

Decision Report

Application for Works Approval

Part V Division 3 of the Environmental Protection Act 1986

Works Approval Number W6591/2021/1 Applicant Pilbara Iron Company (Services) Pty Ltd ACN 107 210 248 File number DER2021/000498 **Premises** Paraburdoo Iron Ore Mine and Eastern Range Project Located within Tenements - AML70/246, AML70/4, L47/326, AG70/4 and AG70/14 ROCKLEA WA 6751 Date of report 26 November 2021 Decision Works approval granted

Alana Kidd MANAGER, RESOURCE INDUSTRIES an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Table of Contents

1.	Decis	ion summary	1				
2.	Scope	e of assessment	1				
	2.1	Regulatory framework	1				
	2.2	Application summary and overview of premises	1				
3.	Risk a	assessment	1				
	3.1	Source-pathways and receptors	2				
		3.1.1 Emissions and controls	2				
		3.1.2 Receptors	4				
	3.2	Risk ratings	5				
4.	Cons	ultation	9				
5.	Concl	usion	9				
Refe	rences	5	9				
Арре	endix [•]	I: Summary of applicant's comments on risk assessment and draft					
conc	litions		0				
Appe	Appendix 2: Application validation summary12						
Арре	endix 3	3: DoH comments1	5				

Table 1: Proposed applicant controls	.2
Table 2 Applicant proposed minimum effluent quality performance criteria	.4
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 construction, commissioning and time limited operation	.7
Table 5: Consultation	.9

Figure 1: Distance to sensitive receptors6
--

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, works approval W6591/2021/1 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

On 21 July 2021, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction and operation of a new wastewater treatment plant (WWTP) and extension of the existing waste dump landfill at the premises (categories 85 and 64 activities). The premises is approximately 6 km north-east of Paraburdoo town.

The existing WWTP system did not trigger the Category 85 volumes and therefore has not been previously licensed. The old system will be decommissioned, and infrastructure removed offsite. The new WWTP will have a footprint of 0.04 ha and a maximum design capacity of 24 kL/day with an actual/expected throughput of 15 kL/day. There are no proposed changes to the existing 0.5 ha spray field. The construction of the new WWTP will be within a previously disturbed area.

The Paraburdoo operations currently disposes of inert and putrescible waste into the licensed Category 64 Waste Dump Landfill. It is proposed to increase the current footprint of the existing Waste Dump landfill to the south-east by 5.3 ha (i.e. increasing from approved 8.9 ha to 14.2 ha) to allow for alignment with a revised waste dump design since the initial submission in 2016. There will be no increase to the design capacity/throughput or types of waste to be accepted. Clearing of 1.7 ha will be required for the extension and will be undertaken under existing approved native vegetation clearing permit CPS 5090.

The premises relates to the categories and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6591/2021/1. 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 works approval W6591/2021/1.

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 / operation which have been considered in this decision report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed	applicant	controls
-------------------	-----------	----------

Emission	Sources	Potential pathways	Proposed controls				
Construction							
Dust	Placement of WWTP tanks and associated infrastructure (pipelines etc) Clearing of native vegetation	Air/windborne pathway causing impacts to adjacent native vegetation (sparse)	Dust will be managed via the requirements of the existing Licence L5275/1972/12 and standard operating procedures. Dust suppression will be implemented by use of water trucks and control of vehicle movements/restricted speeds during construction as required. Weather forecast monitored to ensure availability of water cart if risk of windy conditions.				
Noise		Air / windborne pathway	Noise will be managed in accordance with Environmental Protection (Noise) Regulations 1997 (WA).				
Commissionin	ng of new WWTP						
Partially treated sewage	WWTP during stabilisation process	Discharge to sprayfield	The WWTP will be filled with water to ensure that effluent discharges are diluted until system stabilization.				
			Fortnightly monitoring of the water quality of the effluent.				
Operation of V	WWTP and landfill exte	ension					
Sewage Partially	Containment loss from WWTP and associated pipelines	Overland flow potential causing	Surface water management structures / bunding will ensure any spills are contained.				
treated sewage		impacts to adjacent	Provision of spill response. Inspections and maintenance of the facility will				
Treated wastewater		native vegetation	be undertaken in accordance with manufacturers requirements.				
Treatment chemicals		(sparce) or surface water quality	Alarm monitoring system to notify of any failures. The WWTP has an inbuilt emergency storage of approximately two days at normal flow to ensure that any problem can be rectified before overflow occurs. Any potential overflow can be diverted to holding tanks to prevent spillage.				
			Standard management procedures are				

Emission	Sources	Potential pathways	Proposed controls
			expected to effectively mitigate the risk of sewage emissions.
			Cumulative volume of all effluent discharges will be recorded monthly.
			Representative effluent discharge samples will be collected and analysed quarterly.
Treated wastewater	Discharge to the irrigation spray field (0.5 ha).	Overland flow potential causing impacts to adjacent native vegetation	The sprayfield is appropriately sized to ensure nutrient (nitrogen and phosphorus) application rates are appropriate for nutrient application criteria for Risk Category C (WQPN 22) and do not exceed targets specified in Australian Guidelines for Sewerage Systems – Effluent Management.
		(sparce) or surface water quality	The sprinkler system is designed to reduce overlap and maximise evaporation.
		quanty	Location of spray fields separated from major drainage channels.
			Staff will monitor the facility weekly.
			Sprinklers at the spray field will be monitored and maintained weekly as part of the weekly WWTP checks.
			The discharge effluent volumes will be monitored monthly, and water quality parameters quarterly.
Leachate from landfill cell	Rainwater infiltration through landfill	Infiltration through soil Groundwater quality	It will be operated in accordance with conditions 21 - 24 of the current Licence L5275/1972/12.
			Landfill located more than 100 m from any surface water bodies and at least 3 m higher than the water table within the approved area.
			Manage stormwater on the waste dump landfill site so that water that has come into contact with waste is to be retained on the site
Dust		Air/windborne pathway causing impacts to adjacent native vegetation	Existing dust controls as per L5275/1972/12 will continue to be implemented including: Spraying working surfaces with water using water carts
Odour	Landfill operation	Air/windborne pathway	Due to the inert nature of the waste material, no odours will be emitted from the waste dump landfill. No other putrescible waste other than wooden pallets will be disposed of.
			Regular covering of wastes with inert fill will ensure odour emissions do not impact the offsite environment.

Emission	Emission Sources Potentia pathway		Proposed controls
			Operation of landfill will continue in accordance with conditions 21-24 of Licence L5275/1972/12.

The applicant proposed minimum effluent quality performance criteria are listed in Table 3. The proposed nitrogen and phosphorous application to the 0.5 hectare spray field will be below the maximum application rate for Risk Category C listed in Water Quality Protection Note 22: Irrigation with Nutrient-rich Wastewater (DoW 2008). The expected annual nutrient loading for the spray field is 175.2 kg/ha/year.

Table 2 Applicant proposed minimum effluent quality performance criteria

Parameter	Applicant proposed specifications
Total suspended solids	<30 mg/L
Biochemical oxygen demand	<20 mg/L
Total nitrogen	<10 mg/L
Total phosphorous	< 2 mg/L
E.coli	<10 cfu/100mL
Residual free chlorine	>0.5 mg/L
рН	6.5 - 8.5

3.1.2 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 1 provide 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

Human receptors	Distance from prescribed activity		
Town of Paraburdoo	5 km to the north-east of the WWTP and 10 km to the north-east of the Waste Dump landfill.		
Rocklea Pastoral Station	1.2 km to the north-west of the WWTP and 1.5 km to the north of the landfill		
	The Delegated Officer considers it unlikely a risk event for dust or noise emissions will occur as a source pathway receptor linkage does not exist based on the distance from proposed activities. Therefore, this receptor is not further considered in the risk assessment below.		

Environmental receptors	Distance from prescribed activity
Aboriginal and other heritage sites	600 m to the south-east of the WWTP and 250 m to the south-east of the landfill.
Paraburdoo Drinking Water Reserve – P1	5.7 km to the north of the WWTP and 11 km north-east of the landfill
	The Delegated Officer considers it unlikely a risk event will occur as a source pathway receptor linkage does not exist based on the distance from proposed activities. Therefore, this receptor is not further considered in the risk assessment below.
Seven Mile Creek	1.5 km to the north of the WWTP
Pirraburdu Creek	500 m to the south of the Waste Dump Landfill extension area
Reminiscent native vegetation	Adjacent to spray field
Wildlife	Within minesite

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 works approval 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.

Works approval W6591/2021/1 that accompanies this decision report authorises construction, commissioning and time-limited operations. The conditions in the issued works approval, as outlined in Table 4 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises i.e. category 85 activities. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.



Figure 1: Distance to sensitive receptors

Works Approval: W6591/2021/1

Decision Report - Paraburdoo Iron Ore Mine

Table 4: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and time limited operation

Risk events				Risk rating ¹				
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Construction								
Placement of WWTP tanks and associated infrastructure (pipelines etc)	Dust	Air/windborne pathway causing impacts to adjacent native vegetation	Remaining native vegetation (sparce)	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A
Construction of new Category 64 landfill	Dust	Air / windborne pathway causing impacts to adjacent native vegetation	Adjacent native vegetation	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A
Commissioning and Tim	e Limited Opera	tion		·		·		
Containment loss from WWTP and associated pipelines	Sewage Partially treated sewage Treated sewage	Overland flow causing impacts to adjacent native vegetation or surface water quality	1.5 km to the north of the WWTP Adjacent native vegetation (sparce)	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Condition 1 – design and installation requirements Condition 5 – commissioning requirements	N/A
Discharge to the irrigation spray field	Treated wastewater	Overland flow potential causing impacts to adjacent native vegetation, wildlife or surface water quality	1.5 km to the north of the WWTP Adjacent native vegetation (sparce) Wildlife	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Ν	Condition 1 – design and installation requirements Condition 5 – commissioning requirements Condition 6 – authorised discharge to spray field	Additional controls added: Condition 7 - Quality controls and NATA accredited laboratory added to applicant proposed monitoring to ensure quality data collected

Risk events	Risk events					Annlinent		Justification for
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	additional regulatory controls
							Condition 7 – monitoring of emissions Condition 15. Table 7 - emissions and discharge monitoring during time limited operations	and reported. Condition 15 - requires monthly monitoring during time limited operations, monitoring frequency to be reviewed for ongoing operations
Disposal of class II waste into landfill (expanded footprint)	Leachate	Leachate seepage through base and embankments to soil and groundwater	Underling groundwater	Existing Licen	ce L5275/1972/12 cc	onditions 12,13,	14, 15 and 16 apply	
	Windblown waste	Air/windborne pathway	Adjacent native vegetation and wildlife	Existing Licen	ce L5275/1972/12 cc	onditions 12, 14 a	and 15 apply	

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. Consultation

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

Table 5: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 24 September 2021	None received	N/A
Local Government Authority (Shire of East Pilbara) advised of proposal on 29 September 2021	None received	N/A
Department of Health (DoH) advised of proposal 29 September 2021	DoH replied on 14/10/2021 Refer to Appendix 3	 Site specific soil evaluation was conducted as per AS/NZS 1547- 201. Report submitted as part of the application The applicant is required to provide a compliance report after commissioning
Applicant was provided with draft documents on 2 November 2021	Comments received on 24 November 2021. Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval 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.
- 4. Rio Tinto 2021, Application supporting documentation, DWER reference DWERDT481114

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

Condition	Summary of applicant's comment	Department's response	
1	The applicant requested the rewording of the condition to read: WWTP designed to meet the following treated effluent quality.	Condition amended	
2, 3 and 17	Administrative	Amended	
	The applicant requested that the requirement to report on the vegetation health within the irrigation area is removed from Condition 9.		
9 (c)	It is expected that the vegetation health will fluctuate depending on seasonal variations and times of maximum effluent irrigation.	Requirement removed	
	There are no recorded sensitive vegetation species within the spray field area and therefore fluctuating health is not expected to have a significant impact on flora and vegetation in the small spray field area.		
14	The applicant considers this condition a duplication since compliance with conditions of the Works Approval will be assessed and reported in the Time Limited Operations (TLO) report required by Condition 17.	Condition removed	
	The Works Approval application (Part 4, Table 5) stated that these "limits" were "target values" acknowledging that whilst the WWTP will be designed and built to achieve the target values, it is unlikely that the system will operate under optimal conditions at all times.		
	The applicant requested that the column with heading "Limit" in Table 7: Emissions and discharge monitoring during time limited operations is replaced with "Target".		
15 - Table 7	The manufacturers design of the WWTP is intended to meet these target values for treated effluent discharge quality, it is unlikely that these target values will be achieved at all times during the operation of the WWTP. These target values supplied by the manufacturer are only projected to be met under optimal operating and testing conditions, and which are not the usual conditions within the Pilbara region. Given the WWTP and spray field's large distances away from sensitive receptors, these values are deemed overly conservative from an environmental impact and risk	Monitoring requirements will be according to Table 4 given the low volume of effluent to be discharged (24 m ³ /day).	

Condition	Summary of applicant's comment	Department's response
	management perspective, particularly given the proposed controls already listed in the draft Works Approval. The use of the word 'limit' specifies that any exceedance (considered probable during TLO) will be required to be reported as a non-compliance. 'Targets' will allow for the expected variability in treated wastewater quality.	
17 (b)	The applicant requested that condition 17(b) is reworded to the following: a summary of monitoring parameter results obtained during time limited operations under condition 16 and comparison of results against previous monitoring results and relevant guidelines.	Condition amended to read: (b) a summary of monitoring results obtained during time limited operations under condition 14.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY				
Application type				
Works approval	\boxtimes			
Date application received		21 July 2021		
Applicant and Premises details				
Applicant name/s (full legal name/s)		Pilbara Iron Company (Services) Pty Ltd		
Premises name		Paraburdoo Iron Ore Mine		
Premises location		AML70/246, AG70/4, AG70/14, L3116/4589, AML70/4 ROCKLEA WA 6751		
Local Government Authority		SHIRE OF ASHBURTON		
Application documents				
HPCM file reference number:		DWERDT481114		
Key application documents (additional to application form):		Cover Letter Supporting Documents		
Scope of application/assessment				
Summary of proposed activities or changes to existing operations. Category number/s (activities that cau		 construction and operation of the 24kL/day WWTP at the Paraburdoo MOC; Increase the footprint of the existing approved Category 64 - Waste Dump Landfill by 5.3 ha (no changes to production or design capacity/throughput of the landfill are proposed, currently approved for 2,000 tonnes per annum) use the premises to become prescribed premises) 		
		ries sessed production or sign capacity		Proposed changes to the production or design capacity (amendments only)
Category 85: Sewage facility N/A				24 kL/day
Legislative context and other approvals				
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?		Yes □ No ⊠	N	Referral decision No: N/A lanaged under Part V ⊠ ssessed under Part IV □
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?		Yes □ No ⊠		Inisterial statement No: N/A PA Report No: N/A
Has the proposal been referred and/or assessed under the EPBC Act?		Yes 🗆 No 🖂	N	I/A

Has the applicant demonstrated occupancy (proof of occupier status)?	Yes 🛛 No 🗆	Mining lease / tenement
Has the applicant obtained all relevant planning approvals?	Yes □ No ⊠ N/A □	Approval: Expiry date: If N/A explain why? An application with the Shire of Ashburton to construct the WWTP is currently under assessment. The application was lodged 08th June 2021.
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ⊠ No □	CPS No: 5090 Clearing is approved under CPS 5090 and all conditions of this permit will be adhered to.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes 🗆 No 🖂	Application reference No: N/A Licence/permit No: N/A
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes 🛛 No 🗆	Application reference No: N/A Licence/permit No: GWL109318
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes 🗆 No 🛛	N/A
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes □ No ⊠ 5.7 km to the north of the WWTP and 11 km north east of the landfill	Name: Paraburdoo Water Reserve Priority: P1 Are the proposed activities/ landuse compatible with the PDWSA (refer to <u>WQPN 25</u>)? Yes INO IN/A I Compatible with DWER's Paraburdoo Water Reserve drinking water source protection plan
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 □	Mineral Lease ML246SA granted pursuant to the <i>Iron Ore (Hamersley</i> <i>Range) Agreement Act 1968</i>
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes □ No ⊠	N/A

Is the Premises subject to any EPP requirements?	Yes □ No ⊠	N/A
Is the Premises a known or suspected contaminated site under the Contaminated Sites Act 2003?	Yes ⊠ No □	 Classification and Date: 6661, Rio Tinto Paraburdoo, 1480 Heavy Vehicle Refuelling Area, Mining Lease M246SA (AML70/246). Form 1, Contaminated - restricted use, Jan 31, 2012 8:00 AM 8961, Paraburdoo Mine, Locomotive refuelling area (previously referred to as the main train refuelling area), unallocated Crown Land, part of Lot 108 On Plan 220373, WA 6754 . Form 1, Possibly contaminated - investigation required, Apr 9, 2015 8:00 AM 6038, Rio Tinto Paraburdoo Bulk Fuel Depot, Lot 140, Mining Lease M246SA (AML70/246). Form 1, Possibly contaminated - investigation required, Apr 16, 2020 8:00 AM 11680, Approximate spatial representation of section of Lot 108 on Deposited Plan 220373 and Lot 32 on Deposited Plan 241590 adjacent to Rio Tinto Paraburdoo Bulk Fuel Depot, Incomplete Report, N/A

Appendix 3: DoH comments

Comment	Department's response
There is currently no reference to the number of personnel that will be using the proposed upgraded wastewater treatment plant. Demonstrate that the system is cable to accommodate peak load	Instruments issued under Part V of the EP Act regulate emissions and discharges from prescribed activities. The instrument ensures appropriate design and manages potential impacts to sensitive receptors. Please note that the number of personnel is outside of scope of this assessment.
Specific site and soil evaluation report during the wettest season as per AS/NZS 1547:2012	Impacts from discharges to land are assessed and regulated under the issued works approval.
Provide engineering certification of the performance	Conditions 2 and 3 of the issued works approval require an Environmental Compliance report to be submitted, which includes confirmation of correct construction as per conditions, and certification by a qualified, competent civil or structural engineer.
On-site infrastructure and spray fields need to be designed and maintained to ensure they do not breed mosquitos.	Condition 5 and condition 13 specify that ponding and pooling in the irrigation area must be prevented.
A formal application to the Department of Health for assessment is required.	Applicant notified on 27 October 2021