



## Application for Licence Amendment

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

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<b>Licence Number</b>	L5029/1992/11
<b>Licence Holder</b>	Northern Star (Kanowna) Pty Limited
<b>ACN</b>	010 511 789
<b>DWER references</b>	INS-0001176 APP-0030731
<b>Premises</b>	Kanowna Belle Gold Mine  Mining Tenements M27/18, M27/22, M27/23, M27/37, M27/49, M27/57, M27/92, M27/103, M27/122, M27/123, M27/127, M27/159, M27/164, M27/232, M27/245, M27/287, M27/420, L27/62, L27/83 and L27/87  As defined in Schedule 1
<b>Date of Report</b>	12/03/2026
<b>Status of report</b>	Final

# 1. Decision summary

Northern Star (Kanowna) Pty Limited (licence holder) holds licence L5029/1992/11 (L5029), issued under Part V Division 3 of the *Environmental Protection Act 1986*. The licence relates to operation of the Kanowna Belle Gold Mine, about 20 km north-east of Kalgoorlie.

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 installation and operation of an ultra-fine regrind circuit, paste plant and mobile screen plant, and the use of a new wastewater emissions point at the Premises. As a result of this assessment, Revised Licence L5029 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 Premises overview

The Kanowna Belle Gold Mine (the premises) is owned and operated by Northern Star Resources Ltd (licence holder). The premises is located approximately 18km north-east of the City of Kalgoorlie-Boulder, Western Australia and operates under Licence number L5029/1992/11. The premises comprises of the gold mining area, processing plant, production borefields Tailings Storage Facilities (TSF1 and TSF2), Red Hill in-pit TSF, Waldon in-pit TSF, and QED, Ballarat Last Chance (BLC) and Consols Pits.

### 2.3 Application summary

On 26 August 2025, the Licence Holder submitted an application to the department to amend Licence L5029 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- installation and operation of IsaMill M3000, an Ultra-Fine Regrind Circuit.
- installation and operation of a mobile screening plant.
- approval to include Northwest Lead Pit as an emission point.
- reflect the operation of the current wet paste plant on L5029 and approval to operate a new dry paste plant.
- amendments to reporting frequency of standing water level exceedances
- approval to reduce the frequency of groundwater monitoring and reporting
- inclusion and removal of groundwater monitoring wells from the licence.
- extension of the Licence expiry date.

The proposed amendments are limited only to the inclusion of Category 12 and activities performed under currently approved Category 5 on the existing Licence.

Table 1: Proposed throughput capacity changes below outlines the proposed changes to the existing Licence.

**Table 1: Proposed throughput capacity changes**

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
Category 5: Processing or beneficiation of metallic or non-metallic ore	2,500,000 tonnes per annual period	N/A	Installation and operation of an ultra-fine regrind circuit (UFG) with a capacity of 45 and 20 tonnes per hour (tph) to process refractory ore (i.e. concentrate) from two ore domains Joplin and HBJ Mutooroo North/NOZ respectively
			Inclusion of the current wet paste plant and approval to install and operate a new dry paste plant. Maximum production rate from the dry paste plant is estimated to be 150m <sup>3</sup> /hr.
Category 6: Mine dewatering	720,000 tonnes per annual period	N/A	N/A
Category 12: Screening of material	N/A	50,000 tonnes per annual period	Installation and operation of a new mobile screening plant to screen premises originating non-acid forming waste rock.
Category 44: Metal smelting or refining	78,840 tonnes per annual period	N/A	N/A

### 2.3.1 Ultra-fine regrind circuit

The licence holder proposes the installation and operation of an ultra-fine regrind circuit (UFG Mill) to improve ore milling at the premises. The IsaMill M3000 UFG Mill will be repurposed from the Fimiston Processing Plant (Licence L6420/1988/14). The UFG Mill has a capacity to mill 20 and 45 tonnes per hour of process refractory ore (i.e. concentrate) from the Mutooroo North and Joplin gold lodes respectively. The proposed UFG mill circuit is to be installed to the north-east of the existing flotation area and gold room, shown as 'UFG Mill' on Figure 15 in Schedule 1 of the amended licence.

The licence holder has commented that the UFG mill will use additional water to their current operations but will be within their current annual water entitlement as per the Groundwater Licence GWL 62498(7).

The licence holder has stated that the operation of the UFG Mill will not result in

- additional water discharges, as all process water is recycled back through the Processing Plant.
- changes to emissions to air, noise, water discharges and waste management.
- a change of the Premises capacity or throughput of Category 5,
- additional tailings deposition rate/ or waste storage or disposal.

- the requirement of any new or additional discharge/emission points.

The overall project is estimated to take 14 months from contract award through to construction and commissioning.

### **2.3.2 Paste plant**

The licence holder has requested that the operation of its current wet paste plant, which has been in operation at the Premises since the early 2000's be included in the amended licence. However, they have also stated that they intend to decommission the existing wet paste plant operations following commissioning of the new dry paste plant. The dry paste plant will be constructed within the vicinity of the current paste plant location on an existing laydown area. The licence holder has stated that the area for the dry paste plant does not require any further ground disturbance or clearing.

The maximum production rate of the dry paste plant is estimated to be 150m<sup>3</sup>/hr, with projected annual paste filling of 250,000 m<sup>3</sup>. The paste plant will be fed with dried tails harvested from TSF1.

### **2.3.3 Mobile screening plant**

The licence holder has requested to include Category 12 in Schedule 1 of the EP Regulations 1987 on L5029 to enable the use of a mobile screening plant. Category 12 prescribes screening etc. of material: premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.

The licence holder has indicated that operating the mobile screening plant will be used for screening premises originating non-acid forming waste rock. The screened material will be used for capping the tails dams TSF1 and TSF2 to reduce the erosion of the embankments. The screened material may also be use the material to cap historic waste rock dumps which are made from erosive material.

The licence holder has indicated that operating the mobile screening plant will not interrupt significant drainage lines or contribute to erosion. The plant is to be operated within existing boundaries and laydowns which are located approximately 3km west of a small settlement in Kanowna and 18km north-east of the City of Kalgoorlie-Boulder.

### **2.3.4 New emission point**

The licence holder requested to install a pipeline and associated equipment to transfer water from its Tailings Storage Facility (TSF) TSF1/TSF2 seepage management bore network to the Northwest Lead Pit. Therefore, the Northwest Lead Pit will serve as an additional emission point. The licence holder's request is based on their assessment of overall increased rising trend in groundwater levels in TSF1 and TSF2 distal bores between late 2022 to early 2023. They have suggested that lowering the standing water levels may be achieved by increased abstraction of seepage water and depositing in the Northwest Lead Pit.

### **2.3.5 Reporting frequency of standing water level exceedances**

The licence holder has requested a change to the reporting requirements set out in Condition 40 of the former L5029 revision. The condition requires the licence holder to report any exceedances of standing water level (SWL) for TSF1 and TSF2 distal bores within 7 days of identification of the exceedance. The licence holder has requested exceedances of SWL for TSF1 and TSF2 distal bores are reported retrospectively to the department in the Quarterly Groundwater Reports.

### **2.3.6 Frequency of groundwater monitoring**

The licence holder has requested a change to the frequency of reporting SWLs and water quality at the Red Hill and Waldon bores. The requested change would require the licence holder to report biannually rather than quarterly.

Similarly, the licence holder has proposed a change to the frequency of reporting SWLs of the BLC, and Consols pits groundwater monitoring bores. The requested change would require the licence holder to report annually rather than biannually.

### **2.3.7 Inclusion and withdrawal of groundwater monitoring bores**

The licence holder has requested that the requirement to monitor deep groundwater monitoring bore (WBH3D) at Waldon In-Pit TSF is removed from the licence as WBH3D is blocked. The blockage is due to a vegetation root growth occurring at 10 metres below ground level preventing sampling of the bore.

The licence holder has requested the four additional groundwater monitoring bores and eight seepage recovery bores installed based on recommendations from the KB 2023 Pits Seepage and Groundwater Management Plan and TSF Seepage Management Plan Annual Review are included in the amended licence.

### **2.3.8 Licence duration**

The licence currently expires on 7 October 2026. The licence holder has requested the department to consider extending the expiry of the licence but has not requested a specific extended duration.

## **2.4 Part IV of the EP Act**

The Premises is subject to the conditions set in Ministerial Statement 331 (MS 331), approved on 7 December 1993. However, MS 331 relates to the use of the gold roaster to treat refractory ore and the resulting sulphur dioxide emissions from its use. As the conditions set out in MS 331 holds no bearing on changes to the Part V licence as proposed by this amendment, it is not considered any further.

## **3. Risk assessment**

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

### **3.1 Source-pathways and receptors**

#### **3.1.1 Emissions and controls**

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this Amendment Report are detailed in

Table below. Table 2 also details the proposed control measures the licence holder has proposed to assist in controlling these emissions, where necessary.

**Table 2: Licence Holder controls for operation (from application)**

Operation			
Sources	Emission	Potential pathways	Proposed controls
Ultra-Fine Regrind Circuit	Dust	Air/windborne pathway	<ul style="list-style-type: none"> <li>Emissions are managed in accordance with existing legislation, contractual agreements and NSR KB air quality management procedures.</li> </ul>
		Air/windborne pathway via prevalent westerly winds causing deposition of dust on nearby native vegetation.	
Dry Paste plant	Dust	Air/windborne pathway 3.1km NE of plant	<ul style="list-style-type: none"> <li>Paste plant activities will be limited during windy conditions where possible to minimise the potential for fugitive dust generation.</li> <li>Dust suppression will be achieved using water carts along roads and on hardstand areas.</li> <li>Sprayers and sprinklers (from water carts) will be used as required during the handling and storage of dry tailings.</li> <li>Limiting bucket height and load size in windy conditions during dry tailings loading into the paste plant hopper.</li> <li>Concrete binder will be delivered and stored within a silo with an enclosed discharge system (under pressure).</li> </ul>
		Air/windborne pathway via prevalent westerly winds causing deposition of dust on nearby native vegetation.	
	Sediment laden stormwater	Overland runoff	<ul style="list-style-type: none"> <li>The base of the tailings storage area will be enclosed with a perimeter bund to prevent run-off from leaving the area.</li> <li>In the event of significant rainfall events, surface water management infrastructure will be constructed where required to control and direct surface water flows away from work areas. This may include bunding, culverts, drainage lines or collection sumps.</li> <li>Work areas will be graded as required to ensure any stormwater or runoff is directed away from work</li> </ul>

Operation			
Sources	Emission	Potential pathways	Proposed controls
	Potential spills from paste plant infrastructure		<p>activity.</p> <ul style="list-style-type: none"> <li>Potential spills, run-off and discharge is managed in accordance with NSR procedures.</li> <li>Paste plant chemicals and hydrocarbons will be stored and handled in accordance with AS 1940:2017.</li> <li>Utilisation of spill pallets and other containment facilities during maintenance works.</li> <li>Strategic positioning of spill kits where the potential of spills is likely to occur.</li> </ul> <p><b>Paste plant pipelines</b></p> <ul style="list-style-type: none"> <li>Pipeline integrity and maintenance is managed in accordance with condition 1 and 16 of the Licence.</li> <li>Pipelines will incorporate telemetry/leak detection technology</li> <li>Pipelines will be placed within a containment trench or suitably bunded easement capable of containing any spill with appropriately designed catch pits or sumps</li> <li>Pipelines will be inspected daily for integrity during operations</li> </ul>
<p>Mobile screening plant - screening, crushing, unloading, loading and storage of material</p> <p>Vehicle movements</p>	Dust	<p>Air/windborne pathway 3.0km E of plant</p> <p>Air/windborne pathway via prevalent westerly winds causing deposition of dust on nearby native vegetation.</p>	<ul style="list-style-type: none"> <li>Mobile screening activities will be limited during windy conditions where possible to minimise the potential for fugitive dust generation.</li> <li>Ensuring the use of dust suppression systems whenever the plant is running.</li> <li>Dust suppression will be achieved using water carts utilising sprayers and sprinklers.</li> <li>Limiting load size in windy conditions.</li> <li>Ensuring plant operators undertake a pre-start inspection of plant each day, including a check of the dust</li> </ul>

Operation			
Sources	Emission	Potential pathways	Proposed controls
			<p>suppression system requirements (water, surfactants etc) and maintenance.</p>
	Sediment laden stormwater	Overland runoff	<ul style="list-style-type: none"> <li>Existing site infrastructure contains stormwater flows and contains any dispersion in the surrounding receiving environment.</li> <li>In the event of significant rainfall events, surface water management infrastructure will be constructed where required to control and direct surface water flows away from work areas. This may include bunding, culverts, drainage lines or collection sumps.</li> <li>Work areas will be graded as required to ensure any stormwater or runoff is directed away from work activity.</li> </ul>
	Spills or leaks of hydrocarbons		<ul style="list-style-type: none"> <li>Hydrocarbons are managed in accordance with existing hydrocarbon procedures, in its internal Hydrocarbon and Chemical Management Standard and AS 1940:2017.</li> </ul>
New emission point at the NW Lead pit	Spills or leaks from pipelines or overtopping	Overland runoff	<p>Pipeline:</p> <ul style="list-style-type: none"> <li>In addition to the current requirements of L5029 condition 7, the pipeline is to be buried at road floodway points to reduce the risk of pipeline damage from floods and to allow surface water to flow unimpeded.</li> </ul> <p>Open pit:</p> <ul style="list-style-type: none"> <li>Maintain minimum operational freeboard of 3 meters below top of pit crest.</li> <li>Pit lake elevation measurements at monthly frequency when discharging.</li> <li>Periodic vegetation condition assessments.</li> <li>Sampling and analyses of water.</li> <li>Sampling and analyses of pit lake, if safely accessible.</li> </ul>

### 3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), 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 3 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

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

<b>Human receptors</b>	<b>Distance from prescribed activity</b>
Residential Premises	Kanowna townsite is within the Premises boundary and approximately 2.5km east of the location of the infrastructure to be added to the licence. A 2021 census identified a total of 12 residents.
Pastoral lease	The premises lies partially on the privately-owned Mt Vettors pastoral lease and the infrastructure to be added to the licence lies within the Mt Vettors pastoral lease.
<b>Environmental receptors</b>	<b>Distance from prescribed activity</b>
Native vegetation	Extends within the boundary of the Premises, and completely surround the location of the new location of the infrastructure to be added to the licence.
Underlying groundwater (non-potable purposes)	<p>Groundwater is hypersaline with a TDS between 14,000 to 35,000 (Geocortex).</p> <p>At time of assessment, the depth to groundwater was between 9-3 metres below ground level (mbgl) (<i>Kanowna Belle TSF1 &amp; TSF2 Seepage Management Plan 2019 Annual Review</i>, Australasian Groundwater and Environmental Consultants Pty Ltd, dated March 2020).</p> <p>Prior to deposition of tailings into TSF1, the groundwater depth recorded in 1993 was between 12-14mbgl (AGE, 2019b).</p>

## 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) 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 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 .

The Revised Licence L5059 that accompanies this Amendment Report authorises emissions associated with the operation and activities detailed in Section 2.3 of this Amendment report.

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

**Table 4. Risk assessment of potential emissions and discharges from the Premises during operation**

Risk Event							
Source/Activities	Potential emissions	Potential pathways and impact	Receptors	Licence holder controls	Risk rating <sup>1</sup> C = consequence L = likelihood	Reasoning	Justification for additional regulatory controls
<b>Operation</b>							
Ultra-Fine Regrind Circuit	Dust	<b>Pathway:</b> Air/windborne pathway via prevalent westerly winds towards residents  <b>Impact:</b> Deposition of nuisance dust.	Residential premises located approximately 2.5 km east of the infrastructure.	Emissions are managed in accordance with existing legislation, contractual agreements and NSR KB air quality management procedures.	<b>C: slight</b> <b>L: Rare</b> <b>Risk: low</b>	Dust may be released during the loading of the hopper with dry input, and if spilt slurry dries out and is not removed.  The Delegated Officer considers that residents located approximately 2.5km east and vegetation surrounding the operations may experience slightly increased dust deposition on the dwellings and on the foliage of the vegetation during the operation of the UFG Mill. However, the additional dust emitted from this activity is not expected to significantly increase the dust emitted from the current activities at the Premises.	No operational requirements have been included in the amended licence.
		<b>Pathway:</b> Air/windborne pathway via prevalent westerly winds causing deposition of dust on nearby native vegetation.  <b>Impact:</b> Reduced vegetation health	Native vegetation immediately surrounding the infrastructure.				
Paste plant	Dust	<b>Pathway:</b> Air/windborne	Residential premises located	<ul style="list-style-type: none"> <li>Paste plant activities will be limited during windy conditions where possible</li> </ul>	<b>C: slight</b>	The Delegated Officer considers the Licence Holder's proposed controls	No operational requirements have been included in the amended licence.

Risk Event							
Source/Activities	Potential emissions	Potential pathways and impact	Receptors	Licence holder controls	Risk rating <sup>1</sup> C = consequence L = likelihood	Reasoning	Justification for additional regulatory controls
		<p>pathway via prevalent westerly winds towards residents</p> <p><b>Impact:</b> Deposition of nuisance dust.</p>	<p>approximately 3.1 km north-east of the infrastructure.</p>	<p>to minimise the potential for fugitive dust generation.</p> <ul style="list-style-type: none"> <li>Dust suppression will be achieved using water carts along roads and on hardstand areas.</li> <li>Sprayers and sprinklers (from water carts) will be used as required during the handling and storage of dry tailings.</li> </ul>	<p><b>L: Rare</b> <b>Risk: low</b></p>	<p>to be suitable for the risks associated with dust emissions from the paste plant</p>	
		<p><b>Pathway:</b> Air/windborne pathway via prevalent westerly winds causing deposition of dust on nearby native vegetation.</p> <p><b>Impact:</b> Reduced vegetation health</p>	<p>Native vegetation immediately surrounding the infrastructure.</p> <ul style="list-style-type: none"> <li>Limiting bucket height and load size in windy conditions during dry tailings loading into hopper.</li> <li>Concrete binder will be delivered and stored within a silo with an enclosed discharge system (under pressure).</li> </ul>				
	Spills or leaks of hydrocarbons and liquid chemicals from paste plant infrastructure	<p><b>Pathway:</b> Infiltration into groundwater</p> <p><b>Impact:</b> Contaminated groundwater</p>	<ul style="list-style-type: none"> <li>Groundwater at 3 metres below ground level; and</li> <li>Native vegetation accessing groundwater within the root zone.</li> </ul>	<ul style="list-style-type: none"> <li>Potential spills, run-off and discharge is managed in accordance with NSR procedures.</li> <li>Paste plant chemicals and hydrocarbons will be stored and handled in accordance with AS 1940:2017.</li> <li>Utilisation of spill pallets and other containment facilities during maintenance works.</li> </ul>	<p><b>C: slight</b> <b>L: Rare</b> <b>Risk: low</b></p>	<p>The Delegated Officer considers the Licence Holder's proposed controls to be suitable for the risks associated with release of chemicals and hydrocarbons from the paste plant or associated pipelines.</p>	<p>Operational requirements for monitoring pipelines have been included in the amended licence.</p>

Risk Event							
Source/Activities	Potential emissions	Potential pathways and impact	Receptors	Licence holder controls	Risk rating <sup>1</sup> C = consequence L = likelihood	Reasoning	Justification for additional regulatory controls
				<ul style="list-style-type: none"> <li>Strategic positioning of spill kits where the potential of spills is likely to occur.</li> </ul> <p><b>Pipelines</b></p> <ul style="list-style-type: none"> <li>Pipeline integrity and maintenance is managed in accordance with condition 1 and 16 of the Licence.</li> <li>Pipelines will incorporate telemetry/leak detection technology</li> <li>Pipelines will be placed within a containment trench or suitably bunded easement capable of containing any spill with appropriately designed catch pits or sumps</li> <li>Pipelines will be inspected daily for integrity during operations</li> </ul>			
<p>Mobile screening plant - screening, crushing, unloading, loading and storage of material</p> <p>Vehicle movements</p>	Dust	<p><b>Pathway:</b> Air/windborne pathway via prevalent westerly winds towards residents</p> <p><b>Impact:</b> Deposition of nuisance dust.</p>	<p>Residential premises located approximately 3 km east of the infrastructure.</p>	<ul style="list-style-type: none"> <li>Mobile screening activities will be limited during windy conditions where possible to minimise the potential for fugitive dust generation.</li> <li>Ensuring the use of dust suppression systems whenever the plant is running,</li> <li>Dust suppression will be achieved using water carts utilising sprayers and sprinklers.</li> <li>Limiting load size in windy conditions.</li> <li>Ensuring plant operators undertake a pre-start inspection of plant each day, including a check of the dust</li> </ul>	<p><b>C: slight</b> <b>L: Rare</b> <b>Risk: low</b></p>	<p>The Delegated Officer considers the Licence Holder's proposed controls to be suitable for the risks associated with dust emissions from the mobile screening plant while crushing and screening non-acid forming waste rock sourced from the Premises.</p>	<p>No operational requirements have been included in the amended licence.</p>
		<p><b>Pathway:</b> Air/windborne pathway via</p>	<p>Native vegetation immediately</p>				

Risk Event							
Source/Activities	Potential emissions	Potential pathways and impact	Receptors	Licence holder controls	Risk rating <sup>1</sup> C = consequence L = likelihood	Reasoning	Justification for additional regulatory controls
		<p>prevalent westerly winds causing deposition of dust on nearby native vegetation.</p> <p><b>Impact:</b> Reduced vegetation health</p>	surrounding the infrastructure.	suppression system requirements (water, surfactants etc) and maintenance.			
	Noise	<p><b>Pathway:</b> Carrying sound waves via prevalent westerly winds towards residents</p> <p><b>Impact:</b> Amenity</p>	Residential premises located approximately 3 km east of the infrastructure.	<ul style="list-style-type: none"> <li>Noise emissions are managed in accordance with the <i>Work Health and Safety Act 2020</i>, the <i>Work Health and Safety (Mines) Regulations 2022</i> and the <i>Environmental Protection (Noise) Regulations 1997</i>.</li> </ul>	<p><b>C: slight</b> <b>L: Rare</b> <b>Risk: low</b></p>	The Delegated Officer considers that residents located 3km east of the operations may experience slightly increased noise emissions during the operation of the mobile screening plant. However, the additional noise emitted from operational activities is not expected to significantly increase the noise emitted from the current activities at the Premises.	No operational requirements have been included in the amended licence.

Risk Event							
Source/Activities	Potential emissions	Potential pathways and impact	Receptors	Licence holder controls	Risk rating <sup>1</sup> C = consequence L = likelihood	Reasoning	Justification for additional regulatory controls
	Spills or leaks of hydrocarbons and chemicals from mobile screening plant infrastructure	<b>Pathway:</b> Infiltration into groundwater <b>Impact:</b> Contaminated groundwater	<ul style="list-style-type: none"> <li>Groundwater at 3 metres below ground level; and</li> <li>Native vegetation accessing groundwater within the root zone.</li> </ul>	Hydrocarbons are managed in accordance with existing hydrocarbon procedures, in its internal Hydrocarbon and Chemical Management Standard and AS 1940:2017.	<b>C: slight</b> <b>L: Rare</b> <b>Risk: low</b>	The Delegated Officer considers the Licence Holder's proposed controls to be suitable for the risks associated with release of hydrocarbons from the mobile screening plant.	No operational requirements have been included in the amended licence.
New emission point at the Northwest Lead pit	Spills or leaks from pipelines or overtopping	<b>Pathway:</b> Infiltration into groundwater <b>Impact:</b> Contaminated groundwater	Groundwater and native vegetation accessing groundwater within the root zone.	<p>Pipeline:</p> <ul style="list-style-type: none"> <li>In addition to the current requirements of L5029 condition 7, the pipeline is to be buried at road floodway points to reduce the risk of pipeline damage from floods and to allow surface water to flow unimpeded.</li> </ul> <p>Open pit:</p> <ul style="list-style-type: none"> <li>Maintain minimum operational freeboard of 3 meters below top of pit crest.</li> <li>Pit lake elevation measurements at monthly frequency when discharging.</li> <li>Periodic vegetation condition assessments.</li> <li>Sampling and analyses of water.</li> <li>Sampling and analyses of pit lake, if safely accessible.</li> </ul>	<b>C: Minor</b> <b>L: Unlikely</b> <b>Risk: Medium</b>	The Delegated Officer considers the Licence Holder's proposed controls to be suitable for the risks associated with overtopping of the Northwest Lead Pit and leaks from pipelines between the pit and TSF1 and TFS2's seepage management bores.	The Delegated Officer has included a condition related to the minimum operational freeboard height into the amended licence.

### 3.3 New emission point

It is understood that the Northwest Lead Pit (the pit) is an inground void set within shallow alluvium, deeper alluvium and has a fractured basement (see Figure 1 below). The current evaporation rate from the pit lake exceeds groundwater and rainfall inflows. However, it is likely that additional water transferred from the TSF1/TSF2 seepage management bore network to the pit will result in groundwater level mounding adjacent to the pit, in-line with groundwater observations surrounding other pits at the Premises.

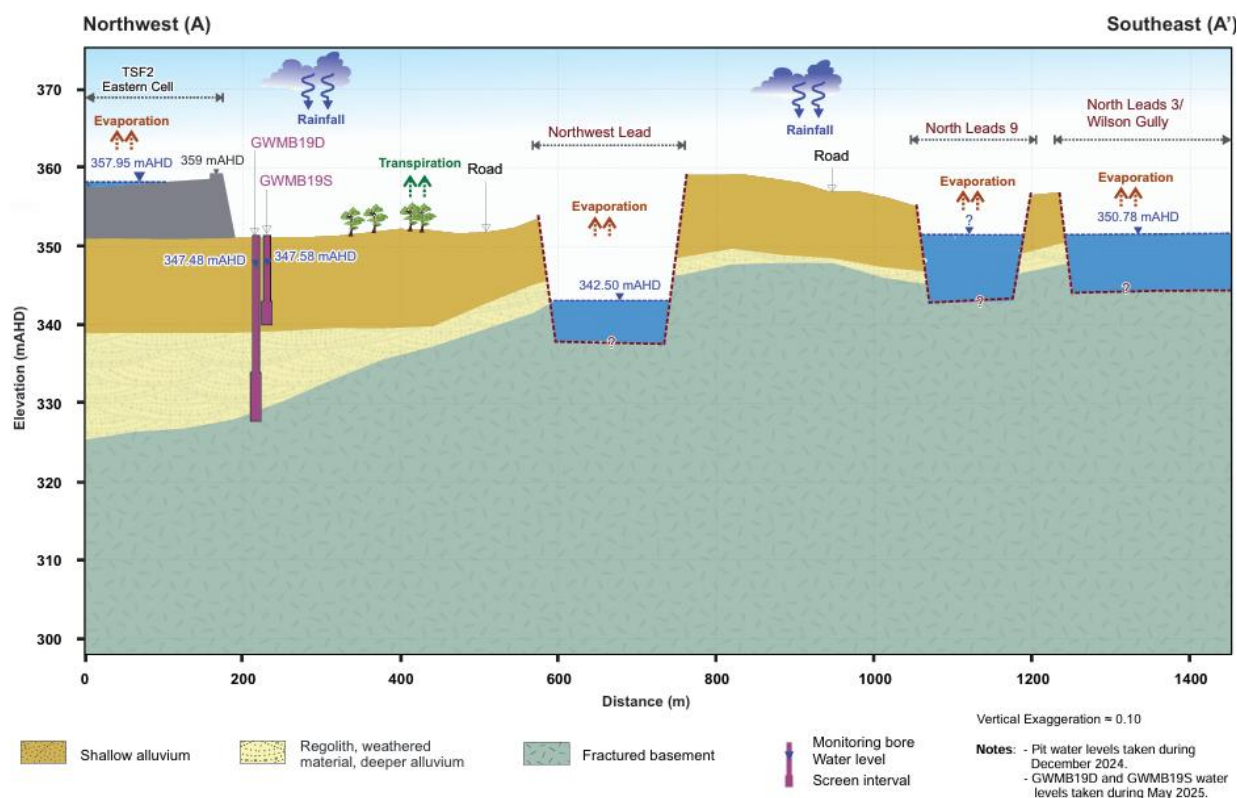


Figure 1: Lithology surrounding the Northwest Lead Pit

The Delegated Officer agrees with the Licence Holder that abstracting water from the seepage recovery bore network to redistribute it into the Northwest Lead Pit may result in lowering the water levels in the distal bores surrounding the TSFs resulting in a lower risk to native vegetation in the surrounding area. Additionally, the Delegated Officer considers the controls proposed by the Licence Holder appear appropriate to monitor water quality and volume within the pit. However, as the pit does not currently monitor peripheral groundwater level similar to that of the Consols Pit and the BLC pits, a peripheral groundwater monitoring bore network will be required to be established for ongoing monitoring of surrounding groundwater quality and depth to groundwater due to potential mounding of seepage from the Northwest Lead Pit.

The licence holder has committed to completing the hydrogeological assessment within 3 months of discharging into the Northwest Leads Pit (no later than 31 May 2026). Further to this, the recommended location and number of monitoring bores that are identified as required by the hydrogeological assessment will be installed within 12 months of discharging into Northwest Leads Pit.

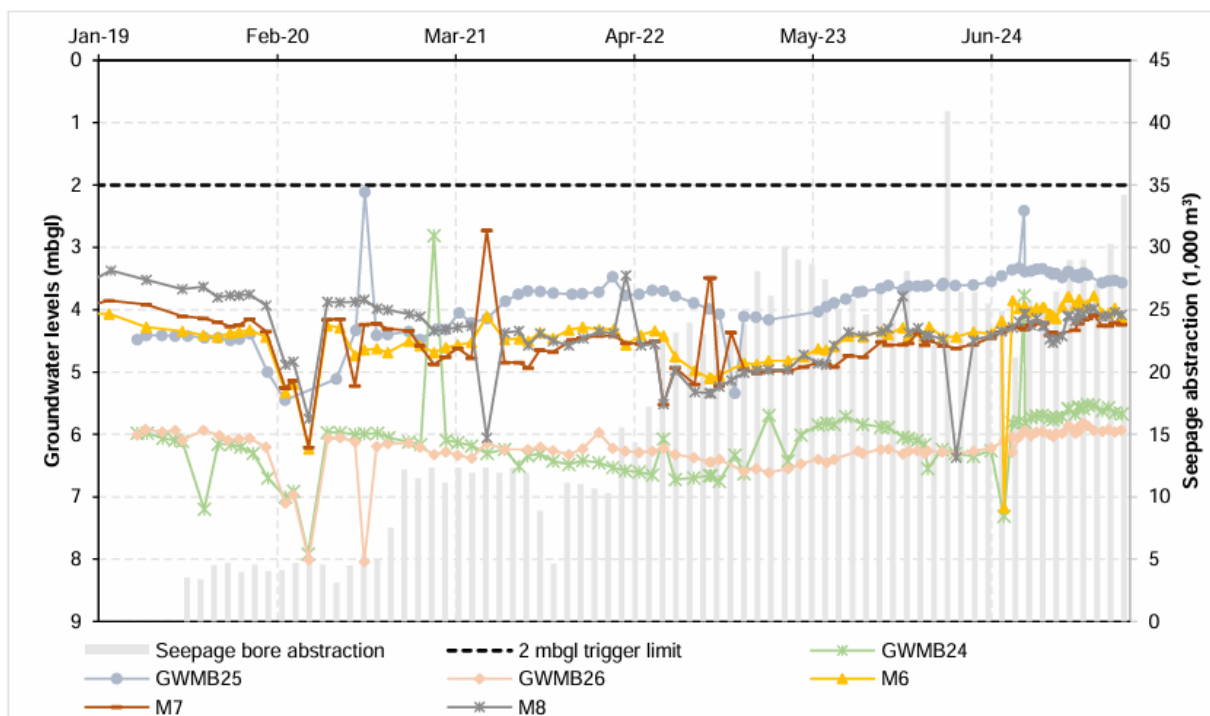
Following submission of the hydrogeological assessment to the department, the Licence will be amended to reflect the location of the new groundwater monitoring bores.

### 3.4 Reporting frequency of standing water level exceedances

The monitoring and reporting requirements of standing water levels in the groundwater monitoring wells surrounding TSF1 and TSF2 are subject to three conditions in the licence.

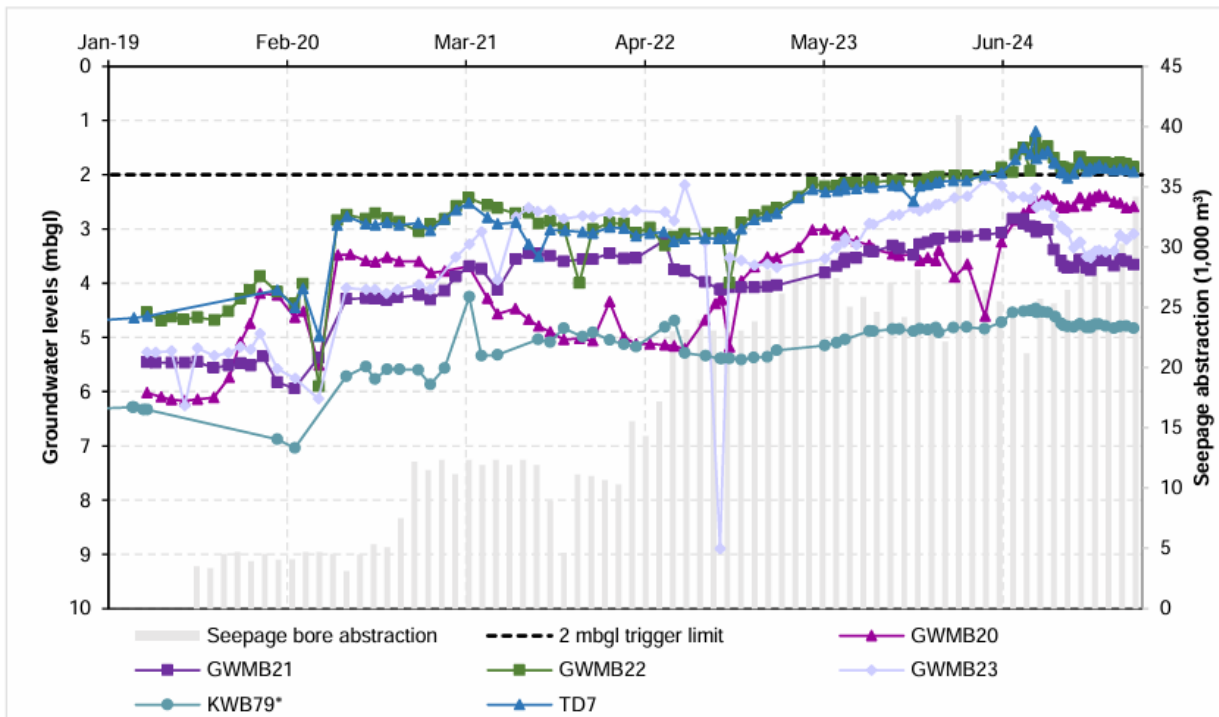
Condition 23 from the former licence required the wells to be monitored quarterly. If the SWL was identified at less than 2mbgl then Condition 40 required the Licence Holder to report the exceedance to the department within 7 days of becoming aware of the non-compliance. In addition to this, the frequency of monitoring is regulated by Condition 24, which required the monitoring frequency to be increased from quarterly to fortnightly if the SWL is identified at less than 4mbgl.

A review of the SWL data over the past 6 years of distal bores surrounding TSF1 identified limited occurrences when the SWL came close to triggering the reporting requirement of Condition 40 (see Figure 2 below).



**Figure 2: Depth to groundwater in monitoring bores distal to TSF1**

A review of the SWL data over the past 6 years of distal bores surrounding TSF2 identified occurrences in distal bores in GWMB22 and TD7 when the SWL was identified at less than 2mbgl and required reporting to the department as per Condition 40 (see Figure 3 below).



**Figure 3: Depth to groundwater in monitoring bores distal to TSF2**

The Delegated Officer acknowledges there are limited occurrences and bores where the SWL was identified at less than 2mbgl. Additionally, the Licence Holders proposed management which include abstraction of seepage water from the TSF1/TSF2 seepage management bore network for disposal into the Northwest Lead Pit is likely to result in lowering the SWL at the distal bores. Based on this, the Delegated Officer considers the Licence Holders request to change the reporting exceedances of SWL for TSF1 and TSF2 distal bores are reported retrospectively to the department in the Quarterly Groundwater Reports is acceptable as it is unlikely to increase the risk profile of the Premises.

### 3.5 Frequency of groundwater monitoring

#### Red Hill and Waldon groundwater monitoring bores

Condition 23 from the former licence required the licence holder to sample the Red Hill In-pit and Waldon In-pit groundwater monitoring bores for SWL and water quality every quarter.

A review of the past 13 years of SWL data of the Red Hill In-pit groundwater monitoring bores indicates a stable or increasing depth over the past 6 years and has rarely been identified at a depth of less than 15m bgl. (see Figures 4 and 5 below).

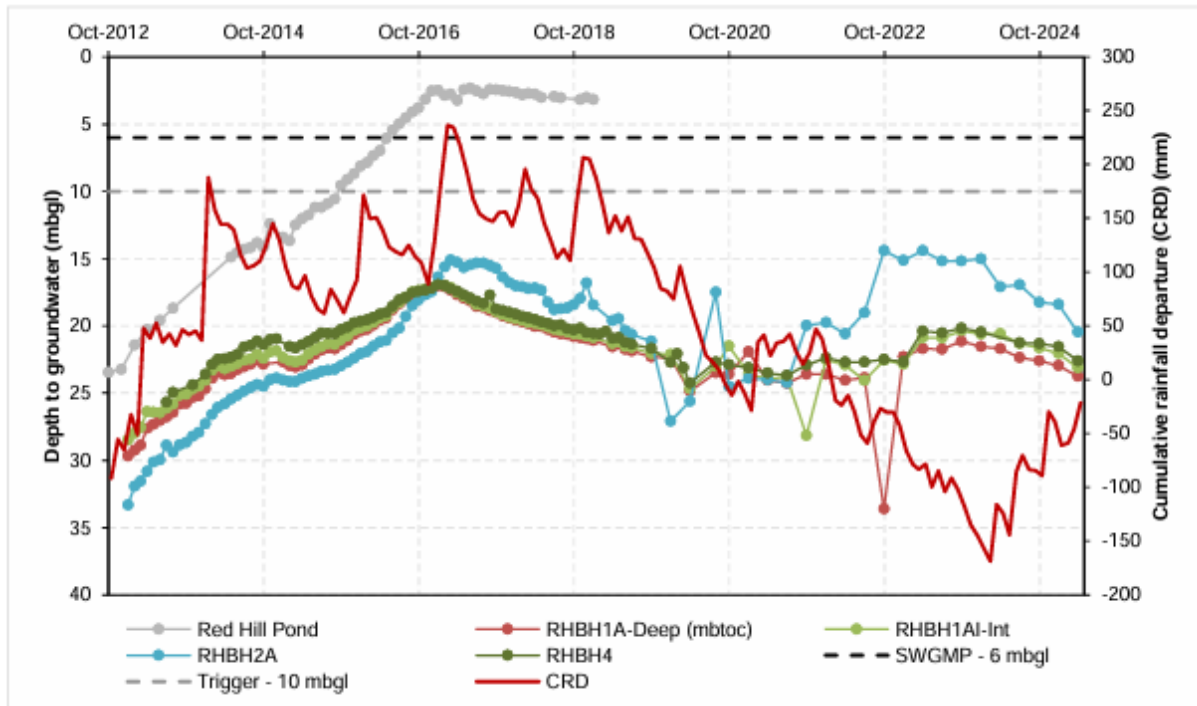


Figure 4: Depth to groundwater in Red Hill monitoring bores (6 and 10m bgl trigger)

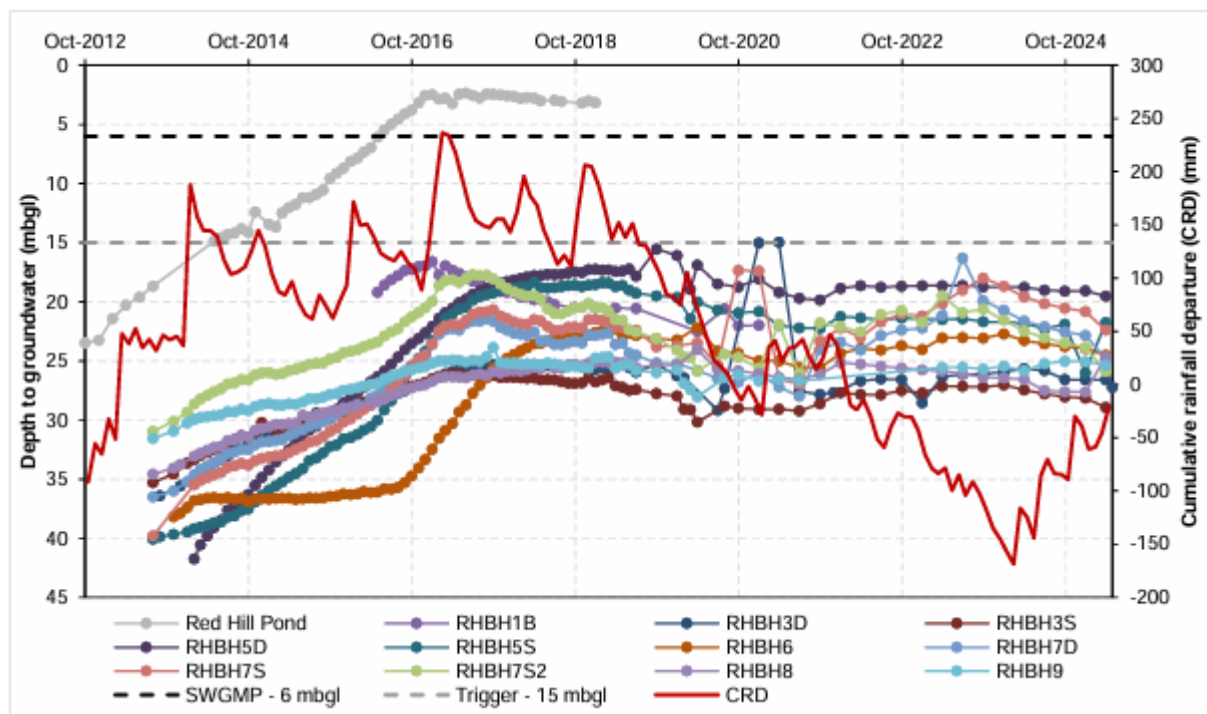


Figure 5: Depth to groundwater in Red Hill monitoring bores (6 and 15m bgl trigger)

A review of the past 12 years of SWL data of the Waldon In-pit groundwater monitoring bores indicates a stable depth over the past 6 years and has rarely been identified at a depth of less than 15m bgl. (see Figures 6 and 7 below).

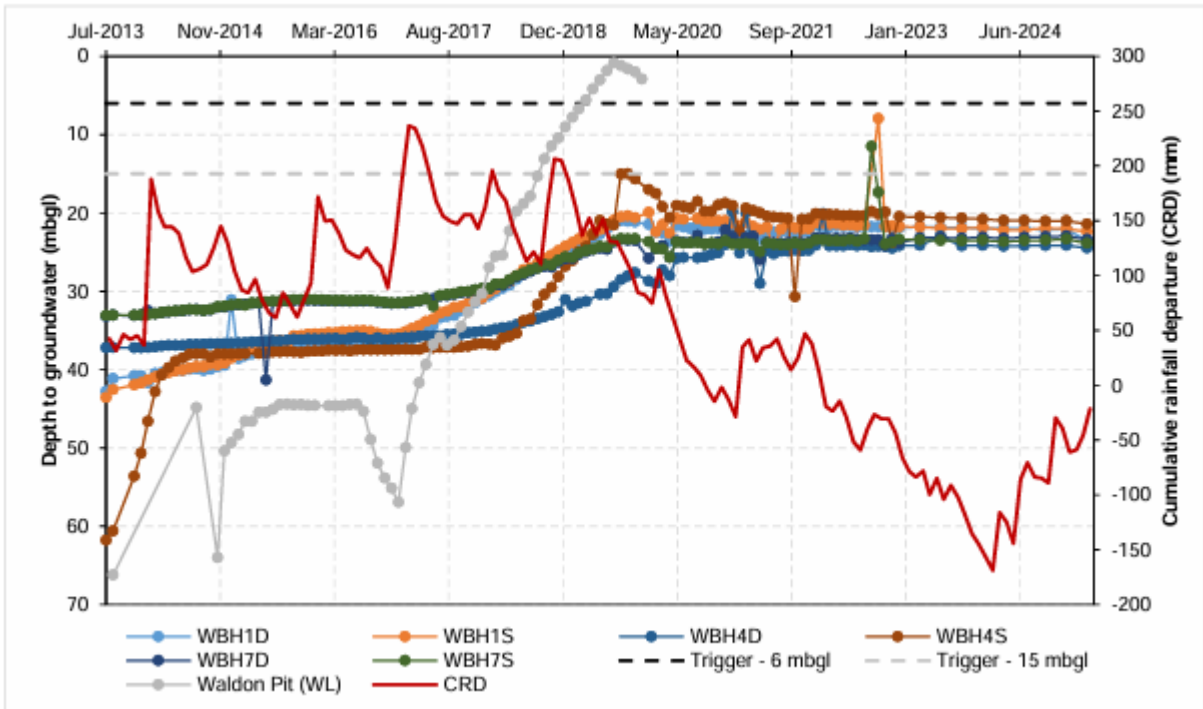


Figure 6: Depth to groundwater in Waldon monitoring bores west of the pit (6 and 15m bgl trigger)

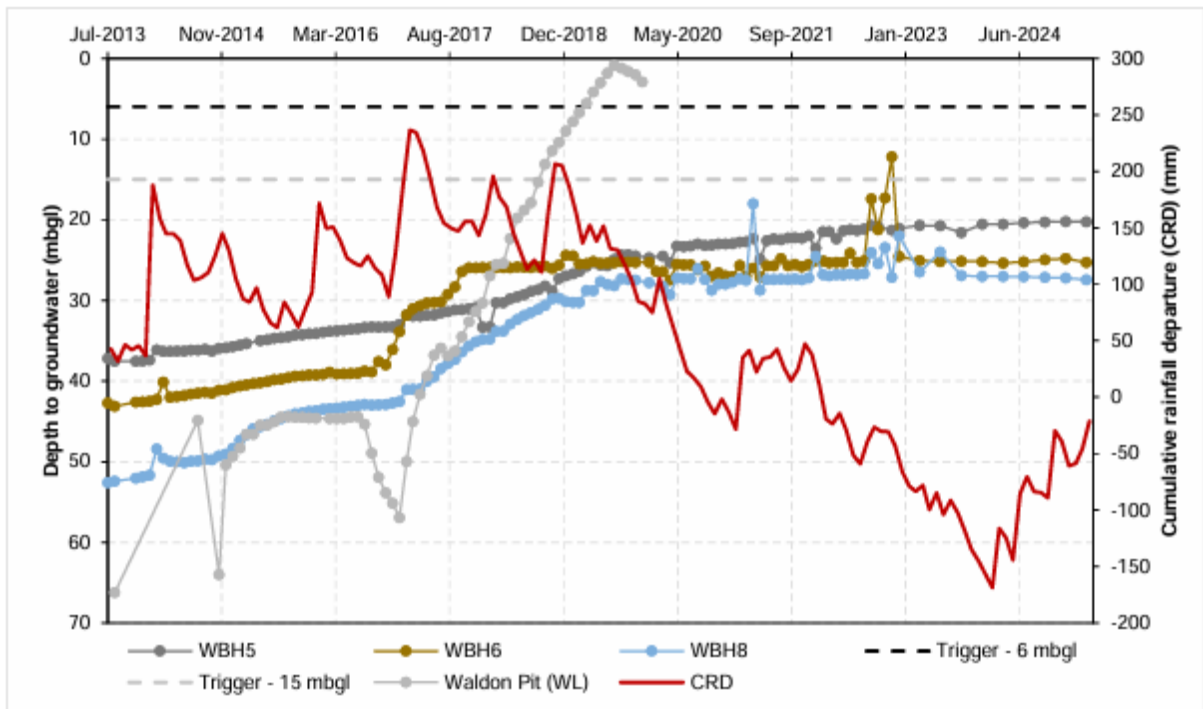


Figure 7: Depth to groundwater in Waldon monitoring bores east of the pit (6 and 15m bgl trigger)

The licence holder has voluntarily used triggers of 6 and 15m bgl for groundwater monitoring wells at both the Red Hill pit and the Waldon pit. However, these voluntary triggers have been rarely exceeded. The Delegated Officer considers the proposed reduced frequency of monitoring from quarterly to biannual monitoring does not significantly increase the risk to the local environment. As a result, the Delegated Officer has included a reduced sampling frequency for the Red Hill and the Waldon Inpit groundwater monitoring bores.

## BLC and Consols Pits groundwater monitoring bores

The monitoring and reporting requirements of SWL and water quality in the BLC and Consols groundwater monitoring bores are subject to three conditions in the licence.

Condition 23 from the former licence required the wells to be monitored biannually. If the SWL is identified at less than 6 mbgl then Condition 40 required, the Licence Holder to report the exceedance to the department within 7 days of becoming aware of the non-compliance. In addition to this, the frequency of monitoring is regulated by Condition 24, which required the monitoring frequency to be increased from biannually to fortnightly if the SWL is identified at less than 10mbgl.

A review of the SWL data over the past 9 years of BLC and Consols groundwater monitoring bores indicates a stable trend over the past 6 years and has never been identified at a depth of less than 15m bgl therefore not triggering the requirements of Condition 24. (see Figures 8 and 9 below).

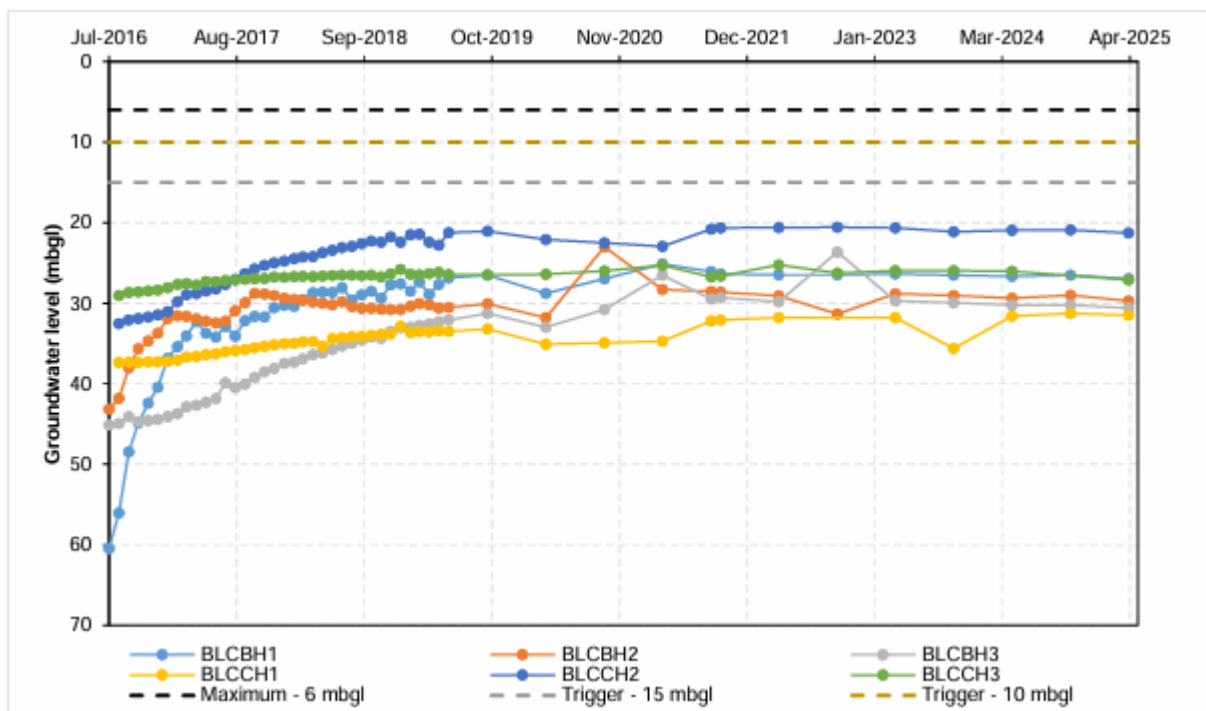
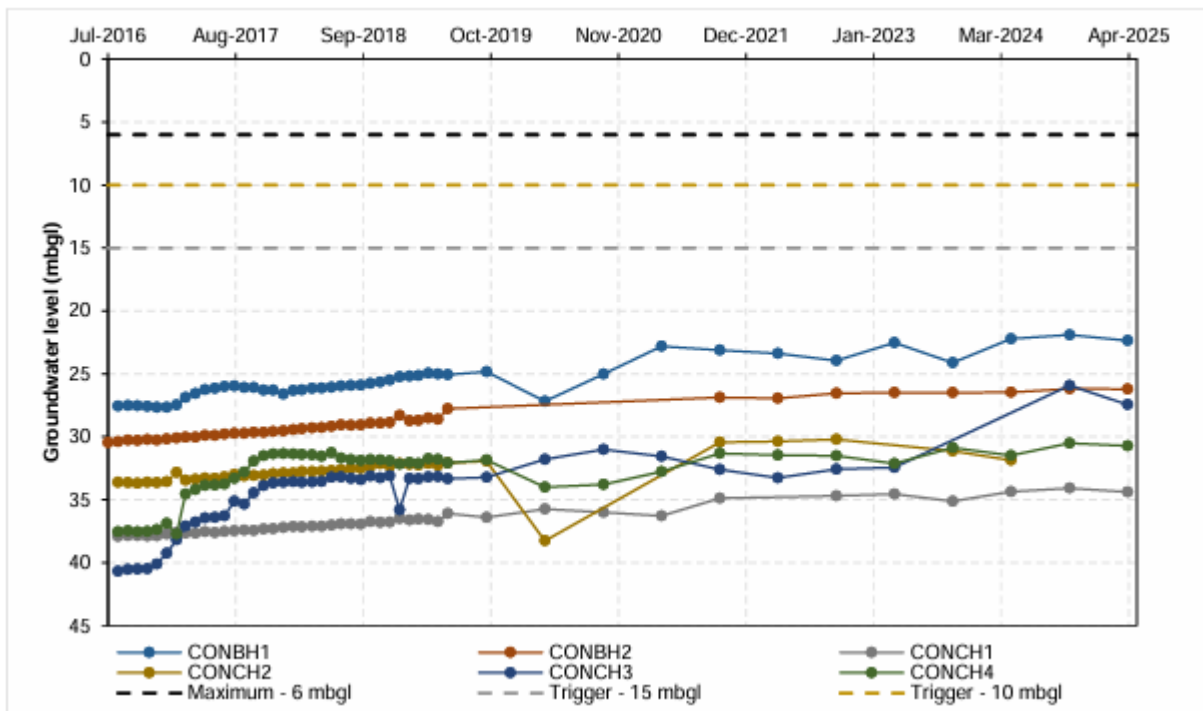


Figure 8: Depth to groundwater in the BLC groundwater monitoring bores



**Figure 9: Depth to groundwater in the Consols groundwater monitoring bores**

As the depth to groundwater has never exceeded the 'Action levels' of 6, 10 and 15m bgl in Condition 24 of the licence, the Delegated Officer considers the proposed reduced frequency of monitoring from biannual to annual monitoring does not significantly increase the risk profile of the Premises. As a result, the Delegated Officer has included a reduced sampling frequency for the BLC and Consols groundwater monitoring bores from biannual to annual.

### 3.6 Inclusion and removal of groundwater monitoring bores

The Delegated Officer understands that groundwater monitoring bore WBH3D at Waldon In-Pit TSF is blocked due to a vegetation root growth occurring at 10 metres below ground level preventing sampling of the bore. It is noted that the licence holder has not proposed a replacement bore as the licence holder considers nearby bores are adequate to measure groundwater quality and SWL. As the bore is blocked and based on the historic groundwater levels identified in the immediate area of the blocked bore, the Delegated Officer considers removal of this bore from the licence does not significantly increase the risk profile of the Premises. As a result, the Delegated Officer has removed the monitoring requirements of WBH3D from the licence.

The Delegated Officer understands that the licence holder wishes to include four additional groundwater monitoring bores, GWMB27, GWMB28, GWMB29D, GWMB29S, and eight seepage recovery bores to the licence. The four groundwater monitoring bores, which have already been installed, are located along the northern boundary of TSF2 and the eight seepage recovery bores, SM14 – SM21, have been installed along the western and northern boundary of TSF2 (identified in Figure 5 in Schedule 1 of the revised licence).

It should be noted that SM6 and SM7 are no longer operational. An updated figure illustrating the location of the seepage recovery bores is included as Figure 5 in the amended licence.

The Delegated Officer considers the inclusion of the four additional groundwater monitoring bores and the eight seepage recovery bores is likely to increase the understanding and management of groundwater levels in the immediate area of TSF2. As a result, the Delegated Officer supports the inclusion of these bores and has included them in the amended licence.

### 3.7 Licence duration

As a partial review of the Licence has been undertaken through this amendment, the Delegated Officer has decided to extend the expiry date of the Licence by 20 years.

## 4. Decision

As part of the review process, the Delegated Officer has made Department-initiated amendments including:

- minor changes to wording of some conditions,
- updated table and condition references,
- the removal of former Condition 33, which required the Licence Holder to submit an updated seepage management plan for the Premises TSF1 & TSF2, and
- changing the frequency of the air monitoring of sulfur dioxide from monthly to annually.

The minor changes to the wording of some conditions and updating the table and condition references within the conditions of the amended licence are considered administrative in nature and do not alter the overall risk profile of the operations at the Premises.

As an updated seepage management plan for the Premises TSF1 & TSF2 was provided to the Department on 1 June 2023, the condition is therefore no longer valid and is not included in the amended licence.

The Delegated Officer has reviewed the submitted monthly results of sulfur dioxide monitoring taken from the ambient air monitoring stations listed in Table 16 of the amended licence. The monitoring results have been consistently demonstrated concentrations of sulfur dioxide below the reportable level of 0.20 parts per million set by the EPA for the Goldfields Residential Areas. In addition to this, the licence requires the Licence Holder to report any exceedance of the maximum sulfur dioxide concentration permitted at any of the sulfur dioxide monitoring stations in Table 16 of the Licence, as soon as practicable but no later than 5PM on the next usual working day. Based on the above, the Delegated Officer has reduced the reporting frequency from monthly to annually. The reduction of reporting frequency is not considered to increase the risk profile of the premises.

## 5. Consultation

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

**Table 5: Consultation**

Consultation method	Comments received	Department response
City of Kalgoorlie-Boulder advised of proposal 3 October 2025	None	N/A
Licence holder was provided with draft amendment on 11/02/2026	Comments were received on 27/02/2026 and 9/03/2026	Refer to Appendix 1

## 6. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that an amended Licence will be granted, subject to conditions commensurate with the

determined controls and necessary for administration and reporting requirements.

## References

1. DWER 2016, *Guidance Statement: Licence Duration*, Perth, Western Australia
2. Northern Star (Kamowna) Pty Limited, August 2025 – Application to Amend Licence.
3. AGE 2019, Australasian Groundwater and Environmental Consultants Pty Ltd (AGE)
4. Kamowna Belle Seepage Management Plan – TSF1 & TSF2, May 2023, Australian Groundwater and Environmental Consultants.
5. NVS 2021, Northern Star – TSF2 Baseline Vegetation Health Assessment: Native Vegetation Monitoring of the Kamowna Belle TSF2 Project – September 2021, Native Vegetation Solutions, 5 November 2021, Kalgoorlie, Western Australia.
6. Environmental Protection Authority 2010, Environmental Protection (Goldfields Residential Areas) (Sulfur Dioxide) Policy and Regulations 2003

## Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
Conditions 4, 5 (Table 4, Item 6), 7, 9, 12 (Table 6, Item 14), 24 (Table 11), 47 (Table 18)	Minor changes to references and numbers	The delegated officer accepts these changes.
Condition 5 Table 4 Item 7 and Condition 8	<p>The licence holder offered alternative wording to the requirements of groundwater monitoring well installation proposed by DWER in the draft licence,</p> <p>In collaboration with Australasian Groundwater and <b>Environmental</b> Groundwater Consultants (<b>AGE</b>), the licence holder proposed to update the existing groundwater model to predict the potential groundwater environment changes and potential impacts to ultimately inform the number and locations of monitoring bores.</p> <p>The licence holder commissioned AGE to use the existing MODFLOW groundwater model at the Premises to predict how water transferred to the Northwest Leads pit will influence the surrounding water table. AGE believe this approach will provide a strong technical basis to inform on the potential hydrogeological influence of the water transfer, which will justify installing fewer monitoring bores and in strategic locations rather than what was described in the draft licence.</p> <p>AGE have proposed:</p> <ul style="list-style-type: none"> <li>- Validating the existing model, and if required recalibrating the model to optimise the confidence of model prediction.</li> <li>- Testing the conceptual and numerical uncertainty of the model using a sensitivity analysis, where AGE will adjust hydraulic parameters (K and S) based on conceptual ranges.</li> <li>- Modelling the predicted standing water level contours, which can be superimposed on an aerial image of Northwest Leads Pit and surrounds to show the predicted change in standing water level; and</li> </ul>	<p>The delegated officer notes the request to amend Item 7 Table 4 to update the existing groundwater model by conducting a hydrogeological assessment. The updated model will be used to predict the potential groundwater environment changes from transferring water from the TSF1/TSF2 seepage management bore network to the Northwest Leads pit. This in turn will be used as a basis to determine the number and location of monitoring bores adjacent to the Northwest Leads pit.</p> <p>The delegated officer considers the timeframe provided by the licence holder for the completion of the hydrogeological assessment and installation of groundwater monitoring bores acceptable and unlikely to result in a change to the risk profile of the Premises. Therefore, the delegated officer has accepted the proposed wording for Item 7 Table 4 and the associated changes to the requirement of Condition 8.</p> <p>Condition 8 of the draft licence authorises the commencement of operation of infrastructure in Table 4 following the submission of an Environmental Compliance Report. As the proposed wording of Item 7 Table 4 is to be changed, Condition 8 also needs to reflect this change. Therefore, the</p>

Condition	Summary of Licence Holder's comment	Department's response
	<p>- Recommending a reduced number of strategically located monitoring bores to confirm that the model is behaving as expected.</p> <p>The licence holder has committed to completing the hydrogeological assessment within 3 months of discharging into the Northwest Leads Pit (no later than 31 May 2026). Further to this, the recommended monitoring bores will be installed within 12 months of discharging into Northwest Leads Pit.</p> <p>Given the above, the licence holder proposed the requirement wording be altered to:</p> <p><i>(i) A hydrogeological assessment to update the current KB groundwater model and determine the number and location of peripheral groundwater monitoring bores., must be completed within 3 months of discharging into Northwest Leads Pit, but no later than 31 May 2026.</i></p> <p><i>(ii) Groundwater monitoring bores are to be installed as per the recommendations from the hydrogeological assessment described in item (i), within 12 months of discharging into Northwest Leads Pit.</i></p> <p>The licence holder has also requested the wording of Condition 8 is updated to align with the requirements of Item 7, Table 4. The licence holder proposes the following wording:</p> <p><i>The licence holder may only commence operations of an item of infrastructure identified in Condition 5, Table 4 (with the exception of Item 7).</i></p>	<p>delegated officer accepts the wording proposed by the licence holder.</p>
Condition 6	<p>The licence holder requested for the timeframe to submit the Environmental Compliance Report required for infrastructure constructed and/or installed in accordance with Conditions 2 (Table 2), 4 (Table 3) and 5 (Table 4) to be extended <b>from 30 days to 60 days</b>. This is to provide sufficient time for the engineer to compile the necessary information into the report.</p>	<p>The delegated officer accepts this change given the complexity of the construction of some infrastructure listed in Tables 2, 3 and 4.</p>