



## Application for Licence Amendment

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

---

<b>Licence Number</b>	L6420/1988/14
<b>Licence Holder</b>	Kalgoorlie Consolidated Gold Mines Pty Ltd
<b>ACN</b>	009 377 619
<b>File Number</b>	DER2015/002506-1
<b>Premises</b>	<p>Fimiston Plant and Tailings Storage Facilities</p> <p>Mining Tenements G26/15, G26/44-68, G26/70-71, G26/73-78, G26/82-86, G26/99-107, G26/138-145, G26/149, G26/159, G26/160, G26/165, G26/166, L26/267, M26/39, M26/46, M26/78, M26/86, M26/95, M26/267-268, M26/294, M26/308, M26/326, M26/359, M26/377, M26/383, M26/405, M26/448, M26/451 and M26/715</p> <p>KALGOORLIE WA 6430</p>
<b>Date of Report</b>	21/06/2022
<b>Decision</b>	Revised licence granted

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

# Table of Contents

<b>1. Decision summary .....</b>	<b>1</b>
<b>2. Scope of assessment .....</b>	<b>1</b>
2.1 Regulatory framework .....	1
2.2 Application summary .....	1
2.3 Part IV of the EP Act.....	1
<b>3. Risk assessment.....</b>	<b>2</b>
3.1 Source-pathways and receptors .....	2
3.1.1 Emissions and controls .....	2
3.1.2 Receptors.....	4
3.2 Risk ratings.....	6
<b>4. Consultation .....</b>	<b>8</b>
<b>5. Conclusion .....</b>	<b>8</b>
5.1 Summary of amendments.....	8
<b>6. References .....</b>	<b>9</b>
<b>Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions .....</b>	<b>10</b>
<b>Appendix 2: Application validation summary.....</b>	<b>11</b>
<b>Appendix 3: Items to be Decommissioned .....</b>	<b>15</b>
<b>Appendix 4: Venturi Scrubber and Slurry Tank Design.....</b>	<b>17</b>
 Table 1: Licence Holder controls.....	3
Table 2: Sensitive human and environmental receptors and distance from prescribed activity.	4
Table 3. Risk assessment of potential emissions and discharges from the Premises during construction and operation .....	7
Table 4: Consultation .....	8
Table 5: Summary of licence amendments .....	8
 Figure 1: Updated Emission Points .....	5

# 1. Decision summary

Licence L6420/1988/14 is held by Kalgoorlie Consolidated Gold Mines Pty Ltd the Fimiston Plant and Tailings Storage Facilities defined by Mining Tenements Mining Tenements G26/15, G26/44-68, G26/70-71, G26/73– 78, G26/82-86, G26/99-107, G26/138-145, G26/149, G26/159, G26/160, G26/165, G26/166, L26/267, M26/39, M26/46, M26/78, M26/86, M26/95, M26/267-268, M26/294, M26/308, M26/326, M26/359, M26/377, M26/383, M26/405, M26/448, M26/451 and M26/715.

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 L6420/1988/14 has been granted.

The Revised Licence issued as a result of this amendment supersedes the existing Licence previously granted in relation to the Premises.

## 2. Scope of assessment

### 2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

### 2.2 Application summary

On 23 February 2022 the Licence Holder submitted an application to the department to amend Licence L6420/1988/2014 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Decommissioning of the existing infrastructure (refer appendix 3). Scrubber unit (detailed as items 1-11), calciner furnace hood and ducting (items 12 -14) calciner furnace stack (item 15), foundations (items 16 and 17) and gold furnace stack (not shown).
- Installation of temporary emission stack during construction works.
- Construction/installation of a stack to treat off-gas from both the furnace and the cascade/mixing area.
- Construction/installation of a new scrubber to treat off-gas from both the gold room furnace and the cascade/mixing area (refer appendix 4).

The proposed amendments seek to improve the effectiveness of the gold room fume extraction system in removing contaminants from the gold room, and to reduce the levels of lead expelled to the atmosphere. A secondary result of this will be the improved air quality near the furnace within the gold room.

This amendment is limited only to changes to Category 5 from the existing licence. No changes to the aspects of the existing Licence relating to Category 12, 54, 63 and 64 have been requested by the Licence Holder.

### 2.3 Part IV of the EP Act

In 1991, the EPA assessed a proposal by KCGM to rationalise open-cut mining activities into a single operation, now known as the Superpit (EPA, 1991), with Ministerial Statement 0782 providing approval for implementation of the proposal.

A revised proposal was assessed by the EPA in 2007, with Ministerial Statement 0782 requiring the implementation of an Air Quality Management Plan. The Air Quality management plan is on a three year cycle, with the last revision in November 2019. The Air Quality Management plan has criteria that:

1. 24-hour average PM10 dust concentrations as a result of Fimiston Operations remain below 50 µg/m<sup>3</sup> at monitoring locations.
2. Compliance with the annual ambient air quality criteria 0.2 µg/m<sup>3</sup> specified by the World Health Organisation (2003).

Amendments with this licence will be required to comply with existing condition of Ministerial Statement 0782, with specific reference to existing Air Quality conditions.

### **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 construction and operation which have been considered in this Amendment Report are detailed in Table 1 below. Table 1 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

**Table 1: Licence Holder controls**

Emission	Sources	Potential pathways	Proposed controls
<b>Construction</b>			
Dust	Decommissioning equipment and installation work and commissioning	Air/windborne pathway causing impacts to health and amenity	<ul style="list-style-type: none"> <li>Dust emissions for the site to be managed with the Fimiston Air Quality Management Plan 2019 implemented in accordance with MS 782.</li> <li>Visual dust inspections during construction works will be undertaken.</li> <li>Construction works will be undertaken over an 8-week term.</li> </ul>
Noise	Decommissioning equipment and installation works and commissioning	Air/windborne pathway causing impacts to health and amenity	<ul style="list-style-type: none"> <li>Noise emissions are managed in accordance with the Fimiston Noise and Vibration Management Plan 2018 implemented in accordance with MS 782.</li> <li>Construction works will be undertaken over an 8-week term.</li> </ul>
<b>Operation</b>			
Mercury and Lead	Temporary gold room furnace stack discharge in Location A2 (refer figure 1)	Discharge to atmosphere	<ul style="list-style-type: none"> <li>The temporary stack will be at a height of 15.3 m for dispersion of emissions to air.</li> <li>Construction works will be undertaken over an 8-week period.</li> <li>Emissions are only emitted when the Gold Room is operating which is for 2 days/week at 8 hrs.</li> <li>Emissions from the site are managed in accordance with the Fimiston Air Quality Management Plan 2019 implemented in accordance with MS 782.</li> <li>Emissions testing will be undertaken during the temporary works phase on a periodic basis and will also be undertaken after full commissioning of the new system has been completed.</li> <li>Current and expected Mercury emissions are below NSW Clean Air Regulations guideline values.</li> </ul>
Mercury and Lead	Upgraded Stack in location A2 (refer figure 1)	Discharge to atmosphere	<ul style="list-style-type: none"> <li>Stack will be at a height of 15.3 m for dispersion of emissions to air.</li> <li>Emissions are only emitted when the Gold Room is operating which is for 2 days/week at 8hrs.</li> <li>Operational on average 2 days per week for 8 hours.</li> <li>Emissions from the site are managed in accordance with the Fimiston Air Quality Management Plan 2019 implemented in accordance with MS 782.</li> <li>Current and expected Mercury emissions are below NSW Clean Air Regulations guideline values.</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's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

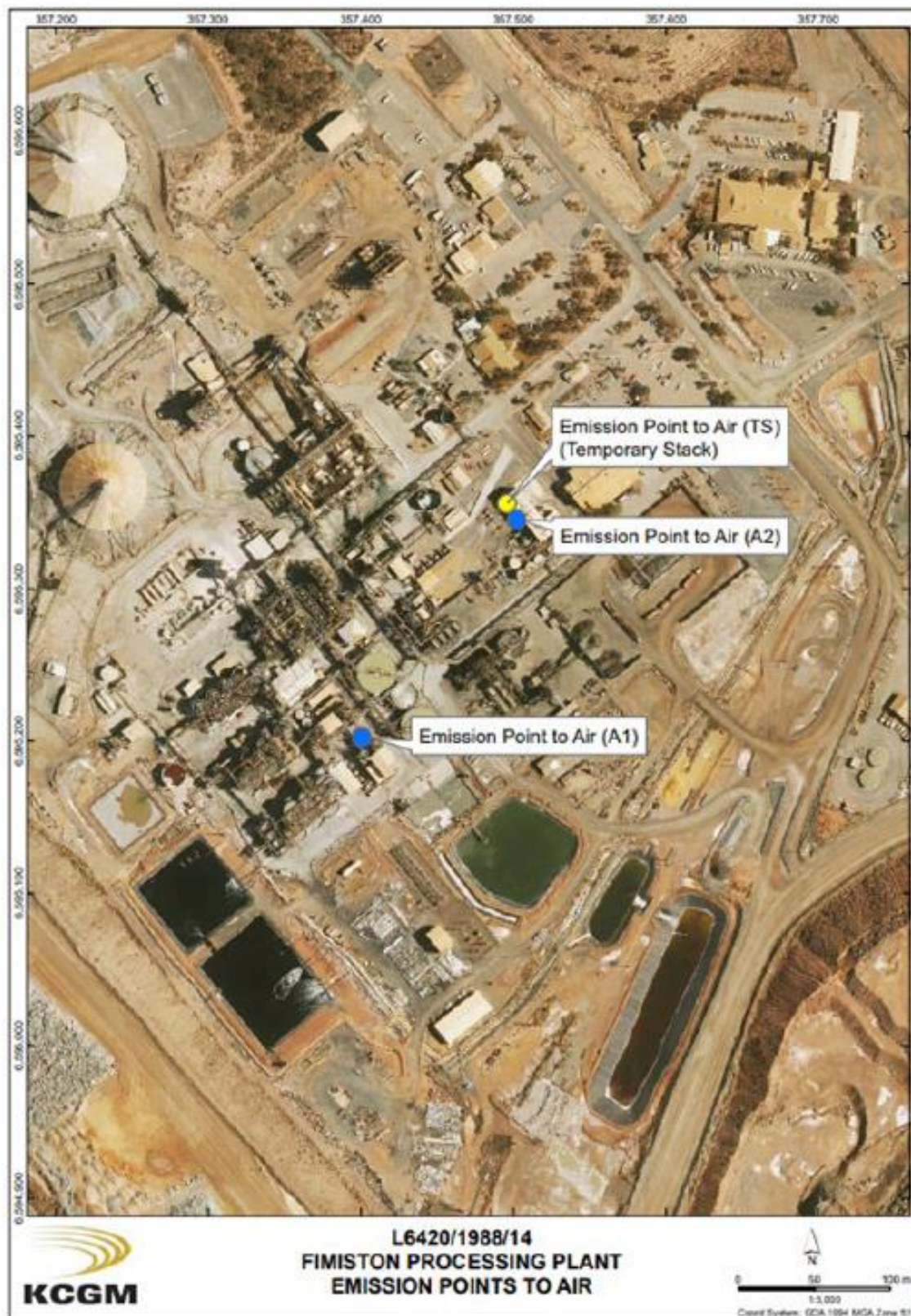
Table 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

**Table 2: Sensitive human and environmental receptors and distance from prescribed activity**

Human receptors	Distance from prescribed activity
Residential receptors	Located at western edge of Fimiston Open Pit; approximately 2 km west of the Gold Room Furnace Stack.



Figure 1: Updated Emission Points



## 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 3.

The Revised Licence L6420/1988/14 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises under categories 5, 12, 54, 63 and 64.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).



**Table 3. 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				
Construction								
Decommissioning of existing fume extraction system and Installation of temporary exhaust system, commissioning	Dust Emissions	Air/windborne pathway causing impacts to health and amenity	Residential receptors approximately 2km to the west of the premises	Refer Table 3	C = Minor L = Unlikely <b>Medium Risk</b>	Yes	7 – Design, construction and installation requirements of new infrastructure 37 – Compliance document to CEO	Not required
	Noise Emissions	Air/windborne pathway causing impacts to health and amenity	Residential receptors approximately 2km to the west of the premises	Refer Table 3	C = Minor L = Unlikely <b>Medium Risk</b>	Yes	7 – Design, construction and installation requirements of new infrastructure 37, 38 – Compliance document to CEO	Not required
Operation								
Operation of temporary stack	Waste Emissions to Air (Mercury/Lead)	Air/windborne pathway causing impacts to health and amenity	Residential receptors approximately 2km to the west of the premises	Refer Table 3	C = Moderate L = Unlikely <b>Medium Risk</b>	Yes	7 – Design, construction and installation requirements of new infrastructure 13 – Emission points to air	Not required
Operation new stack	Waste Emissions to Air (Mercury/Lead)	Waste Emissions to Air (Mercury/Lead)	Residents of City of Kalgoorlie Boulder approximately 2km to the west of the premises	Refer Table 3	C = Moderate L = Unlikely <b>Medium Risk</b>	Yes	7 – Design, construction and installation requirements of new infrastructure 13 – Emission points to air 37, 38 - Compliance document to CEO	Not required

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

**Table 4: Consultation**

Consultation method	Comments received	Department response
Local Government Authority advised of proposal (19/4/2022)	No response was received by the Local Government Authority.	Not applicable
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal on 19 April 2022.	No comments received as Mining Proposal was not required for upgrade works.	Not applicable
Licence Holder was provided with draft amendment on 10/6/2022	The Licence Holder provided comments and waived the remaining comment period on 16/6/2022. Refer to Appendix 1.	Refer to Appendix 1

## 5. Conclusion

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

### 5.1 Summary of amendments

Table 5 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 5: Summary of licence amendments**

Condition no.	Proposed amendments
7	<i>Table 7 to provide decommissioning requirements for existing infrastructure, and design and construction requirements for new infrastructure.</i>
13	<i>Updated table 10 to detail temporary and permanent emissions limits and stack locations</i>
37	<i>Inclusion of reporting condition for Table 7</i>
38	<i>Additional requirement for compliance document Table 7 to require as constructed plan for new item of infrastructure.</i>
Schedule 1: Maps	<i>Temporary emission point included on map.</i>

## 6. References

1. AERISON 2021, *Existing Scrubber Deconstruction Methodology and Process Design Summary*, Perth, Western Australia
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

## 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 7 (refer item 2 in Table 7)	Height is measured from ground level at the base of the Gold Room building.	Table 7 amended to include reference to ground level.
Condition 7 (refer item 2 in Table 7)	Temporary stack (TS) should be referenced separately from A2.	Table 7 amended to include TS as a separate emission location.
Condition 13 (Table 10)	The Emission point reference for the "temporary emissions stack for up to period of 8 weeks" should be separate from A2 and have a reference point of TS.	Emission point for TS updated in table 10.
Condition 13 (Table 10)	Height for A2 and TS is measured from ground level at the base of the Gold Room building.	Reference to ground level added in Table 10 for A2 and TS.
Schedule 1 Maps	The emission point locations are confirmed on the new map provided by licence holder.	Map included as update to schedule 1.

## Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)					
<b>Application type</b>					
Works approval	<input type="checkbox"/>				
Licence	<input type="checkbox"/>	Relevant works approval number:		None	<input type="checkbox"/>
		Has the works approval been complied with?			Yes <input type="checkbox"/> No <input type="checkbox"/>
		Has time limited operations under the works approval demonstrated acceptable operations?			Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
		Environmental Compliance Report submitted?			Yes <input type="checkbox"/> No <input type="checkbox"/>
		Date Report received:			
Renewal	<input type="checkbox"/>	Current licence number:			
Amendment to works approval	<input type="checkbox"/>	Current works approval number:			
Amendment to licence	<input type="checkbox"/>	Current licence number:	L6420/1988/14		
		Relevant works approval number:		N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:		None	<input type="checkbox"/>
Date application received					
<b>Applicant and Premises details</b>					
Applicant name/s (full legal name/s)		Kalgoorlie Consolidated Gold Mines Pty Ltd			
Premises name		Fimiston Processing Plant			
Premises location		<p>Within the Mining Tenements G26/15, G26/44-68, G26/70-71, G26/73- 78, G26/82-86, G26/99-107, G26/138-145, G26/149, G26/159, G26/160, G26/165, G26/166, L26/267, M26/39, M26/46, M26/78, M26/86, M26/95, M26/267-268, M26/294, M26/308, M26/326, M26/359, M26/377, M26/383, M26/405, M26/448, M26/451 and M26/715.</p> <p>The proposed works will be undertaken within the existing premise boundary on M 26/383.</p>			
Local Government Authority		City of Kalgoorlie Boulder			
<b>Application documents</b>					
HPCM file reference number:		DER2015/002506-1~5			
Key application documents (additional to application form):		Attachment 1A Proof of Occupier Status_M26 383_Tenement_Report			

	Attachment 1B ASIC Relational Extract - Northern Star Resources Ltd Attachment 1C NSR-Letter of Authority DWER - All Sites 202107 Attachment 2 KCGM Premises Map Attachment 3A Environmental Commissioning Plan Attachment 3B Scope of Works and Process Design Reports Attachment 6A Emissions and discharges Map Attachment 8A Risk Assessment Attachment 8B Fimiston Air Quality Management Plan (Nov 2019) (3) Attachment 8C Noise and Vibration Management Plan Attachment 8D KCGM_Gold Room Emissions Report March 2019 Attachment 10_ Amendment_fee_calculator Cover Letter - Gold Room Fume Extraction Upgrade -L6420	
<b>Scope of application/assessment</b>		
Summary of proposed activities or changes to existing operations.	<i>Licence amendment</i> <b>Construction and operation of new scrubber and stack</b> Decommissioning of the existing scrubber unit, main furnace, and cascade stacks. Construction/installation of a new scrubber, and stack to treat off-gas from both the furnace and the cascade/mixing area.	
Category number/s (activities that cause the premises to become prescribed premises)		
Table 1: Prescribed premises categories		
<b>Prescribed premises category and description</b>	<b>Assessed production or design capacity</b>	<b>Proposed changes to the production or design capacity (amendments only)</b>
Category 5: Processing or beneficiation of metallic or non-metallic ore.	14 500 000 tonnes per year	This amendment does not change the existing approved production/design capacity?
<b>Legislative context and other approvals</b>		
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"/>	A valid Ministerial statement applies
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Ministerial statement No: MS 782
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No: N/A



Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input checked="" type="checkbox"/> Expiry: Mining Lease 26/383-16/7/2034
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Proposed work will be conducted within mining tenement.
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	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: N/A Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office: N/A
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: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to <a href="#">WQPN 25</a> )? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Is the Premises subject to any other Acts or subsidiary regulations (e.g., <i>Dangerous Goods Safety Act 2004</i> , <i>Environmental Protection (Controlled Waste) Regulations 2004</i> , <i>State Agreement Act xxxx</i> )	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A

Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Not located in an EPP area
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>Classification: possibly contaminated – investigation required (PC–IR)</p> <p>Date of classification: 13 September 2010</p>

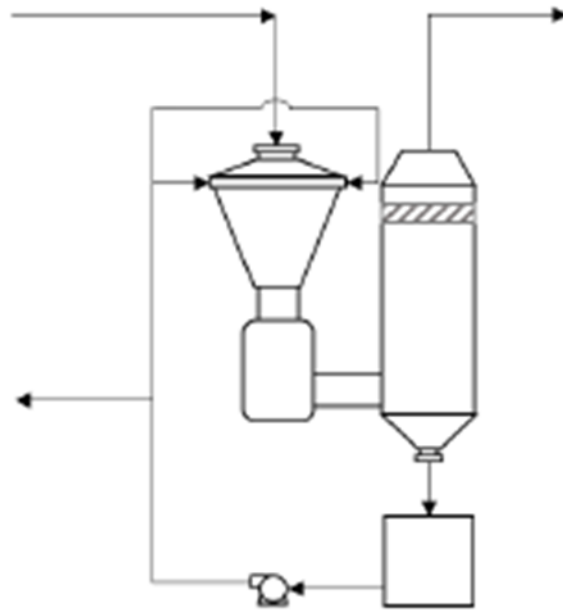
## Appendix 3: Items to be Decommissioned



Infrastructure to be Decommissioned	Reference
<b>Scrubber Unit</b>	
Inlet Duct to Venturi	1
Venturi	2
Venturi Supply Pipework	3
Separator Tank	4
Fan Inlet Ducting	5
Fan and Motor	6
Scrubber Stack and Silencer	7
Slurry Tank	8
Slurry Pump	9
Supporting Structure	10
Access Stairs	11
<b>Calciner Furnace Hood and Ducting</b>	
Calciner Furnace Hood	12
Cascade Hood	13
Ducting	14
<b>Calciner Furnace Stack</b>	
Calciner Furnace Stack	15
<b>Foundations</b>	
Concrete Pad under Scrubber	16
Concrete Pad under Stack and Fan	17

## Appendix 4: Venturi Scrubber and Slurry Tank Design

### Venturi Scrubber Design



### Sump Tank Design

