



Application for Licence Amendment

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

Licence Number	L7276/1996/12
Licence Holder	Murrin Murrin Operations Pty Ltd
ACN	076 717 505
Application Number	APP-0027706
Premises	Murrin Murrin Nickel Cobalt Project Mining tenements: L39/62, L39/81, L39/83, L39/136, L39/168, M39/299, M39/300, M39/301, M39/314, M39/322, M39/421, M39/422, M39/423, M39/435, M39/436, M39/424, M39/342, M39/343, M39/420, M39/446, M39/553, M39/562, M39/637, M39/651, M39/686, M39/692, M39/714, M39/715, M39/716, M39/737, M39/820, M39/848 and M39/1066. LAVERTON WA 6440 As defined by Figure 1 attached to the Revised Licence
Date of Report	30 October 2025
Decision	Revised licence granted

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1. Decision summary

Licence L7276/1996/12 is held by Murrin Murrin Operations Pty Ltd (licence holder) for the Murrin Murrin Nickel Cobalt Project (the premises), located within the following mining tenements: L39/62, L39/81, L39/83, L39/136, L39/168, M39/299, M39/300, M39/301, M39/314, M39/322, M39/421, M39/422, M39/423, M39/435, M39/436, M39/424, M39/342, M39/343, M39/420, M39/446, M39/553, M39/562, M39/637, M39/651, M39/686, M39/692, M39/714, M39/715, M39/716, M39/737, M39/820, M39/848 and M39/1066 at Laverton WA 6440.

This amendment report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the operation of the premises. As a result of this assessment, revised licence L7276/1996/12 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Amendment summary

On 25 February 2025, the licence holder submitted an application to the department to amend Licence L7276/1996/12 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Inclusion of mining tenements M39/420, M39/848 and M39/1066 to the prescribed premises boundary for licence L7276/1996/12; and
- Inclusion of the stage 1 and 2 operations for 19Sth in-pit tailings storage facility (TSF) constructed under works approval W5399/2013/1.

This amendment is limited only to changes to Category 5 activities from the existing licence. No changes to the aspects of the existing licence relating to Category 6, 12, 31, 44, 52, 54, 57, 63 and 64 have been requested by the licence holder.

2.3 19Sth in-pit TSF

2.3.1 Background and construction

The 19Sth in-pit TSF is located at the southern eastern edge of the premises. The 19Sth pit area is comprised of 10 open pits, mining was completed in July 2012 (Coffey 2012) and the open pits are now comprised of a single continuous pit.

The 19Sth in-pit TSF and associated infrastructure was approved for construction by the department under works approval W5399/2013/1 which was granted on 27 May 2013. On 5 February 2024 the department amended the works approval to include time-limited operations of the 19Sth in-pit TSF for 180 days to facilitate the transition of 19Sth in-pit TSF to licence L7276/1996/12 for ongoing operation.

Construction/installation of the infrastructure for the TSF was completed on 17 December 2024 for both stages 1 and 2 under works approval W5399/2013/1. The environmental compliance report required under condition 2 of W5399/2013/1 was submitted to the department on the 19 December 2024 which authorised the commencement of time-limited operations for 19Sth in-pit TSF. Tailings deposition commenced in December 2024. The environmental compliance report was assessed by the department on 17 March 2025 and it was determined that it met the

requirements of conditions 1, 2 and 3 of works approval W5399/2013/1 for Stages 1 and 2.

The recovered decant water from the 19Sth in-pit TSF will be transported by the newly constructed and existing pipeline (Figure 1). The decant will then be discharged into the existing evaporation ponds located to the east of the paddock TSF (Figure 2).

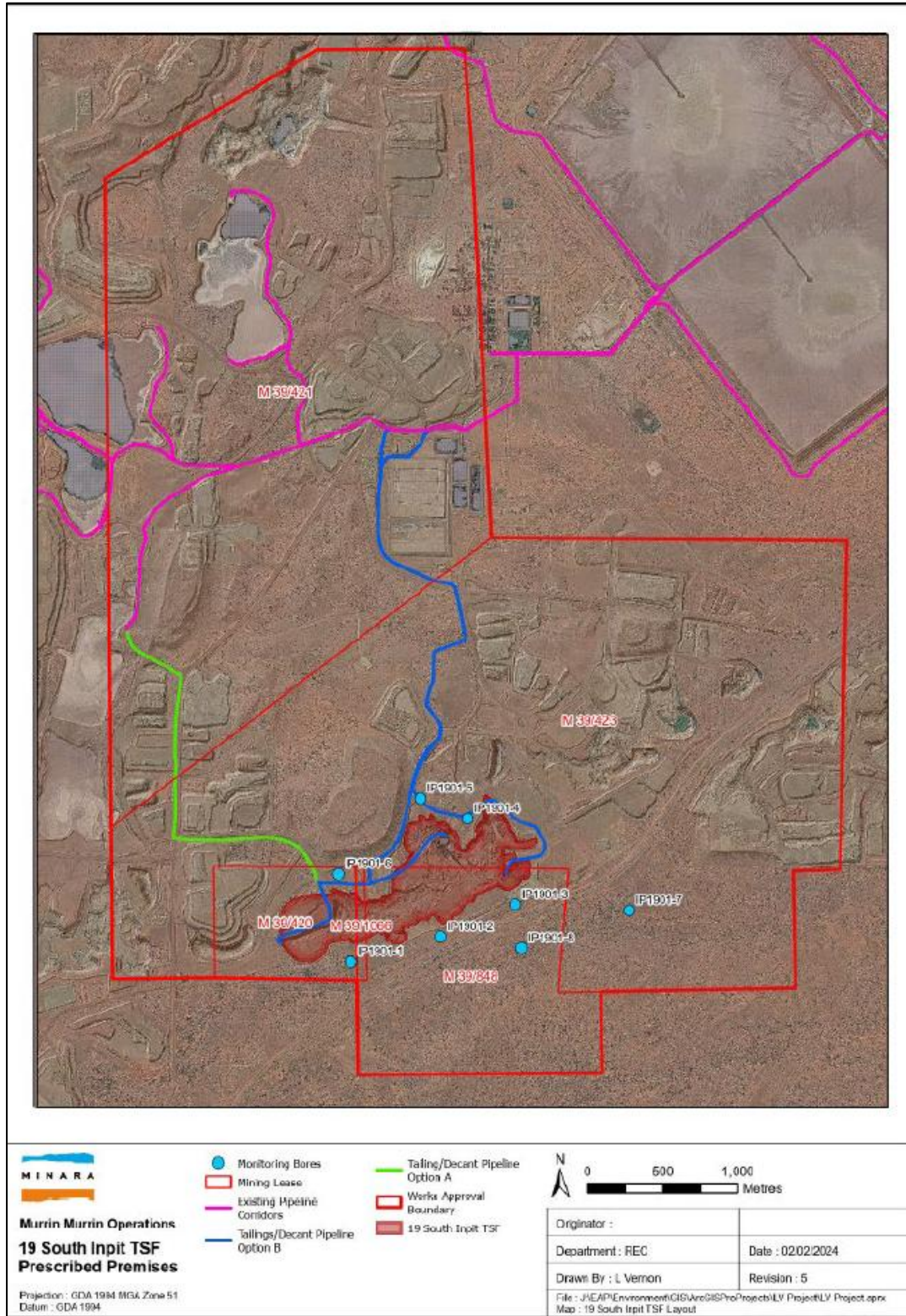


Figure 1: Monitoring bore locations

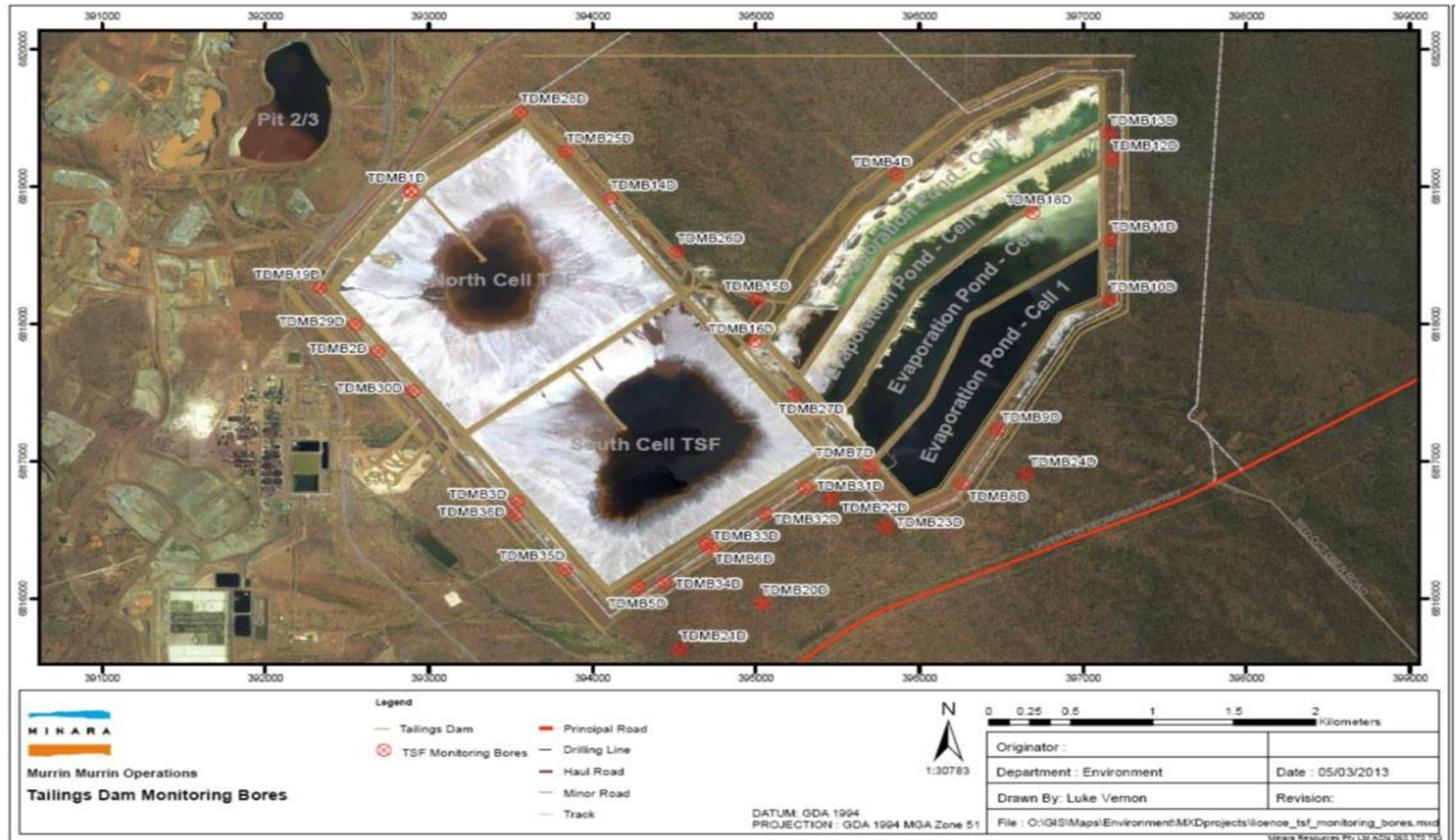


Figure 2: Evaporation ponds and monitoring bores

2.3.2 Groundwater surrounding 19Sth in-pit TSF

The licence holder has completed annual groundwater baseline monitoring surrounding the 19Sth pit prior to tailings deposition. Since deposition the licence holder has increase groundwater monitoring to quarterly as per the requirements of works approval W5399/2013/1. The figures below present the baseline water quality data and a single monitoring event after tailings deposition in monitoring bores surrounding the 19Sth in-pit TSF. Parameters monitored were standing water level (SWL) (Figure 3), pH (Figure 4), total dissolved solids (TDS) (Figure 5) and nickel (Figure 6). The department has considered the baseline groundwater monitoring data and the single groundwater monitoring event within the risk assessment presented in section 3 of this amendment report. The monitoring bore locations in respect to the 19Sth in-pit TSF are presented in Figure 1.

Data indicates that groundwater levels around the in-pit TSF are relatively deep with half the monitoring bores showing a raise in groundwater level once tailings deposition began. Groundwater levels are significantly lower than the 4-meter groundwater level limit conditioned on the works approval. pH and nickel concentrations remain steady across most bores.

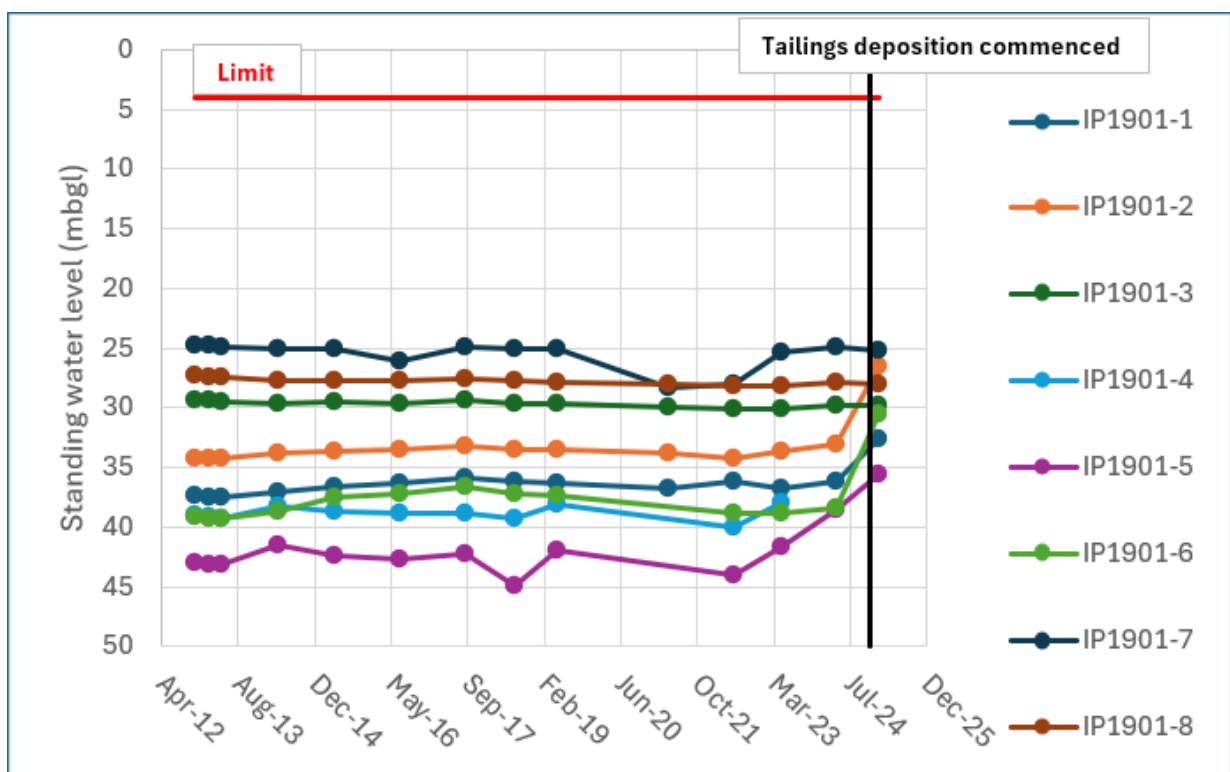


Figure 3: Groundwater levels in monitoring bores surrounding the 19Sth in-pit TSF

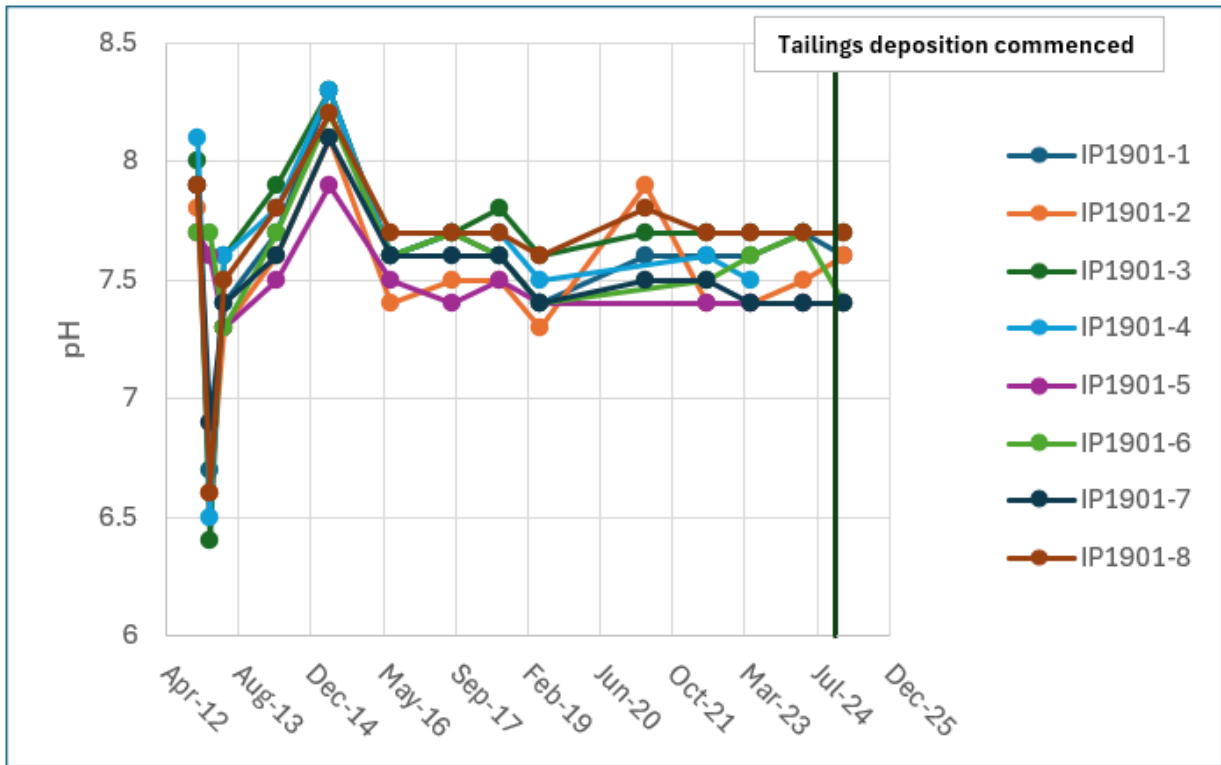


Figure 4: pH concentrations in monitoring bores surrounding the 19Sth in-pit TSF

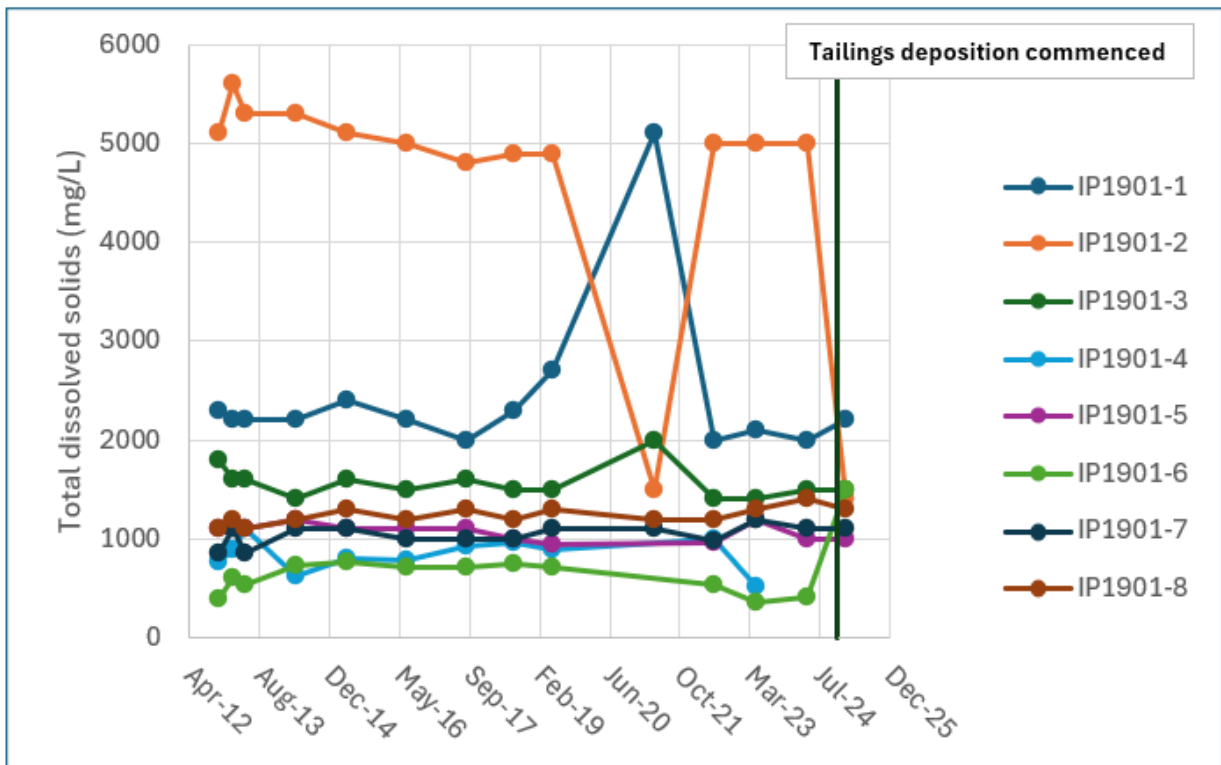


Figure 5: Total dissolved solids concentration in monitoring bores surrounding the 19Sth in-pit TSF

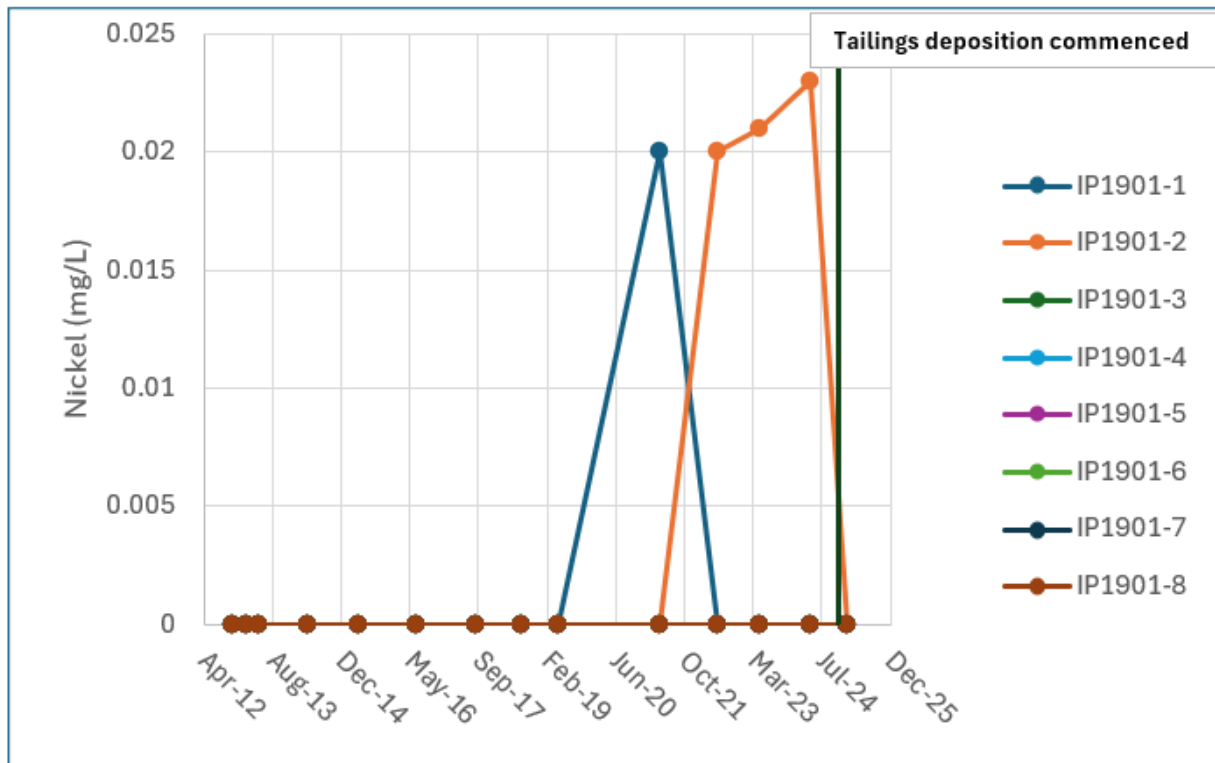


Figure 6: Nickel concentrations in monitoring bores surrounding the 19Sth in-pit TSF

2.4 Part IV of the EP Act

The premises is also regulated under Part IV of the EP Act through Ministerial Statements 444 and 506, which were assessed by the Environmental Protection Authority (EPA) in Reports 1038 and 1229, respectively. The department has reviewed both ministerial statements to ensure no duplication of conditions has occurred during this licence amendment. The department notes that Ministerial Statement 506 Schedule 2, Commitment 12 mentions that the proponent will design and operate the TSF¹ in accordance with the requirements of the EPA and Department of Mining and Energy² (DME) to ensure that the tailings storage facility and evaporation ponds do not result in unacceptable impacts to the existing groundwater regime”.

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 2020a).

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.

¹ The Paddock TSF.

² Now known as Department of Mines, Petroleum and Exploration.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this amendment report are detailed in Table 1 below.

Table 1 details the proposed control measures the licence holder has proposed to assist in controlling these emissions, where necessary.

Table 1: Licence holder controls

Emission	Sources	Potential pathways	Proposed controls
Tailings and decant water	Deposition of tailings into the in-pit TSF.	Seepage through base and embankments of pit wall	- Maintenance of a 0.5 m total freeboard (0.3 m operational freeboard) or a 1 in 100 year/72-hour rainfall event; - Rotational deposition of tailings via four deposition points to maximise desiccation to reduce seepage from the TSF; - Removed supernatant water via decant sump and transferred to existing evaporation ponds; - Identification of potential seepage or groundwater mounding via eight monitoring bores surrounding the in-pit TSF; - SWL in surrounding eight monitoring bores to remain below four meters below ground level (mbgl); and - Monthly survey of size of decant pond.
		Overtopping of pit and discharge to land.	- Maintenance of a 0.5 m total freeboard (0.3 m operational freeboard) or a 1 in 100 year/72-hour rainfall event; and 12 hourly inspections of in-pit TSF.
	Transportation of tailings and decant water to/from the TSF.	Spills or leaks from pipelines cause a discharge to the surrounding environment.	- Pipelines equipped with telemetry systems and pressure systems to allow detection of leaks; - Secondary containment to contain any spill for a period equal to the time between routine inspections; and 12-hourly inspections of pipelines.

Emission	Sources	Potential pathways	Proposed controls
Decant water	Discharge to evaporation ponds from 19Sth in-pit TSF	Overtopping of evaporation ponds.	Existing licence condition: Condition 1.3.3 – Minimum freeboard of 300 mm within evaporation ponds.
		Seepage through base and embankments of pond walls.	Existing licence conditions: - Condition 1.3.2 – Only discharge of decant and seepage recovery water to evaporation ponds; - Condition 1.3.4 – Seepage collection and recovery system used to capture seepage from paddock TSF and evaporation ponds (<i>amended to include evaporation ponds during this licence amendment</i>); - Condition 1.3.6 – Annual assessment of vegetation surrounding paddock TSF³; - Condition 1.3.7 – Quarterly updates submitted to the Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) on the Murrin Murrin Operations Tailings Storage Facility Seepage Mitigation Project⁴; and - Condition 3.5.1 – Quarterly groundwater monitoring of bores surrounding the evaporation ponds to identify potential groundwater mounding, seepage and impacts. The Seepage Management Plan (SMP) provides the following controls: - Operation of 100 seepage recovery bores within the paddock TSF and evaporation pond vicinity; - Four seepage interception trenches and associated submersible pumps;

³ The department notes that vegetation monitoring has historically included transects around the evaporation pond. This amendment formally incorporates the evaporation ponds into the monitoring condition.

⁴ Captured within the Seepage Management Plan (Minara 2023).

Emission	Sources	Potential pathways	Proposed controls
			- Seepage from the paddock TSF and evaporation ponds will be recovered via recovery bore pumps and seepage interception trenches; - Pumping volumes from seepage recovery pumps will be analysed on a monthly basis; - Decant from in-pit TSFs to be distributed across evaporation ponds 2, 3 and 4. Liquor levels in evaporation pond 1 will be maintained at the minimum level; - Vegetation health monitoring; and - Groundwater monitoring within the vicinity of the paddock TSF and evaporation ponds.

3.1.2 Receptors

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

Table 2 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 2020b)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Minara Pastoral Homestead (discounted due to distance from activity to receptor)	The homestead is located approximately 14 km southwest of the prescribed premises.
Environmental receptors	Distance from prescribed activity
Native vegetation	Native vegetation is present approximately 25 m south of the 19Sth in-pit TSF separated by the Laverton-Leonora Rd. Native vegetation is present approximately 30 m north of the evaporation ponds.
Groundwater (pastoral purposes)	Approximately 25 to 50 mbgl during baseline testing from September to October 2012 (Strategen, 2013). Groundwater is generally fresh to brackish. The closest potential pastoral bore is located approximately 11 kms southeast of the in-pit TSF.

	Due to the distance between the pastoral bore and the in-pit TSF the pastoral bore is discounted from the risk assessment however groundwater will still be included.
Ephemeral water line (cement creek)	An ephemeral water line named “cement creek” is located approximately 1.5 kms south of the evaporation ponds.
Cultural receptors	Distance from prescribed activity
Nyalpa Pirniku Native Title – Accepted for registration (WC2019/002)	A registered heritage place is located approximately 30 m from the pipeline corridor.

3.2 Risk ratings

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

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

Additional regulatory controls may be imposed where the licence holder’s controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

The revised licence L7276/1996/12 that accompanies this amendment report authorises emissions associated with the operation of the premises i.e. operation of the 19Sth in-pit TSF.

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

Table 2. Risk assessment of potential emissions and discharges from the premises during operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence holder's controls				
Operation								
Deposition of tailings into in-pit TSF (19Sth in-pit TSF)	Tailings and decant water	Pathway Seepage through base and embankments of pit wall to groundwater. Impacts Reduction in groundwater quality, groundwater mounding and damage to surrounding vegetation.	Native vegetation (25 m) and Groundwater (25-50 mbgl)	Refer to Section 3.1.1	C = Moderate L = Possible Medium Risk	N	Condition 1.3.2 – Rotational tailings deposition requirements and removal of supernatant water; Condition 3.4.1 – Monitoring of TSF inputs and outputs; Condition 3.5.1 – Groundwater monitoring requirements; Condition 3.5.2 – Requirement for a submission of a seepage management plan; Condition 3.5.3 – Requirement for implementation of seepage management plan and installation of recovery bores; and <u>Condition 3.6.1 – Monthly water balance monitoring.</u>	In February 2024 works approval W5399/2013/1 was amended to include a time limited operations (TLO) period for the 19Sth in-pit TSF. During this amendment the department risk assessed seepage impacts from the 19st in-pit TSF. See decision report for W5399/2013/1. Seepage analysis modelling was completed by Saprolite Environmental 2012 for the 19Sth in-pit TSF. This analysis estimated that groundwater levels surrounding the TSF are likely to increase, as a result of seepage, by 16.60 m at the edge of the pit after three years of tailings deposition (Saprolite Environmental 2012). The shallowest groundwater level measured within the bores at 19Sth in-pit TSF is approximately 26 mbgl at monitoring bore IP1901-7 (Figure 3). After tailings deposition has been completed it is expected that groundwater will remain below the SWL limit of 4 mbgl placed on works approval W5399/2013/1. The requirement to monitor groundwater levels and quality around the 19Sth in-pit TSF has been conditioned on the licence (monitoring bores added to condition 3.5.1). To ensure that groundwater levels do not mound significantly resulting in impacts to native vegetation at the surface (from waterlogging of root systems). The 4 mbgl limit from the works approval has been transferred to the licence. To ensure that groundwater levels remain below the limit of 4 mbgl the department has also conditioned the requirement to develop and implementation of a seepage management plan (SMP and for the plan to include seepage recovery bores in the event that a trigger level of 6 mbgl is triggered. To assist with potential seepage monitoring for the 19Sth in-pit TSF the department has also included a requirement for monthly water balance monitoring for the TSF. This is consistent with the requirements for another in-pit TSF at the premises (17 series in-pit TSF). During the last licence amendment that was granted on 16 April 2025 the department included trigger levels for nickel concentrations within groundwater surrounding monitoring bores around another TSF, the 17 series in-pit TSF. Three different trigger levels were added to the licence to address elevated nickel concentrations found within bores surrounding the 17 series in-pit TSF. As presented in section 2.3.2 of this report the baseline nickel concentrations prior to tailings deposition within groundwater surrounding the 19Sth in-pit TSF is reported to be low (<0.025 mg/L) (Figure 6). Due to the currently low concentrations of nickel the department has not adopted the 17 series in-pit TSF trigger values and the associated response for 19Sth in-pit TSF monitoring bores at this stage. The department notes however that if elevated concentrations of nickel are identified a similar requirement of nickel trigger levels and required responses may be implemented on the licence. The licence holder will be required to monitor groundwater monitoring bores surrounding the 19Sth in-pit TSF (IP1901-1 to IP1901-8) for a variety of parameters to identify any potential seepage from the in-pit TSF.
		Pathway Overtopping of pit and discharge to land. Impacts Direct contact degrading environmental receptors.	Native vegetation (25 m)		C = Moderate L = Unlikely Medium Risk			Y

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence holder's controls				
							(updated).	
		Pathway Spills or leaks from pipeline causing a discharge to the surrounding environment. Impacts Direct contact to receptors degrading environmental or heritage values.	Native vegetation (25 m) and Aboriginal sites and heritage places (30 m)		C = Minor L = Unlikely Medium Risk	Y	Condition 1.2.4 – Requirement to recover/remove spills outside containment systems; Condition 1.3.1 – Pipelines to contain either telemetry systems, automatic cut-outs or secondary containment; and Condition 1.3.5 – Inspection of pipelines every 12 hours.	Existing conditions adequately manage this risk event. No additional regulatory controls required.
Discharge of decant water to evaporation ponds	Decant water	Pathway Overtopping of Evaporation ponds and discharge to land. Impacts Direct contact to receptors degrading environmental values.	Native vegetation (30 m)	Refer to Section 3.1.1	C = Moderate L = Possible Medium Risk	Y	Condition 1.3.3 – Freeboard requirements; and Condition 1.3.5 – Inspection of freeboard every 12 hours.	The Department of Mines, Petroleum and Exploration (DMPE) has advised the department that the evaporation ponds appear to be nearing the end of their operational life and that current seepage recovery effects may no longer be effective. It is also noted by DEMIRS that the evaporation ponds are full of sediment and have no capacity to store water. The licence holder has confirmed that based on survey measurements from 1 July 2025 and with a 300 mm freeboard Evaporation Ponds 1 to 4 have a total remaining capacity of 1,273,473 m ³ . The licence holder has mentioned that the evaporation ponds will reach capacity by May 2028 which is based on an estimated decant discharge rate of 400 m ³ /h.
			Ephemeral waterline (cement creek) (1.5 km)		C = Moderate L = Unlikely	Y	Condition 1.3.3 – Freeboard requirements; and Condition 1.3.5 – Inspection of freeboard every 12 hours.	
		Pathway Seepage through base and embankments of ponds. Impacts Reduction in groundwater quality, groundwater mounding and damage to surrounding vegetation from waterlogging of root zones /rising salinity.	Native vegetation (30 m)		C = Moderate L = Likely High Risk	N	Condition 1.3.5 – Inspection of recovery bores and trenches every fortnight. Condition 1.3.6 – Annual assessment of surrounding vegetation; Condition 1.3.7 – Seepage mitigation project requirements; Condition 3.5.1 – Groundwater monitoring; and Condition 4.4.1 – Specified action to audit and improve existing recovery bores and investigate locations of additional seepage recovery bores and monitoring bores.	Detailed risk assessment presented in section 3.3.
			Ephemeral waterline (Cement Creek) (1.5 km)		C = Moderate L = Unlikely Medium Risk	Y	Condition 1.3.5 – Inspection of recovery bores and trenches every fortnight. Condition 1.3.7 – Seepage mitigation project	

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence holder's controls				
							requirements; Condition 3.5.1 – Groundwater monitoring; and Condition 4.4.1 – Specified action to audit and improve existing recovery bores and investigate locations of additional seepage recovery bores and monitoring bores.	ongoing programme. The department has not included any additional regulatory controls specific to the management of seepage and groundwater mounding impacting Cement Creek to avoid regulatory duplication.

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

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

3.3 Detailed risk assessment for Risk Event: Impacts arising from the discharge of decant water to the evaporation ponds

3.3.1 Background

The evaporation ponds were initially approved under the *Mining Act 1978* in March 1998 via Registration ID 16098 and were constructed without a liner due to the apparent low natural permeability of underlying materials.

In 2004 the licence holder implemented a Seepage Mitigation Project (Minara Resources 2023) to lower the rising groundwater mound identified beneath the paddock TSF and evaporation ponds (Figure 2). The Seepage Mitigation Project goal was to also reduce the migration of contaminants seeping from the paddock TSF and evaporation ponds to downstream areas. To achieve these goals and assess the effectiveness of the Seepage Mitigation Project a Seepage Management Plan (SMP) was developed. As part of this SMP seepage recovery infrastructure was installed. As of 23 April 2025, there are currently 100 seepage recovery equipped bores and four seepage interception trenches around the perimeter of the paddock TSF and evaporation ponds (Minara Resources 2025).

The licence holder has informed the department that the evaporation ponds have a remaining storage capacity of an additional 1,273,473 m³. The licence holder has estimated the ponds will reach capacity by May 2028 based on an assumed decent receival rate of 400 m³/h.

3.3.2 Description of risk event

The discharge of decant water within the existing evaporation ponds has been occurring for many years at the premises. The evaporation ponds are unlined and as a result seepage from the base and walls of the ponds has occurred which has resulted in the mounding of the groundwater table surrounding the evaporation pond complex. Continued discharge is likely to result in greater mounding of the groundwater table or expression of groundwater at the surface.

Reported water quality within the evaporation ponds are presented within Table 3. Monitoring data indicates that the decant water and the water within the evaporation ponds is acidic (pH below 2.7) and hypersaline with total dissolved solid (TDS) concentrations averaging approximately 197 500 mg/L in the decant and averaging approximately 283 000 mg/L within the evaporation ponds.

Historical TDS and nickel concentrations recorded in monitoring bores associated with the evaporation ponds are presented in Table 4 and Table 5 respectively. Results indicate that generally TDS concentrations recorded around the evaporation ponds is brackish (1,000 – 10,000 mg/L). Saline (10,000 – 35,000 mg/L) to hypersaline results (>35,000 mg/L) have been recorded within TDMB4D, TDMB18D and TDMB27D which are located to the north, between cell 2 and cell 3 ponds and to the west of the evaporation ponds respectively (Figure 2).

The receptor most at risk due to seepage from the evaporation ponds and groundwater mounding is the immediate surrounding native vegetation (located approximately 30 m from the evaporation ponds). Water logging of the root zone of native vegetation and the contact with brackish to saline water can cause stress or death of salt intolerant vegetation and may create salt crusting at the surface after groundwater expression at the surface has evaporated. Section 3.3.3 presents recent impacts to native vegetation and surrounding soils from brackish to saline water.

Table 3: Water quality of decant discharge and grab samples within Evaporation Ponds (Data sourced from Saprolite 2025)

Sample Site	Date	pH	TDS	Na	Mg	Ca	K	Fe	Al	Mn	Ni	Co
Decant Exit (EP1)	3 January 2023	2.5	190,000	870	20,000	590	3.2	9,300	1,300	2,100	340	64
Decant Exit (EP2)	15 August 2019	2.4	170,000	860	18,000	560	28	7,800	1,000	1,900	290	59
Decant Exit (EP3)	3 January 2023	2.3	240,000	980	26,000	610	4.5	12,000	1,400	2,500	410	78
Decant Exit (EP4)	19 May 2015	2.7	190,000	940	26,000	640	24	9,300	870	2000	340	62
Random EP Grab 1	3 January 2023	1.9	370,000	1,200	39,000	440	4.3	18,000	2,000	4,000	710	110
Random EP Grab 2	3 January 2023	2.3	230,000	1,000	25,000	620	3.5	12,000	1,500	2,400	400	75
Random EP Grab 3	3 January 2023	2.3	250,000	1,700	29,000	590	4.4	14,000	1,500	3,400	430	83

Table 4: TDS concentrations from 2020 to 2024 in monitoring bores nearby evaporation ponds

Monitoring Bore	Date Sampled															
	May 2020	Aug 2020	Nov 2020	Feb 2021	May 2021	Aug 2021	Dec 2021	Jan 2022	May 2022	Aug 2022	Nov 2022	Feb 2023	May 2023	Aug 2023	Nov 2023	Feb 2024
TDMB4D	1,900	1,600	1,900	3,000	2,000	3,000	1,900	1,800	2,000	2,000	2,100	2,100	ND	ND	ND	ND
TDMB7D	1,300	1,200	1,200	1,300	1,300	1,300	1,200	1,100	1,200	1,200	1,200	1,200	1,300	1,200	1,300	1,300
TDMB8D	2,400	2,300	2,400	2,400	2,300	2,500	2,200	2,000	2,200	2,200	2,300	2,200	2,300	2,200	2,300	ND
TDMB9D	1,400	1,400	1,400	1,400	1,300	1,800	1,400	1,200	1,300	1,300	1,300	1,300	1,300	1,200	1,400	550
TDMB10D	1,400	1,400	1,400	1,500	1,400	1,500	1,400	1,200	1,300	1,400	1,400	1,400	1,400	1,300	1,400	1,500
TDMB11D	2,200	2,400	2,900	2,900	2,900	3,400	3,500	3,200	3,300	3,500	3,800	3,900	3,600	3,600	4,000	4,100
TDMB12D	1,400	1,400	1,400	1,400	1,300	ND	1,200	1,200	1,300	1,300	1,300	1,300	1,200	1,300	1,400	1,600
TDMB13D	5,700	6,300	6,000	6,900	6,800	9,200	9,000	6,400	7,000	7,500	6,900	6,600	6,000	5,400	6,100	6,500
TDMB15D	1,200	1,300	1,200	1,300	1,900	ND	ND	1,200	1,200	1,200	1,200	1,300	ND	1,100	1,300	1,400
TDMB16D	5,600	5,700	5,800	6,200	5,600	ND	5,500	5,700	4,100	3,600	3,800	3,400	5,900	4,000	3,700	3,900
TDMB18D	11,000	1,300	1,200	11,000	900	10,000	1,300	9,500	9,900	1,400	1,500	1,400	1,300	1,600	2,400	1,800
TDMB23D	4,400	4,500	5,200	6,800	6,000	6,600	6,100	6,600	6,500	6,500	6,500	6,900	6,700	7,600	7,600	ND
TDMB24D	1,300	1,300	1,300	1,400	1,300	1,500	1,400	1,300	1,300	1,300	1,400	1,300	1,400	1,300	1,400	ND
TDMB27D	8,900	11,000	11,000	11,000	76,000	ND	70,000	13,000	61,000	16,000	17,000	17,000	18,000	22,000	24,000	23,000

Note 1: Results are in mg/L
Note 2: ND = No Data

Table 5: Nickel concentrations from 2020 to 2024 in monitoring bores nearby evaporation ponds

Monitoring Bore	Date Sampled															
	May 2020	Aug 2020	Nov 2020	Feb 2021	May 2021	Aug 2021	Dec 2021	Jan 2022	May 2022	Aug 2022	Nov 2022	Feb 2023	May 2023	Aug 2023	Nov 2023	Feb 2024
TDMB4D	<LOR	<LOR	<LOR	1.0	<LOR	1.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
TDMB7D	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.021
TDMB8D	<LOR	<LOR	0.02	0.2	0.02	<LOR	<LOR	<LOR	0.02	0.025	0.022	0.02	<LOR	0.026	0.021	0.05
TDMB9D	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.021	<LOR	<LOR	<LOR	<LOR	0.11
TDMB10D	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.03	0.03	0.033	0.031	0.029	0.023	0.028	0.027	0.039
TDMB11D	<LOR	<LOR	<LOR	<LOR	<LOR	0.02	<LOR	0.02	0.03	0.03	0.027	0.023	0.021	0.027	0.027	0.04
TDMB12D	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.026
TDMB13D	<LOR	<LOR	<LOR	<LOR	<LOR	0.02	0.02	0.02	0.02	0.027	0.022	<LOR	<LOR	<LOR	0.024	0.066
TDMB15D	<LOR	<LOR	<LOR	0.03	<LOR	<LOR	<LOR	0.02	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
TDMB16D	0.04	0.04	0.04	0.04	0.04	<LOR	0.04	0.04	0.04	0.029	0.029	0.023	0.038	0.031	<LOR	0.031
TDMB18D	0.058	<LOR	<LOR	0.45	0.42	0.39	<LOR	0.37	0.35	<LOR	<LOR	<LOR	<LOR	<LOR	0.083	0.025
TDMB23D	0.03	0.2	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.036	0.034	0.032	0.027	0.031	0.033	<LOR
TDMB24D	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
TDMB27D	0.02	<LOR	0.02	0.04	0.21	<LOR	0.09	0.04	0.2	0.039	0.04	0.034	0.034	0.043	0.05	<LOR

Note 1: Results are in mg/L
Note 2: <LOR means below limit of reporting

3.3.3 Recent evidence of seepage and groundwater mounding

Recent standing water level (SWL) measurements from groundwater monitoring bores surrounding the evaporation ponds indicate that groundwater levels have either plateaued or are continuing to rise. Figure 7 illustrates the change in groundwater levels over time, comparing data from the 2020–2021 annual reporting period to the 2024–2025 period. Average groundwater levels were calculated for each reporting year (1 May to 30 April) and plotted as deviations from the 2020–2021 baseline. All monitoring bores in the vicinity of the evaporation ponds show an upward trend in groundwater levels, with the exception of TDMB24D and TDMB27D, which did not follow this pattern. Figure 8 presents historical groundwater data dating back to 2001, highlighting that current groundwater levels are significantly elevated compared to baseline conditions.

Artesian conditions, where groundwater flows freely from the top of bore casings without the need for pumping, have been observed in areas surrounding the evaporation ponds. These conditions can significantly impact local vegetation and lead to salt crust formation on the surface following water evaporation (Saprolite, 2025). According to the latest quarterly report submitted to the department for the Paddock Tailings Storage Facility Seepage Mitigation Project (Q1 2025), groundwater levels in five monitoring bores were recorded above ground level. These bores are located in the northern, southeastern, and western sections of the evaporation ponds. It is currently assumed that seven groundwater monitoring bores are exhibiting artesian conditions. This assumption is based on historical measurements from bore TDMB4D, which recorded a standing water level (SWL) of 0.47 meters above ground level in February 2023, and bore TDMB15, which recorded an SWL of 0.53 meters above ground level in May 2024.

Historical satellite imagery of native vegetation surrounding the evaporation ponds was reviewed by the department and is presented in Figure 9. In 2019 a decline in vegetation health appears to have occurred along the northern boundary of the evaporation ponds in the corner where they abut the paddock TSF. It is likely that these impacts are attributed to seepage or groundwater mounding from the evaporation ponds.

Seepage recovery

Rising groundwater levels around the evaporation ponds may be linked to a decrease in the number of active seepage recovery bores (Table 6) and a reduction in the total volume of seepage being recovered (

Table 7). Monitoring data indicates a consistent decline in total seepage recovery volumes from both the paddock TSF and the evaporation ponds since the 2015–2016 reporting period⁵. Within the SMP (Minara 2023) it was identified that the installed Airwell recovery pumps had a high maintenance requirement and reliability issues (Minara 2023) causing a dedicated team to be assigned to the seepage migration project in 2011 to continue routine maintenance inspections. Saprolite (2025) mentions that the pumps are not affected by small amounts of silt and are highly effective however do require ongoing maintenance including the replacement of valves and fittings etc. The solar equipped recovery bores do not operate continuously and are restricted to day-light hours when no overcast is present (Saprolite 2025).

⁵ With exception to the 2023-2024 reporting period.

Table 6: Summary of active recovery bores and monthly abstraction volume (Sourced from Saprolite 2025)

As at Period	Total Recovery Bores	Active Recovery Bores	Monthly Abstraction (kL)
June 2008	63	62	62,300
November 2008	71	67	46,700
November 2011	100	87	41,300
November 2024	100	46	10,800

Table 7: Total volumes of seepage recovered at the paddock TSF and evaporation ponds using recovery bores and seepage interception trenches

Annual reporting period	Total seepage recovery (m ³)
2015-2016	465,127
2016-2017	409,098
2017-2018	388,732
2018-2019	374,764
2019-2020	373,756
2020-2021	297,884
2021-2022	178,669
2022-2023	141,881
2023-2024	149,733
2024-2025	105,368

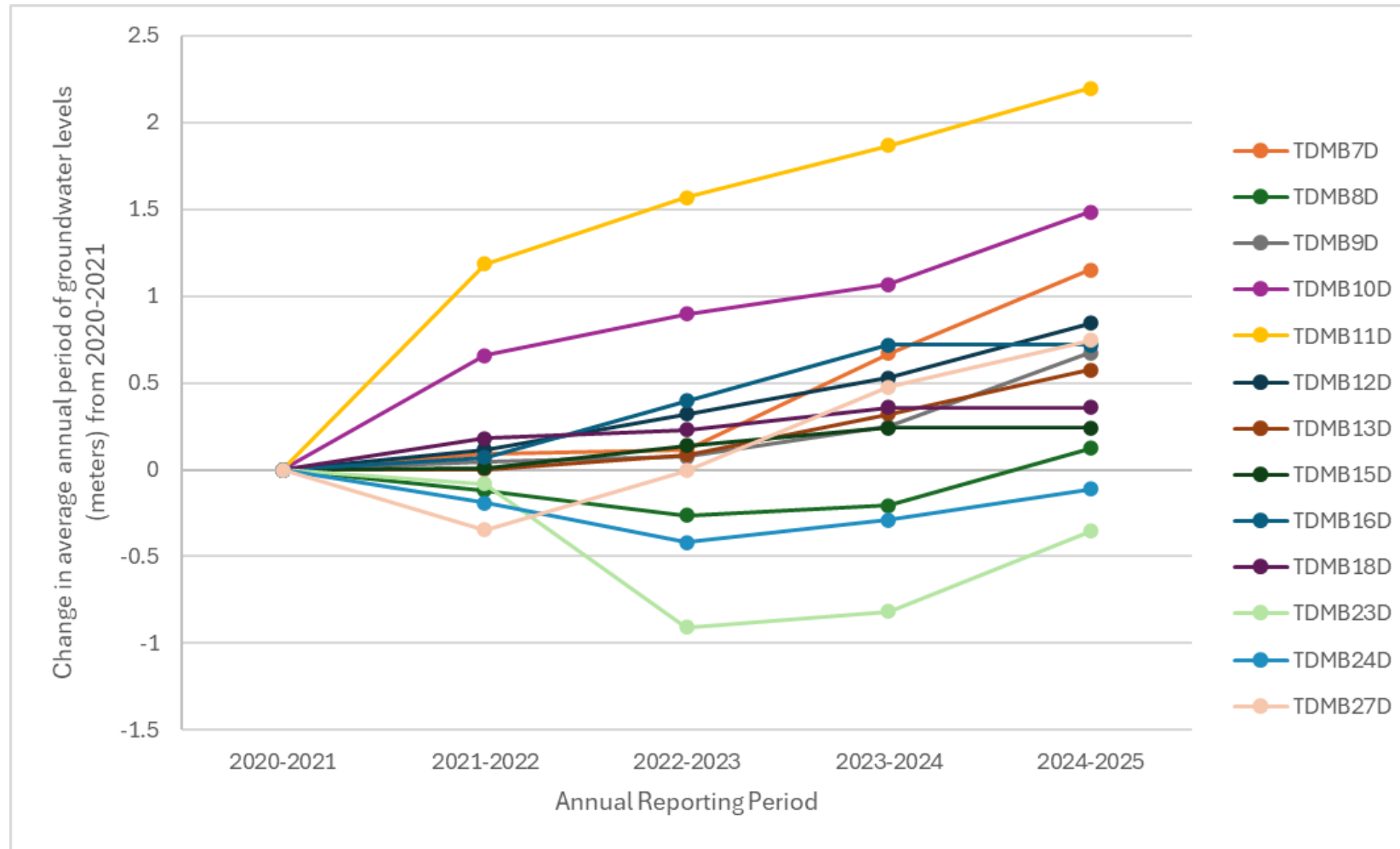


Figure 7: Change in standing water levels from 2020-2021 annual period to 2024-2025 annual period

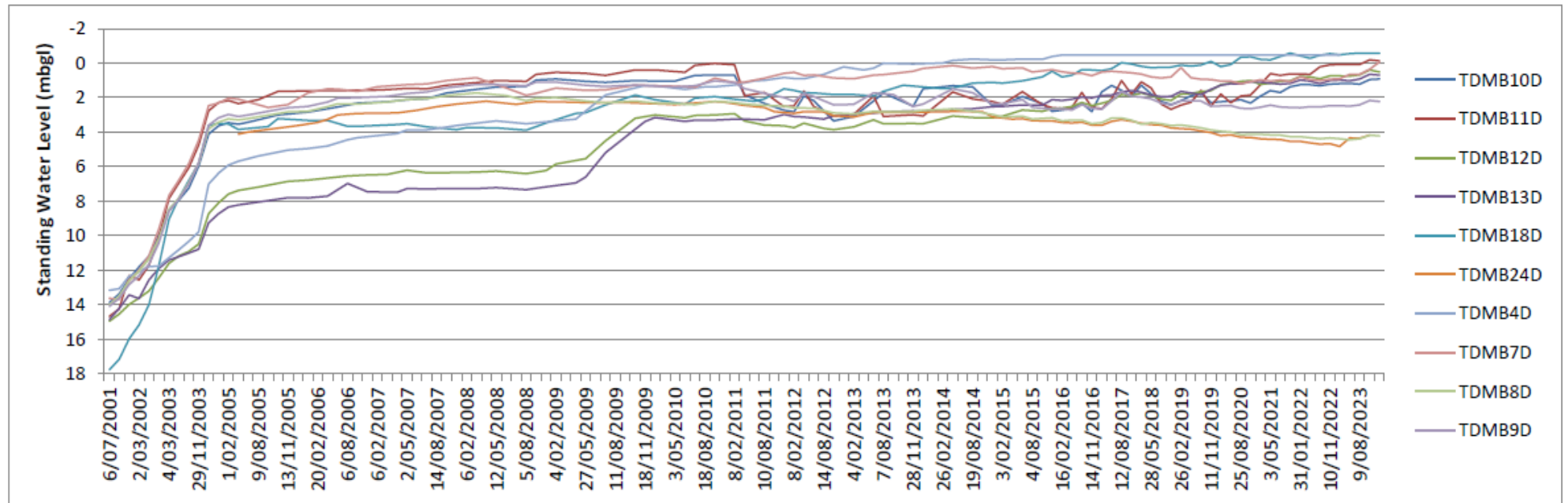


Figure 8: Historical standing water levels from 2001 to 2024 in monitoring bores surrounding the evaporation ponds



Figure 9: Historical imagery of Evaporation Ponds (sourced from Google Earth 2025)

3.3.4 Seepage mitigation project

Groundwater has been rising in the vicinity of the paddock TSF since commencement of tailings deposition in 1998. In response, the licence holder undertook hydrogeological investigations and implemented the Seepage Mitigation Project. The licence holder provided the EPA with detailed information on the Seepage Mitigation Project in 2012 (Minara 2025).

The objective of the Project is to remove surface seepage around the toe of the paddock TSF (Minara 2008), manage and reduce the rising groundwater mound beneath the paddock TSF and evaporation ponds, and limit the spread of contaminants seeping from these facilities (Minara 2023). The seepage mitigation project is outlined in the Seepage management plan (SMP) (Minara 2023), included hydrogeological reporting and three phases of seepage and groundwater mitigation, as presented below:

- Phase 1 of the Seepage Mitigation Project occurred in late 2005 and involved the installation of nine recovery bores installed 125 m apart along the southern wall of the paddock TSF. Seven bores were equipped with Airwell air displacement recovery pumps and were powered by a portable air compressor. Extraction rates were between 250 – 300 kL/day. The pre-liminary phase concluded that the optimal spacing of recovery bores is between 60 and 125 m.
- Phase 2 involved the installation of an additional 95 bores and 12 nested piezometer monitoring sites during early 2007. 63 of the 95 recovery bores were equipped with Airwell recovery pumps and the remaining 32 were used as monitoring bores.
- The second hydrogeological review using the results from the groundwater monitoring was undertaken in 2009 with the objective to assess the effectiveness of the recovery system. It was identified that water levels were rising on the eastern side of the evaporation ponds and a recommendation to install an additional 26 recovery bores in the eastern area.
- Phase 3 implemented the recommendations from the previous hydrogeological review. 26 recovery bores were drilled and equipped with solar recovery pumps at the eastern and southern side of the evaporation ponds and 4 were drilled at the northern side of the paddock TSF.
- Four shallow seepage interception trenches were installed in 2015 to attempt to mitigate the high groundwater levels. The trenches were between one to two meters in depth and each trench contained a submersible pump to extract the intercepted seepage, the trenches were installed:
 - between the southern cell of the paddock TSF and evaporation ponds;
 - along the west side of the southern cell of the paddock TSF; and
 - two near the confluence of the northern cell of the TSF, southern cell of the paddock TSF and evaporation ponds.

As required by Ministerial Statements 444 and 506, the licence holder submits the annual Seepage Mitigation Project Performance Review to the EPA as part of the Performance and Compliance Report. The licence holder also provides quarterly seepage mitigation summary memos to the department, along with an annual performance review assessing against the SMP performance indicators (Table 8).

Table 8: Seepage Management Plan performance indicators and targets (Sourced from Minara 2023)

Performance Indicator	Target
Review of SMP	The SMP will be received biennially.
Availability of SMP	The SMP will be accessible to all employees and contractors through the Minara intranet.
Vegetation health	- Surveys undertaken on an annual basis. - No adverse impacts on TSF / Evaporation Ponds vegetation community health associated with groundwater mounding identified by vegetation health monitoring.
Groundwater levels	Average groundwater levels in the deep tailings dam monitoring bores (TDMB1-16 and 18-36) do not rise over a calendar year.
Groundwater quality	No unacceptable change in groundwater quality greater than 250 m from TSF / Evaporation Ponds
TSF supernatant pond size	Supernatant pond size is to be minimised as far as practicable.
Evaporation Pond utilisation	- Evaporation Ponds 2, 3 and 4 contain equal amounts of liquor. - Evaporation Pond 1 does not exceed high water level marker.
Recovery bore availability	>90% of recovery bores / pumps available on average per month. - All recovery bores / pumps are inspected fortnightly.
Groundwater analysis	Groundwater and seepage recovery data is analysed on a quarterly basis.
Seepage Mitigation Performance Review	A review of the performance of the Seepage Mitigation Project against the targets set in this SMP is undertaken every 12 months.
Communication	- Tailings Management Group convenes at least once every quarter. - Seepage Mitigation Memos and annual performance review of the Seepage Mitigation Project are distributed to persons with management control.

Seepage Mitigation Project Performance review 2024

The Seepage Mitigation Project performance review for the 2024 calendar year was submitted to the department within the 2024-2025 annual environmental report and included an assessment of performance of indicators detailed in the SMP (Minara 2023). For the 2024 calendar period (1 January 2024 to 31 December 2024) the licence holder reported that two Performance Indicators were not achieved and three targets were not met (Table 9).

Table 9: Unachieved seepage mitigation project performance indicators for 2024 (Sourced from Minara 2025)

Performance Indicator	Target	Comments
Groundwater levels	Average groundwater level in the deep tailings dam monitoring bores does not rise over a calendar year.	The average change in the standing water level in monitoring bores over the reporting period was a rise of 2 cm. This is likely due to a reduction in recovery volumes and significant rainfall events which occurred in June, November and December 2024 and March and April 2025.
Recovery bore availability	>90% of recovery bores available on average per month.	Recovery bores had a monthly availability of 38%.
	All recovery bores and pumps are inspected fortnightly.	Recovery bores and pumps were not inspected fortnightly during the 2024 – 2025 reporting period due to difficulties in filling vacant positions during the year and significant rainfall events which flooded access roads.

3.3.5 Recent inspections

Department of Mines, Petroleum and Exploration (DMPE) (previously Department of Energy, Mines, Industry regulation and Safety)

During a site visit conducted by DMPE in April 2025, it was observed that potential seepage and groundwater mounding had impacted over 20 hectares of native vegetation and may have led to soil contamination (Figure 10). DMPE advised the department that the evaporation ponds appear to be nearing the end of their operational life, and that the current seepage management measures may no longer be adequate.

A summary and observations of the DMPE site inspection is presented below:

- Seepage through the northern perimeter embankment of the evaporation ponds has pooled within the adjacent low-lying area and was mixed with rainfall leading to runoff that appeared to contribute to impacts to native vegetation. It was also observed that seepage pooling in this area was not being pumped back into the evaporation ponds or the paddock TSF⁶;
- A shallow seepage recovery trench along the northern embankment was insufficient to contain the observed mix of seepage and rainfall runoff. At the time of inspection seepage pooling within the area was not being pumped back into the evaporation ponds or paddock TSF;
- Impacts identified (visible salt crushing and areas of vegetation death) were at the north-western corner of the evaporation ponds (Figure 10) and approximately 100 m north along the northern embankment of the evaporation ponds;
- Absence of groundwater recovery bores along the northern embankment of the

⁶ Discharge of decant is only permitted under emergency situations and the discharge of seepage recovery water into the paddock TSF is not authorised under licence L7276/1996/12.

evaporation ponds may explain the observed impacts in that area;

- DMPE was concerned about the lack of action to prevent seepage from the evaporation ponds impacting soils, native vegetation and rehabilitation materials (topsoil stockpiles);
- Metal concentrations and salinity of seepage are likely to have resulted in soil contamination and degradation of topsoil quality;
- Evaporation ponds were observed to contain high levels of sediment with little freeboard capacity remaining;
- Concern in the geotechnical stability of the evaporation ponds embankments due to long-term saturation of embankments and associated seepage increasing likelihood of embankment failure; and
- DMPE was concerned that risk of ongoing groundwater mounding creating further impacts to nearby native vegetation and soils.



Figure 10: Identified impacts northwest of evaporation ponds

Department of Water and Environmental Regulation Inspection

The department visited the premises on 24 June 2025 and the following conclusions and observations were made:

- Seepage recovery system around the TSFs and Evaporation Ponds has been poorly maintained and not operating at full capacity;
- Only one of the two seepage interception trenches in the affected locations was operational, the trench not in operation was dried up and full of salt /sediment; and
- Significant impacts to native vegetation to the north of the evaporation ponds was confirmed as detailed by DMPE (section 3.3.3).

3.3.6 Licence holders controls

The licence holders current controls and pre-existing licence conditions to manage seepage and groundwater mounding within the vicinity of the evaporation ponds involves the following:

- Condition 1.3.2 – Only discharge of decant and seepage recovery water to evaporation ponds;
- Condition 1.3.6 – Annual assessment of vegetation, recording condition of vegetation surrounding paddock TSF and evaporation ponds;
- Condition 1.3.4 – Seepage collection and recovery system (*amended to include evaporation ponds during this amendment*);
- Condition 1.3.7 – Quarterly updates submitted to the department on the Murrin Murrin Operations Tailings Storage Facility Seepage Mitigation Project (further discussed in section 3.3.4); and
- Condition 3.5.1 – Quarterly groundwater monitoring of bores surrounding the evaporation ponds to identify potential groundwater mounding, seepage and impacts.

The SMP provides the following controls:

- Operation of 100 seepage recovery bores within the paddock TSF and evaporation pond vicinity;
- Four seepage interception trenches and associated submersible pumps;
- Seepage from the paddock TSF and evaporation ponds will be recovered through the use of recovery bores and pumps and seepage interception trenches;
- Pumping data from seepage recovery pumps will be analysed on a monthly basis;
- Decant from in-pit TSFs to be evenly distributed across evaporation ponds 2, 3 and 4. Liquor levels in evaporation pond 1 will be maintained at the minimum level;
- Vegetation health monitoring; and
- Groundwater monitoring within the vicinity of the paddock TSF and evaporation ponds.

During the assessment of this licence amendment the licence holder indicated they intend to extend the evaporation pond capacity via either:

- Constructing an additional evaporation pond (Evaporation Pond 5) to the northern embankment of Evaporation Pond 4. The report verified that the storage capacity for the additional pond (Pond 5) would be 1.94 gigalitres (Mm³). The licence holder has mentioned that this proposed option is currently being pursued with a Mining Proposal Amendment and a Works Approval application specific to this scope of works is being developed; or

- Removal of sediment from the existing Evaporation Ponds to create additional capacity. The removed sediment would be placed on the existing paddock TSF.

The licence holder has also considered potential improvements to the existing (and the potential new evaporation ponds) via:

- Installation of additional seepage recovery bores along the northern side of Evaporation Pond 4 (or Evaporation Pond 5 if constructed);
- Installation of additional groundwater monitoring bores at the northern embankment of Evaporation Pond 4 (or Evaporation Pond 5 if constructed) to enable further detection of seepage by increasing monitoring capacity;
- Construction of a seepage interception trench along the northern perimeter of Evaporation Pond 4; and
- Reinstating recovery bores on the eastern/southeastern and southern sides of Evaporation Pond 1 bores.

3.3.7 Risk assessment

Consequence of Risk Event

The department considers the consequences of this Risk Event to be **'Moderate'**, the moderate risk rating was assigned based on current evidence of onsite impacts to native vegetation near the evaporation ponds. There is no evidence that these impacts are affecting offsite receptors. As the proposed licence amendment does not include an increase in Category 5 production, the department considers that the volume of decant water directed to the evaporation ponds will remain unchanged.

Likelihood of Risk Event

As outlined in Section 3.3.3, there is evidence of impacts to native vegetation in the vicinity of the evaporation ponds, attributed to seepage and groundwater mounding. Given that these impacts are already occurring, it is reasonable to expect that continued discharge of decant water from the 19Sth in-pit TSF into the evaporation ponds will result in ongoing vegetation impacts, unless additional management measures are implemented.

The department has therefore determined that, without further seepage or groundwater mounding controls, the likelihood of continued impacts to native vegetation is **'Likely'**.

Overall risk rating

By applying the department's risk rating matrix (as outlined in the *Guideline: Risk Assessments 2017*), and combining the consequence and likelihood ratings, the department has determined that the overall risk rating for this event is **'High'**.

3.3.8 Additional regulatory controls

The high-risk rating for this risk event has resulted in the department determining to include additional regulatory controls to licence L7276/1996/12 via a specified action condition. The condition requires the licence holder to undertake an audit of the recovery bores surrounding the evaporation ponds and TSF (listed within the SMP). The audit requires an inspection of each recovery bore to determine what remediation, repairs and replacements are required to enable the bore to be operational at maximum capacity. The licence holder is required to reinstate the recovery bores or provide the department justification on why specific bores are unable to be re-established. The licence holder must provide the department with a report providing the results of the audit and the works conducted to meet the specified action requirements.

The licence holder must also undertake an investigation for potential locations for additional

seepage recover bores and monitoring bores along the northern and northwestern portion of the evaporation ponds. The licence holder must provide the department with a report providing justification for the new proposed locations and a proposed timeframe to install the new bores.

The department has also deemed it necessary to condition additional management requirements for the evaporation ponds and recovery bores to ensure they are being operated and maintained appropriately. These requirements have been sourced from the licence holders SMP.

- Operation of evaporation ponds 2, 3 and 4 so that decant and seepage recovery is distributed across the ponds evenly (condition 1.3.2);
- Water levels in evaporation pond 1 to be maintained at the minimum level to allow recycling of liquor to the processing plant (condition 1.3.2); and
- Fortnightly inspections of the seepage recovery bores and seepage interception trenches⁷ surrounding the Paddock TSF and evaporation ponds (condition 1.3.5).

4. Consultation

Table 10 provides a summary of the consultation undertaken by the department.

Table 10: Consultation

Consultation method	Comments received	Department response
Licence holder was provided with a draft amendment on 5 September 2025.	The licence holder responded to the department on 14 October 2025 and 23 October 2025 the responses are presented in Appendix 1.	Refer to Appendix 1.

5. Conclusion

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

5.1 Summary of amendments

Table 11 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the revised licence as part of the amendment process.

Table 11: Summary of licence amendments

Condition no.	Proposed amendments
Front page	Included mining tenements M39/420, M39/848 and M39/1066 to the premises boundary.
Licence history	Amended licence history table to include this licence amendment and included additional information from the previous amendment.
	Removed DMIRS from the environmentally hazardous materials meaning and DMIRS from

⁷ It is noted that there is no requirement/commitment to monitor the seepage interception trenches and pumps within the SMP. The department has conditioned fortnightly inspections to include the Paddock TSF and evaporation ponds seepage interception trenches requiring visual inspection to confirm that pumping infrastructure is operational and sufficient capacity is available.

Condition no.	Proposed amendments
1.1.2	the abbreviations list.
	Added definition for High-Density Polyethylene (HDPE) and heat recovery steam generator (HRSG).
1.3.2 (table 1.3.1)	Added "Paddock to "North Cell TSF and South Cell TSF"
	Included 19Sth in-pit TSF to the containment infrastructure table.
	Amended infrastructure requirements for Evaporation Ponds 1 to 4 to: • Require evenly distribution of seepage and decant across evaporation ponds 2, 3 and 4; and • Water levels in Evaporation Pond 1 to be maintained at the minimum level to allow recycling of liquor to the processing plant.
1.3.3	Added 19Sth in-pit TSF freeboard requirement of 300 mm or a 1 in 100 year/72 hour storm event.
	Renamed "evaporation dams" to "evaporation ponds"
1.3.4	Added evaporation ponds to the condition requiring seepage collection recovery used to capture seepage from the evaporation ponds.
1.3.5	Added fortnightly inspection requirements to the Paddock TSF seepage interception trenches and seepage recovery bores.
1.3.6	Replaced "above ground" with "paddock" tailings storage facility and included evaporation ponds in the condition.
1.3.7	Added mention of evaporation ponds seepage to the condition.
1.3.14 (table 1.3.7)	Included 19Sth in-pit TSF to the freeboard requirements table.
3.3.1 (table 3.3.1)	Added a note below the table to allow non-NATA accredited field parameter measurements for pH and TDS.
3.5.1 (table 3.5.1)	Added a note below the table to allow non-NATA accredited field parameter measurements for SWL, pH and TDS.
3.5.1 (table 3.5.2)	Added a note below the table to allow non-NATA accredited field parameter measurements for SWL, pH and TDS.
	Included monitoring bores associated with the 19Sth in-pit TSF (IP1901-1 to IP0901-8) to the monitoring of ambient groundwater quality table.
3.6.1	Added 19Sth in-pit to the condition requiring monthly water balance.
4.2.1 (table 4.2.1)	Added a requirement for the annual assessment of vegetation report to be submitted with the annual environmental report.
4.4.1 (table 4.4.1) <u>New condition</u>	Added two specified actions to: 1. require licence holder to conduct an audit and improve all seepage recovery bores around the Paddock TSF and evaporation ponds; and 2. undertake an investigation in the vicinity of the evaporation ponds to identify locations for additional seepage recovery bores and monitoring bores.
Schedule 1:	Updated figure to show location of scour sump for 17 Series in-pit TSF.

Condition no.	Proposed amendments
Figure 26	
Schedule 1: Figure 27	Added figure of 19Sth in-pit TSF deposition pipelines, decant pipelines, spigot points, decant point and monitoring bores associated with TSF

References

1. Coffey Mining 2012, Geotechnical assessment – Pit 19 TSF, Murrin Murrin Operations Pty Ltd. Pit 19 In-Pit Tailings Storage Facilities (MWP00410AD-AB Geotech Rev 0).
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020a, *Guideline: Risk Assessments*, Perth, Western Australia.
4. DWER 2020b, *Guideline: Environmental Siting*, Perth, Western Australia.
5. DWER 2025, Water Information Reporting, available at <https://wir.water.wa.gov.au/Pages/Water-Information-Reporting.aspx>, sourced on 21 May 2025.
6. Minara Resources 2008, RE: Murrin Murrin Tailings Storage Facility Seepage Mitigation, letter dated 24 April 2008.
7. Minara Resources 2023, TSF/EP Seepage Management Plan, Murrin Murrin Nickel Cobalt Project, 0000-80-PLN-001-004.
8. Minara Resources 2025, Murrin Murrin Nickel Cobalt Project – Performance and Compliance Report Statement 444 and 506, 1 January 2024 – 31 December 2024.
9. Saprolite Environmental 2012, Murrin Murrin North Mining Area Proposed In-pit Tailings Disposal into Pit Void MM19 South: Hydrogeological Assessment, November 2012.
10. Saprolite Environmental 2025, Murrin Murrin Operations: Proposed Evaporation Ponds Expansion, Hydrogeological Assessment, Report number: L0106-13-01-Ver B.

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

Condition	Summary of licence holder's comment	Department's response
1.2.2 (table 1.3.1)	The licence holder has requested for the pond 1 be included to the requirement for "Decant from TSFs / recovered seepage to be evenly distributed across evaporation ponds 2, 3 and 4."	Granted and amended. The department adopted this infrastructure requirement from the seepage management plan (Minara 2023) and the department does not consider the proposed changes to increase the risk of emissions impacting receptors. The department notes that Evaporation Pond 1 is still required to be maintained at the minimum level to allow recycling of decant liquor to the processing plant as per the licence requirement.
	The licence holder has proposed to add "when required" to the requirement for: "Water levels in Evaporation Pond 1 to be maintained at the minimum level to allow recycling of decant liquor to the processing plant"	Granted and amended.
4.4.1 (table 4.4.1)	The licence holder has recommended a change of wording for item 1b replacing: "Based on the audits and downhole survey results," with "Where identified by the audits and downhole survey results"	Granted and amended.
	The licence holder has requested that item 1c be amended from: "Replace all solar-powered pumps installed in seepage recovery bores with Airwell displacement pumps" with "Solar pumps of low yield will be replaced by like-for-life solar pumps".	The department has considered the licence holders proposal to replace low yielding solar pumps with new like for like solar pumps, the department has reviewed the evidence against the statements provided. The licence holders proposed controls regarding the prevention of overheating and protection against silt appears to be suitable to manage the issues identified in Saprolite (2025). The department has granted the request to replace low yield solar pumps with new solar pumps and has included a requirement for the new solar pumps to include thermal protection systems and abrasion-resistant materials.
	The licence holder has requested to delete the requirement for the licence holder to provide "Confirmation that all solar-powered pumps have been replaced with Airwell displacement pumps, including a list of affected bores". The licence holder has proposed to replace low yield solar pumps with a like-for-like solar pumps.	
	The proposed justification for the continued use of solar pumps is due to: • Environmental sustainability to achieve low carbon operations; and • Financial reasons and ongoing fuel and maintenance costs for diesel-driven compressors would further escalate operational expenses, solar-powered pumps offer a cost-effective alternative with lower operational costs. The licence holder considers that they have addressed the issues that Saprolite (2025) identified with solar pumps: • Overheating: New solar pumps include thermal protection systems and variable frequency drives (VFDs) to prevent overheating	

Condition	Summary of licence holder's comment	Department's response
	situations. • Silt: Upgraded pumps feature abrasion-resistant materials and impellers, complemented by filtration systems and regular maintenance to handle ground water with high silt or grit content. All solar recovery bores have recently undergone redevelopment works, airlifting, cleaning, replacement of all U/S pumps, solar panels and replacement of all blocked HDPE, 250-man hrs and 100k maintenance plan completed. Historically the existing solar recovery bores lasted 10 years and new replacements we can expect the upgraded solar recovery bores to last over 10 years.	