Application for Works Approval

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

Works Approval Number	W6744/2022/1
Applicant	Process Minerals International Ltd.
ACN	063 988 894
File number	DER2022/000534
Premises	Mount Marion Lithium Project Located on Mining Lease M15/717 in the Shire of Coolgardie Legal description As defined by the premises map attached to the issued works approval
Date of report	09 January 2023
Decision	Works approval granted

Abbie Crawford

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Abbie Crawford
A/MANAGER, WASTE INDUSTRIES

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, works approval W6744/2022/1 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 11 October 2022, 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 works relating to a Category 54 sewage facility for a three-stage expansion of the existing wastewater treatment plant (WWTP) at the premises. The staged expansions are to accommodate expected increases in worker capacities at the Mount Marion Project. The premises is located on Mining Lease M15/717, approximately 20 km north-west of the town of Kambalda.

The current WWTP at the site operates under licence L9037/2017/1 and has a design capacity of 70m^3/day. Licence L9037/2017/1 also permits the increase in design capacity to 90 m^3/day through the addition of a second WWTP with a capacity of 50 m^3/day, which has been restricted to 20 m^3/day with a small pumping unit, as part of Stage 1 works. The target date for Stage 1 is October 2022.

This application is for Stages 2 and 3 of the WWTP expansion.

Stage 2 is scheduled for December 2022 and proposes to increase the WWTP capacity to 120m^3/day through installation of a larger pumping unit to the second WWTP to allow it to operate at 50 m^3/day capacity, and expansion of the existing irrigation field to 4.6 ha.

Stage 3 is planned for March 2023 and proposes the addition of a new system, enabling a total flow rate of up to 170m^3/day. The new system proposed is a sequence batch reactor (SBR) system, consisting of two containerised style 12m long systems constructed of 6mm steel. The systems are designed and assembled in-house and require minimal installation work on site. The size of the pumping unit used will restrict the capacity of the new system to 50 m^3/day and therefore, the throughput of the Stage 3 WWTP to 170m^3/day. The irrigation field will be expanded to 6.17 ha to accommodate the increase in daily discharge rate.

The proposed irrigation field area is located over 500 metres away from any significant surface water bodies and consists of red loamy earth (75%), loamy gravel (20%) and calcareous loamy earth (5%), which is consistent with Eutrophication Risk Category D as described in Table 1 of Water Quality Protection Note 22 (2008).

The applicant expects that the proposed new WWTP will meet the parameters listed in Table 1.

Table 1: WWTP influent and effluent specifications

Parameter	Units	Influent	Effluent
Hydraulic Capacity	kL/d	80-100	80-100
BOD	mg/L	350	<20
TSS	mg/L	350	<30
TN	mg/L	60	<50
TP	mg/L	14	<12
pH	pH units	6.5 – 8.5	6.5 – 8.5
E Coli	cfu/100mL	-	<1000
Chlorine	mg/L	-	0.2 - 2.0

The applicant seeks to undertake both installation and commissioning of Stage 3 of the WWTP under the Works Approval and commence operations under Time Limited Operations (TLO) for 130 business days (26 weeks).

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 works approval W6744/2022/1. 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 W6744/2022/1.

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, commissioning and time-limited operation which have been considered in this decision report are detailed in Table below. Table 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/machinery movements on unsealed roads Installation of WWTP and spray field infrastructure Expansion of spray field area (including fencing and surrounding vehicle track)	Air / windborne pathway	• Siting of WWTP is located appx. 20 km from the nearest residence • Water trucks will be utilized to spray surrounding work areas and roads as required
Noise			• Noise emissions to be managed in accordance with the *Environmental Protection (Noise) Regulations 1997* • Siting of the WWTP is located appx. 20 km from the nearest residence • Regular servicing/maintenance of equipment
Commissioning and time limited operations			
Dust	Operating WWTP and ancillary infrastructure Movement of mobile machinery/vehicles	Air / windborne pathway	• Siting of WWTP is located appx. 20 km from the nearest residence • Water trucks will be utilised to spray surrounding work areas and roads as required
Noise and vibration	Operation of WTP or sludge removal, generated from WWTP pumps and units Movement of mobile machinery/vehicles		• Noise emissions to be managed in accordance with the *Environmental Protection (Noise) Regulations 1997* • Siting of the WWTP is located appx. 20 km from the nearest residence • Regular servicing/maintenance of equipment
Odour	Generated from WWTP and sludge during commissioning and operations		• Siting of the WWTP is located approximately 20 kilometres from the nearest residence • The WWTP has been designed as an enclosed containerised system to ensure odour levels are kept to a minimum • Sludge is stored in sealed tanks • The WWTP will be inspected prior to filling with water to ensure it has been constructed according to manufacturer specifications • Regular inspections of the WWTP will include assessment of any unplanned sources of odour.

Emission	Sources	Potential pathways	Proposed controls
Discharge of contaminated wastewater	Leaks or spills of wastewater or sludge/biosolids from tanks or pipelines from the WWTP during commissioning and operations	Overland flow to the environment and infiltration to soil and groundwater	• All wastewater storage components of the WWTP will be impermeable (i.e.fibreglass, concrete or lined with HDPE) • The WWTP will be installed as per manufacturer specifications. • Sufficient freeboard will be maintained within each tank to ensure overspill does not occur. • A compacted earthen containment bund will be constructed around the WWTP and the irrigation field, which will be maintained to contain any spills and to prevent any wastewater travelling outside the spray field boundary and towards the adjacent water course. • Any incident involving a spill of untreated sewage will be responded to immediately with contaminated soil removed and taken to a licensed facility by a licensed transporter. Remediation actions will be taken to minimize the risk of reoccurrence • Sludge generated from the treatment process will be stored in separate sludge storage tanks and pumped directly from the tanks during sludge removal to avoid spillage. • Sludge is to be removed on an annual basis in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004* • All pipelines will be inspected on a regular basis for leaks or damage • The WWTP is to be inspected prior to filling with water to ensure it has been constructed according to manufacturer specifications • Fresh water will be used to test the WWTP for leaks prior to filling with wastewater
Treated wastewater containing contaminants (eg. nutrients, pathogens, metals)	Discharge of treated wastewater to irrigation area Discharge of low-quality treated wastewater to irrigation area	Subsurface seepage through soil to groundwater	• Wastewater will be disposed to a designated spray field irrigation area and comply with existing licence conditions L9037/2017/1 • The WWTP will be installed as per manufacturer specifications and operated, maintained and monitored in accordance with L9037/2017/1 conditions. • Sufficient freeboard will be maintained within each tank to ensure that overspill

Emission	Sources	Potential pathways	Proposed controls
			does not occur • Irrigation will be designed such that runoff, spray drift or other discharge will not occur beyond the spray field boundary • An earthen containment bund will be constructed and maintained to prevent any wastewater travelling outside the spray field boundary and towards the adjacent watercourse. • Wastewater will be evenly distributed over the spray field irrigation area to prevent soil erosion and pooling • Irrigation is not to occur during significant rainfall events to prevent potential discharges to surface water flows. Suitable storage will be maintained in the treated wastewater tank in case irrigation cannot occur for several days. • Wastewater samples will be collected in accordance with AS/NZS 5667.10 Water quality – Sampling – Guidance on sampling of waste waters and submitted to a NATA accredited laboratory • Verification and validation monitoring will be conducted during commissioning in accordance with Department of Health (DOH) guidelines (DOH, 2013) • A flow meter will be installed to record the volume of treated wastewater discharged to the irrigation area.
Chemical spill	Leaks or spills of chlorine from WWTP	Overland flow and infiltration to soil and groundwater	• Chlorine will be stored and fully contained in a designated storage area within the WWTP • Only low quantities of chlorine will be stored at the WWTP • Spillages will be cleaned up and disposed of in accordance with MRL environmental procedures • Any release which is likely to cause pollution or environmental harm will be reported to DWER in accordance with the Environmental Protection Regulations 1987.

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 and Figure 1 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

Human receptors	**Distance from prescribed activity**
Residential Premise, Woolibar station homestead	Approximately 20 km east of the site The delegated Officer considers that due to distance there is no likely impact upon these residences so it is not considered further as a receptor within this assessment
Environmental receptors	**Distance from prescribed activity**
Department of Biodiversity, Conservation and Attractions (DBCA) Legislated Lands and Waters	The closest DBCA managed land is the "Class C" Yallari Timber Reserve which is located appx. 5 km west of the premises boundary.
Water courses	There are no major watercourses or important wetlands located near or within the premises boundary. Lake Lefroy is appx. 25 km southeast of the WWTP area. Minor surface water lines have been identified within prescribed premises boundary, one 150m west the WWTP and irrigation area
Underlying groundwater (non-potable purposes)	The premises is within the *Rights in Water and Irrigation Act 1914* (RIWI Act) proclaimed Goldfields Groundwater Area. The applicant states that depth to groundwater within the premises area ranges from 8-60mbgl, groundwater has a pH of 6.4, and Total Dissolved Solids (TDS) concentrations of 30,000 mg/L to 40,000 mg/L. Groundwater sources are used for the purposes of mining or industrial applications. Adjacent towns are serviced by scheme water (PSM 2016).
Priority Flora *Eremophila acutofolia* *Thryptomene planiflora*	The applicant states that spring surveys in 2021 confirmed the location of Priority flora within the region. The closest Priority species were recorded appx. 2 km north of the WWTP and to the west of the tenement boundary (Ecologia, 2022; NVS, 2022)

Fauna Malleefowl (*Leipoa ocellata*)	Malleefowl (*Leipoa ocellata*) habitat is present within the boundaries of the Prescribed Premises. A survey in Spring 2021 (Bamford, 2022) identified several conservation species to the north and west of the premises boundary. Trapdoor Spider burrows and Malleefowl mounds were recorded in close proximity to the premises. Malleefowl is listed as vulnerable under the EPBC Act and is on schedule 1 of the *Wildlife Conservation Act 1950*, that is, fauna that is rare or is likely to become extinct.

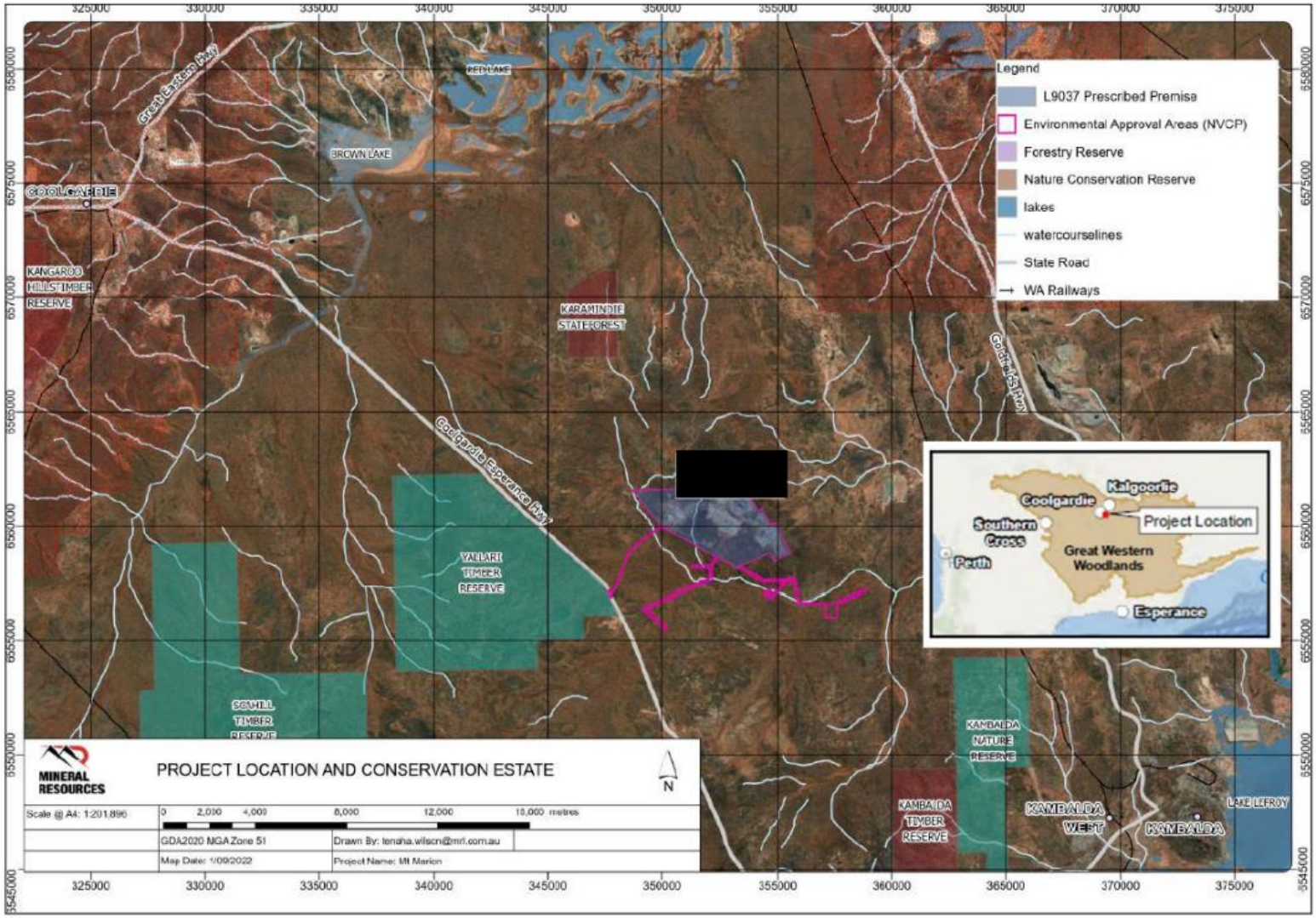

Figure 1: Distance to sensitive environmental receptors

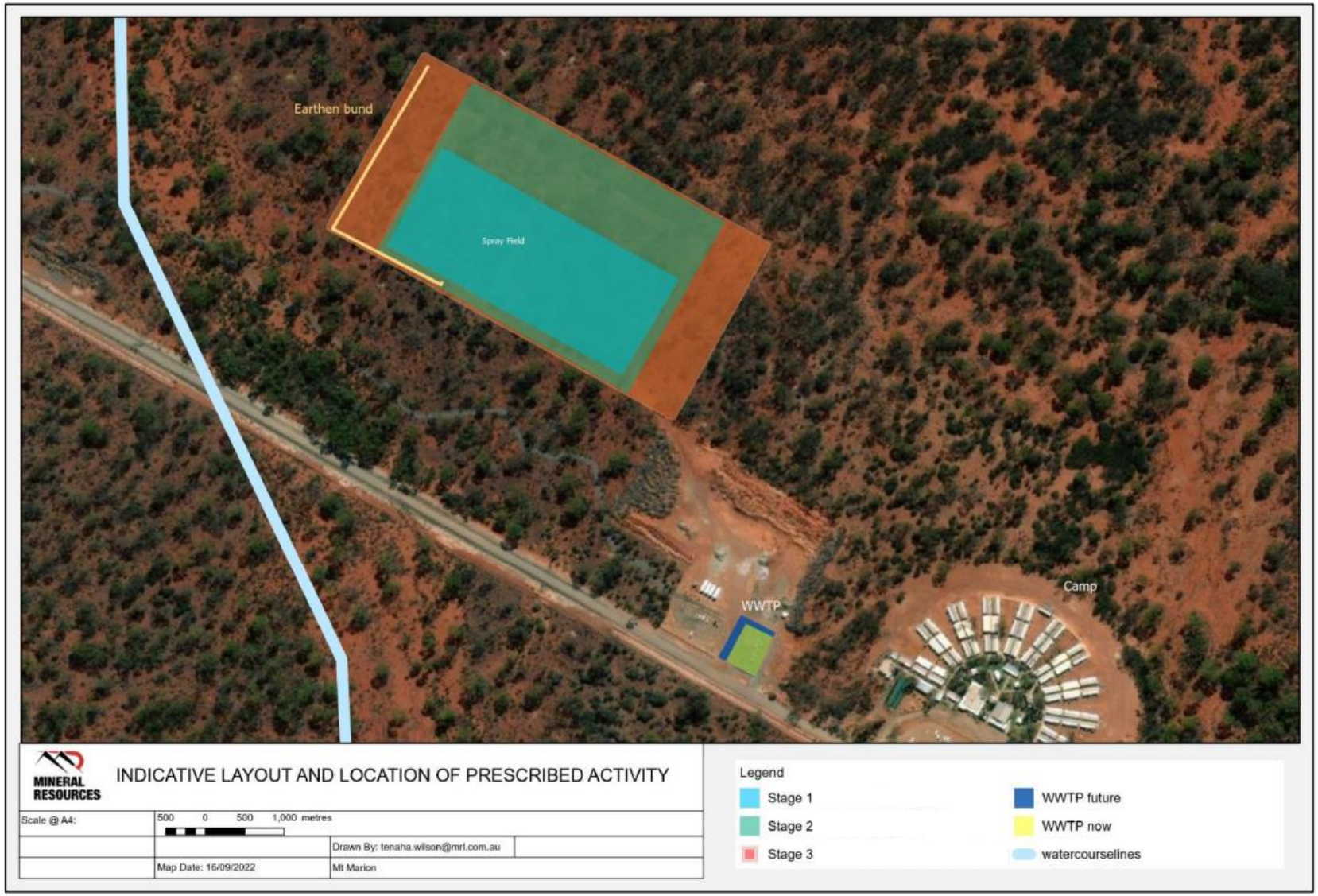

Figure 2: Distance from proposed WWTP to watercourse lines

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 W6744/2022/1 that accompanies this decision report authorises construction 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).

An amendment to existing licence L9037/2017/1 is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises. 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.

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

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction/Installation								
Vehicle/machinery movements on unsealed roads Installation of WWTP and spray field infrastructure Expansion of spray field area (including fencing and surrounding vehicle track)	Dust	Air/windborne pathway causing ecosystem disturbance	Fauna No applicable residential receptors	Refer to Section 3.1.1	C = Slight L = Rare **Low Risk**	Y	N/A	N/A
	Noise			Refer to Section 3.1.1	C = Minor L = Rare **Low Risk**	Y	N/A	N/A
Operation **(including time-limited-operations operations)**								
Operation of WWTP or sludge removal, generated from WWTP pumps and units	Noise and vibration	Air / windborne pathway causing ecosystem disturbance	Fauna	Refer to Section 3.1.1	C = Minor L = Rare **Low Risk**	Y	N/A	N/A
Leaks or spills of wastewater or sludge/biosolids from tanks or pipelines from the WWTP during commissioning and operations	Discharge of contaminated/potentially contaminated stormwater into the environment Discharge of waste to land Leachate	Overflow to the environment and infiltration to soil and groundwater, causing ecosystem disturbance and degradation to groundwater quality	Beneficial (non-potable) users of groundwater Minor surface watercourse adjacent to the WWTP irrigation area	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	N	Conditions 6 and 16 **<u>Condition 1</u>**	The Delegated Officer considers that the controls proposed by the applicant are adequate for managing the WWTP in a way that prevents system failures, and these have been included as controls within the works approval.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
								However, the Delegated Officer considers that additional controls to alert onsite personnel to a pump or system fault, high tank level or overflow are required and these have been included in the licence.
Discharge of treated wastewater to the WWTP irrigation area	Low quality treated wastewater containing contaminants (eg. Nutrients, pathogens, metals) Treated wastewater containing contaminants (e.g. Nutrients, pathogens, metals)	Subsurface seepage causing contamination of soil and degradation of groundwater quality		Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Conditions 1, 6, 8, 16 and 19	The Delegated Officer considers that the controls proposed by the applicant are adequate for managing low quality/treated wastewater containing contaminants and these have been included as controls within the works approval.
Leaks or spills of chlorine from WWTP	Chemical spill	Overland flow and infiltration to soil and groundwater causing ecosystem disturbance and degradation to groundwater quality		Refer to Section 3.1.1	C = Minor L = Rare **Low Risk**		Conditions 1, 6, 16 and 17	The Delegated Officer is of the opinion that the risks can be adequately managed through the applicants controls and by section 49 of the EP Act.

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 14 November 2022	None received	N/A
Local Government Authority advised of proposal on 10 November 2022	None received	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal on 10 November 2022	None received	N/A
Department of Health (DOH) advised of proposal on 10 November 2022	Comments received on 25 November 2022. Refer to Appendix 1.	Refer to Appendix 1.
Applicant was provided with draft documents on 19 December 2022	Comments received on 4 January 2023 Refer to Appendix 2	Refer to Appendix 2

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 2008, *Water Quality Protection Note: Irrigation with nutrient-rich wastewater*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

Appendix 1: Summary of stakeholder comments received

Summary of stakeholder comment	Department's response
Comment received from DOH on 25 November 2022 advising that DOH have no objection to the proposal subject to the following: 1. A formal application is submitted to the local government for an increase in capacity of the WWTP, which will then be forward to DOH for assessment. The application is to include the following: a. Engineer certified hydraulic loading capacity for peak and non-peak loadings b. System serviceable life expectancy (min 25 years) c. Expected water quality based on *the Health (Treatment of Sewage and Disposal of Effluent and Liquid Wastes) Regulation 1974/AS1546.3* d. Professional indemnity insurance e. Updated plans to scale detailing the proposed building envelopes, all trafficable areas, parking bays and land application area/s with setbacks, exclusion zones and measurements shown for the proposal. Considering all the Government Sewage Policy requirements where applicable.	The Department advises that the applicant is to ensure that all relevant approvals are sought from the Department of Health for the upgrades to the existing WWTP.

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Prescribed Premises Category description table	The applicant advised on 4 January 2023 that the Prescribed Premises category description with throughput of 170m^2 per day should be changed to 170m^3 per day	Error corrected as requested.

Appendix 3: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	☒				
Licence	☐	Relevant works approval number:		None	☐
		Has the works approval been complied with?		Yes ☐ No ☐	
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes ☐ No ☐ N/A ☐	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes ☐ No ☐	
		Date Report received:			
Renewal	☐	Current licence number:			
Amendment to works approval	☐	Current works approval number:			
Amendment to licence	☐	Current licence number:			
		Relevant works approval number:		N/A	☐
Registration	☐	Current works approval number:		None	☐
Date application received		11 October 2022			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Process Minerals International Ltd.			
Premises name		Mount Marion Lithium Project			
Premises location		Located on Mining Lease M15/717 in the Yilgarn Region			
Local Government Authority		Shire of Coolgardie			
Application documents					
HPCM file reference number:		DER2022/000534			
Key application documents (additional to application form):		*Mount Marion Lithium Project – Category 54 Sewage Facility Supporting Document*			
Scope of application/assessment					

Summary of proposed activities or changes to existing operations.	The Wastewater Treatment Plant (WWTP) and supporting spray field for the Mount Marion Lithium Project is proposed to be constructed in 3 stages. A current WWTP on the site exists under licence L9037/2017/1. The licence also includes an approval to increase the design capacity to 90m^3/day by installing and additional WWTP in October 2022 (stage 1). This Works Approval application is for stages 2 and 3. Stage 2 is scheduled for December 2022 and proposes to increase the WWTP capacity to 120m^3/day through installation of a larger pumping unit and expansion of the irrigation field to 4.6 ha. Stage 3 is planned for March 2023 and proposes the installation of a new system, enabling a flow rate of up to 170m^3/day. The new system proposed is a sequence batch reactor (SBR) system, consisting of two containerised style 12m long, 6mm custom steel systems. The irrigation field will be expanded to 6.17 ha The applicant seeks to undertake installation and commissioning of Stage 3 of the WWTP under the Works Approval and commence operations under Time Limited Operations (TLO) (130 days).

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 54: Sewage facility: premises – *(a) on which sewage is treated (excluding septic tanks); or* (b) *from which treated sewage is discharged onto land or into waters.*	*Up to 170m^3 per day*	*N/A*

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 ☒	Referral decision No: Managed under Part V ☒ Assessed under Part IV ☐
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☐ No ☒	Ministerial statement No: N/A EPA Report No: N/A
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No: N/A

Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Certificate of title ☐ General lease ☐ Expiry: Mining lease / tenement ☒ Expiry:18/09/2036 Other evidence ☐ Expiry:
Has the applicant obtained all relevant planning approvals?	Yes ☒ No ☐ N/A ☐	Approval: 12/2019 Expiry date:
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☒ No ☐	CPS No: 8632/1
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: GWL200665(30, GWL174424(4)
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☒ No ☐	Name: Goldfields Groundwater Area Type: Groundwater Area Has Regulatory Services (Water) been consulted? Yes ☐ No ☒ N/A ☐ Regional office: Swan Avon
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: P1 / P2 / P3 / N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes ☐ No ☐ N/A ☒

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 ☐	*Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974*
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 *Contaminated Sites Act 2003*?	Yes ☐ No ☒	