



## Application for Licence Amendment

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

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<b>Licence Number</b>	L7970/1997/6
<b>Licence Holder</b>	Shire of Coolgardie
<b>File Number</b>	2012/006869-1
<b>Premises</b>	Kambalda Landfill KAMBALDA WA 6442 Legal description – Being Ngalbain location 42 and Ngalbain location 301 Crown Reserve 31717
<b>Date of Report</b>	30 April 2024
<b>Decision</b>	Revised licence granted

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

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# 1. Decision summary

Licence L7970/1997/6 is held by Shire of Coolgardie (the Licence Holder) for the Kambalda Landfill Facility (the Premises), located within Ngalbain location 42 and 301, crown reserve 31717.

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 construction and operation of the Premises. As a result of this assessment, Revised Licence L7970/1997/6 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the Premises. The Revised Licence has been 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 Amendment summary

On 26 September 2023, the Licence Holder submitted an application to the department to amend Licence L7970/1997/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Authorise Category 12 activities on the licence to first perform a screening trial to test equipment and the proposed screening operation onsite; and
- Carrying out the actual remediation work that will involve screening, separation and treatment of contaminated cupels, crucibles and slag waste material from the general waste and soil.

This amendment is limited only to Category 12 activities. No changes to the aspects of the existing Licence relating to Categories 62 and 64 have been requested by the Licence Holder.

Table 1 below outlines the proposed changes to the existing Licence.

**Table 1: Proposed throughput capacity changes**

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
Category 12	NA	50 000 tonnes or more per year	Addition of category 12 activities on the licence to allow for the screening and separation pilot trial of contaminated cupels, crucibles and slag waste material from the general waste and soil and the actual remediation work.
64	9000 tonnes per annual period	NA	NA
62			

## 2.3 Background

The Premises has historically accepted materials from Total Waste Management (now trading as Western Resource Recovery). After several investigations by DEC (now DWER) the site was referred to the Contaminated Sites Branch and subsequently classified as 'Possibly Contaminated Investigation Required' (PCIR) under Western Australia's *Contaminated Sites Act 2003* (The Act). A key component of the DEC's decision was the high concentrations of hydrocarbons within the imported waste and the presence of "cupels", which were used in a mineral fire assay process for the assessment of metal content in various ores. This process is known to result in residual concentrations of heavy metals; predominantly lead and nickel within the cupels, which are considered a potential source of contamination to the environment.

The Department of Water and Environmental Regulation (DWER) provided the Licence Holder with written instructions regarding the requirements for investigation and subsequent remediation of identified contamination for the site.

Investigations completed to date have identified concentrations of lead exceeding adopted human health criteria in various materials stockpiled at the site, particularly fire assay materials, with cupels containing most of the lead concentrations. Leachability assessments have also indicated that the lead is partially water soluble and potentially mobile. Remediation of the site is required to address the identified criteria exceedances in the stockpiled material (encompassing both soil and fire assay materials).

The following conclusions were made regarding the contamination of soil, groundwater, and the waste classification of the stockpiled materials onsite:

- background soil samples contain elevated levels of cadmium, chromium, copper, lead, nickel and zinc above laboratory limits of reporting;
- lead concentrations in soil exceeded human health assessment values for a commercial / industrial setting HIL-D (1500mg/kg) at multiple locations;
- mid-chain hydrocarbons (>C10-C16 and >C16-C34) exceeded Management Limits for Commercial/Industrial (1000 mg/kg) in samples collected from Stockpile 1, Stockpile 2, Stockpile 3, Stockpile 4 and at surface locations;
- lead concentrations in cupels and ceramic tubes routinely exceeded HIL-D (1500 mg/kg); and
- it is considered plausible that the cupels identified in stockpiled soils onsite and in capping soil present an ongoing source of contamination via leaching of lead, cadmium and nickel into surrounding site including groundwater.

Internal technical advice received from the Contaminated Sites (CS) Branch in relation to the stockpile suggested following the 'management in-situ' principle since it reduces the exposure potentials and risks, which are created when contaminated materials are moved or transported. CS recommended the construction of an engineered containment cell, into which the lead contaminated waste could be placed and the cells to be capped following disposal.

The Licence Holder engaged JBS&G Australia Pty Ltd (JBS&G) to complete a Remedial Options Assessment (ROA) for the site. The ROA has determined that the preferred remedial option is on-site immobilisation using chemical fixation (i.e., calcium hydroxide or magnesium oxide treatment). This option will require the contaminated cupels, crucibles and slag waste material to be screened and separated from the general waste and soil, and contaminated material mixed in a pug mill with an immobilising/fixing agent.

## 2.4 Proposed activities

### 2.4.1 Overview

The following information in relation to the proposed screening, segregation and immobilisation activities has been summarised from the application supporting documentation below:

- A screening pilot trial at the site, processing approximately 1,600 m<sup>3</sup> (approximately 400 m<sup>3</sup> of material from four main stockpiles) of material, is proposed before implementing the remedial works of the 50,000 m<sup>3</sup> of material present at the site.
- The contaminated material will be contained in discrete stockpiles. Stockpiles 1-3 are in the centre of the site and Stockpile 4 is in the southwest corner of the site (refer to Figure 2: Site Layout).
- The two areas are fenced and separated from general landfill and waste transfer activities carried out at the site. The site is accessed by a secure gate on the northern boundary.
- Prior to immobilisation, the material will be screened and segregated into various stockpiles. This will remove any general and putrescible waste and will separate the soil material and fire assay material into two different stockpiles for processing. The separation of these two fractions will enable a more targeted and effective remediation process.
- The soil material will be characterised and identified contaminated soil will require less chemical fixation to immobilise contamination in comparison to the fire assay material (i.e., lead concentrations are much lower in the soil in comparison to the fire assay material).

### 2.4.2 Construction activities

The screening trial and remedial works will be carried out by a contractor to be engaged by the Licence Holder. Construction activities for the proposed works will be limited to:

- Mobilisation of equipment to the site, including air-conditioned demountable building for site operatives;
- Set up screening operation and pugmill within fenced areas of Stockpiles 1-4; and
- Position dust suppression system within the screening operational zone.

### 2.4.3 Screening and remediation trial

Prior to commencement of the remedial works, the Licence Holder will first perform a screening trial to test equipment and the proposed screening operation at the site. Contaminated cupels, crucibles and slag waste material will be screened and separated from the general waste and 'low' contaminated soil. The objective of the trial is to ascertain whether the screening of material (separation of soil, fire assay material, putrescible waste, and general waste) is practicable. If segregation of the material is feasible, the trial will be used to optimise the screen sizes to ensure the best separation possible between the different materials. The screen sizes that are being considered are:

- 150 - 250 mm grizzly;
- 90 - 200 mm top deck; and
- 5 - 20 mm bottom deck

A nominal quantity of approximately 400 m<sup>3</sup> of material from each of the four stockpiles will be screened and the processed material stockpiled. The pilot trial will confirm the below:

- Does the 150 - 250 mm grizzly effectively separate the coarse general waste from the fire assay material (crucibles and cupels) material;
- Does the 90 - 200 mm top deck screen further effectively separate general waste from fire assay material (crucibles and cupels); and
- Does the 5 - 20 mm bottom deck screen effectively separate soil from fire assay material (crucibles and cupels).

Samples of the screened soil material (<4 mm and < 10 mm) will be sent for analysis and benchtop assessment to determine the success of the trial and to optimise the immobilisation process e.g., determined mixing ratios in the pug mill's mixing chamber.

Contaminated material will be mixed in a pug mill with an immobilising/fixing agent (either calcium hydroxide, magnesium oxide or similar).

The contaminated material will be processed using the screen sizes optimised in the trial. Oversized general waste material will be stockpiled separately. The screened material will be discharged from the screen onto a stacking conveyor and stockpiled into smaller stockpiles of fire assay material (crucibles and cupels) and soil.

The soil stockpiles will be individually chemically characterised in accordance with *the Landfill Waste Classification and Waste Definitions 1996* (as amended 2019) (LWCWD) and either disposed of straight to the Class II landfill cell on-site or treated through the pugmill to immobilise the contamination for Class II disposal.

The separated fire assay material (i.e., cupels, crucibles and slag) will be removed off-site for disposal at a suitable landfill facility. If on-site containment of the fire assay material is determined to be feasible (i.e., in a new containment cell), then the Licence Holder will require a separate Works Approval from DWER before proceeding with this option.

The pugmill (schematic shown below) will be used to thoroughly blend the mixture using a specific quantity of immobilisation agent and water. Sufficient water will be added to allow appropriate mixing and immobilising chemical reactions to occur. The immobilisation agent and water will be dosed into the pugmill at a carefully controlled rate that will be determined following the screening trial and benchtop assessment. The rate will be sufficient to bind the contamination and create a homogenous mixture but will not generate any excess liquid/leachate or result in a non-spadable material. No water will be discharged from the pugmill to the ground.

The immobilised soil material will be sampled and tested following the LWCWD methodology to determine if the material meets Class II landfill requirements and can be disposed of on-site or if it must be transported off-site to another facility (e.g., Class III landfill at Coolgardie).

#### 2.4.4 Remedial works

When the screening trial is completed and results are confirmed with DWER, the Licence Holder will commence the full-scale remedial works.

The overall objective of the proposal is to remediate the site to a condition suitable for proposed land use. In the absence of SSTLs, the NEPC 2013 commercial/ industrial land use (HIL-D) value for lead is considered the most appropriate remedial target for the site.

The screen will be set up within the existing fenced area for Stockpiles 1-3. Screened material will be discharged from the screen onto the stacking conveyor and stockpiled into smaller stockpiles. Oversize, waste material will be stockpiled separately (refer to fig 3). Once Stockpiles 1-3 are complete, the operation will relocate to the northeast corner of Stockpile 4.

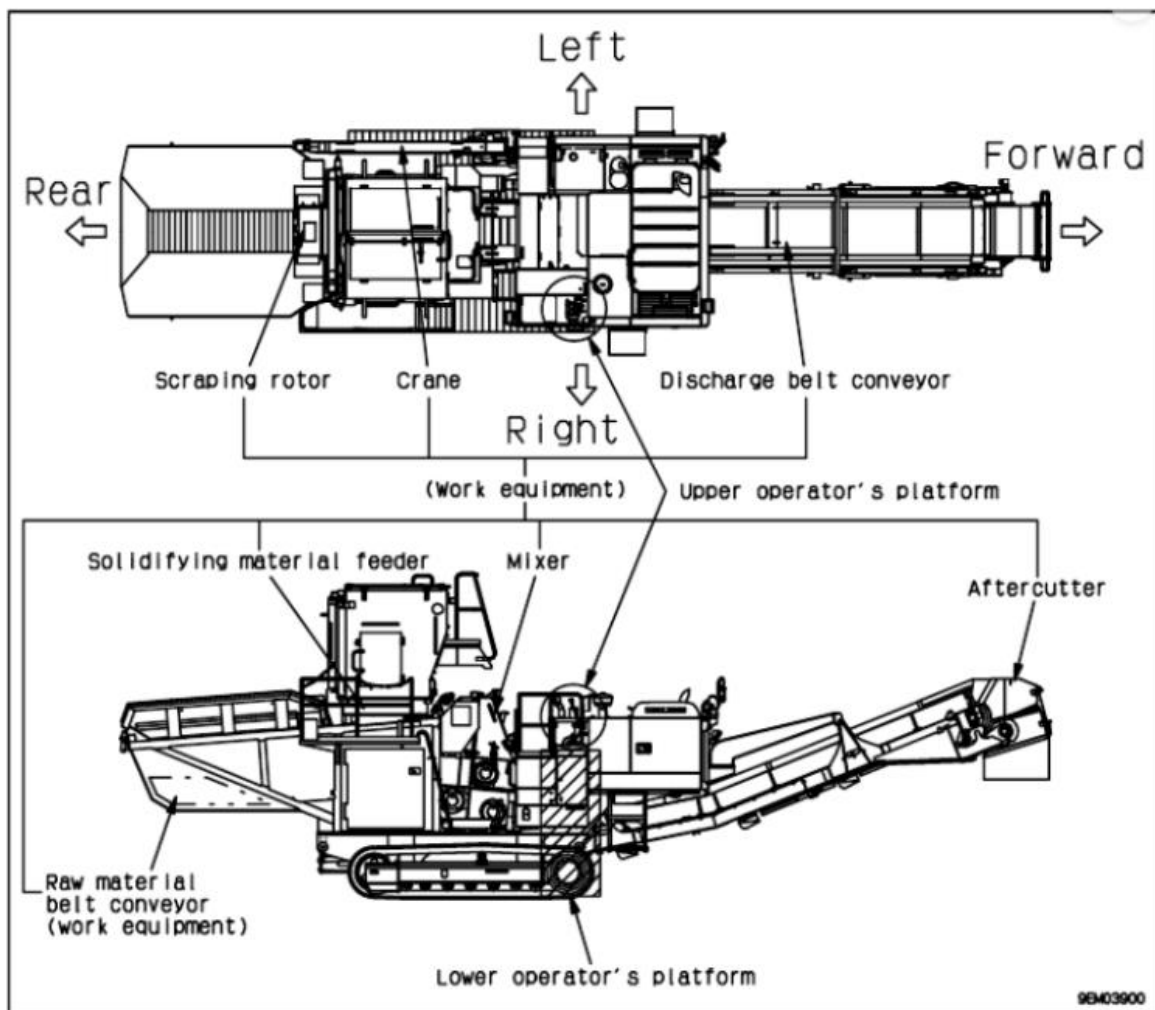
The various screened stockpiles of soil material will be characterised in accordance with

contaminated sites guidelines and will be identified and managed as detailed below:

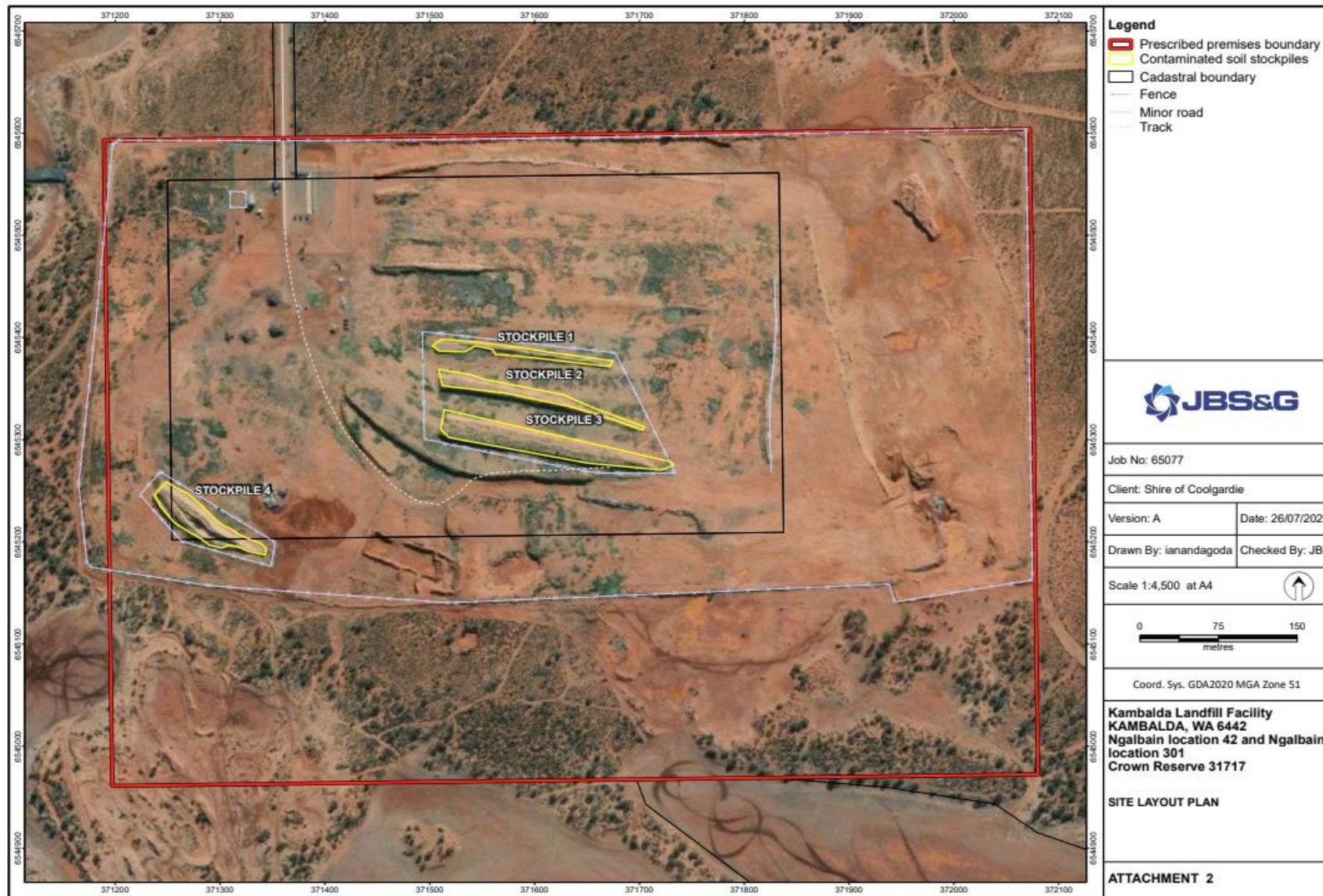
- stockpile below site-specific guidelines and can be disposed to a Class II cell;
- stockpile above site-specific guidelines, will require chemical treatment through the pugmill to achieve remedial goals for disposal to a Class II cell; and
- fire assay material (i.e., cupels, crucibles and slag) will be removed off-site for disposal at a suitable facility (if on-site containment of the fire assay material is determined to be feasible, then the Licence Holder will seek a separate works approval from DWER prior to proceeding with this option).

Where a stockpile is above site-specific guidelines, it will be fed through the pugmill. The pugmill will be used to deliver a specific quantity of immobilisation agent and water, thoroughly blending the contaminated soil fed through the pugmill. Following a suitable chemical fixing period (3 days), quality control samples will be collected of treated soil to confirm the success of the treatment process. The mixed material will then be discharged from the pugmill onto the stacking conveyor and stockpiled back.

The immobilised soil material will be sampled and tested in accordance with the LWCWD methodology to determine if the material meets Class II landfill requirements and can be disposed of on-site or if it must be transported off-site to another facility (e.g., Class III landfill at Coolgardie). Once the remedial works are complete, the equipment will be washed down in the operational area and demobilised from the site.



**Figure 1: Schematics of the Pugmill**

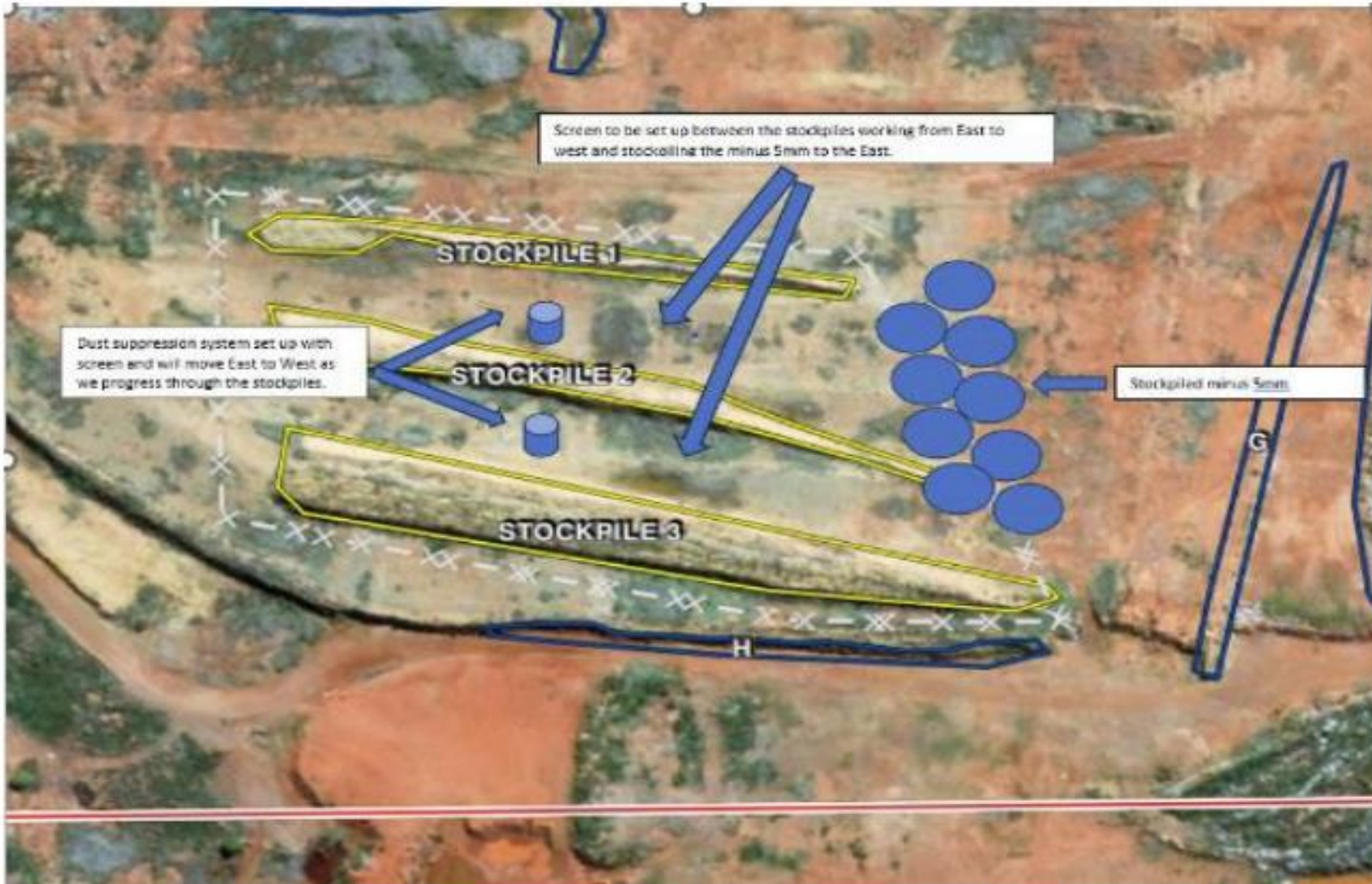


**Figure 2: Site layout**

Licence:7970/1997/6

IR-T15 Amendment report template v3.0 (May 2021)





**Figure 3: Proposed set up for screening stockpiles 1 - 3**

### 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 the mobilisation of equipment to the site and the remediation trial 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
Dust	Installation of mobile screening plant  Handling of materials by front end loader, screening of material, vehicle movements, lift-off from stockpiles and/or stored product.	Air/windborne pathway	<ul style="list-style-type: none"><li>• A water cart and the dust suppression system with access to sufficient water supply will be maintained on-site;</li><li>• To confirm the effectiveness of the proposed dust controls, two light scatter aerosol monitors (e.g., E-Samplers) will be placed down-wind and up-wind of the remediation activity during the trial phase of the project to measure total suspended particulate (TSP) concentrations in the air. The monitors will be placed according to the prevalent wind conditions at the time of trial;</li><li>• Data from the monitors will be used to implement effective controls. If required, alternative working methods or additional controls will be considered;</li><li>• Drop-heights from the stacker will be minimised (&lt;1.5m);</li><li>• observe wind direction and strength and suspend or limit dust generating activities when visible dust is generated by strong winds or blown in the direction of nearby sensitive receptors (including on-site transfer station and workers crib room);</li><li>• Controlled dosage of moisture in immobilisation agent.</li><li>• Visual monitoring will be undertaken to confirm dust management measures are effectively maintaining dust emissions at acceptable levels.</li></ul>

Emission	Sources	Potential pathways	Proposed controls
Noise	Installation of mobile screening plant  Screening and treatment of material	Air/windborne pathway	<ul style="list-style-type: none"> <li>• Limit hours of operation to daytime (7am to 7pm, Monday to Saturday);</li> <li>• All equipment regularly maintained in accordance with manufacturer specifications.</li> </ul>
Contaminated wash water	Water from washdown of equipment prior to demobilisation from site.	Seepage to soils and groundwater	<ul style="list-style-type: none"> <li>• Wash down carried out only before equipment demobilised from site;</li> <li>• Washdown completed in operational landfill area;</li> <li>• a temporary facility will be established at the works location comprising a bunded soil pad overlain by an impermeable liner. Wash water from the pad will be collected and stored (in bunded IBCs or similar) where it will be tested before being removed off-site to a licenced liquid waste facility; and</li> <li>• Monitoring via quarterly groundwater monitoring as per current licence.</li> </ul>
Hydrocarbons and chemicals	Leaks and spills from the mobile C&S plant	Discharges to land	<ul style="list-style-type: none"> <li>• Fuel stored in accordance with <i>AS 1940-2004 The storage and handling of flammable and combustible liquids</i> and the <i>Dangerous Goods Safety Act 2004</i>;</li> <li>• Fuel for the mobile C&amp;S plant sourced from self-bunded diesel tanks and distributed by a service truck.</li> </ul>
High contaminants-Disposal/ post remediation	Contaminant present in remediated soil	Direct Discharge-contamination of disposal area and groundwater	<ul style="list-style-type: none"> <li>• The immobilised soil material will be sampled and tested following the LWCWD methodology to determine if the material meets Class II landfill requirements and can be disposed of on-site or if it must be transported off-site to another facility (e.g., Class III landfill at Coolgardie), or will request DWER to bury the waste onsite via a works approval application.</li> <li>• If on-site containment of the fire assay material is determined to be feasible (i.e., in a new containment cell), then the Shire will acquire a separate Works Approval from DWER before proceeding with this option.</li> </ul>

### 3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder 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
Nearest residential premises	Civeo Kambalda Village accommodation 1.6 km north, Residential area (Kambalda East) approximately 1.5 km northeast.
Environmental receptors	Distance from prescribed activity
Surface water	There are no identified surface water features within the site, although the site is known to flood, it is considered that prior to development as a landfill the site was likely a salt pan and ephemeral water feature associated with Lake Lefroy.
Lake Lefroy	Located approximately 3km from the facility.
Groundwater dependent ecosystem	No groundwater dependent ecosystems were identified in the vicinity of the site
Groundwater	Recent groundwater monitoring in the area showed that onsite SWL ranged from 1.77m to 2.97m. The assumed groundwater flow direction for the site is expected to be to the south, towards Lake Lefroy (DoW 2017)  Superficial groundwater in the vicinity of site is considered to be a limited resource (very low anticipated yield) as well as being non-palatable for stock (including sheep).  No beneficial uses of groundwater in the site vicinity.  Groundwater licence number 62505, allocated to St Ives Gold Mining Company Pty Ltd, but there were no known abstraction bores within 1km of the site (DWER 2018c)
Public Drinking Water Source Area	The site is not located within a public drinking water source 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 incomplete they have not been considered further in the risk assessment.

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

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

The Revised Licence L7970/1997/6 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Category 12 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 <sup>1</sup> C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Source/ Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
<b>Construction</b>								
Installation of mobile screening plant including vehicle movements (reversing beepers).	Dust	Air/windborne pathway causing impacts to health and amenity	Nearest Residence situated approximately 1.5 km northeast of the premises	Refer to Section 3.1	C = Minor L = Unlikely <b>Medium Risk</b>	Y	The provisions of section 49 of the EP Act (causing pollution and unreasonable emissions) apply. Condition 5 (complaints management and recordkeeping)	N/A
	Noise			Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	<i>The Environmental Protection (Noise) Regulations 1997</i> apply. Condition 5 (complaints management and recordkeeping)	The Delegated Officer considers that any noise impacts that may arise can be regulated under the provisions of the Noise Regulations.
<b>Operation</b>								
Screening, unloading, storage of material, loading and disposal Vehicle movements	Dust	Air/windborne pathway causing impacts to health and amenity	Nearest Residence situated approximately 1.5 km northeast of the premises	Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	The provisions of section 49 of the EP Act (causing pollution and unreasonable emissions) apply. Condition 5 (complaints management and recordkeeping)	The Delegated Officer considers that the provisions of section 49 of the EP Act is sufficient to regulate dust emissions during construction.
	Noise	Air/windborne pathway causing impacts to health and amenity	Nearest Residence situated approximately 1.5 km northeast of the premises	Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	<i>The Environmental Protection (Noise) Regulations 1997</i> apply. Condition 5 (complaints management and recordkeeping)	The Delegated Officer considers that any noise impacts that may arise can be regulated under the provisions of the Noise Regulations.

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Source/ Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
	Sediment laden stormwater  Hydrocarbon spills and leaks	Overland runoff potentially causing ecosystem disturbance or impacting ground water quality	Seasonal minor creek 500m north-east  Environmental receptors identified in Section 3.1.2	Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Condition 4 ensures the Licence Holder implements all practical measures to prevent stormwater run-off becoming contaminated by the activities on the Premises and treats contaminated or potentially contaminated stormwater as necessary prior to being discharged from the Premises.  <i>The Environmental Protection (Unauthorised Discharges) Regulations 2004</i> makes it an offence to discharge certain materials into the environment.	NA
	High contaminants-Disposal/post remediation	Direct Discharge-Contaminant present in remediated soil	Contamination of disposal area and groundwater	Refer to Section 3.1	C = Moderate L = Possible <b>Medium Risk</b>	Y	Condition 35 - infrastructure and equipment requirements. Condition 36 – compliance report requirement. Condition 37 – Compliance reporting requirements. Condition 38-42 –screening and Immobilisation pilot trial requirements. Condition 43 - 48 – Remedial works requirement.	The number of samples to be collected and analysed for the validation of the treated and stockpiled soil should be adequate to provide a statistically reliable result.  Licence conditions relating to product testing to ensure that the final products contaminant levels are in compliance with the landfill.

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

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

## 4. Consultation

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

**Table 5: Consultation**

Consultation method	Comments received	Department response
Department of Energy Mines, Industry Regulation and Safety (DEMIRS) advised of proposal 30 October 2023.	DEMIRS provided comments on 2 January 2024.	Refer to Appendix 2
Department of Health (DoH) advised of proposal 30 October 2023.	DoH requested an extension to provide comment by 23 January 2024 and provided comment on 23 January 2024.	Refer to Appendix 2
Licence Holder was provided with draft amendment on 5 April 2024.	The Licence Holder provided comments on 26 April 2024.	Refer to 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
Front cover- Design capacity table	Proposed new Category 12 activity added to the licence with a design capacity of 50 000 tonnes.
1	Infrastructure and equipment requirements table added to the licence.
30	Licence conditions relating to maintaining accurate and auditable books relating to the calculation of fees, works to be conducted, monitoring programmes and any complaints received added to the licence.
31	New condition added – revised to current licensing format.
35	Licence condition relating to the installation of the infrastructure (mobile crushing and screening plant) for the pilot trial and the remedial works added to the licence.
36 - 37	Licence condition relating to the certification of the works (auditing and



	environmental compliance report) added to the licence.
38 - 42	Inclusion of screening and immobilisation pilot testing conditions
43 - 48	Inclusion of remedial works conditions
Schedule 1 Maps	Revised site plan map added to the licence showing the location of the contaminated stockpiles.  Stockpile location figure added for reference to screening and immobilisation pilot testing and remedial works

**Table 7: Consolidation of licence conditions in this amendment**

Existing condition	Condition summary	Revised licence condition	Conversion notes
1.1.1 1.1.2	Interpretation and definitions	N/A  Interpretation section, Definitions and Table 14	Revised to current licensing format.
1.1.4	Reference to code of practice	N/A  Interpretation section, Definitions and Table 14	Redundant condition. Revised to current licensing format.
1.2.1	Pollution control and monitoring equipment	N/A	Redundant condition. Adequately covered by alternative existing conditions. Deleted from licence.
1.2.2	Recovery and removal of spills	N/A	Redundant condition. Adequately covered by EP (Unauthorised Discharges) Regulations 2004. Deleted from licence.
1.2.3	Prevention of contamination and containment of contaminated stormwater	N/A	Redundant condition. Adequately covered by alternative existing conditions and proposed new conditions. Deleted from licence.
1.3.1 Table 1.3.1	Waste acceptance	Condition 2 Table 2	Revised to current licensing format.  New numbering
1.3.2	Unauthorised waste	Condition 3	New numbering
1.3.3 Table 1.3.2	Waste processing	Condition 4 Table 3	New numbering

Existing condition	Condition summary	Revised licence condition	Conversion notes
1.3.4 Table 1.3.3	Landfill infrastructure	Condition 5 Table 4	New numbering
1.3.5	Asbestos waste disposal	Condition 6	New numbering
1.3.6	Biomedical waste disposal	Condition 7	New numbering
1.3.7	Managing landfilling activities	Condition 8	New numbering
1.3.8 Table 1.3.3	Cover requirements	Condition 9 Table 5	New numbering
1.3.9	Control measures	Condition 10	New numbering
1.3.10	Windblown waste	Condition 11	New numbering
1.3.11	Implementing security measures	Condition 12	New numbering
1.3.12	Burning of non greenwaste not permitted	Condition 13	New numbering
1.3.13	Extinguishing Unauthorised fires	Condition 14	New numbering
1.3.14	Appropriate procedures in place to extinguish unauthorised fires	Condition 15	New numbering
1.3.15	Bunding provision around the bioremediation facility	Condition 16	New numbering
1.3.16	Retainment of contaminated stormwater within the Biopad	Condition 17	New numbering
1.3.17	Signage at the entrance	Condition 18	New numbering
2.1.1	Ground water sampling requirements	Condition 19	New numbering
2.1.2	Quarterly monitoring requirement	Condition 20	New numbering
2.1.3	Calibration of monitoring equipment in accordance with the specifications	Condition 21	New numbering
2.1.4	CEO to be notified where the requirements for calibration cannot be met	Condition 22	New numbering
2.2.1 Table 2.2.1	Monitoring of inputs and outputs	Condition 23 Table 6	New numbering
2.3.1 Table 2.3.1	Monitoring of groundwater quality	Condition 24	New numbering

Existing condition	Condition summary	Revised licence condition	Conversion notes
3.1.1	Records	Condition 25	New numbering
3.1.2	Person in charge of the landfill to be fully aware of the licence conditions	Condition 26	New numbering
3.1.3	Recording and maintaining complaints register	Condition 27	New numbering Revised to current licensing format.
3.1.4	Compliance reporting	Condition 28	New numbering
3.1.5	Maintaining a register of Special Waste Type 1 and Special Waste Type 2	Condition 29	New numbering
3.2.1 Table 3.2.1	Annual Environmental reports to be submitted after the annual period	Condition 32 Table 8	New numbering
3.2.2	Annual Environmental Reporting requirement	Condition 33	New numbering
3.3.1 Table 3.3.1	Notification requirement	Condition 34 Table 9	New numbering
Schedule 1: Maps	Premises map	Schedule 1: Map	No change to map

## 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 35 (Table 10: Infrastructure construction requirements)	<p>The licence holder requests that the design, construction and installation requirements for the mobile crushing and screening plant be amended to provide some flexibility regarding the make and model of equipment that may be used. The preferred contractor cannot confirm what specific equipment will be used until the contract has been awarded and the timing of the proposed works has been confirmed.</p> <p>The licence holder requests that the wording of the specification be changed as follows: <i>2-stage mobile crushing and screening plant not exceeding 50,000 m<sup>3</sup> throughput, consisting of:</i></p> <ul style="list-style-type: none"> <li>• <i>Komatsu WA 470 Loader (or equivalent)</i></li> <li>• <i>Terex Finlay 693 Screen (or equivalent)</i></li> <li>• <i>424 Telestack Stacker (or equivalent)</i></li> <li>• <i>Terex Finlay 683 Pugmill (or similar)</i></li> <li>• <i>constructed and installed as per the manufacturer's specifications</i></li> </ul> <p><i>Dust controls:</i></p> <ul style="list-style-type: none"> <li>• <i>Water cart</i></li> <li>• <i>Dust suppressant system –PR– DFT PLUS (misting cannon or similar)</i></li> </ul>	Changes implemented as requested.
	<p>The licence holder requests that the reference to clean stormwater being diverted around the borrow pit (BA83A2) area be deleted. There is no borrow pit on the premises.</p> <p>The licence holder also requests that the reference to culverts be deleted as none will be required for the proposed works, i.e., stormwater will be diverted away from operational areas using bunds. The requested deletions are as follows:</p> <ul style="list-style-type: none"> <li>• <i>drainage bunds and culverts constructed and positioned to prevent clean stormwater from entering operational areas and divert clean stormwater around the borrow pit (BA83A2) area to natural drainage lines</i></li> </ul>	Changes implemented as requested.

Condition	Summary of Licence Holder's comment	Department's response
Condition 39 (Table 11: Screening and Immobilisation pilot test requirements)	<p>The licence holder requests that the processing requirements for contaminated soil containing cupels, crucibles and slag waste be amended to change the screen sizes for the pilot testing from specific sizes to size ranges to allow some operational flexibility in how the screening is carried out, as follows:</p> <p><i>The following screens must be used for the pilot testing:</i></p> <ul style="list-style-type: none"> <li>• <del>200 mm</del> <b>150-250 mm</b> grizzly;</li> <li>• <del>120 mm and 150 mm</del> <b>90-200 mm</b> top deck; and</li> <li>• <del>5 mm and 10 mm</del> <b>3-20 mm</b> bottom deck</li> </ul>	Changes implemented as requested.
	<p>The licence holder requests that the processing requirements for screened stockpiles of contaminated soil be amended to allow loads of material leaving the premises to be wet down and/or covered to provide some flexibility on how potential dust emissions will be controlled:</p> <p><i>All loads of screened material leaving the premises must be wet down <b>and/or covered</b>.</i></p>	Change implemented as requested.
Condition 41 and 47	The licence holder requests that the timeframe in which these reports must be submitted to DWER be extended from 30 calendar days to 60 calendar days to allow more time for all the required information to be gathered, including laboratory analysis data, which will be subject to standard laboratory turnaround times of at least two weeks.	Changes implemented as requested.
Condition 46 (Table 15: Screened contaminated soil monitoring requirements)	The licence holder requests that the frequency of monitoring volumes of material disposed of or removed from the premises be changed from 'Continuous' to 'Each load' to reflect how the monitoring will be carried out.	Change implemented as requested.
Conditions 42 (d), 45, 48 and 48 (d)	Cross referencing typographical errors noted	Errors have been corrected as requested.

## Appendix 2: Summary of Stakeholders comments

Stakeholder	Summary of Stakeholder comment	Department's response
<p>Department of Health (DoH)</p>	<p>The DoH provided the following comments:</p> <ul style="list-style-type: none"> <li>▪ The main form of dust suppression is use of water cart and mobile dust suppression equipment. The means for ensuring an appropriate balance of moisture content (between prevention of leaching and dust suppression) will need to be considered;</li> <li>▪ Real time dust monitoring during works is recommended to ensure control measures are sufficient to minimise dust emissions outside of the screening zone. Parameters regarding moisture content and action level for airborne dust concentrations should be provided;</li> <li>▪ It is noted that washdown water for equipment and vehicles will not be collected, rather will be allowed to seep into the ground within the operational landfill area. The trial should consider establishment of a dedicated screening zone with a wash down bay and wash water collected and tested prior to disposal to confirm the acceptability of the proposed water discharge strategy;</li> <li>▪ The current application does not provide detail on numbers of representative samples per volume of material (works approval condition will ensure that the number of samples will be based on the quantity of the stockpile); and</li> <li>▪ As the site is classified under the <i>Contaminated Sites Act 2003</i>, the proposed trial may be considered remediation and be subject to other requirements, including appropriate documentation and plans to comply with the Guideline: Assessment and management of contaminated sites. This may include material tracking, mitigation measure that prevent further contamination and a comprehensive sampling and analysis plan to verify the level of</li> </ul>	<p>This information can be submitted to DoH. DWER sent a Request Further Information (RFI) email to the Applicant dated 31 January 2024. The Applicant provided a response letter dated 6 March 2024 has provided a detailed description of the proposed trial and the main remediation work including controls in place to prevent any unauthorised discharges.</p> <p>The use of mobile dust suppression equipment will be carefully monitored to ensure that it is effective at mitigating dust emissions whilst not generating leachate. The proposed equipment has been selected as it provides a controlled water mist that is evenly dispersed, which prevents the pooling and ponding of water and avoids the creation of muddy surfaces that can result in material being tracked out of the operational area.</p> <p>Real-time visual assessment of fugitive dust emissions will be conducted by operational personnel during remediation activities. A 'dust event' is defined as the occurrence of visible fugitive dust from the remediation activities that exits a boundary of the landfill for a duration of greater than one minute. A windsock will be installed at the site to indicate wind direction and approximate wind strength to aid visual monitoring.</p> <p>Equipment used for the proposed works will only be washed down when it is demobilised from the site. Since both stages of the work are carried out consecutively with no significant break in between, only one washdown would be required at the completion of the project. Given the limited duration and scale of the works situated on a licensed Class II landfill, the Shire is not intending to provide a purpose-built washdown bay. However, a temporary facility will be established at the works location comprising a bunded soil pad overlain by an impermeable liner. Wash water from the pad will be</p>

Stakeholder	Summary of Stakeholder comment	Department's response
	<p>contamination in the separated material, immobilised material and on any residual/remaining site soils within the waste stockpile and screening work areas.</p>	<p>collected and stored (in banded IBCs or similar) where it will be tested before being removed off-site to a licenced liquid waste facility.</p> <p>Screened and immobilised material stockpiles will be sampled following the protocols in the Landfill Waste Classification and Waste Definitions 1996 (as amended 2019) to ensure representative samples are taken and the material is adequately characterised.</p> <p>To confirm the effectiveness of the proposed dust controls, two light scatter aerosol monitors (e.g., E-Samplers) will be placed down-wind and up-wind of the remediation activity during the trial phase of the project to measure total suspended particulate (TSP) concentrations in the air. The monitors will be placed according to the prevalent wind conditions at the time of trial.</p> <p>Operational controls will continue to be informed by the visual monitoring of dust events. Data from the monitors will be used to inform the effectiveness of controls before the commencement of the full-scale remediation works. If required, alternative working methods or additional controls can be considered, including continuation of the monitoring and implementation of action levels for dust concentrations. Any changes to work methods, controls or monitoring will be included in a Remediation Action Plan (RAP).</p>
<p>Department of Energy Mines, Industry Regulation and Safety (DEMIRS)</p>	<p>DEMIRS provided the following comments:</p> <ul style="list-style-type: none"> <li>▪ The <i>Work Health and Safety Act 2020</i> (WHS Act) contains primary duty of care requirements, for a person conducting a business or undertaking (PCBU) to manage hazards to workers and others by eliminating the hazard, or if not practicable to do that, to minimise the risks so far as is reasonably practicable. There are also a range of specific duties in the <i>Work Health and Safety (General) Regulations 2022</i> (WHS Regulations) relating to the safe handling of materials containing lead.</li> <li>▪ A risk assessment should be conducted by the PCBU with control of the remediation in relation to the different remediation options available. This will ensure that risks to</li> </ul>	<p>This information can be submitted to DEMIRS. DWER sent a Request Further Information (RFI) email to the Applicant dated 31 January 2024. The Applicant provided a response letter dated 6 March 2024.</p> <p>As provided in the DEMIRS (WorkSafe) advice, the Shire will continue to refine the risk assessment of the proposed remediation activities through the development of the Remediation Action Plan (RAP) for the project. This will ensure that risks (e.g., lead in dust) to employees and contractors are considered, and appropriate controls are put in place. Following the finalisation of the RAP, and before the works proceed, the Shire will make the necessary notifications to DEMIRS (WorkSafe) and provide information on how the risks will be managed.</p> <p>In consideration of the advice provided by DoH and DEMIRS (WorkSafe), appropriate signage will be erected at the Community Drop-off Site advising the public of the works and any potential</p>

Stakeholder	Summary of Stakeholder comment	Department's response
	<p>workers' health are a consideration in the selection of the most appropriate methodology.</p> <ul style="list-style-type: none"> <li>▪ Works as proposed are likely to be determined to be a lead process under Regulation 393. As such, the PCBU will need to ensure relevant controls are implemented for the works as outlined in Part 7.2 of the WHS Regulations. This includes making a determination as to whether the work is lead risk work and notifying WorkSafe if it is.</li> <li>▪ Additional lead related requirements should include, but are not restricted to: <ul style="list-style-type: none"> <li>• Control of access to lead risk area</li> <li>• Dust control</li> <li>• Washing and laundering facilities</li> <li>• Personal protective equipment</li> <li>• Respiratory protective equipment</li> <li>• Health monitoring</li> <li>• Air monitoring</li> <li>• Information, instruction and training for workers in relation to lead.</li> </ul> </li> <li>▪ Broader safety issues such as supervision, or hazards other than lead, which must also be addressed in accordance with the WHS Act and WHS Regulations.</li> <li>▪ If the works proceed, the PCBU conducting the works should contact WorkSafe pursuant to regulation 493 – Notification of lead risk work and to provide information on how risks will be managed.</li> </ul>	<p>hazards. Should visible dust cross the boundary of the landfill site into the Community Drop-off Area, the remediation works will cease, and community access restricted until the dust event stops (refer to the response to Item 3 of the DoH comments). The risk to members of the public using the community facilities will be further reduced given they will only be in the area for minutes while their waste items are dropped off.</p>



## Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY				
<b>Application type</b>				
Amendment to licence	<input checked="" type="checkbox"/>	Current licence number:	L7970/1997/6	
		Relevant works approval number:		N/A
Date application received		21/8/2023		
<b>Applicant and Premises details</b>				
Applicant name/s (full legal name/s)		Shire of Coolgardie		
Premises name		Kambalda Landfill Facility		
Premises location		Crown Reserve 31717 Kambalda WA 6442		
Local Government Authority		Shire of Coolgardie		
<b>Application documents</b>				
HPCM file reference number:				
Key application documents (additional to application form):		Signed licence amendment application form and Supporting Information document dated 31 July 2023 for Pilot Trial and Remedial Works, Contaminated Waste (Soil) Stockpiles		
<b>Scope of application/assessment</b>				
Summary of proposed activities or changes to existing operations.		<p>In October 2011 the Shire of Coolgardie breached licence conditions relating to the acceptance of Class II landfill waste. Stockpiles of soil containing cupels, crucibles and slag waste (from laboratory fire assay process) containing lead were identified as the primary contaminant(s) of concern. The crucibles and slag also have high lead leachability and need to be segregated from the soil. The size of the slag and the anticipated quantity in the stockpile is unknown. Stockpiles also include suspect petroleum hydrocarbons (e.g., oils, diesel), as well as mine site related waste.</p> <p>Investigations completed to date have identified concentrations of lead exceeding adopted human health criteria in various materials stockpiled at the site, particularly fire assay materials, with cupels containing most of the lead concentrations. Leachability assessments have also indicated that the lead is partially water soluble and potentially mobile. Remediation of the site is required to address the identified criteria exceedances in the stockpiled material (encompassing both soil and fire assay materials).</p> <p>The Shire engaged JBS&amp;G Australia Pty Ltd (JBS&amp;G) to complete a Remedial Options Assessment (ROA) for the site. The ROA has determined that the preferred remedial option is on-site immobilisation using chemical fixation (i.e., calcium hydroxide or magnesium oxide treatment). This option will require the contaminated cupels, crucibles and slag waste material to be screened and separated from the general waste and soil, and contaminated material mixed in a pug mill with an immobilising/fixing agent.</p> <p>The Shire will initially conduct a screening pilot trial at the site, processing approximately 1,600 m<sup>3</sup> (approximately 400 m<sup>3</sup> of</p>		

	material from four main stockpiles) of material present at the site. This licence amendment application is to seek approval from the Department to carry out the proposed screening trial.
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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: 12 Screening, etc. of material:	Premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.	50, 000 tonnes or more per year
Category 62: Premises on which waste is stored, or sorted, pending final disposal or re-use	Not more than 9 000 tonnes per annual period	NA
Category 64: Class II putrescible landfill site: premises on which waste (as determined by reference to the waste types set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the CEO and as amended from time to time) is accepted for burial.		NA

**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?

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"/>	CPS No: N/A 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"/>	Application reference No: N/A Licence/permit No: N/A 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 type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: Licence/permit No: Licence / permit not required.
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Type: Proclaimed Groundwater Area/Surface Water Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office: Swan Avon / Mid-West Gascoyne / Kwinana Peel / North West / South West / Goldfields / South Coast
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Priority: P1 / P2 / P3 / N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to <u>WQPN 25</u> )? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Note: If the proposed activity is not listed as a compatible land use with the PDWSA please consult with the relevant regional office (Regulatory Services - Water) and Water Source Protection (Science and Planning).
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act</i> )	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If Yes include details here.
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If Yes include details of which EPP(s) here.
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	NA

<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Contaminated soil containing high lead concentration. Classification: contaminated – remediation required (C-RR) Date of classification: N/A</p>
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