Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Application for Licence Amendment

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

Licence Number	L9326/2022/1
Licence Holder	Covalent Lithium Pty Ltd
ACN	623 090 139
File Number	DER2022/000016~2
Premises	Earl Grey Lithium Project Marvel Loch – Forrestania Road MOUNT HOLLAND WA 6426 Legal description – Mining Tenement G77/137, M77/1066 and M77/1080 As defined by the premises maps attached to the revised licence
Date of Report	14 February 2024
Decision	Revised licence granted

Abbie Crawford

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Abbie Crawford
A/MANAGER, WASTE INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Licence L9326/2022/1 is held by Covalent Lithium Pty Ltd (licence holder; Covalent Lithium) for the Earl Grey Lithium Project (the premises), located at mining tenements M77/1066, M77/1080 and G77/129 in the Shire of Yilgarn.

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 L9326/2022/1 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 Background

Covalent Lithium is the managing entity for the Mt Holland Joint Venture; a 50:50 Joint Venture between a related body corporate of Wesfarmers Chemicals, Energy & Fertilisers Limited and a related body corporate of Sociedad Química y Minera de Chile S.A.

Covalent Lithium, as manager of the Mt Holland Joint Venture and for and on behalf of the Mt Holland joint venturers MG Gold and Sociedad Química y Minera de Chile S.A, has developed the Earl Grey Lithium Project (the premises, also referred to as 'EGLP') at the historical Bounty Gold mine site near Mount Holland, approximately 100 km south-southeast of the Southern Cross town-site, in the Yilgarn Mineral Field of Western Australia.

The EGLP will comprise the mining and processing of two million tonnes per annum (Mtpa) of spodumene ore to produce approximately 50,000 tonnes per annum (tpa) of battery quality lithium hydroxide (LiOH) at the Covalent Lithium Refinery in Kwinana.

The location of the EGLP is shown on Figure 1.

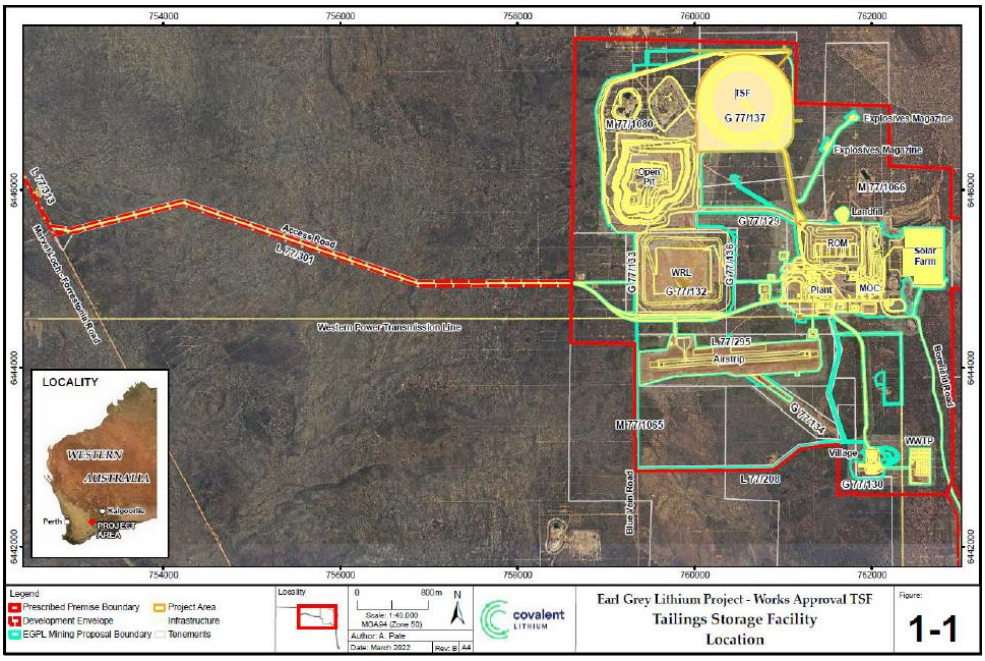

Figure 1: Earl Grey Lithium Project location

2.3 Application summary

On 12 October 2023, the licence holder submitted an application to the department to amend licence L9326/2022/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The amendment application relates to the incorporation of two new categories into the existing (Category 54) licence:

- Category 5 activities for the operation of an Integrated Waste Rock Landform (IWL) and Tailings Storage Facility (TSF) including the discharge of 1.2 million tonnes per annual period of tailings byproduct into the IWL/TSF; and
- Category 64 activities for the operation of a Class II Putrescible Landfill including the disposal of 700 tonnes per annual period of inert and putrescible wastes.

The putrescible landfill (Category 64) is currently operating under time limited operational (TLO) provisions under the works approval W6649/2022/1, which needs to be incorporated into the operational licence prior to the completion of the TLO period in January 2024.

Time limited operations for the TSF (Category 5) starter embankment is authorised until February 2024. The licence holder will construct subsequent embankment lifts (stages 2 to 4) under W6673/2022/1 and each lift will be added to the licence in a staged process following construction, compliance reporting and TLO.

The current life of mine is 10 years, but the licence holder wishes to extend to approximately 50 years following future approvals.

This amendment is limited only to the addition of Category 5 and Category 64 activities to the existing licence. No changes to the aspects of the existing licence relating to Category 54 have been requested by the licence holder.

2.3.1 Integrated Waste Rock Landform and Tailings Storage Facility

The IWL comprises of an inner TSF surrounded by a waste landform. The waste landform was constructed as part of mining activities and completed ahead of the construction of the inner TSF embankment and tailings deposition into the TSF. Development of the inner TSF will be constructed in stages to suit tailings and clayey mine waste production. Time limited operations for the IWL/TSF starter embankment and associated infrastructure began on 7 August 2023.

Stages 2 to 4 of the IWL/TSF will be constructed progressively over a five year period under the existing works approval W6673/2022/1. Covalent Lithium will apply for an amendment to licence L9326/2022/1 to construct additional embankment lifts (Stages 5 to 7).

Tailings deposition and return water pipeline

Tailings are transported from the process plant to the TSF Project Area via large diameter, high density polyethylene (HDPE) distribution pipes (duty and standby). The pipe divides into two lines (eastern and western) at the perimeter embankment crest to distribute tailings around the facility. The tailings distribution lines comprise of welded HDPE pipes with feed off-takes and are located on the upstream perimeter embankment crest. The tailings discharged is nominally 55% solids with estimated tailings slurry flow rate at about 4,000 m^3/day.

Tailings deposition occurs using subaerial deposition techniques from multiple spigots located around the crest of the embankment. At any one time, deposition is done from a single spigot group comprising multiple spigots. Once 300 mm thick tailings are deposited over the segment covered by this initial group, tailings deposition moves to the adjacent group. This operation continues using the spigot group cyclically and progressively around the facility until a uniform nominal tailings thickness of 300 mm is accomplished throughout the facility. By alternating the use of many spigot groups, the licence holder believes that drying time of tailings can be maximised.

The licence holder has stated that tailings deposition in this manner will enable a free supernatant water pond to pool near the centre of the TSF Project Area. The decant water recovery system comprises a submersible pump located within pre-cast, slotted concrete rings which are surrounded by rockfill of nominal 10 m radius (pump designed for flow rate of approximately 20 litre/sec). Access to the pump is via the decant accessway, with return water pumped back to a process water pond nearer to the ore processing plant for reuse.

A decant pond is formed which is equivalent to approximately 10 days' slurry water inflow (approximately 27,000 m^3 in volume). The pond radius is approximately 110 m with 2% tailings beach slope. The licence holder indicates that under normal operating conditions, the pond size will be maintained at less than the 10-day slurry water volume, to ensure a safe distance between the pond edge and perimeter embankment. Detailed design drawings by Coffey (2021), show that the distance of the decant pond (operating under normal conditions) from the embankment is approximately 250 m and 300 m corresponding to Stage 1 and Stage 7, respectively. The licence holder suggests a gentler average slope of 1.5% may be adopted, however, the distance between the pond edge and embankment will still be greater than 200 m.

During the initial deposition period the licence holder has installed a temporary pump within the eastern area of the TSF Project Area to recover supernatant water that is pumped back to the processing plant.

Seepage collection

Groundwater beneath the TSF Project Area is saline to hypersaline and therefore, the licence holder believes that little environmental benefit would be gained from implementing stringent seepage control measures to restrict seepage from the TSF Project Area.

The Project design incorporates a downstream seepage interception system, which has been constructed within the embankment footprint to mitigate seepage during operation of the TSF Project Area and further control the phreatic surface at the perimeter embankment to increase the factor of safety (FoS) against instability.

The seepage collection system comprises interception drainage pipes (perforated draincoil) connecting to a collector pipe (solid HDPE pipe). The corrugated pipe has a stiffness of 8,000 Newton/m corresponding to 5% deflection and is used in the downstream slope batter of the TSF Project Area. The licence holder does not expect this area to be subjected to heavy traffic loads. The drainage pipes are located within trenches surrounded by geotextile and backfilled with aggregate. The collector pipe is located within a trench with a depth of approximately 3 m and backfilled with aggregate.

Seepage collected via the collection/interception system drains to a pumped collection sump. The minimum designated fall/gradient of the collection/interception pipe is 0.5%. The collection sump is located through the lowest bench of the downstream Zone B/waste landform embankment, close to the eastern side of the TSF Project Area. The sump is comprised of solid precast concrete well liners (1.2 m internal diameter) stacked vertically on one another. The lower part of the sump is deepened to approximately 4 m below the surface. The upper part of the sump has been constructed to its full height in line with the waste landform embankment material placement.

Seepage water collected is recovered via a dedicated pump. The recovered seepage water is pumped to the return water pond or the TSF via a dedicated pipeline. The return water pond is located at the south-eastern corner of the IWL/TSF.

The return water pond has a footprint area of approximately 9,600 m^2. The enclosed impoundment area is approximately 5,600 m^2, at an embankment crest elevation of approximately RL433 m. The pond storage capacity is approximately 10,600 m^3 with an allowance for design storm rainfall and 0.5 m freeboard, which is equivalent to the volume of about 5-days water return.

Monitoring network

The monitoring system designed for the TSF Project Area comprises of eight groups of two vibrating wire piezometers (VWPs) to monitor the phreatic surface within the embankment. The VWPs are located at the base of the embankment (i.e., one at the upstream embankment toe and one along the middle of the starter embankment for each VWP group).

The grouped piezometers are located along the perimeter embankments. The VWP wires are located in a conduit installed in a trench (nominally 0.5 m deep) running under the embankment to terminal data loggers adjacent to the final downstream embankment toe line.

As part of ongoing geotechnical investigations, the licence holder has constructed a network of groundwater monitoring bores to allow for monitoring of groundwater levels and quality.

The licence holder also has installed five seepage monitoring bores on the downstream side of the TSF Project Area. Bores will be monitored quarterly for changes in groundwater table level and composition of the water by field analysis (pH, total dissolved solids, electrical conductivity, and temperature).

2.3.2 Class II Putrescible Landfill

The operation of a Class II putrescible landfill is required to service the Earl Grey Lithium Project throughout the life of the project. The putrescible landfill is located within a previous borrow pit and consists of one unlined trench 90 m long, 9.8 m wide and 4 m deep. The trench has a 1% gradient drop toward the north of the cell which is directed to a sump at the northern end of the cell to prevent the pooling of water within the waste mass. The trench is surrounded by a 0.8 m high earthen bund to divert stormwater runoff away from deposited waste.

The putrescible landfill will accept 700 tonnes per annual period of wood, plastics and general construction and operation wastes resulting from activities across the Earl Grey Lithium Project. Waste will be tipped from the southern end. A second landfill trench is authorised to be constructed under W6649/2022/1.

2.4 Overview of premises

2.4.1 Current approvals

Alongside the L9326/2022/1 licence, the applicant currently holds the below approvals relating to the construction and time limited operation of the Earl Grey Lithium Project.

Table 1: Current premises approvals

Approval reference	Date Issued	Description of approval
W6649/2022/1	19 April 2021	**Category 64: Putrescible landfill site** Construction including time-limited operations of a Class II putrescible landfill to facilitate the disposal of waste arising from mining operations and construction activities. The works approval also includes an inert landfill that the works approval holder no longer intends to construct.
W6460/2020/1	12 February 2021	**Category 5: Processing or beneficiation of metallic or non-metallic ore** Construction including commissioning and time limited operations of a concentrator processing plant to process 2 million tonnes per annual period of

Approval reference	Date Issued	Description of approval
		spodumene ore. **Category 12: Screening etc. of material** Construction and time limited operations of a mobile crushing and screening plant, with a design capacity of 500,000 tonnes per annual period.
W6673/2022/1	28 November 2022	**Category 5: Processing or beneficiation of metallic or non-metallic ore** Construction and time-limited operation of an IWL/TSF for the disposal of 1.2 million tonnes per annual period of wet tailings.

2.4.2 Hydrogeology

Based on the hydrogeological investigation undertaken by Groundwater Resource Management in February and October 2017 (GRM 2018), the groundwater sampling and analysis at 11 bores within the EGLP development envelope recorded the following results:

- The depth to the water table at the bores sampled ranged from 58 to 70 m bgl;
- Groundwater was neutral to slightly alkaline with pH values varying between 7.23 and 8.16;
- Groundwater was saline to hypersaline with total dissolved solids levels varying between 7,640 mg/L and 119,000 mg/L. The highest salinity groundwater was recorded in the north-eastern part of the proposed pit;
- Groundwater was classified as very hard with elevated concentrations of bicarbonate, calcium, and magnesium. Sodium and chloride were identified as the dominant ions; and
- Slightly elevated concentrations of some metals and metalloids including arsenic, cadmium and copper were recorded. The values remained below the groundwater investigation levels adopted by GRM, which were the livestock drinking water guidelines (i.e., Australian and New Zealand Guidelines for Fresh and Marine Water Quality [ANZECC] 2000, now superseded to ANZG 2018).

Groundwater within the TSF Project Area was found to be chloride and sodium dominant. Based on findings by GRM 2018, the applicant believes that salinity may fluctuate over the seasons; however, as the water table is deep (> 50 m bgl), and there is a significant thickness of saprolite (> 5 m), there is likely to be limited recharge from the surface, and water chemistry and electrical conductivity/total dissolved solids are likely to be constant. This was supported by more recent investigation by SRK Consulting (SKR 2021).

2.4.3 Hydrology

The project site was previously heavily disturbed for historic mining activities between 1988 and 2001. Construction of numerous earth bunds form effective drainage diversions around most of the EGLP site. The applicant states that a review of recent aerial imagery indicates no new watercourses or significant erosion gullies have formed because of these diversion structures, which have been in place for 20 years or more (Kidman and Blueprint 2017).

The natural terrain surrounding the TSF Project Area ranges approximately 430 m RL AHD and 440 m RL AHD, with a natural drainage path running west to east and then trending northeast. Drainage lines within the TSF Project Area are ephemeral, flowing only during periods of high rainfall (Kidman and Blueprint 2017).

Flow from the TSF Project Area will initially be directed eastward and then flow in a northeasterly direction (Coffey 2021a).

2.4.4 Tailings chemical properties

An assessment of tailings geochemistry for the project was carried out by Martinick Bosch Sell Pty Ltd (MBS Environmental, 2017). Coffey (2021) reviewed the assessment results relevant to the IWL/TSF design and these are summarised below:

- The tailings will be non-acid forming (NAF) due to the absence of detectable sulfides (Chromium Sulfides, CrS);
- Seepage from the IWL/TSF is predicted to be moderately alkaline (pH 8 - 8.5) and nonsaline (unless saline groundwater is used in the process plant) in the long-term;
- As the processing plant is using oleic acid as the spodumene flotation agent, tailings seepage may contain some low levels of dissolved organic carbon; and
- The tailings are enriched in some elements including lithium, rubidium and possibly beryllium. However, the corresponding solute concentrations of these elements remain low across a wide range of pH values, suggesting that they are likely to remain in the solid form and therefore do not pose a risk to groundwater quality.

As part of the scope of work for the IWL/TSF design, Coffey commissioned Graeme Campbell & Associates Pty Ltd (GCA) to conduct a geochemical characterisation of a process tailings slurry sample and to assess implications for tailings management. The study indicated:

Tailings-solid sample

- The tailings-solids sample was classified as non-acid forming (NAF), reflective of 'negligible-sulfides' (Total-S < 0.01%);
- The sample had contents of minor-elements below or close to those typically recorded for soils, sediments and bedrocks derived from unmineralized terrain;
- Enrichment in Lithium, with a Lithium content of ca. 0.26% predominantly due to residual spodumene; and
- Enrichments also occurred in Arsenic, Boron, Molybdenum, Bismuth, and Thallium to a lesser degree varying from slight to moderate.

Tailings-slurry-water

- The tailings-slurry-water sample was neutral-to alkaline (pH 7-8) and of low salinity;
- The concentrations of minor-elements were tightly constrained, reflective of the benign nature of the ore stream, and minimal use of reagents during metallurgical recovery; and
- The water sample conformed to livestock drinking water quality (ANZECC, 2000).

2.5 Part IV of the EP Act

The proposal is covered by three Ministerial Statements (MS): 1167, 1118 and 1199. The most recent one, MS 1199 (EPA 2022) was published on 22 November 2022 in relation to Covalent Lithium Pty Ltd.'s proposal to develop a pegmatite-hosted lithium deposit at the abandoned Mount Holland mine site. The proposal is for conventional open-cut mining of the existing Earl Grey pit, and development of associated mine infrastructure. The new mining proposal would utilise some existing infrastructure and disturbed areas. The mining proposal involves disturbance of 667 ha of land, including new clearing of up to 386 ha of native vegetation, which is habitat for significant fauna species. Two threatened fauna species Malleefowl (*Leipoa ocellata*) and Chuditch (*Dasyurus geoffroii*), and one threatened flora

species Ironcap Banksia (*Banksia sphaerocarpa var. dolichostyla*), all listed as Vulnerable at the Commonwealth and State level, are known to occur within the proposal Development Envelope. Any potential disturbance to flora, vegetation and fauna during construction and operation of the TSF and landfill will comply with the conditions set out in MS 1199.

The licence holder submitted a revised proposal to the EPA that included significant amendment to MS 1118, to incorporate construction and operation of a solar plant (including an added 32 ha of native vegetation clearing), variation to the airstrip width (including an added 24 ha of native vegetation clearing), changes to the tailing waste disposal methodology from 'dry' to 'wet' tailings, co-disposal of inert refinery waste generated from the Kwinana Lithium Refinery to the approved waste rock landform, and modification to flora and fauna exclusion areas. MS for the Revised Proposal 1199 was published on 23 November 2022.

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 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
IWL/TSF			
Dust	Vehicle activity on disturbed ground and unsealed roads Operation of machinery	Air/windborne pathway	• Dust suppression (e.g., water trucks) used on unsealed roads and access tracks, cleared areas and at locations of high dust risk, and where dust generation is visible; • Vehicles will comply with site Traffic Management Plan, which includes vehicle speed limits on haul roads, work, and camp sites (Speed limits will be reduced where necessary to minimise dust emissions); • Vehicles will remain within the designated roads and tracks, and park only in allocated areas; • Monthly compliance audits and inspections will be undertaken; and • Incident and hazard reporting will be undertaken where there this is non-compliance with these requirements.
Noise	Operation of machinery, light vehicles, raising of the embankments and maintenance activities.	Air/windborne pathway	• Mobile equipment to be operated and serviced in line with the manufacturer's specifications; • Maximum sound power levels specified for equipment (if required); and • Complaints relating to noise will be recorded and investigated as per the Covalent Incident Management Procedure.
Artificial light	Operation of machinery, light vehicles, raising of the embankments and maintenance activities.	Air pathway	• Lighting required for the operation of the Project is expected to be limited to lighting towers to aid inspection/maintenance checks of the facility during night-time hours; • Illumination directed away from sensitive receptors and roads in the vicinity of the TSF Project Area; and • Where possible, lighting will also be installed to ensure directional downward illumination to minimise excessive light glare and potential impacts to fauna.
Tailings / water	IWL/TSF	Seepage / Infiltration of supernatant	The design of the IWL/TSF incorporates the following seepage management controls: • Vibrating wire piezometers (VWPs)

Emission	Sources	Potential pathways	Proposed controls
		water through basin and pit walls Ingestion by fauna (from surface of TSF) Seepage daylighting / surface expression (phreatic surface daylighting)	provide a warning against any unlikely rise of groundwater level within the TSF Project Area; • An upstream underdrainage piping system around the perimeter upstream toe and a central underdrainage piping network around the decant rock ring; • Decant water continually removed from the facility and the decant pond size maintained to be less than 110 m radius; • During deposition, evaporative drying results in a partially saturated tailings deposit; • Due to evaporation, there will be limited water pond on the facility; and • Monitoring bores installed surrounding the TSF to monitor groundwater chemistry and SWL.
Dry tailings (dust)		Air/windborne pathway	• Tailings have a high moisture content when deposited and form a crust as they dry. The licence holder will manage tailings deposition to maximise wet areas and to ensure that the surface of the TSF Project Area remains sufficiently wet to reduce the potential of fine particulate dust emissions.
Tailings / water	IWF/TSF – overtopping due to insufficient freeboard capacity	Uncontrolled release / overland flow / infiltration	• Minimum 500 mm total freeboard, comprising a minimum operational freeboard (vertical height between the tailings beach at the perimeter embankment and embankment crest level) of 300 mm and minimum beach freeboard (vertical height between the 100 AEP water level above the normal operating pond and top of tailings beach) of 200 mm; • Minimum crest width of 21 m (6 m wide for Zone A and 15 m wide for Zones B + B1), resulting is a factor of safety (FoS) against instability >1.6 for both short-term and long-term conditions; • The downstream embankment crest width (Zone B) from the north-western up to the south-eastern side of the TSF must be constructed at least 10 m wider than the minimum required width; • Zone A and Zone B/B1 materials forming the TSF embankment will

Emission	Sources	Potential pathways	Proposed controls
			comprise well-compacted clayey material and mine waste rock respectively; • Pipelines inspected for pipe breakage and checks for signs of erosion; • The size of the water pond will be minimised to control the seepage rate; • The well-compacted, low permeability material used for Zone A will be keyed into the foundation soil (cut-off trench) which will mitigate potential for excessive seepage; • VWPs to provide a warning against any unlikely rise of groundwater level within the TSF Project Area; • Erosion-resistant material will be used for piping which will be compacted to 95% standard maximum dry density (SMDD); and • A 10 m wide transition zone (Zone B1) will be constructed to reduce the risk of piping erosion.
Tailings / water	Tailings / water pipeline (leaks or rupture)	Uncontrolled release / overland flow / infiltration	• Visual inspections will be made 6-hourly (i.e., twice per shift) and any fault reported promptly for repair or replacement; • Monitoring will be conducted for tailings line pressure and flow meter readings; • Vegetation will be kept clear of poly pipelines to mitigate potential fire damage (e.g., in the event of bushfire); • Hourly monitoring of tailings pump power draw to give a general indication of pipeline condition; • If an alert to hazard arises from the control room instrumentation (drop in delivery line pressure) the line will be immediately inspected to locate and assess the leakage; • If the automatic shutdown/diversion of tailings flow has not occurred, the Process Operator will arrange appropriate shutdown or diversion; • If an alert to the hazard alert arises from inspection, the Process Operator will be advised immediately to arrange appropriate shutdown or diversion; • At the leak location, the Mine

Emission	Sources	Potential pathways	Proposed controls
			Superintendent will inspect the site and arrange appropriate additional containment and/or clean up in coordination with the Environmental Advisor; and • The Mine Superintendent will ascertain the root causes of the leakage/burst and institute procedures or measures to minimise the risk of recurrence.
Contaminated stormwater / sediment laden stormwater	Rainfall event	Overland flow / infiltration	• Potentially contaminated surface water (e.g. runoff which contains hydrocarbons > 5 ppm total petroleum hydrocarbons) will not be discharged into the environment; • Surface water and sedimentation control devices will be inspected monthly for damage or blockages, and repaired where required; • Compliance audits and inspections will be undertaken monthly to determine compliance with these requirements; and • Incident and hazard reporting will be undertaken.
Class II Putrescible Landfill			
Dust	Disposal of waste to landfill	Air/windborne pathway	• Use of water carts as needed to wet down dust generating surfaces such as roads and earthworks areas; • Covering of waste with soil be restricted during high winds if dust cannot be adequately controlled; • Weather forecasting apps will be used to predict extreme weather conditions likely to result in increased dust emissions so that impacts can be minimised through additional controls or modified activities; • Use of defined haul roads for machinery / vehicles travelling on unsealed surfaces or roads; and • A site based weather station will be utilised to monitor and record weather conditions.
Noise			• Mobile equipment will be operated and serviced in line with the manufacturer's specifications; • Maximum sound power levels specified

Emission	Sources	Potential pathways	Proposed controls
			for equipment (if required); and • Complaints relating to noise will be recorded and investigated as per the Covalent Incident Management Procedure.
Odour			• Waste will be compacted and covered monthly; • Waste will be covered when transported to the putrescible landfill; • Site induction will provide all site based personnel with information and education on permitted waste disposal and recycling; and • Complaints relating to odour will be recorded and investigated as per the Covalent Incident Management Procedure.
Windblown wastes			• The landfill will be fully fenced; • Waste will be covered on a monthly basis; • Waste will be covered when transported to the putrescible landfill; • Waste material from the project village will generally be in bin bags; • Site induction will provide all site based personnel with information and education on permitted waste disposal and recycling; and • Complaints relating to windblown waste will be recorded and investigated as per the Covalent Incident Management Procedure.
Leachate	Disposal of waste to landfill	Overland runoff / infiltration	• Upslope undisturbed runoff will be diverted around the putrescible landfill via clean water diversion bunds; • The cell floors have been designed with gentle gradients toward centralised sumps; and • Final capping to bring the final landform above ground level.
Contaminated stormwater	Stormwater coming in contact with waste	Overland runoff / infiltration	• Upslope undisturbed runoff will be diverted around the putrescible landfills via clean water diversion bunds; • Clean water diversion bunds to be a minimum of 0.5 m high and constructed

Emission	Sources	Potential pathways	Proposed controls
			directly on the embankment of the landfill trenches; • The clean water diversion bunds will remain in place until the landfill is capped and shallow-rooted vegetation stabilised; • A smaller speed bump style diversion bund will be constructed at the top of the ramp; • Surface water runoff collected in the detention basin of the putrescible landfill will either evaporate from the basin or be pumped and utilised for dust suppression; • The detention basin of the putrescible landfill will be constructed with side slopes of 3% to a depth of approximately 0.7 m bgl and have a water holding capacity of 458 m^3. A minimum freeboard of 0.3 m will be maintained at all times withing the basin; • Regular inspections will be undertaken of the alignment, grade and integrity of the clean water diversion bunds; and • The detention basin will be regularly desilted.
Fire and fire washwaters	Fire at or surrounding landfill	Air / windborne pathway Overland runoff / infiltration	• A 3 m firebreak will be maintained around the boundary of each premises.

3.1.2 Receptors

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

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

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

Human receptors	**Distance from prescribed activity**
No nearby receptors	
Environmental receptors	**Distance from prescribed activity**
Threatened Ecological Communities *Ironcap Hills vegetation assemblages (Mt Holland, Middle, North and South Ironcap Hills, Digger Rock and Hatter Hill) (greenstone ranges)*	Premises within mapped area
Underlying groundwater *Westonia Groundwater Area*	Groundwater ranging from 58 to 70 mbgl at the location of the premises.
Threatened Fauna (i.e. including Malleefowl, western quoll, Western rosella)	Located within and near the premises area
Threatened and Priority flora – T, P2 and P3	Within and near the premises area
Native vegetation	Immediately surrounding the premises area

3.2 Risk ratings

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

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

Additional regulatory controls may be imposed where 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 L9326/2022/1 that accompanies this amendment report authorises emissions associated with the operation of the premises i.e. IWL/TSF and landfill 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**				
Operation of IWL/TSF								
Operation of machinery, vehicle movement, raising of the embankments and maintenance activities	Dust	Air/windborne pathway causing impacts to health and amenity	Surrounding vegetation and threatened flora / fauna species	Refer to Section 3.1	C = Minor L = Unlikely **Low Risk**	Y	Condition 1	Emission to be regulated under the general provisions of the EP Act
	Noise		Threated and priority fauna within and near the premises	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	Emission to be regulated under the *Environmental Protection (Noise) Regulations 1997*
	Artificial light	Air pathway causing impacts to ecosystem health and amenity		Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The delegated officer considers that the impact of light emissions on fauna during operations is expected to be negligible.
Operation of the IWL/TSF	Tailings / water	Seepage / infiltration of supernatant water through basin and pit walls causing impacts to ecosystem health Seepage daylighting / surface expression (phreatic surface daylighting) causing ecosystem disturbance	Underlying groundwater Surrounding vegetation and threatened flora / fauna species	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Conditions 1, 17, 19, 20, 21, 22, 23 & 29	N/A
	Dry tailings/dust	Air/windborne pathway causing impacts to health and amenity	Surrounding vegetation and threatened flora / fauna species	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	Condition 1 & 29	N/A
Overtopping of the IWL/TSF	Tailings / water	Uncontrolled release / overland flow / infiltration causing ecosystem disturbance	Underlying groundwater Surrounding vegetation and threatened flora / fauna species	Refer to Section 3.1	C = Major L = Rare **Medium Risk**	Y	Conditions 1, 10, 11, 17 & 29	N/A
Tailings / water pipelines (leaks or rupture)	Tailings / water	Uncontrolled release / overland flow / infiltration causing ecosystem disturbance		Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 1, 10, 11 & 29	N/A
Rainfall event	Contaminated stormwater / sediment laden stormwater	Overland flow / runoff impacting ecosystem health and amenity	Surrounding vegetation and threatened flora / fauna species	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 12	N/A
Operation of Class II putrescible landfill								
Disposal of waste, decomposition of wastes, tipping, application of	Dust	Air/windborne pathway causing impacts to health	Surrounding vegetation and threatened flora /	Refer to Section 3.1	C = Slight L = Unlikely	Y	N/A	Emission to be regulated under the general provisions of the EP Act

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**				
landfill cover, vehicle movement		and amenity	fauna species		**Low Risk**			
	Noise			Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	Emission to be regulated under the *Environmental Protection (Noise) Regulations 1997*
	Odour			Refer to Section 3.1	C = Slight L = Possible **Low Risk**	Y	Condition 1 & 2	N/A
	Windblown wastes			Refer to Section 3.1	C = Slight L = Possible **Low Risk**	Y	Condition 13	N/A
	Contaminated stormwater	Overland runoff potentially impacting ecosystem health	Underlying groundwater Surrounding vegetation and threatened flora / fauna species	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 1, 10, 11 & 12	N/A
	Leachate	Infiltration into soil and groundwater impacting ecosystem health	Underlying groundwater	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	N	**<u>Condition 1</u>**	As part of this licence application, the licence holder requested the annual throughput of waste to be disposed of at the landfill to be increased from 150 tonnes per annual period to 700 tonnes per annual period. The *Environmental Protection (Rural Landfill) Regulations 2002* lists the frequency of cover material as fortnightly for premises which are receiving between 500 and 2,000 tonnes of waste per annual period. Condition 1 has been updated to reflect this.
Disposal of waste, decomposition of wastes, tipping, application of landfill cover, vehicle movement, bushfires	Fire and fire washwater	Air/windborne pathway causing impacts to health and amenity Overland runoff potentially causing ecosystem disturbance Infiltration into soil and groundwater impacting ecosystem health	Underlying groundwater Surrounding vegetation and threatened flora / fauna species	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 1, 12, 14 & 15	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. **<u>Bold and underline text</u>** 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 4 January 2024	None received	N/A
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advised of proposal 4 January 2024	DEMIRS provided a letter response on 25 January 2024. DEMIRS confirmed that the proposed amendments have been incorporated into the Mining Proposal. Based on the information provided, DEMIRS considers the proposed changes to appear to be generally acceptable under the *Mining Act 1978* and Work Health and Safety (Mines) Regulations.	Noted.
Licence holder was provided with draft amendment on 23 January 2024	See Appendix 1	See Appendix 1

5. Conclusion

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

5.1 Summary of amendments

Table 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
N/A	Category 5 and Category 64 added to the prescribed premises category description table.
Condition 1	Infrastructure requirements added for the IWL/TSF, Class II putrescible landfill and detention basin
Condition 2	Waste acceptance criteria for landfill disposal added
Conditions 3, 4 & 5	Waste rejection requirements added
Condition 6	Inclusion of the IWL/TSF as an authorised discharge point for tailings

Conditions 10 & 11	Inclusion of standard spill recovery conditions
Condition 12	Condition for the prevention of stormwater contamination
Condition 13	Condition for the prevention of windblown waste
Conditions 13 & 14	Fire prevention and notification requirements
Condition 16	Updated wording to clarify condition related to treated effluent from the on-site wastewater treatment plant
Conditions 19, 20, 21 & 22	Inclusion of groundwater monitoring requirements
Condition 23	Monitoring requirements for waste inputs and outputs to the landfill
Condition 28	Inclusion of IWL/TSF and landfill reporting requirements

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

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

Condition	Summary of licence holder's comment	Department's response
Condition 19, Table 7	MB05 is not part of the groundwater monitoring network due to its proximity to MB06 and MB07. Request removal of MB05 from Table 7.	MB05 has been removed.
	Can 'hydroxide' be removed from the parameter list as this is unable to be analysed.	Hydroxide is not considered an essential parameter. The delegated officer has removed the requirement to monitor for hydroxide.
	Metals will be monitored as total metals not dissolved. Can we please confirm this is acceptable to DWER.	Metals collected from groundwater samples should be collected as dissolved metals.
Condition 21 (c)	Request removal of the need for these additional samples, was not a requirement of baseline monitoring in Works Approval and is not considered warranted for this program.	Requirement for reinstate and duplicate samples is not considered essential. The delegated officer has removed the requirement to monitor for these QA/QC samples. Note the delegated officer may require the collection of these samples if monitoring results are not considered reliable.
Condition 26 (b)	Formatting update required	Updated.
Condition 26 (c)	Formatting update required	Updated.
Amendment Report, page 3, Seepage Collection, paragraph 5	Note that seepage water collected is returned to either the TSF or the Return Water Pond. Not just the Return Water Pond.	Amendment report updated.
Amendment Report, page 4, Monitoring Network, paragraph 3	The installed monitoring bores were established for the purpose of monitoring only and are not capable of being used dually as recovery bores. Note also that monitoring is conducted quarterly not monthly analysis as stated in the second sentence of this paragraph.	Amendment report updated.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	☐				
Licence	☐	Relevant works approval number:		None	☐
		Has the works approval been complied with?		Yes ☐ No ☐	
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes ☐ No ☐ N/A ☐	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes ☐ No ☐	
		Date Report received:			
Renewal	☐	Current licence number:			
Amendment to works approval	☐	Current works approval number:			
Amendment to licence	☒	Current licence number:	L9326/2021/1		
		Relevant works approval number:	W6673/2022/1, W6460/2020/1, and W6649/2022/1	N/A	☐
Registration	☐	Current works approval number:		None	☐
Date application received		12/10/2023			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Covalent Lithium Pty Ltd			
Premises name		Earl Grey Lithium Project			
Premises location		Earl Grey Lithium Project located off Marvel Loch-Forrestania Road located within Shire of Yilgarn. Mining Tenements G77/137, M77/1066, M77/1080			
Local Government Authority		Shire of Yilgarn			
Application documents					
HPCM file reference number:		DER2022/000016~2			
Key application documents (additional to application form):		Supporting documents: • Proof of Occupier Status • ASIC Company Extract			

	• Emissions and Discharges • Soil Samples and Reports for TSF Commissioning
Scope of application/assessment	
Summary of proposed activities or changes to existing operations.	Licence amendment The landfill (Category 64) and TSF (Category 5) that are currently operating under time limited operational (TLO) provisions at the premises need to be incorporated into the site operational licence prior to the completion of this TLO period in January 2024. The amendment application relates to the incorporation of two new categories into the existing licence (Category 54) L9326/2021/1: • Category 5 related to the TSF, subject of W6673 which commenced time limited operations in August 2023 following submission and approval of the CCIR. TLOs for these operations will be expire in 2027. • Category 64 related to the landfill, subject of W6649 which commenced time limited operations in July 2023 following submission of the ECR. This amendment application includes a proposed increase to the throughput to meet site waste demand. The existing cell is confirmed to be able to able to accept this volume and the second cell will be constructed in due course. The current life of mine is 10 years, but the licence holder wishes to extend to approximately 50 years following future approvals.

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: premises on which — (a) metallic or non-metallic ore is crushed, ground, milled or otherwise processed; or (b) tailings from metallic or non-metallic ore are reprocessed; or (c) tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam.	1.2 million tonnes per annum (Mtpa) of tailings. TSF related byproduct (tailings). Different to the concentrator (production of the ore).	
Category 64: Class II or III putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer and as amended from time to time) is accepted for burial	150 tonnes per annum (tpa)	700 tonnes per annum (tpa)
Category 54: Sewage facility: premises — (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters.	180 cubic metres per day (m^3/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 ☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☒ No ☐	Ministerial statement No: MS[1199] Ministerial statement No: MS[1118]

		Ministerial statement No: MS[1167] EPA Report No: 1730 & 1651
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☒ No ☐	Reference No: Assessment number 2017-7950.
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Certificate of title ☐ General lease ☐ Expiry: Mining lease / tenement ☒ Expiry: 18/02/2042 Other evidence ☒ Expiry:
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☒ N/A ☒	Managed under Part IV (MS1118 and MS1167) and Part V of the EP Act, and the Mining Act (Mining Proposal). Approval: Approved by Department of Jobs, Tourism, Science and Innovation. Assessment number 2017-7950. DMIRS approval granted. Reg ID: 79070 and Reg ID: 101345
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☐ No ☒	CPS No: N/A Clearing approved under ministerial statement 1118 and 1199
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 Clearing approved under ministerial statement 1118 and 1199
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☒ No ☐	Application reference No: Licence/permit No: GWL205547(1) Licence granted for 520,000kL until 22 February 2031

Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☒ No ☐	Name: Westonia Groundwater Area Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes ☒ No ☐ N/A ☐ Regional office: Goldfields
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: Westonia Groundwater Area Priority: Not yet classified 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 ☐	Mining Act 1978 Part IV EP Act 1986 *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 ☐	Earl Grey Lithium Project – 11761 Classification: possibly contaminated – investigation required (PC–IR) Date of classification: 28/10/2020 The premises sits over an expired gold mine that is suspected to be contaminated. The licence holder also reported a Major Non-Compliance incident of hypersaline water

		escaping from the project area during a heavy rainfall event in May 2023, which caused an area of P3 ecological community to perish. The unauthorised discharge caused stress and death of native vegetation. A drone survey conducted after DMIRS had identified the dead vegetation, indicates that the extension of the damage is approximately one hectare. See CM subfolder DWERVT11493 for more information.