Government of Western Australia
Department of Environment Regulation

Licence

Environmental Protection Act 1986, Part V

Licensee: GSM Mining Company Pty Ltd

Licence: L8435/2010/3

Registered office: Level 5, 50 Colin Street
WEST PERTH WA 6005

ACN: 165 235 030

Premises address: Granny Smith Gold Mine
Mining tenements M38/18, M38/161, M38/162, M38/167, M38/191, M38/205, M38/287, M38/380, M38/389, M39/397, M38/440, M38/532, M38/525, M38/690, M38/691, M38/692, M38/725, L38/50, L38/51, L38/79, L38/80, L38/87, L38/96, L38/106, L38/144, L38/145, L38/144, L38/146 and L38/209
LAVERTON WA 6440
as depicted in Schedule 1.

Issue date: Thursday, 3 October 2013

Commencement date: Monday, 7 October 2013

Expiry date: Thursday, 6 October 2018

Prescribed premises category
Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
5	Processing or beneficiation of metallic or non-metallic ore	50 000 tonnes or more per year	4 500 000 tonnes per annual period
6	Mine dewatering	50 000 tonnes or more per year	10 219 614 kL per annual period
33	Chemical blending or mixing	500 tonnes or more per year	4 000 tonnes per year
52	Electric power generation	10 MW or more in aggregate (using a fuel other than natural gas) 20 MW or more in aggregate (using natural gas)	25 MW diesel 24MW using LNG
54	Sewage facility	100 m^3 or more per day	360 m^3 per day
64	Class II or III putrescible landfill	20 tonnes or more per year	9 500 tonnes per year
73	Bulk storage of chemicals, etc	1 000 m^3 in aggregate	3 004 m^3

Conditions
This Licence is subject to the conditions set out in the attached pages.

Date signed: 3 September 2015
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Danielle Eyre
Officer delegated under section 20
of the *Environmental Protection Act 1986*

Contents

Introduction

This Introduction is not part of the Licence conditions.

DER's industry licensing role
The Department of Environment Regulation (DER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DER works with the business owners, community, consultants, industry and other representatives to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

Licence requirements
This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link:
http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.

- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.

- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.

Licence holders are also reminded of the requirements of section 53 of the Act which places restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice.

Licence fees
If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions
If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and Licence summary

GSM Mining Company Pty Ltd (GSM) currently owns the Granny Smith mine site which is a gold mining and processing operation located in the north-eastern Goldfields region of Western Australia, approximately 23 km south of Laverton. Ore is extracted from the Wallaby underground mine and is processed at the Granny Smith mine processing area. Mining commenced at Granny Smith mine in June 1989 and the life of mine is currently until 2022.

Processing
Ore is hauled from the Wallaby underground operation where it is crushed and the gold is extracted using carbon-in-pulp and carbon-in-leach processes using various chemical processes.

Mine dewatering
Mine dewatering occurs from the Wallaby operation to Lake Carey. The mine dewatering system comprises of a series of dewatering production bores and a inpit sump. The water from the inpit and production bores is transferred via surface and buried pipelines to a transfer pond prior to discharge to Lake Carey through the southern discharge system. Nominated production bore water is directly discharged through the western discharge system to assist with recharge of the groundwater levels along the Lake Carey shoreline to the west of Wallaby.

The premises is also subject to conditions set by the Minister for Environment under Part IV of the Environmental Protection Act 1986. The Licensee is required to comply with:
- The requirements of the Ministerial Statement 551; and
- Commitments made in the “Barrick (Granny Smith) Pty Limited Wallaby Environmental Management Plan – Part 1 Hypersaline Management Plan (September 2006)” attached to the Ministerial Statement.

Hypersaline Management Plan Version 3, October 2012, has been assessed by DER as it relates to the underground operations and not the open pit (only the latter is affected by Ministerial Statement 551). An improvement plan has been included in the Licence to increase understanding of the effects of mine dewatering to Lake Carey.

Chemical blending or mixing
This is essential for the processing and beneficiation of metallic or non-metallic ore. GSM currently uses cyanide, hydrochloric acid, caustic soda and quick lime in the processing plant for Granny Smith mine. The use of these chemicals ensures the safe operation of the processing circuit. The site currently uses over 500 tonnes of chemicals in the processing circuit.

Electric power generation
GSM currently requires diesel fuelled power generation to operate the processing facility, site village, underground operations and any other auxiliary facilities. This ensures the process of gold extraction occurs efficiently and in a safe manner.

Sewage facility
A sewage facility is required to service the village and administration office. In 2013, approval was given to divert the Wallaby sewage to the mine waste water treatment plant (WWTP), which resulted in better waste management onsite. Treated wastewater is discharged to a sprayfield under normal operating conditions and two lagoons are available for use in emergency situations. The WWTP is estimated to discharge approximately 99,000L of effluent per day, however, this fluctuates with the site population.

Class II or III putrescible landfill
The landfill site at Granny Smith is located approximately 3 km to the north east of the mine village. The landfill is constructed on the existing Goanna waste rock dump, east of the decommissioned Goanna pit. The landfill is designed, managed and maintained in accordance with this Licence.

The landfill located at the Wallaby site is an excavated trench system which is progressively filled with Class II putrescible waste and is covered. The Wallaby site produces approximately 4 500 m^3 of waste per year.

Bulk storage of chemicals
The operation at Granny Smith mine requires chemical storage to use in the processing and benefication of ore. Bulk primary chemicals used include bulk diesel, liquid cyanide, solid cyanide, caustic soda, lime and hydrochloric acid.

This Licence is the result of an amendment sought by the Licensee to discharge TSF seepage water from the TSF 3 seepage trenches into Granny Smith and Goanna open pits. It is also to remove dewatering from the Licence and remove Lake Carey as a discharge point.

This Licence is the result of an amendment sought by the Licensee to construct and operate a new LNG power station. At this time, it has also been identified that GSM's two licenced premises (Granny Smith – L8435/2010/3 and Wallaby – L7454/2000/9) can be merged into one prescribed premises by redescribing the premises boundary area. Upon issuing of this amended Licence, L7454/2000/9 will be revoked.

The proposed 24 MW gas powered station is classified under Category 52, which is currently listed on the Licence due to the existing diesel power station. Other associated infrastructure with the project includes an underground gas pipeline, power station control system, switchboard, transformers, ablutions, store, carpark, access driveways, workshop, office, potable water tank and buried power cables to connect to site distribution network.

The power station will be constructed on Mining Leases M38/397, M38/440 and L38/144. GSM intend on constructing a new 24 MW gas (natural gas) fired reciprocating engine power station initially comprising 22 double stacked containerized generation units and associated balance of plant. The new power station will replace the two existing diesel fired power stations, however, one of these (23.8 MW) will remain available for the supply of backup power in the event of loss of gas supply.

The construction and operation of the power station will be conducted in a staged approach due to the availability of the desired Cummins gas powered generator units:

- Stage 1 – Works commencing on March 2016 to install a total of 22 generators (Cummins QSK60) which are planned to be operational until 30 June 2016.
- Stage 2 – All 22 containerised generators will be removed and replaced with 18 generators (Cummins QSK60) which have been modified as higher capacity units from 1 July 2016 onwards.

The licences and works approvals issued for the Premises for the 5 licences prior to issue of this Licence are:

Instrument log		
Instrument	**Issued**	**Description**
L5108/1988/8	06/10/2003	Licence re-issue
L5108/1988/9	06/10/2004	Licence re-issue
W4395/2007/1	19/03/2008	TSF cell 2 raise from RL443m to RL450m
W4588/2009/1	17/12/2009	TSF cell 3 raise from RL424m to RL426.5m
L8435/2010/1	01/04/2010	New licence to replace L5108/1988/9 which ceased due to non-payment of annual fees.
W4788/2010/1	23/12/2010	TSF cell 1 raise by 2.5m to RL445.5m
W4903/2011/1	11/08/2011	TSF cell 2 raise by 2.5m to RL448.5m
L8435/2010/2	01/10/2010	Licence re-issue
W5165/2012/1	07/06/2012	The dewatering from Granny Smith pit, Goanna pit and Windich pit into Lake Carey
W5268/2012/1	18/01/2013	New waste water treatment plant
W5398/2013/1	27/06/2013	TSF cell 3 raise by 2.5m to RL329m
L8435/2010/3	03/10/2013	Licence re-issue
L8435/2010/3	19/03/2015	Licence amendment to new format and to include new discharge points for TSF seepage water
L8435/2010/3	03/09/2015	Licence amended to assess new LNG power station and to merge Licence with L7454/2000/9 Wallaby Project

Severance

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION

Licence conditions

1 General

1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

'Act' means the *Environmental Protection Act 1986;*

'annual period' means the inclusive period from 1 January until 31 December in the same year;

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples;*

'AS/NZS 5667.4' means the Australian Standard AS/NZS 5667.4 *Water Quality – Sampling – Guidance on sampling from lakes, natural and man-made;*

'AS/NZS 5667.10' means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters;*

'AS/NZS 5667.11' means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters;*

'AS/NZS 5667.12' means the Australian Standard AS/NZS 5667.12 *Water Quality – Sampling – Guidance on sampling of bottom sediments*;

'averaging period' means the time over which a limit or target is measured or a monitoring result is obtained;

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' for the purpose of correspondence means:
Chief Executive Officer
Department Administering the Environmental Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Email: info@der.wa.gov.au;

'Clean Fill' has the meaning defined in the Landfill Definitions;

'commissioning' means the process of operation and testing that verifies the works and all relevant systems, plant, machinery and equipment have been installed and are performing in accordance with the design specification set out in the Licence amendment application;

'environmentally hazardous material' means material (either solid or liquid raw materials, materials in the process of manufacture, manufactured products, products used in the manufacturing process, by-products and waste) which if discharged into the environment from or within the premises may cause pollution or environmental harm.

'freeboard' means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

'fugitive emissions' means all emissions not arising from point sources identified in sections 2.2, 2.3, 2.4 and 2.5;

'Inert waste Type 1' has the meaning defined in the Landfill Definitions;

'Landfill Definitions' means the document titled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer of the Department of Environment as amended from time to time.

'Licence' means this Licence numbered L8435/2010/3 and issued under the Act;

'Licensee' means the person or organisation named as Licensee on page 1 of the Licence;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'quarterly' means the 4 inclusive periods from 1 January to 31 March, 1 April to 31 June, 1 July to 31 September and 1 October to 31 December;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated;

'spot sample' means a discrete sample representative at the time and place at which the sample is taken;

'stage 1' means the installation of 22 generators (Cummins QSK60) to be operational unitl 30 June 2016.

'stage 2' means the removal of the 22 generators from stage 1 and replaced with 18 generators (Cummins QSK60) which have been modified as higher capacity units from 1 July 2016 onwards.

'usual working day' means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia; and

"zone of influence" means the area of a receiving environment with the potential to be altered or changed as a result of an emission or discharge.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.1.5 Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:
(a) pollution;
(b) unreasonable emission;
(c) discharge of waste in circumstances likely to cause pollution; or
(d) being contrary to any written law.

1.2 General conditions

1.2.1 The Licensee shall operate and maintain all pollution control and monitoring equipment to the manufacturer's specification or any relevant and effective internal management system.

1.2.2 The Licensee shall immediately recover, or remove and dispose of spills of environmentally hazardous materials outside an engineered containment system.

1.2.3 The Licensee shall:
(a) implement all practical measures to prevent stormwater run-off becoming contaminated by the activities on the Premises; and
(b) treat contaminated or potentially contaminated stormwater as necessary prior to being discharged from the Premises.[1]

Note1: *The Environmental Protection (Unauthorised Discharges) Regulations 2004* make it an offence to discharge certain materials into the environment.

1.3 Premises operation

1.3.1 The Licensee shall ensure that all pipelines containing environmentally hazardous materials are either:
(a) equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures;
(b) equipped with automatic cut-outs in the event of a pipe failure; or
(c) provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.

1.3.2 The Licensee shall ensure that any saline dewatering effluent shall only be used for dust suppression in a manner that minimises damage to surrounding vegetation.

1.3.3 The Licensee shall ensure that tailings, decant water, dewatering water and effluent are only discharged into containment cells, dams and ponds with the relevant infrastructure requirements and at the locations specified in Table 1.3.1.

Table 1.3.1: Containment Infrastructure

Containment point reference	Material	Infrastructure requirements
TSF 1, 2 and 3	Tailings	Lined with in-situ clay to limit seepage to groundwater
Process water pond	Return water	Lined with HDPE
Lagoons 1 and 2	Waste activated sludge; and Emergency treated wastewater	Compacted clay lined – waste activated sludge to be discharged into one lagoon at a time to allow drying before being appropriately disposed of by landfilling. Approval from CEO to be sought prior to use in emergency situations
Water transfer pond	Mine dewater	HDPE lined embankment foundations and base of water transfer pond are maintained. Embankment level of 4 metres above ground.

1.3.4 The Licensee shall manage containment cells and ponds in Table 1.3.1 such that:
(a) a minimum top of embankment freeboard of 300mm or a 1 in 100 year/72 hour storm event (whichever is greater) is maintained; and
(b) methods of operation minimise the likelihood of erosion of the embankments by wave action.

1.3.5 The Licensee shall manage TSFs such that:
(a) a seepage collection and recovery system is provided and used to capture seepage from the TSF;
(b) seepage is returned to the TSF or re-used in process; and
(c) the supernatant pond on the TSF is minimised as far as practicable.

1.3.6 The Licensee shall:
(a) undertake inspections as detailed in Table 1.3.2;
(b) where any inspection identifies that an appropriate level of environmental protection is not being maintained, take corrective action to mitigate adverse environmental consequences as soon as practicable; and
(c) maintain a record of all inspections undertaken.

Table 1.3.2: Inspection of infrastructure

Scope of inspection	Type of inspection	Frequency of inspection
Tailings pipelines	Visual integrity	Twice daily
Return water lines	Visual integrity	Twice daily
Water transfer pond	Visual integrity	Daily
Dewatering pipeline	Visual integrity	Daily
Embankment freeboard	Visual to confirm required freeboard capacity is available	Daily
Decant pond	Visual to confirm the size is less than 15% of the surface of each TSF	Daily
Granny pit Goanna pit	Visual to confirm required freeboard capacity is available Visual checks for avifauna deaths	Daily

1.3.7 The Licensee shall undertake an annual assessment of vegetation within the zone of influence of any TSF 3. The assessment shall:
(a) photograph and record the presence and condition of key vegetation features within the zone of influence;
(b) compare the results of the assessment against previous years assessments and identify whether any deterioration in the presence and/or quality of vegetation has taken place; and
(c) be undertaken by a person suitably qualified in vegetation identification and sampling.

1.3.8 The Licensee shall undertake an annual water balance for the active TSF. The water balance shall as a minimum consider the following:
(a) site rainfall;
(b) evaporation;
(c) decant water recovery volumes;
(d) seepage recovery volumes; and
(e) volumes of tailings deposited.

1.3.9 The Licensee shall manage the irrigation of treated wastewater such that:
(a) no irrigation generated run-off, spray drift or discharge occurs beyond the boundary of the defined irrigation area(s);
(b) treated wastewater is evenly distributed over the irrigation area;
(c) no soil erosion occurs;
(d) irrigation does not occur on land that is waterlogged; and
(e) vegetation cover is maintained over the irrigation area.

1.3.10 The Licensee shall monitor monthly the health and condition of vegetation located at the irrigation area. An annual report is to be submitted within the Annual Environmental Report on the condition of the vegetation cover at the irrigation area.

1.3.11 The Licensee shall ensure that wastes accepted onto the landfill are only subjected to the process(es) set out in Table 1.3.3 and in accordance with any process limits described in that Table.

Table 1.3.3: Waste processing

Waste type	Process(es)	Process limits[1, 2]
Inert Waste Type 1	Disposal of waste by landfilling	All waste types Disposal of waste by landfilling shall only take place within the landfill areas shown on the Landfill Area Maps in Schedule 1. No waste shall be temporarily stored or landfilled within 35 metres of the boundary of the premises. The separation distance between the base of the landfill and the highest groundwater level shall not be less than 2m.
Putrescible waste		
Clean Fill		
Used tyres	Storage and burial	Not more than 1 000 tyres shall be stored at the premises at any one time; Used tyre stacks shall not exceed 100 m^2 in area and 4 metres in height; Used tyres must be stacked on their side walls or if stored on their treads, area baled with a securing device made from a non-combustible material.
Sewage	Biological and physical treatment	360 m^3 per day

Note 1: Requirements for landfilling tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.
Note 2: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

1.3.12 The Licensee shall ensure that cover is applied and maintained on landfilled wastes in accordance with Table 1.3.4 and that sufficient stockpiles of cover are maintained on site at all times.

Table 1.3.4: Cover requirements[1]

Waste Type	Cover requirements
Putrescible wastes	To be covered weekly with sufficient quantities of Type 1 inert waste, clean fill or other appropriate cover material to prevent the spread of fire and harbouring of disease vectors.
Inert Waste Type 1	No cover required
Inert Waste Type 2	A minimum depth of 500 mm of clean fill is maintained over the buried tyres following disposal.

Note 1: Additional requirements for final cover of tyres are set out in Part 6 of the *Environmental Protection Regulations 1987.*

1.3.13 The Licensee shall take all reasonable and practical measures to ensure that no wind-blown waste escapes from the Premises.

1.3.14 The Licensee shall construct the works to install the new LNG power station in accordance with the documentation detailed in Table 1.3.5:

Table 1.3.5: Construction Requirements[1]

Document	Parts	Date of Document
DER Licence amendment (Form P4) Supporting Documentation, Amalgamation of GSM Licences (L8435/2010/3 and L7454/2000/9) and Construction of a Gas Fired Reciprocating Engine Power Station – Category 52, GSM Mining Company Pty Ltd (GSM)	All, including Drawings and Appendices	12 June 2015

Note 1: Where the details and commitments of the documents listed in condition 1.3.14 are inconsistent with any other condition of this licence, the conditions of this licence shall prevail.

1.3.15 The Licensee shall commission each of Stage 1 and Stage 2 of the LNG Power Station, for a period not exceeding 2 months.

2 Emissions

2.1 General

2.1.1 The Licensee shall record and investigate the exceedance of any descriptive or numerical limit or target specified in any part of section 2 of this Licence.

2.2 Point source emissions to air

2.2.1 The Licensee shall ensure that where waste is emitted to air from the emission points in Table 2.2.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.2.1: Emissions points to air

Emission point reference	Emission Point	Emission point height (m)	Source, including any abatement
A1	Power station – 11 generators each with an emission stack	9.2	Combustion of diesel to power the turbines
A2	Carbon regeneration kiln stack	13.14	Firing of carbon at approximately 700º to strip any elements that attached to the carbon during the elution stage of processing.
A3	22 generators – Cummins QSK60	2.6	Liquefied natural gas – to be operated until 30 June 2016
	18 generators – Cummins QSK60	2.6	Liquefied natural gas – to be operated from 1 July 2016 onwards

2.3 Point source emissions to surface water

2.3.1 The Licensee shall ensure that where waste is emitted to surface water from the emission points in Table 2.3.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this licence.

Table 2.3.1: Emission points to surface water

Emission point reference	Emission point reference on Map of emission points	Description	Source including abatement
W1	Western discharge point – Lake Carey as shown in Attachment 1	Receiving environment-hypersaline lake	Mine dewater from the underground operation and production bore water is directed to the Transfer Pond prior to discharge to Lake Carey to ensure sufficient rentention time to maximise removal of suspended solids. Nominated production bore water is directly discharged through the western discharge system.
W2	Southern discharge point – Lake Carey as shown in Attachment 1		

2.4 Point source emissions to groundwater

2.4.1 The Licensee shall ensure that where waste is emitted to groundwater from the emission points in Table 2.4.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.4.1: Emission points to groundwater

Emission point reference on Map of emission points	Description	Source including abatement
Granny Smith pit	Discharge to pit lake in previously mined out open pit	Seepage water from TSF 3 seepage interception trenches
Goanna pit	Discharge to pit lake in previously mined out open pit	Seepage water from TSF 3 seepage interception trenches

2.4.2 The Licensee shall not cause or allow point source emissions to groundwater that do not meet the limits listed in Table 2.4.2

Table 2.4.2: Point source emission limits to groundwater

Emission point reference	Parameter	Limit (including units)	Averaging period
Granny Smith pit	Standing water level	At least 3 m below crest level	Spot sample
Goanna pit	Standing water level	At least 3 m below crest level	Spot sample

2.5 Emissions to land

2.5.1 The Licensee shall ensure that where waste is emitted to land from the emission points in Table 2.5.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.5.1: Emissions to land

Emission point reference	Emission point reference on Map of emission point	Description	Source including abatement
L1	Spray field	Pipe feeding irrigation 72 ha of native vegetation	Treated wastewater from sewage plant

2.5.2 The Licensee shall not cause or allow emissions to land that do not meet the limits listed in Table 2.5.2.

Table 2.5.2: Emission limits to land

Emission point reference	Parameter	Limit (including units)	Averaging period
L1	Biochemical oxygen demand (BOD)	<20 mg/L	Spot sample
	Total suspended solids (TSS)	<30 mg/L	
	Total nitrogen (TN)	<50 mg/L	
	Total phosphorous (TP)	<12 mg/L	
	Thermotolerant coliforms (including *E.coli*)	<1000 cfu/100mL	
	pH	6.5 – 8.5	

3 Monitoring

3.1 General monitoring

3.1.1 The licensee shall ensure that:

(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;
(c) all surface water sampling is conducted in accordance with AS/NZS 5667.4, AS/NZS 5667.6 or AS/NZS 5667.9 as relevant;
(d) all groundwater sampling is conducted in accordance with AS/NZS 5667.11;
(e) all sediment sampling is conducted in accordance with AS/NZS 5667.12;
(f) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured unless indicated otherwise in the relevant table.

3.1.2 The Licensee shall ensure that:

(a) monthly monitoring is undertaken at least 15 days apart; and
(b) quarterly monitoring is undertaken at least 45 days apart;

3.2 Monitoring of point source emissions to air

3.2.1 During commissioning of the LNG Power Station, the Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of point source emissions to air

Emission point reference	Parameter	Units[1]	Method
Stage 1: From the emission stacks of at least 3 LNG engines	Volumetric flow rate	m^3/s	USEPA Method 2
	Particulates	mg/m^3	USEPA Method 5 or USEPA Method 17
	Sulfur dioxide	mg/m^3	USEPA Method 6
	Nitrogen oxides	mg/m^3	USEPA Method 7E or 7D
	Carbon monoxide	mg/m^3	USEPA Method 10
Stage 2: From the emission stacks of at least 5 LNG engines	Volumetric flow rate	m^3/s	USEPA Method 2
	Particulates	mg/m^3	USEPA Method 5 or USEPA Method 17
	Sulfur dioxide	mg/m^3	USEPA Method 6
	Nitrogen oxides	mg/m^3	USEPA Method 7E or 7D
	Carbon monoxide	mg/m^3	USEPA Method 10

Note 1: All units are referenced to STP dry
Note 2: Monitoring shall be undertaken to reflect normal operating conditions and any limits or conditions on inputs or production.

3.3 Monitoring of point source emissions to surface water

3.3.1 The Licensee shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Monitoring of point source emissions to surface water

Emission point reference	Parameter		Units	Frequency
W1 and W2	Discharge water	pH	pH units	Quarterly (ending February, May, August and November)
		Total Dissolved Solids	mg/L	
		Total Suspended Solids	mg/L	
		Copper (Cu), Sodium, (Na), Chloride (Cl), Aluminium (Al), Cadmium (Cd), Iron (Fe), Magnesium (Mg), Calcium (Ca), Potassium (K), Manganese (Mn), Selenium (Se), Cobalt (Co), Lead (Pb), Copper (Cu), Nickel (Ni), Zinc (Zn), Arsenic (As), Chromium (Cr)	mg/L	

3.4 Monitoring of point source emissions to groundwater

3.4.1 The Licensee shall undertake the monitoring in Table 3.4.1 according to the specifications in that table.

Table 3.4.1: Monitoring of point source emissions to groundwater

Emission point reference	Parameter	Limit	Units	Frequency
GMB1 – GMB4	pH[1]	-	pH units	Quarterly
	SWL	-	mbgl	
	Total dissolved solids	-	mg/L	
	Total suspended solids	-		
	Weak acid dissociable cyanide and Total Cyanide[2]	0.5 mg/L WAD CN 1 mg/L Total cyanide		
	chloride, sulphate, bicarbonate, nitrate	-		
	calcium, magnesium, sodium, potassium, lead, zinc, iron, copper, aluminium, cadmium, cobalt, chromium and nickel	-		
Goanna pit water	Pit lake elevation	419 mRL	mAHD	Quarterly
	pH[1]	6-8	-	
	Weak acid dissociable cyanide and Total Cyanide[2]	0.5 mg/L WAD CN 1 mg/L Total cyanide	mg/L	
Granny pit water	Pit lake elevation	415 mRL	mAHD	Quarterly
	pH[1]	6-8	-	
	Weak acid dissociable cyanide and Total Cyanide[2]	0.5 mg/L WAD CN 1 mg/L Total cyanide	mg/L	

Note 1: In-field non-NATA accredited analysis permitted
Note 2: ISO-5667.3 2012 sampling methods permitted.

3.5 Monitoring of emissions to land

3.5.1 The Licensee shall undertake the monitoring in Table 3.5.1 according to the specifications in that table.

Table 3.5.1: Monitoring of emissions to land

Emission point reference	Parameter	Units	Frequency
L1	Biochemical oxygen demand	mg/L	Monthly
	Total suspended solids	mg/L	
	Total nitrogen	mg/L	
	Total phosphorous	mg/L	
	Thermotolerant coliforms (including *E.coli*)	cfu/100 mL	
	pH[1]	-	
	Effluent flow rate	kL/day	Continuous

Note 1: In-field non-NATA accredited analysis permitted

3.6 Process monitoring

3.6.1 The Licensee shall undertake the monitoring in Table 3.6.1 according to the specifications in that table.

Table 3.6.1: Process monitoring

Process description	Parameter	Limit	Units	Frequency	Method
Tailings deposition	Volumes of tailings deposited into the TSF	-	tonnes	Continuous	None specified
	Volumes of water recovered from the TSF	-			
	Volumes of seepage recovered and reused to Process Plant	-			
Seepage discharge from TSF Trench I	Cumulative volumes of seepage discharged to Goanna Pit	-	kL	Continuous	None specified
	Cumulative volumes of seepage discharged to Granny Pit	-			
	pH[1]	6-8	-	Quarterly	Spot sample

Note 1: In-field non-NATA accredited analysis permitted

3.7 Ambient environmental quality monitoring

3.7.1 The Licensee shall undertake the monitoring in Tables 3.7.1 and 3.7.2 according to the specifications in that table.

Table 3.7.1: Monitoring of ambient groundwater environmental quality

Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
TSF cell one: MB13 TSF cell two: MB22, MB25, MB26 and MB27 TSF cell three: MB29, MB30, MB31, MB32, MB33, MB36, MB37, MB38, MB39, MB40, MB46, MB48, MB49, MB50, MB51, MB52, MB53, MB53D, MB54, MB55, MB56, MB57, MB58, MB59, MB60, MB61, MB62, MB63, MB64, MB65, MB66, MB67, MB68, MB69, PB1, PB2, PB3 and PB4	Standing water level	mbgl	Spot sample	Quarterly
	pH[1]	pH units		
	Electrical conductivity	µS/cm		
	Total dissolved solids	mg/L		
	Total cyanide[2]			
	Weak acid dissociable cyanide[2]			
	Chloride, sulphate, bicarbonate, nitrate			
	Calcium, magnesium, sodium, potassium, lead, zinc, iron, copper, aluminium, cadmium, cobalt, chromium, nickel			

Note 1: In-field non-NATA accredited analysis permitted.
Note 2: ISO-5667.3 2012 sampling methods permitted.

Table 3.7.2: Monitoring of ambient sediment quality

Monitoring point reference and location	Parameter	Units	Frequency
W1 and W2	Total crust thickness	mm	Anunal
	pH[1]	pH units	Annual
	Total discharge volumes	kL	Monthly
	Discharge rates	L/s	Continuous
	Copper (Cu), Sodium, (Na), Chloride (Cl), Aluminium (Al), Cadmium (Cd), Iron (Fe), Magnesium (Mg), Calcium (Ca), Potassium (K), Manganese (Mn), Selenium (Se), Cobalt (Co), Lead (Pb), Copper (Cu), Nickel (Ni), Zinc (Zn), Arsenic (As), Chromium (Cr)	mg/L	Annual

Note 1: In-field non-NATA accredited analysis permitted.

4 Information

4.1 Records

4.1.1 All information and records required by the Licence shall:
- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 5.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
- (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
  - (i) off-site environmental effects; or
  - (ii) matters which affect the condition of the land or waters.

4.1.2 The Licensee shall ensure that:
- (a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and
- (b) any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing.

4.1.3 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.

4.1.4 The Licensee shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

4.2 Reporting

4.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 60 calendar days after the end of the annual period. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

Table 4.2.1: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form[1]
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Table 3.3.1	Monitoring of point source emissions to surface water	None specified
Table 3.4.1	Monitoring of point source emissions to groundwater	None specified
Table 3.5.1	Monitoring of emissions to land	None specified
Table 3.6.1	Process monitoring and target exceedances	None specified
Table 3.7.1	Ambient groundwater quality monitoring	None specified
Table 3.7.2	Ambient sediment quality monitoring	
-	TSF Cell three seepage management update report	None specified
4.1.3	Compliance	Annual Audit Compliance Report (AACR)
4.1.4	Complaints summary	None specified

Note 1: Forms are in Schedule 2

4.2.2 The Licensee shall ensure that the Annual Environmental Report also contains:
(a) any relevant process, production or operational data; and
(b) an assessment of the information contained within the report against previous monitoring results and Licence limits and/or targets.

4.2.3 The Licensee shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements

Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form[1]
-	Copies of original monitoring reports submitted to the Licensee by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licensee from third parties

Note 1: Forms are in Schedule 2

4.3 Notification

4.3.1 The Licensee shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements

Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
2.1.1	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1
-			

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act
Note 2: Forms are in Schedule 2

4.3.2 The Licencee shall submit a compliance document to the CEO, following the construction of the works and prior to commissioning of the same.

4.3.3 The compliance document shall:
(a) certify that the works were constructed in accordance with the conditions of the Licence;
(b) be signed by a person authorised to represent the Licencee and contain the printed name and position of that person within the company.

4.3.4 The Licensee shall submit a commissioning report for the LNG Power Station, to the CEO within 3 months of the completion of commissioning.

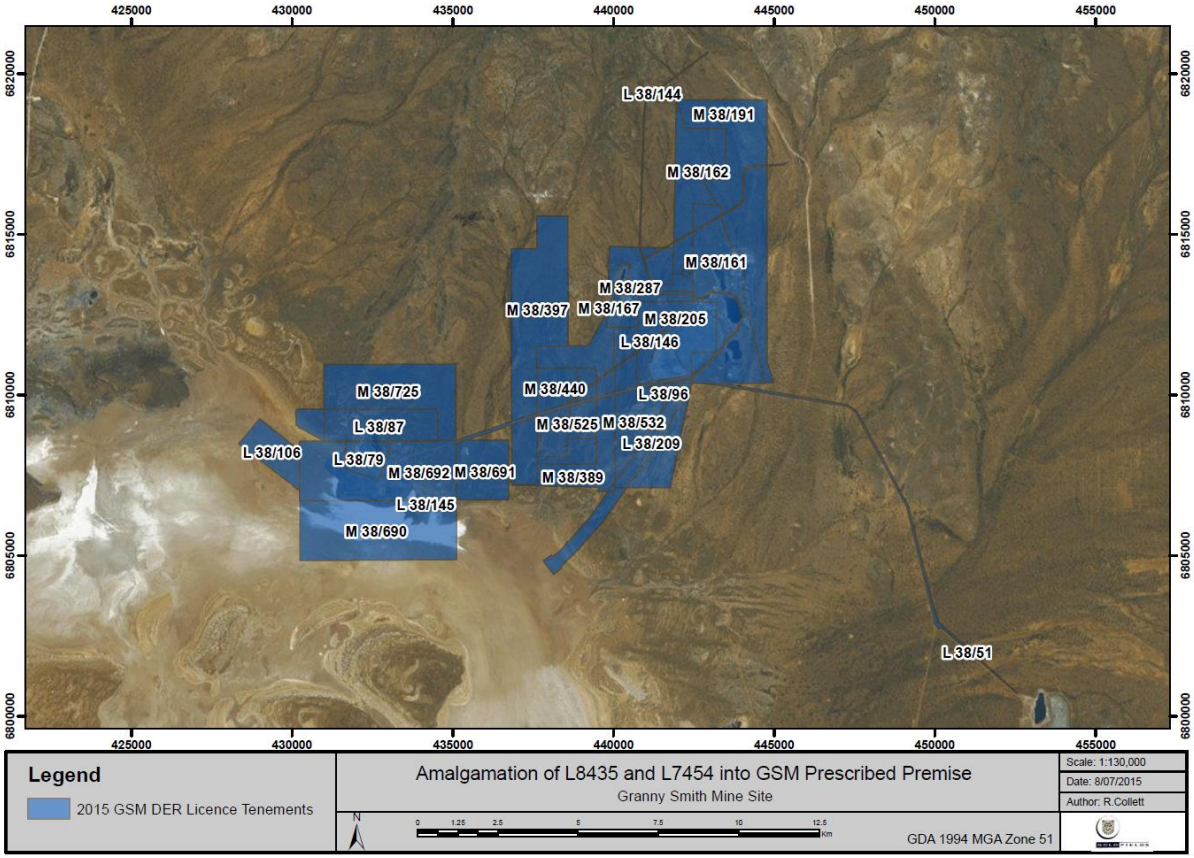
4.3.5 The Licensee shall ensure the commissioning report includes;

(a) a list of any original monitoring reports submitted to the Licensee from third parties for the commissioning period;
(b) a summary of the environmental performance of the LNG Power Station as installed, against the design specification set out in the amendment application; and
(c) where they have not been met, measures proposed to meet the design specification, together with timescales for implementing the proposed measures.

Schedule 1: Maps

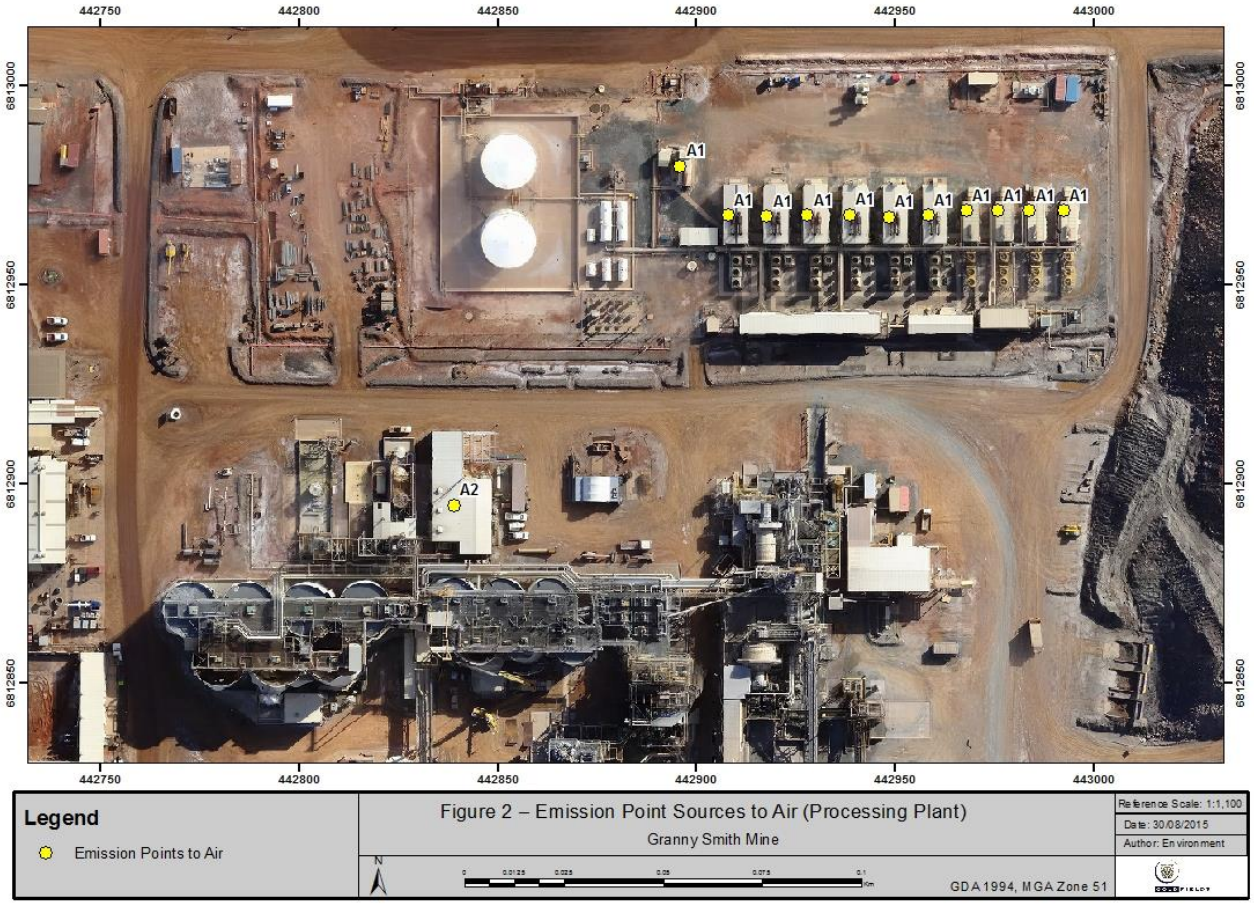
Premises map

The Premises is shown in the map below. The blue shading depicts the Premises boundary.

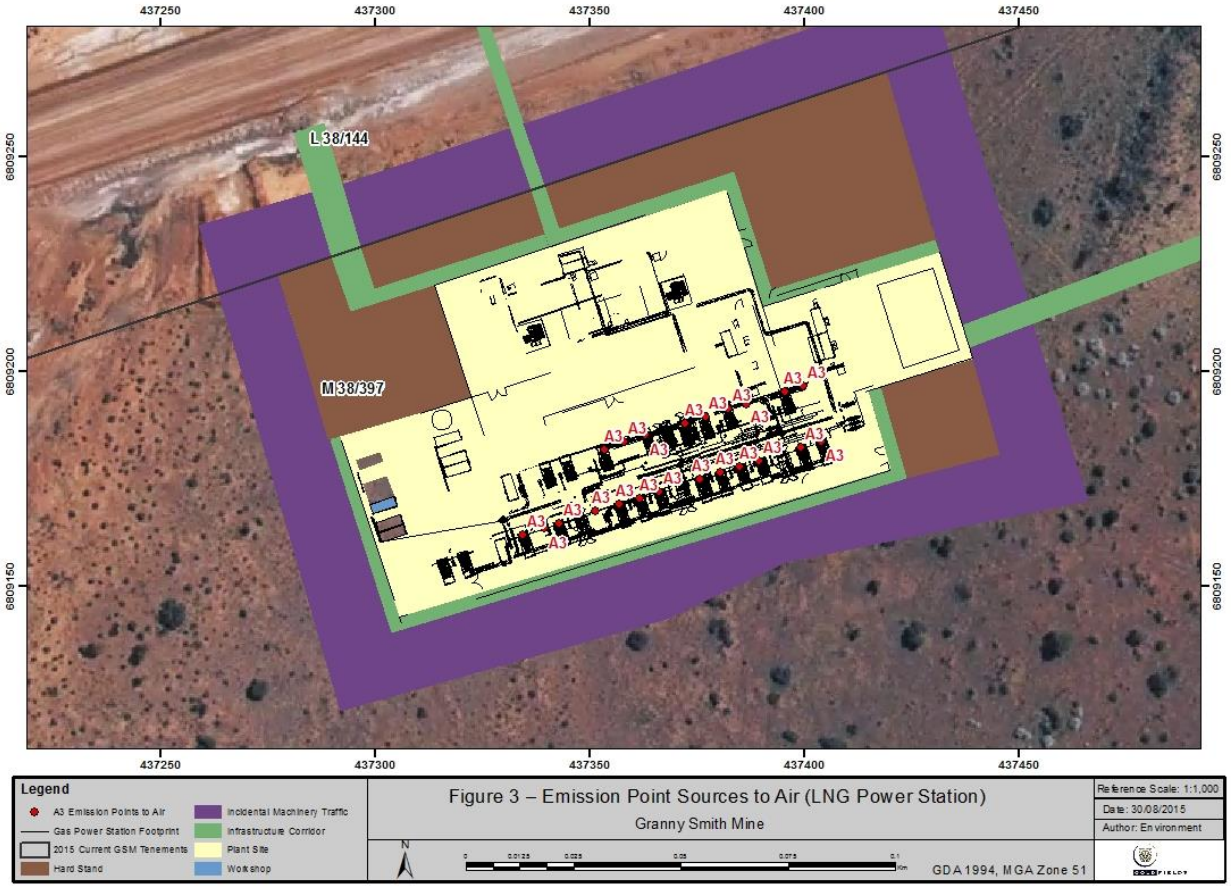


Map of emission points

The locations of the emission points defined in Table 2.2.1 are shown below.

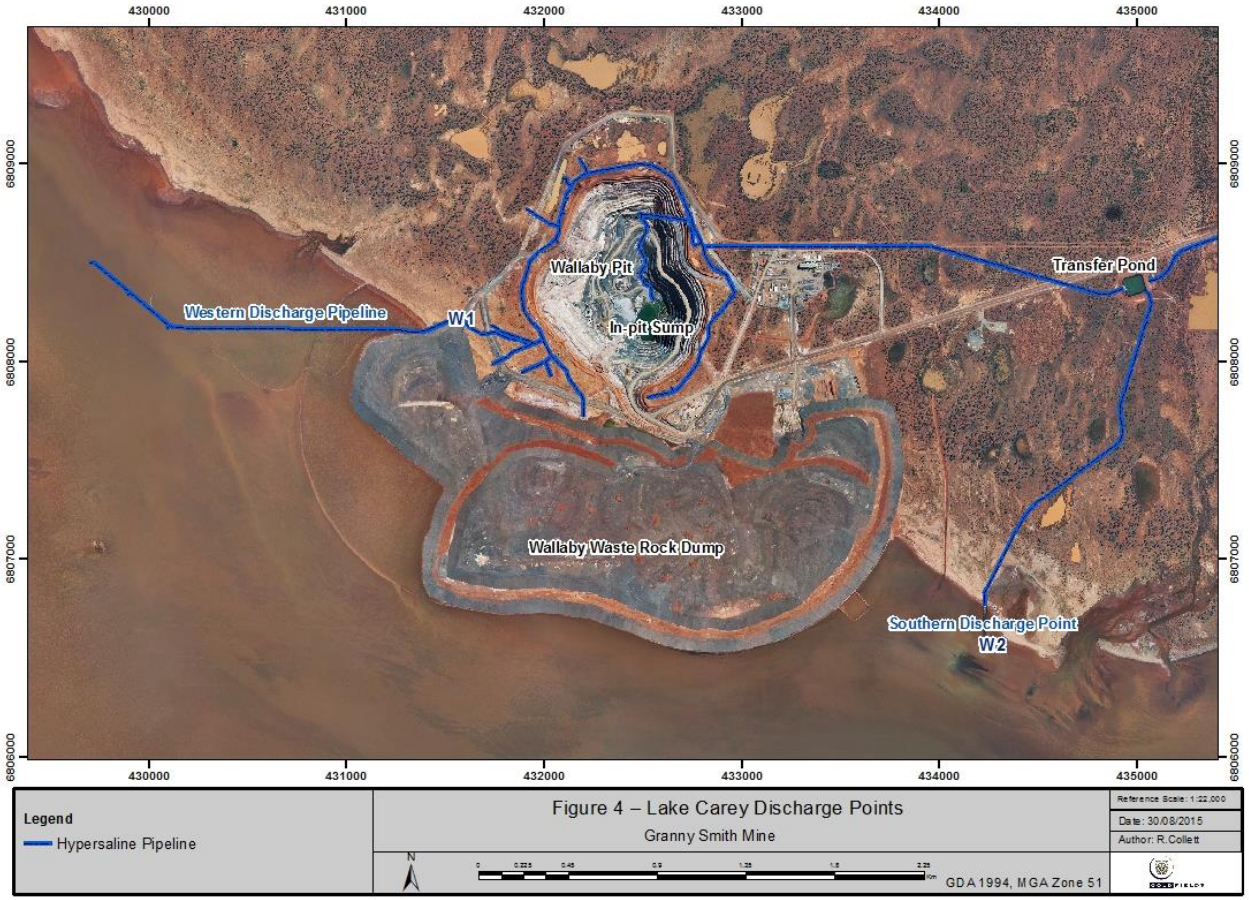


The locations of the emission points defined in Table 2.2.1 are shown below.



Map of emission points and monitoring locations

The locations of the emission points defined in Tables 2.3.1 and monitoring points defined in Tables 3.3.1 are shown below.



Map of emission points

The locations of the emission points defined in Table 2.4.1 are shown below.

Map of emission points

The locations of the emission points defined in Tables 2.5.1 and 3.5.1 are shown below.

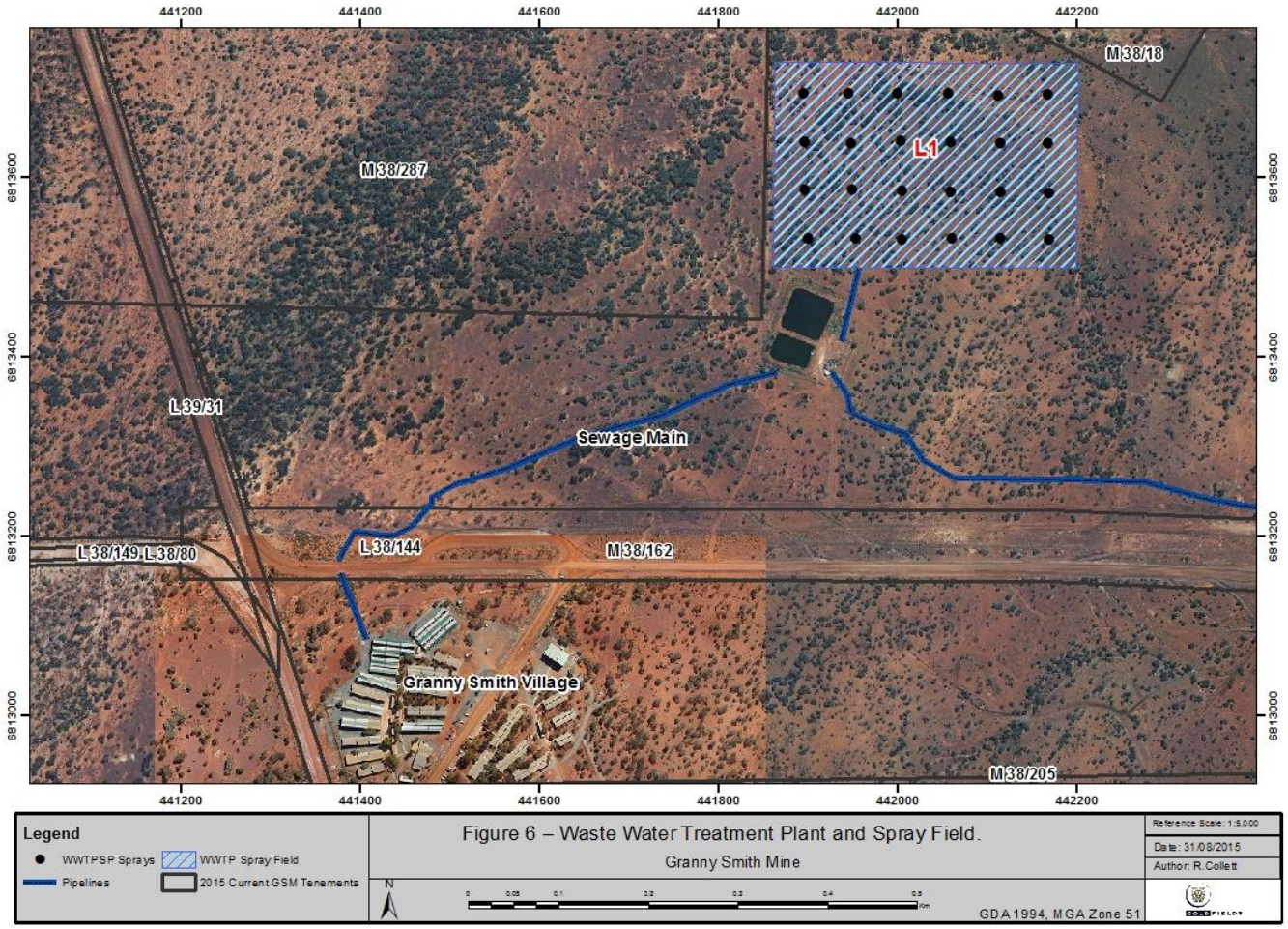
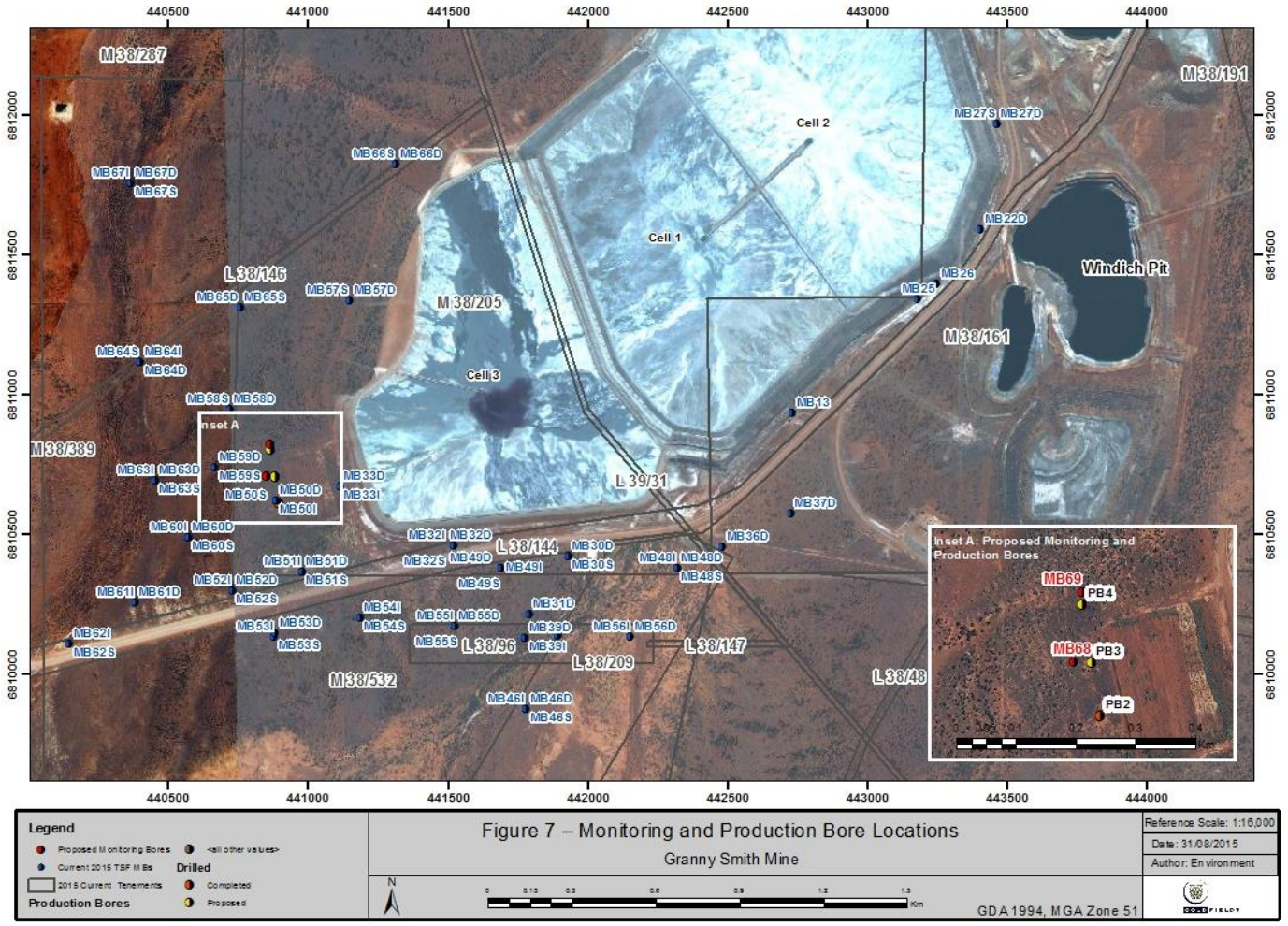


Figure 6 – Waste Water Treatment Plant and Spray Field.
Granny Smith Mine

Map of monitoring locations

The locations of the monitoring points defined in Table 3.8.1are shown below.



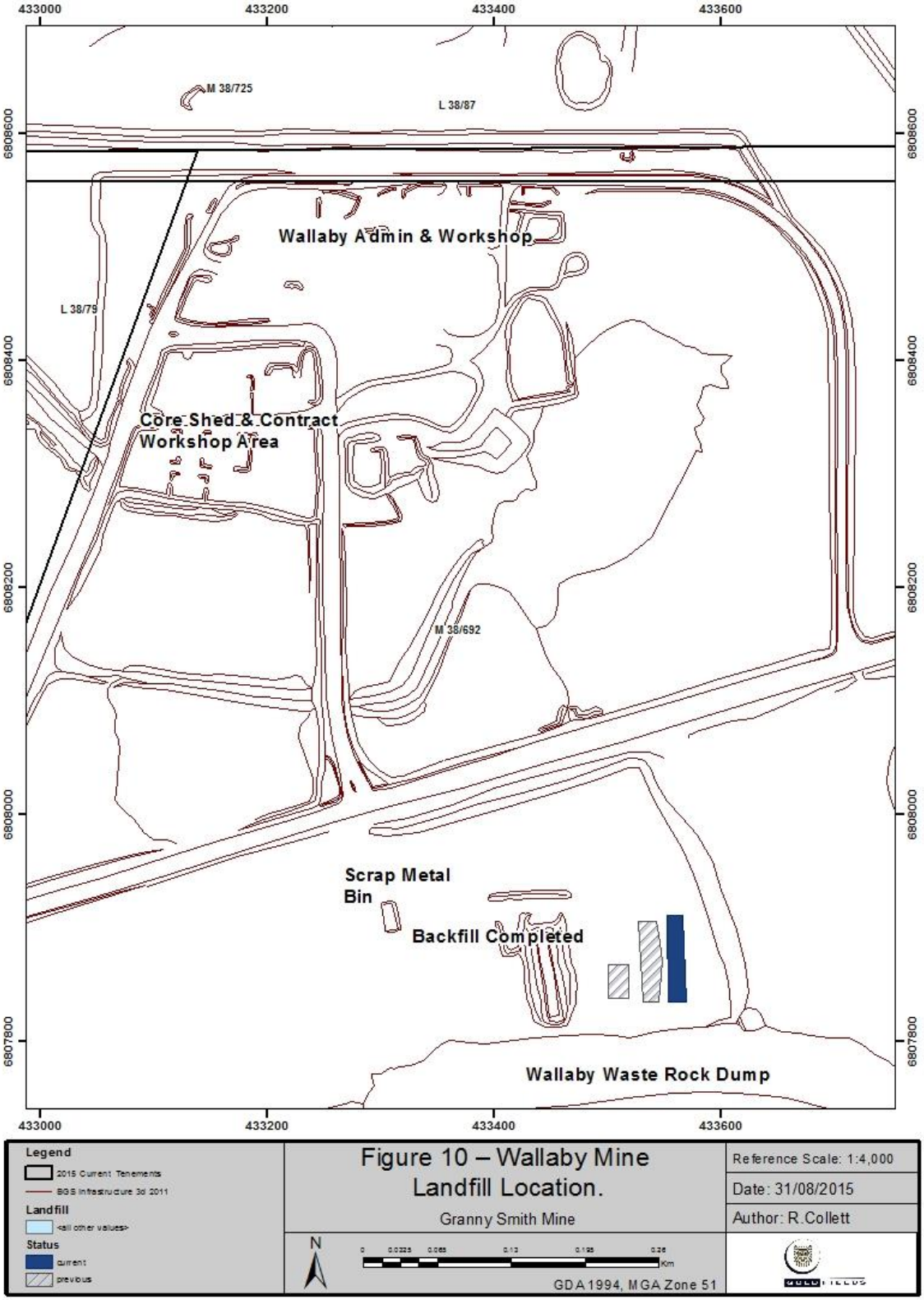
Map of monitoring locations

The locations of the monitoring points defined in Table 3.4.1are shown below.

Map of landfill

The location of the landfills defined in Table 1.3.5 are shown below.

The location of the landfills defined in Table 1.3.5 are shown below.



Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

ANNUAL AUDIT COMPLIANCE REPORT PROFORMA

SECTION A

LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name: Trading as:	ABN:
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of the Licence complied with within the reporting period? (please tick the appropriate box)

Yes ☐ Please proceed to Section C

No ☐ Please proceed to Section B

Each page must be initialled by the person(s) who signs Section C of this Annual Audit Compliance Report (AACR).

Initial:

SECTION B

DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.

Please use a separate page for each Licence condition that was not complied with.

a) Licence condition not complied with:	
b) Date(s) when the non compliance occurred, if applicable:	
c) Was this non compliance reported to DER?:	
☐ Yes ☐ Reported to DER verbally Date _____ ☐ Reported to DER in writing Date _____	☐ No
d) Has DER taken, or finalised any action in relation to the non compliance?:	
e) Summary of particulars of the non compliance, and what was the environmental impact:	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram):	
g) Cause of non compliance:	
h) Action taken, or that will be taken to mitigate any adverse effects of the non compliance:	
i) Action taken or that will be taken to prevent recurrence of the non compliance:	

Each page must be initialled by the person(s) who signs Section C of this AACR

Initial:

SECTION C

SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report (AACR) may only be signed by a person(s) with legal authority to sign it. The ways in which the AACR must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this AACR is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
An individual	□	by the individual licence holder, or
	□	by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	□	by affixing the common seal of the licensee in accordance with the *Corporations Act 2001*; or
	□	by two directors of the licensee; or
	□	by a director and a company secretary of the licensee, or
	□	if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or
	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	□	by the chief executive officer of the licensee; or
	□	by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of $50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SEAL (if signing under seal)

Licence: L8435/2010/3 Licensee: GSM Mining Company Pty Ltd
Form: N1 Date of breach:

Notification of detection of the breach of a limit or any failure or malfunction of any pollution control equipment or any incident which has caused, is causing or may cause pollution.

These pages outline the information that the operator must provide.
Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence Number	
Name of operator	
Location of Premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Notification requirements for any failure or malfunction of any pollution control equipment or any incident which has caused, is causing or may cause pollution	
Date and time of event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken , or intended to be taken, to stop any emission	
Description of the failure or accident	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of GSM Mining Company Pty Ltd	
Date	

Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: GSM Mining Company Pty Ltd

Licence: L8435/2010/3

Registered office:	Level 5, 50 Colin Street WEST PERTH WA 6005
ACN:	165 235 030
Premises address:	Granny Smith Gold Mine Mining tenements M38/18, M38/161, M38/162, M38/167, M38/191, M38/205, M38/287, M38/380, M38/389, M39/397, M38/440, M38/532, M38/525, M38/690, M38/691, M38/692, M38/725, L38/50, L38/51, L38/79, L38/80, L38/87, L38/96, L38/106, L38/144, L38/145, L38/144, L38/146 and L38/209 LAVERTON WA 6440 as depicted in Schedule 1.
Issue date:	Thursday, 3 October 2013
Commencement date:	Monday, 7 October 2013
Expiry date:	Thursday, 6 October 2018

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue an amended licence. DER considers that in reaching this decision, it has taken into account all relevant considerations and legal requirements and that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by:	Fiona Sharpe Licensing Officer
Decision Document authorised by:	Danielle Eyre Delegated Officer

Contents

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

<table>
<tr><th colspan="4">Administrative details</th></tr>
<tr><td>Application type</td><td colspan="3">Works Approval ☐
New Licence ☐
Licence amendment ☒
Works Approval amendment ☐</td></tr>
<tr><td rowspan="7">Activities that cause the premises to become prescribed premises</td><td colspan="2">Category number(s)</td><td>Assessed design capacity</td></tr>
<tr><td colspan="2">5</td><td>4 500 000 tonnes per year</td></tr>
<tr><td colspan="2">6</td><td>10 219 614 kL per year</td></tr>
<tr><td colspan="2">33</td><td>4 000 tonnes per year</td></tr>
<tr><td colspan="2">52</td><td>25 MW diesel
24MW LNG</td></tr>
<tr><td colspan="2">54</td><td>360 m^3 per day</td></tr>
<tr><td colspan="2">64</td><td>9 500 tonnes per year</td></tr>
<tr><td colspan="2">73</td><td>3 004 m^3</td></tr>
<tr><td>Application verified
Application fee paid</td><td colspan="3">Date: N/A
Date: N/A</td></tr>
<tr><td>Works Approval has been complied with
Compliance Certificate received</td><td colspan="3">Yes☐ No☐ N/A☒
Yes☐ No☐ N/A☒</td></tr>
<tr><td>Commercial-in-confidence claim</td><td colspan="3">Yes☐ No☒</td></tr>
<tr><td>Commercial-in-confidence claim outcome</td><td colspan="3"></td></tr>
<tr><td>Is the proposal a Major Resource Project?</td><td colspan="3">Yes☒ No☐</td></tr>
<tr><td>Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?</td><td>Yes☐ No☒</td><td colspan="2">Referral decision No:
Managed under Part V ☐</td></tr>
</table>

		Assessed under Part IV ☐
Is the proposal subject to Ministerial Conditions?	Yes☐ No☒	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 *Environmental Protection Act 1986*)?	Yes☐ No☒ Department of Water consulted Yes ☒ No ☐	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☐ No☒ If Yes include details of which EPP(s) here.		
Is the Premises subject to any EPP requirements? Yes☐ No☒ If Yes, include details here, eg Site is subject to SO_2 requirements of Kwinana EPP.		

3 Executive summary of proposal and assessment

GSM Mining Company Pty Ltd (GSM) currently owns the Granny Smith mine site which is a gold mining and processing operation located in the north-eastern Goldfields region of Western Australia, approximately 23 km south of Laverton. Ore is extracted from the Wallaby underground mine and is processed at the Granny Smith mine processing area. Mining commenced at Granny Smith mine in June 1989 and the life of mine is currently until 2022.

Processing
Ore is hauled from the Wallaby underground operation where it is crushed and the gold is extracted using carbon-in-pulp and carbon-in-leach processes using various chemical processes.

Mine dewatering
Mine dewatering occurs from the Wallaby operation to Lake Carey. The mine dewatering system comprises of a series of dewatering production bores and a inpit sump. The water from the inpit and production bores is transferred via surface and buried pipelines to a transfer pond prior to discharge to Lake Carey through the southern discharge system. . Nominated production bore water is directly discharged through the western discharge system to assist with recharge of the groundwater levels along the Lake Carey shoreline to the west of Wallaby.

The premises is also subject to conditions set by the Minister for Environment under Part IV of the Environmental Protection Act 1986. The Licensee is required to comply with:

- The requirements of the Ministerial Statement 551; and
- Commitments made in the “Barrick (Granny Smith) Pty Limited Wallaby Environmental Management Plan – Part 1 Hypersaline Management Plan (September 2006)” attached to the Ministerial Statement.

Hypersaline Management Plan Version 3, October 2012, has been assessed by DER as it relates to the underground operations and not the open pit (only the latter is affected by Ministerial Statement 551).

Chemical blending or mixing
This is essential for the processing and beneficiation of metallic or non-metallic ore. GSM currently uses cyanide, hydrochloric acid, caustic soda and quick lime in the processing plant for Granny Smith

mine. The use of these chemicals ensures the safe operation of the processing circuit. The site currently uses over 500 tonnes of chemicals in the processing circuit per year.

Electric power generation
GSM currently requires diesel fuelled power generation to operate the processing facility, site village, underground operations and any other auxiliary facilities. This ensures the process of gold extraction occurs efficiently and in a safe manner.

Sewage facility
A sewage facility is required to service the village and administration office. In 2013, approval was given to divert the Wallaby sewage to the mine waste water treatment plant (WWTP), which resulted in better waste management onsite. Treated wastewater is discharged to a sprayfield under normal operating conditions and two lagoons are available for use in emergency situations. The WWTP is estimated to discharge approximately 99,000L of effluent per day, however, this fluctuates with the site population.

Class II or III putrescible landfill
The landfill site at Granny Smith is located approximately 3 km to the north east of the mine village. The landfill is constructed on the existing Goanna waste rock dump, east of the decommissioned Goanna pit. The landfill is designed, managed and maintained in accordance with this Licence.

The landfill located at the Wallaby site is an excavated trench system which is progressively filled with Class II putrescible waste and is covered. The Wallaby site produces approximately 4 500 m^3 of waste per year.

Bulk storage of chemicals
The operation at Granny Smith mine requires chemical storage to use in the processing and benefication of ore. Bulk primary chemicals used include bulk diesel, liquid cyanide, solid cyanide, caustic soda, lime and hydrochloric acid.

This Licence is the result of an amendment sought by the Licensee to construct and operate a new LNG power station. At this time, it has also been identified that GSM's two licenced premises (Granny Smith – L8435/2010/3 and Wallaby – L7454/2000/9) can be merged into one prescribed premises by redescribing the premises boundary area. Upon issuing of this amended Licence, L7454/2000/9 will be revoked.

The proposed 24 MW gas powered station is classified under Category 52, which is currently listed on the Licence due to the existing diesel power station. Other associated infrastructure with the project includes an underground gas pipeline, power station control system, switchboard, transformers, ablutions, store, carpark, access driveways, workshop, office, potable water tank and buried power cables to connect to site distribution network.

The power station will be constructed on Mining Leases M38/397, M38/440 and L38/144. GSM intend on constructing a new 24 MW gas (natural gas) fired reciprocating engine power station initially comprising 22 double stacked containerized generation units and associated balance of plant. The new power station will replace the two existing diesel fired power stations, however, one of these (23.8 MW) will remain available for the supply of backup power in the event of loss of gas supply.

The construction and operation of the power station will be conducted in a staged approach due to the availability of the desired Cummins gas powered generator units:

- Stage 1 – Works commencing on March 2016 to install a total of 22 generators (Cummins QSK60) which are planned to be operational until 30 June 2016.
- Stage 2 – All 22 containerised generators will be removed and replaced with 18 generators (Cummins QSK60) which have been modified as higher capacity units from 1 July 2016 onwards.

4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987*, DEC's Policy Statement - Limits and targets for prescribed premises (2006), 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.

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
General conditions	L1.2.1 – 1.2.3	General conditions 1.2.1 – 1.2.3 are included in the Licence.	General provisions of the *Environmental Protection Act 1986*
Premises operation	L1.3.1 – 1.3.13	Conditions 1.3.1 – 1.3.13 replaces conditions A3, W1, W4, W5, W6, W10(b), W11(a), W11(b), W11(d), W16(a), W16(d), W16(e), W18(a), W18(b) and S1 from previous licence. These conditions relate to tailings storage infrastructure, waste water treatment plant and landfill management. These conditions have not been re-assessed as part of this licence amendment, just transferred into REFIRE conditions. Condition 1.3.1 now includes the Wallaby water transfer dam in the containment infrastructure table. This has not been reassessed, but transferred from L7454/2000/9. The water transfer pond and dewatering pipeline have also been included in condition 1.3.6 for daily visual inspections, as per previous licence.	Application supporting documentation General provisions of the *Environmental Protection Act 1986*
	L1.3.14 – 1.3.15	Conditions 1.3.14 – 1.3.15 have been included in the most recent amendment to allow construction and commissioning for the new gas fired power station.	
Emissions general	L2.1.1	Descriptive and numerical limits and targets will be set through the licence and therefore a condition regarding recording and investigation of exceedances of limits or targets has been included.	N/A
Point source emissions to air including monitoring	L2.2.1 L3.2.1	DER's assessment and decision making are detailed in Appendix A.	Application supporting documentation General provisions

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
			of the *Environmental Protection Act 1986*
Point source emissions to surface water including monitoring	L2.3.1 – 2.3.2 L3.3.1	Mine dewatering occurs directly into Lake Carey via two discharge points. Conditions have been included in the licence to ensure adequate management of the discharge of hypersaline water into Lake Carey. Prior to discharge water is directed to the Transfer Pond to ensure maximum removal of suspended solids to minimise erosion and scouring. Conditions have been included in the licence to minimise the environmental impacts to Lake Carey including impacts on riparian vegetation communities and micro-fauna. Monitoring conditions and table 3.3.1 have been included to capture surface water and lake sediment quality. GSM has also committed to engage in targeted research into the impacts of hypersaline water on Lake Carey through the continuation of research programs. See Appendix A for further information in regards to the Hypersaline Management Plan Version 3, October 2012. Conditions 2.3.1 and 3.3.1 have been added to the Licence. They have been transferred from L7454/2000/9.	Application supporting documentation General provisions of the *Environmental Protection Act 1986*
Point source emissions to groundwater including monitoring	L2.4.1 – 2.4.2 L3.4.1	DER's assessment and decision making are detailed in Appendix A.	Application supporting documentation General provisions of the *Environmental Protection Act 1986*
Emissions to land including monitoring	L2.5.1 L3.5.1	**Normal Operation** <u>Emission Description</u> *Emission:* Treated effluent from the WWTP irrigated to land increasing the nutrient content of soil and potentially nearby watercourses. *Impact:* Storm events may cause nutrient to runoff drainage lines that lead to local catchments such as salt lakes. High nutrient loadings may result in the	General provisions of the *Environmental Protection Act 1986*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		eutrophication of nearby water courses and the promotion of weed species. *Controls:* Major untreated water will be from the existing SBR tank, where beneficial microbes are established in the wastewater that facilitates the removal of nutrients. Water quality will be maintained as per Granny Smith's commitment and monitored on a quarterly basis. The WWTP is located away from any major aquifer and groundwater level in the project area is 5.5 – 20.64mbgl. GSM have committed to comply with Water Quality Protection Note 22 – Irrigation with nutrient-rich wastewater, 2008 (WQPN 22) to maintain low nutrient loadings. The irrigation area is located within the cyclone fence and a stock fence helps stop any fauna access. The spray fields operate in alternate halves, with each side operated for a week and then rest for a week allowing it to dry out and weeds to die off. Weeds are sprayed when required. <u>Risk Assessment</u> *Consequence:* Minor *Likelihood*: Possible *Risk Rating:* Moderate <u>Regulatory Controls</u> GSM are required through condition 3.5.1 to monitor the effluent emissions on a monthly basis. Monitoring conducted will provide confidence that the WWTP is operatating effectively and to design specifications. Recent monitoring data from the Annual Environmental Report has shown several breaches of the previous target parameters for discharges to land. Table 2.5.2 now poses limits for the	*Environmental Protection (Unauthorised Discharges) Regulations 2004*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		discharge as opposed to targets. Any limit breaches are required to be reported in accordance with the notification conditions. Conditions 1.3.9 and 1.3.10 in the 'premises operation' section of the licence will ensure the irrigation area is managed appropriately to ensure vegetation health is maintained. <u>Residual Risk</u> *Consequence:* Minor *Likelihood*: Unlikely *Risk Rating:* Moderate	
Fugitive emissions	N/A	DER has made an administrative change to the conditions in relation to fugitive emissions to air. Where low risk exists, no licence conditions are specified.	General provisions of the *Environmental Protection Act 1986*
Odour	N/A	Odour conditions have not been re-assessed as part of this licence amendment. No conditions relating to odour were included on the previous licence.	General provisions of the *Environmental Protection Act 1986*
Noise	N/A	Noise conditions have not been re-assessed as part of this licence amendment. No conditions relating to noise were included on the previous licence.	General provisions of the *Environmental Protection Act 1986*
Monitoring general	L3.1.1 – 3.1.2	Condition 3.1.1 has been included in the licence to replace existing licence conditions W9 (b) and W9 (c). 3.1.2 has been added to ensure monitoring occurs is undertaken at appropriate intervals.	N/A
Monitoring of inputs and outputs	N/A	Monitoring of inputs and outputs has not been re-assessed as part of this licence amendment. No conditions relating to monitoring of inputs and outputs were included on the previous licence.	N/A
Process monitoring	L3.6.1	Process monitoring condition 3.6.1 has been included in this licence amendment. This includes monitoring of volumes of seepage discharge from	N/A

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		TSF Trench 1 into both Goanna and Granny pits and the pH of this water. The target for pH has been replaced as a limit.	
Ambient quality monitoring	L3.7.1 – 3.7.2	Ambient groundwater quality monitoring condition 3.7.1 replaces monitoring condition from previous licence W9 (a). This monitoring has not been re-assessed as part of this licence amendment. Table 3.7.2 has also been included as part of the Wallaby merge. This is for sediment sampling and replaces condition 3.3.1 from the Wallaby licence.	General provisions of the *Environmental Protection Act 1986*
Meteorological monitoring	N/A	Meteorological monitoring has not been re-assessed as part of this licence amendment. No meteorological monitoring existed in the previous licence, therefore no conditions have been carried over.	N/A
Improvements	L – no conditions	Improvement condition 4.1.1 has been amended to change the frequency for the reporting of the seepage mitigation update report from biannually to annually. GSM have been submitting the biannual reports since January 2013. In the most recent report, a recommendation was made by URS, to modify the current biannual reporting period to annually in order to utilise a larger dataset and to better align with current quarterly monitoring requirements. URS have suggested the most practical time to complete the TSF Seepage Interception Trench Review is to be done in December of each year following the completion of the November quarterly monitoring period. DER agrees with this recommendation and the reporting requirement has been changed to annually. Consequently, the improvement requirement has been removed and the submission of the report is now a requirement in Table 4.2.1 as part of the Annual Enironmental Report. Improvement Conditions IR1 and IR2 from Wallaby Licence L7454/2000/9 have not been carried over into L8435 as these conditions have been complied with by the required date of completion. DER hydrogeologist was satisfied with GSM's report and recommended the condition can now be removed.	N/A
Information	L4.2.1 – 4.2.3 L4.3.1 – 4.3.5	Condition 4.2.1 has been updated to reflect any amendments to the Licence. Notification conditions have been included to ensure that upon completion of construction a compliance certificate must be submitted to the CEO prior to operation.	N/A

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Licence Duration	N/A	The duration of the licence has not been re-assessed as part of this amendment.	Guidance Statement on Licence Duration

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
12/08/2013	Application advertised in *The West Australian* (or other relevant newspaper)	No comments received.	N/A
19/08/2015	Proponent sent a copy of draft amended instrument	Comments received including updated maps, number of new bores and more accurate description for dewatering process.	New maps and bores included, updated dewatering description included.

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

Point source emissions to air

Normal Operations

Emission Description

Emission: The primary pollutants which will be emitted from the proposed gas fired power station are; oxides of nitrogen (NOx), carbon monoxide (CO) and volatile organic compounds (VOC). Particulate matter (PM) emissions are very low from natural gas engines but typically include trace amounts of metals, non-combustible inorganic material and condensable, semi-volatile organics which result from volatized lubricating oil, engine wear or from products of incomplete combustion.

Impact: Reduced air quality as a result of air emissions.

Controls: GHG emissions will be minimised using energy efficient gas fired engines rather than diesel powered generators. The following management methods will be implemented by GSM:

- GSM will estimate and report gas emissions as required under National Greenhouse Energy Reporting (NGERS) and NEPM-NPI reporting.
- Construction of elevated exhaust stacks (2.6m), to minimise ground level contaminant concentrations. Aggreko leak detection procedures will be adhered to.
- Continue to investigate ways to improve efficiencies and further reduce GHG and other exhaust emissions.
- Operation of gas engines in accordance with the manufacturers specifications and conduct regular scheduled maintenance, audits and inspections.
- Construction of the power station within an active mining area isolated from environmental sensitive receptors; and
- Construction and operation of the power station in accordance with Aggreko safety standards to protect human health of power station operators and GSM visitors.

The predicted air emissions data for the Cummins GQSK60 engine at 1,500 rpm is shown in the following table:

CUMMINS GQSK60 DATA	CONTINUOUS POWER			75% LOAD		
Component	**g/hp-hr**	**mg/nm^{3*}**	**ppm**	**g/hp-hr**	**mg/nm^3**	**ppm**
Total Hydrocarbons	3.00	1535	1386	3.16	1524	1415
Non Methane Hydrocarbons	0.64	329	296	0.68	330	304
Oxides of nitrogen	0.95	489	196	1.01	491	202
Carbon Monoxide	1.56	800	473	1.62	783	476
Carbon Dioxide	350	179253	67400	370	179030	69375
Formaldehyde	0.34	174	82	0.36	172	83
Volatile Organic Compounds	0.62	314	282	0.66	315	291
Oxygen (Dry)	9.2%			8.8%		
Brake Specific Fuel Consumption	6084 BTU/hp-hr			6317 BTU/hp-hr		
Exhaust Gas Flow (L/s)	3333			2663		

NOTES:
Sourced from: *Cummins Inc Engine Emissions Data for Generator model GQSK60, 19 March 2015.*
*mg/nm^3 measured @ 5% O_2.
Emissions Data Tolerances – Nox, CO, CO_2, O_2 +/-10% and Hydrocarbons +/-15%.

A comparison of estimated maximum point source emissions against the guideline for stationary reciprocating engines listed in the *NSW Protection of the Environment Operations (Clean Air) Regulations 2010* (used in lieu of specific WA guidance document) is shown in the table below.

Air Impurity	Plant Emissions (mg/m^3)	Criteria (mg/m^3)	% of Criteria
Oxides of nitrogen (NOx)	489	450	107
Carbon monoxide (CO)	800	125	640
Volatile organic compounds (VOC)	314	40	785

Despite the estimated emission concentrations exceeding those listed in the NSW guidelines, GSM have conducted a risk assessment of the impact of air quality from the new power station with an outcome of low risk to the remote air-shed. The nearest sensitive receptors to the power station are the GSM Wallaby Underground Mine (approximately 5km west), Camp (5.3km north east), GSM processing plant (6.5km east), Lake Carey (3.5km south west) and Laverton Township (24km north east).

GSM are not proposing any additional point source exhaust emission or ambient air monitoring. GSM have also stated that the project has been registered as an Emissions Reduction Fund project under the *Carbon Credits (Carbon Farming Initiative) Act 2011*, due to the significant emission reduction of transferring from diesel to natural gas fired generators.

Risk Assessment
Consequence: Moderate
Likelihood: Possible
Risk Rating: Moderate

Regulatory Controls
The emissions points will be identified in condition 2.2.1 accompanied by a map in Schedule 1 depicting the location of the power station and of each of the stacks.

Monitoring condition 2.3.1 has been included on the licence to specify emissions testing requirments during commissioning of the new LNG Power Station. Condition 4.3.4 requires the Licensee to submit a Commissioning Report within three months of completion of commissioning and Condition 4.3.5 details the information required to be submitted in the Commissioning Report.

Residual Risk
Consequence: Moderate
Likelihood: Unlikely
Risk Rating: Moderate

Point source emissions to surface water

Salt lakes throughout the Goldfields region are periodically (after heavy rainfall events) highly productive ecosystems. They are important for sustaining populations of migratory water birds through episodic population explosions in diatoms, brine shrimps and other macroinvertebrates when the lakes fill with water. Research has indicated that macroinvertebrate biodiversity is significantly lower in salt lakes that receive discharge from mine dewatering by comparison with similar lakes that are unaffected by mine dewatering. Similarly, concentrations of some metals and metalloids can be significantly higher in lakes that receive hypersaline mine dewatering discharge compared with undisturbed lakes. Some metals and metalloids, in particular cadmium and selenium, have the potential to be biomagnified through local food webs and to adversely affect bird reproduction and the health of newly hatched chicks.

An environmental review of the Wallaby operations identified the management of hypersaline groundwater as a key issue to the potential impacts on the Lake Carey ecosystem. A Hypersaline Management Plan (HMP) was prepared by Granny Smith as part of its commitments under Schedule 2 of Ministerial Statement 551. Version 1 of the HMP was prepared in August 2000 as part of Wallaby

operations Environmental Management Program and Management Plans. Since then, knowledge of the receiving environment has increased due to extensive monitoring and research programs. Version 2 was prepared in 2006 following the increase in dewatering volumes to Lake Carey from 80L/sec up to 275L/sec and an additional discharge location was included.

The current version has resulted from the review of version 2 and an increased understanding and research findings, including the February 2011 Lake Carey flood event. Version 3 of the HMP has not been reviewed by OEPA as the dewatering is associated with the underground operations that were not assessed by the Environmental Protection Authority. The current HMP proposes changes in the use of the disused pits during dewatering operations. Previously groundwater has been discharged to the Goanna, Granny and Keringal pits during emergencies and during specific times in the hydrocycle of Lake Carey. The current HMP proposes that Lake Carey is used for the discharge of groundwater at all times.

Version 3 of the HMP was reviewed by a DER principal hydrogeologist. This review concluded that additional information was required to determine whether the current rate of discharge of mine dewatering effluent poses a risk to macroinvertebrates and to bird populations that utilise the lake. It has been recommended that the proponent undertakes further studies. An improvement plan to the HMP, version 3 was outlined in section 4 of the licence, submitted in February 2015.

GSM has committed to current management actions as part of its HMP - Version 3. Control measures include:

- Continuation of water monitoring programme in accordance with the Wallaby and abandoned pit water monitoring procedures;
- Continuous measurement of production bore operation (abstraction) and groundwater discharge through flowmeters;
- Engaging with a specialist consultant to undertake monitoring for impacts to vegetation along the lake margin at select locations annually;
- Engage a specialist consultant to undertake monitoring for vegetation impacts within the draw down cone using transect monitoring annually;
- Monitoring of pipelines to ensure spills of hypersaline water onto surrounding soils and vegetation are minimised;
- Engage a specialist consultant to undertake annual monitoring of sediment for eggs and salt crust development at sites around the Wallaby discharge outlet;
- Monitoring of invertebrate populations at select wetland locations when freestanding water is available;
- Engage a specialist consultant to undertake invertebrate monitoring at sites around the Wallaby discharge outlet following heavy rain events; and
- Continued engagement with specialist consultants/staff to undertake research activities.

As such, the report was submitted to DER and assessed by a DER principal hyrogeologist who was satisfied the condition was compliant. The report concluded that there is minimal risk to the aquatic invertebrates and waterbirds of Lake Carey from metal and trace elements. The improvement condition has now been removed and GSM are required to continue surface water monitoring as per licence conditions.

Point source emissions to groundwater

Surface indications of the seepage from TSF cell three were observed shortly after the TSF was commissioned in 1990. While GSM has been progressively implementing operational and seepage management strategies, mounding of the local water table continues to be an issue in the vicinity of the TSF. To address this issue, a series of seepage interception trenches were planned for construction in a staged manner adjacent to the TSF. To date, only one of the trenches has been implemented. The purpose of the trenches is to collect and return near surface seepage to the process pond for re-use in the CIP plant. Following periods of high rainfall, reduced plant throughput,

plant shutdowns and no longer toll treating third party ore, the rate of seepage recovery exceeds processing requirements. As such, an alternate disposal route is being sought for such periods. GSM is proposing the two hypersaline abandoned pits, Goanna and Granny Smith, for water storage. The pipeline route is from the seepage trench, to the lined transfer pond to the open pits.

Emission Risk Assessment – Normal operations

Emission Description

Emission: Seepage water from the TSF Cell 3 seepage trenches will be discharged into abandoned pits Granny Smith and Goanna. Abstracted water contains elements such as total cyanide, weak acid dissociable cyanide (WAD CN), arsenic and total dissolved solids (TDS) that will mix with groundwater that intercepts the base of the pits.

Impact: The biggest impact from seepage of the discharge water is to cause the standing water levels to rise in the local groundwater aquifer, which can impact on local vegetation due to the groundwater level to rise within the vegetation root zone. Due to the poor water quality of both local groundwater and discharges, immediate impacts on plants can include leaf drop, leaf burn, stunted growth, poor seed germination and tree death. Rising groundwater levels can also affect the health of vegetation communities, as few young plants survive adulthood to replace the previous generation.

There may also be risks to fauna with the presence of both Total and WAD cyanide in the discharge water. Ingestion of WAD cyanide solutions by birds and mammals may cause delayed mortality due to toxicity.

Controls: GSM has compared water quality from the seepage trenches to groundwater quality within the abandoned pits, which shows little variation. Total cyanide and WAD cyanide are both higher in the seepage water compared to groundwater in the pits. Total dissolved solids are much higher in the pits than in the seepage water.

Currently pit lake elevations are below the baseline water table elevations and show behaviours of a groundwater sink. Under these current circumstances, there is groundwater flow into the pit-lakes which is evaporated. It is expected once tailings seepage water is discharged, it will have a similar fate. There may be density-coupled attributes of the water in the pit-lakes that promote seepage into the local groundwater which would vary depending on the depths of the pit lake. Over time, this is expected to reverse, given assumptions that evaporation losses are expected to exceed the water available from through flow. GSM has proposed water level limits for the pits which equates to a freeboard of 3 m:

Pit	Low Pit Crest (m RL)	Current Pit Lake Elevation	Proposed Licensed Water Level (m RL)
Granny	418	396.49 m	415.0
Goanna	422	401.30	419.0

Currently the levels of water in the pits are well below pre-mining water table and the 3 m freeboard. During the intense storms of 2011, when well above average rainfall was experienced at Granny Smith, the water levels increased but still remained well below pre-mining levels. Due to evaporation alone, the water levels in the pit will continue to decrease. If the volume of disposal remains below the volume of evaporation, then water levels will remain below pre-mining levels and the pits will continue to act as a sink even if a probable maximum precipitation event were to occur.

GSM currently monitors from bores situated around the perimeter of the pits and are sampled quarterly for SWL as a part of Department of Water's requirements. GSM has proposed to monitor for the following parameters, once discharging commences, on a quarterly basis: SWL, pH, TDS, major cations and anions and WAD CN.

GSM is an isolated mine site with no nearby sensitive receptors and no beneficial uses for groundwater in the area.

Risk Assessment
Consequence: Moderate
Likelihood: Possible
Risk Rating: Moderate

Regulatory Controls
Monitoring in bores has been implemented through Condition 3.4.1 to ensure any seepage from the pits is detected, through a quarterly monitoring program. A limit of 0.5 mg/L of WAD CN has been imposed, in accordance with the Cyanide Code and 1 mg/L of total cyanide due to the risk to birds and to ensure that cyanide does not accumulate over time. Condition 3.4.1 also includes pit lake elevation monitoring for both pits and pH monitoring for within the pits including a limit of 6-8. Condition 2.4.2 outlines the limits for pit lake elevations (to maintain a freeboard of 3 m).

Daily visual inspections have been included in Condition 1.3.6 (Table 1.3.2) for freeboard capacity and avifauna deaths.

Residual Risk
Consequence: Moderate
Likelihood: Unlikely
Risk Rating: Moderate