Australia's hazardous waste infrastructure

Final report

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In collaboration with:

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Contents

1 Introduction

1.1 Project background and purpose

The Department of the Environment (the Department) is the lead Australian Government agency responsible for the implementation of the National Waste Policy: Less Waste, More Resources. The Department is also responsible for the administration of the Hazardous Waste (Regulation of Exports and Imports) Act 1989 (the Act) and regulations with their associated controls of hazardous waste imports and exports.

Rawtec, in collaboration with Wright Corporate Strategy, were engaged by the Department to compile a list of Australia's hazardous waste infrastructure. An understanding, and publicly-searchable record, of Australia's hazardous waste infrastructure will assist in making decisions on export permit applications under the Act, as well as reducing time and information costs for market participants.

This dataset will also be used to inform further work in 2014–15, which will assess the capacity of the infrastructure identified in the initial project against Australia's future hazardous waste generation and infrastructure needs.

1.2 Project scope

The dataset developed for this project is focused on identifying key sites and facilities across Australia which receive, store, process, treat and dispose of hazardous wastes, whether these are in liquid, solid or sludge forms. Section 2 provides a summary of the data contained in this dataset including its coverage and limitations.

The focus of this dataset is to provide locational information on key hazardous waste infrastructure. Where data was available for the project the dataset also provides information on what types of hazardous wastes are received at each site or facility and what kinds of treatment types and technologies are undertaken. This information is presented in a common record structure in an Excel spread sheet.

Information contained in this dataset was compiled from a range of sources including publicly available information and data obtained through select consultation with the jurisdictions and key industry players. Section 3 provides a list of these data sources.

1.3 Purpose of this report

This report was developed to accompany the project dataset of Hazardous Waste Infrastructure in Australia. It provides context and information about the dataset to assist the general reader to understand and interpret its contents and also to identify data gaps and limitations.

2 Summary of Dataset

2.1 Dataset format and presentation

The dataset is provided in an Excel spread sheet, which includes 5 sheets:

- 'Introduction' contains a brief introduction about the dataset
- 'Dataset' contains the dataset of Hazardous Waste Infrastructure in Australia
    - The data contained in this sheet is provided in a common record structure which includes data fields for the facility or site name/identification, location, contact details, licensing, status and size, treatment activities and/or technologies, and hazardous waste streams received.
    - This common record structure is detailed in Table 2-1 below.
- 'Definitions' contains a list of definitions for the dataset, also provided in Appendix 2
- 'NEPM codes' contains a list of NEMP codes used for classifying hazardous wastes, also provided in Appendix 1
- 'Data Sources' contains a list of data sources used to develop the dataset, also provided in Section 3

Table 2-1: Common record structure for dataset

Data field	Sub-fields
Site or Facility name/ identification	Facility name
	Company name
	Trading name
	Geoscience Site ID (where applicable and available)
Site or Facility location	Facility Street Address
	Facility Suburb/Locality
	Facility State
	Facility Postcode
	Datum (for latitude and longitude)
	Facility Latitude
	Facility Longitude
Site or Facility contact details	Telephone
	Email contact
Site or Facility licensing	Authority
	License number

Data field	Sub-fields
Site or Facility status and size	Facility Status (planning/construction, operational, closed)
	Facility gross operational input capacity (very small, small, medium, large)
Data sources	Primary data source
	Secondary data source(s) (if applicable)
	Tertiary data source(s) (if applicable)
Site or Facility treatment activities and /or Technologies (as marked 'x')	Recycling
	Landfill
	Chemical/Physical treatment
	Storage
	Thermal
	Thermal and Energy Recovery
	Immobilisation
	Biological
	Other
	Not available
Wastes received at Site or Facility (NEPM15) (as marked 'x')	NEPM 15 categories
Wastes received at Site or Facility (NEPM75) (as marked 'x')	NEPM 75 categories

2.2 Overview of sites and facilities included in the dataset

A total of 208 sites or facilities are listed in the dataset. A breakdown of these listings by jurisdiction is provided in Table 2-2.

Table 2-2: Number of Facilities by jurisdiction

Jurisdiction	No. of sites or facilities listed in dataset
Australia Capital Territory	3
New South Wales	58
Northern Territory	5
Queensland	24
South Australia	15
Tasmania	4
Victoria	66
Western Australia	33
Total Facilities	208

A total of 66 sites or facilities were identified in Victoria compared with 58 in New South Wales, which appears inconsistent with relative populations. The dataset includes 14 Victorian landfills that accept hazardous wastes such as low level contaminated soil. It only includes 1 landfill in NSW, which is the only landfill in the state currently licensed to dispose restricted solid waste (as classified by NSW Waste Classification Guidelines, Department of Environment, Climate Change and Water NSW, 2009). It is acknowledged that there are several other landfills (about 100) in NSW which are licenced to accept general solid waste, which can contain contaminants up to defined thresholds.

2.3 Dataset limitations

2.3.1 Scope

The dataset developed for this project is focused on identifying key sites and facilities across Australia which receive, store (major facilities only), process, treat and dispose of hazardous wastes, whether these are in liquid, solid or sludge forms. It comprises commercial facilities that stand in the market to treat third party hazardous wastes. For example, a facility that generates hazardous waste and processes the hazardous waste onsite but does not process third party wastes is excluded from the dataset.

The dataset does not include sites where hazardous wastes are originally generated (such as manufacturing sites). It does not include smelters and cement kilns which may undertake processing of wastes considered hazardous. This is because smelters and cement kilns are not usually

considered as hazardous waste treatment or disposal facilities. It does not include sites and facilities that manage grease trap, sewerage and industrial wash waters (e.g. composting facilities, sewerage treatment plants) or sites that dispose of asbestos and tyres (e.g. landfills), except where those sites also manage other hazardous wastes. This is because those sites are not usually considered as hazardous waste treatment or disposal facilities. Quarantine waste facilities are excluded from the scope. A number of E-waste facilities are included, focussed on major facilities that undertake physical/chemical treatment or disassembly. It is recognised that there are other facilities which deal with hazardous wastes that are not included in the dataset, such as smaller storage facilities and transfer stations. To the extent possible, multi-use facilities that also handle hazardous waste are included in the dataset. This includes landfill sites. A list of limitations for this dataset and commentary is provided in Table 2-3.

Table 2-3: Limitations of dataset for Hazardous Waste Infrastructure in Australia

Waste Item	Comments
Original points of hazardous waste generation (e.g. manufacturing facilities)	This dataset focuses on facilities or sites that treat or dispose of hazardous wastes and therefore does not include original points of generation.
Intermediate storage and transfer facilities	Some intermediate storage facilities are included in this dataset. It is recognised that there are other facilities which deal with hazardous wastes that are not included in the dataset, such as smaller storage facilities and transfer stations.
Smelters and cement kilns	Smelters and cement kilns are not considered as hazardous waste treatment facilities and therefore are not captured in this dataset, however it is still acknowledged that they may process some hazardous wastes.
Tyres	Tyre processing and disposal facilities were excluded from the scope.
Grease trap	Grease trap was captured where the treatment facility also treated other hazardous wastes. Grease trap to composting facilities was not included.
Sewerage and industrial wash waters	Sewerage and industrial wash water treatment facilities were excluded from the scope.
E-waste	Only major E-waste physical/chemical and manual disassembly processing facilities were included in the scope.
Quarantine wastes	Quarantine waste processing facilities were excluded from the scope, except where these facilities also treated other hazardous waste such as clinical waste.
Asbestos	Asbestos disposal facilities were excluded from the scope, except where these sites also disposed other hazardous wastes.

2.3.2 Completeness

It is estimated that the dataset includes sites or facilities that manage at least 80% or 1.2 million tonnes of total hazardous waste generation in Australia (*Blue Environment. 2014. National Data Workbook. Reporting Hazardous Waste under the Basel Convention - guidance to states and territories).*

The focus of this project is to provide locational information about key hazardous waste infrastructure in Australia. Where data was available the dataset also provides information on what types of hazardous wastes are received at each site or facility and what kinds of treatment types and technologies are undertaken. A broad range of data sources were used to compile this dataset. Whilst it is intended that this dataset provides a complete list of hazardous waste infrastructure in Australia within the defined project scope (section 2.3.1), it is acknowledged that there may be other sites or facilities which meet this scope that have not been captured in this list. It is intended that this dataset be updated over time by the Department of the Environment, which will provide the opportunity to include any additional facility listings and/or details.

2.3.3 Other considerations

Data collected on waste treatment technologies and waste streams was gained from a range of sources including industry. This information does not necessarily align with licensing for the site as approved by the local EPA authority. The information contained in this dataset does not supersede the licensing requirements for these facilities. Furthermore, relevant EPA licenses will specify in more detail the hazardous wastes that can be accepted at these sites. It should also be noted that there may be sites or facilities that are listed in the database that are not identified in jurisdictional environmental authority tracking or licensing databases.

The names of facilities and sites were collected from EPA licenses, websites and/or industry data. In some cases descriptive names are used to differentiate between sites where there were multiple listings for a given organisation. It is acknowledged that some facilities or sites may be identified by multiple names. These sites have only been listed once in the dataset to avoid duplication of listings.

2.3.4 Examples of major hazardous waste facilities in Australia by jurisdiction

Table 2-4 provides some examples of major hazardous waste facilities in Australia by jurisdiction, which are listed in the dataset.

Table 2-4: Examples of major hazardous waste facilities by jurisdiction

Facility	Location	Main hazardous waste streams received	Treatment activities & technologies
ACT			
SteriHealth ACT Customer Centre & Autoclave Facility	Mitchell, ACT	Clinical and pharmaceutical waste	This site autoclaves clinical and pharmaceutical waste.
NSW			
Transpacific Homebush Bay	Homebush Bay, NSW	Acids, alkalis, organic sludges, organic solvents, oils, industrial wash water, organic chemicals	This is a large treatment facility that undertakes a range of treatment processes including chemical and physical treatment, thermal treatment with energy recovery, immobilisation and intermediate storage of hazardous waste.
Solveco	St Marys, NSW	Paints, resins, inks and solvents.	This facility undertakes recycling of solvents from waste streams via a distillation process.
SITA Elizabeth Drive Landfill Facility	Kemps Creek, NSW	Restricted solid waste, contaminated soils	This site is the only landfill in NSW that is licensed to accept restricted solid waste.

Facility	Location	Main hazardous waste streams received	Treatment activities & technologies
NT			
Veolia Autoclave & Liquid Treatment Plant	Berrimah, NT	Acids, alkalis, inorganics chemicals, reactive chemicals, paints, resins, inks, organic sludges, organic solvents, pesticides, oils, industrial wash water, organic chemicals, soil/sludge, clinical and pharmaceutical	This is a medium sized treatment facility that undertakes a range of treatment processes including chemical and physical treatment, thermal treatment and intermediate storage of hazardous waste.
QLD			
Ace Waste	Willawong, QLD	Clinical and pharmaceutical waste	This site undertakes thermal treatment of clinical and pharmaceutical waste.
Remondis Swanbank Landfill		Contaminated soils	This is a large landfill that accepts contaminated soils.
Toxfree Narangba	Narangba, QLD	PCBs, OCPs	This facility undertakes thermal destruction of PCB and OCPs via plasma arc technology
SA			
Transpacific Wingfield Treatment Plant (Nationwide Oil)	Wingfield, SA	Oils, acids, alkalis, inorganic chemicals, organic solvents.	This is a large treatment facility that undertakes a range of treatment processes including chemical and physical treatment, solvent recycling, immobilisation and intermediate storage of hazardous waste.
Southern Waste ResourceCo	Maslin Beach	Contaminated soils, residues from industrial waste treatment	This is a specialist landfill that accepts contaminated soils and residues from industrial waste treatment. It disposes these wastes to landfill.
TAS			
Launceston Liquid Treatment Plant	Invermay, TAS	Oils	This site undertakes treatment of waste oils and oily waters.

Facility	Location	Main hazardous waste streams received	Treatment activities & technologies
VIC			
Geocycle	Dandenong, VIC	Paints, resins, inks, organic sludges, organic solvents, pesticides, oils, organic chemicals, soil/sludge	This large facility accepts a range of waste streams for processing/blending to produce a liquid fuel for use as an alternative fuel in cement kilns
SITA Taylors Road Landfill	Lyndhurst, VIC	Contaminated soils, organic sludges, process residues	This is a large landfill that accepts a range of solid hazardous wastes and waste treatment plant residues.
Toxfree Laverton	Laverton North, VIC	Acids, alkalis, inorganics chemicals, reactive chemicals, paints, resins, inks, organic sludges, organic solvents, pesticides, oils, industrial wash water, organic chemicals	This is large facility that receives a wide range of hazardous waste streams from treatment. There is a wide number of treatment processes undertaken on this site, including liquid treatment, distillation, densification, neutralisations.
Renex	Dandenong South, VIC	Contaminated soils	The facility is in its commissioning stages. It will have a focus on receiving and processing soils contaminated with a variety of substances and wastes via thermal treatment.

Facility	Location	Main hazardous waste streams received	Treatment activities & technologies
WA			
Toxfree Hazardous Waste Site Port Hedland	Wedgefield , WA	Acids, alkalis, inorganics chemicals, reactive chemicals, paints, resins, inks, organic sludges, organic solvents, pesticides, oils, putrescible waste, industrial wash water, organic chemicals, soil/sludge	This is a large treatment facility that undertakes a range of treatment processes including chemical and physical treatment, thermal treatment and intermediate storage of hazardous waste
SteriHealth WA Customer Centre & Autoclave Facility	Bibra Lake, WA	Clinical and pharmaceutical waste	This site autoclaves clinical and pharmaceutical waste.

3 Data Sources

3.1 Published sources

The following published and/or publicly available sources were used to gather information on hazardous waste infrastructure for this project.

Table 3-2: List of published sources

Reference key	Source
24 (AceWaste)	Ace Waste. 2014. Ace Waste. [ONLINE] Available at: http://www.acewaste.com.au. [Accessed 13 May 2014].
10 (ASEA)	Asbestos Safety and Eradication Agency. 2014. Asbestos Disposal Facilities in Australia. Accessed data via email from Merrin Hambley, Policy Officer, Asbestos Safety and Eradication Agency 01/04.14.
46 (AORA)	Australian Oil Recyclers Association. 2014. AORA. [ONLINE] Available at: http://aora.asn.au/members.php. [Accessed 13 May 2014].
25 (Cleanway)	Cleanway 2014. Forms. [ONLINE] Available at: http://www.cleanway.com.au/Forms. [Accessed 13 May 2014].
20 (CMA Ecocycle)	CMA EcoCycle. 2014. CMA EcoCycle | Mercury & Industrial Waste Recycling, Australia-wide. [ONLINE] Available at: http://www.cmaecocycle.net/. [Accessed 13 May 2014].
17 (Coast&Valley)	Coast and Valley Oil. 2014. Coast and Valley Oil - Recycling Oils and Lubricants - Atlantic Oil Distributors. [ONLINE] Available at: http://www.coastandvalleyoil.com.au/. [Accessed 13 May 2014].
40 (CRS)	Container Reconditioning Services. 2014. Container Reconditioning Services. [ONLINE] Available at: http://www.crsdrums.com.au/services.html. [Accessed 13 May 2014].
16 (Coopers)	Coopers Environmental. 2014 [ONLINE] Available at: http://www.coopersenviro.com.au/. [Accessed 13 May 2014].
21 (DAFF)	Department of Agriculture. 2014. Quarantine Approved Premises - Waste Disposal Facilities - Department of Agriculture. [ONLINE] Available at: http://www.daff.gov.au/biosecurity/import/general-info/qap-waste-disposal-facilities. [Accessed 13 May 2014].
61 (Drum Master)	Drum Master (Wollongong). 2014. drumhomepage. [ONLINE] Available at: http://www.drummaster.com.au/compliance.html#. [Accessed 14 May 2014].
64 (DrumRecon)	Drum Reconditioners. 2014. Drum Reconditioners - Homepage. [ONLINE] Available at: http://www.drumreco.com.au/. [Accessed 15 May 2014].
19 (E-Cycle)	E-Cycle Recovery. 2014. E-Cycle Recovery | electronic waste recycling | The e-waste solution for Adelaide. [ONLINE] Available at: http://www.ecyclerecovery.com.au/. [Accessed 13 May 2014].

Reference key	Source
52 (EESI)	EESI Contracting. 2014. Bioremediation - EESI Contracting. [ONLINE] Available at: http://eesicontracting.com/services/bioremediation/. [Accessed 13 May 2014].
54 (Energi)	Enirgi - Australian Refined Alloys. 2014. Enirgi - Australian Refined Alloys. [ONLINE] Available at: http://www.enirgi.com/operations/lead/australian-refined-alloys/. [Accessed 13 May 2014].
4 (NSW EPA)	Environment & Heritage | PRPOEO . 2014. Environment & Heritage | PRPOEO . [ONLINE] Available at: http://www.epa.nsw.gov.au/prpoeoapp/. [Accessed 13 May 2014].
14 (ACT)	Environment Protection Authority Public Register Search - Environment and Sustainable Development Directorate. 2014. Environment Protection Authority Public Register Search - Environment and Sustainable Development Directorate. [ONLINE] Available at: http://www.environment.act.gov.au/environment/environment_protection_authority/epa_search. [Accessed 13 May 2014].
5 (NT EPA)	Environment Protection Licences - NTEPA. 2014. Environment Protection Licences - NTEPA. [ONLINE] Available at: http://www.ntepa.nt.gov.au/waste-pollution/approvals-licences/ep-licences. [Accessed 13 May 2014].
55 (Envirotreat)	Environmental Treatment Solutions. 2014. Industrial and Chemical Waste Disposal and Management | Waste Management Solutions | Environmental Treatment Solutions. [ONLINE] Available at: http://www.envirotreat.com.au/. [Accessed 13 May 2014].
3 (SA EPA)	EPA South Australia :: Environmental authorisations (licences). 2014. EPA South Australia :: Environmental authorisations (licences). [ONLINE] Available at: http://www.epa.sa.gov.au/what_we_do/public_register_directory/environmental_authorisations_licences. [Accessed 13 May 2014].
23 (Geocycle)	Geocycle. 2014. [ONLINE] Available at: http://www.geocycle.com.au/. [Accessed 13 May 2014].
13 (Geoscience)	Geoscience Australia. 2013 .National Waste Management Database. Accessed data via email from Kane Orr, Geoscience Australia 15/08/13
44 (Hydrodec)	Hydrodec Group 2014. Hydrodec Group plc - Contact Us. [ONLINE] Available at: http://www.hydrodec.com/product-and-services/australia/contact-us. [Accessed 13 May 2014].
53 (Hydromet)	Hydromet. 2014. Welcome to Hydromet - leaders in environmental technology & lead production. [ONLINE] Available at: http://www.hydromet.com.au/company/contact. [Accessed 13 May 2014].
28 (JJ Richards)	JJ Richards & Sons. 2014. Waste Disposal Management | Waste Management Collection | Garbage Collection. [ONLINE] Available at: http://www.jjrichards.com.au/. [Accessed 13 May 2014].
42 (Mulhern)	Mulhern Waste Oil - Waste oil recyclers and liquid waste removal. [ONLINE] Available at: http://www.mulhernwaste.com.au/. [Accessed 13 May 2014].

Reference key	Source
29 (NT EPA)	Northern Territory Environmental Protection Authority. 2014. Listed Waste Handler Details. Accessed data via email from Emma Young, Director Waste and Resource Recovery NT EPA, 01/04.14.
67 (PlanetPaint)	Planet Paints. 2014. Planet Paints Outdoor Cement Paint: Welcome. [ONLINE] Available at: http://www.planetpaints.com.au/. [Accessed 21 May 2014].
66 (QLDDAFF)	Queensland Government Department of Agriculture, Fisheries and Forestry. 2014. Waste facilities. [ONLINE] Available at: http://www.daff.qld.gov.au/plants/weeds-pest-animals-ants/invasive-ants/fire-ants/restricted-areas/waste-facilities. [Accessed 15 May 2014].
12 (PlanetArk)	Recycling Near You. 2014. Home - Recycling Near You. [ONLINE] Available at: http://recyclingnearyou.com.au/. [Accessed 13 May 2014].
35 (EMRC)	Red Hill Waste Management Facility. 2014. Red Hill Waste Management Facility. [ONLINE] Available at: http://www.emrc.org.au/red-hill-waste-management.html. [Accessed 13 May 2014].
27 (Redlam)	Redlam Waste Services: Clinical Waste Management. 2014. Redlam Waste Services: Clinical Waste Management. [ONLINE] Available at: http://www.redlam.com.au/contact.html. [Accessed 13 May 2014].
67 (RenewOil)	Renewable Oil Services. 2014. Liquid Waste Management - Hydrocarbon Waste and Oily Water Treatment. [ONLINE] Available at: http://www.renewableoil.com.au/liquid-waste/. [Accessed 14 May 2014].
9 (Renex)	Renex. 2014. Renex | Australia's first permanently located integrated waste treatment and resource recovery facility.. [ONLINE] Available at: http://www.renexgroup.com/. [Accessed 13 May 2014].
26 (Resolve)	Resolve Waste Management. 2014. Resolve: Solvent Waste and Recycling. [ONLINE] Available at: http://www.resolvewaste.com/. [Accessed 13 May 2014].
22 (SITA)	SITA Australia. 2014. Resource Recovery, Collection, Disposal Facilities | SITA Australia. [ONLINE] Available at: http://www.sita.com.au/facilities. [Accessed 13 May 2014].
62 (Solveco)	Solveco. 2014. Waste Management Sydney | Waste Treatment | Solveco. [ONLINE] Available at: http://www.solveco.com.au/index.html. [Accessed 15 May 2014].
65 (SolveAus)	Solvents Australia. 2014. Solvents Australia Contact Us. [ONLINE] Available at: http://www.solvents.net.au/contact.htm. [Accessed 15 May 2014].
18 (SouthernOil)	Southern Oil. 2014. Southern Oil. [ONLINE] Available at: http://www.sor.com.au/. [Accessed 13 May 2014].
63 (Tank Mgmt)	Tank Management. 2014. IBC (Intermediate Bulk Containers) and dangerous goods containers | Tank Management. [ONLINE] Available at: http://www.tankmanagement.com.au/Content_Common/index.aspx. [Accessed 15 May 2014].

Reference key	Source
37 (Port Hedland)	Town of Port Hedland. 2014. Town of Port Hedland - Our Council. [ONLINE] Available at: http://www.porthedland.wa.gov.au/council. [Accessed 13 May 2014].
2 (Toxfree)	Toxfree Australia. 2014. Toxfree Australia. [ONLINE] Available at: http://www.toxfree.com.au/index.php?MID=002.001.008&MUID=002.001&Section=Locations. [Accessed 13 May 2014].
6 (TPI)	Transpacific Industries. 2014. Find a site. [ONLINE] Available at: http://www.transpacific.com.au/content/find-a-site.aspx. [Accessed 13 May 2014].
57 (V Resource)	V Resource. 2014. V Resource. [ONLINE] Available at: http://www.vh-int.com/. [Accessed 13 May 2014].
7 (Veolia)	Veolia Offices | Facility Locations - Veolia Australia & New Zealand. 2014. Veolia Offices | Facility Locations - Veolia Australia & New Zealand. [ONLINE] Available at: http://www.veolia.com.au/about-veolia/facility-finder. [Accessed 13 May 2014].
30 (VIC EPA)	Victorian EPA. 2014. Prescribed industrial waste database. [ONLINE] Available at: http://www.epa.vic.gov.au/business-and-industry/forms/prescribed-industrial-waste-database. [Accessed 13 May 2014].
33 (WA DEC)	Western Australia Department of Environment Regulation. 2010. Copy of License for Enviroclean, licence: L8425/2010/1. [ONLINE] Available at: http://portal.environment.wa.gov.au/pls/portal/docs/PAGE/ADMIN_LICENSING/LICENCES/2006/TAB8118745/8425ENV_1.PDF
38 (WA DEC)	Western Australia Department of Environment Regulation. 2011. Copy of License for ABM Envirosafe: L8589/2011/1. [ONLINE] Available at: http://portal.environment.wa.gov.au/pls/portal/docs/PAGE/ADMIN_LICENSING/LICENCES/2006/TAB9207560/8589ABM_1.PDF
36 (WA DEC)	Western Australia Department of Environment Regulation. 2012. Copy of works approval: W5182/2012/1. [ONLINE] Available at: http://portal.environment.wa.gov.au/pls/portal/docs/PAGE/ADMIN_LICENSING/WORKS%20APPROVALS/TAB9243483/5182SEVENMILE_3.PDF
39 (WA DER)	Western Australia Department of Environment Regulation. 1997. Copy of License for Browns Range Waste Management Facility: L7065/1997/11. [ONLINE] Available at: http://www.der.wa.gov.au/our-work/licences-and-works-approvals/current-licences/item/download/2097_5f248dbeb873d9eff5179e081a5c38d9
34 (WA DER)	Western Australia Department of Environment Regulation. 2013. Copy of License for Veolia licence: L8765/2013/1. [ONLINE] Available at: http://www.der.wa.gov.au/our-work/licences-and-works-approvals/current-licences/item/download/1904_1fffd14d2acd4a91b17487aaf69723fd

Reference key	Source
32 (WA DER)	Western Australia Department of Environment Regulation. 2014. Controlled Waste Tracking System - Department of Environment Regulation. [ONLINE] Available at: https://cwts.der.wa.gov.au/#Login;_Previous_Screen:CompanySearch;orgType:Treatment_Plant. [Accessed 22 April 2014].
45 (Wren)	Wren Oil. 2014. Home - Wren Oil, waste oil recycling, refining, waste oil collection. [ONLINE] Available at: http://wrenoil.com.au/. [Accessed 13 May 2014].

3.2 Unpublished data sources

Rawtec would like to acknowledge and thank the following organisations that have provided information and advice on hazardous waste infrastructure for this project.

- Australian Capital Territory Environment and Sustainable Development Directorate
- New South Wales Environment Protection Authority
- Northern Territory Environment Protection Authority
- Queensland Department of Environment and Heritage Protection
- SITA Australia
- South Australia Environment Protection Authority
- Toxfree Australia
- Transpacific Industries
- Veolia Environmental Services
- Victoria Environment Protection Authority
- Western Australia Department of Environment Regulation

Individual hazardous waste facilities were also contacted to confirm facility or site details, as listed in the 'Data Sources' sheet of the dataset.

Appendix 1 – List of NEPM Classifications

NEPM "15" Waste Type		NEPM "75" Code	Waste Description
A	Plating and heat treatment	A100	Waste resulting from surface treatment of metals and plastics
		A110	Waste from heat treatment and tempering operations containing cyanides
		A130	Cyanides (inorganic)
B	Acids	B100	Acidic solutions or acids in solid form
C	Alkalis	C100	Basic solutions or bases in solid form
D	Inorganic chemicals	D100	Metal carbonyls
		D110	Inorganic fluorine compounds excluding calcium fluoride
		D120	Mercury; mercury compounds
		D130	Arsenic; arsenic compounds
		D140	Chromium compounds (hexavalent and trivalent)
		D150	Cadmium; cadmium compounds
		D160	Beryllium; beryllium compounds
		D170	Antimony; antimony compounds
		D180	Thallium; thallium compounds
		D190	Copper compounds
		D200	Cobalt compounds
		D210	Nickel compounds
		D220	Lead; lead compounds
		D230	Zinc compounds
		D240	Selenium; selenium compounds
		D250	Tellurium; tellurium compounds
		D270	Vanadium compounds
		D290	Barium compounds (excluding barium sulphate)
		D300	Non-toxic salts
		D310	Boron compounds
		D330	Inorganic sulfides
		D340	Perchlorates
		D350	Chlorates
		D360	Phosphorus compounds excluding mineral phosphates
E	Reactive chemicals	E100	Waste containing peroxides other than hydrogen peroxide
F	Paints, resins, inks, organic sludges	F100	Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers and varnish
		F110	Waste from the production, formulation and use of resins, latex, plasticisers, glues and adhesives
G	Organic solvents	G100	Ethers
		G110	Organic solvents excluding halogenated solvents
		G150	Halogenated organic solvents
		G160	Waste from the production, formulation and use of organic solvents

NEPM "15" Waste Type		NEPM "75" Code	Waste Description
H	Pesticides	H100	Waste from the production, formulation and use of biocides and phytopharmaceuticals
		H110	Organic phosphorous compounds
		H170	Waste from manufacture, formulation and use of wood-preserving chemicals
J	Oils	J100	Waste mineral oils unfit for their original intended use
		J120	Waste oil/water, hydrocarbons/water mixtures or emulsions
		J160	Waste tarry residues arising from refining, distillation, and any pyrolytic treatment
K	Putrescible/ organic waste	K100	Animal effluent and residues (abattoir effluent, poultry and fish processing wastes)
		K110	Grease trap waste
		K140	Tannery wastes (including leather dust, ash, sludges and flours)
		K190	Wool scouring wastes
L	Industrial washwater	-	Not listed in Schedule A List 1 of NEPM. Heading reported as part of "15" in NEPM annual reporting
M	Organic chemicals	M100	Waste substances and articles containing or contaminated with polychlorinated biphenyls, polychlorinated napthalenes, polychlorinated terphenyls and/or polybrominated biphenyls
		M150	Phenols, phenol compounds including chlorophenols
		M160	Organo halogen compounds—other than substances referred to in this Table or Table 2
		M170	Polychlorinated dibenzo-furan (any congener)
		M180	Polychlorinated dibenzo-p-dioxin (any congener)
		M210	Cyanides (organic)
		M220	Isocyanate compounds
		M230	Triethylamine catalysts for setting foundry sands
		M250	Surface active agents (surfactants), containing principally organic constituents and which may contain metals and inorganic materials
		M260	Highly odorous organic chemicals (including mercaptans and acrylates)
N	Soil/ sludge	N100	Containers and drums that are contaminated with residues of substances referred to in this list
		N120	Soils contaminated with a controlled waste
		N140	Fire debris and fire wash waters
		N150	Fly ash, excluding fly ash generated from Australian coal fired power stations
		N160	Encapsulated, chemically-fixed, solidified or polymerised wastes referred to in this list
		N190	Filter cake contaminated with residues of substances referred to in this list
		N205	Residues from industrial waste treatment/disposal operations
		N220	Asbestos
		N230	Ceramic-based fibres with physico-chemical characteristics similar to those of asbestos
R	Clinical and pharmaceutical	R100	Clinical and related wastes
		R120	Waste pharmaceuticals, drugs and medicines
		R140	Waste from the production and preparation of pharmaceutical products

NEPM “15” Waste Type	NEPM "75" Code	Waste Description
T Miscellaneous	T100	Waste chemical substances arising from research and development or teaching activities, including those which are not identified and/or are new and whose effects on human health and/or the environment are not known
	T120	Waste from the production, formulation and use of photographic chemicals and processing materials
	T140	Tyres
	T200	Waste of an explosive nature not subject to other legislation

Appendix 2 – Definitions

Item	Definition
Recycling	To treat or process hazardous wastes so as to make suitable for reuse.
Landfill	The disposal of hazardous waste material by burial.
Chemical treatment	Involves the use and/or addition of chemicals to transform a waste by chemical reaction (e.g. oxidation, reduction, precipitation, neutralisation, etc.) into a less or non-hazardous form.
Physical treatment	Use of a physical treatment mechanism (e.g. sedimentation, filtration, adsorption, immobilisation, etc.) to separate or remove hazardous components from a waste stream or render these hazardous components inert when disposed of.
Thermal treatment	Use of heat (e.g. incineration, autoclave, thermal oxidation, etc.) to transform hazardous waste materials into an inert form.
Energy recovery	Recovery of energy during thermal treatment, which can be used as process heat or to generate electricity.
Immobilisation	Adsorption or embedment/encapsulation of a hazardous component within a solid matrix that renders it inert for disposal.
Biological treatment	Use of biological organisms (e.g. bacteria, algae, fungi, etc.) to transform or adsorb hazardous components from a waste stream.
Facility operational capacity	Tonnes of waste received and/or processed or disposed per annum, which are classified as follows: Very small : 0 – 1,000 tonnes Small : 1,001 – 5,000 tonnes Medium : 5,001 – 50,000 tonnes Large : greater than 50,000 tonnes
Datum	A spatial reference (e.g. WGS84) for a set or system of geographical coordinates to describe a location.
Location confidence scale	Level of confidence on the location of a facility or site, which is classified as follows: 1 Feature placed in the centre of district/town 2 Feature placed on street/general facility site (e.g. mine, landfill) 3 Feature placed on location of full address/known coordinates but

Item	Definition
	can't be positively identified from imagery; or feature placed on suspected location of facility identified from imagery, within a known, more general, location (such as a mine or landfill site)
	4 Feature positively identified from imager (expert ID) but reference material insufficient to be 100% positive
	5 Feature positively identified from imagery (expert ID) and, along with reliable reference material, feature located with 100% certainty; or expert ID from imagery or reliable reference material + individual knowledge sufficient to be 100% certain of location