Amendment Report

Application for Licence Amendment

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

Licence Number	L9293/2021/1
Licence Holder	Silver Lake (Rothsay) Pty Ltd
ACN	151 137 450
File Number	DER2021/000158
Premises	Rothsay Gold Project Mining Tenements M59/39, M59/40 and L59/24 PERENJORI WA 6620 As defined by the Premises map attached to the Revised Licence
Date of Report	13 February 2023
Decision	Revised licence granted

Alana Kidd
Digitally signed by Alana Kidd
Date: 2023.02.13 08:23:17 +08'00'

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

Table of Contents

1. Decision summary

Licence L9293/2021/1 is held by Silver Lake (Rothsay) Pty Ltd (Licence Holder) for the Rothsay Gold Project (the Premises), located on Mining Tenements M59/39, M59/40 and L59/24, approximately 70 km east of Perenjori, within the Southern Murchison region of Western Australia.

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 L9293/2021/1 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 06/10/2022, the Licence Holder submitted an application to the department to amend Licence L9293/2021/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Increase the volume of groundwater discharged from 499,000 to 595,000 tonnes per year (refer to Table 1 for category 6 and section 2.2.1);
- Increase the Total Dissolved Solids (TDS) limit at both the evaporation / infiltration pond (evaporation pond) and ephemeral drainage line to 25,000 mg/L (refer to section 2.2.1);
- Additional landfill locations (refer to section 2.2.2);
- Increase the volume of wastewater discharged from 25 to 35 m^3/day (refer to Table 1 for category 85);
- Additional wastewater treatment plant (WWTP) infrastructure (refer to section 2.2.3);
- Changes to WWTP irrigation area infrastructure (refer to section 2.2.3); and
- Administrative corrections.

This amendment is limited only to design capacity changes to category 6 and 85 activities from the existing licence as shown in Table 1.

No changes to the design capacity of category 64 under the existing licence has been requested by the Licence Holder.

Table 1: Proposed design and throughput capacity changes

Category	Current design or throughput capacity	Proposed design or throughput capacity	Description of proposed amendment
6	499,000 tonnes per annum (permanent discharge to groundwater management facility (GMF) and Evaporation / Infiltration Pond)	595,000 tonnes per annum	To account for any increase in dewatering volumes Combined permanent discharge to the TSF-GMF, Evaporation / Infiltration Pond and Ephemeral Drainage Line
85	25 m^3/day	35 m^3/day	Increase of 10 m^3/day with the inclusion of the polishing unit

2.2.1 Mine dewatering

There will be no change to the current mine dewatering method or infrastructure authorised under existing licence L9293/2021/1.

- Groundwater from the underground mine is pumped approximately 1.2 km to the TSF - GMF;
- Water from the TSF – GMF is then collected via a concrete decant tower and is either:
  - Pumped to the header tanks for underground reuse, pumped to the washdown bay and/or used for dust suppression;
  - Diverted to the evaporation pond;
  - Diverted to the mechanical evaporator on the TSF wall (if required); and
  - Diverted to the ephemeral drainage line for periodic discharge; and
- Distribution of water from the decant tower is automated as required.

A water balance flow chart is shown in Figure 1.

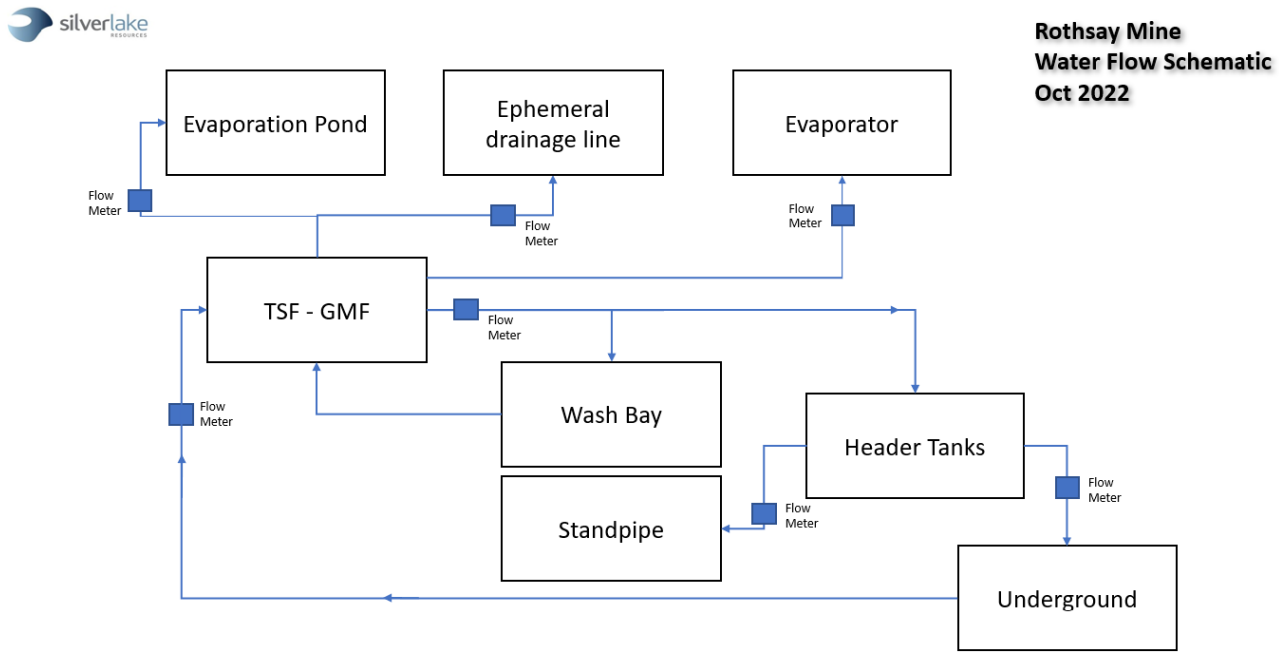

Figure 1: Premises water balance flow chart

Table 2 provides the Premises water balance for the reporting period 08/11/2021 to 31/12/2021 (SLR 2022a).

Table 2: Premises water balance

Description	Units	Nov-21	Dec-21	Total
Production Bore Abstraction	*kL*	*946*	*886*	*1,833*
U/G Dewatering Abstraction	*kL*	44103	39837	*83,940*
Combined Groundwater Abstraction	*kL*	45,049	40,723	*85,773*
Discharge to TSF	*kL*	44103	39837	*83,940*
TSF re-use (Header Tanks)	*kL*	7734	9376	*17,110*
TSF evaporation / entrainment / seepage *(estimate)*	*kL*	8723	6872	*15,595*
Discharge to Evaporation Pond	*kL*	27646	23589	*51,235*
Discharge to Ephemeral Drainage Line	*kL*	0	0	*0*

SLR 2022b, states that "*Mine dewatering volumes have been recorded at the higher end of the predicted 300,000-500,000 tonnes per year total and rates have been recorded above the predicted 16L/s (up to 21L/s). This reporting year (2022) levels are predicted to be at 495,000 tonnes per year and, as way of contingency, an extra 100,000 tonnes per year is required*."

The total throughput of 595,000 tonnes per year will account for any increase in dewatering values.

The Licence Holder is proposing that the TDS limit at both the evaporation pond and ephemeral drainage line be increased to 25,000 mg/L. The existing licence currently allows water with a TDS of <15,000 mg/L and <20,000 mg/L to be discharged at the ephemeral drainage line and evaporation pond respectively.

SLR 2022b states that "*TDS levels are increasing in the dewatered groundwater as operations underground progress deeper and are anticipated to exceed the limits in Table 6 of L9293."*

As shown in Table 3 increased levels of TDS have been observed in water quality analyses for the Premises.

Table 3: Water quality analysis

Location	Quarter	Year	pH Value	Electrical Conductivity @ 25°C (mS/cm)	Total Dissolved Solids @180°C (mg/L)
Ephemeral drainage line - Discharge Point	Q2	2020	8.08	7.88	5,870
	Q2	2022	7.89	23.1	14,300
	Q2	2022	7.86	25.5	19,000
	Q3	2022	7.68	24.5	17,200
Evaporation /Infiltration Pon Discharge Point	Q1	2022	7.79	25.2	16,300
	Q2	2022	7.82	26.1	18,000
Monitoring bore BH-01	Q1	2021	7.28	17.3	13,300
	Q2	2021	7.39	12.4	9,060
	Q3	2021	7.32	19.1	12,000
	Q4	2021	7.4	19.8	12,500
	Q1	2022	7.03	19.2	12,000
	Q2	2022	7	18.4	12,500
Monitoring bore Pond BH-02	Q1	2021	6.69	23.2	17,500
	Q2	2021	6.69	21.1	16,500
	Q3	2021	6.35	18.9	11,900
	Q4	2021	6.27	20.6	13,400
	Q1	2022	5.85	22.4	14,200
	Q2	2022	5.77	23.9	16,600
Monitoring bore Pond BH-04	Q1	2021	6.37	22.8	16,500
	Q2	2021	6.73	19.3	14,700
	Q3	2021	6.71	18.4	11,300
	Q4	2021	6.74	18.3	11,700
	Q1	2022	6.47	20.7	13,000
	Q2	2022	6.58	22.5	15,600
Dewatering bore RHDW001 (decommissioned Sep 2021)	Q1	2021	7.44	11.9	8,180
	Q2	2021	7.82	9.67	7,370
RTH Underground	Q1	2021	7.91	11.5	7,470
	Q2	2021	7.79	10.3	8,070
	Q3	2021	7.82	19.3	11,900
	Q4	2021	7.56	19.8	12,600
	Q1	2022	7.79	25.2	16,100
	Q2	2022	7.83	26.2	18,000

Red text- Above discharge limits - discharge ceased prior to exceedance being identified, follow up analysis taken to confirm TDS still over limit

L9293/2021/1 Decision Report states that a limit for TDS was applied due to:

- Evaporation pond – groundwater suitable for stock quality (however, is slightly brackish) and potential beneficial users; and
- Ephemeral drainage line - to ensure elevated salinity did not impact on vegetation.

SLR 2023 states that the closest maintained pastoral bore (Mohammed's bore – Wanarra Station) is approximately 7 km south-southeast of the closest discharge point. Wanarra station is currently destocked.

Macs Bore and Rothsay Well (approximately 6 km away) are historical bores previously used for pastoral purposes.

Evaporation Pond

The evaporation pond was designed on the assumption that seepage is acceptable given the water is from groundwater originally and far enough from underground mining to prevent recirculation back into dewatering activities (SLR 2022b).

As shown in Figure 2 groundwater levels for monitoring bores in close proximity to the evaporation pond have risen (ranging between 6 m -16 m below ground surface) since dewater discharge commenced and discharge to the ephemeral drainage line ceased (cessation due to TDS levels above licence discharge limit – refer to Table 3).

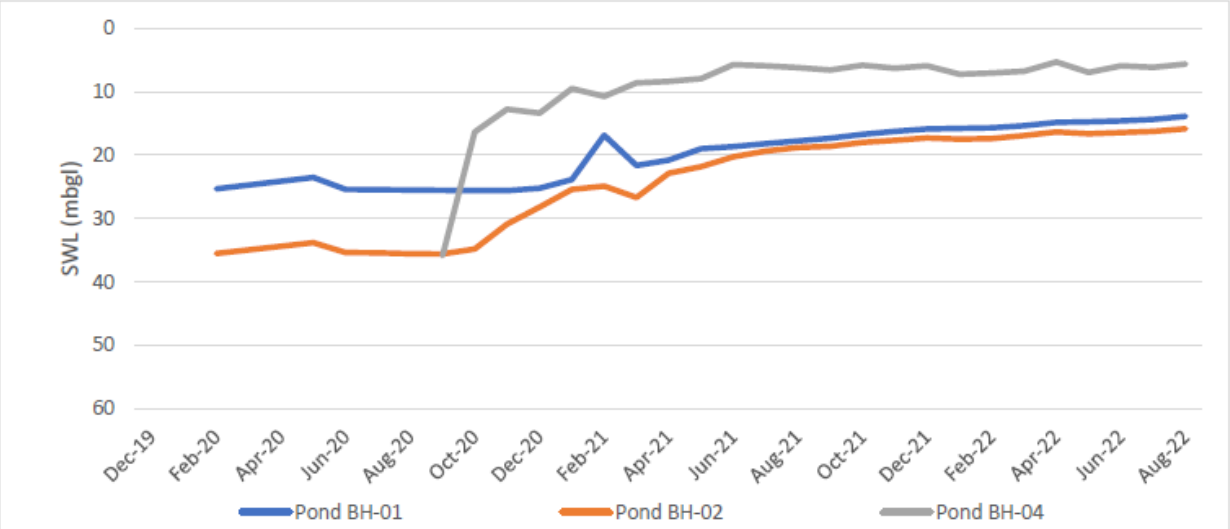

Figure 2: Evaporation Pond monitoring bore Standing Water Level (SWL)

To ensure groundwater with elevated TDS is not impacting the root zone of vegetation adjacent to the evaporation pond, the Licence Holder is proposing that Warning and Action Trigger levels associated with SWL are applied to monitoring bores Pond BH-01; Pond BH-02; and Pond BH-04 (refer to section 3).

Ephemeral drainage line

Dewatered mine groundwater has been discharged to the ephemeral drainage line during the1990s and during early operations at the Premises.

Groundwater levels for monitoring bores located in close proximity to the ephemeral drainage line (ranging between 4 m – 100 m from the drainage line) range between 20 m to 55 m and are not interacting with the upper surface, which indicates groundwater is not rising and carrying salts to the land surface (Botanica Consulting 2022).

Condition 17 of the existing licence requires vegetation monitoring to be conducted in line with the *Vegetation Monitoring Operating Procedure* (Egan Street Rothsay Pty Ltd, June 2021).

The factors that were considered as having potential to affect the health of vegetation in or near the drainage line included:

- Waterlogging / change in soil moisture content
- Erosion
- Increased competition by weeds.

Botanica Consulting 2022 states that "*based on the findings of the vegetation monitoring, discharge activities have had little to no impact on the condition of the vegetation along the*

ephemeral drainage line. There has been no evidence of significant water logging, erosion or increased competition by weeds during the vegetation monitoring program. As a result, no mitigation/ management measures have been required to be implemented during the drainage line discharge".

Botanica Consulting 2022, states that there are no known Priority Flora records within the downstream ephemeral drainage line (based on the Department of Biodiversity, Conservation and Attractions (DBCA) database records and existing flora survey records), however eight Priority Flora have been previously recorded as occurring within 200 m of the ephemeral drainage line (Table 4). Only one of the eight Priority Flora species has the potential to occur within the drainage line habitat; *Bossiaea* sp. Jackson Range (G. Cockerton & S. McNee LCS 13614). This taxon has not been identified within the drainage line during vegetation monitoring, previous flora surveys or on DBCA database records.

Table 4: Priority Flora in close proximity to the ephemeral drainage line

Taxon	Rank	Associated Habitat
Acacia karinae	Priority 1	Red-brown silty clay loam with ironstone pebbles, banded ironstone, shalestone. Rocky slopes.
Allocasuarina tessellata	Priority 1	Loam, sand. Greenstone & dolerite boulders.
Bossiaea sp. Jackson Range (G. Cockerton & S. McNee LCS 13614)	Priority 3	Tall shrublands on granite breakaway, drainage lines in sandy loam.
Grevillea subtiliflora	Priority 3	Red-brown loam.
Lepidosperma sp. Blue Hills (A. Markey & S. Dillon 3468)	Priority 1	Hill slopes, breakaways and rocky outcrops of laterite, granite, banded ironstone and sandstone rock.
Persoonia pentasticha	Priority 3	Sand, loam. Base of granite outcrops.
Rhodanthe collina	Priority 3	Loam. Rocky hills.
Stenanthemum poicilum	Priority 3	Red clay or sandy clay, loam.

Based on the above and the department's risk assessment (refer to section 3). No additional controls will be imposed for the increase in mine dewater discharge or increase to the TDS limit for the evaporation pond and ephemeral drainage line.

2.2.2 Additional landfills

To assist with life of mine operational management, the Licence Holder is proposing to construct three separate additional landfills, primarily for the acceptance and disposal of putrescible waste. The landfills will involve the excavation of trenches, with an indicative sizing of 3 m (width) x 20 m (length) and will be located:

- LF1 – within a historical disturbance area to southwest of mining area;
- LF2 - within existing borrow pit footprint northwest of the currently Woodley Pits landfill location; and
- LF3 – within a historical disturbance area west of the evaporation / infiltration pond.

Refer to Table 8 for the department's risk assessment; and section 5.1 for summary of amendments.

2.2.3 WWTP

The existing 25 m^3/day WWTP uses an active biological treatment process using a Submerged Aerated Filter (SAF).

The Licence Holder has identified that an effluent polishing unit is required to assist with achieving design quality parameters. With the inclusion of the polishing unit, the maximum design capacity of the WWTP has been estimated at 35 m^3/day. Treated effluent results compared to design wastewater outputs are shown in Table 5.

Table 5: WWTP treated effluent results (SLR 2022a)

Date	pH	BOD	TSS	Total residual chlorine	Total Nitrogen	Total Phosphorus	*E.coli*
	pH unit	mg/L	mg/L	mg/L	mg/L	mg/L	cfu/100mL
24/11/2021	7.6	68	56	<0.01	31.7	4.52	120,000
09/12/2021	8.57	62	36	<0.01	39.8	5.06	550,000
Design Outputs	**6.5 - 8.5**	**N/A**	**<30**	**0.2 - 2.0**	**<36**	**<9**	**<1,000**

The WWTP upgrade design is shown in Figure 3.

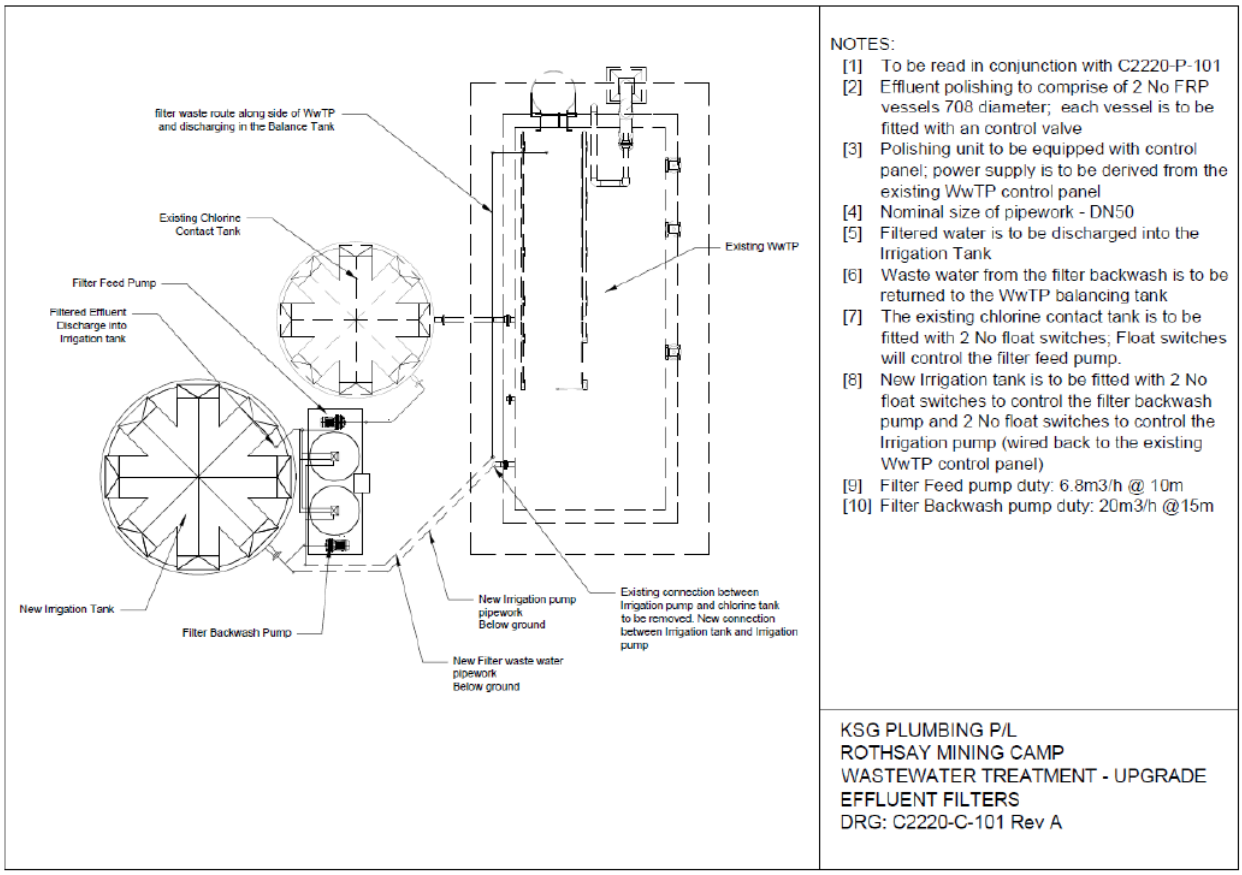

Figure 3: WWTP upgrade design

The Licence Holder has also reviewed their sprayfield discharge and identified that additional sprinklers installed within the existing footprint will allow for greater flexibility to improve distribution of treated wastewater.

Refer to Table 8 for the department's risk assessment; and section 5.1 for summary of amendments.

2.2.4 Other requested changes

The Licence Holder has also requested the following licence corrections:

- Table 10 Emissions and discharges monitoring.

Stating "*The corresponding Monitoring Location (Column 2) for the GMF discharge point is incorrect. RYME10 is located to the NW of the mining area and is not a groundwater emission or discharge location. It is proposed this location is removed from Table 10."*

Within *L9293/2021/1 Decision Report* - Appendix 1, it is stated that "*Alternative bore provided as part of the consultation (2/11/2021).*" Then under department's response it is stated "*included RYME10, located approximately 2.5km to the north west of the British Queen shaft, for comparison bore to the GMF*."

The department has retained RYME10 within Table 10 of the existing licence.

- Table 11 Monitoring of ambient concentrations

Stating "The Location (Column 1) identifies supply bores RYMP1, RYMP2 RYMP3 and RYMP4 as including monitoring parameter (Column 2) for SWLs. It is commented that SWLs are not achievable from active production bores due to installed infrastructure. It is requested that a note be included to Table 11 that Production bores (RYMP1-4) do not require SWL measurements."

The department has made the requested change.

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 operation which have been considered in this Amendment Report are detailed in Table 6 below. Table 6 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 6: Licence Holder controls (SLR 2022b)

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Movement of vehicles and equipment for landfill cell/trench construction	Air/windborne pathway	*L9293/2021/1 Decision Report* states that the "*Applicant uses water carts to wet down roads and exposed surfaces*."
Noise		Air/windborne pathway	*L9293/2021/1 Decision Report* states the following: • *"Mining operations implemented in compliance with the noise regulations under the Mines Safety and Inspection Act 1994, the Mines Safety and Inspection Regulations*

Emission	Sources	Potential pathways	Proposed controls
			1995 and the Environmental Protection (Noise) Regulations 1997."
Operation			
Category 6			
Dewatering water with dispersive tailings	Increase in mine dewatering water to TSF – GMF causing overtopping of embankment or pipeline breaches	Direct discharge	Conditions on existing licence relating to: • Internal inspections once per shift; • Spillway designed to hold 100 year Average Recurrence Interval (ARI) 72 hour duration; and • Maintain 500 mm freeboard.
	Increase in mine dewatering water to TSF – GMF causing seepage through the base and walls	Infiltration	Conditions on existing licence relating to monitoring requirements for the GMF.
Dewatering water	Increase in volume and TDS levels of mine dewatering water discharged to the evaporation pond leading to overtopping of embankments or pipeline breaches	Direct discharge	Conditions on existing licence relating to operational requirements and inspection regime.
	Increase in volume and TDS levels of mine dewatering water discharged to the evaporation pond resulting in seepage through the base and walls	Infiltration	Conditions on existing licence relating to monitoring requirements for the evaporation pond. The following actions will be implemented based on the trigger levels being reached: • Should the warning trigger level (where the groundwater level comes within 6 m of the natural ground surface) be reached the following actions will be taken: o notify the Registered Mine Manager and Licence Holder's Environment Manager within 24 hours of the breach; o commence weekly monitoring of groundwater bores Pond BH-01, Pond BH-02 and Pond BH-04; o review the water level data for groundwater bores Pond BH-

Emission	Sources	Potential pathways	Proposed controls
			01, Pond BH-02 and Pond BH-04 fortnightly to identify any continuing adverse trends; • Should the action trigger level (where the groundwater level comes within 4 m of the natural ground surface) be reached the following action will be taken: ○ notify the department within 5 days of action trigger limit record and provide a description of actions that will be taken to mitigate impacts; ○ commence daily monitoring of water level in groundwater bores Pond BH-01, Pond BH-02 and Pond BH-04; ○ review the water level data for groundwater bores Pond BH-01, Pond BH-02 and Pond BH-04 weekly to identify any continuing adverse trends; ○ discuss the actions implemented and assessment of monitoring data within the Annual Environmental Report; and ○ cease discharge to the evaporation pond within 2 months of action trigger limit being recorded if the water level in groundwater bores Pond BH-01, Pond BH-02 and Pond BH-04 has not started to decline. • Flow meters will be maintained to measure volume of water discharged to the environment.
	Increase in volume and TDS levels of mine dewatering water discharged to the ephemeral drainage line	Direct discharge	Conditions on existing licence relating to: • Maximum 20 L/s discharge rate; • Maximum 7 days continuous discharge; • Minimum 7 days of 'no discharge' between each discharge event; • Vegetation monitoring as per the Vegetation Monitoring Procedure; and • Groundwater sampling monthly at

Emission	Sources	Potential pathways	Proposed controls
			discharge location. Pipelines located in bunds to direct flow of water into previously disturbed areas in the event of pipe leak. Weekly inspections will identify if erosion is occurring and the following will be implemented: • Reducing the flow velocity; and/or • Installing erosion management infrastructure to slow water velocity (coir logs etc.). Flow meters will be maintained to measure volume of water discharged to the environment.
Category 64			
Dust	Movement of vehicles, equipment and cover material for trenches	Air/windborne pathway	*L9293/2021/1 Decision Report* assessed the operation of the inert and putrescible landfill trenches in Woodleys Pits. Conditions on existing licence relating to construction, operation and decommissioning of landfill trenches; waste processing; and cover requirements. Earthen bunding around the landfill to divert stormwater from the cells.
Windblown waste	Waste that are uncovered and become windblown	Air/windborne pathway	
Contaminated stormwater	Rainfall ingress into the landfill area becoming contaminated	Direct discharge	
Category 85			
Raw sewage	Overtopping or pipeline breaches	Direct discharge	No additional controls proposed outside of those previously assessed within *L9293/2021/1 Decision Report* for the WWTP.
Treated effluent	Planned discharges to irrigation field	Direct discharge	
Contaminated stormwater	Rainfall ingress into the WWTP and irrigation area becoming contaminated	Direct discharge	

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 7 below provides a summary of potential 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 7: Environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Rights in Water and Irrigation Act 1914	Premises within the Proclaimed Gascoyne Groundwater Area.
Groundwater	Depth to groundwater encountered at approximately 11 – 55 m below ground level (mbgl) and quality is classed as brackish at approximately 6,000 mg/L TDS.
Surface water	There is no permanent surface water in within the Premises boundary. Ephemeral drainage lines located greater than 300 m from proposed new landfills.

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 incomplete 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 8.

The Revised Licence L9293/2021/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises.

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

Table 8. Risk assessment of potential emissions and discharges from the Premises during construction and 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**				
Construction								
Vehicle movements Earthworks from machinery to construct landfill trenches and upgrades to the WWTP	Dust	Air/windborne pathway impacting adjacent vegetation resulting in degradation due to reduced photosynthetic capacity	Adjacent vegetation	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	The general provisions of the EP Act with respect to the causing of pollution and environmental harm applies.	N/A
	Noise			Refer to Section 3.1	C = Slight L = Rare **Low Risk**	Y	No conditions imposed. The *Environmental Protection (Noise) Regulations 1997* apply.	N/A
Operation								
Category 6: Mine dewatering								
Increase in mine dewatering water to TSF – GMF	Dewatering water with dispersive tailings	Direct discharges from overtopping of embankment or pipeline breaches resulting in pooling of water around vegetation and impacting on photosynthesis	Adjacent vegetation	Refer to Section 3.1	C = Moderate L = Rare **Medium Risk**	Y	No additional conditions required: Conditions on existing licence for the GMF relating to: • Condition 1 – operational requirements; • Condition 2 – inspection of infrastructure; and • Condition 8 – authorised discharge points.	N/A
		Seepage through the base and	Groundwater suitable for	Refer to Section 3.1	C = Moderate	Y	No additional conditions required:	N/A

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**				
		walls causing groundwater mounding and contaminating groundwater	stock quality 50 mbgl		L = Possible **Medium Risk**		Conditions on existing licence for the GMF relating to: • Condition 13 – emissions and discharges monitoring; and • Condition 14 – monitoring of ambient concentrations.	
Increase in volume of mine dewatering water discharged to evaporation pond	Dewatering water with increased levels of TDS	Direct discharges from overtopping of embankment or pipeline breaches resulting in pooling of water around vegetation and impacting on photosynthesis	Vegetation along pipeline route	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	No additional conditions required: Conditions on existing licence for the evaporation pond relating to: • Condition 1 – operational requirements; • Condition 2 – inspection of infrastructure; and • Condition 8 – authorised discharge points.	N/A
		Seepage through the base and walls causing groundwater mounding and contaminating groundwater	Groundwater suitable for stock quality 50 mbgl	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 14 on existing licence relating to monitoring of ambient concentrations for the evaporation pond bores.	During this amendment condition 14 has been updated to include Pond BH-01, Pond BH-02 and Pond BH-04 under the Warning and Action Trigger Levels for SWL as requested by Licence Holder.

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**				
Increase in volume of mine dewatering water discharged to ephemeral drainage line		Direct discharge impacting vegetation health within and adjacent to the drainage line	Vegetation along discharge route	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	No additional conditions required: Conditions on existing licence for the ephemeral drainage line relating to: • Condition 1 – operational requirements; • Condition 2 – inspection of infrastructure; • Condition 8 – authorised discharge points; • Condition 13 – emissions and discharges monitoring; and • Condition 17 – vegetation monitoring.	N/A
Category 64: Class II putrescible landfill site								
Additional landfill cells and trenches for waste disposal	Dust	Air/windborne pathway from movement of vehicles, equipment and cover material for trenches impacting on photosynthesis	Vegetation	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	No additional conditions required: Condition 5 on existing licence requires minimum tipping face and dust suppression.	*N/A*
	Windblown waste	Air/windborne pathway from wastes that are uncovered and	Vegetation, fauna, and livestock		C = Slight L = Unlikely	*Y*	No additional conditions required: Conditions on existing	N/A

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**				
		become windblown littering and attracting fauna			**Low Risk**		licence relating to: • Condition 6 – management of windblown waste; and • Condition 7 – cover requirements.	
	Contaminated stormwater	Ephemeral drainage lines greater than 300 m from new landfill locations	Vegetation, ephemeral drainage lines		C = Slight L = Unlikely **Low Risk**	Y	No additional conditions required: Conditions on existing licence relating to: • Condition 3 – waste processing; and • Condition 4 – stormwater management.	During this amendment LF1, LF2 and LF3 have been added to conditions 1, 2 and 3 as requested by Licence Holder.
Category 85: Sewage facility								
WWTP upgrades	Raw or untreated sewage	Direct discharge from overtopping, pipeline breaches causing contamination	Vegetation in pathway of spill	Refer to Section 3.1	C = Moderate L = Rare **Medium Risk**	Y	No additional conditions required: Conditions on existing licence relating to: • Condition 2 – inspection of infrastructure; and • Condition 8 – authorised discharge point.	N/A
	Treated effluent	Direct discharge from planned discharges to sprayfield resulting in	Vegetation		C = Slight L = Unlikely **Low Risk**	Y	No additional conditions required: Conditions on existing licence relating to:	N/A

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**				
		nutrient loading					• Condition 1 – operational requirements; • Condition 3 – waste processing; and • Condition 13 – water quality monitoring.	
	Contaminated stormwater	Rainfall ingress into the WWTP and irrigation area becoming contaminated	Ephemeral drainage lines		C = Slight L = Unlikely **Low Risk**	Y	No additional conditions required: Condition 4 on existing licence relates to stormwater management.	N/A

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

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

4. Consultation

Table 9 provides a summary of the consultation undertaken by the department.

Table 9: Consultation

Consultation method	Comments received	Department response
Licence Holder was provided with draft amendment on 31/01/2023	The Licence Holder responded on 07/02/2023 (SLR 2023) addressing questions raised by the department in the draft Licence and Amendment Report; and waiving the remaining consultation period Note: No comments were received on the draft documents	Licence and Amendment Report updated as required

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 10 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 10: Summary of licence amendments

Condition no.	Proposed amendments
Prescribed premises category description	During this amendment, design capacity for category 6 has increased from 499,000 to 595,000 tonnes per annual period.
	During this amendment, design capacity for category 85 has increased from 25 to 35 m^3/day.
1	Naming reference for infrastructure location has been updated to align with Figure 2.
1 Putrescible trenches	Inclusion of LF1 Class II/III Landfill; LF2 Class II/III Landfill; and LF3 Class II/III Landfill as locations for putrescible trenches.
1 Irrigation Area for WWTP discharge	Removal of reference to ‘four’ sprinkler areas and instead changed this to ‘multiple sprinkler areas’, as the Licence Holder has identified that additional sprinklers installed within the existing footprint will allow for greater flexibility to improve the distribution of treated wastewater.
2	Inclusion of LF1, LF2 and LF3 to the inspection regime for windblown waste.
3	Increase in process limit for sewage

Condition no.	Proposed amendments
3 Putrescible waste	Inclusion of LF1, LF2 and LF3 to allow disposal of putrescible waste to these locations.
8	Naming reference for discharge point locations has been updated to align with Figure 2.
9	TDS limits for discharge points to evaporation pond and ephemeral drainage line changed to 25,000 mg/L.
20, 22 and 23	Administrative changes as wrong table / condition referenced.
Schedule 1: Maps	Inclusion of a new Figure 2.
Schedule 2: Monitoring Table 10	Naming reference for TSF GMF has been updated to align with Figure 2.
Schedule 2: Monitoring Table 11	Inclusion of footnote 2 to stipulate that the supply bores do not require SWL to be monitored.
	Inclusion of Pond BH-01, Pond BH-02 and Pond BH-04 to the Warning and Action Trigger Levels for SWL.

References

1. Botanica Consulting 2022, *Memorandum: Technical Review of Prescribed Premise Licence (L9293/2021/1) Groundwater Emission and Discharge Limits*, 30 September 2022.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
5. L9293/2021/1 Decision Report, available at IR-T13 Decision report template (short-form) (der.wa.gov.au).
6. Silver Lake Resources Limited (SLR) 2022a, *Silver Lake (Rothsay) Pty Ltd – Rothsay Operations 2021 Annual Environmental Report L9293/2021/1*, 22 February 2022.
7. SLR 2022b, *Silver Lake (Rothsay) Pty Ltd - Rothsay Mine, DWER Prescribe Premises Licence L9293/2021/1 Amendment Application, Attachment 8 – Additional Information Groundwater Discharge and Landfill Operations*, 6 October 2022.
8. SLR 2023, *RE: Notification: Proposed Amendment to Licence L9293/2021/1 – Attn: Steven Kinsey*, dated 7 February 2023.

Appendix 1: Application validation summary

<table>
<tr><th colspan="6">SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)</th></tr>
<tr><td colspan="6">Application type</td></tr>
<tr><td rowspan="2">Amendment to licence</td><td rowspan="2">☒</td><td>Current licence number:</td><td colspan="3">L9293/2021/1</td></tr>
<tr><td>Relevant works approval number:</td><td>W6195/2018/1</td><td>N/A</td><td>☐</td></tr>
<tr><td colspan="2">Date application received</td><td colspan="4">06/10/2022</td></tr>
<tr><td colspan="6">Applicant and Premises details</td></tr>
<tr><td colspan="2">Applicant name/s (full legal name/s)</td><td colspan="4">Silver Lake (Rothsay) Pty Ltd.</td></tr>
<tr><td colspan="2">Premises name</td><td colspan="4">Rothsay Mine (Rothsay Gold Project)</td></tr>
<tr><td colspan="2">Premises location</td><td colspan="4">Mining Tenements M59/39, M59/40 and L59/24
PERENJORI WA 6620</td></tr>
<tr><td colspan="2">Local Government Authority</td><td colspan="4">Shire of Perenjori</td></tr>
<tr><td colspan="6">Application documents</td></tr>
<tr><td colspan="2">HPCM file reference number:</td><td colspan="4">DER2021/000158</td></tr>
<tr><td colspan="2">Key application documents (additional to application form):</td><td colspan="4">Attachment 8 – Additional Information Groundwater Discharge and Landfill Operations including:
Appendix A – Tenement Summaries;
Appendix B – Stakeholder Consultation Record; and
Appendix C – Technical Review of Prescribed Premise Licence (L9293/2021/1) Groundwater Emission and Discharge Limits.</td></tr>
<tr><td colspan="6">Scope of application/assessment</td></tr>
<tr><td colspan="2">Summary of proposed activities or changes to existing operations.</td><td colspan="4">Licence amendment for the following:
Category 6:
Increase the TDS limit at both the Evaporation Pond and Ephemeral Drainage Line to 25,000 mg/L; and
Increase the throughput to 595,000 tonnes per year.
Category 64:
Construction and operation of additional landfill trenches.
Cat 85:
Installation of an additional effluent polishing unit to existing WWTP.
Increase the throughput to 30 m^3 per day.</td></tr>
</table>

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

Table 1: Prescribed premises categories

Prescribed premises category and description	Assessed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 6: Mine Dewatering	499,000 tonnes per annum (permanent discharge to groundwater management facility (GMF) and Evaporation / Infiltration Pond).	Increase the throughput of discharge to 595,000 tonnes per annum.
Category 64: Class II or III putrescible landfill site (amendment)	500 tonnes per annum.	N/A
Category 85: Sewage Facility (amendment)	Throughput of 25 m^3 per day.	Increase the throughput to 30 m^3 per day.

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes ☐ No ☒	Managed under Part V ☒
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☐ No ☒	
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Mining lease / tenement ☒ M59/39-I and M59/40-I Expiry: 03/12/2028 L59/24 Expiry: 21/08/2024
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☐ N/A ☒	No further planning approvals required.
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☒ No ☐	CPS No: CPS 8855/1
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	Application reference No: N/A Licence/permit No: N/A

Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☒ No ☐	Application reference No: 046304 Licence/permit No: GWL175275/6
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☒ No ☐	Name: Gascoyne Groundwater Area Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes ☐ No ☐ N/A ☒ Regional office: Mid-West Gascoyne
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes ☐ No ☐ N/A ☒
Is the Premises subject to any other Acts or subsidiary regulations (e.g. *Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx*)	Yes ☒ No ☐	*Dangerous Goods Safety Act 2004* *Environmental Protection (Controlled Waste) Regulations 2004*
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ☐ No ☒	
Is the Premises subject to any EPP requirements?	Yes ☐ No ☒	
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☒ No ☐	Classification: possibly contaminated – awaiting classification Date of classification: N/A