



Application for Licence Amendment

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

Licence Number	L8422/2010/2
Licence Holder	Edna May Operations Pty Ltd
ACN	136 365 001
File Number	DER2017/000298-1
Premises	Edna May Gold Project Warrachuppin Road WESTONIA WA 6423 Legal description M77/88, M77/110, M77/124, G77/122 and L77/18
Date of Report	3 November 2021
Decision	Amendment Granted

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MANAGER – RESOURCE INDUSTRIES

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Licence L8422/2010/2 is held by Edna May Operations Pty Ltd (Licence Holder) for the Edna May Gold Project (the Premises), located at multiple mining tenements, Warrachuppin Road, Westonia. 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.

The Revised Licence issued for this amendment will consolidate and supersede the Licence previously granted in relation to the Premises. The Licence will be granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

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 Application summary

On 15 March 2021, the Licence Holder submitted an application to the department to amend Licence L8422/2010/2 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The application is for three additional embankment lifts to the existing active Integrated Waste Landform / Tailings Storage Facility (IWL/TSF) of 3m in height (9m total) (Table 1). The current stage 8 embankment relative level (RL) is 1362m and the final stage 11 would be 1371m (a resulting final height of 39m above ground level).

DMIRS advised that due to cracks identified in the existing embankment, a Mining Proposal for additional embankment raises will be required. DWER was advised on 29 October 2021 that a Mining Proposal for proposed stages 9 -11 was granted on 28 October 2021.

Table 1 Proposed IWL/TSF embankment lifts

Stage	Crest RL (m)	Storage volume (Mm ³)	Storage capacity (Mt)	Estimated life (years)
9	1365.0	2.75	3.76	1.30
10	1368.0	2.73	3.74	1.29
11 (final)	1371.0	2.66	3.64	1.26
Total		8.13	11.14	3.85

This amendment is limited only to changes to Category 5 activities from the Existing Licence. No changes to the aspects of the existing Licence relating to other categories have been requested by the Licence Holder. No changes to category throughput have been proposed.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guidance Statement: Risk Assessments* (DER 2017).

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 2 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

Emission	Sources	Potential pathways	Proposed controls
Construction – Tailings Storage Facility embankment lift			
Dust	Earthworks associated with embankment lifts and increased vehicle movements	Air/windborne pathway 9am wind direction towards the south-west ¹	<u>No new controls have been proposed.</u> <u>Existing control:</u> Condition 14 – no visible dust generated from the primary activities crosses the boundary of the premises
Noise	Earthworks associated with embankment lifts and increased vehicle movements	3pm direction variable, predominantly north-east ¹ , north westerly and south easterly directions also recorded.	<u>None specified</u> <i>Environmental Protection (Noise) Regulations 1997</i> apply
Operation – Tailings Storage Facility			
Dust	Erosion of deposited tailings and generation of dust	Air/windborne pathway 9am wind direction towards the south-west ¹ 3pm direction variable, predominantly north-east ¹ , north westerly and south easterly directions also recorded.	<u>No new controls have been proposed.</u> <u>Existing control:</u> Condition 14 – no visible dust generated from the primary activities crosses the boundary of the premises
Tailings and contaminated	IWL/TSF	Seepage through base and	Existing and proposed controls are listed in Appendix 1 – Seepage Management

Emission	Sources	Potential pathways	Proposed controls
Construction – Tailings Storage Facility embankment lift			
water Historical and on-going seepage (described in Appendix 1)		embankments of TSF to soil and groundwater	
Tailings and contaminated water	IWL/TSF	Overtopping of TSF and direct discharge to land and seepage to soil and groundwater	<u>No new controls have been proposed.</u> <u>Existing control:</u> Condition 4 – minimum embankment freeboard of 300mm or a 1 in 100 year/72 hour storm event
Tailings and contaminated water	Pipelines from process (existing pipelines used)	Tailings release due to pipeline leaks and spills	<u>No new controls have been proposed.</u> <u>Existing controls:</u> Condition 1 requiring that all pipelines containing tailings slurry, decant water, dewatering effluent or effluent are either: (a) Equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures; (b) Equipped with automatic cut-outs in the event of a pipe failure; or (c) Provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections

1. Climate summary statistics from the closest weather station Merredin (site 010092, 44km south-west of site).

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), 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 (*Guidance Statement: Environmental Siting* (DER 2016)).

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

Human receptors	Distance from prescribed activity
Town of Westonia	Directly abuts the southern prescribed premises

	boundary (Figure 1) 2km south of the TSF
Residential Premises	2km south of the TSF 100m south of the premises boundary
Environmental receptors	Distance from prescribed activity
Groundwater	25 – 30m bgl (Ramelius 2021) Annual environmental report 2020 indicates groundwater mounding in bores MB01 (8.11m bgl) and MB12 (7.08mbgl) (Figure 1) Saline: TDS 14,600mg/L to 27,000mg/L
Threatened Ecological Communities (TEC) Eucalypt woodlands of the Western Australian Wheatbelt (Priority 3 – critically endangered)	Immediately south of TSF (Figure 1)
Threatened and priority flora (not specified)	Closest listed as 450m south east of the TSF
Threatened and priority fauna (malleefowl)	Siting 25m from prescribed premises boundary at closest point
Minor seasonal creekline	Within prescribed premises boundary (400m north-east of TSF)

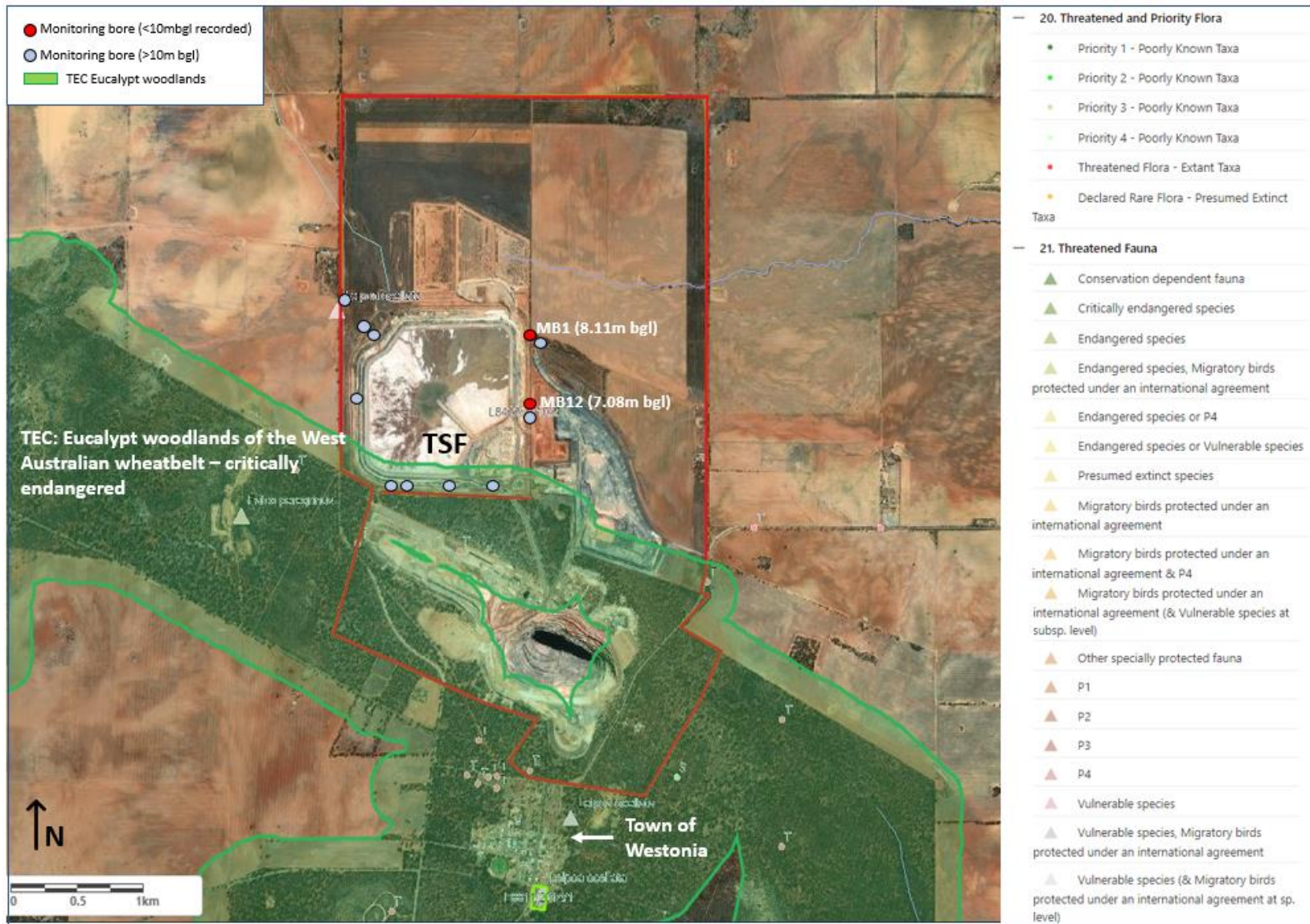


Figure 1: Distance to sensitive receptors (prepared by DWER Environmental Officer)

L8422/2010/2

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

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

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

The Revised Licence L8422/2010/2 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. category 5 activities.

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 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								
Earthworks associated with embankment lifts, increased vehicle movements	Dust	Air/windborne pathway causing impacts to threatened ecological communities, human health and amenity	Critically endangered eucalypt woodlands (immediately south of TSF) Residences and town of Westonia (2km south of TSF)	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	<u>Existing condition</u> Condition 14 – dust management	Existing controls considered sufficient (no dust to cross premises boundary)
	Noise	Air/windborne pathway causing impacts to human health and amenity	Residences and town of Westonia (2km south of TSF)	Refer to Section 3.1.1	C = Minor L = Unlikely Low Risk	Y	N/A	<i>Environmental Protection (Noise) Regulations 1997</i> apply
Operation								
Operation of TSF: deposition and storage of tailings and contaminated water (metalloids and cyanide)	Seepage (contaminated water)	Seepage associated with additional input through base and embankments causing mounding of groundwater, impacts to groundwater quality, threatened ecological communities and health of native vegetation.	Critically endangered eucalypt woodlands (immediately south of TSF) Native vegetation	Refer to Section 3.1.1	C = Moderate L = Possible Medium Risk	N	<u>Modification to existing conditions</u> Condition 33 – annual environmental reporting, modification to include vegetation monitoring <u>New conditions</u> Condition 14 – downhole geophysical logging of groundwater monitoring bores surround the TSF Condition 15 and 16 –vegetation health assessments Condition 17 - TSF construction	See Appendix 1

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				
							and operating heights Conditions 18 and 19 – compliance and reporting Condition 30 – quarterly vegetation monitoring (photographs)	
	Tailings and contaminated water	Overtopping of TSF causing impacts to surrounding threatened ecological communities and native vegetation	Critically endangered eucalypt woodlands (immediately south of TSF) Native vegetation	Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	Y	<u>Existing condition</u> Condition 4 - freeboard	Existing controls requiring 300mm freeboard or a 1 in 100 year/72 hour storm event considered sufficient.
Tailings delivery line and water return lines (to and from TSF)	Tailings and contaminated water	Pipeline burst or leak causing impacts to surrounding threatened ecological communities and native vegetation	Critically endangered eucalypt woodlands (immediately south of TSF) Native vegetation	Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	Y	<u>Existing condition</u> Condition 1 – pipeline management (telemetry, automatic cut-outs, secondary containment)	Existing controls considered sufficient

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

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

Table 5: Consultation

Consultation method	Comments received	Department response
Local Government Authority advised of proposal (10/6/2021)	No comments received	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (10/6/2021)	DMIRS replied on 21/6/21 advising that after a review of the 2019 annual TSF report, DMIRS advised the Edna May Operations that a Mining Proposal for any further raises would be required and would need to address cracks in the embankment in the design. DWER was advised on 29 October 2021 that a Mining Proposal for proposed stages 9 -11 was granted on 28 October 2021.	N/A
Licence Holder was provided with draft amendment on 20/8/2021	See Appendix 2	See Appendix 2

5. Conclusion

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

5.1 Summary of amendments

Table 6 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 6: Summary of licence amendments

Condition no.	Proposed amendments
Existing conditions 14 - 23	Renumbered to conditions 20 - 29
Existing conditions 25 - 30	Renumbered to conditions 31 - 36
New condition 14	Downhole geophysical logging (natural gamma probe) to determine the presence of any sandy horizons at shallow depth
New conditions 15 and 16	Vegetation health assessment and reporting

New condition 17	TSF embankment lifts
New conditions 18 and 19	TSF construction compliance and reporting
New condition 30	Quarterly photographic monitoring of vegetation
Condition 36 (formerly condition 30)	Annual environmental reporting modified to include vegetation monitoring

References

1. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
2. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
3. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. Coffey, 2021. *Edna May Operations – Annual Audit and Management Review*, Trim reference A2008301
5. Ramelius Resources, 2021. *Groundwater Monitoring Contingency Plan*, Trim reference: A2000580
6. Rockwater, 2018. *Assessment of Tailings Seepage*, Trim reference: A2000574
7. Talis, 2021, *Ramelius Resources Edna May Gold Mine Application to Amend Licence L8422/2010/2*, Trim reference: DWERDT427426

Appendix 1: TSF Seepage

Site Seepage Issues

Rockwater conducted an assessment of tailings seepage in 2018 using data from tailings collected between 2013 – 2017. Seepage from the base of the IWL/TSF was calculated to be 1,700m³/day. Coffey (2021) calculated seepage through the base of the IWL/TSF to be 928.5m³/day for proposed stage 9 and 10 embankment lifts and 909.8m³/day for stage 11 (Table 7).

Table 7 Estimated seepage

Report	TSF lift stage	Estimated seepage (m ³ /day)
Rockwater (2018) – Assessment of Tailings Seepage	8	1,700m ³ /day
Coffey (2021) – TSF Raise Design	9	928.5m ³ /day
	10	928.5m ³ /day
	11	909.8 m ³ /day

The department requested the licence holder to explain the discrepancy between seepage estimates provided by Rockwater (2018) and Coffey (2021). The licence holder replied that Rockwater (2018) modelling is based on a water balance whereas Coffey (2021) analysis was carried out using a simplistic 2D modelling approach, which does not account for 3D effects. They noted that both methods have limitations, where the Rockwater water balance method uses a pore space retention determination using the rate of tailings deposition and an average of the field capacity of tailings. The field capacity of the tailings is determined by further modelling of water and solute transport. Coffey acknowledge a limitation in their report that 2D modelling is a simplistic approach which does not account for 3D effects (i.e. seepage flow along faults and geological structures). Coffey reasoned that 2D seepage analysis is typically performed in IWL/TSF design.

Tailings properties

The current tailings characteristics are as follows:

- The Coffey 2021 TSF audit report indicates tailings discharge density average as 52% solids, which is lower than the original target density. The thickener installed in April 2011 was expected to increase the slurry target density range to between 55 – 57%. The department requested that the licence holder explain why target density has not been achieved. They replied that tailings discharge density varies between 52% - 60% dependent on a number of factors including ore blend, plant (thickener, flocculant and pump) performance and the area of TSF to which the discharge is being deposited. They indicated that during July 2021, the plant processed a blend that is likely typical for the next 12 months of production and the discharge density varied between 50-67% with an average of 56% and a standard deviation of 2.8%.
- Salinity of slurry water is 33g/L (similar to site groundwater which is considered hypersaline);
- Total cyanide in slurry water was recently measured to be 80 – 120mg/L;
- Weak acid dissociable cyanide (WAD CN) in slurry water 50mg/L (a limit of 50mg/L was subsequently placed on the licence during the September 2020 licence amendment)

- Particle size distribution (%sand-silt-clay) 50%-44%-4% passing 75 microns

An amendment granted on 21 September 2020 allows the TSF to accept tailings from the tampia ore source. Edna May first processed the Tampia ore on 3rd July 2021 and has yet to provide leaching tests required by condition 28 and 29 of the licence.

Groundwater levels

Historical groundwater levels from bores monitored as part of the current licence are displayed in Table 8 (Coffey, 2020; Rockwater, 2018).

Table 8 IWL/TSF Groundwater Levels (Rockwater, 2018; Coffey, 2021)

Monitoring bore	Hole depth (m bgl)	screened	Original GW depth m bgl	Dec 2015	Dec 2016	Dec 2017	Dec 2018	Dec 2019	Dec 2020	change original — 2020
MB01	30	?	4.41(2008)	8.99	8.57	8.69	8.14	8.11	8.48	-4.07
MB02	73	?	15.44(2008)	25.37	26.24	25.37	25.09	25.35	26.07	-10.63
MB07	87	?	45.98(2008)	55.23	55.43	54.46	54.83	54.89	55.56	-9.58
MB10	78	36 - 78	53.96(2009)	60.72	60.22	59.67	59.72	59.80	60.24	-6.28
MB11	78	36 - 78	35.59(2009)	38.25	37.78	38.09	37.59	37.83	37.85	-2.26
MB12	48	23 - 47	40.03(2009)	7.4	7.5	6.93	7.28	7.49	7.79	32.24
MB13	48	24 - 48	21.03(2009)	24.66	24.06	22.11	21.04	19.97	18.16	2.87
MB14	45	15 - 45	31.74(2009)	36.24	35.34	35.79	37.37	37.67	38.03	-6.29
MB15	45	15 - 45	31.89(2009)	33.77	33.85	34.91	36.47	36.32	36.49	-4.60
MB16	45	15 - 45	6.17(2009)	19.99	21.96	21.32	20.10	20.24	21.16	-14.99
MB17	81	27 - 81	36.35 (Nov 2015)	36.30	35.87	35.77	35.44	35.37	35.23	1.12
MB18	105	39 - 105	65.02 (Nov 2015)	65.42	91.52	92.36	91.76	91.93	91.24	-26.22
MB19	75	45 - 75	35.72 (Nov 2015)	36.02	35.76	37.74	39.89	39.79	39.90	-4.18

Rockwater (2018) suggests that it's unlikely water levels around the IWL/TSF would rise enough for contamination to be brought to the near surface due to the large cone of depression (see MB18 – Figure 3) produced by dewatering of Edna May pit. However, groundwater monitoring bore MB12, along the eastern IWL/TSF margin, returned a standing water level 6.38m bgl in April 2017 and 7.08m bgl in 2020 (originally 40.03m bgl in 2009). Standing water levels in MB13 and MB17 have risen by 2.17 and 1.12m bgl (2020) since their original installation. Water levels in all other monitoring bores have dropped.

Rockwater (2018) attributes differences in water levels between shallow and deep bores as due to variable permeability of the fractured bedrock aquifer. The shallow water levels in MB01 and MB12 is suggested to reflect the shallow water level in unfractured bedrock matrix blocks. The water level in MB17, adjacent to MB12, was 27m deeper than MB12. This was attributed to the MB17 intersecting one of the bedrock fractures.

Screened intervals for groundwater monitoring wells along the southern boundary are deep, with the shallowest top of screen at 36m bgl (Table 9). The variable fractured geology beneath the IWL/TSF is not well characterised or reported, and the wells are not screened appropriately to detect a shallow aquifer.

Eighteen vibrating wire piezometers were installed at six locations in the IWL/TSF embankment (Figure 2) and have been reported by Rockwater (2018) as recording very low or negative pore pressures, indicating dry embankments.

Groundwater quality

Seepage from the tailings storage facility has resulted in increasing concentrations of total cyanide, weak acid dissociable cyanide (WADCN), total dissolved solids (TDS), lead, silver, cobalt and nickel. The licence currently has a limit of 0.5mg/L of WADCN. Historical groundwater data indicate this limit has not been exceeded.

Seepage Management

Existing controls

Condition 12 on the existing licence requires that “a seepage collection and recovery system is provided and used to capture seepage from the TSF and seepage is returned to the TSF or the process”. The IWL/TSF was constructed with the following seepage control systems (Coffey, 2008)

- An underdrainage system beneath the centre of the IWL/TSF and around the upstream toe of the IWL embankment;
- A cut-off trench underneath the upstream toe of the main embankment to restrict horizontal seepage; and
- A 2m deep seepage interception trench located between the IWL/TSF embankment and the surface water diversion bund (Figure 2).

Water from the underdrainage system and interception trench is collected in a lined pond at the northwestern corner of the IWL/TSF and pumped back into the IWL/TSF. The IWL does not have an artificial or compacted clay liner.

Monitoring of ambient groundwater quality is currently required as part of condition 22 (Table 7). This includes 11 monitoring bores (Figure 2) surrounding the TSF. A standing water level limit of 3m bgl and a WADCN limit of <0.5mg/L are currently on the licence. Standing water levels are measured monthly and groundwater quality quarterly.

Applicant proposed additional controls

The applicant has not explicitly detailed additional controls as part of this management plan but has provided to DWER it's groundwater contingency plan which is a “live document which will be reviewed and updated throughout the mine life”.

Groundwater contingency plan

The groundwater contingency plan includes the following controls:

- Photographic monitoring of vegetation: monthly – photographs every 50m along the southern boundary of the IWL and quarterly – photographs of the remnant vegetation strip to the east of the IWL.
- A rise in the SWL of the TSF monitoring bores within 8m of the surface will involve engaging a hydrogeologist to assess the level of groundwater mounding through a review of the data. Recommendations from the review will be submitted to the General Manager for approval.
- A rise of groundwater to within 6m of surface will require dewatering using recovery bores. Water is then pumped to the IWL/TSF for recovery via the TSF decant.
- Detection of a WAD cyanide of 0.5mg/L or greater in groundwater monitoring bores will require the installation of recovery bores
- Detection of a rise in total CN greater than 10% of background groundwater results after resampling and over a quarterly period will require investigation by a hydrogeologist who will provide recommendations for actions.
- Groundwater and solute transport modelling to assist in predicting the development of the contaminant plume resulting from IWL seepage “will be considered”

DWER internal technical advice

Internal DWER technical advice indicates that the existing monitoring bores are constructed near the base of the weathered upper regolith profile, and that their screened-intervals are too deep to monitor depth-intervals where a perched aquifer may be present. Insufficient information has been provided to indicate whether paleochannel deposits in the upper 3 -5m contain sandy horizons that could form a perched aquifer near the IWL/TSF. Additionally, the lithological logs for these bores may not indicate the presence of sandy horizons at shallow depth, as these may have been obscured by clay-smearing during drilling.

DWER internal technical advice recommended the following measures to address these information gaps:

- (i) Undertake downhole geophysical logging of existing monitoring bores
Downhole geophysical logging using a natural-gamma probe could be undertaken inside the PVC casing of the existing monitoring bores near the IWL/TSF. Such logging would indicate whether sandy horizons occur at shallow depth in the weathered profile that could form a perched aquifer that is being supported by seepage from the facility. Downhole dual induction-conductivity logging could also be carried out within the PVC casing of existing boreholes, and would indicate whether saline water is present at shallow depth in the profile.
- (ii) Undertake ground-based EM or resistivity geophysical investigations near the IWL/TSF
Ground-based electromagnetic (EM) and/or resistivity geophysical surveys could be run on several transects between the IWL/TSF and the woodland area. These investigations would indicate whether a shallow saline water plume is extending from the TSF towards the woodland area.
- (iii) Install additional shallow monitoring bores
Based on the results of the above investigations, additional shallow monitoring bores may need to be installed at suitable locations and depths indicated by the geophysical investigations.

If the above investigations indicate that saline seepage is taking place at shallow depth beyond the boundaries of the IWL/TSF, then the proponent should be required to implement additional management measures to protect the woodland area before the additional embankment raises were permitted. These management measures could include:

- The deepening and widening of the drains that surround the IWL/TSF; and
- The installation of pumped interception trenches or shallow recovery bores between this facility and the woodland area to prevent shallow saline groundwater affecting trees in this area.

Additional regulatory controls imposed

Water levels in MB12 along the eastern IWL/TSF boundary have risen 32.24m since it's original installation in 2009. This has been attributed by the applicant to be a result of the variable fractured bedrock beneath the IWL/TSF. However, the monitoring well screened-intervals are too deep to monitor depth-intervals where a perched aquifer may be present.

As insufficient information has been provided to rule out the presence of a perched shallow aquifer, risk of seepage from three additional TSF lifts to the critically endangered eucalypt woodlands (immediately south of the IWL/TSF) remains. The assessed risk is 'high risk' with a consequence rating of 'major' and likelihood of 'possible'.

DWER will place the following additional regulatory controls on the licence:

- Undertake downhole geophysical logging of existing monitoring bores to determine if a shallow aquifer may be present;
- Undertake a vegetation health assessment of the eucalypt woodlands prior to each embankment lift. If the vegetation health assessment indicates signs of vegetation distress, DWER may require further action to be taken, including installation of shallow screened monitoring wells and further seepage management measures;
- Applicant proposed control of photographic monitoring of vegetation: while the applicant has proposed this as a contingency only, it will be placed on the licence as a regulatory control. Quarterly monitoring of vegetation, rather than applicant proposed monthly monitoring, will be required.
- The annual environmental reporting requirements have also been amended to include vegetation monitoring. Conditions detailing TSF embankment construction, compliance and reporting have also been placed on the licence as regulatory controls.



Figure 2 IWL/TSF drainage system and monitoring bores

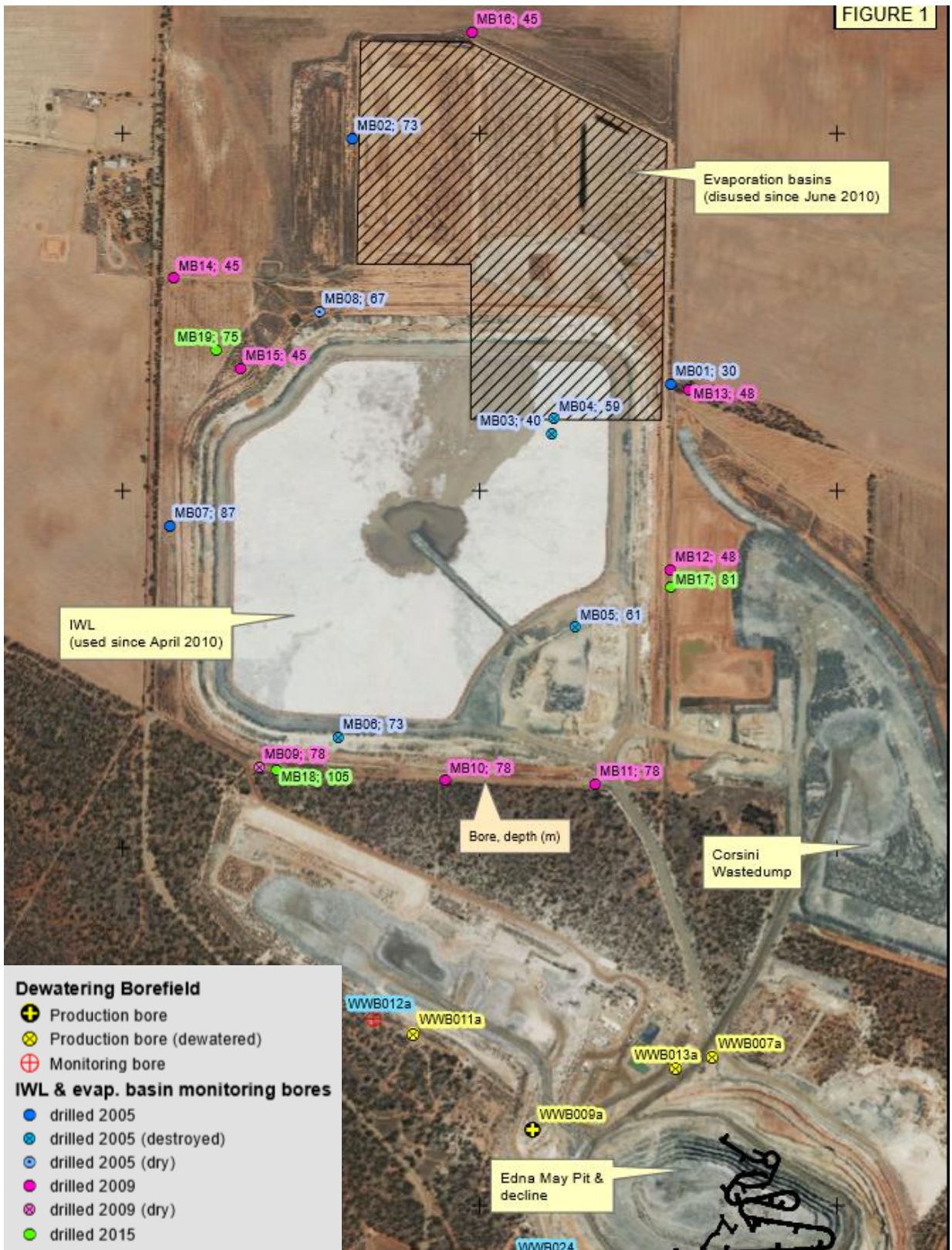


Figure 3 IWL/TSF monitoring bores (additional detail)

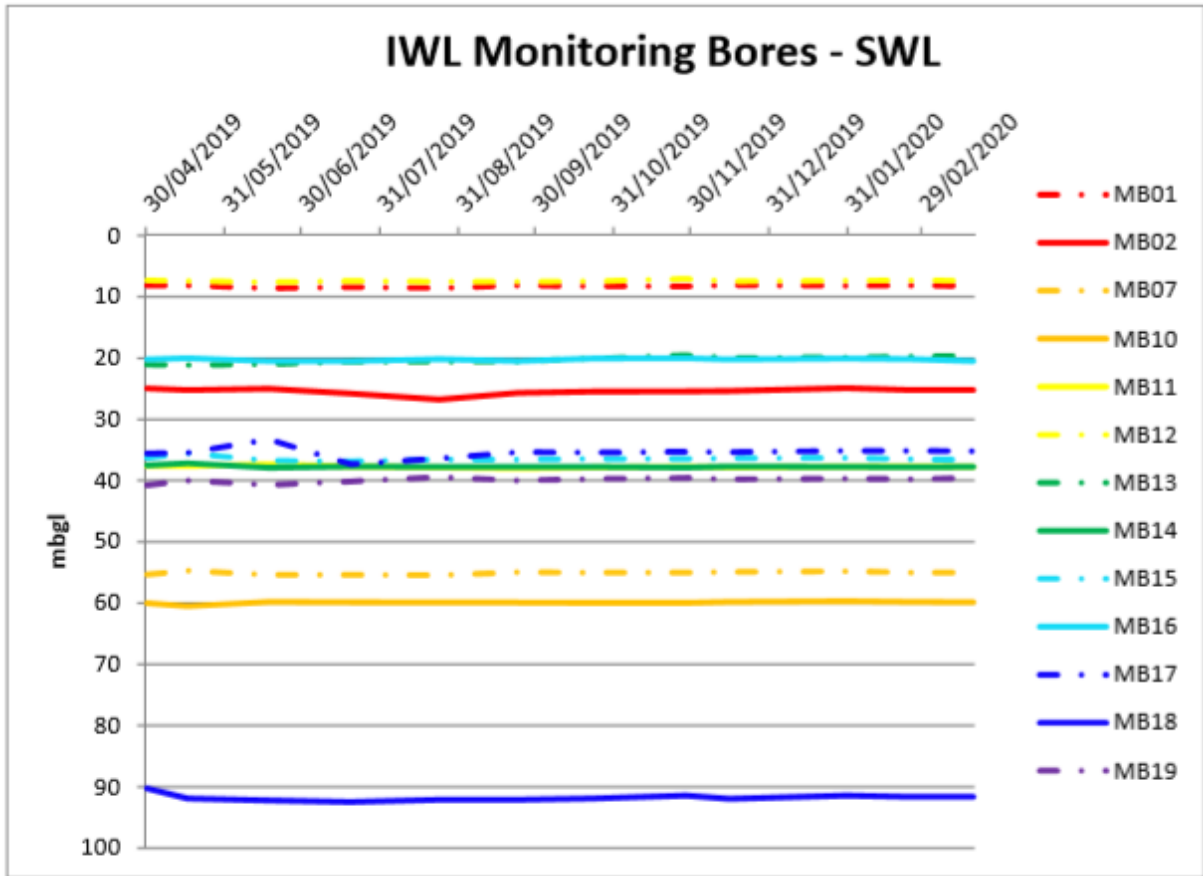


Figure 4 IWL/TSF Groundwater levels 2019 - 2020

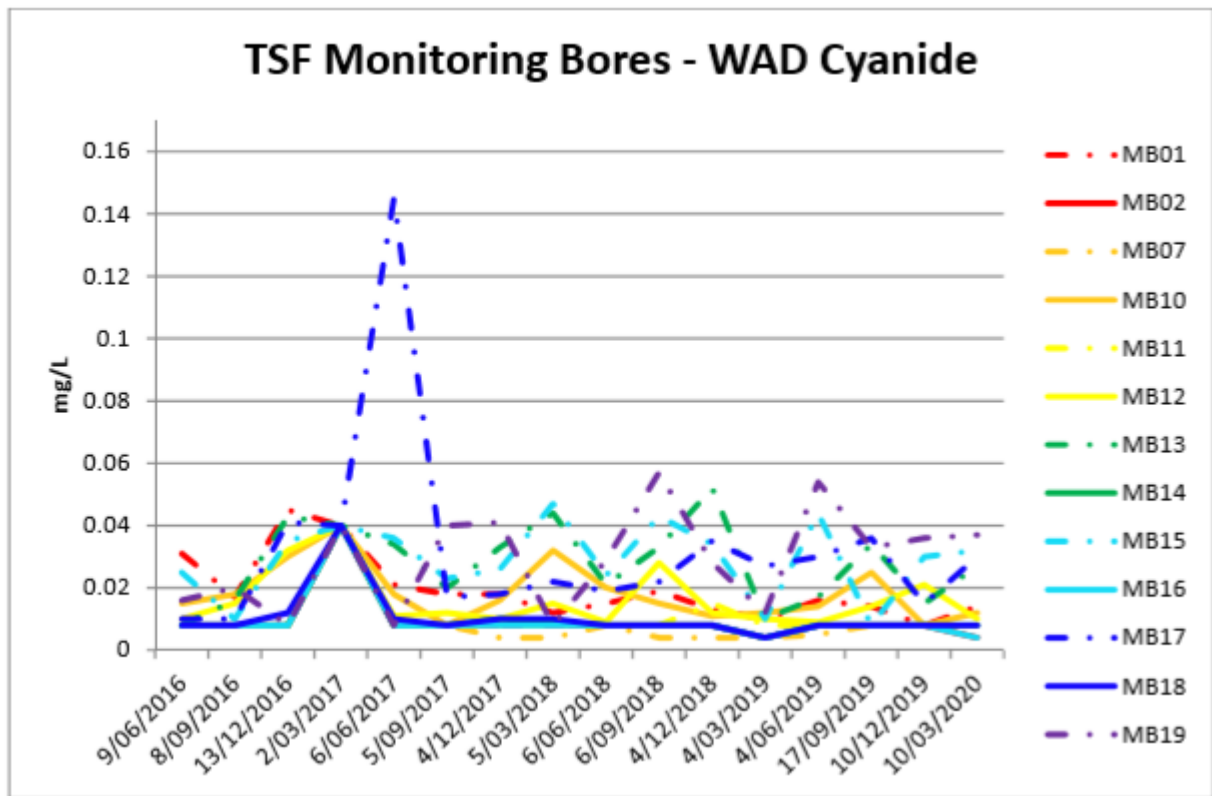


Figure 5 IWL/TSF groundwater quality – weak acid dissociable cyanide 2016 - 2020

Appendix 2: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
Condition 15 & 16	The licence holder requests removal for the requirement for a vegetation health assessment prior to each tailings storage facility lift. They state this on the basis that there is enough baseline information on vegetation health and the requirement to undertake such work could lead to unnecessary delays in the construction works and potentially result in delays in tailings deposition.	<p>No recent vegetation health assessments have been provided to the department with respect to the critically endangered eucalypt woodland. Surveying vegetation health prior to the embankment lifts will provide valuable information by allowing the department to determine if operation of the TSF is impacting the woodland and determine any additional controls required if vegetation loss/distress is recorded.</p> <p>As stage 9 is planned for commencement in January 2022, DWER will allow the licence holder to submit the vegetation health survey up to sixty days post completion of the embankment lift. As stages 10 and 11 are planned for 2023 and 2024 respectively, this will allow ample time for a vegetation health assessment to be scheduled and completed prior to commencement of the embankment lifts.</p>
Condition 17	The licence holder requests removal of condition or modification to tie in with compliance reporting listed in conditions 18 and 19.	The condition will control to what height the TSF embankments may be raised and include requirements for completion of condition 15 and 16 to protect critically endangered eucalypt woodland. DWER has determined that the condition will remain on the licence.
Condition 18 and 19	The licence holder requests modification to tie in with condition 17.	As condition 17 will remain on the licence, no modifications will be made to associated compliance conditions 18 and 19.

Appendix 3: Application validation summary

SECTION 1: APPLICATION SUMMARY				
Application type				
Works approval	<input type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:		None <input type="checkbox"/>
		Has the works approval been complied with?		Yes <input type="checkbox"/> No <input type="checkbox"/>
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes <input type="checkbox"/> No <input type="checkbox"/>
		Date Report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input checked="" type="checkbox"/>	Current licence number:	L8422/2010/2	
		Relevant works approval number:		N/A <input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:		None <input type="checkbox"/>
Date application received		15/3/21		
Applicant and Premises details				
Applicant name/s (full legal name/s)		Edna May Operations Pty Ltd		
Premises name		Edna May Gold Project		
Premises location		Warrachuppin Road, Westonia M77/88, M77/110, M77/124, G77/122 and L77/18		
Local Government Authority		Shire of Westonia		
Application documents				
HPCM file reference number:		DER2017/000298-1		
Key application documents (additional to application form):		Appendix C - IWL Raise Design Report Appendix A: Edna May IWL Raise Design – Geotechnical Investigation (for borrowed TSF materials) Appendix B – Design Drawings		

	<p>Appendix C – Generic Scope of Works</p> <p>Appendix E – Seepage Analyses (doesn't include water balance)</p> <p>Appendix G (pdf pg 349) Water balance analyses</p> <p>Appendix I – (pdf pg 364)TSF Operating manual</p> <p>Appendix D – Design Drawings</p>
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Scope of application/assessment

Summary of proposed activities or changes to existing operations.	<p><u>Licence amendment</u></p> <p>Seeks approval for three additional lifts of 3m in height. Current stage 8 relative level is 1362m. Final stage 11 RL will be 1371m. A resulting final height of 39m above ground level. Constructed using upstream construction techniques.</p> <p>The staged raise will provide an additional 11.4Mt (8.13x10⁶ m³), corresponding to about 3.87 years of production.</p> <p>No changes to category throughput proposed.</p>
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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 5 -Processing or beneficiation of metallic or non-metallic ore	3,200,000 tonnes per annual period	
Category 6 – Mine dewatering	1,900,000 tonnes per annual period	
Category 61 – Liquid waste facility	Up to 1,255KL per annual period	
Category 64 – Class II or III putrescible landfill site	5,000 tonnes per annual period	

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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No:

Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input type="checkbox"/> Expiry: Other evidence <input type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Approval: Expiry date: If N/A explain why? Exempt under the <i>Mining Act</i>
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Application reference No: Licence/permit No: CAW203991(1) (expired 14/2/21) GWL156328(5) expiry 16/8/28
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Name: Westonia Groundwater Area Type: RIWI Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Regional office: Goldfields
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i> , <i>Environmental Protection (Controlled Waste) Regulations 2004</i> , <i>State Agreement Act xxxx</i>)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>Mining Act 1978</i>
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>Classification: Possibly contaminated – investigation required (PC-IR) CS ID: 27149, 27148, 72019 and 27150 Date of classification: 11/12/2009</p>