Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Licence

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

Licence Number	L3027/2025/1
Applicant	FMR Investments Pty Ltd
ACN	009 411 349
Application number	APP-0028894
Premises	Barbara Surprise Project Part of Lot 103 on Deposited Plan 40395 Certificate of Title Volume 2668 Folio 419 Great Eastern Highway, Coolgardie, WA 6429 As defined by the coordinates in Schedule 2 of the licence
Date of report	23 September 2025
Decision	Licence granted

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the operation of the premises. As a result of this assessment, licence L3027/2025/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary and overview of premises

On 26 May 2025, FMR Investments Pty Ltd (the applicant) applied to the department for a licence under section 57 of the *Environmental Protection Act 1986* (EP Act).

The application relates to the operational activities for the dewatering from Bakers Flat Pit into Surprise Pit, at Barbara Surprise Project (the premises).

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in licence L3027/2025/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in licence L3027/2025/1.

2.2.1 Background and instrument history

The Barbara Surprise Project is a historic gold mining site about 7 km east of Coolgardie. In 2008, mining at the premises ceased. Since then, Bakers Flat Pit and Surprise Pit have flooded and developed pit lakes.

On 11 April 2025, works approval W2922/2025/1 was issued to the premises to authorise the construction and time limited operations of the Bakers Flat Pit to Surprise Pit pipeline (DWER, 2025d). Construction works were completed in a very short duration and finished on 14 April 2025. The department considered the works compliant with Works Approval W2922/2025/1 on 11 June 2025 (DWER, 2025a & 2025b). There have been no complaints lodged to the department regarding unauthorised activities at the site (DWER, 2025c).

2.2.2 Overview of dewatering activities

Dewater from the existing Bakers Flat pit lake will be pumped 1 km into Surprise Pit. From Surprise Pit, water will be primarily supplied to the Greenfields Mill toll treatment facility (Greenfields Mill) via pipeline. The Mill is about 6.3 km northwest of the premises for mineral processing activities. Water will also be used for mining and dust suppression activities. The Greenfields Mill is owned and operated by the applicant under licence L4680/1988/13.

2.2.3 Surprise Pit Water balance

In 2024, the applicant commissioned a Pit Lake Hydrogeological study from CMW Geosciences titled Barbara Surprise Mining Area – Pit Lake Hydrology Study (CMW, 2024) to determine whether Surprise Pit had sufficient capacity to store the proposed dewatering volumes generated as part of the planned mining of the Bakers Flat and Shirl Pits. The study determined Surprise Pit would maintain capacity given that dewatering from the two pits are staged and

surplus water is sent to the Greenfields Mill.

Surprise Pit contains a pit lake volume of 34,434 killolitres (kL) and has a remaining capacity of 406,385 kL up to 6 m below the pit crest. The volume of the Bakers Flat pit lake (389,000 kL) can be contained within Surprise Pit and leave a 16 m freeboard. The applicant estimates that the initial transfer of water from Bakers Flat Pit (stage 1) would take two months at a rate of up to 300 kL per hour. Pumping from Surprise Pit to Greenfields Mill will occur at the same time at a nominal rate of 100 kL per hour. After the initial transfer of water, pumping in Bakers Flat Pit will be reduced to 10,160 kL per month (<100,000 kL per year) for the purpose of managing groundwater infiltration. Surprise Pit will also continue to be pumped to maintain capacity for stage 2 dewatering operations with no change in pumping rate.

Freeboard at Surprise Pit will be monitored by calculating the discharge water volumes against abstraction, evaporation and surface water inflow rates. Losses due to pumping to the mill, evaporation and seepage to groundwater are expected to outweigh gains from precipitation, pits and groundwater inflows. The applicant expects groundwater outflows from Surprise Pit when pit lake level is filled above pre-mining water levels (about 17.5 m below the pit crest). Losses to groundwater are expected to be about 75,000 kL over four months during stage 1. When water levels are below pre-mining water levels, groundwater is expected to flow back into the pit.

2.2.4 Water quality

The water quality between the pit lakes is similar to each other as presented in Table 1. The pH is near neutral and heavy metal concentrations are low. However, some variations are evident: Surprise Pit exhibits elevated levels of nitrate and arsenic, while Bakers Flat shows higher concentrations of aluminium (depicted in bold text in Table 1). The dominant salinity type is sodium chloride, with magnesium and sulphate present in lower concentrations.

The salinity levels in the pit lakes are consistent with historical measurements of local groundwater, which range from saline to hypersaline, reaching up to 150,000 mg/L total dissolved solids. As such, groundwater is only used for mining purposes, with no other reported groundwater users in the area.

Table 1: Barbara Surprise Pit Lake Major Component Analysis Results 2024

Characteristic	Units	Surprise Pit Lake (2024)	Bakers Flat Pit Lake (2024)
pH	-	7.6	7.7
Electrical Conductivity (EC)	µS/cm	120,000	120,000
Total Dissolved Solids (TDS)	mg/L	120,000	100,000
Bicarbonate Alkalinity (HCO3)		360	190
Carbonate Alkalinity (CO3)	mg/L	<5	<5
Sulphate (SO4)		10,000	7,700
Sodium (Na)		31,000	33,000
Nitrate (NO3)		**5.5**	<0.02
Chloride (Cl)		63,000	58,000
Potassium (K)		390	320
Calcium (Ca)		800	590
Magnesium (Mg)		7,100	4,500
Aluminium (Al)		<0.05	**0.12**
Arsenic (As)		**0.29**	0.021
Cadmium (Cd)		<0.0005	0.00075

Characteristic	Units	Surprise Pit Lake (2024)	Bakers Flat Pit Lake (2024)
Chromium (Cr)		<0.005	0.056
Copper (Cu)		<0.005	<0.005
Iron (Fe)		<0.05	<0.05
Lead (Pb)		<0.005	<0.005
Manganese (Mn)		0.71	0.11
Nickel (Ni)		0.086	0.31
Zinc		<0.005	0.068

3. Other relevant approvals

3.1.1 Access Agreement with Northern Star Resources Limited

On 1 August 2024, an access agreement in the form of a Special Lease was granted by subsidiaries of Northern Star Resources Limited, Northern Star (Hampton Gold Mining Areas) Limited (landowner) and Northern Star (HBJ) Pty Ltd (the lessee). The Special Lease authorises the applicant access to Lot 103 on Deposited Plan 40395 Certificate of Title Volume 2668 Folio 419 (the premises) for the purposes of constructing, operating and maintaining the Barbara Surprise Pipelines to access the Barbara Surprise Pit water and provide the Greenfields Processing Site (Greenfields Site) with an alternative water source.

3.1.2 Groundwater licence

On 19 June 2024, the applicant applied to the department to amend groundwater licence GWL173070(5) (Application 065002) to authorise the abstraction of water from Bakers Flat Pit, and Surprise Pit. Groundwater licence GWL173070(6) was granted on 5 March 2025 to draw 1,500,000 kilolitres per annum from the Goldfields, Roe, Palaeochannel. It is the responsibility of the applicant to ensure all approvals are obtained and complied with.

4. 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.

4.1 Source-pathways and receptors

4.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this decision report are detailed in Table 2 below. Table 2 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Operation			

Saline mine water	Transfer of mine dewater between pits – pipeline leaks	Direct discharge to land	• The dewatering discharge pipeline has been constructed using materials that meet applicable Australian/New Zealand Standards including:
			  ○ AS/NZS 4129:2008 Fittings for polyethylene pipes for pressure applications;
			  ○ AS/NZS 4130:2009 Polyethylene pipes for pressure applications; and
			  ○ AS/NZS 4131:2010 Polyethylene compounds for pressure pipes and fittings.
			• The dewatering discharge pipeline is located within earthen bunded corridors to ensure leaks or spills are contained;
			• The dewatering discharge pipeline is located well over the Surprise Pit crest to reduce exposure to wind and prevent scouring of pit walls;
			• The dewatering discharge pipeline has been fitted with isolation valves or automatic leak detection sensors;
			• Undertake daily inspections (when in use) of the dewatering pipelines; and
			• Shutdown the pipeline, if any leaks or spills from pumps or pipelines are detected, until the leak has been verified and/or repaired.

	Disposal into pit lakes	Groundwater mounding	Ensure that the Surprise Pit lake is below the maximum water level of 350 m AHD (i.e., 6 m below the surrounding ground surface).
		Overtopping	• Ensure that the Surprise Pit lake is below the maximum water level of 350 m AHD (i.e., 6 m below the surrounding ground surface); • Install flow meters and record the volume of water discharged each month: • Monthly monitoring of pit lake water level (freeboard capacity) and quality via drone surveys and

Emission	Sources	Potential pathways	Proposed controls
			• If required, reduce discharge volumes into Surprise Pit and/or prioritise abstraction from Surprise Pit.
		Seepage	• Ensure that the Surprise Pit lake is below the maximum water level of 350 m AHD (i.e., 6 m below the surrounding ground surface); • Install flow meters and record the volume of water discharged each month: • Monthly monitoring of pit lake water level (freeboard capacity) and quality; and • If required, reduce discharge volumes into Surprise Pit and/or prioritise abstraction from Surprise Pit.

4.1.2 Receptors

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

Table 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

Human receptors	**Distance from prescribed activity**
Town of Coolgardie	Approximaltey 7.5km east of the premises **Screened out due to distance**
Environmental receptors	**Distance from prescribed activity**
Native Vegetation	Immediately outside the abandonment bunds of pits and along the pipeline routes.
Groundwater	The ambient groundwater levels at the premises are between 20 to 40 meters beneath the natural surface. Most of the groundwater is saline to hypersaline (Electrical Conductivity ~120,000 µS/cm). Groundwater is only used for mining purposes, with no other reported groundwater users in the area.

4.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 4.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 4.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

Licence L3027/2025/1 that accompanies this decision report authorises emissions associated with the operation of the premises i.e. dewatering activities.

The conditions in the issued licence, as outlined in Table 4 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 events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of licence	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Operation								
Transfer of mine dewater between pits	Saline mine water	**Pathway:** Direct discharge to land from pipeline leaks or rupture. **Impact:** Water inundation and salt intrusion impacting plant health.	Native vegetation	Refer to Section 4.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1: Infrastructure and equipment requirements Condition 2: Secondary containment	The Delegated Officer has determined that the proposed controls (bunding, telemetry etc) will be sufficient to control impacts from pipeline spills. Applicants' proposed controls have been conditioned in the licence.
Disposal into Suprise pit	Saline mine water	**Pathway:** Seepage into groundwater **Impact:** Mounding of the groundwater table causing water inundation and salt intrusion of the root zone impacting plant health.	Native vegetation Groundwater	Refer to Section 4.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 3: Discharge point Condition 4: Freeboard limit Condition 5: Discharge monitoring	The Delegated Officer has determined that the proposed controls will be sufficient to prevent groundwater mounding. Applicants' proposed controls have been conditioned in works approval.
		Pathway: Overtopping **Impact:** Water inundation and salt intrusion of the impacting plant health.	Native vegetation	Refer to Section 4.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 4: Freeboard limit Condition 5: Discharge monitoring	The Delegated Officer has determined that the proposed controls (freeboard requirements) will be sufficient to prevent overtopping. Applicants' proposed controls have been conditioned in the

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
								licence.

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

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

5. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 28/07/2025	None received	N/A
Shire of Coolgardie advised of proposal on 28/07/2025	None received	N/A
Applicant was provided with draft documents on 17 Septmeber 2025	Applicant responded on 19/9/2025 waiving the comment period.	Noted.

6. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Botanica Consulting 2024, *FMR Investments Pty Ltd Barbara Surprise Pit Dewatering Discharge Works Approval Application Supporting Information*, Revision 1, Perth Australia
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. DWER 2025a, *APP-0028894 - W2922 - FMR Investments - Compliance Assessment*, Joondalup, Western Australia
6. DWER 2025b, *APP-0028894 - W2922 - FMR Investments - Compliant Letter*, Joondalup, Western Australia.
7. DWER 2025c, *Incidents and complaints management system*, Joondalup, Western Australia
8. DWER 2025d, *W2922 - FMR - Barbara Surprise - Works approval*, Joondalup, Western Australia