

FICIAL

Decision Report

Application for Licence

Part V Division 3 of the Environmental Protection Act 1986

Licence Number	L9392/2023/1
Applicant	Iron Bridge Operation Pty Ltd
ACN	165 513 557
File number	DER2018/001042-9
Premises	North Star Magnetite Project – Junction Camp Legal description L45/625 As defined by the premises map attached to the issued licence
Date of report	13 February 2024
Decision	Licence granted

Grace Heydon A/SENIOR ENVIRONMENTAL OFFICER - INDUSTRY REGULATION REGULATORY SERVICES

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

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1. **Decision summary**

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, licence L9392/2023/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) 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 Application summary and overview of premises

2.2.1 Summary

On 13 April 2023, Iron Bridge Operation Pty Ltd (IBO / the applicant) submitted an application for a licence to the department under section 57 of the *Environmental Protection Act 1986* (EP Act). The application relates to the upgrades and operation of a mining camp wastewater treatment plant (WWTP) and associated sprayfield at the premises. The premises is approximately 91.7 km west of Marble Bar.

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in licence L9392/2023/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in licence L9392/2023/1.

The current facility is operating under time limited operations as approved under works approval W6688/2022/1. This facility has proven ineffective to manage sprayfield discharge within discharge parameter limit compliance requirements outlined in W6688/2022/1, with a review of the system's design showing insufficient tolerance for swings in influent quality. The review also found that while the plant is hydraulically capable of processing the camp's influent volumes, the plant's design process is ineffective at processing compliant effluent. This is due to the system being biologically overloaded and unable to process the solids/sludge contained within the wastewater to the required water quality target limits set out in the works approval.

As part of this licence application, the applicant seeks to bring the existing plant onto licence while also seeking to achieve compliance with the WWTP discharge parameters outlined and approved through W6688/2022/1. This will be achieved via:

- a change of hardware, where the process core of the WWTP will be switched out with the same system used at the existing Marble Bar WWTP (W6596/2021/1 and L9360/2022/1). This will be located within the cleared area within the prescribed premises boundary although not immediately adjacent to the current plant as indicated on Figure 1;
- decommissioning the existing Junction Camp WWTP; and
- installation of accommodation rooms, kitchen, ablutions and associated infrastructure from Marble Bar Camp – Ausco WWTP. Excess wastewater volumes will be captured in holding tanks and removed to a licenced facility;

The effluent will continue to discharge to the existing 3.2 ha irrigation field with no change to the

approved discharge volumes or parameter concentration limits.

New infrastructure to be constructed at the premises within the WWTP operating system to facilitate the change in hardware includes the following:

- Inlet screen.
- Raw wastewater storage balance tank/s with a combined storage of at least 200kL.
- Waste sludge storage tank.
- Anoxic (1 & 2) chamber container.
- Digester and anoxic (3) chamber container.
- Aeration and membrane bioreactor filtration system chamber container.
- Control and chemical container.
- RO brine storage tank/s with a combined storage of at least 100kL.
- Final blended effluent storage tank/s with a combined storage of at least 100kL.
- Chlorine dosing system.

As part of this application, IBO requested approval to re-use reverse osmosis (RO) reject brine produced at Junction Camp for dust suppression on site. This re-use is proposed as an additional activity on site, with the discharge of blended effluent still occurring to the sprayfield.

Currently, RO brine is processed through the Junction Camp WWTP and discharged to the irrigation field. In order to improve the functionality of the WWTP, there is an ongoing need to remove RO brine from the WWTP as required and use it for dust suppression. Ongoing flexibility of blending and disposal within the irrigation field may be required in the event of large rainfall events or due to operational requirements.

IBO proposes to 2x 50 kL storage tanks that are lined up to the RO units and report to a WellTech standpipe / water pump to fill the water carts for dust suppression. RO reject brine for dust suppression is only proposed for use within cleared, maintained and operational areas, in particular the Mine access roads. The water will not be used on topsoil stockpiles, vegetated areas, during clearing operations and or on rehabilitated areas. The applicant has provided a map indicating the area in which RO reject brine will be used for dust suppression (Figure 2).

The Delegated Officer considers the use of RO brine as a directly related activity to the prescribed activities at the premises.

The applicant has provided details of the expected RO brine discharge concentrations, which are set out in Table 1 below.

Parameter	Expected RO Brine Discharge Concentrations	Units
Total Dissolved Solids (TDS)	<2600	mg/L
Total Phosphorus	<0.55	
Total Nitrogen	<18	
рН	6.5 - 8.0	pH units
Calcium	<170	mg/L
Magnesium	<170	
Potassium	<26	
Sodium	<470	

Table 1: Expected RO Brine Quality Discharge Concentrations

Hardness (as CaCO3)	<1100	
Chloride	<610	
Electrical Conductivity	<4000	μS/cm
Fluoride	<5	mg/L
Sulfate	<160	
Total Alkalinity (as CaCO3)	<1200	mg/L as CACO3
Silver	<0.0010	mg/L
Aluminium	<0.010	
Arsenic	<0.0026	
Boron	<1	
Beryllium	<0.00050	
Bismuth	<0.0010	
Cadmium	<0.0013	
Cobalt	<0.0010	
Chromium	<00012	
Copper	<0.0012	
Iron	<0.010	
Mercury	<0.000050	
Lanthanum	<0.00050	
Lithium	<0.089	
Manganese	<0.0010	
Molybdenum	<0.063	
Nickel	<0.0010	
Lead	<0.0010	
Antimony	<0.0010	
Selenium	<0.011	
Tin	<0.0010	
Thallium	<0.0010	

Uranium	<0.16	
Vanadium	<0.027	
Zinc	<0.0096	

2.2.2 Existing infrastructure as constructed under W6688/2022/1

The premises was constructed and commissioned under W6688/2022/1 with a discharge volume of 108 m^2 per day of blended effluent, applied to a 3.2 ha irrigation field. The construction was completed on 13 October 2022 with the following items of infrastructure constructed:

- Three 50,000 L raw wastewater storage balance tank/s with a combined storage volume of at least 150 kL;
- Two fixed film aerobic reactor tank with a combined volume of 36 kL and interconnecting pipework and control system;
- Four air blowers;
- Four influent feed pumps;
- Two effluent pumps;
- Reverse osmosis (RO) brine storage tank/s with a combined storage volume of at least 28 kL;
- Two chlorine contact tank with a combined minimum volume of 20 kL, and with chlorine recirculation pump and level control switches;
- One chlorine dosing and analyser system;
- All above ground infrastructure located on an impervious, bunded hardstand; and
- A 3.2 ha irrigation field.

Upon the grant of this application for an operating licence and completion of the proposed works, the current operating WWTP facility at Junction Camp will be decommissioned. Decommissioning works will consist of the removal of redundant infrastructure from within the wastewater treatment plant and the facilitation of it's removal from site for disposal at an appropriately licenced facility.



Figure 1: WWTP Infrastructure



Figure 2: RO reject brine for dust suppression

2.3 Part IV of the EP Act

The broader North Star Magnetite Project development envelope is subject to Ministerial Statement number MS 993.

As per DWER Guidance Statement: Environmental Siting, the sensitive receptors and associated aspects concerning North Star Stage 2: Junction Camp and proposed infrastructure have been defined. These receptors have been previously assessed under Part IV Environmental Impact Assessment (EIA) and conditioned accordingly through the approved MS 993. Additional risk assessment(s) and controls were implemented in the approved Mining Proposal (Reg I.D. 101901).

The proposed activity will be undertaken within the approved MS 993 envelope and designed, where possible, to avoid sensitive receptors.

Extensive area surveys, inclusive of the proposed prescribed premises boundary, have taken place for flora/vegetation and fauna communities/ habitat to best understand the siting and location in which the prescribed activity will take place. The WWTP and associated infrastructure location have been designed to reflect the best utilization of the mitigation hierarchy and avoidance to eliminate and minimise environmental harm to threatened flora and fauna species and habitats. Where avoidance is not feasible, the applicant has and/ or will use the appropriate approvals and management measures to disturb areas of concerns.

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 construction and operation which have been considered in this decision report are detailed in Table 2 below. Table 2 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 2: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls			
Construction						
Dust	Vehicle movements Earthworks (including the clearing of vegetation)	Air / windborne pathway	Use of undiluted RO reject brine for dust suppression.			
	Installation of the wastewater treatment plant infrastructure and equipment					
Noise	Operation of vehicles and machinery	Air / windborne pathway	None specified			
Spills / unintended releases of hydrocarbons;	Chemical handling and storage	Seepage to soil and groundwater	 Hardstand area constructed using low permeability fill and compacted in accordance with the FMG Site Earthworks Construction Standard Specification (100-SP-CI-0007); Spill kit is located at the WWTP compound; 			
chemicals or raw wastewater			icals or /astewater			
			 Chemicals are stored in separate above ground sea containers within polyethylene containment bunds. Chemicals are separated according to AS3833:2007 The Storage and Handling of mixed classes of Dangerous Goods and Fortescue's Dangerous Goods and Hazardous Materials Procedure (662NS-0000- PR-EN-0008); 			
			 Corrosive chemicals are classified as 'minor storage' in accordance with Section 2 of AS3780. The storage location onsite is classed as 'All other premises' according to Table 2.1 of AS3780, in a quantity less that 250L for PG II (140L on-site); 			

Emission	Sources	Potential pathways	Proposed controls		
			• All sewage storage and treatment tanks, vessels, transfer pipelines and conveyance infrastructure are impermeable and free of leaks or defects. Pre-commissioning procedures have been carried out which includes checks for system operation, integrity, and leaks.		
Salinity	Use of RO water for dust suppression	Direct application; seepage to soil and groundwater; overland flow	 The water will not be used on topsoil stockpiles, vegetated areas, during clearing operations and or on rehabilitated areas Installation and maintenance of diversion bunding to prevent overspray/runoff into nearby vegetation. Watercart operators trained and verified competent in the use of watercarts including sprays to monitor for overspray and reduce the fan width. This is to ensure spray is applied within delineated windrows and cleared areas. Spray and dribble bars will be used to ensure water is controlled and easily directed to required area. Only to be used within currently approved disturbed, active operational areas, hardstands and cleared ground, and preconditioning or stockpile management. Visual monitoring of native vegetation where required to ensure no impacts, if noted, the use of RO water will cease in that location until vegetation stabilises. Broader vegetation monitoring is undertaken as per Iron Bridge Vegetation and Health monitoring and Management Plan 662NS-0000-PLN-0004 whereby native vegetation health is recorded. Windrows around cleared/ operational work areas will be maintained to prevent runoff Dust suppression will not be required during and immediately following rainfall events therefore reducing the possibility of surface water mobilising potential salts. RO Reject brine will not to be used within major creek lines or drainage channels or in the vicinity of Conservation Significant Flora Species or Groundwater Dependant vegetation. Storage: in cleared areas windrowed and maintained to prevent runoff; 		

Emission	Sources	Potential pathways	Proposed controls				
			 overflow from tanks diverted to overflow pond; 				
			 visual observations of piping and standpipe will be undertaken regularly to identify any leaks; 				
			 monitoring of undiluted RO Reject brine will be undertaken quarterly to ensure the quality is still within predicted and design quality. 				
Operation							
Dust	Vehicle movements	Air/ windborne	Use undiluted RO reject brine for dust suppression where possible.				
Noise	Pumps		None specified				
	Operation of vehicles and machinery						
Odour	Operation of WWTP		• Sludge stays in the sealed holding tanks prior to removal from a licensed waste contractor;				
			 Screenings are contained within a sealed bin prior to removal for disposal to a licenced disposal facility; 				
			 The maintenance schedule for the WWTP will include a check for any odours outside the facility; 				
			 Should the facility be found to be producing odours, the source of these odours will be identified, and any necessary repairs to the facility will be performed; and 				
			 If odour complaints are received from site personnel, they will be logged as an incident and investigated. Pending the investigation results, IBO may take further actions to reduce odour emissions, such as increasing the frequency of waste removal from the site and exploring possibilities to improve waste container handling 				
Salinity	Use of RO water for dust suppression	Direct application; seepage to soil and	 The water will not be used on topsoil stockpiles, vegetated areas, during clearing operations and or on rehabilitated areas Installation and maintenance of diversion bunding to prevent overspray/runoff into nearby 				

Emission	Sources	Potential pathways	Proposed controls																				
		groundwater;	vegetation.																				
			 Watercart operators trained and verified competent in the use of watercarts including sprays to monitor for overspray and reduce the fan width. This is to ensure spray is applied within delineated windrows and cleared areas. 																				
			 Spray and dribble bars will be used to ensure water is controlled and easily directed to required area. 																				
			 Only to be used within currently approved disturbed, active operational areas, hardstands and cleared ground, and preconditioning or stockpile management. 																				
			• Visual monitoring of native vegetation where required to ensure no impacts, if noted, the use of RO water will cease in that location until vegetation stabilises.																				
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																						Storage:	
																	- in cleared areas windrowed and maintained to prevent runoff;						
												 overflow from tanks diverted to overflow pond; 											
			 visual observations of piping and standpipe will be undertaken regularly to identify any leaks; 																				
			• monitoring of undiluted RO reject brine will be undertaken quarterly to ensure the quality is still within predicted and design quality.																				
Spills/	Infrastructure and	Seepage to	Hardstand area constructed using low permeability fill and compacted in accordance with the																				

Emission	Sources	Potential pathways	Proposed controls	
unintended	equipment failure	soil and	FMG Site Earthworks Construction Standard Specification (100-SP-CI-0007);	
partially treated	Maintenance works	groundwater	• Spill kit is located at the WWTP compound;	
wastewater or solid waste			 Audible and visual alarms installed. In the event of a pump fault, high tank levels and tank overflows an audible alarm will sound, a red beacon will flash and a pump fault indicator on the control panel will notify a fault; 	
			• All sewage storage and treatment tanks, vessels, transfer pipelines and conveyance infrastructure are impermeable and free of leaks or defects. Pre-commissioning procedures have been carried out which includes checks for system operation, integrity, and leaks.	
Contaminated or potentially contaminated	Stormwater interaction with plant and irrigation sprayfield		 The WWTP and associated infrastructure has been designed as not to allow stormwater to enter any part of the system. All inputs – raw sewage and RO reject brine are plumbed into the system via sealed pipes, and all SAF tanks and storage tanks are fitted with lids 	
Stormwater				 The applicant will utilise the Iron Bridge Surface Water Management Plan (NS-00000-PL-EN- 0001) to continue the management of stormwater for the Junction Camp WWTP. This plan includes further management actions including:
				a) Drainage and diversion infrastructure;
			 b) Consider the 1% AEP (1 in 100 year) event in the design of the camp facilities and process infrastructure; and 	
			c) Use erosion management strategies (e.g., sediment basin/ trap, bunding, vegetated batters, etc.) to control potential release of sediment from cleared areas, mining and waste landforms into major creeks and pool	
Spills/ unintended releases of	Chemical handling and storage	Chemical handling and storage		 Hardstand area constructed using low permeability fill and compacted in accordance with the FMG Site Earthworks Construction Standard Specification (100-SP-CI-0007)
hydrocarbons			Spill kit is located at the WWTP compound;	
or chemicals			 Audible and visual alarms installed. In the event of a pump fault, high tank levels and tank overflows an audible alarm will sound, a red beacon will flash and a pump fault indicator on the control panel will notify a fault; 	
			Chemicals are stored in separate above ground sea containers within polyethylene	

Emission	Sources	Potential pathways	Proposed controls			
			containment bunds. Chemicals are separated according to AS3833:2007 The Storage and Handling of mixed classes of Dangerous Goods and Fortescue's Dangerous Goods and Hazardous Materials Procedure (662NS-0000- PR-EN-0008);			
			 Corrosive chemicals are classified as 'minor storage' in accordance with Section 2 of AS3780. The storage location onsite is classed as 'All other premises' according to Table 2.1 of AS3780, in a quantity less that 250L for PG II (140L on-site) 			
Treated effluent	Irrigation sprayfield	Direct application to	Regular maintenance and inspections			
Diluted RO wastewater as blended effluent	Irrigation sprayfield	and seepage to soil and groundwater	Regular maintenance and inspections			

3.1.1 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors 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 and Figure 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 a	ind enviror	nmental r	receptors	and d	listance t	from	prescrib	ed
activity										

Receptor ID	Human receptors	Distance from prescribed activity
H1	Aboriginal and other heritage site - GOV DAA Site ID: 23590	Archaeological Place KAR057- 01 mapped within the prescribed premises
H2	Yule River Water Reserve - P1	58 km northwest of prescribed premises
	Environmental receptors	Distance from prescribed activity
E1	Remnant native vegetation - <i>Corymbia hamerslyana</i> open woodland over <i>Triodia epactia</i> hummock grassland	Within irrigation sprayfield footprint
E2	Surveyed Priority 4 flora - Bulbostylis burbidgeae	Mapped within the prescribed premises boundary during North Star Slurry and Infrastructure Corridors Conservation Significant Flora and Vegetation Assessment
E3	 Conservation listed significant fauna Pilbara Leaf-nosed Bat (<i>Rhinonicteris aurantia</i>) (Pilbara form) – considered critically endangered Brush-tailed mulgara or Ampurta (<i>Dasycercus blythi</i>) – Priority 4 DBCA was sighted in the area 	A significant fauna habitat for Pilbara Leaf-nosed Bat was mapped approximately 133 m to the west of the prescribed premises. A significant fauna habitat for Brush-tailed mulgara was mapped approximately 169 m to the east of the prescribed premises
E4	Minor drainage line	Approximately 308 m north of prescribed premises
E5	Surveyed Schedule 3 fauna habitat (Pilbara leaf nosed bat, Pilbara olive python, northern quoll)	2.8 km east of prescribed premises

E6	Turner River	Approximately 3 km northeast of prescribed premises
E7	Environmentally Sensitive Area - Schedule 1 Area	9 km northwest
E8	Priority Ecological Communities - Themeda grasslands on cracking clays (Hamersley Station, Pilbara) (VU)	~150 km southwest of prescribed premises



Figure 3: Distance to sensitive receptors – Human and environmental

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3.2 Risk ratings

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

Where the applicant 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 applicant'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 applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

Licence L9392/2023/1 that accompanies this decision report authorises emissions associated with the operation of the premises i.e. upgrading the WWTP, operating the WWTP, sprayfield and associated infrastructure.

The conditions in the issued licence, as outlined in Table 4 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 construction, commissioning and operation

Risk events					Risk rating ¹	Applicant		Justification for	
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of licence	additional regulatory controls	
Construction									
Construction or installation of	Dust	Air/windborne pathway causing impacts to native vegetation communities (smothering of foliage and flowers) and disturbance to fauna	Remnant native vegetation	Refer to Section 3.1		C = Slight L = Unlikely Low Risk	Y	N/A	N/A
infrastructure/ associated equipment including vehicle movements (reversing beepers)	Noise and vibration	Air/windborne pathway and vibration through soil with impacts on (disturbance to) native fauna	Native fauna		C = Slight L = Unlikely Low Risk	Y	N/A	N/A	
	Spills/ unintended releases of hydrocarbons or chemicals	Seepage to soil and groundwater with potential impacts on native vegetation	Native fauna (Including soil fauna) and remnant vegetation		C = Minor L = Rare Low Risk	Y	N/A	N/A	
Commissioning									
Vehicle movements	Dust	Air/windborne pathway resulting in accumulation of dust on native vegetation	Remnant native vegetation	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A	
Pumps	Noise	Air/windborne	Native fauna		C = Slight	Y	N/A	N/A	

Risk events				Risk rating ¹	Applicant		Justification for		
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of licence	additional regulatory controls	
Operation of vehicles and machinery		pathway resulting disturbance to native fauna			L = Unlikely Low Risk			N/A	
Commissioning works		Air/windborne	Accommodation		C = Slight				
WWTP operations and sludge removal	Odour	impacts on amenity	village residents		L = Unlikely Low Risk	Y	N/A	N/A	
Infrastructure and equipment failure	Spills/Untreated releases of	Seepage to soil and groundwater	Native fauna (Including soil		C = Slight	N N			
Maintenance works (accidental spills)	partially treated resulting in fauna) ar wastewater or elevated soil remnant solid waste nutrients vegetatic	g in fauna) and d soil remnant s vegetation		L = Unlikely	Y	N/A	N/A		
Stormwater interaction with plant and irrigation sprayfield	Contaminated or potentially contaminated stormwater	Seepage to soil and groundwater resulting in elevated soil nutrients	Remnant native vegetation		C = Slight L = Unlikely Low Risk	Y	N/A	N/A	
Chemical handling and storage	Spills/unintended releases of hydrocarbons or chemicals	Seepage to soil and groundwater resulting in damage to vegetation (root systems)	Remnant native vegetation		C = Slight L = Unlikely Low Risk	Y	N/A	N/A	
Use of RO reject brine as dust suppressant	Undiluted RO effluent (brine waste)	Direct application to vegetation resulting in salt scalding and vegetation death	Remnant native vegetation Aboriginal cultural heritage site		C = Moderate L = Possible High Risk	Y	Condition 1, Table 1, Row 3 Condition 5, Table 2, Row 1. Condition 5, Table 2, Row 2	Refer to Section 3.3	
Operation									
Vehicle movements	Dust	Air/windborne pathway resulting	Remnant native vegetation	Refer to Section 3.1	C = Slight	Y	N/A	N/A	

Risk events					Risk rating ¹	Applicant		Justification for	
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of licence	additional regulatory controls	
		in accumulation of dust on native vegetation			L = Unlikely Low Risk				
Pumps		Air/windborne			C = Slight				
Operation of vehicles and machinery	Noise	disturbance to native fauna	Native fauna		L = Unlikely Low Risk	Y	N/A	N/A	
Operation of WWTP and sludge removal	Odour	Air/windborne pathway with impacts on amenity	Accommodation village residents		C = Slight L = Unlikely Low Risk	Y	N/A	N/A	
Infrastructure and equipment failure	Spills/ unintended releases of	Seepage to soil and groundwater	Native fauna (Including soil		C = Slight				
Maintenance works (accidental spills)	partially treated wastewater or solid waste	resulting in elevated soil nutrients	fauna) and remnant vegetation		L = Unlikely Low Risk	Y	N/A	N/A	
Stormwater interaction with plant and irrigation sprayfield	Contaminated or potentially contaminated stormwater	Seepage to soil and groundwater resulting in elevated soil nutrients	Remnant native vegetation		C = Slight L = Unlikely Low Risk	Y	N/A	N/A	
Chemical handling and storage	Spills/unintended releases of hydrocarbons or chemicals	Seepage to soil and groundwater resulting in damage to vegetation (root systems)	Remnant native vegetation		C = Slight L = Unlikely Low Risk	Y	N/A	N/A	
Irrigation sprayfield	Treated effluent	Direct application to vegetation and seepage to soil and groundwater resulting in nutrient accumulation and	Remnant native vegetation		C = Minor L = Possible Medium Risk	Y	Condition 16, Table 7, Row 1 Condition 18, Table 9	The Delegated Officer considers the inclusion of the applicants controls sufficient to mitigate the risk of irrigating treated effluent.	

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Risk events			Risk rating ¹	Applicant		Justification for		
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of licence	additional regulatory controls
		toxicity						
	Diluted RO wastewater (as blended effluent)	Direct application to vegetation and seepage to soil and groundwater resulting in secondary salinisation and impacts on native vegetation	Remnant native vegetation		C = Minor L = Possible Medium Risk	Y	Condition 16, Table 7, Row 1 Condition 18, Table 9	The Delegated Officer considers the inclusion of the applicants controls sufficient to mitigate the risk of irrigating diluted RO wastewater as blended effluent.
Use of RO reject brine as dust suppressant	Undiluted RO effluent (brine waste)	Direct application to vegetation resulting in salt scalding and vegetation death	Remnant native vegetation; Aboriginal cultural heritage site		C = Moderate L = Possible High Risk	Y	Condition 1, Table 1, Row 3 Condition 16, Table 7, Row 4 Condition 18, Table 9	Refer to Section 3.3

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

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

4. Considerations for Aboriginal Heritage site

Special consideration has been given to the use of RO brine for dust suppression given the location of the Aboriginal Heritage site 23590 (Archaeological Place KAR057-01) within the premises boundary and in close proximity to areas which will have RO brine applied.

The applicant intends to use the RO brine for dust suppression within cleared, maintained and operational areas, in particular the mine access roads. The brine will not be used on topsoil stockpiles, vegetated areas, during clearing operations and or on rehabilitated areas. The Delegated Officer considers the use of RO brine as a directly related activity to the prescribed activities at the premises. and as such, has determined that the RO brine application areas will be limited to prevent cumulative impacts to the irrigation area and sensitive receptors on site.

To ensure the ongoing protection of the Aboriginal Heritage site, the Delegated Officer has incorporated conditions within the Licence requiring the applicant to install and maintain a perimeter fence around the Aboriginal Heritage site to mitigate any potential impacts the RO reject brine may have on this sensitive site.

As application of undiluted, highly saline RO brine has the potential to result in salt scaling and death of native vegetation, the Delegated Officer has also added controls within the Licence to ensure that all measures are taken to avoid damage to the environment.

5. Consultation

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

Consultation method	Comments received	Department response
Application advertised on 30/06/2023	None received	N/A
EPA services advised of proposal and advice sought 28/07/2023	Comments received on 19/08/2023 indicating the licence application is not constrained by section 41 of the EP Act and that MS 993 does not contain conditions from the Minister for Environment preventing Waste Industries from assessing the licence application.	DWER has continued assessment of the licence application.
DPLH advised of proposal and advice/comment sought 25/08/2023	No comments received	N/A
Kariyarra Aboriginal Corporation advised of proposal and comment sought 20/09/2023	Comments received 26/10/2023. Traditional Owner group wish to organise a site visit before commenting.	The Delegated Officer considers that adequate stakeholder consultation with the Kariyarra Aboriginal Corporation has been undertaken.
	site on 20/12/2023. The Traditional Owner group confirmed that they were happy with the protection of the Heritage site (Archaeological Place KAR057-01) proposed and that works would be undertaken in the	With the acceptance of the Traditional Owner group for proposed controls in place to protect the Heritage site (Archaeological Place KAR057-01), the Delegated Officer considers

Table 5: Consultation

	surrounding area without threat to the site.	that no additional controls other than the construction and maintenance of the perimeter fence are required to ensure the ongoing protection of the Heritage site.
Applicant was provided with draft documents on 01/12/2023	Some comments received on 31/01/2024; remaining comments received 9/02/2024	Response summarised in Appendix 1.
	Comments summarised in Appendix 1.	

6. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

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.

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

Condition	Summary of applicant's comment	Department's response
Table 1	The current WWTP is a hire unit and therefore Table 1, item 2 is not relevant. If required, a letter of demobilisation from the contractor can be provided as evidence of expected removal. Following the provision of the email titled" Aboriginal Heritage Site KAR057-01 - Iron Bridge Operations Junction Camp L9392/2023/1 'on 11/1/2024 Item 4 is no longer relevant. The group inspected the fence to ensure it was in place and suitable and this was confirmed. Iron Bridge Operations requests this item be removed from the approval document.	Table 1, Item 2 wording have been amended to "Decommissioning of the existing junction camp WWTP through demobilisation of the current unit and its removal from site."Reference to construction of the perimeter fence has been removed, however the requirement to maintain this fence will remain throughout other sections of the licence.
Condition 2	Decommissioning of existing WWTP is confirmed as this is a hire unit. Upon commissioning of the upgraded hardware the contract will end. The applicant requested the reference to infrastructure being decommissioned be removed.	As per the above response, the use of the word decommissioning will remain on the licence.
Condition 3	Engineering reports are only relevant to infrastructure items 1 and 3 (Table 1). Iron Bridge Operations requests the condition wording be updated to omit Table 1, item 2.	Accepted.
Table 2, Table 3, Table 4, and Table 5	Requesting wording changed from RO reject brine to Undiluted RO reject brine.	The wording of the licence has remained as RO reject brine. For added clarity a definition for RO reject brine has been added to Table 12 of the licence indicating that it means undiluted reverse osmosis reject brine.
Table 6	Requesting wording changed to blended RO reject brine for the irrigation network; and Requesting wording changed from RO reject brine to Undiluted RO reject brine.	The wording of the licence has remained as blended effluent and RO reject brine. Blended effluent is defined in Table 12 of the licence, and a definition of RO reject brine has been added for clarity.
Condition 15	Administrative change.	Accepted.
Table 7	The applicant requested the removal of item 3b from Table 7 with the rationale that 30 m ³ of blended RO reject can report to the irrigation field	Row 3 (b) has been moved down to row 4 (j) – RO brine reject infrastructure.

Condition	Summary of applicant's comment	Department's response
	 which is required to be fully vegetated. Item 4 of Table 7 defines the operational requirements for use of Undilute RO brine reject. The applicant states that following the provision of the email titled" Aboriginal Heritage Site KAR057-01 - Iron Bridge Operations Junction Camp L9392/2023/1 on 11/1/2024 Item 5 is no longer relevant. The group inspected the fence to ensure it was in place and suitable and this was confirmed. Iron Bridge Operations requests this item be removed from the approval document. 	The fence conditions were an outcome from comments received from the Traditional Owners. As they have indicated the current fence is adequate, and the maintenance requirements of the fence is assumed to be minimal, the condition to maintain the fence will remain on the licence going forward.
Condition 21	The applicant requested a clear timeframe for reporting and suggested this be submitted in line with the Annual Audit Compliance Report.	Accepted.
Condition 25	The applicant requested a new reporting timeframe of 90 days after the end of the annual period rather than 30 days to align with other related reporting requirements.	Accepted.

Appendix 2: Application validation summary

TION 1: APPLICATION SUMMARY (as updated from validation checklist)						
Application type						
		Relevant works approval number:	W6688/2022/1	Non e		
		Has the works app complied with?	broval been	Yes D	⊠ No □	
Licence	\boxtimes	Has time limited o the works approva acceptable operat	perations under al demonstrated ions?	Yes 🗆] No ⊠ N/A	
		Environmental Co Critical Containme Report submitted?	mpliance Report / ent Infrastructure	Yes 🛛	☑ No □	
		Date Report receiv	ved:31/01/2023	•		
Date application received		13/04/2023				
Applicant and Premises details	5					
Applicant name/s (full legal name	e/s)	Iron Bridge Opera	tion Pty Ltd			
Premises name		North Star Magnetite Project – Junction Camp				
Premises location		L45/625 granted under the Mining Act 1978.				
Local Government Authority		Shire of East Pilbara				
Application documents						
HPCM file reference number:		DER2018/001042	-9~19			
HPCM file reference number: Key application documents (additional to application form):		Appendix 1 -DWER adviceAppendix 2 – GIS coordinatesAppendix 3 – Evidence of stakeholder consultationAppendix 4 – Marble Bar Design CertificationAppendix 5 – WA compliance assessment – compliantAppendix 5B – Environmental commissioning reportAppendix 6 – Certificate of analysis 271990Appendix 6B – Certificate of analysis PEA0109Appendix 7 – Certificate of analysis PEA0206Attachment 1A – Mining tenement summary reportAttachment 1B – ASIC company extractAttachment 1C – Environmental Protection Act – legalauthorityFigure 1 – Regional locationFigure 3 – Siting and locationAttachment 3B – supporting document				

Scope of application/assessment					
	Licence Operat constru W6688 The lic	ion of WWTP and ucted and commiss 3/2022/1. ence application in change the hardw WWTP) to be swit	associated infrastructure as sioned per works approval includes a request to: vare (the process core of the tched out with the proven system		
Summary of proposed activities or changes to existing operations.	 WWTP) to be switched out with the proven system (Marble Bar WWTP, approved under W6596/2021/ and L9360/2022/1). This will be located within cleared area within the prescribed premises boundary although not immediately adjacent to the current plant. Decommissioning the existing WWTP Installation of accommodation rooms, kitchen, ablutions and associated infrastructure from Marble Bar camp – Ausco WWTP. Excess wastewater volumes will be captured in holding storage tanks and removed to a licenced facility Installation of RO Reject water infrastructure, via 2 50kL storage tanks that are lined up to the RO units and report to a Well Tech standpipe/water pump to fill the water carts for dust suppression Decommissioning the existing Junction Camp wastewater treatment plant 				
Table 1: Prescribed premises categories	ries				
Prescribed premises category and description		Proposed production or design capacity			
Category 54: Sewage facility: premises	8-	108 m³ per day			
 a) on which sewage is treated (excluding septic tanks); or b) from which treated sewage is discharged onto land or into waters 					
Legislative context and other approv	als				
Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?		 □ Referral decision No: □ No ⊠ Managed under Part V □ Assessed under Part IV □ 			

Has the proposal been referred and/or assessed under the EPBC Act?	Yes 🛛 No 🗆	Reference No: EPBC 2012/6689
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ⊠ No □	Certificate of title □ General lease □ Expiry: Mining lease / tenement ⊠ Expiry: ML 45/625 exp 5/08/2042 Other evidence □ Expiry:
Has the applicant obtained all relevant planning approvals?	Yes □ No □ N/A ⊠	Approval: Expiry date: If N/A explain why?
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes 🗆 No 🖂	Clearing approved under MS993
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes 🗆 No 🖂	Clearing approved under MS993
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes 🗆 No 🖂	Clearing approved under MS993
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ⊠ No □	Name: Pilbara Surface Water Area and Pilbara Groundwater Area Type: Proclaimed Groundwater Area/Surface Water Area Has Regulatory Services (Water) been consulted? Yes I No I N/A I Regional office: North West
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes □ No ⊠	

Is the Premises subject to any other Acts or subsidiary regulations (e.g. Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx)	Yes □ No ⊠	
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes □ No ⊠	
Is the Premises subject to any EPP requirements?	Yes □ No ⊠	
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes □ No ⊠	Classification: N/A Date of classification: N/A