Application for Works Approval

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

Works Approval Number	W6522/2021/1
Applicant	Northern Star Resources Ltd
ACN	092 832 892
File Number	DER2021/000035
Premises	Jundee Mining Operations Legal description Mining tenements G53/20, M53/191, M52/412, M53/413 and M53/414 As defined by the Premises maps attached to the issued works approval
Date of Report	14 September 2021
Decision	Works approval granted

Christine Pustkuchen

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Date: 2021.09.14 15:15:14 +08'00'

Christine Pustkuchen
A/MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Table of Contents

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 W6522/2021/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Application summary and overview of Premises

On 11 January 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 works relating to Tailings Storage Facility (TSF) 3 at the Premises. The Premises is approximately 50 km north-east of Wiluna, Western Australia.

The Premises relates to category 5 and assessed production capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in Works Approval W6522/2021/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has been considered in line with *Guidance Statement: Risk Assessments* (DER 2017) are outlined in Works Approval W6522/2021/1.

Jundee Gold Mine comprises of an inactive Fisher In-Pit TSF (FPTSF), two active TSFs (TSF1 and TSF2), open pits and underground mines, waste landforms, a processing plant and associated service facilities. The existing processing plant involves the use of conventional carbon-in-leach process to recover gold. The throughput rate of the plant is currently listed as 3 million tonnes per annum (mtpa) on the existing licence. The TSF has been designed with a capacity of 5 mtpa. The applicant has requested the works approval throughput be 5 mtpa. A licence amendment will be required to increase the category 5 throughput upon issuing of the works approval.

Tailings deposition is currently cycled between TSF1 and TSF2 with minor and infrequent deposition into FPTSF.

The proposed TSF3 is a paddock-type storage facility divided into three cells (1, 2 and 3). It will have a total footprint area of about 245 ha, abutting the western side of the existing historic Nimary TSF and waste rock landform. The internal impoundment surface area of TSF3 will be approximately 230 ha at a started embankment crest of RL 569 m. With a starter embankment crest level of RL 569 m (for cells 1 and 2) and four additional upstream embankment raises of 3 m height each, a final Stage 5 crest level of RL 578 m has been selected to give a maximum storage capacity of 30 Mt. The maximum embankment height will be approximately 21.5 m (cell 1). Construction of cell 3 will provide an overall storage volume of approximately 48.5 Mt, corresponding to approximately 10 years of production capacity based on an adopted tailings dry density of 1.5 t/m^3.

Table 1 shows a summary of construction phases and storage capacity for TSF3.

Table 1: Summary of storage capacities by construction phase

TSF3 – Perimeter Embankments				Tailings Storage Volume (Mm^3)	Tailings Storage Capacity (Mt)	Estimated Life at 3.0 Mtpa (years)
Stage	**From RL (m)**	**To RL (m)**	**Raise Height (m)**			
1	Varies	566.0	6.0 – 9.0	7.87	11.26	3.7
2	566.0	569.0	3.0	5.98	8.97	3.0
3	569.0	572.0	3.0	6.17	9.26	3.1
4	572.0	575.0	3.0	6.28	9.41	3.1
5	575.0	578.0	3.0	6.39	9.58	3.2

TSF3 will incorporate a water recovery system comprising a conventional pumped decant structure at the centre of the facility. A decant causeway will be constructed with traffic compacted mine waste to give access to the central decant structure. A pontoon-mounted pump will be located within a rock ring of nominal 10 m radius and recovered water will be returned to the processing plant for reuse.

2.3 Department of Mines, Industry Regulation and Safety

The applicant has submitted a Mining Proposal (Registration ID: 93048) (MP 93048) to the Department of Mines, Industry Regulation and Safety (DMIRS) which is currently under assessment.

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 *Guidance Statement: Risk Assessments* (DER 2017).

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 proposed 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	Earthworks, increased vehicle	Air/windborne pathway	A fleet of water trucks is maintained to actively operate across the operations haul roads and

Emission	Sources	Potential pathways	Proposed controls
	movement		active work areas.
Noise	Earthworks, increased vehicle movement	Air/windborne pathway	N/A
Operation			
Tailings seepage water causing groundwater mounding	TSF3	Seepage through base and embankments of TSF3 to groundwater	The applicant has proposed the following water recovery systems to control the size and position of the supernatant pond for TSF3, which is critical for minimising seepage: • Decant system – deposition will occur in a manner that enables free supernatant water pond to pool near the centre of each TSF3 cell. Return water will be pumped back to the process water pond near the plant for re-use. • Underdrainage system – A central underdrainage pipe network will connect to underdrainage discharge pipes. Underdrainage pipes are then routed in the design to the central decant facility to allow for water recovery via submersible pump (i.e. the decant facility will collect water from both the underdrainage system and supernatant pond inflow). • TSF3 design includes perimeter seepage recovery trenches to intercept shallow seepage moving laterally. These trenches free drain towards several collection sumps fitted with pump and pipe systems that can convey seepage to the process water dam. Construction of TSF3 includes a starter embankment comprising roller compacted clayey mine waste of low permeability (1×10^{-7} m/s). A seepage analyses has been carried out, with results indicating total seepage flow through the embankment are in range of 0.14 to 9.1m^3 per day (stage 5) under normal operating conditions. Recommendations from the seepage analysis include periodical monitoring of the TSF3 downstream drain be carried out to investigate whether seepage water recovery is required to mitigate seepage impacts and potential localized groundwater level rise. A water balance was carried out and included in the application. The tailings slurry outflow rate, percentage solids and return water

Emission	Sources	Potential pathways	Proposed controls
			inflows are measured, tracked and recorded daily. The site also uses this data to maintain a probabilistic water balance, which generates predictive runs to ensure that adequate capacity and freeboard is always maintained. A network of 8 new monitoring bores is proposed for TSF3 for groundwater monitoring. Water levels and samples will be taken at least every three months, or as prescribed by licence conditions. The applicant has stated that following construction of the TSF3 embankment, a geophysical assessment is planned to be undertaken as the Hydrogeological Assessment Phase 1 Desktop Study Report, to inform the suitable locations of groundwater monitoring bores further afield from TSF3.
Tailings and slurry	TSF3 associated pipelines	Direct discharge from pipeline rupture	The applicant will operate the TSF in line with the Jundee TSF'S Operating Manual. This includes two inspections to be undertaken during each shift by an operator or supervisor which cover: • All pipelines to and from the TSF; • Spigots and valves; • Spigotting locations, deposition and beach formation; • Location and size of the water pond; • The decant and decant pump; • The process water dam, tanks and return water pumps; • Seepage from the embankment toe; • The general integrity of the embankment i.e. any new cracking, any new seepage; and • Access roads. All tailings and return water lines are bunded and any leaks or failures are to be reported immediately.
Tailings and slurry	TSF3	Overtopping	• TSF3 will be operated such that the minimum freeboard set out in the DMIRS guidelines are satisfied at all times (not less than 300 mm). • A water balance was carried out and included in the application. The tailings slurry outflow rate, percentage solids and return water inflows are measured, tracked and recorded daily.

Emission	Sources	Potential pathways	Proposed controls
			The site also uses this data to maintain a probabilistic water balance, which generates predictive runs to ensure that adequate capacity and freeboard is always maintained. • The facility is designed such that a 1 in 100-year AEP, 72-hour storm event of 235 mm of rainfall can be temporarily stored on top of the facility above the normal operating pond level.
Contaminated stormwater	TSF3	Stormwater runoff	No specified controls however the Delegated Officer notes that there are no surface water resources or permanent flowing drainage systems within or near the TSF3 footprint.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors and contractors of the applicant's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 3 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DER 2016)).

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

Human receptors	Distance from prescribed activity
Residential receptor – Millrose Homestead	33 km from the premises. Given the significant distance to the receptor, no impacts are foreseeable and therefore this has not been considered further.
Town of Wiluna	50 km from the premises. Given the significant distance to the receptor, no impacts are foreseeable and therefore this has not been considered further.
Environmental receptors	**Distance from prescribed activity**
Priority Ecological Community	A priority ecological community (PEC) (P1) Jundee Homestead calcrete groundwater assemblage type on Carnegie palaeodrainage on Jundee Station is located 6.8 kilometres north east of the eastern boundary of the proposed activity. No PEC's were identified in the proposed activity boundary area during Botanica Consulting's Flora, Vegetation and Fauna survey (2020). As such, PEC's have been screened out of this assessment.

Vegetation	The western boundary of the proposed activity adjoins remnant native vegetation that was identified during Botanica Consulting's Vegetation and Fauna Survey undertaken in 2020 as being in a good to very good (Keighery, 1994) condition. The TSF area is dominated by Acacia species. There have been no protected flora species identified to date
Fauna	Record of the Priority 4 fauna species brush-tailed mulgara (*Dasycercus blythi*) located 6.7 kilometres north of the eastern side of the proposed activities boundary. Botanica Consulting's Flora, Vegetation and Fauna Survey (2020) identified suitable fauna habitat for this species adjoining the western boundary of the proposed activities boundary. No confirmed records were identified during the survey.
Groundwater	Pre-mining groundwater levels in the vicinity of the proposed TSF are estimated to be around 20 to 25 mbgl. Following tailings deposition into the historic Nimary TSF, significant groundwater mounding occurred, with water levels rising up to 2 mbgl in some bores within the first four years of tailings deposition. Nimary TSF was decommissioned in 2007 and became fully rehabilitated in 2009. The groundwater mound previously associated with seepage has now completely dissipated with levels now ranging from 14 mbgl to 34 mbgl from Nimary TSF bores in 2020. Dewatering associated with mining activities has significantly modified the groundwater system in the area by creating a steepened localised hydraulic gradient eastwards towards the pits in the Jundee mining area. This has caused the local groundwater flow to be redirected towards the mining area. Water quality has been collected from monitoring bores within the TSF 3 footprint since 2017 with average results ranging from 330 – 11,000 mg/L TDS (fresh to hypersaline). Beneficial use of groundwater includes process water at the Jundee mining area and raw water for Jundee Village and Jundee Plant from the deeper fractured rock aquifers, which are monitored regularly to ensure ongoing viability of resources. The applicant owns the Jundee Pastoral Station which covers the main mining area and proposed TSF3 area. Other than stock bores operated by the neighbouring Millrose Pastoral Station, no external groundwater users are within a 10 km radius of the TSF3.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) 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 W6522/2021/1 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).

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. use of the new TSF. 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.

While noise and dust emissions are generated during construction activities, there are no receptors being impacted and therefore these are not considered in the risk table below.

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

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Commissioning and Operation (including time-limited-operations operations)								
Deposition and storage of tailings in TSF3	Seepage of tailings	Seepage through base and embankments of TSF causing impacts of groundwater quality and health of native vegetation	Groundwater	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	N	Condition 1 Condition 2 Condition 3 **Conditions 4 – 12** **Conditions 14 – 17**	Refer to section 3.3 for detailed risk assessment of contaminated groundwater.
	Tailings	Overtopping of TSF cells causing impacts to surface water quality, health of native vegetation and localized soil contamination	Surrounding native vegetation Native fauna including the brush-tailed mulgara (P4)	Refer to Section 3.1	C = Major L = Unlikely **Medium Risk**	Y	Condition 1 **Conditions 4 – 7** Condition 13 Condition 14	N/A. Some additional regulatory requirements apply to reporting and time limited operations commencement and duration.
	Tailings and slurry	Pipeline burst or leak causing impacts to surrounding soils and health of native vegetation	Surrounding native vegetation Native fauna including the brush-tailed mulgara (P4)	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1 Condition 3 Condition 13 Condition 14	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

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

3.3 Detailed risk assessment – Seepage of contaminated water

3.3.1 Overview of risk assessment

Seepage of contaminated water through the base and embankments of TSF3 may contain constituents such as arsenic and cyanide and has the potential to adversely impact groundwater, soil/sediment and native vegetation.

3.3.2 Water balance and seepage modelling

The application for the works approval included a water balance and seepage model. Results of the seepage analysis indicated that total seepage flow through the embankment are in the range of approximately 0.14 to 9.1 m^3/d (Stage 5) under normal operating conditions.

The water balance outlines that during Stage 1, seepage will be 1,138,375 m^3/year with a total inflow of 7,670.900 and a total outflow of 3,409,475 m^3/year. Seepage therefore equates to around 20%.

Water quantity available for return to plant will also depend on whether there are changes in slurry densities from the processing plant, which means that tailings properties will also vary. This can affect the solid/liquid separation time and hence the water recovery from the decant.

DWER notes the geochemistry tailings properties was not included in the application. The applicant has stated that their processing department undertakes regular monitoring and review of tailings slurry through assays and analysis to determine the constituents of the slurry and whether it is considered non-acid forming. A detailed material characterisation assessment has not been undertaken of available data, but can be collated with some time. The applicant has accepted this may be a requirement of the works approval.

3.3.3 Justification for additional regulatory requirements

The seepage rate for TSF3 is considered to be quite high, and given the quality of the groundwater and the fact that slurry densities from the processing plant appear to fluctuate, the risk of seepage occurring is rated as *possible*. The consequence of seepage is rated as *moderate* giving an overall risk assessment rating of *medium*.

A detailed tailings characterisation assessment is required as a works approval condition along with groundwater monitoring during the time-limited operating period.

Once compliance with works approval conditions has been achieved, licence L6498/1995/11 will need to be amended to include TSF3. A licence condition requiring the licence holder to undertake a monthly water balance will be added along with the requirement for a geophysical assessment to be undertaken to determine if further monitoring bores further afield from the TSF are required.

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 (26 April 2021)	None received	N/A
Shire of Wiluna advised of proposal on	None received	N/A

Consultation method	Comments received	Department response
19 April 2021		
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal on 19 April 2021	None received	N/A
Applicant was provided with draft documents on 20 July 2021	The applicant provided comments on 10 August 2021. The summarised applicant comments are provided in Appendix 1.	DWER responses to applicant comments are provided in 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. Coffey Services Australia Pty Ltd 2020, *Northern Star Resources Ltd, Jundee Gold Mine – Tailings Storage Facility 3, Design Report*, Perth, Western Australia.
2. Department of Environment Regulation (DER) 2016, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DER 2017, *Guideline: Risk Assessments*, Perth, Western Australia.
4. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
5. Existing Licence L6498/1995/11 for Jundee Operations, issued to Northern Star Resources Ltd on 21 November 2013, available from the following website:

   https://www.der.wa.gov.au/our-work/licences-and-works-approvals

6 Northern Star Resources Ltd 2021, Jundee Mining Operations (Northern Star *Resources) TSF3 Works Approval Application,* Subiaco, Western Australia

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

Item	Relevant condition or section within corresponding document	Summary of applicant's comment	Department's response
DRAFT Works Approval (W6522/2021/1)			
1.	Page 1	Duration of the project should be 1st Sep 2021 until January 2032. This considers construction completion of Stage 3.	The Delegated Officer notes that in order to continue operations of TSF3, the works approval holder will require an amendment to licence L6498/1995/11 following the time limited operations period under Condition 12 of works approval W6522/2021/1. The amendment to licence L6498/1995/11 will capture regulatory requirements for future embankment raises. This will ensure all regulatory requirements are captured within a single instrument going forward. Considering the above, the Delegated Officer determines that a works approval period of five years is sufficient to allow construction of the starter embankments. Works approvals generally are issued for a maximum period of 5 years.
2.	Page 1	In the prescribed premises table, the assessed production capacity should be 5,000,000 tonnes per annum as per the design capacity of the facility. The TSF was designed to 5 Mtpa, which was outlined in the Coffey Detailed Design Report. Can this be changed to reflect this.	The assessed production capacity of TSF3 has been updated to 5,000,000 tonnes per annum, this aligns with the production rate within the TSF3 Design Report (Coffey Services Australia Pty Ltd 2020).
3.	Table 1, Item 2	Starter Embankment. The starter embankment RL referenced in Table 1 is different to the starter embankment referenced in Table 2. Please change Table 1 reference to crest level height to RL 566m.	The administrational error has been corrected.
4.	Table 1, Item 3	Seepage Control. The first dot point should read in-situ, not in-site.	The administrational error has been corrected.

Item	Relevant condition or section within corresponding document	Summary of applicant's comment	Department's response
5.		Our engineering consultant (Coffey) has advised permeability testing is typically required at one test per 10 ha instead of 1 test per 1 ha, which is currently standard practice for projects of this magnitude. Can you please review and revise if possible?	The Delegated Officer has assessed the applicant request to update Condition 1 (Table 3, Item 3) and has determined that one test per 10 ha is a sufficient representation to demonstrate that TSF3 meets the hydraulic conductivity requirements.
6.	Table 4	Groundwater Monitoring Infrastructure. There will be insufficient time to construct groundwater bores prior to commencement of TSF3 construction (September 2021). However, we do intend to construct these bores prior to operation of the facility. As such, may we suggest changing the wording to: *Groundwater monitoring bores must be constructed, developed (purged) and determined to be operational prior to the operation of the facility specified in condition 1*. Bore construction will form part of the construction process of the facility. Please refer to NSR's RFI letter response sent by Tim McCambridge on the 20th June 2021 Attachment A - page 3 which outlines construction commitments for TSF3 monitoring bores.	The Delegated Officer has reviewed the applicant's request to extend the construction of groundwater monitoring bores due to TSF3 construction timeframe issues. The Delegated Officer has determined that an extension on the due date for the construction of groundwater monitoring bores can be granted, with a provision that the new groundwater monitoring bores are determined to be operational no later than 30 calendar days prior to the commencement of time limited operations under Condition 10 of works approval W6522/2021/1.
7.	Table 5, Point 2	Tailings Decant Return Pipeline Corridor. The Operational Requirement is outlined as: *Provided with secondary containment adequate to contain any spill for a period equal to the time between routine inspections*. Within the existing Operating Licence (L6498), there are *and/or* options to managing tailings pipeline including: *a) Adequate containment to contain spillage between routine inspections; and/or,* *b) Equipped with automatic cut-outs in the event of a pipe failure; and/or,* *c) Equipped with telemetry system and pressure sensors along pipeline to allow the detection of leaks and failures.*	The Delegated Officer has removed this pipeline requirement from works approval W6522/2021/1 as Conditions 1.2.1 and 1.2.5 (Table 1.2.3) of licence L6498/1995/11 sufficiently capture regulatory requirements in relation to this infrastructure. Condition 3 (table 3, row 1) has been updated to match pipeline requirements set out in condition 1.2.1 of licence L6498/1995/1.

Item	Relevant condition or section within corresponding document	Summary of applicant's comment	Department's response
		To align to the existing Operating Licence and Northern Star Internal Tailings Dam Standards, we wish to include these above substitutable Operational Requirements. It is impracticable to construct a pipeline bund and regular catch pits that contain 12hrs of tailings generation (i.e. the current licenced inspection regime of tailings pipelines) for the ~6.0km long corridor.	
8.	–	Can you please clarify if a Critical Containment Infrastructure Report is required for the individual upstream embankment raises after the starter embankment?	The Delegated Officer has updated Condition 1 (Table 1) and Condition 3 (Table 2) of works approval W6522/2021/1 to provide clarification that an Environmental Construction Report is required to be submitted following each embankment raise and not a Critical Containment Infrastructure Report.
DRAFT Decision Report (W6522/2021/1)			
9.	Section 2.2	Similar to previously mentioned, the TSF was designed to 5Mtpa, which was outlined in the Coffey Detailed Design Report. Approving the facility to its design capacity will avoid additional approvals should such an increase be required in the future. Currently the Jundee Operating licence limits production to 3MT per annum, should additional capacity be required NSR will undertake the appropriate licence amendments and approvals before doing so.	Updates as per item 2.
10.	Section 2.3	A Mining Proposal was submitted and is currently in the final stages of approval with DMIRS. The application reference is Reg ID 93048.	No DWER response required.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)					
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 January 2021			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Northern Star Resources Ltd			
Premises name		Jundee Mining Operations			
Premises location		Mining Tenements G53/20, M53/191, M53/412, M53/413 and M53/414			
Local Government Authority		Shire of Wiluna			
Application documents					
HPCM file reference number:		DER2021/000035			
Key application documents (additional to application form):		Supporting Documents (DWERDT400162) including: • *Proof of occupier status (Asset Sale Agreement) – Attachment 1A* • *Premises maps (Attachment 2)* • *Stakeholder engagement (Attachment 5)* • *Coffey Services Australia Pty Ltd (2020), 'Jundee Gold Mine – Tailings Storage Facility 3 Design Report', prepared for Northern Star Resources Ltd, dated 17 December 2020 (Attachment 8A)* • *Saprolite Environmental (2020), 'Jundee Tailings Storage Facility 3- Hydrogeological Assessment – Phase 1 – Desktop*			

	Study', prepared for Northern Star Resources Ltd, Jundee Operations, dated December 2020 (Attachment 8b) • *Botanica Consulting Pty Ltd (2020), 'Reconnaissance Flora/Vegetation and Fauna Survey – Jundee TSF alternative locations', prepared for Northern Star Resources Ltd, dated April 2020 (Attachment 8c)* *Siting Location and Sensitive Receptors or Land Users (Attachment 10)*
Scope of application/assessment	
Summary of proposed activities or changes to existing operations.	Construction of a paddock-type TSF with a 30 Mt storage capacity. that will abut the western side of the existing decommissioned Nimary TSF and waste rock landform. The TSF will be divided into three cells and will be formed by constructing a perimeter embankment using clayey mine waste along the western side of the existing Nimary TSF and WRL. This will enclose an approximate total storage area of approximately 230 hectares at the starter embankment crest level of 569 mRL (for Cells 1 and 2). Four additional upstream raised embankments of 3 metres in height each will be constructed to total a final crest level of 578 mRL The maximum embankment height will be 21.5m (Cell 1). Cell 3 will be constructed to provide a storage capacity of 48.49 Mt corresponding to approximately 10 years of production capacity based on adopted tailings dry density of 1.5t/m^3. A water recovery system comprising a conventional pumped decant structure at the centre of each cell will be constructed with free supernatant water pools. A decant causeway will be constructed with traffic compacted waste to give access to the central decant structure. A central drainage system routed to the central decant structure is proposed to be constructed for seepage collection through deposited tailings and to reduce subsurface groundwater impacts. Recovered water will be returned to the processing plant for reuse.

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 5: Processing or beneficiation of metallic or non-metallic ore	4,000,000 tonnes per annual period (in 2022) The design report prepared by Coffey Services indicates that following the life of mine study, the applicant amended the planned production rate to increase from 3 Mtpa to 5Mtpa – it is assumed the production rate will be 4 Mtpa in 2022, 5 Mtpa in 2023 and 5 Mtpa.	*Is there a proposed change to the previously assessed production or design capacity?*
Category 6: Mine dewatering	3 000 000 tonnes per annual period	
Category 52: Electric power generation	42.21 MW	
Category 54: Sewage Facility	250m^3 per 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 ☒	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: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Certificate of title ☐ General lease ☐ Expiry: Mining lease / tenement ☐ Expiry: Other evidence ☒ Expiry: Asset Sale Agreement
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 ☐	CPS No: CPS 9128/1 – Checked DWER's Clearing Permit System – application has been validated and is now under assessment.
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: N/A
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☒ No ☐	Name: East Murchison Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes ☐ No ☐ N/A ☒ Regional office: Swan Avon / Mid-West Gascoyne / Kwinana Peel / North West / South West / Goldfields / South Coast
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: 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 ☐	*Mining Act 1978*
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: contaminated – remediation required (C–RR) CSS ID: 1030 Newmont Jundee Nimary Bulk Fuel Facility 55km of Wiluna (Jundee Mine Site) Date of classification: 06/09/2019 The summary of records notes that the site is contaminated from hydrocarbons (diesel and oil). A tier 2 assessment determined that hydrocarbons were present in the soil and noted that further investigation is required to determined groundwater quality, and remediation is required to mitigate any potential risks to human health and the environment.