



Licence Number	L5109/1990/13
Licence Holder	Coogee Chemicals Pty Ltd
ACN	008 747 500
File Number:	DEC5802
Premises	Coogee Chemicals 4 Kwinana Beach Road Kwinana Beach Legal description – Lot 1 on Deposited Plan 402573, Lot 2 on Deposited Plan 402573, Lot 3 on Diagram 79782, Lot 12 on Plan 21876, Lot 506 on Diagram 61889, Lot 801 on Plan 68876 and Part of Lot 9002 on Plan 68876
Date of Amendment	3 August 2018

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act) as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Date signed: 3 August 2018

Paul Byrnes

Manager, Process Industries

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Definitions and interpretation

Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Amendment Notice	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
Delegated Officer	an Officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EMS	refers to the Licence Holder's Environmental Management System
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
Licence Holder	Coogee Chemicals Pty Ltd
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
ppm	means parts per million
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
TRH	means Total Recoverable Hydrocarbons

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend Licence L5109/1990/13 granted to Coogee Chemicals Pty Ltd for its Kwinana premises. This notice of amendment is given under section 59B(9) of the EP Act.

Amendment description

The Licence Holder lodged a licence amendment application with the Department on 27 March 2018. The application was in part revised on 7 June 2018. The consolidated and revised application (the Application) requests approval to:

1. construct and operate a TiRO™ Plant inside an existing building;
2. discharge non-process water with a Total Recoverable Hydrocarbon (TRH) content up to 9 ppm to onsite discharge areas; and
3. correct the description of the lot definitions of the premises due to recent changes.

Amendment history

Table 2 provides the amendment history for L5109/1990/13.

Table 2: Licence amendments

Instrument	Issued	Amendment
L5109/1990/13	4/12/2014	Licence reissue
L5109/1990/13	29/04/2016	Licence expiry amended to 4 December 2034
L5109/1990/13	13/10/2016	Amendment Notice #1 to include Sodium Hypochloride Filling Station
L5109/1990/13	03/08/2018	Amendment Notice #2 to include the TiRO™ plant; discharge non-process water on site; and to correct the lot definition of the premises

Location and receptors

Table 3 below lists the sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the Application.

Table 3: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Calista	2.6km
North Rockingham	3km

Table 4 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 4: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Cockburn Sound	1.5km

The site is not located within a drinking water protection area, but inside a heavy industrial area with no drinking water collection bores downstream.

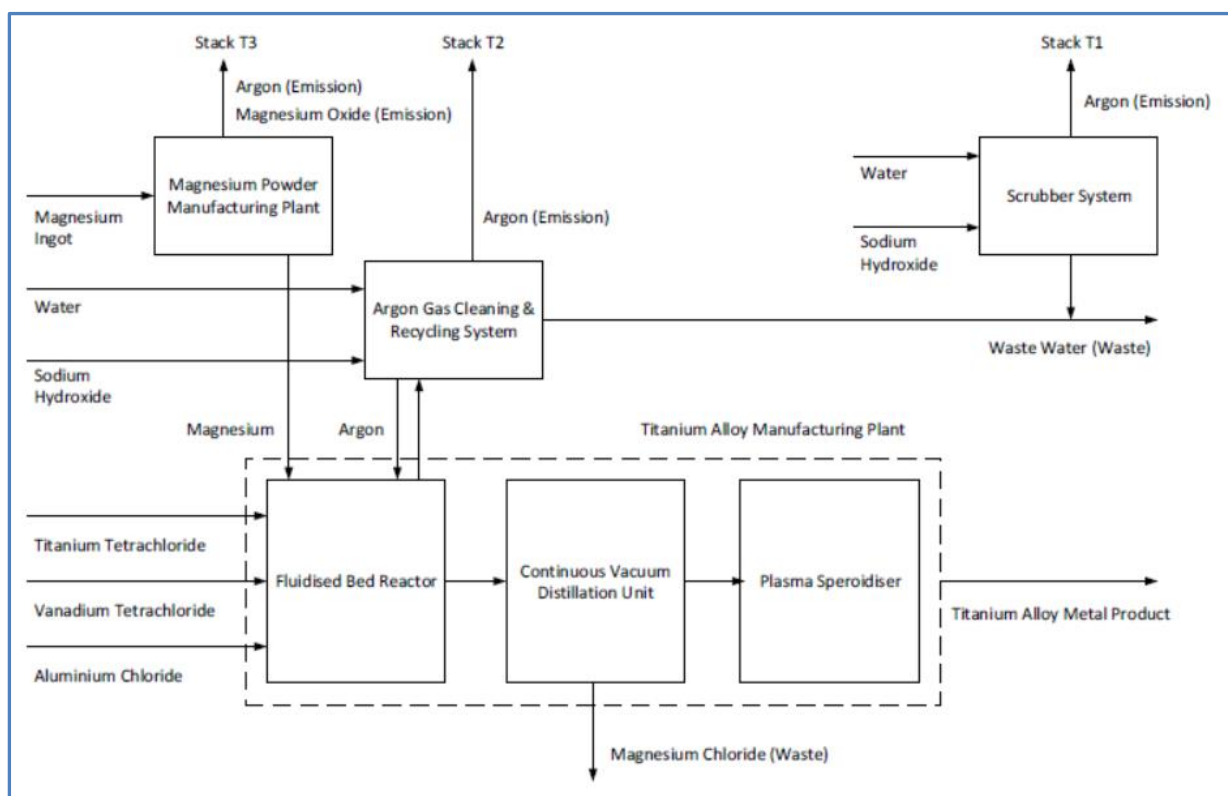
The amendment application

The Application is in three parts as mentioned above. Each part is risk assessed as needed and considered below.

Application Part 1: Titanium manufacturing plant (TiRO™ Plant)

The Applicant has sought approval to construct and operate a TiRO™ Plant within an existing building, previously used for the production and storage of Super White Hydrate. The Licence Holder proposes to use the TiRO™ process to produce titanium metal and titanium metal alloys on a continuous base. The generic process chart is shown in Figure 1.

Figure 1 TiRO™ Plant process chart



The process is a Category 31 Chemical manufacturing process that is likely to be operated at more than the threshold annual amount of 100 tonnes or more per year. As such, this process would make the premises prescribed in its own right and it is also a change within the provisions of section 53 of the EP Act requiring regulatory approval. The process generates wastes emitted to air, wastewater and solid waste.

Table 5: Prescribed premises category

Category number	Description of category	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

The titanium manufacturing is relatively small scale with maximum design capacity to be 364 tonnes per annum of titanium alloy metal.

Emissions and discharges from this process are magnesium oxide (air), argon (air) wastewater (removed off site by contractors) and magnesium chloride waste (removed off site by contractors).

Risk Assessment - Application Part 1: TiRO™ Plant

Table 6 and Table 7 below describe the Risk Events associated with the TiRO™ Plant consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 6: Risk assessment for proposed TiRO™ Plant during construction

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Construction of the TiRO™ plant	Noise	Residents in Calista/North Rockingham	Atmosphere	Health/Nuisance	Slight	Rare	Low	Small plant to be constructed inside an existing building. The Noise Regulations apply

Table 7: Risk assessment for proposed TiRO™ Plant during operation

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Operation of the TiRO™ Plant	Magnesium oxide	Residents in Calista/North Rockingham	Atmosphere	Amenity/nuisance	Slight	Rare	Low	Magnesium Oxide is not expected to cause any negative impact outside the boundary of the premises because of the small scale size of the plant and the large separation to distance
	Argon			No adverse impacts	N/A	N/A	N/A	Argon is not a toxic gas, it is naturally in the atmosphere and does not cause any negative impact.
	Noise			Amenity/nuisance	Slight	Rare	Low	The TiRO™ plant is located inside a building and not causing a lot of noise when operating. It should be barely audible outside the boundary of the premises. Noise Regulations apply.

Decision – Application Part 1: TiRO™ Plant

The Delegated Officer has concluded that the risk to the environment of the TiRO™ Plant is low and thus decided to grant Part 1 of the Application subject to conditions.

The Licence conditions reflect the low risk for the construction and the operation of the TiRO™ Plant. As such there are only conditions relating to the construction of the plant as per the infrastructure table that was provided with the Application. There are no conditions to control emissions and discharges from this new plant when it is operating as the emissions and discharges are a low risk to the environment.

Application Part 2: Discharge of accumulated non-process water

The Licence Holder stores, handles and dispatches large quantities of fuel. Rainwater that collects within secondary containment and non-process related areas contains traces of fuel and salts.

The Licence Holder currently collects and samples non-process water and only discharges it water if it complies with the criteria in Table 8 - as set out in the Licence Holder's Environmental Management System (EMS).

Table 8: Current EMS Criteria

Parameter	Licence Holder's Current Discharge Limit
Conductivity	< 3000 µS/cm
Temperature	15 – 25 °C
pH	4 -10
Odour	Mkt
TPH	< 1 ppm
Appearance	< 50

The criteria in Table 8 are not part of the licence conditions, but have been used by the Licence Holder to comply with the *Environmental Protection (Unauthorised discharges) Regulations 2004*.

The Water Quality Protection Note 68 (Mechanical equipment wash down) advises that treated wastewater discharged to soakage should comply with a TRH of less than 15ppm.

The Department requested the Licence Holder to provide historical bore monitoring data and also historical sampling results from the wastewater over recent years. The Licence Holder provided the additional information and in doing so, revised the amendment request for the proposed discharge limits per email on 7 June 2018 as detailed in Table 9.

Table 9: Proposed Non-Process Water Discharge Criteria

Criteria	Value	Licensee's Justification
pH	Proposed 4.2 - 10.0	<i>"The majority of the water tested is within the pH range of 5.5-8.5. The elevated potable water pH 8.86 is outside of this limit. A small number of samples fell outside of the 5.5-8.5 pH range, and we believe they can be discharged without negative impacts to the environment. A slight increase in the lower pH level may be accommodated and has been proposed."</i>
Conductivity	≤ 3000 µS/cm	<i>"Elevated conductivity is identified in Lot 12 and Lot 9002, for this reason it is requested the current discharge limits be maintained."</i>
TRH	Request consideration of up to 9ppm	<i>"Historical records indicated the majority of samples were within 5ppm. Limited samples are identified in the 5-9ppm range. As such it would be beneficial for the site to have a limit of 9ppm to accommodate the small number of samples in this upper range."</i>

Risk Assessment - Application Part 2: Discharge of accumulated non-process water

The discharge of non-process water, mainly storm water run-off, within in the premises to soak wells is a normal occurrence within many prescribed premises. To see if the proposed discharge criteria the Delegated Officer used the following standards:

Table 10: Delegated Officer's discharge criteria

Criteria	Value	Justification
pH	4.0 to 10.0	<i>The Environmental Protection (Unauthorised discharges) Regulations 2002 have this value range for pH.</i>
Conductivity	≤ 3000 µS/cm	<i>Nufarm Australia Limited (a company close to Coogee Chemicals also within the Kwinana Industrial Area) have on their licence (L6092/1972/11) a discharge limit for TDS of 2000 mg/L. This number is also used as the lowest maximum for livestock drinking water guideline (no adverse effect on animals expected: Poultry – TDS 0-2000 mg/L). Converting this TDS value results in approximately 3000 µS/cm.</i>
TRH	< 15 ppm	The Department generally sets 15 ppm TRH as an upper limit. Refer to Water Quality Protection Note 68 (Mechanical equipment wash down)

As the receiving environment is within a heavy industrial area with no downgradient drinking water users, the risk for the environment is deemed acceptable if the criteria stated in Table 10 are complied with.

Decision – Application Part 2: Discharge of accumulated non-process water

The Delegated Officer has decided that based upon the environmental risk that the discharge of the accumulated non-process water poses that this part of the Application can be granted subject to conditions.

Application Part 3: Changes to the definition of the Lot description

The former Lot 4 on Diagram 79783 has been redescribed as Lot 1 and Lot 2 on Diagram 402573.

Decision – Application Part 3: Changes to the legal description of the Premises

The Delegated Officer has decided to grant Part 3 of the Application, correcting the description of Lots.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 26 July 2018. On

Tuesday 31 July 2018 the Licence Holder provided some comments on the draft Amendment Notice. The comments are as follows:

- a lot number was missing from the description of the premises, although this lot was included in the map;
- a proposed increase of the maximum production capacity (same equipment but just updated maximum capacity);
- a change of location of the stacks due to a change of the lay-out of the plant;
- updated timeframes; and
- updated description of the magnesium powder manufacturing plant which also uses a cover gas.

The Delegated Officer has accepted the comments and amended the draft Amendment Notice to incorporate the comments in the final Amendment Notice.

Details of the Amendment

1. The premises details are amended by the deletion of the text in strikethrough and the insertion of the text shown and red and underlined below:

~~Legal description—~~

~~Lot 4 on Diagram 79783, Lot 3 on Diagram 79782, Lot 12 on Plan 21876, Lot 506 on Diagram 61889 and Part of Lot 9002 on Plan 68876~~

Legal description –

Lot 1 on Deposited Plan 402573, Lot 2 on Deposited Plan 402573, Lot 3 on Diagram 79782, Lot 12 on Plan 21876, Lot 506 on Diagram 61889, Lot 801 on Plan 68876 and Part of Lot 9002 on Plan 68876

2. Condition 1.1.2 of the Licence is amended by the insertion of the red text shown in underline below:

“mg/L” means milligram per liter;

“ppm” means parts per million;

“TRH” means Total Recoverable Hydrocarbons;

“µg/L” means micro grams per liter;

“µS/cm” means micro Siemens per cubic meter;

3. Table 2.2.1 of the Licence is amended by the insertion of the red text shown in underline below:

Table 2.2.1: Emission points to air			
<i>Emission point reference and location on Map of emission points</i>	<i>Emission Point</i>	<i>Emission point height (m)</i>	<i>Source, including any abatement</i>
A1	Aluminium sulfate plant stack	14.5	Reactor via aqueous scrubber which is connected to a cooling tower, keeping the scrubber water below 40°C

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
A2	Sodium hydrosulfate (NaHS) plant extraction fan	14.0	Dissolving tank via polyethylene scrubber reservoir containing sodium hydroxide solution then activated carbon fixed bed adsorber column
A3	Sulfuric acid storage	1.0	Mist eliminator on the surge tanks
<u>T1</u>	<u>Titanium Alloy Manufacturing Plant Scrubber Stack</u>	<u>17.5</u>	<u>Titanium Alloy Manufacturing Plant Scrubber System Argon gas emissions.</u>
<u>T2</u>	<u>Argon Gas Cleaning and Recycling System</u>	<u>16.5</u>	<u>Argon Gas Cleaning and Recycling System Argon gas emissions</u>
<u>T3</u>	<u>Magnesium Powder Manufacturing Plant</u>	<u>16.5</u>	<u>Magnesium Powder manufacturing plant; Argon gas emissions, R134a refrigerant gas emissions (1,1,1,2-Tetrafluoroethane) and Magnesium Oxide emissions.</u>

4. The Licence is amended by the insertion of the following Conditions 2.5.1 and 2.5.2 shown in red underlined text:

2.5.1 The Licensee must not discharge any process water to land.

2.5.2 The Licensee may discharge collected non-process water to land within the premises if this water is tested prior to discharge and deemed compliant with the discharge criteria in Table 2.5.1.

Table 2.5.1 Non-process wastewater discharge criteria	
<u>Parameter</u>	<u>Discharge criteria</u>
<u>Conductivity</u>	<u>< 3000 µS/cm</u>
<u>pH</u>	<u>> 4 and < 10</u>
<u>TRH</u>	<u>< 15 ppm</u>

5. The Licence is amended by the insertion of the following Conditions 6.5 to 6.8 shown in red underlined text:

6.5 The Licensee must construct the infrastructure listed in Column 1 of Table 6.2 in accordance with the requirements set out in Column 2 of Table 6.2.

<u>Table 6.2 TiRO plant infrastructure requirements</u>	
<u>Column 1</u>	<u>Column 2</u>
<u>TiRO plant infrastructure</u>	<u>Specified Requirements</u>
<u>Feedstock Storage</u>	<u>Bunded storage area for titanium tetrachloride (TiCl₄) isotainers/vessels and vanadium tetrachloride (VCl₄) vessels.</u>
<u>Magnesium Powder Manufacturing Plant</u>	<u>Magnesium furnace, atomising vessel and supporting equipment. Includes circulation gas clean-up circuit and stack (T3) to atmosphere. Stack to be at least 16 metres high as measured from ground surface and at least 3 metres above the roof line where the stack is closest to.</u>
<u>Titanium Alloy Manufacturing Plant</u>	<u>Feed vessels, reactor, distillation unit and plasma spherodiser.</u>
<u>Argon Gas Cleaning and Recycling System</u>	<u>Multi-staged argon gas cleaning and recycling system. Includes stack (T2) to atmosphere. Stack to be at least 16 metres high as measured from ground surface and at least 3 metres above the roof line where the stack is closest to.</u>
<u>Final Product Packaging</u>	<u>Clean room for packaging of final titanium alloy product.</u>
<u>Scrubber System</u>	<u>Two-stage caustic scrubber system connected to extraction ducting within the plant building. Includes stack (T1) to atmosphere. Stack to be at least 17 metres high as measured from the ground surface and at least 3 metres above the roof line where the stack is closest to. Scrubber outlet fitted with HCl monitor.</u>
<u>Utility Systems</u>	<u>Bulk liquid argon tank and vapouriser, helium isotainer, self-contained instrument air system, cooling tower glycol chiller system and associated pumps/piping. Includes process/waste water IBC(s).</u>
<u>Dangerous Goods Class 4 Storage</u>	<u>Fire rated building for titanium alloy metal and magnesium storage.</u>
<u>Workshop Building</u>	<u>Workshop and stores facilities. Includes two dedicated shipping containers for the storage of aluminium chloride (AlCl₃) and magnesium chloride (MgCl₂) respectively.</u>
<u>Control Room, Laboratory and Offices</u>	<u>Plant control room, dedicated laboratory and supporting offices located within the existing Coogee Operational Building (COB).</u>

6.6 The Licensee must not depart from the requirements specified in Table 6.2 except:

- (a) where such departure is minor in nature and does not materially change or affect the infrastructure; or
- (b) where such departure improves the functionality of the infrastructure and does not increase risks to public health, public amenity or the environment.

6.7 The Licensee must upon completion of the works as per condition 6.5 provide to the CEO an engineering certification from an Engineer confirming each item of infrastructure as specified in Table 6.2 has been constructed with no material defects.

6.8 The Licensee must ensure that the infrastructure in Table 6.2 is maintained in good working order.

6. Schedule 1 of the Licence is amended by the deletion of the first page and replacing it with the two pages that follow.

Schedule 1: Premises Maps

Map 1: Boundary of the Premises depicted in yellow.



Government of Western Australia
Department of Water and Environmental Regulation

Coogee Chemicals Premises Boundary



Map 2: Emission points



Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L5109/1990/13	L5109/1990/13	accessed at www.dwer.wa.gov.au
2	Licence Amendment Notice #1	-	accessed at www.dwer.wa.gov.au
3	Licence amendment application	-	DWER records: A1644076
4	Comments on draft Amendment Notice	-	DWER records: A1707252
5	DER, July 2015. <i>Guidance Statement: Regulatory principles.</i> Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
6	DER, October 2015. <i>Guidance Statement: Setting conditions.</i> Department of Environment Regulation, Perth.	DER 2015b	
7	DER, November 2016. <i>Guidance Statement: Risk Assessments.</i> Department of Environment Regulation, Perth.	DER 2016b	
8	DER, November 2016. <i>Guidance Statement: Decision Making.</i> Department of Environment Regulation, Perth.	DER 2016c	