



Licence

Environmental Protection Act 1986, Part V

Licensee: Halliburton Australia Pty Ltd

Licence: L5627/1988/12

Registered office: Level 27
 140 St Georges Terrace
 PERTH WA 6000

ACN: 009 000 775

Premises address: Multi-Chem | Mintech
 Lot 2 (#1) on Plan 42679
 Ward Road
 EAST ROCKINGHAM WA 6168 as depicted in Schedule 1.

Issue date: Friday 11 December 2015

Commencement date: Friday 11 December 2015

Expiry date: Thursday, 10 December 2029

Prescribed premises category

Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
31	Chemical manufacturing: premises (other than premises within category 32) on which chemical products are manufactured by a chemical process	100 tonnes or more per year	5,000 tonnes per annual period
33	Chemical blending or mixing: premises on which chemicals or chemical products are mixed, blended or packaged in a manner that causes or is likely to cause a discharge of waste into the environment	500 tonnes or more per year	15,000 tonnes per annual period

Conditions

This Licence is subject to the conditions set out in the attached pages.

Date signed: 27 January 2017

.....
Caron Goodbourn

Officer delegated under section 20
 of the *Environmental Protection Act 1986*



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Introduction

This Introduction is not part of the Licence conditions.

The DER's industry licensing role

The Department of Environment Regulation (DER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. The DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

The DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process the DER regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment. The DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

Licence requirements

This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licence Holder the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link:

<http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html>

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.
- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.
- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.



Licence Holders are also reminded of the requirements of section 53 of the Act which places restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice.

Licence fees

If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non-payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions

If your Premises has been assessed under Part IV of the Act, you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and Licence summary

Halliburton Australia Pty Ltd (Halliburton) produces a range of water treatment chemicals, flotation reagents and general commodity type chemicals. Activities conducted at the East Rockingham premises include the storage, leaching, dewatering and mixing of chemicals used in the mining, oil and gas industry as well as for general industry where customers are located both Australian wide and overseas.

The Mintech was established by ICI Australia in 1988. Ownership of the plant has changed several times, as noted below:

- 1994 Purchased by Hanwha Advanced Ceramics;
- 2000 Purchased by Millennium Chemicals;
- 2004 Purchased by Doral Specialty Chemicals Pty Ltd;
- 2009 Purchased by Mintech Chemical Industries Pty Ltd; and
- 2016 Halliburton Australia Pty Ltd

Halliburton is a subsidiary of the Halliburton Group of companies and applies the Halliburton management system, which meets or exceed ISO 9001, ISO 14001 and AS/NZS 4801, to the management of Premises. Mintech functions in accordance with *Environmental Protection (Kwinana) (Atmospheric Wastes) Regulations 1992* and *Environmental Protection (Kwinana) (Atmospheric Wastes) Policy* where it falls within Area A of the *EP (Kwinana) (Atmospheric Wastes) Regulations 1992*, which applies limits to the ambient concentrations for sulphur dioxide and total suspended particulates within the Kwinana area.

Mintech has the following licences and permits:

- Dangerous Goods licence (Licence No. DGS014270);
- Poisons permit (S7);and
- Poison licence (S6);

Location:

Mintech is located in the Kwinana industrial strip at Lot 2 (#1) Ward Road, East Rockingham in Western Australia. The site is surrounded by vacant land and Cockburn Sound is 750m to the WNW of the premises. The closest industrial premises includes a chemical blender (WA Kaolin Holdings) which adjoins the south west boundary. The next closest premises is the Co-Operative Bulk Handling sheds, located 330m in a westerly direction and Doral Speciality Chemicals which is located 390m in a southerly direction.

Groundwater in the area is at 3m below ground level (bgl). Due to the proximity to Cockburn Sound, the salinity is high with monitoring results showing variations from 650 to 1,160mg/L TDS, depending



on the location of the bores and time of year.

Activities on site:

Mintech produces aqueous based reagents and solids for the mining, oil and gas industry. These chemicals are diluted onsite to a percentage consistent with clients' needs and production is campaign based, dependent on consumer demand. Mintech currently produces approximately 15,000 tonnes of chemicals per year.

When Mintech took over operations on site in 2009, the following areas were decommissioned and equipment shut down:

1. dryer /pre calciner;
2. all crushing, screening and bagging operations;
3. spray dryer;
4. pilot batch plant;
5. storage and processing of sulphuric acid; and
6. zircon grinding circuit (Jet mills A and B).

Air Emissions:

The decanting, mixing and storage of chemicals produce continuous air emissions. Process exhaust air and fumes emitted during decanting and from the storage tanks are fed through two different systems:

An alkaline scrubber is utilized to neutralise NH_3 fumes where emissions are fed into a sulphuric acid based solution to dilute and lower the pH. Emissions are fed through a plastic medium sprayed with the acid solution which is maintained at a pH less than 3.5. The pH is continuously monitored and when it is outside the operating range, fresh solution of sulphuric acid is added. The acid scrubber neutralises all acidic vapours. As above, emissions are fed through a plastic medium and sprayed with a sodium hydroxide solution maintained at a pH greater than 9.0. The pH range is dependent on the type of chemicals being scrubbed and can be adjusted to suit the process. The alkaline scrubber stack is 25m above ground level and the acid scrubber stack is 5m above ground level.

Grab samples of the emissions through the stacks are monitored by using a gas sampling tube. The previous licence (L56271988/11) required monthly monitoring of air emissions from the acid and alkaline scrubber stacks.

Solid wastes:

Solid wastes are either recycled back into the process or placed in bulker bags which are stored in contaminated waste bins for removal off site by a licensed contractor for disposal to a licensed landfill.

Liquid wastes:

There are two storage ponds on site which were previously used to store process wastewater. Due to the changes in onsite activities, the storage ponds are now only used for direct rainwater catchment and there is no discharge to the environment. There are four monitoring bores surrounding the storage ponds and both ponds have a double HDPE liner with a leak detection system to detect any leaks between the pond liners.

The ponds are fitted with an alarm to alert operators if the level in the ponds exceeds a freeboard of 300mm. During the last site visit, over one metre freeboard was observed on the ponds and Mintech is currently investigating water harvesting options in order to reduce their reliance on scheme water. Water from the ponds is monitored in the on-site laboratory for salinity and if the reading is less than 100ppm total dissolved salts, the water is deemed suitable for reuse in the manufacturing process. If greater than 100ppm, the water is pumped from the ponds into the neutralization pit. The welded joints are regularly checked and the ponds are desludged prior the winter rains. The sludge in the



bottom of the ponds consists mainly of sand and windblown debris which is vacuumed by licensed operators and disposed off-site.

The neutralization pit is approximately 20m² in size and consists of a concrete pit lined with HDPE. All washdown water, wastewater from the bunded storage areas and water from the storage ponds with a high amount of total suspended solids (>100ppm) are directed to the neutralization pit where it is treated. If not reused in the process, it is disposed off-site by a licensed liquid waste disposal service.

Mintech is not connected to the sewer system. Toilets and showers on site are discharged into a leach drain. Stormwater is collected in sumps and retained on site. The sumps and bunded areas are regularly monitored where the contents are pumped into the neutralization pit for treatment prior reuse in the process.

Previously, the Licence Holder was permitted to discharge treated wastewater from the neutralization pit into Cockburn Sound via a marine pipeline managed by the Co-Operative Bulk Handling (CBH). Due to upgrades and changes to on-site processes, the last discharge into the Sound occurred in October 2013. All pipework has now been disconnected.

Licence L5627/1988/12 is the successor to licence L5627/1988/11 and includes updates to the Licence, in accordance with the Department's Guidance Statement *Setting conditions*, Department of Environment Regulation, October 2015.

The current licence amendment is to change the Occupier from Mintech Chemical Industries Pty Ltd to Halliburton Australia Pty Ltd. There have been no changes to the conditions of the licence, hence there has not been a re-assessment of emissions and discharges on site.

The licences and works approvals issued for the Premises since 19 September 1996 include:

Instrument log		
Instrument	Issued	Description
W1424/1988/1	19/09/1996	Works Approval
W1862/1988/1	22/05/1996	Works Approval
L5627/1988/5	13/12/2000	Licence re-issue
W3114/1988/1	29/08/2000	Works Approval
L5627/1988/6	07/12/2001	Licence re-issue
L5627/1988/7	30/12/2002	Licence re-issue
L5627/1988/8	15/12/2003	Licence re-issue
L5627/1988/9	02/12/2004	Licence re-issue
W1791/1988/1	16/10/2006	Works Approval
L5627/1988/10	06/12/2007	Licence re-issue
L5627/1988/10	08/05/2009	Licence amendment to allow change of Licence Holder from Doral Specialty Chemicals Pty Ltd to Mintech Chemical Industries Pty Ltd
L5627/1988/11	18/11/2010	Licence re-issue
L5627/1988/12	11/12/2015	Licence re-issue and update to new format
L5627/1988/12	27/01/2017	Licence amended due to change of Occupier from Mintech Chemical Industries Pty Ltd to Halliburton Australia Pty Ltd.

Severance

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid. **END OF INTRODUCTION**



Licence conditions

1 General

1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

'Act' means the *Environmental Protection Act 1986*;

'annual period' means the inclusive period from 1 January until 31 December in the same year;

'anniversary date' means 31 December of each year.

'Annual Audit Compliance Report' means a report in a format approved by the CEO as presented by the Licence Holder or as specified by the CEO from time to time and published on the Department's website.

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' for the purpose of correspondence means;

Chief Executive Officer
Department Div.3 Pt V EP Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Email: info@der.wa.gov.au

'controlled waste' has the definition in *Environmental Protection (Controlled Waste) Regulations 2004*;

'freeboard' means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

'Licence' means this Licence numbered L5627/1988/12 and issued under the Act;

'Licence Holder' means the person or organisation named as Licence Holder on page 1 of the Licence;

'normal operating conditions' means any operation of a particular process (including abatement equipment) excluding start-up, shut-down and upset conditions, in relation to stack sampling or monitoring;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated;



- 1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the standard in force from time to time during the term of this Licence.
- 1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.2 Premises operation

- 1.2.1 The Licence Holder shall ensure that where wastes produced on the Premises are not taken off-site for lawful use or disposal, they are managed in accordance with the requirements in Table 1.3.1.

Table 1.3.1: Containment infrastructure		
Waste type	Disposal strategy	Operational requirements
Contaminated or potentially contaminated stormwater from the bunds and stormwater sumps	If not suitable for reuse in on-site processes	Wastewater is to be removed off site for disposal
	If suitable for reuse, wastewater is discharged for treatment in the neutralization pit	The neutralization pit is to be: <ul style="list-style-type: none"> lined and maintained to achieve a permeability of at least $<10^{-9}$ m/s or equivalent; and operate with a freeboard sufficient to contain an extreme weather event of a 1-in-10 year storm

2 Emissions

2.1 General

- 2.1.1 The Licence Holder shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Licence.

2.2 Point source emissions to air

- 2.2.1 The Licence Holder shall ensure that where waste is emitted to air from the emission points in Table 2.2.1, and identified on the map of emission points in Schedule 1, it is done so in accordance with Table 2.2.1.

Table 2.2.1: Emission points to air			
Emission point reference [and location on Map of emission points]	Emission Point	Emission point height (m)	Source, including any abatement
A1	Acid scrubber stack	5m	Process exhaust air and storage tanks
A2	Alkaline scrubber stack	25m	

3 Information

3.1 Records

- 3.1.1 All information and records required by the Licence shall:
- (a) be legible;
 - (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;



- (c) except for records listed in 3.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
- (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
 - (i) off-site environmental effects; or
 - (ii) matters which affect the condition of the land or waters.

3.1.2 The Licence Holder must submit to the CEO within 60 calendar days after the Anniversary Date, an Annual Audit Compliance Report indicating the extent to which the Licence Holder has complied with the Conditions in this Licence during the Annual Period.

3.1.3 The Licence Holder shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

3.2 Reporting

3.2.1 The Licence Holder shall submit to the CEO an Annual Environmental Report within 60 calendar days after the Anniversary Date. The report shall contain the information listed in Table 3.2.1 in the format or form specified in that table.

Table 3.2.1: Annual Environmental Report		
Condition or table (if relevant)	Parameter	Format or form¹
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
3.1.2	Compliance	Annual Audit Compliance Report (AACR)
3.1.3	Complaints summary	None specified



Schedule 1: Maps

Premises map

The Premises is shown in the map below. The pink line depicts the Premises boundary.

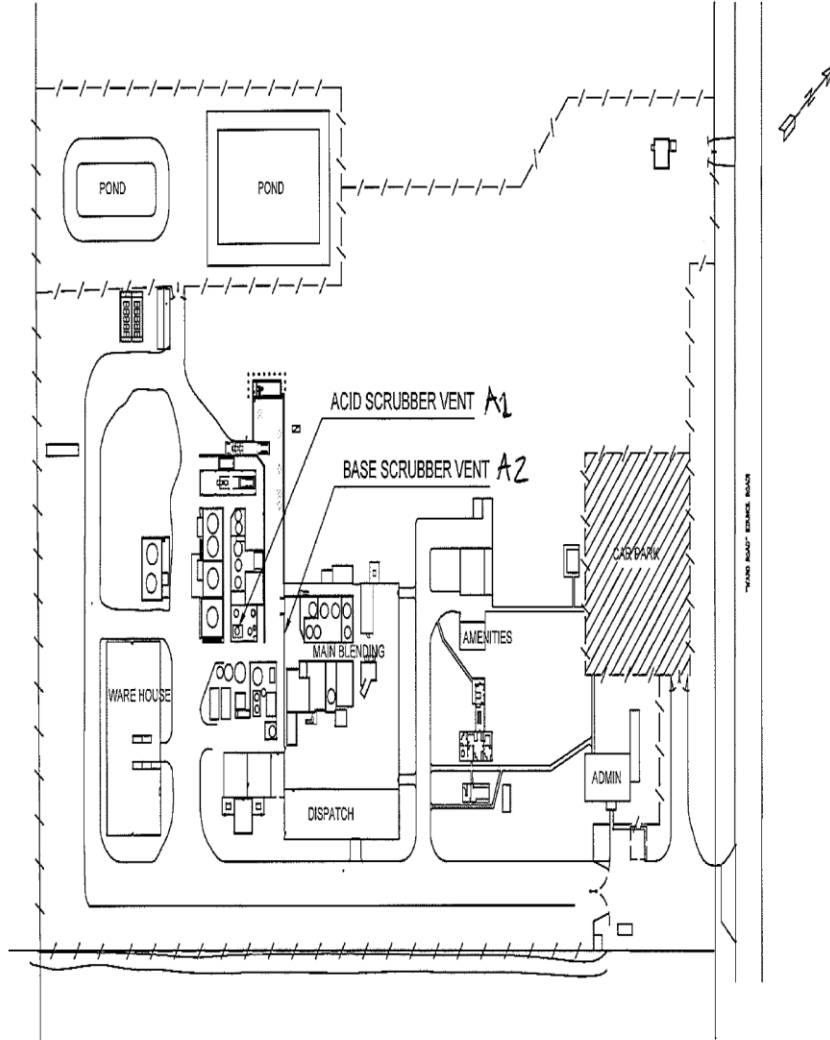
Halliburton Australia Pty Ltd premises boundary





Map of emission points

The location of the emission points defined in Tables 2.2.1 is shown below.



SCRUBBER VENT EMISSIONS
WARD ROAD, EAST ROCKINGHAM

											multi-chem 1 minterch		1:1000	AREA / PROJECT		MULTI-CHEM WARD ROAD	DWG #		R-100-G-10497
											A ISSUED FOR COMMENT			#	BY		DATE	TITLE	
No.	REVISION	DRN	CHKD	APPR	DATE	No.	REVISION	DRN	CHKD	APPR	DATE	SCRUBBER EMISSION PLAN		A					



Decision Document

Environmental Protection Act 1986, Part V

Proponent: Halliburton Australia Pty Ltd

Licence: L5627/1988/12

Registered office: Level 2
140 St Georges Terrace
PERTH WA 6000

ACN: 009 000 775

Premises address: Multi-Chem | Mintech
Lot 2 on Plan 42679
Ward Road
EAST ROCKINGHAM WA 6168

Issue date: Friday 11 December 2015

Commencement date: Friday 11 December 2015

Expiry date: Thursday, 10 December 2029

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue a licence. DER considers that in reaching this decision, it has taken into account all relevant considerations.

Decision Document prepared by: Nanette Schapel
Licensing Officer

Decision Document authorised by: Caron Goodbourn
Delegated Officer



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1 Purpose of this Document

This decision document explains how the DER has assessed and determined the application and provides a record of the DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to the DER's assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.



2 Administrative summary

Administrative details		
Application type	Works Approval <input type="checkbox"/>	<input type="checkbox"/>
	New Licence <input type="checkbox"/>	<input type="checkbox"/>
	Licence amendment <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Works Approval amendment <input type="checkbox"/>	<input type="checkbox"/>
Activities that cause the premises to become prescribed premises	Category number(s)	Assessed design capacity
	31	Less than 5,000 tonnes per annum
	33	Less than 15,000 tonnes per annum
Application verified	Date: 22 September 2015	
Application fee paid	Date: 22 October 2015	
Works Approval has been complied with	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Compliance Certificate received	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Is the proposal subject to Ministerial Conditions?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i>)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Department of Water consulted Yes <input type="checkbox"/> No <input type="checkbox"/>
Is the Premises within an Environmental Protection Policy (EPP) Area: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Environmental Protection (Kwinana) (Atmospheric Wastes) Policy 1999 and <i>Environmental Protection (Kwinana) (Atmospheric Wastes) Regulations 1992</i>		
Is the Premises subject to any EPP requirements? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
The site is subject to the total suspended particulates requirements of the <i>EP (Kwinana) (Atmospheric Wastes) Regulations 1992</i> .		



3 Executive summary of proposal and assessment

Premises description and Licence summary

Halliburton Australia Pty Ltd (Halliburton) produces a range of water treatment chemicals, flotation reagents and general commodity type chemicals. Activities at Multi-Chem | Mintech (Mintech) in East Rockingham include the storage, leaching, dewatering and mixing of chemicals used in the mining, oil and gas industry as well as for general industry where customers are located both Australian wide and overseas.

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- Poison licence (S6).

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2. all crushing, screening and bagging operations;



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4. pilot batch plant;
5. storage and processing of sulphuric acid; and
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An alkaline scrubber is utilized to neutralise NH_3 fumes where emissions are fed into a sulphuric acid based solution to dilute and lower the pH. Emissions are fed through a plastic medium sprayed with the acid solution which is maintained at a pH less than 3.5. The pH is continuously monitored and when it is outside the operating range, fresh solution of sulphuric acid is added. The acid scrubber neutralises all acidic vapours. As above, emissions are fed through a plastic medium and sprayed with a sodium hydroxide solution maintained at a pH greater than 9.0. The pH range is dependent on the type of chemicals being scrubbed and can be adjusted to suit the process. The alkaline scrubber stack is 25m above ground level and the acid scrubber stack is 5m above ground level.

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Solid wastes are either recycled back into the process or placed in bulker bags which are stored in contaminated waste bins for removal off site by a licensed contractor for disposal to a licensed landfill.

Liquid wastes:

There are two storage ponds on site which were previously used to store process wastewater. Due to the changes in onsite activities, the storage ponds are now only used for direct rainwater catchment and there is no discharge to the environment. There are four monitoring bores surrounding the storage ponds and both ponds have a double HDPE liner with a leak detection system to detect any leaks between the pond liners.

The ponds are fitted with an alarm to alert operators if the level in the ponds exceeds a freeboard of 300mm. During the last site visit, over one metre freeboard was observed on the ponds and Mintech is currently investigating water harvesting options in order to reduce their reliance on scheme water. Water from the ponds is monitored in the on-site laboratory for salinity and if the reading is less than 100ppm total dissolved salts, the water is deemed suitable for reuse in the manufacturing process. If greater than 100ppm, the water is pumped from the ponds into the neutralization pit. The welded joints are regularly checked and the ponds are desludged prior the winter rains. The sludge in the bottom of the ponds consists mainly of sand and windblown debris which is vacuumed by licensed operators and disposed off-site.

The neutralization pit is approximately 20m² in size and consists of a concrete pit lined with HDPE. All washdown water, wastewater from the bunded storage areas and water from the storage ponds with a high amount of total suspended solids (>100ppm) are directed to the neutralization pit where it is treated. If not reused in the process, it is disposed off-site by a licensed liquid waste disposal service.

Mintech is not connected to the sewer system. Toilets and showers on site are discharged into a leach drain. Stormwater is collected in sumps and retained on site. The sumps and bunded areas are regularly monitored where the contents are pumped into the neutralization pit for treatment prior reuse in the process.



Previously, the Licensee was permitted to discharge treated wastewater from the neutralization pit into Cockburn Sound via a marine pipeline managed by the Co-Operative Bulk Handling (CBH). Due to upgrades and changes to on-site processes, the last discharge into the Sound occurred in October 2013. All pipework has now been disconnected.

This Licence is the successor to licence L5627/1988/11 and includes updates to the Licence, in accordance with the Department's Guidance Statement *Setting conditions*, Department of Environment Regulation, October 2015.

This amendment is to change the Occupier from Mintech Chemical Industries Pty Ltd to Halliburton Australia Pty Ltd. There have been no material changes to the conditions of the licence, hence there has not been a re-assessment of emissions and discharges on site.



4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and the DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
General conditions	-	General conditions on previous licence included reporting requirements. These conditions have now been moved to section 3.2 Reporting.	L5627/1988/12
Premises operation	L1.2.1	<p>Previous licence (L5627/1988/11) condition G4 placed a limit on the daily production from the pilot batch processing plant. This batch plant is no longer part of onsite operations and therefore, this condition is not included on licence reissue L5627/1988/12. Previous licence (L5627/1988/11) conditions A2(a), A2(b) and A3 regulated the operation of the Jet Mill which is no longer part of on-site operations and these conditions have not been included on the licence reissue L5627/1988/12.</p> <p>Operations – Emission Description</p> <p><i>Emission:</i> Seepage from the wastewater ponds can impact on underlying groundwater</p> <p><i>Impact:</i> There is the potential for seepage from the wastewater ponds to impact on the underlying groundwater, where the seepage can be contaminated from on-site activities.</p> <p><i>Controls:</i> Mintech has ceased discharging process wastewater to the ponds and the pipe work which directed process liquid wastes to the wastewater storage ponds have been disconnected. The ponds are now only used to store incident rainwater where Mintech needs to ensure that a high quality is maintained so as to allow the water to be used in the processing of chemicals. The ponds have HDPE double liners with a leakage detection system between the two layers. The joins and condition of the liners are routinely checked and maintained. The ponds are fitted with an alarm to alert operators if the level in the ponds exceeds a freeboard of 300mm. Prior to the winter</p>	<p>L5627/1988/12</p> <p><i>Environmental Protection Act 1986</i></p>



DECISION TABLE			
Works Approval / Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p>rains each year, any sludge in the bottom of the ponds, which usually consists of dust and leaf litter, is sucked out by a liquid waste contractor for disposal off-site.</p> <p><u>Risk Assessment</u> <i>Consequence:</i> Insignificant <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Low</p> <p><u>Regulatory Controls</u> The previous licence (L5627/1988/11) included conditions for the management of the wastewater ponds (previously referred to as the liquid ammonium salts storage ponds) where:</p> <ul style="list-style-type: none"> - Condition W1 required the ponds to be double lined and include a leak detection system; - Conditions W2 and W3 required the Licensee to monitor representative samples from the ponds; - Condition W3 required the samples to be collected according to AS5667 and analysed in a NATA accredited laboratory; and - Condition W4 required that tanker trucks out-loading from the liquid ammonium salts storage pond use fixed piping. <p>As noted above, the ponds are now only used for containment of incident rainwater and the conditions noted above have not been transferred to the licence reissue (L5627/1988/12). The double lining on the ponds, the leakage detection system and the freeboard alarms are all maintained. The DER has re-assessed the potential for wastewater from the storage ponds to impact on the underlying groundwater and is satisfied that this risk is now insignificant and there is no discharge to the environment from the ponds. The requirement to sample and monitor from the groundwater bores has been removed. Any emissions from the ponds which have the potential to impact on the surrounding groundwater can be managed under the general provisions of the <i>Environmental Protection Act 1986</i>.</p>	



DECISION TABLE			
Works Approval / Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p><u>Risk Assessment</u> <i>Consequence:</i> Insignificant <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Low</p>	
Emissions general	L2.1.1	<p>The assessment of point source emissions to air has been included in Appendix A. Previous licence (L5627/1988/11) condition A4 included a limit on the concentration of airborne dust in the exhaust air from the crushing, screening and bagging operations. This part of the operations is no longer carried out on site and this condition has not been included on the licence reissue L5627/1988/12.</p>	L5627/1988/12
Point source emissions to air including monitoring	L2.2.1	<p>Previous licence (L5627/1988/11) condition A5 required process exhaust air only to be discharged to the atmosphere through:</p> <ul style="list-style-type: none"> (i) A pre-calciner stack (ii) Acid scrubber stack; (iii) Alkaline scrubber stack; (iv) Calciner stacks; (v) Spray dryer stack; and (vi) Zircon grinding circuit stacks. <p>This condition has been replaced by condition L2.2.1 which requires emissions to be discharged through either the alkaline or acid scrubber stacks, where the assessment of point source emissions to air has been included in Appendix A. Due to changes in operations on site, the pre-calciner and calciner stacks, spray dryer and zircon grinding circuit stack are not part of current operations and conditions regulating their operation have not been included on licence reissue L5627/1988/12.</p>	L5627/1988/12
Point source emissions to surface water including monitoring	-	<p>The previous licence L5627/1988/11 included the following conditions regarding wastewater discharge to the marine environment:</p> <ul style="list-style-type: none"> - Condition M1(a) required the Licensee to only discharge process wastewater to the environment via the marine pipeline; - Condition M1(b) required the marine pipeline to be at least 100m offshore; - Condition M2 placed discharge daily limits on wastewater through the marine 	<p><i>Environmental Protection Act 1986</i></p> <p><i>Environmental Protection</i></p>



DECISION TABLE			
Works Approval / Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p>pipeline; and</p> <ul style="list-style-type: none"> Condition M3 required the Licensee to sample and monitor liquid wastes discharged through the marine pipeline into Cockburn Sound. <p>Due to changes in operations on site, these discharges have ceased and all pipework has now been disconnected. Wastewater from bunded areas and washdown water are monitored and, if found suitable for reuse on site, are discharged to a neutralization pit for treatment. If found unsuitable for reuse in the process, the wastewater is disposed of off-site. The DER has assessed the current risk profile of point source emissions to surface water and is satisfied that conditions are no longer required as there is no discharge to the environment.</p>	<i>(Unauthorised Discharges) Regulations 2004</i>
Point source emissions to groundwater including monitoring	-	The previous licence L5627/1988/11 did not have any conditions for Point source emissions to groundwater. The DER has considered whether the risk profile of emissions and discharges from the premises has significantly changed since the previous licence was granted. No changes have occurred. No new Conditions are considered necessary.	-
Emissions to land including monitoring	-	The previous licence L5627/1988/11 did not have any conditions for emissions to land. The DER has considered whether the risk profile of emissions and discharges from the premises has significantly changed since the previous licence was granted. No significant changes have occurred. No new Conditions are considered necessary.	-
Fugitive emissions – dust emissions	-	<p>Operations – <u>Emission Description</u></p> <p><i>Emission:</i> Fugitive dust emissions from on-site activities</p> <p><i>Impact:</i> There is the potential for dust emissions from on-site activities to impact on the surrounding environment and the health and amenity of workers at nearby industrial premises where the closest is located on the south west premises boundary. The next closest industrial premises is the Co-Operative Bulk Handling sheds, located 330m in a westerly direction and Doral Speciality Chemicals which is located 390m in a southerly direction.</p> <p><i>Controls:</i> The site is bitumised or paved. The activities that had the potential to produce</p>	<i>Environmental Protection Act 1986</i>



DECISION TABLE			
Works Approval / Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p>dust emissions including the jet mill and crushing, screening and bagging operations are no longer carried out on site. The main part of the current operations is the manufacture, decanting and mixing of chemicals which are mainly in aqueous solution. There are no dry chemical stockpiles on site.</p> <p><u>Risk Assessment</u> <i>Consequence:</i> Insignificant <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Low</p> <p><u>Regulatory Controls</u> As noted under the assessment for point source emissions to air, conditions regulating dust emissions from the jet mill (conditions A2 to A3) have not been included on this licence as the jet mill is no longer operated. Condition A4 included an airborne dust limit placed on the crushing, screening and bagging operations where these activities no longer occur on site and this condition has not been included on licence reissue L5627/1988/12. Condition A5 of previous Licence only permitted discharges of process exhaust air to specific stacks, as noted in the assessment of point source emissions to air above. The only discharge of process emissions to air now occurs through the acid and alkaline scrubber stacks.</p> <p>The previous licence (condition A1) required the Licensee to ensure all trafficked areas are paved, sealed or otherwise treated and maintained to manage visible dust emissions. This condition has been omitted from L5627/1988/12. The DER has re-assessed the potential for fugitive emissions to impact on the surrounding amenity and is satisfied that they can be managed under the general provisions of the <i>Environmental Protection Act 1986</i>.</p> <p><u>Risk Assessment</u> <i>Consequence:</i> Insignificant <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Low</p>	



DECISION TABLE			
Works Approval / Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Odour	-	The previous licence L5627/1988/11 did not have any conditions for odour emissions. The DER has considered whether the risk profile of emissions and discharges from the premises has significantly changed since the previous licence was granted. No changes have occurred. No new Conditions are considered necessary.	-
Noise	-	The previous licence L5627/1988/11 did not have any Conditions for noise emissions. No new Conditions are required as the DER considers that noise emissions can be managed under the <i>Environmental Protection (Noise) Regulations 1987</i>	<i>Environmental Protection (Noise) Regulations 1987</i>
Monitoring general	-	As noted above, the storage ponds previously contained process wastewater and groundwater monitoring bores were constructed (prior to Mintech taking over operations on site in 2009) to determine if there was any leachate from the ponds or seepage between the liners impacting on the underlying groundwater. The ponds are now only used for the storage of incident rainwater. The previous licence required monitoring of the groundwater on a monthly basis. Due to the changes in activities on site, the DER has re-assessed the potential to impact on the underlying groundwater and is satisfied that the risk is minimal. As a result, monitoring of groundwater is no longer required.	<i>Environmental Protection Act 1986</i>
Monitoring of inputs and outputs	-	The previous licence L5627/1988/11 did not have any conditions for monitoring of inputs and outputs. The DER has considered whether the risk profile of emissions and discharges from the premises has significantly changed since the previous licence was granted. No significant changes have occurred. No new Conditions are considered necessary.	-
Process monitoring	-	The previous licence L5627/1988/11 did not have any conditions for process monitoring. The DER has considered whether the risk profile of emissions and discharges from the premises has significantly changed since the previous licence was granted. No significant changes have occurred. No new Conditions are considered necessary.	-
Ambient quality monitoring		The previous licence (L5627/1988/11) required the Licensee to monitor the groundwater from the four on-site monitoring bores and the inter-liner detection points. As noted in the assessment under Monitoring general, the potential for leachate from the wastewater storage ponds to impact on the underlying groundwater is greatly	L5627/1988/12



DECISION TABLE			
Works Approval / Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p>reduced as the ponds now only contain incident rainwater. The ponds are desludged prior to the winter rains and the contents vacuumed out and disposed off- site.</p> <p>The DER has re-assessed the potential for impact on the groundwater and is satisfied that monitoring can be ceased as there is no discharge to the environment.</p>	
Meteorological monitoring	-	The previous licence L5627/1988/11 did not have any conditions for meteorological monitoring. The DER has considered whether the risk profile of emissions and discharges from the premises has significantly changed since the previous licence was granted. No significant changes have occurred. No new Conditions are considered necessary.	-
Improvements	-	There are no specific conditions requiring improvements to the Premises	-
Information	L3.1.3 L3.2.1	Condition L3.1.3 has been included to require the Licensee to implement a complaints management system to record complaints including any actions taken in response to a complaint. A complaints report is to be included with the Annual Environmental Report, required by Condition L3.2.1 which replaces Condition G1 (a) (b) and (c) of previous licence. The requirement to report twice a year (previous condition G1(a)) has been reduced to annual reporting due to the overall reduction in activities on site where the DER considers the potential to impact on the surrounding environment has been reduced and can be managed by Mintech's current recording and internal management procedures.	L5627/1988/12
Licence Duration	-	The DER has assessed the risks associated with operations on site where these risks have been assessed as low and the licence will be issued for a period of 5 years, in accordance with factors within the document titled <i>Guidance Statement Licence Duration</i> (The Department of Environment Regulation, revised May 2015).	<i>Guidance Statement Licence Duration</i> (The Department of Environment Regulation, revised May 2015).



5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
02/11/2015	Application advertised in West Australian	No comments received	N/A
08/12/2015	Proponent sent a copy of draft instrument	Comments referred to ISO 9001, 14001 and AS/ANZS 4801 certification. Mintech is part of the Halliburton Group of Companies and is required to apply their management systems which meet or exceed the ISO and AS/ANZS standards. Mintech also noted that the pH range for the scrubbers is set according to the type of chemical being scrubbed.	The paragraph in the Executive Summary has been updated to reflect Mintech's current management systems. The Executive Summary has also been modified to note that the pH range for the scrubber will be set according to the chemicals being processed/manufactured.
28/12/2016	Proponent sent a copy of draft instrument (change of occupier)	Comments received as follows: <ul style="list-style-type: none">– Security substance storage licence not included on Mintech's list of licences and permits as the licence was surrendered in August 2016– Direction of Cockburn Sound in relation to premises clarified	<ul style="list-style-type: none">– Reference to Security substance storage licence removed from licence and Decision Document– Reference to Cockburn Sound updated



6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High



Appendix A

Point source emissions to air including monitoring

Operations - Emission Description

Emission: Process exhaust fumes and fumes from decanting and the storage tanks via Stack A1 and Stack A2 (normal operation)

Impact: Reduced local air quality. The closest receptor is an industrial premises which adjoins Mintech's south west border. There are two other nearby sensitive receptors where one is located 330m in a westerly direction and the other is 390m in a southerly direction.

Controls: All process exhaust fumes and emissions from storage tanks are passed through either an alkaline scrubber to neutralise ammonium fumes or an acid scrubber to neutralise hydrochloric fumes prior to the air being discharged from the stacks. The scrubbers include orifice plates to reduce airflow to improve scrubbing efficiency. Fumes are continuously scrubbed and pH monitoring is used to control dosing. Minimal air emissions are discharged through the stack and Mintech monitor air emissions on a monthly basis by taking grab samples using a gas sampling tube. These samples monitor concentration, speed and the mass emission rate. The scrubber stacks are located at 25m above ground level for the alkaline scrubber and 5m above ground level for the acid scrubber.

Risk Assessment

Consequence: Minor

Likelihood: Unlikely

Risk Rating: Moderate

Regulatory Controls

The previous licence (L5627/1988/11) required the Licensee to monitor emissions from the scrubber stacks on a monthly basis. Limits were set where mass emission limits were not to exceed 28mg/s for hydrochloric acid and 200mg/s for ammonia emissions. Due to changes in onsite processes, the alkaline scrubber has not been used for a period of approximately 18 months where production is campaign based. Based on the results from Annual Environmental Reports, the average emissions from the acid and alkaline scrubbers are detailed below:

Emission	Hydrochloric acid emissions ¹	Ammonia emissions ¹
Concentration limit ²	400mg/m ³	2,000mg/ m ³
Mass emission Limit ²	28mg/s	200mg/s
Actual average concentration ³	5.0mg/s	300mg/m ³
Actual average mass emission ³	1.5mg/ m ³	60mg/s

Note 1: measurements at STP dry

Note 2: Concentration limit and mass emission limits are from previous licence L5627/1988/11

Note 3: Actual average concentration and average mass emission rates based on Annual Environmental Reports from July 2010 to June 2015

The DER has re-assessed the potential for air emissions through the stacks to impact on the surrounding environment and considers the potential for emissions to impact on the surrounding air quality as moderate. The DER does not require scrubber monitoring at other prescribed premises as the method of monitoring used is not a recognised standard. Mintech will continue to self-monitor air emissions on a monthly basis due to the location of the stacks and the potential for emissions to impact on the surrounding infrastructure and personnel if emissions are outside of the approved concentration range.

Condition L2.2.1 requires all emissions from process exhaust fumes and the storage tanks to be directed through either the acid or alkaline scrubber prior discharge to the environment.



Residual Risk

Consequence: Minor

Likelihood: Unlikely

Residual Risk Rating: Moderate