



# Decision Document

## *Environmental Protection Act 1986, Part V*

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**Licensee:** St Barbara Limited

**Licence:** L8337/2009/2

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**Registered office:** 1205 Hay Street  
WEST PERTH WA 6005

**ACN:** 009 165 066

**Premises address:** Gwalia Mine  
Mining Tenements: G37/25, G37/26, G37/27, M37/17, M37/25, M37/55,  
M37/137, M37/170, M37/200, M37/247, M37/251, M37/333, M37/391,  
M37/903, M37/1026, M37/1027, L37/33, L37/34, L37/35, L37/36, L37/56,  
L37/58 and L37/66  
LEONORA WA 6438  
as depicted in Schedule 1.

**Issue date:** Friday, 7 February 2014

**Commencement date:** Sunday, 9 February 2014

**Expiry date:** Thursday, 8 February 2029

### **Decision**

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue a licence. DER considers that in reaching this decision, it has taken into account all relevant considerations.

Decision Document prepared by: Louise Lavery  
Senior Licensing Officer

Decision Document authorised by: Tim Gentle  
Delegated Officer



# Contents

Decision Document	1
Contents	2
1 Purpose of this Document	2
2 Administrative summary	2
3 Executive summary of proposal and assessment	3
4 Decision table	4
5 Advertisement and consultation table	8
6 Risk Assessment	9
Appendix A	10
Appendix B	13

## 1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER’s decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER’s assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal, and it is the proponent’s responsibility to ensure they have all relevant approvals for their Premises.

## 2 Administrative summary

Administrative details		
Application type	Works Approval <input type="checkbox"/> New Licence <input type="checkbox"/> Licence amendment <input checked="" type="checkbox"/> Works Approval amendment <input type="checkbox"/>	
Activities that cause the premises to become prescribed premises	<b>Category number(s)</b>	<b>Assessed design capacity</b>
	5	1,500,000 tonnes per annual period
	6	2,500,000 tonnes per annual period
	67	In aggregate 2000 kilograms or more (fuel with a sulphur content of less than 0.25%)
	70	50,000 tonnes per annual period
	73	1,000 cubic meters
89	5,000 tonnes per annual period	
Application verified	Date: N/A	
Application fee paid	Date: N/A	
Works Approval has been complied with	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Compliance Certificate received	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	



Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	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"/>
Is the proposal subject to Ministerial Conditions?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
		Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i> )?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Department of Water consulted Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
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"/> If Yes, include details here, eg Site is subject to SO <sub>2</sub> requirements of Kwinana EPP.		

### 3 Executive summary of proposal and assessment

The Gwalia mine site was established in 1897 as an open pit gold mine and has produced over 4 million ounces of gold. Gwalia is located three kilometres south of the town of Leonora and has been owned by St Barbara Limited since March 2005.

The ore is mined underground using a Longhole Open Stopping method.

Ore is trucked to the Gwalia processing plant in Leonora. The processing plant has a three stage crushing, one stage milling circuit with one designated leach tank and 7 adsorption tanks. Tailings are thickened and sent to the tailings storage facility (TSF).

Emission types associated with the activities conducted onsite include noise, dust, putrescible waste, tailings, tailings seepage and mine dewater.

#### November 2016 Amendment

This Licence amendment is a result of the Licensee applying to construct a new landfill near Gwalia Deeps, and to construct and operate a new Tailings Storage Facility 4 (TSF4) on top of Grant's Patch TSF and the Licence being converted to the new format.



## 4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

<b>DECISION TABLE</b>			
<b>Licence section</b>	<b>Condition number L= Licence</b>	<b>Justification (including risk description &amp; decision methodology where relevant)</b>	<b>Reference documents</b>
<b>Premises Categories</b>	Replacement of category 67 with 52 Removal of category 70	<p>Category 52 Electric Power Generation has been placed on the Licence instead of the previous 67, Fuel Burning. Gwalia Mine operates an onsite power station comprising a mix of dual fuel (diesel and gas) and gas generators.</p> <p>Category 70, Screening, has been removed as the screening activities previously described as occurring as part of ore processing and this is covered by Category 5, already present on the Licence.</p>	<i>Environmental Protection Regulations 1987</i>
<b>General conditions</b>	N/A	No additional conditions are deemed necessary under General conditions.	N/A
<b>Premises operation</b>	L1.2.1  L1.2.2 – 1.2.5 Table 1.2.1 Table 1.2.2	<p>L1.2.1 has been added to the licence to ensure pipelines are managed appropriately to reduce the risk impact to vegetation from spills. Refer to Appendix B for DER's assessment and decision making in relation to operation of new pipelines for TSF4.</p> <p>L1.2.2 to 1.2.5 and Table 1.2.1 have been included to ensure the Licensee manages containment infrastructure to limit impact to the environment. L1.2.4 specifies that the seepage recovery systems in place for TSF3 and to be constructed for TSF4, must be maintained and seepage returned to the process or TSFs.</p> <p>These conditions replace previous licence conditions W2(a) – W2(c), W3(a), W5(a), W5(b), W9(a), W9(b) and W16.</p>	<p><i>Works Approval Application Tailings Facility 4 Coffey Mining Pty Ltd, 24 July 2015</i></p> <p><i>Environmental Management System Manual Revision R5 – St Barbara Limited</i></p>
	L1.2.6 – 1.2.7 Table 1.2.3 Table 1.2.4	<p><b>Operation – TSF4</b></p> <p>DER's assessment and decision making is included as Appendix B.</p>	Refer Appendix B



<b>DECISION TABLE</b>			
<b>Licence section</b>	<b>Condition number L= Licence</b>	<b>Justification (including risk description &amp; decision methodology where relevant)</b>	<b>Reference documents</b>
	L1.2.8 – 1.2.10	<p>Premises operation conditions have been applied to the amended Licence to regulate the operation of the existing and new landfill. These conditions include requirements for the types of waste permitted, trench size and location, covering regularity of cover placement and recovering of windblown waste. These conditions mirror the requirements of the <i>Environmental Protection (Rural Landfill) Regulations 2002</i>.</p> <p>These conditions replace previous licence conditions L1 – L5.</p> <p><b>Operation – Landfills</b> DER's assessment and decision making is included as Appendix A.</p>	<p>Letter from St Barbara Limited to DER dated 8 June 2015.</p> <p><i>Environmental Protection (Rural Landfill) Regulations 2002.</i></p>
	1.2.11	<p>Following submission from the Licensee, provision for using treated wastewater as dust suppressant is authorised, providing it is applied so as to not damage native vegetation.</p> <p>This condition replaces previous condition W10.</p>	<p>Comments from applicant received 7 October 2016. DER document reference: A133929</p>
<b>Emissions general</b>	N/A	As no limits are prescribed in this Licence, the general condition in relation to adhering to limits is not included in this Licence.	N/A
<b>Point source emissions to air including monitoring</b>	N/A	No significant point source emissions to air occur at the Premises with no adjacent sensitive receptors, hence there are no conditions in this section.	N/A
<b>Point source emissions to surface water including monitoring</b>	L2.1.1 Table 2.1.1 L3.2.1 Table 3.2.1 L3.4.2	<p>As the Licence permits discharge of mine dewater to Lake Raeside as a contingency measure, condition L2.1.1 permits the discharge and conditions L3.2.1 and L3.4.2 prescribe the monitoring required associated with assessing the potential impact of the discharge.</p> <p>It is noted that the Licensee has not discharged dewater to Lake Raeside since 2006 (St Barbara Limited 2015). Conditions L2.1.1, L3.2.1 and L3.4.2 replace previous Licence conditions G4 and part of W6(a).</p>	<p>St Barbara Limited (2015) <i>Leonora Operations Annual Environmental Report 1 September 2014</i></p>



<b>DECISION TABLE</b>			
<b>Licence section</b>	<b>Condition number L= Licence</b>	<b>Justification (including risk description &amp; decision methodology where relevant)</b>	<b>Reference documents</b>
			– 31 August 2015
<b>Point source emissions to groundwater including monitoring</b>	L2.2.1 Table 2.2.1 L3.3.1 Table 3.3.1	The Licence permits discharge of mine dewater to two open pits, Tower Hill and Harbour Lights. This discharge is considered a point source emission to groundwater. This discharge has not been reassessed as part of this amendment. The monitoring conditions specified in condition L3.3.1 are intended to provide data on the quality of the water being discharged back into the local aquifer.	General provisions of the Environmental Protection Act 1986
<b>Emissions to land including monitoring</b>	N/A	There are no emissions to land authorised by this Licence and hence no conditions in this section.	N/A
<b>Odour</b>	N/A	No significant odour sources are present within the Premises and no sensitive receptors adjacent to the Premises; hence no conditions are specified for odour.	N/A
<b>Noise</b>	N/A	As no conditions were previously applied to the licence for noise, the section has been removed.  <b>Construction and Operation – TSF4</b>  No sensitive receptors are adjacent to the TSF4 works and noise is expected to be minimal in construction and operation, so no conditions are specified.	N/A  <i>Works Approval Application Tailings Facility 4 Coffey Mining Pty Ltd, 24 July 2015</i>
<b>Monitoring general</b>	L3.1.1 to 3.1.4	Generic conditions designed to ensure all sampling done by the Licensee meets NATA and manufacturers' standards.	General provisions of the Environmental Protection Act 1986
<b>Monitoring of inputs and outputs</b>	N/A	As no conditions were applied to the previous licence for monitoring of inputs and outputs, the section has been removed.	N/A
<b>Process monitoring</b>	N/A	As no conditions were applied to the previous licence for process monitoring, the section has been removed.	N/A
<b>Ambient</b>	L3.4.1	Licence condition L3.4.1 replaces previous licence condition W6(a) in relation to	



<b>DECISION TABLE</b>			
<b>Licence section</b>	<b>Condition number L= Licence</b>	<b>Justification (including risk description &amp; decision methodology where relevant)</b>	<b>Reference documents</b>
<b>quality monitoring</b>	Table 3.4.1	<p>monitoring the impact of seepage from TSF2 (inactive) and TSF3 (active) on groundwater levels and quality.</p> <p><b>Operation – TSF4</b></p> <p>Refer to Appendix B for DER’s assessment and decision making in regard to ambient groundwater monitoring in relation to TSF4.</p>	Appendix B
<b>Meteorological monitoring</b>	N/A	As no conditions were applied to the licence for meteorological monitoring, the section has been removed.	N/A
<b>Information</b>	L4.1.1 – L4.2.2 Table 4.2.1	Conditions and table have been added to the information section of the licence to require the Licensee to submit a Compliance Report (also known as an Annual Audit Compliance Report; AACR) and reporting of information required to be submitted in the Annual Environmental Report (AER).	General provisions of the <i>Environmental Protection Act 1986</i>
	L4.2.3 – L4.2.4	Standard conditions for submission of a compliance document following completion of works authorised in Tables 1.2.3 and 1.2.4 is specified in condition L4.2.3. The requirements for the compliance document format are specified in condition L4.2.4. Note that a compliance document is required to be submitted for each stage of the works as listed in Table 1.2.3.	
<b>Licence Duration</b>	N/A	The duration of the licence was extended to 8 February 2029 on 29 April 2016 by amendment notice, to align with the Premises’ mining tenement expiry dates.	Sections 59(1)(k) and s59B(9) of the <i>Environmental Protection Act 1986</i>



## 5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
16/09/2016	Proponent sent a copy of draft instrument	<p>Request received to include provision for using treated wastewater as dust suppressant in line with the previous condition W10.</p> <p>Three tenements requested to be added to the premises boundary.</p> <p>Query regarding the application of the premises condition 1.2.1 for controls on pipelines.</p> <p>Minor errors identified.</p> <p>DER additionally queried the current categories on the existing Licence and suggested a review pending information from the Licensee on power generation.</p>	<p>Comments adopted. New condition 1.2.11 added to allow for reuse of treated wastewater for dust suppression. Minor errors corrected.</p> <p>Category 67 replaced with category 52 and category 70 removed from the Licence.</p>
29/11/2016	Proponent sent a revised copy of draft instrument	<p>Three comments received:</p> <ul style="list-style-type: none"><li>• Clarifying which generators exhaust to air and which exhausts pass through the absorption chillers;</li><li>• Correction suggested for condition 1.2.11 authorising treated wastewater reuse in dust suppression; and</li><li>• Map supplied showing the location of the existing landfill.</li></ul>	<p>Comments adopted.</p>





## 6 Risk Assessment

*Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management*

**Table 1: Emissions Risk Matrix**

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High



## Appendix A

St Barbara Limited (SBM) intends to construct, commission and operate a class II landfill on a historic waste rock landform (WRL) immediately east of the Gwalia Deeps Open Pit as shown in Figure 1 below. The area has been used for temporary stockpiling of waste vent bag material from the underground operations. Originally this material was to be recycled; however that option has not proved feasible and instead SBM will landfill the waste material at the same location. SBM also intends to deposit heavy vehicle tyres to the landfill. These will be disposed of in accord with the Part 6 of the Environmental Protection Regulations

The landfill is proposed to be developed in two stages. Stage One will consist of a short-term excavation to dispose of the existing stockpiled materials and tyres. The area of Stage One will be approximately 60m x 40m. As the material will be immediately buried no fencing is proposed for Stage One.

Stage Two will consist of the long-term landfill, utilising open trenches for waste deposition. The facility's area is approximately 70m x 40m, the length of the individual trenches will not exceed 30m in length and be opened and closed sequentially so only one trench is open at any time. Refer to Figure 2 below. This section of the landfill will be fenced to prevent unauthorised access and ensure windblown wastes are retained at the landfill. The main wastes deposited into the stage 2 landfill are vent bag material, plastics, unsalvageable steel along with small amounts of putrescibles from the Gwalia Deeps underground operation.

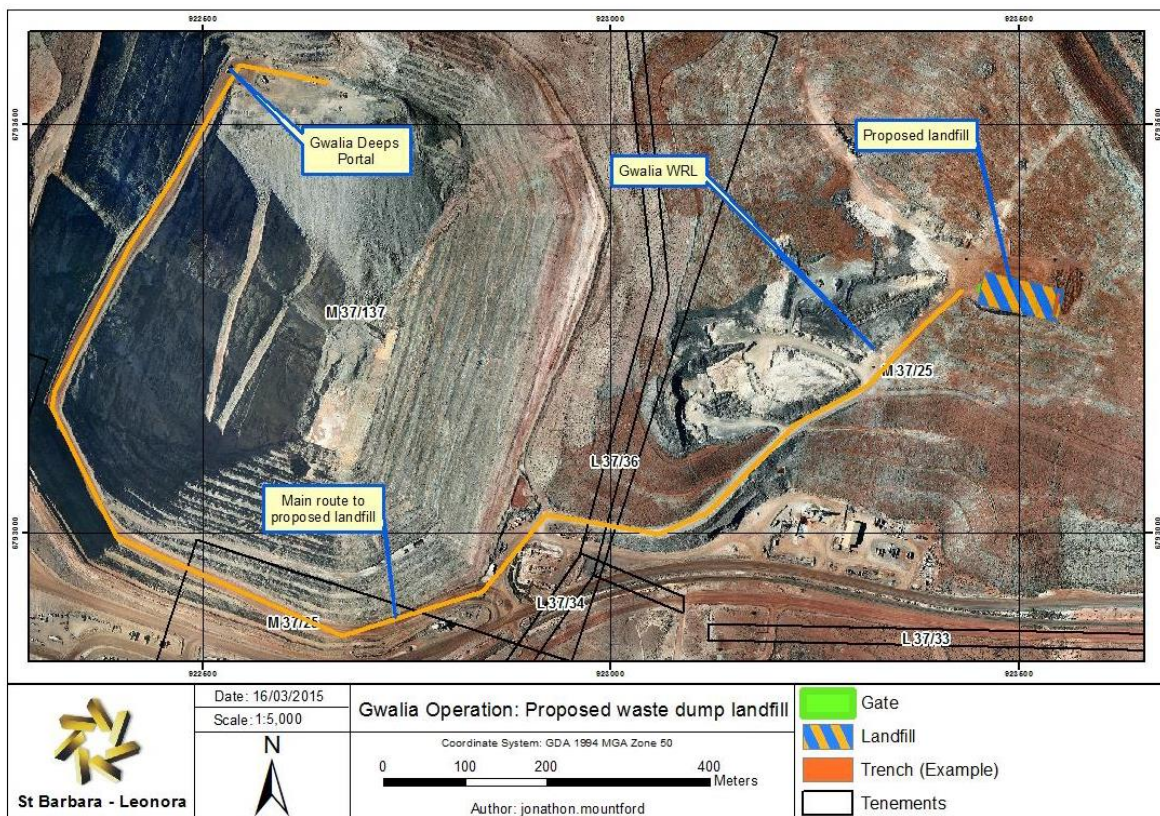


Figure 6: Location of proposed new landfill adjacent to Gwalia Deeps

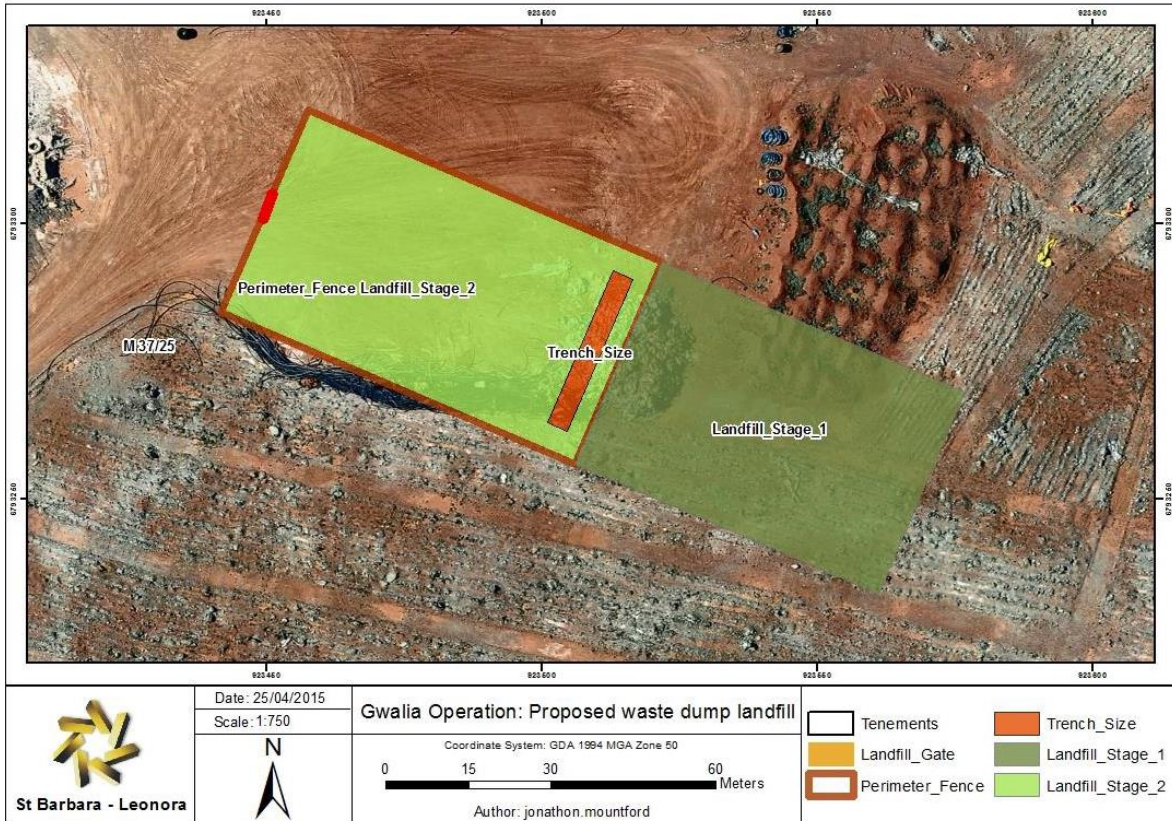


Figure 7: Depiction of the two stages of the landfill, with an indicative trench shown.

### Normal Operation

#### Emission Description

**Emission:** Uncontrolled release of putrescible waste and other light waste materials, spread via wind, feral animals, vermin.

**Impact:** Poor amenity and attraction of feral animals and additional vermin to the site

**Controls:** SBM have proposed to limit the number of open trenches to only one at a time. The Stage 2 facility will be fenced and the use of the Stage 1 facility will be limited as it is intended to dispose of waste currently stockpiled at the site. The use of the landfill will reduce the likelihood that windblown waste will eventuate; a risk currently present with stockpiled materials.

#### Risk Assessment

**Consequence:** Minor

**Likelihood:** Unlikely

**Risk Rating:** Moderate

#### Regulatory Controls

Licence condition 1.2.8 has been placed on the Licence to ensure the materials deposited to the landfill are as allowed for a Class II landfill. Condition 1.2.9 specifies the cover material for the trenches in the landfill and frequency that cover must be placed over waste materials. Licence condition 1.2.10 requires windblown waste to be periodically cleaned up. These conditions replace previous licence conditions L1 – L5.



Residual Risk

*Consequence:* Insignificant

*Likelihood:* Unlikely

*Risk Rating:* Low

**Reference**

Letter from St Barbara Limited to DER dated 8 June 2015.



## Appendix B

### Premises Operation –Tailings Storage Facility 4 (TSF4)

St Barbara Limited (St Barbara) proposes the construction of a new tailings storage facility, TSF4 over the previously de-commissioned and capped Grant's Patch Tailings Storage Facilities (GPTSFs). The location of the proposed TSF4 is directly south of the existing operational TSF3.

TSF4 will be constructed in six stages of 2.5m each from the approximate current crest level of RL368.5m, to a final crest level of 383.5m. Based on current production levels and in operation with TSF3, TSF4 will provide a total capacity of 5.9 million tonnes and a storage life of 7.4 years.

Tailings will be delivered to the TSF4 sub-aerially and cyclically via multiple discharge spigots positioned around the perimeter. A decant water facility will be established and excess decant will be diverted back to the processing plant (Coffey Mining Pty Ltd 2015).

### Normal Operations - TSF Seepage

#### Emission Description

*Emission:* Seepage of tailings liquor from TSF4 into surrounding groundwater.

An August 2016 tailings sample indicated a total cyanide concentration of 8.32 mg/L in the tailings liquor. Tailings also contains elevated levels of a range of metals including aluminium (29.4 mg/L), arsenic (0.082 mg/L) and chromium (0.245 mg/L).

*Impact:* Increase in SWLs of groundwater such that there is a recordable impact to vegetation health, from groundwater inundation in the root zone (waterlogging). Increase in groundwater levels of heavy metals including mercury, nickel and lead.

Groundwater in the immediate vicinity of the project area is typically hypersaline (between 72,000mg/L and 132,000mg/L) and contains trace levels of WADCN (peaking at 0.27mg/L) (Coffey Mining Pty Ltd 2015). Recent 2014 - 2015 groundwater monitoring data in the vicinity of TSF2 and TSF3 did not detect WAD CN above an analytical detection limit of 0.04 mg/L (St Barbara Limited 2015). Groundwater in the project area moves in a south-westerly direction, towards Lake Raeside.

*Controls:* The TSF4 will be constructed with a downstream seepage recovery system (including a sump, seepage collection trench and a pump). The effectiveness of the seepage recovery system will be audited annually during operation of TSF4 (Coffey Mining Pty Ltd 2015).

The TSF4 will be constructed on top of a capped ex-tailings facility with a base permeability averaging  $10^{-8}$  m/s. The existing tailings within GPTSFs will mitigate the seepage from TSF4. Seepage modelling undertaken using a 3-D MODFLOW model was developed to calculate the expected seepage from TSF4 in the final lift scenario (embankment height at 383.5 m RL and tailings at 383 m RL). This showed that the TSF4 would release 200m<sup>3</sup>/day to its foundations and 90m<sup>3</sup>/day to the adjacent Lake Raeside, approximately 10% of the expected seepage from the existing TSF3 (Coffey Mining Pty Ltd 2015).

Six monitoring bores will be installed around the TSF4 perimeter to monitor groundwater standing water levels and detect changes in groundwater quality due to seepage.

TSF3 is currently managed through Gwalia's TSF Operations Manual. This document outlines a set of management tasks designed to control the discharges into the TSF through monitoring, contingency actions, record management, training, allocation of management responsibilities and emergency response. The document will be amended to include TSF4 prior to the facility commencing operation.



The Licensee has made a commitment to minimise the decant pond on the TSF at all times (Coffey Mining Pty Ltd 2015). This will ensure that the rate of the seepage is kept as low as possible, in accord with the design specifications.

#### Risk Assessment

*Consequence:* Minor, seepage modelling estimates that seepage from TSF4 will be approximately 10% seepage rate of TSF3.

*Likelihood:* Possible; seepage recovery systems will be constructed however an amount of seepage will not be able to be captured by these.

*Risk Rating:* Moderate

#### Regulatory Controls

Licence conditions 1.2.2 to 1.2.5 have been amended to include TSF4 as a tailings containment facility and the ongoing management of TSF4. Seepage recovery systems are included in the approved design for TSF4 and must be maintained, along with existing seepage recovery system for TSF 3 (refer licence condition 1.2.4).

Licence condition 1.2.6 and Table 1.2.3 authorises the incremental construction of TSF4 in multiple stages. At this time, operation of TSF4 is not authorised beyond stage 1, pending receipt of compliance documentation required by conditions

Table 3.3.1 will be amended to include the six monitoring bores around the perimeter of TSF4, following installation of the six monitoring bores and prior to Stage 1 operations of TSF4.

#### Residual Risk

*Consequence:* Minor

*Likelihood:* Unlikely

*Risk Rating:* Moderate

#### **Reference**

Coffey Mining Pty Ltd (2015) *St Barbara Limited: Gwalia Mine, Works Approval Application Tailings Storage Facility 4*, 24 July 2015.

St Barbara Limited (2015) *Leonora Operations Annual Environmental Report 1 September 2014 – 31 August 2015*

### **Abnormal Operation – Tailings supernatant pond water quality**

#### Emission Description

*Emission:* Tailings with high concentrations of weak acid dissociable (WAD) cyanide discharged to TSF4 due to operator error or poor process plant control.

*Impact:* Avifauna death or poor health from contact with tailings supernatant.

*Controls:* The Licensee has made a commitment to maintain the WAD cyanide concentration below 50 mg/L, the concentration recommended by the International Cyanide Code for protection of wildlife (Coffey Mining Pty Ltd). The current Tailings Operation Manual for TSF3 will be updated to include TSF4. An August 2016 sample of tailings liquor indicated a WAD CN concentration of 9.17 mg/L.

#### Risk Assessment

*Consequence:* Moderate

*Likelihood:* Rare

*Risk Rating:* Moderate



#### Regulatory Controls

Historical management of TSF3 has seen no reported incidents of elevated WAD cyanide being discharged to the facility. No additional regulatory controls are required.

#### Residual Risk

*Consequence:* Moderate

*Likelihood:* Rare

*Risk Rating:* Moderate

### **Emergency Operation – Overtopping of TSF4**

#### Emission Description

*Emission:* Overtopping of tailings liquor or slurry from TSF4 released to land.

*Impact:* Tailings contamination of land and impact to native vegetation. Potential to impact adjacent Lake Raeside, a salt lake.

*Controls:* TSF4 is designed to contain a 1 in 100 year ARI (annual recurrence interval) rainfall event over a 72 hour period (178 mm) providing the decant water is continually removed from the facility. The Licensee has also made a commitment that a 0.7 m operational freeboard will be maintained (Coffey Mining Pty Ltd 2015).

#### Risk Assessment

*Consequence:* Major, potential to impact on biological function of the adjacent salt lake, Lake Raeside.

*Likelihood:* Rare, a 300mm freeboard provides storage in excess of the 1 in 100 year ARI, 72 hour event (178mm).

*Risk Rating:* Moderate

#### Regulatory Controls

Licence condition 1.2.3 requires that a minimum freeboard of 300mm from the top of the perimeter embankment to the tailings beach is maintained for TSF3 and TSF4. Daily inspections of freeboard are required by condition 1.2.2. These conditions replace previous licence conditions W9(a), W9(b) and W16.

#### Residual Risk

*Consequence:* Major

*Likelihood:* Rare

*Risk Rating:* Moderate

#### **Reference**

Coffey Mining Pty Ltd (2015) *St Barbara Limited: Gwalia Mine Works Approval Application Tailings Storage Facility 4*, 24 July 2015.

### **Emergency Operation – Failure of tailings delivery and return pipelines**

#### Emission Description

*Emission:* Spillage of tailings liquor or solids from failure of tailings delivery pipelines or return water pipelines.

*Impact:* Potential impact to vegetation, causing death or stress, localised soil contamination.

*Controls:* The pipeline corridor will be bunded. A leakage detection system via loss of pressure or flow will be installed on the pipelines. Regular inspection of the pipeline will be conducted (Coffey Mining Pty Ltd 2015).



Risk Assessment

*Consequence: Moderate*

*Likelihood: Unlikely*

*Risk Rating: Moderate*

Regulatory Controls

Licence condition 1.2.1 requires all tailings and tailings decant pipelines provide either telemetry systems to detect loss of flow, automatic cut outs in the event of loss of flow or secondary containment in order to capture and minimise spills in the event of a pipeline failure.

Residual Risk

*Consequence: Moderate*

*Likelihood: Unlikely*

*Risk Rating: Moderate*

**Reference**

Coffey Mining Pty Ltd (2015) *St Barbara Limited: Gwalia Mine Works Approval Application Tailings Facility 4*, 24 July 2015.