otherwise agreed by the EPA.*

E12.2 **ENVIRONMENTAL REVIEW**

The licensee must conduct an Environmental Review which must include but not be limited to the following:

(a) A review of complaints received and action taken by the licensee.

(b) Summary of environmental monitoring required under the licence and to the extent required by any other approval, compliance with those approval conditions relating to the project.

(c) Identification of trends in all monitoring data collected since the commencement of operation of the groundwater treatment plant.

(d) A statement on the effectiveness of the overall environmental management and performance of the project.

(e) The following programs:
- Dioxin Minimisation & Management Program;
- Groundwater Treatment Plant Water Reuse Strategy;
- Groundwater Monitoring Program; and
- Ambient Environmental Monitoring Program.

E12.2.1 Dioxin Minimisation and Management Program

The licensee must conduct a program that includes, but is not limited to the following:

(a) An investigation into technical options and scientific developments which would allow continuous monitoring and or sampling of any dioxins emissions which may be emitted from the groundwater treatment plant;

(b) An investigation of chemical and/or physical parameters which are likely to correlate with the actual or potential formation of dioxins and could be used as a surrogate indicator of dioxin formation in the groundwater treatment plant; and

(c) Make recommendations about changes to existing monitoring, including substances monitored and frequency of monitoring.

E12.2.2 Groundwater Treatment Plant (GTP) Water Reuse Strategy

The licensee must conduct a program that investigates opportunities to maximize the reuse of treated water from the groundwater treatment plant and reduce the amount of treated water discharged to waters provided the reuse or reduction can be achieved in a safe and practical manner and it will provides the best environmental outcome, in the circumstances.

The program must include but need not necessarily be limited to the following:

- Characterisation of the treated water in terms of quality and quantity;
- Identification of potential uses of this treated water, taking into account relevant and recognised environmental and human health guidelines or standards to ensure it is appropriate for this use;
- Identification of options to beneficially reuse treated waters to minimise the amount of treated water being discharged;
- Assessment of the feasibility and cost of these options;
- Selection of options for implementation;
- Time table for implementation of the selected options; and
- Inclusion of any other relevant recommendations relating to treated water reuse.

The licensee must consult with the DEC, NSW Health Department, Sydney Water Corporation, Sydney Ports Corporation, Botany Bay Council, DIPNR and NSW Maritime on the development of the program.

E12.2.3 Groundwater Monitoring Program

The licensee must conduct a Groundwater Monitoring Program which must include but not be limited to the following:

(a) Monitoring of groundwater to assess whether the extraction of groundwater will result in any actual or potential impacts to surface waters or habitats in the locality;

(b) Review the conclusions of the groundwater assessments and modelling that was undertaken as part of the EIS, including using all monitoring data collected under this license or other approvals for this project;

(c) include a mechanism to regularly review the effectiveness of the monitoring program to ensure it is effective in detecting the presence of actual or potential impacts not already identified; and

(d) Make recommendations about changes to existing monitoring and frequency of monitoring.

The program must be prepared and implemented in consultation with the DEC, DIPNR, Department of Primary Industry (DPI), Sydney Ports Corporation, Sydney Water Corporation, NSW Maritime and City of Botany Council.

E12.2.4 **Ambient Environmental Monitoring Program**

The licensee must conduct an Ambient Environmental Monitoring Program which must include but not be limited to the following

(a) Develop and implement a program to monitor ecological health of habitats in the locality and water quality in the receiving environment, including specification of sampling locations, sampling frequencies and parameters to be tested;

(b) Include quality control elements;

(c) include monitoring sites at Penrhyn Estuary, Botany Bay and Bunnerong Canal as well as other relevant off site locations;

(d) Assess whether the project will not result in any actual or potential impacts to surface waters or habitats in the locality from the operation of the groundwater treatment plant and associated plant and equipment;

(e) Review the conclusions of the ecological and ambient water quality assessments that were undertaken as part of the EIS, including using monitoring data collected under this license or other approvals for this project;

(f) include a mechanism to regularly review the effectiveness of the monitoring program to ensure it is effective in detecting the presence of actual or potential impacts not already identified; and

(g) Make recommendations about changes to existing monitoring, including substances monitored and frequency of monitoring.

The program must be prepared and implemented in consultation with the DEC, DIPNR, DPI, Sydney Ports Corporation, Sydney Water Corporation, NSW Maritime and City of Botany Council.

PART B - ENGINEERING AUDIT

E12.3 General requirement

The licensee must make arrangements for, and bear the full cost of, an independent auditor to undertake engineering audits of the groundwater treatment plant and associated plant and equipment (including all control systems) to ensure it is maintained in a proper and efficient condition and operated in a proper and efficient manner with respect to its environmental and safety capability and performance.

Matters to be addressed in the audits must include but not be limited to;

(a) Review of the frequency of inspections and maintenance programs to ensure they are effective in detecting actual or potential changes in the environmental and safety performance;

(b) Review of procedures for detecting changes to the equipment which could impact on performance, including corrosion and wear; and

(c) Review of results of internal inspections of all equipment, using video techniques where appropriate.

The licensee must consult with the Independent Monitoring Committee in the selection of the auditor.

The engineering audits must generate a report for submission to the DEC, DIPNR, Sydney Water Corporation, City of Botany Council, Community Liaison Group and available for public inspection on request.

The report must be submitted with each Annual Return

- At the end of every 5th reporting period, for the first 15 years of operation of the groundwater treatment plant; and then
- Every 2nd reporting period in which the plant remains in operation.

The EPA may require the licensee to undertake works to address the findings or recommendations presented in the Report as a requirement of this licence. Any such works shall be completed within such time as the EPA may agree.

E13 INDEPENDENT MONITORING COMMITTEE

E13.1 The licensee must establish and service an Independent Monitoring Committee with technical and community representatives. The licensee must provide monitoring information and reports and consult with this Committee as required by the relevant conditions of this licence.

Note: The Independent Monitoring Committee may be formed by the licensee in conjunction with the existing Community Liaison Group currently established and serviced by the licensee.

E14 Financial Assurance

The objective of this condition is to secure or guarantee funding for or towards the ongoing operating costs of the Groundwater Treatment Plant and associated groundwater collection infrastructure.

E14.1 Unconditional and irrevocable bank guarantee

E14.1.1 A financial assurance, in favour of the EPA, in the form of an unconditional and irrevocable bank guarantee in the amount of fourteen million four hundred thousand dollars ($14,400,000) must be provided **by 31 January 2007** and thereafter maintained for or towards the ongoing operating costs of the Groundwater Treatment Plant (GTP) and associated groundwater collection infrastructure and thereafter until such time as the EPA is satisfied the premises are environmentally secure.

Note: $14.4 million is 20% of the net present value of the outstanding provision ($72 million) of the long term operating costs identified in the licensee's submission on the appropriate form or amount of the financial assurance, dated 30 September 2006.

E14.2 Requirement to increase the amount of the financial assurance

E14.2.1 The licensee must increase the amount of financial assurance in accordance with the following schedule based on the financial position of Orica Limited as determined by its Standard & Poors credit rating:

i) While a Standard & Poors credit rating remains at BBB+ or above, the bank guarantee required will be $14.4 million; and

ii) If the Standard & Poors credit rating falls to BBB the bank guarantee required will be $35 million; and

iii) If the Standard & Poors credit rating below BBB the bank guarantee required will be $72 million.

E14.3 Requirement to report credit rating in each annual return

E14.3.1 The licensee must include in each licence annual return evidence of Orica Limited's credit rating for the whole period of the licence year.

E14.4 Requirement to report any changes in credit rating

E14.4.1 The licensee must advise the EPA as soon as practical and in any event within five days of receiving advice from Standard & Poors of any change to the credit rating of Orica Limited.

Note: Orica Australia Pty Ltd is the licensee and Orica Limited is the parent company. The credit rating relates to Orica Limited.

E14.5 Varying the magnitude of the financial assurance

E14.5.1 The EPA reserves the right to vary the magnitude of the financial assurance at any time depending upon any reassessment of possible cost(s) of rehabilitation of the premises or any other reason which the EPA deems to be appropriate and reasonable to ensure environmental security.

Note: The EPA will review the above arrangement every three years including consideration of Consumer Price Index (CPI) adjustments, or more frequently if considered necessary by the EPA

or if requested by the licensee, in light of the remaining works required to complete the remediation.

E14.5.2 The EPA will only draw on the Financial Assurance to fund or recover the reasonable costs in carrying out, or directing or supervising the carrying out by another person, of any work or program, including the likely costs and expenses in directing and supervising the carrying out of the work or program, to meet the requirements of the licence relating to the Groundwater Treatment Plant and associated infrastructure where in the opinion of the EPA the licensee has failed to meet these requirements.

E14.6 Requirement to submit a review every three years

E14.6.1 The licensee must provide the EPA with a review of the outstanding capital and operating costs for the Groundwater Treatment Plant and associated groundwater collection infrastructure every three years commencing 31 January 2010.

E14.7 Requirement to advise of changes to deed of cross guarantee

E14.7.1 The Licensee must advise the EPA in advance if it proposes to change and as soon as possible if it does change its deed of cross guarantee lodged with the Australian Securities and Investment Commission, whereby financial liabilities are shared across the Orica group of companies.

E14.8 Requirement to advise of any changes which may affect ability to fund

E14.8.1 The licensee must notify the EPA of any proposed corporate restructure, scheme of arrangement or appointment of an external administrator that will or may directly or indirectly affect the licensee's short or long term ability to fund the operation of the Groundwater Treatment Plant and associated groundwater collection infrastructure.

E15 In-Situ Bioremediation Pilot Scale Field Trial in Car Park Waste Encapsulation (CPWE) soil 2005/2006

E15.1 The objectives of this trial are as follows:

a) Demonstration of the efficacy of an in-situ biostimulation treatment to facilitate reductive dechlorination of hexachlorobutadiene (HCBD), hexachlorobenzene (HCB), octachlorostyrene (OCS) and tetrachloroethene (PCE) in the Car Park Waste (CPW) soil.
b) Establishment of zone of influence and rates of reductive dechlorination in-situ for each compound.
c) Characterisation of the impact of the treatment on the microbial community indigenous to the CPW.
d) Identification of metabolic dead ends, toxic breakdown intermediates or adverse effects on soil quality that may occur during the course of treatment.

E15.2 The trial must be conducted in accordance with the trial protocol titled *"Proposal for an in-situ bioremediation pilot scale field trial in Car Park Waste Encapsulation soil*" (including all accompanying and supplementary documents) as presented in Orica's correspondence of 15 September 2005 reference number EN1602-LT-041.doc and with the conditions of this licence. In the event of any inconsistency arising between the trial protocol and the conditions of this licence, the conditions of the licence must take precedence.

E15.3 The trial involves a 1000 L injection of solution containing zero valent iron, nutrients, biota and other components to promote and sustain microbial activity. The solution must be injected via a central port within the CPWE and must involve samples of soil vapour and soil being taken from the approximate 2.5 by 2.5 m trial treatment area over a six (6) month period. On conclusion of the trial the CPWE area involved in the trial must be reinstated and an evaluation report must be submitted to the DEC.

E15.4 The location and numbers of samples must be sufficient to allow a valid statistical analysis of the data generated. As a minimum, sampling must include:

(a) Four sampling periods with samples being taken each time at three separate locations within and around the trial treatment zone for soil vapour and soil;

(b) Sample times must include the period immediately after treatment and one, three and six months after treatment;

(c) A quantitative analysis of HCBD, HCB, OCS, PCE, chloride and possible by-products listed in Appendix 3 of the trial protocol for each sampling time period and location;

(d) A quantitative analysis of other indicator chemical species that inform if reducing conditions are established. This would include (but not necessarily be limited to) sampling and analysis of sulphate and sulphide;

(e) Sampling of soil vapour and soil within and surrounding the trial treatment zone for each sampling period and location, for the chemicals listed above; and

(f) Sampling and analysis including quality assurance (QA) and quality control (QC) must be carried out using NATA approved methods by a facility accredited by NATA for such work, or approved equivalents in Australia, or where this is not practicable, Methods approved by the DEC. Only a subset of samples must be analysed by a laboratory using NATA approved methods and the results must be compared with the results obtained by using other approved equivalent laboratories such as University of Murdoch's laboratories.

E15.5 Within ten (10) weeks of the trial being completed, the licensee must submit a report to Manager Sydney Industry, Department of Environment and Conservation, PO Box 668, Parramatta, NSW 2124 containing the following information:

(a) An evaluation summary of the trial detailing the efficacy of the technology in reducing the contaminants contained within the CPWE;

(b) A detailed analysis demonstrating that reductions in contaminant levels are attributed to destruction by the trial technology (through verifiable data) and has not occurred through dilution or movement of the contaminants outside of the trial treatment zone;

(c) Details on the concentration of HCBD, HCB, OCS, PCE, chloride and possible by-products listed in Appendix 3, within soil vapour and soil samples and any other measured emissions, residues and effluents;

(d) Provision of a quantitative mass balance including a specific analysis of the trends of chloride ion concentration in relation to the concentration of other chlorinated compounds within the CPWE; and

(e) All sampling methodology, analytical QA/QC results associated with the trial.

E16 Modifications to the Thermal Oxidiser and Heat Exchanger serving the Groundwater Treatment Plant

The objective of this condition is to demonstrate the effectiveness of works and operational changes associated with the Groundwater Treatment Plant (GTP) Thermal Oxidiser (TO) and Heat Exchanger (HE) to minimise dioxin formation and to reduce dioxin emissions below the limits specified in condition L3.

E16.1 The licensee must prepare a report outlining the modifications made to the TO and HE, and outcomes of temperature monitoring and testing on re-starting of the GTP. This report must be submitted to DEC by 31 May 2006.

E16.2 The licensee must prepare a report specifically on the mechanical condition of the newly installed diversion baffle at the inlet to the TO and the range of temperature instruments on the outlet of the combustion gases from the pre-heater. The licensee must prepare a report specifically to address the corrosion rate on this equipment. The first report must be submitted to DEC within two (2) months from the date of this notice.

E16.3 The licensee must prepare a report outlining options for more accurate means of measuring temperature in the TO furnace to ensure that the actual gas temperature is measured. This report must be submitted to DEC by 30 June 2006.

E16.4 The licensee must prepare a report on testing the materials coming to the TO from the GTP plant. The testing should include dioxin, copper and any other catalyst that may contribute to the dioxin formation. This report must be submitted to DEC by 30 June 2006.

E16.5 The licensee must prepare a report on testing dioxin emissions to address Quality Assurance/Quality Control issues. This report must be submitted to DEC by 28 July 2006.

E16.6 All reports required by this condition should be sent to Manager Sydney Industry, Department of Environment and Conservation, PO Box 668, Parramatta NSW 2124.

E17 Groundwater Treatment Plant Commissioning

E17.1 **GTP Commissioning**

E17.1.1 The licensee must conduct the GTP commissioning in accordance with the Commissioning Plan and the extension to the Commissioning Plan as supplied by the licensee to DEC on 22 June 2006 and 27 November 2006 respectively and as outlined below.

Table 1 – GTP Commissioning Plan

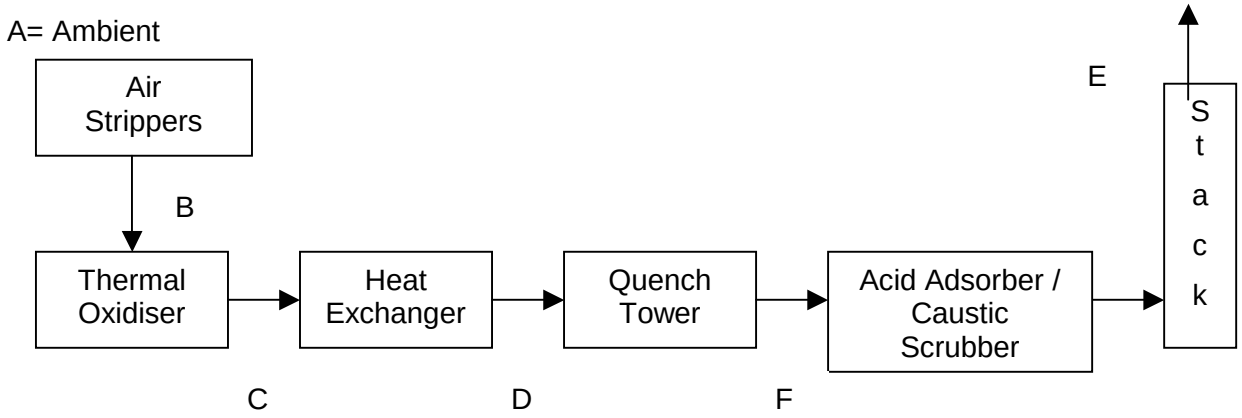
Action	Comment
1. Modify thermal oxidiser baffle as per Nittetu instruction	Complete
2. Maintain the thermal oxidiser refractory as required	Complete
3. Install baffle on inlet to heat exchanger E6103 as supplied by Nittetu as per their instructions	Complete
4. Install new temperature monitoring points on outlet of heat exchanger E6103	Complete
4. Modify the thermal oxidiser temperature control thermocouple to remove offset in temperature reading	Complete
6. Update operating instructions to ensure groundwater is not stripped if outlet temperatures do not meet licence requirements	Complete
7. Adjust the baffle on inlet to heat exchanger E6103 (to improve the flow balancing)	Complete
8. Modify the sampling point for Off Gas	Complete
9. Install sampling point on inlet to heat exchanger E6103	Complete
10. Install sampling point on outlet of heat exchanger E6103	Complete
11. Replace the thermal oxidiser temperature control thermocouple, with new units supplied by Nittetu to improve temperature reading	Complete
12. Carry out washing of quench unit, acid absorber and caustic scrubber using caustic solution and surfactant as per recommendation by Bill Troxler of Focus Environmental, USA.	Complete
13. Replace and improve the demister pad on the exit of the caustic scrubber as per discussions with Nittetu	Complete
14. Heat-up the thermal oxidiser (without groundwater) according to the operating instructions provided by Nittetu.	Complete
15. Bring the thermal oxidiser up to normal operating mode (without groundwater). This will involve adjustments to temperatures and flows.	Complete
16. Allow the plant to stabilise and reach normal operating conditions (e.g. temperatures have equilibrated) throughout, without groundwater.	Complete
17. Maintain the plant stable during the period of sampling as required and perform sampling at Points A, C, D, E shown on attached sketch, without groundwater.	Complete
18. Introduce groundwater to the plant to allow sampling and testing under normal operation. Do this in accordance with the plant operating instructions. Take initial groundwater feed from the Primary and Secondary Containment Areas at about 2.5 ML/day (i.e. about one-sixth plant design rate)	Complete
19. Ensure that the plant is stabilised (e.g. steady compositions) throughout	Complete

throughout.	
20. Keep the plant stable during the period of sampling as long as required. This will be dictated largely by the number of sampling events, the availability of sampling resources and external influences (e.g. trips as noted below). Take samples from points B, C, D and E as per attached sketch.	Complete
21. The sample points have been chosen to allow identification of dioxin/furan formation (if detected). Once these results are obtained (typically a minimum of three weeks), forward the data to Nittetu and Bill Troxler for formal advice on adjustments to be made to the plant (e.g. online flow adjustments) to optimise performance. Take further samples as requested by Nittetu and Bill Troxler to allow further optimisation. Do this in accordance with the steps outlined above.	Complete
Commissioning Plan Extension	
22. Install new sampling position to monitor dioxin/furan concentrations in gases exiting the quench tower (Point F)	October 2006 Complete
23. Check the operation of the current sprays against design (i.e. not blocked or damaged).	October 2006 Complete
24. Undertake sampling from points E and F for dioxin/furan concentrations	October 2006 Complete
25. Review potential improvements to the spray system (which may include different nozzles and filters).	October 2006 Complete
26. Review results (when available) from Step 24 with experts and confirm appropriate steps below (i.e. 27 and 28).	Late October 2006 Complete
27a. If lower temperature operation indicates conforming operation, then resample to confirm performance.	November 2006 Complete
27b. If lower temperature operation indicates improved operation, then modify plant parameters (under consultant advice) and resample.	November 2006 Complete
27c. If testing indicates the need to improve quencher operation, then once a suitable design has been found, during November shutdown, make modifications under instruction of experts (e.g. nozzle modification)	November/ December 2006 Not Required
28. Start up plant after shutdown and achieve steady operation.	Early December 2006
29. Monitor dioxin/furan concentrations at Points E and F at a range of temperatures at suggested by IMC and dioxin emission experts.	Mid December 2006
30. Report results and forward the data to Nittetu, Bill Troxler and other experts for formal advice on further adjustments and improvements to be made to the plant.	Mid January 2007

31. Undertake improvements and further testing as required.	Starting February 2007

Notes to the Commissioning Plan

1. Some external influence could cause the plant to trip during these periods (e.g power disruption). If this were to occur, then the plant would be re-heated and stabilised as required, and the testing resumed.
2. It should be noted, that Nittetu have informed Orica, that the correct operation of the thermal oxidiser requires minimising the number of shutdowns of the unit (trip or planned). They have stated that the target should be no more than one shutdown per year.
3. The flow rates from the groundwater extraction pumps are dictated by aquifer levels to achieve containment. During this period of sampling, controls will be put in place to maintain as constant a composition as practicable during the sampling.



E17.1.2 The licensee must report verbally the results of any dioxin/furan monitoring carried out as part of, and in accordance with the above Commissioning Plan, to an authorised DEC officer as soon as the results are known to it. The results of all monitoring must be reported to the Manager Sydney Industry, DEC by facsimile on (02) 9995 6900 the next business day after the results were reported verbally.

E17.1.3 The GTP Commissioning must be completed by 28 February 2007, unless otherwise approved in writing by DEC.

E17.1.4 Following the completion of the GTP commissioning, the licensee must submit a final report to DEC within 21 days of the GTP commissioning completion date.

E17.1.5 The reports submitted to DEC during the commissioning phase must include at least the following details:

a) Dates and times of sampling and dates of analysis,
b) Dates and times of any monitoring associated with dioxin management,
c) Details of the organisation/s which conducted the sampling and/or analysis,
d) Results of analysis including a table comparing the results with the limits specified in the licence,
e) If exceedances of licence limits occurred, reasons for the exceedances and recommended action to prevent recurrence of such exceedances, and
f) Any modifications to the GTP Plant and/or associated processes to reduce concentration of pollutants to below the limits specified in the licence.

E17.1.6 The report submitted to DEC at the end of the commissioning phase must include all details required in condition E17.1.5 and the following additional details:

a) All results obtained from monitoring during the commissioning phase,
b) All exceedances occurred during the commissioning phase,
c) All modifications carried out during the commissioning phase,
d) Graphical representation and/or tabulation of results in comparison with the limits specified in the licence with highlights of exceedances and modifications,

E18 Hexachlorobenzene (HCB) Waste Repackaging Plant

E18.1 Fugitive Emissions

E18.1.1 The licensee must design, construct, operate and maintain ventilation systems for the buildings in which the operation of the HCB waste repackaging lines is to occur so that the pressure within the building lies below atmospheric pressure at all times.

E18.2 Concentration Limits

E18.2.1 The licensee shall establish, in consultation with the EPA, a maximum break-through limit for volatile organic compounds for monitoring / discharge points 29, 30, 31 and 32. For the purposes of monitoring volatile organic compounds, a suitable organic compound equivalent for volatile organic compounds must also be determined. Reference conditions for the break-through limit must be dry, 273 K and 101.3 kPa.

E18.3 Shutdown Requirements

E18.3.1 If the break-through limit described in condition E18.2.1 at monitoring/discharge points 29 or 30 is exceeded after completion of commissioning, the HCB repackaging facility must immediately shutdown. The licensee must only restart the HCB repackaging facility after the carbon filter is replaced with a new activated carbon filter.

E18.3.2 If the break-through limit described in condition E18.2.1 at monitoring/discharge points 31 and / or 32 is exceeded after completion of commissioning, material transfer processes must immediately shutdown. The licensee must only restart the material transfer processes after the carbon filter is replaced with a new activated carbon filter.

E18.3.3 If any concentration limit described in condition L3.3 at monitoring/discharge point 26, 27 or 28 is exceeded after completion of commissioning, the HCB repackaging facility must immediately shutdown. The licensee can only restart the HCB repackaging facility after receiving written approval from the EPA.

E18.4 Repackaging Process Trials Plan

E18.4.1 Prior to the commencement of the operation of the HCB Repackaging Plant, the licensee must undertake Repackaging Trials to demonstrate that repackaging activities will be undertaken within acceptable environmental limits.

E18.4.2 Prior to the commencement of Repackaging Trials, the licensee must prepare and submit for the approval of the EPA a **Repackaging Process Trials Plan** ('Plan'). The Plan must be prepared in

consultation with the EPA and must provide a program to quantitatively confirm that the HCB Repackaging Plant will meet the environmental performance described in the Environmental Assessment. In particular, the Plan must include, but not be limited to the following:

a) a description of the smoke tests to be undertaken at Store J, Store E and Store H to ensure that the installed vapour / dust extraction systems are effective in preventing the escape of unfiltered air from these enclosures;

b) details in relation to trials to confirm extraction system performance and absorption rates;

c) a description of trials to be undertaken with substance(s) having low risk of environmental harm to confirm the environmental performance of the HCB Repackaging Plant. This must include a description of each step undertaken to test the ability of the Plant to meet the requirements of the Environment Protection Licence;

d) the quantity and type of substance(s) to be used in the trial and an outline of why the substance(s) would reasonably represent the actual materials to be processed; and

e) details of monitoring that will be undertaken to measure and confirm compliance with the emission limits within the Environment Protection Licence. This must include stack emission tests and mass balance calculations that account for material captured in the activated carbon vent controls, present in the fugitive emissions within the Repackaging Plant working area(s) and material otherwise not accounted for in the mass balance such as fugitive emissions to the environment.

E18.4.3 The licensee can only commence repackaging trials after the EPA has approved the Repackaging Process Trials Plan described in conditions E18.4.2.

E18.4.4 The licensee must undertake repackaging process trials strictly in accordance with the approved Repackaging Process Trials Plan. In the event that the licensee intends to vary the trials from that described in the Repackaging Process Trials Plan, the licensee must seek further approval for the proposed changes from the EPA. Implementation of variations to an approved Repackaging Process Trials Plan will only occur following EPA's approval of the variations.

E18.4.5 Withn 28 days of the completion of the Repackaging Trials (the Trials), the licensee must prepare and submit a **Repackaging Process Trial Report** to the EPA.. The report must include, but not be limited to the following:

a) details of the Trials, describing steps undertaken during each Trial. This must include an indication of when each step was undertaken;

b) the quantity of substance(s) processed, including a detailed mass balance accounting for all substance(s) processed;

c) an assessment of whether the process will perform with minimal risk of environmental harm and within the requirements of the Environment Protection Licence, on the basis that the Trials are representative of the actual operation; and

d) any recommended improvements to the Repackaging process in response to the results of the Trials.

E18.4.6 The licensee must only commence operation of the Repackaging Process after completion of the Repackaging Trials as described in condition E18.4.1 and with the approval of the EPA after it has considered the Repackaging Process Trials Report as described in condition E18.4.5.

E18.5 Notification Requirements

E18.5.1 If on receipt of a certificate of laboratory analysis, the laboratory analysis results demonstrate that the concentration of any discharge parameter has exceeded a limit specified in conditions L3.3 for any of the monitoring / discharge Points 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 or 36, then the licensee must notify the EPA within 24 hours of receipt of the certificate.

E18.6 Waste Generation and Management

E18.6.1 This Environment Protection Licence does not permit the removal of hexachlorobenzene waste from the premises unless and until the necessary separate approvals are obtained by the licensee for an ultimate destruction / disposal location for these wastes.

Appendices

Dictionary

General Dictionary

In this licence, unless the contrary is indicated, the terms below have the following meanings:

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998

BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 1998.
flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
industrial waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
inert waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.

pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
reprocessing of waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
treatment of waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste code	Means the waste codes listed in Appendix 5 of the EPA document A Guide to Licensing Part B.
waste type	Means Group A, Group B, Group C, inert, solid, industrial or hazardous waste

Mr Mark Gifford

Environment Protection Authority

(By Delegation)

Date of this edition - 10-Jul-2007

End Notes

1	Licence varied by notice 1000723, issued on 01-Aug-2000, which came into effect on 22-Aug-2000.
2	Licence varied by 010937 (ALaN) s.58 notice, issued on 01-Sep-2000, which came into effect on 26-Sep-2000.
3	Licence varied by notice 1008660, issued on 27-Jul-2001, which came into effect on 21-Aug-2001.
4	Licence varied by notice 1014464, issued on 15-Jan-2003, which came into effect on 09-Feb-2003.
5	Licence varied by notice 1025431, issued on 24-Dec-2003, which came into effect on 18-Jan-2004.
6	Licence varied by notice 1035261, issued on 30-Apr-2004, which came into effect on 30-Apr-2004.
7	Licence varied by notice 1040183, issued on 07-Sep-2004, which came into effect on 07-Sep-2004.
8	Licence varied by notice 1041498, issued on 26-Oct-2004, which came into effect on 27-Oct-2004.
9	Licence varied by notice 1041954, issued on 03-Nov-2004, which came into effect on 03-Nov-2004.
10	Licence varied by notice 1043560, issued on 14-Feb-2005, which came into effect on 22-Feb-2005.
11	Licence varied by notice 1048337, issued on 23-Aug-2005, which came into effect on 17-Sep-2005.
12	Licence varied by notice 1052073, issued on 14-Nov-2005, which came into effect on 25-Nov-2005.
13	Licence varied by notice 1060389, issued on 12-May-2006, which came into effect on 12-May-2006.
14	Licence varied by notice 1060540, issued on 22-May-2006, which came into effect on 22-May-2006.
15	Licence varied by notice 1061917, issued on 10-Jul-2006, which came into effect on 10-Jul-2006.
16	Licence varied by updating references to the Clean Air Reg, issued on 25-Jul-2006, which came into effect on 25-Jul-2006.
17	Licence varied by notice 1063885, issued on 11-Aug-2006, which came into effect on 11-Aug-2006.
18	Licence varied by notice 1067354, issued on 30-Nov-2006, which came into effect on 30-Nov-2006.
19	Licence varied by notice 1068717, issued on 24-Jan-2007, which came into effect on 24-Jan-2007.
20	Licence varied by notice 1069198, issued on 30-Jan-2007, which came into effect on 30-Jan-2007.
21	Licence varied by notice 1072335, issued on 13-Jun-2007, which came into effect on 13-Jun-2007.

End Notes

22	Licence varied by notice 1074666, issued on 02-Jul-2007, which came into effect on 02-Jul-2007.
23	Licence varied by notice 1075713, issued on 10-Jul-2007, which came into effect on 10-Jul-2007.

Appendix B: Risk Based Remediation Concentrations report (URS 2007)

"This page has been left blank intentionally"