



Application for Licence Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L8758/2013/1
Licence Holder	CITIC Pacific Mining Management Pty Ltd
ACN	119 578 371
File Number	DER2015/000676
Premises	Sino Iron Project Desalination Plant and Bulk Loading Facility General Purpose Lease G08/52 MARDIE WA 6714 as depicted in Schedule 1
Date of Report	24 September 2021
Decision	Revised licence granted

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

Table of Contents

1. Decision summary	1
2. Scope of assessment	1
2.1 Regulatory framework	1
2.2 Amendment summary	1
2.3 Part IV of the EP Act	2
2.4 Technical advice	2
3. Risk assessment	3
3.1 Source-pathways and receptors	3
3.1.1 Emissions and controls	3
3.1.2 Receptors	3
3.2 Risk ratings	6
4. Consultation	8
5. Conclusion	8
5.1 Summary of amendments	8
References	10
Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions	11

Table 1: Proposed design or throughput capacity changes	2
Table 2: Licence Holder controls	3
Table 3: Sensitive human and environmental receptors and distance from prescribed activity	4
Table 4. Risk assessment of potential emissions and discharges from the Premises during operation	7
Table 5: Consultation	8
Table 6: Summary of licence amendments	8

1. Decision summary

Licence L8758/2013/1 is held by CITIC Pacific Mining Management Pty Ltd (Licence Holder) for the Sino Iron Project Desalination Plant and Bulk Loading Facility (the Premises), located at General Purpose Lease G08/52, MARDIE WA 6714.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the operation of the Premises. As a result of this assessment, Revised Licence L8758/2013/1 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the Premises. The Revised Licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Amendment summary

On 15 December 2020, the department initiated an amendment to Licence L8758/2013/1, in response to changes to the Ministerial Statement (MS) 822 under section 46 of the *Environmental Protection Act 1986* (EP Act). New MS 1169 was issued incorporating the changes to the monitoring requirements of the Desalination Plant marine outfall under MS 822.

Licence L8758/2013/1 Condition 4, Table 3 for point source emission limits to surface water from the Desalination Plant requires amendment. The current limits do not align with the ANZECC and ARMCANZ *2000 National Water Quality Management Strategy* 90% species protection trigger levels, required to be met at the boundary of the low and moderate levels of ecological protection as required under MS 1169. These limits have been recalculated and updated as part of this amendment (see Section 2.4).

This amendment is limited only to changes to Category 54A activities from the Existing Licence. No changes to the aspects of the existing Licence relating to Category 58 have been implemented.

In addition, the licence format and standard wording was updated to align with the department's current licence template.

Table 1 below outlines the proposed changes to the existing Licence.

Table 1: Proposed design or throughput capacity changes

Category	Current design throughput capacity	Proposed design throughput capacity	Description of proposed amendment
54A	44 gigalitres per annual period	No change	Modification of Condition 4, Table 3 for Point source emission limits to surface water to ensure that the 90% species protection trigger levels would be met at the boundary of the low and moderate levels of ecological protection
58	252,000 tonnes per day	No change	No change

2.3 Part IV of the EP Act

On 10 June 2021 Ministerial Statement 822 was amended by issuing Ministerial Statement 1169 to modify the following:

Condition 8-3 is deleted and replaced with:

8-3 The proponent shall manage the wastewater discharge to ensure that within the Low Ecological Protection Area the 95th percentile of bioaccumulating toxicant concentrations meets Australian and New Zealand Guidelines for Fresh and Marine Water Quality 80% species protection guideline levels, and within the Moderate Ecological Protection Area:

- the 95th percentile concentration of toxicants meets Australian and New Zealand Guidelines for Fresh and Marine Water Quality 90% species protection levels
- the levels of physico-chemical stressors are consistent with the level of quality recommended in the EPA's Technical Guidance for Protecting the Quality of Western Australia's Marine Environment.

Condition 8-8 is deleted, and replaced with:

8-8 In the event that monitoring, including monitoring required as a condition of a licence issued under Part V of the *Environmental Protection Act 1986*, indicates that the requirements of conditions 8-2 and 8-3 are not being met or are not likely to be met, the proponent shall immediately report such finding to the CEO along with a description of the management actions to be taken to meet the requirements of conditions 8-2 and 8-3.

Condition 8-9 is inserted:

8-9 Conditions 8-4 to 8-7 of Ministerial Statement 822 cease to have effect for the time a licence issued under Part V of the *Environmental Protection Act 1986* includes limits for water quality parameters derived to ensure the requirements of conditions 8-2 and 8-3 are met, as confirmed by the CEO in writing.

2.4 Technical advice

Technical advice was sought from DWER's Marine Ecosystems Branch (MEB) who reviewed the licence limits in condition 4, Table 3 of L8758/2013/1. The review identified that current limits are not aligning with the 90% species protection trigger levels, required to be met at the boundary of the low and moderate levels of ecological protection as required under MS 1169. The licence limits were recalculated based on dilutions to be achieved, parameter concentration in wastewater, background concentration of the parameter and guideline for the parameter to

be achieved at the low and moderate levels of ecological protection boundaries.

The salinity limits are based on the measured salinity range of the wastewater over the last 2 years, with a minimum salinity of 50 ppt. The salinity limit calculated by MEB has been modified by the Licence Holder to conductivity as this is the parameter that the Licence Holder uses. The instrumentation is already in place, has been used for all the historical data and the operational procedures are established. MEB has stated that the salinity guideline could be changed to conductivity based on the appropriate formula.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 2 below. Table 2 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Wastewater discharge of brine	Desalination Plant	Direct discharge via outfall to the marine environment	<ul style="list-style-type: none"> Chemical additives are used to clean the RO membranes and these are collected in a holding tank where they can be neutralised (pH 6 – 8). The composition of the chemicals are analysed, and if proven to be free of pollutants and within the brine composition range, are mixed and discharged with the brine; The licence holder does not monitor chemical parameters, however, dosing of chemicals is recorded for process control purposes and discharges are reported to the National Pollutant Inventory; Whole Effluent Toxicity (WET) testing is also conducted to determine the toxicity of the brine to marine organisms; and The diffuser promotes mixing and dilution of the concentrated brine within the Low Ecological Protection Area and Moderate Ecological Protection Area.

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 3 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

Table 3: Sensitive human and environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Specified ecosystems	
Department of Biodiversity, Conservation and Attractions – Managed Lands and Waters	<p>The Great Sandy Island Nature Reserve includes Preston Island, which is the location of the Bulk Loading Facility (BLF).</p> <p>In accordance with condition 15-2 of MS 635, the licence holder has developed a conservation estate management plan to address the effect of the port facility on the conservation values of the Great Sandy Nature Reserve.</p>
Threatened Ecological Communities and Priority Ecological Communities	The Priority 3 Horseflat Land System of the Roebourne Plains is approximately 3 km from the boundary of the Premises.
Other relevant ecosystem values	
Cape Preston marine habitats	<p>Coral-supporting habitat of low to moderate percentage cover occurs as a wide belt along the western side of the Cape Preston platform and gradually thins to a narrow band along the west and north side of Preston Island proximity to the breakwater (refer to Figure 5). This band continues along the slope that passes to the west and north of SW Regnard Island. Most of the habitats in the shallows adjacent to Cape Preston are relatively barren intertidal sand flats or shallow algae dominated pavements.</p> <p>Offshore from Cape Preston, the seabed shelves rapidly descend to depths of greater than 10 m and then to a large basin extending to 17 m depth. The substrate in this area (Fortescue Roads) is a relatively barren silty sand substrate with little macrobiota evident on the surface. In the deeper parts of this basin scattered and, at times, dense patches of <i>Halophila</i> sp. seagrass occur. Sparse patches of this species of seagrass were also recorded in small areas west of SW Regnard Island and west of Fortescue Island.</p> <p>Further offshore in waters greater than 22 m depth, the substrate is gravely sand which supports scattered sea whips and fans and occasional large barrel sponges in low abundance (CPM, 2017b).</p>

<p>Marine Fauna (turtles and dugongs)</p>	<p>Four sea turtle species, the Green, Hawksbill, Flatback and Loggerhead Turtle nest or potentially nest on the beaches at Cape Preston within the period from July to April depending on seasonal environmental conditions.</p> <p>Marine fauna, appearing in Schedule 1 of the <i>Wildlife Conservation Act 1950</i>, listed under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> are known to occur in near coastal waters or have been recorded locally.</p> <p>In the Dampier Archipelago/Cape Preston region, small numbers of dugongs (<i>Dugong dugon</i>) have been sighted in the shallow, warm waters in bays and between islands, including at East Lewis Island, Cape Preston, Regnard Bay, Nickol Bay and west of Keast Island (W4482 EAR).</p> <p>The seagrass population is found predominantly on the western side of South-West Regnard Island and is situated more than 3.2 km from the BLF (CPM, 2008).</p>
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3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are incomplete they have not been considered further in the risk assessment.

Where the Licence Holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

The Revised Licence L8758/2013/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Category 54A activities.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 4. Risk assessment of potential emissions and discharges from the Premises during operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Operations								
Category 54A wastewater discharge to the marine environment	Desalination Plant brine	Direct discharge via outfall to marine environment	Cape Preston marine habitats Marine Fauna (turtles and dugongs)	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	N/A as DWER initiated	Condition 4, Table 3 Point source emission limits to surface water	Modified to the updated limits to ensure that the 90% species protection trigger levels would be met at the boundary of the low and moderate levels of ecological protection.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Licence Holder was provided with draft amendment on (16 September 2021)	Licence Holder provided comments on 23 September 2021 Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 6 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 6: Summary of licence amendments

Existing condition	Condition summary	Revised licence condition	Conversion notes
N/A	All conditions	All conditions	Updated "Licensee" to "licence holder" and "shall" to "must" as per current format and wording.
N/A	Contents	N/A	Deleted as per current licensing format.
N/A	Introduction	N/A	Deleted as per current licensing format.
N/A	Licence history	Licence history	Administrative changes.
1.1.1	Interpretation	Interpretation	Updated as per current licensing format.
1.1.2	Definitions	Definitions	Moved to the back of the Licence, now Table 8.
1.1.3	Australian or other standard	Interpretation	Condition deleted and now included in the updated 'Interpretation' section as per current licensing format.
1.1.4	Reference to code of practice	Interpretation	Condition deleted and now included in the updated 'Interpretation' section as per current licensing format.
1.2.1	Minimise spillages of materials entering the marine environment during barge loading operations	1	Condition number changed only.

1.2.2, Table 1.2.1	Containment infrastructure	2, Table 1	Condition and table numbers changed only.
2.1.1	Record and investigate the exceedance of limits	15	Covered by Condition 15.
2.2.1, Table 2.2.1	Emission points to surface water	3, Table 2	Condition and table numbers changed only.
2.2.2, Table 2.2.2	Point source emission limits to surface water	4, Table 3	Modified Emission point reference. Updated limits to ensure that the 90% species protection trigger levels would be met at the boundary of the low and moderate levels of ecological protection.
3.1.1	Sampling	5	Condition number changed only.
3.1.2	Monitoring	6	Updated as per current format and wording.
3.1.3 3.1.4	Calibration	7	Updated as per current format and wording.
3.2.1, Table 3.2.1	Monitoring of point source emissions to surface water	8, Table 4	Modified Emission point reference.
3.3.1, Table 3.3.1	Process monitoring	9, Table 5	Condition and table numbers changed only.
4.1.3	Complaints	10	Updated as per current format and wording.
4.1.2	AACR	11	Condition number changed only.
4.1.1	Information and records	12 13	Updated as per current format and wording.
4.2.1, Table 4.2.1	AER	14, Table 6	Condition and table numbers changed only.
4.2.2	AER monitoring	15	Condition number changed only.
4.2.3, Table 4.2.2	Copies of original monitoring reports submitted to the Licensee by third parties	N/A	Removed as DWER can request this documentation as required.
4.3.1, Table 4.3.1	Notification requirements	16, Table 7	Condition and table numbers changed only.
Schedule 1: Maps	Premises map	Premises map	Updated Premises map.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. CPM, 2008, Application for DEC Works Approval – Bulk Loading Facility, CITIC Pacific Mining Management Pty Ltd, August 2008 (DWER records A131187).
5. W4482 EAR, Environmental Assessment Report, W4482/2008/1 Sino Iron Project – Desalination Plant and Bulk Loading Facility, Department of Environment and Conservation, Amendment 9 May 2013 (DWER records A629289).
6. CPM, 2017b, Sino Iron Project Desalination Plant and Bulk Loading Facility – Point Source Emissions Limits to Water – Application to Amend L8758/2013/1, 12 December 2017 (DWER records A1580676)

Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
4, Table 3 Point Source Emission Limits to Surface Water	Request to use Conductivity instead of Salinity for limits and monitoring as this instrumentation is already in place, has been used for all the historical data and the operational procedures are established.	Updated as requested.
8, Table 4 Monitoring of Point Source Emissions to Surface Water	Request to use Conductivity instead of Salinity for limits and monitoring as this instrumentation is already in place, has been used for all the historical data and the operational procedures are established.	Updated as requested.
14, Table 6 Annual Environmental Report	Remove forms WR1 and PR1 as these forms have been omitted from the licence. Condition 10 refers to Complaints summary. Condition 11 refers to Compliance.	Updated as requested.
16, Table 7 Notification Requirements	Part B notification requirements included.	Updated as requested.