Government of Western Australia
Department of Water and Environmental Regulation

Amendment Notice 2

Licence Number	L7798/1993/6
Licensee	Deflector Mining Limited
ACN	101 224 999
File Number:	2010/003052
Premises	Gullewa Gold-Copper Operations Mining Tenements M59/49, L59/49, L59/64, M59/68, M59/356, M59/391, M59/392, M59/335, M59/442 L59/35, M59/507, M59/336, M59/522 and L59/71 Morawa - Yalgoo Road
Date of Amendment	20 July 2018

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act) as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Date signed: 20 July 2018

Alana Kidd

Manager, Resource Industries

Regulatory Services (Environment)

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

Definitions and interpretation

Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
AER	Annual Environment Report
Amendment Notice	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the *Environmental Protection Act 1986* Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
Highly saline	means water containing salts at levels above 10,000 mg per litre
Licensee	Deflector Mining Limited
m^3	cubic metres
mbgl	Metres below ground level

Minister	the Minister responsible for the EP Act and associated regulations
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Risk Event	as described in *Guidance Statement: Risk Assessment*
Saline	means water containing salts at levels above 2,000 but less than 10,000 mg per litre.
TDS	Total Dissolved Solids
tpa	tonnes per annum

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is the result of a DWER initiated Licence amendment and is limited only to an amendment of Category 6 for mine dewatering.

The following guidance statements have informed the decisions made on this amendment*:*

- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

Amendment background

The Licensee operates the Gullewa Gold-Copper Operations (Premises) through Licence L7798/1993/6 (Licence). The prescribed activities authorised through the Licence are described below:

Table 2: Prescribed activities at the Premises

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	700,000 tonnes per annual period
6	Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore	50,000 tonnes or more per year	300,000 tonnes per annual period
64	Class II landfill site	20 tonnes or more per year	4,000 tonnes per annual period
85	Sewage facility: premises- a) On which sewage is treated (excluding septic tanks); or b) From which treated sewage is discharged onto land or into waters	More than 20 but less than 100 cubic metres per day	35 cubic metres per day

Open pit mining commenced at the Premises in 1994 however the Premises was placed into care and maintenance (C&M) in 1996. Mining operations recommenced in 2002 with the beginning of underground mining, however the Premises was again placed back into C&M in 2003.

Dewatering of the open pits commenced in late 2002 with the discharge to the Salt River system (described as 'Salt River discharge location' in the Licence). The discharge outlet is not within the Salt River proper, which is located approximately 1.5 km away, but is located within the flood plains of the Salt River.

Works Approval W5188/2012/1 (Works Approval) was issued in August 2012 for an increase in throughput at the processing plant to 480,000 tpa and an increase in the dewatering discharge rate to 600,000 tpa. These increases were to facilitate an expansion of mining operations at the Premises which included underground mining at the Deflector location. The

dewatering discharge point remained the same. The Works Approval was amended a number of times as a result of changes to the location of the new processing facility and the wastewater treatment plant, and to extend the expiry date due to delays in construction.

Mining operations recommenced in September 2015, with the dewatering of the Deflector pit lake in preparation for mining underground in early 2016. The dewatering water was discharged at a rate of approximately 15 to 28 litres per second (L/s); equating to 20,000 to 30,000 kL (tonnes) per month.

The Licence was amended in January 2016 to include the Golden Stream open pit as a dewatering discharge location prior to the final dewatering discharge to the Salt River discharge location. The Licence as amended in January 2016 limited dewatering discharge to the Golden Stream Pit and the rock-armoured gabions at the Salt River discharge location to a maximum of 300,000 tpa. The Licensee has since advised DWER that the Golden Stream pit is utilised as a storage node to receive water from the dewatering of the underground mine. Stored water is then used in the process plant, for dust suppression and the excess is sent to the Salt River discharge location to maintain a net zero discharge quantity (i.e. the volume received at the Golden Stream pit is consistent with volumes pumped out).

While the Works Approval authorised the construction of infrastructure at the Premises so the dewatering discharge rate could be increased to 600,000 tpa, a compliance document in accordance with condition 3.1.1 of the Works Approval was not submitted by the Licensee. An Amendment Notice to the Works Approval was issued on 30 June 2017 which extended the expiry date of the Works Approval and also authorised the construction of a lift to the TSF. Conditions authorising other construction at the Premises, which included increasing the throughput for category 6 to 600,000 tpa, and the requirement for submitting compliance documentation for those works, were deleted from the Works Approval.

Compliance

DWER was notified by the Licensee on 3 August 2016 that vegetation (monitoring required by the Licence) was showing a decline in health at the Salt River discharge location.

A further notification to DWER on 26 August 2016 advised that the Licensee had exceeded the dewatering discharge limit of 300,000 tonnes per annum specified in the Licence for the reporting period 1 January to 31 December 2016 with 314,000 kL having been discharged to the Salt River discharge location.

The Licensee notified DWER again on 27 March 2017 that they had exceeded the dewatering throughput for the reporting period with total discharge for the first quarter of 2017 at 314,680 kL, due to dewatering rates consistently exceeding estimates and inflow rates steadily rising as the depth of the Deflector Underground Mine increased.

The 2016 Annual Environmental Report (AER) shows that during the 2016 calendar year, 943,976 kL was discharged via the Salt River discharge location and information provided in the Deflector Dewatering Management Plan, August 2017 (DDMP) shows that for the period January – July 2017, a total of 825,156 kL of water was discharged to the Salt River discharge location.

DWER officers conducted an inspection of the Premises on 5 April 2017 and observed that the vegetation in the vicinity of the Salt River discharge location was stressed and dying. At the time of the inspection the officers alleged this was due to the constant inundation caused by the dewatering discharge exceedance, or the elevated TDS levels in the discharged water.

Licensee representatives advised that mining could not safely continue if the current dewatering rate was not maintained. As the depth of the underground mine has increased, the total volume of water required to be dewatered has also increased.

An Environmental Field Report was issued to the Registered Manager requiring the submission of a DDMP (mentioned above) which details the processes being undertaken to

address the non-compliance and a timeframe for when these corrective actions would be implemented.

The DDMP submitted to DWER on 18 May 2017 detailed the process being taken to address the excess dewatering discharges. Included in the DDMP was a third party report which suggested that some metals may be elevated in the discharge water.

A further site visit to assess the discharge area was conducted by DWER officers on 6 October 2017. Widespread death of vegetation and large areas of pooled water were observed at the dewatering discharge location (Figure 1).

Figure 1: Dewatering discharge area

Satellite imagery review undertaken by DWER identified that approximately 75 ha of vegetation has been affected downstream of the discharge point (Figure 2).

DWER has had several meetings with the Licensee (May, August, November 2017 and February 2018) to discuss the current situation of the dewatering discharge and alternative methods for disposal.

Amendment description

Dewatering of the groundwater at Deflector is required to maintain dry working conditions underground to facilitate mining. The collected groundwater is initially discharged to the Golden Stream Pit which is used as a storage node and facilitates settlement of suspended materials, before the water is reused in the processing plant and for dust suppression. In order to maintain a balanced discharge quantity to the Golden Stream pit, any excess water

not required in the processing plant or used for dust suppression is pumped to a series of clay lined settlement ponds located at the discharge point for further settlement of materials, with a final discharge to land at the Salt River discharge location. The discharge point is located in a low lying area with no defined drainage channels. The Salt River is located approximately 1.5 km away. The Licence currently authorises 300,000 tpa to be discharged to the Salt River discharge location.

The discharge of highly saline dewatering water to the Salt River discharge location, at levels above the Licence limit, has had an impact on vegetation. This impact includes the total death of most native vegetation species within the immediate discharge area with only salt tolerate species surviving, and death or high levels of stress on vegetation further down the discharge extent.

A desk top survey by DWER using satellite imagery (Figure 2) shows that since the recommencement of mining in September 2015, and the discharge of dewatering water to the Salt River discharge location, there has been a significant impact on vegetation with up to 75ha being affected.

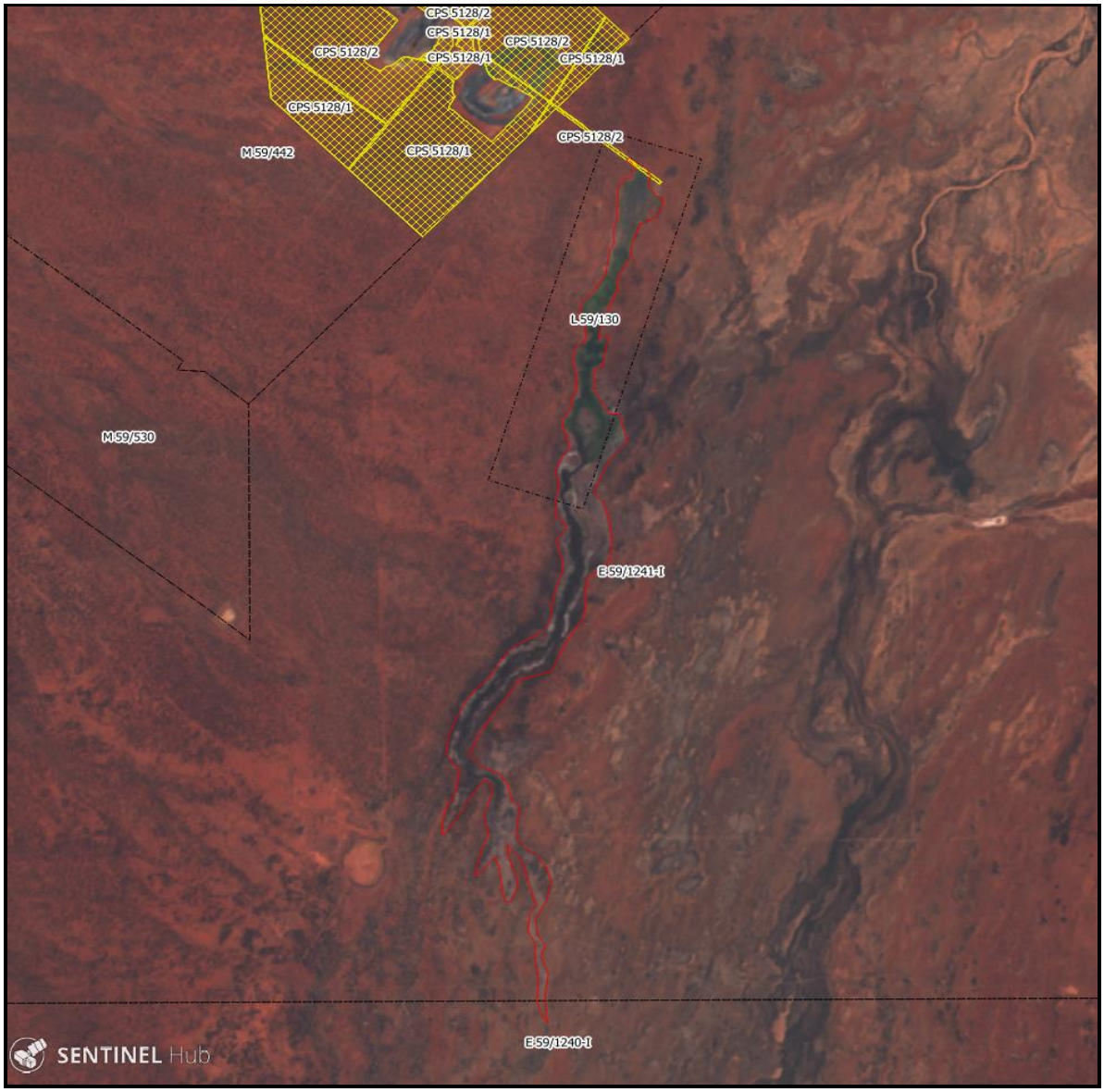


Figure 2: Sentinel 2 satellite image - 24 October 2017

Approximately 75 hectares of change outlined in red. Northern portion appears to be inundated with change extending up to 5 kilometres south.

As a consequence, the Licensee through consultation with DWER, has had to implement short-term changes to their current dewatering discharge program to reduce any further impacts while new alternative methods for the disposal of dewatering water at the Premises are planned and implemented. These interim changes include maximizing water use at the Premises where possible through increased dust suppression, increased use in the processing plant and use of evaporators at the TSF. Prior to these changes, dewatering water was being discharged to the Salt River discharge location at rates of up to 66 L/s , however the current dewatering discharge rate now sits at around 13.5 L/s (6 March 2018) which is equivalent to approximately 425,000 tpa and is still above the amount of 300,000 tpa currently authorised in the Licence. During the winter months when less evaporation occurs, the Licensee expects the volumes of dewatering water discharged to Salt River to increase and therefore anticipates up to 750,000 tonnes total will need to be discharged per year.

Long term solutions include dewatering directly to either the Salt River proper or to Burra Lake, or to a purpose built evaporation pond. These long term solutions are currently in the planning and assessment process to determine the most suitable method for the disposal of dewatering water. The Licensee is also in process of seeking approval from the relevant government and non-government agencies. This process along with the relevant approvals and the construction of infrastructure is anticipated to take up to a further 18 months.

As a consequence, DWER has initiated a Licence amendment to update the risk assessment for the discharge of dewatering effluent to the Salt River discharge location via overland flow. DWER, through this risk assessment, will determine if the dewatering discharge of highly saline water for a further approximately 18 months (ending 31 December 2019) at levels above the Licence limit, to an area that is already highly degraded due to previous dewatering discharges, is acceptable.

Table 3 below outlines the proposed changes to the Licence to capture the current operations.

Table 3: Proposed design or throughput capacity changes

Category	Current design throughput capacity	Proposed design throughput capacity	Description of proposed amendment
6	300,000 tonnes per annual period	**750,000 tonnes per annual period** (based on an average discharge volume of 23.8 litres per second).	Increase the throughput for dewatering discharge to land until the 31 December 2019.

Amendment history

Table 4 provides the amendment history for L7798/1993/6.

Table 4: Licence amendments

Instrument	Issued	Amendment
L7798/1993/6	25/07/2008	Licence amendment to transfer the Licence from ATW (Australia) Pty Ltd to Mutiny Gold Ltd
L7798/1993/6	21/01/2016	Licence amendment to change the occupier name to Deflector Mining Ltd, include dewatering to the Golden Stream Pit and Salt River, and convert the Licence to template version 2.9
L7798/1993/6	Amendment Notice 1 11/06/2018	Increase the production of category 5 from 300,000 tonnes to 700,000 tonnes per annual period, addition of category 64 class II putrescible landfill, addition of category 85 sewage facility and extension of the prescribed premises boundary.

L7798/1993/6	20 July2018	Increase dewatering discharge to current amount being discharged at the Salt River discharge location while alternative methods of disposal are planned and implemented.

Other Approvals

Department of Mines, Industry Regulation and Safety (DMIRS)

The Licensee has submitted to DMIRS a Notice of Intent (dated 22 February 2018) for the trial of a clarifier on Mining Tenements M59/442, M59/68 and L59/64. The purpose of the clarifier is to reduce the level of metals within the dewatering discharge waters. DWER has not considered the use of the clarifier in this assessment however it may be considered at a future date following successful trials and approvals.

Location and receptors

Table 5 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 5: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
The Premises is isolated with the nearest town of Yalgoo located approximately 60 km away. The Barnong Station homestead which is located 10 km away is managed by the Department of Biodiversity, Conservation and Attractions (DBCA). The homestead is unoccupied and is in a state of disrepair. DBCA has advised DWER there are no plans to repair the homestead for the purpose of occupation.	60 km from the Premises

Table 6 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 6: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises and description
Salt River	Located approximately 1.5 km east of the dewatering discharge point. One of a number of ephemeral creeks in the area that discharge into salt lakes. Flows are generally during heavy rainfall events with remnant pools remaining for several weeks or months. Water quality is highly saline (20,000 - 23,000 mg/L TDS) and alkaline (pH 8.3 - 8.4), with elevated concentrations of total nitrogen and some metals. The local surface water drains from the northwest to the southeast across the Premises towards the Salt River system. The area is typically associated with sheet flow that contributes to the nearby Salt River during periods of heavy rainfall. The river is the main drainage channel for the catchment. In the vicinity of the mine, the river flows in a southerly direction for approximately 15 km, before intercepting a chain of salt lakes including Burra Lake which is the local terminus. While the river is substantial in length, drainage along the channel and surrounding floodplain can be highly diffuse (Stantec, 2017).
Groundwater	Groundwater flow is assumed to be in a southeasterly direction towards Salt River where static water levels are higher. Groundwater at the premises is approximately 20 metres below ground level and contains salts of between 30-40,000 mg/L and is considered a highly saline environment.

Fauna	The occurrence of potentially conservation significant fauna is considered highly unlikely in the area, due to the lack of suitable habitat, a long history of land disturbance from grazing, timber cutting and mining, and disturbance created by mining, including light exposure at night and the noise associated with operations and equipment (Ninox Wildlife Consulting 2011). The surface drainages and salt lakes in the region are dry for much of the time however infrequent heavy rainfall events cause endemic brine shrimp to hatch in some of these lakes. Recent sampling conducted by the Licensee shows brine shrimp are absent from the Salt River, however are present in the Burra Lake. Brine Shrimp are a known food source for migratory birds.
Flora	No threatened or priority flora species have been identified from Department of Biodiversity, Conservation and Attractions (DBCA) database searches, or recorded during previous surveys of the area associated with the Deflector Mine. The dominant vegetation formations in the area of the Gullewa project are mulga and low acacia shrublands with local eucalypts, chenopods and halophytic communities in the saline drainages.

Risk assessment

Table 7 describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The table identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 7: Risk assessment for proposed amendments during operation

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**				
Cat 6 Mine dewatering	**Discharge of mine dewatering water**	**Waste:** An approximate 18 month increased dewatering discharge rate of 750,000 tonnes per annual period (based on an average discharge volume of 23.8 litres per second); high in TDS, with some elevated metals.	Surrounding soils and remnant stressed vegetation in the discharge zone	Direct discharge Sheet flow	Continued vegetation impacts or death from inundation of highly saline water Toxicity to microfauna in surface and subsurface soils and leaf litter Continued contamination of soils with high TDS and some metals	Moderate	Likely	**High**	1. Refer to detailed risk assessment (risk event 1) below.
		Waste: An approximate 18 month increased dewatering discharge rate of 750,000 tonnes per annual period (based on an average discharge volume of 23.8 litres per second)); high in TDS, with	Salt River	Indirect discharge into surface water via sheet flow across land following significant rainfall event	Contamination of the Salt River with inflow containing high TDS and some metals following a flood event	Moderate	Possible	**Medium**	2. Refer to detailed risk assessment (risk event 2) below.

		some elevated metals, flushed to the Salt River following a rainfall event**.**							
		Waste: An approximate 18 month increased dewatering discharge of 750,000 tonnes per annual period (based on an average discharge volume of 23.8 litres per second)); high in TDS, with some elevated metals.	Groundwater	Infiltration through soil profile	Impacts on groundwater quality – contamination with elevated TDS and some elevated metals	Minor	Possible	**Medium**	Groundwater is approximately 20 metres below ground level. Salinity ranges up to 67,000 mg/L TDS at the discharge location. The groundwater is not suitable for human, livestock or horticultural purposes due to the high salinity levels. The source of the dewatering discharge water is from the dewatering of the adjacent underground mine at Deflector and is therefore considered similar in quality to the groundwater at the discharge location. The impacts from dewatering water on groundwater will be **minor** due to the groundwater in this area being similar quality as the dewatering discharge water, and the groundwater has no beneficial use. The likelihood of an occurrence is **possible.** The risk rating for dewatering discharge to the groundwater is therefore **medium**.

Detailed Risk Assessment

1. Risk Event: Increased discharge of mine dewatering effluent to land

Description of Risk Event

An increased discharge throughput of approximately 750,000 tpa (average 23.8 L/s) of dewatering water containing high levels of salt into a highly degraded area, due to previous dewatering discharges, with the discharge impacting the remaining small amount of remnant vegetation. The dewatering discharge is only for a maximum period of up to approximately 18 months while alternative methods of dewatering discharge are implemented.

The dewatering discharge water also has elevated levels of some metals and has caused contamination of the soils in the immediate discharge area when compared with the control site (soil sampling results, 19 December 2017). An increase in the dewatering discharge volumes above the Licence limit may increase the size of the contaminated area and the concentration of the contaminants within the soil.

Identification and general characterisation of emission

The dewatering water quality has been monitored since September 2015 with the results shown in Table 8 below. The pH of the discharge water has remained consistent with a range of 7.5 to 8 (alkaline). The salinity measured as TDS has ranged from 31,000 mg/L to 48,000 mg/L (the initial high of 67,000 mg/L sampled in 8 September 2015 represented pit lake water quality) and has remained relatively steady. The total suspended solids have been low at 39 mg/L which is well below the Licence limit of 5,000 mg/L.

The dewatering discharge area is a vegetated low lying area with no defined drainage channels and is located within the flood plains of the Salt River. Dewatering discharge to this area for the past 2 years at a rate of up to 66 L/s has resulted in large scale death of vegetation that extends for approximately 5 km south of the discharge point and covers an area of approximately 75 hectares. The death of the vegetation has been attributed to inundation and the high salinity of the water. Recent improvements to the management of water at the Premises has now resulted in less water being discharged (less than 10 L/s) therefore reducing the area influenced by the dewatering discharge (see Figure 2).

The concentration of some metals within the discharge water were noted to have risen since dewatering recommenced in September 2015 however these levels are now trending down. Three metals of initial concern were cadmium, copper and nickel which are discussed below.

Cadmium concentrations within the discharge water were observed to be trending upwards for just over 12 months initially, with a high of 0.087 mg/L recorded on 25 January 2017. Since then the concentration of cadmium has trended down with levels now recorded at around 0.01 mg/L.

Initial copper concentration levels remained steady for the first 12 months and remained well below the previous Licence limit of 0.5 mg/L (limit removed through a Licence amendment in January 2016). Following the first 12 months the copper concentration within the dewatering discharge water increased to as high as 0.65mg/L as recorded on 30 November 2016, however since then have been steadily declining again to levels below 0.2 mg/L.

Nickel concentrations initial increased for the first 10 months with a high of 0.49 mg/L recorded on the 1 June 2016; however after then the concentrations have remained steady. As a comparison a limit of 1.0 mg/L had previously been applied to an earlier Licence version. Current concentrations are well below this previous Licence limit.

Description of impacts from the increased emission

The Licensee has conducted monthly field monitoring since June 2017 to determine the extent of the dewatering discharge. Figure 2 below indicates the extent when dewatering discharge rates were above 60 L/s in July 2017. Since then, this area has reduced in size as a result of reduced rates of discharge, which is now down to around 13.5 L/s (6 March 2018) due to an increased reuse of dewatering water within the processing plant, for dust suppression and the use of evaporators at the TSF. This is expected to rise during the winter months when evaporation rates are lower, however is not expected to return to the highs of July 2017 (around 60 L/s) due to improved water management measures at the Premises. As a result, the continued dewatering discharge at an increased rate above the Licence limit, however well below historical levels, is expected to remain within the already impacted area from previous dewatering discharges.

The Licensee has also undertaken soil sampling within the impacted area to determine the concentrations of particular metals. A control site upstream of the discharge area was also sampled for comparison. The results from the soil sampling are presented in Table 9 below. The sampling locations are presented within Figure 4.

Sampling results show that the concentration of metals within soils reduces with distance from the Salt River discharge location. Sampling at the dewatering discharge terminus (DEFD01) shows the concentrations of metals were above the control site sample with copper noted to be six times and nickel over twelve times the levels sampled at the control site; these concentrations are shown to reduce with distance to levels just over the control site.

Dewatering to the Salt River discharge location has been occurring for a number of years at rates sometimes well above the Licence limit of 300,000 tpa (average 9.5 L/s). The past two years has seen discharge rates at 3 to 4 times the Licence limit (up to an average of approximately 40 L/s). Increasing the dewatering discharge Licence limit to 750,000 tpa (based on an average discharge volume of 23.8 L/s) for another 18 months is expected to increase the concentrations of metals in the immediate discharge area, however these concentrations are expected to remain well within the already high degraded area as previous discharge rates were far higher and therefore the discharge extent was larger.

Criteria for assessment

There are no guidelines specifically for the discharge of water to terrestrial environments.

Previous discharge of highly saline water at the Salt River discharge location has resulted in large scale vegetation death.

Salinity dramatically impedes plant growth as a result of osmotic stress and ion toxicity. Osmotic stress occurs because saline soils have high osmotic potential, so plants which grow in saline soils have difficulty taking up water. Ion toxicity occurs because saline water moves up the transpiration stream, causing sodium and chlorine ions to accumulate in leaf tissue. Leaves with high sodium and chlorine ion levels display premature senescence and death (Munns and Tester, 2008).

The Premises is characterised by low to open woodlands of *Eucalyptus*, *Acacia* and *Callitris* which have a low salinity tolerance (glycophytes). *Tecticornia* and *Atriplex* which have an exceptionally high salinity tolerance (halophytes) occur in the saline drainage areas at the Premises.

A soil sample was taken from a control site (background) to compare the result with soil samples taken from areas within the dewatering discharge extent.

Licensee controls

From mid-2017, the Licensee has reduced the volumes of dewatering water discharged to the Salt River discharge location through:

- increasing the water use in the processing plant during the summer months;

- discharging the water over the waste rock facility;

- trialing the use of 6 turbo mist evaporators at the TSF; and

- all water used underground is sourced from the Golden Stream storage pit (settlement pond prior to discharge to the Salt River) rather than other sources.

More recently the Licensee is trialing the use of a clarifier to reduce the concentration of metals in the dewatering discharge water.

The Licensee discharges dewatering water to the settlement ponds prior to discharge to land as required by Condition 1.3.3 of the Licence. All dewatering water is discharged to land through rock-armored gabions as required by Condition 2.2.2 of the Licence. The discharge to the Golden Stream Pit prior to the settlement ponds also acts to settle suspended materials in the dewatering water prior to discharge to land.

As required by Condition 3.2.1 of the Licence, the Licensee monitors the cumulative volumes of dewatering water discharged to land and takes quarterly water samples for analysis, and results of the sampling are provided in the AER as required by Condition 4.2.1 of the Licence.

The Licensee conducts monthly photo monitoring of the vegetation health at the dewatering discharge location as required by Table 3.4.2 of Condition 3.4.1 of the Licence.

The Licensee commenced monthly field surveys in June 2017 to determine the extent of the dewatering.

The Licensee has undertaken the sampling of soils at various locations within the dewatering discharge extent, including an upstream control site, to determine the concentration of metals.

Consequence

The impacts from an increased discharge to land for a period of approximately 18 months with mine dewatering water which is high in TDS and has some elevated metals will be **moderate** as the land is highly degraded from previous dewatering discharges with only small amounts of remnant stressed vegetation remaining, there are no threatened or priority flora species, the dewatering discharge extent is expected to be smaller than the historical dewatering discharge extent and the past two years of discharge hasn't substantially increased the concentration of metals within the soils above background levels except at the immediate discharge point.

Likelihood of Risk Event

The likelihood of an occurrence is **likely** given the salinity of the dewatering discharge water remains high and inundation and pooling will continue to occur close to the discharge location causing metal concentrations to increase in the soils.

Overall rating of Risk Event

The risk rating for an increased dewatering discharge to land is therefore **high** but is deemed acceptable subject to the existing conditions imposed in the Licence and new conditions that limit the increased discharge to Salt River discharge location until the 31 December 2019, and quarterly soil sampling within the discharge area**.**

Table 8: Quarterly dewatering discharge monitoring results

Quarter	Date	pH	TDS	TSS	Total Chlorine	Chloride	Sodium	Magnesium	Calcium	Potassium	Soluble Aluminium		Soluble Arsenic		Soluble Cadmium		Soluble Copper		Soluble Iron		Soluble Lead		Soluble Manganese		Soluble Nickel		Soluble Selenium	
		pH units	(mg/L)	mg/L	mg/L	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(mg/L)	(µg/L)	(mg/L)	(µg/L)	(mg/L)	(µg/L)	(mg/L)	(µg/L)	(mg/L)	(µg/L)	(mg/L)	(µg/L)	(mg/L)	(µg/L)	(mg/L)	(µg/L)	(mg/L)
		0.1	10	5	0.10	1	0.5	0.1	0.2	0.1	5	0.01	1	0.001	0.1	0.0001	1	0.001	5	0.05	1	0.02	1	0.001	1	0.001	1	0.01
3/15	8/09/2015	7.64	67,400	38		37,800	15,000	3,610	2,340	520		<0.10		<0.010		<0.0010		0.018		<0.50		<0.010		0.266		0.017		<0.10
4/15	15/12/2015	7.9	45,000	33		23,000	12,000	1,900	1,000	340		<0.1		<0.02		<0.002		0.044		<0.1		<0.02				0.055		<0.02
1/16	30/01/2016	7.7	43,000	39		24,000	11,000	1,900	1,200	310		<0.1		<0.02		0.011		0.062		<0.1		<0.02				0.26		<0.02
1/16	27/02/2016	7.7	36,000	23	<0.1		9,400	1,600	1,100	270		<0.1		<0.02		0.018		0.055		<0.1		<0.02		0.2		0.3		<0.02
1/16	13/03/2016	7.5	41,000	28	<0.1		9,400	1,700	1,100	270		<0.1		<0.02		0.023		0.034		<0.1		<0.02		0.15		0.320		<0.02
2/16																												
2/16	1/06/2016	7.6	31,000	9	<0.1	N.A.	11,000	1,600	960	140		<0.1		<0.02		0.022		0.16		<0.1		<0.02		1		0.49		<0.02
3/16	24/08/2016	7.9	41,000	35	<0.1	N.A.	11,000	1,400	1,000	180	<100		<20		44		86		<100		<20		1,100		230		<20	
4/16	10/10/2016	7.9	35,000	12	0.20	N.A.	13,000	1,700	1,000	210	<100		<20		41		510		<100		<20		1,100		260		<20	
4/16	30/11/2016	8	39,000	9	0.20	N.A.	13,000	1,700	1,000	220	<100		<20		64		650		<100		<20		980		330		<20	
1/17	25/01/2017	7.6	46,000	N.A.	0.20	N.A.	13,000	1,900	1,000	250	<100		<20		87		440		<100		<20		930		360		<20	
2/17	13/04/2017	7.9	48,000	54	0.50	N.A.	14,000	1,800	1,000	240	<250		<50		60		350		<250		<50		910		380		<50	
2/17	29/05/2017	7.78	44,000	140	0.60	N.A.	16,000	1,700	1,100	270	<100		10		33		460		50		10		950		410		0.01	
2/17	28/06/2017	7.9	44,000	22	0.40	N.A.	12,000	1,700	990	270	<100		<20		23		280		<100		<20		790		360		<20	
3/17	9/08/2017	7.9	41,000	51	0.40	N.A.	12,000	1,800	1,100	250	<100		<20		21		160		<100		<20		840		420		<20	
3/17	29/08/2017	7.9	43,000	120	0.30	N.A.	9,900	1,600	980	250	<100		<20		25		110		<100		<20		820		450		<20	
3/17	20/09/2017	7.3	44,000	120	0.20	N.A.	11,000	1,700	1,000	250	<100		<20		19		140		<100		<20		840		470		<20	

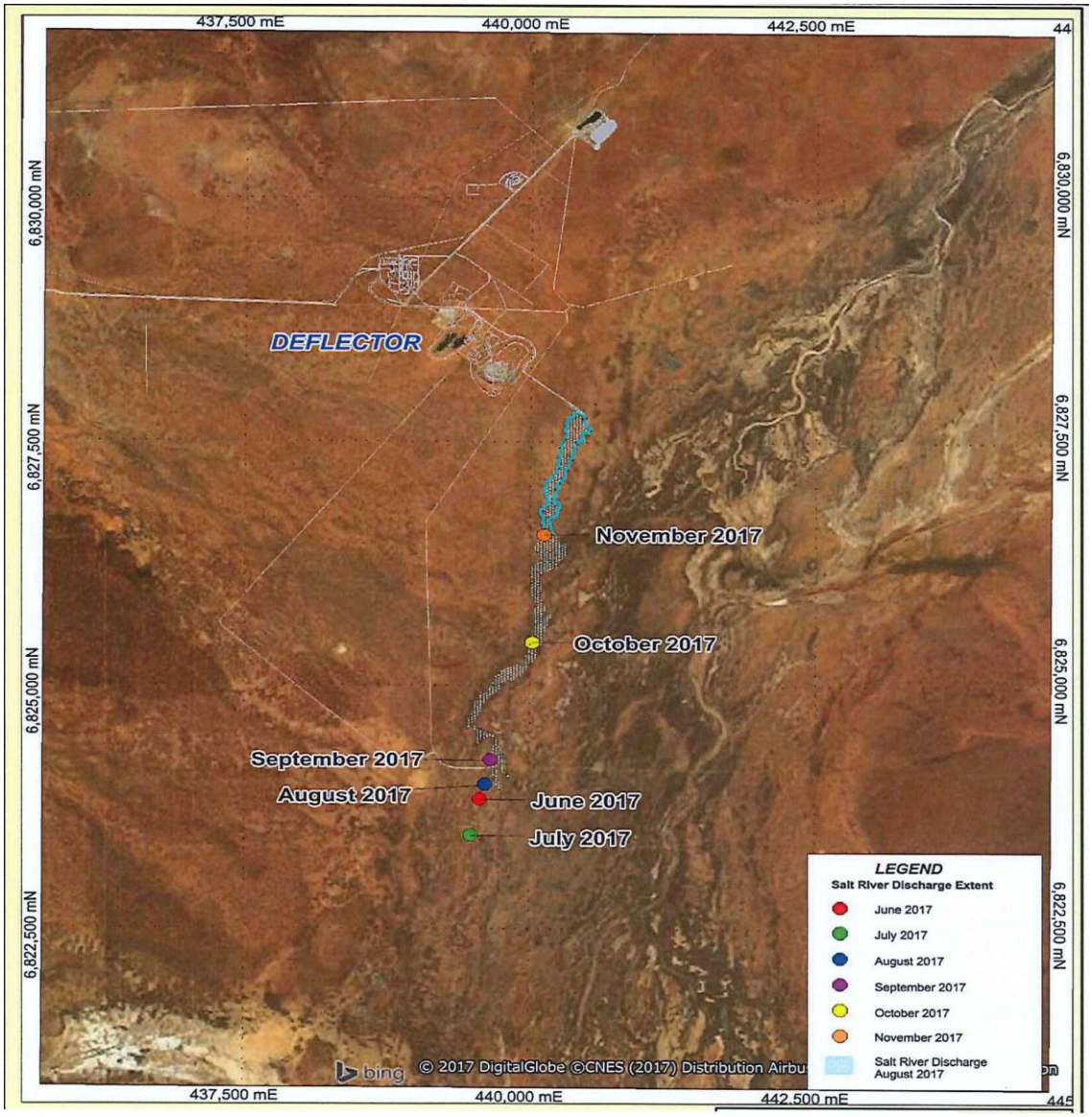


Figure 3: Monthly extent of the dewatering discharge

Table 9: Soil sampling results

ANZECC INTERIM SEDIMENT QUALITY GUIDELINES - METALS/METALLOIDS (mg/kg)										
	Trigger value	**ISQG-High**	**Salt River Control Site (PSC-9)**	**DEFD01**	**DEFD10**	**DEFD16**	**DEFD18**	**DEFD07**	**DEFD21**	**DEFD22**
Antimony	2	25	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.
Arsenic	20	70	1	2	3	3	3	2	3	3
Cadmium	1.5	10	0.3	<0.3	0.5	1.1	0.7	<0.3	<0.3	<0.3
Chromium	80	370	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.
Copper	65	270	5.9	37	24	14	17	12	8.7	8.3
Lead	50	220	6	13	18	17	21	15	10	12
Mercury	0.15	1	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.
Nickel	21	52	4.4	12	34	19	23	16	10	9.3
Silver	1	3.7	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.
Zinc	200	410	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.	*N.A.

** Metals that were not analysed during the 19 December 2017 soil sampling.*

Trigger value: is a threshold concentration, below this concentration the frequency of adverse biological effects is expected to be very low

ISQG-High: represents a concentration above which adverse biological effects are expected to occur more frequently

NOTE: Exceeding trigger value concentrations does not necessarily mean that adverse biological effects will occur in sediments, but further investigations should be underta

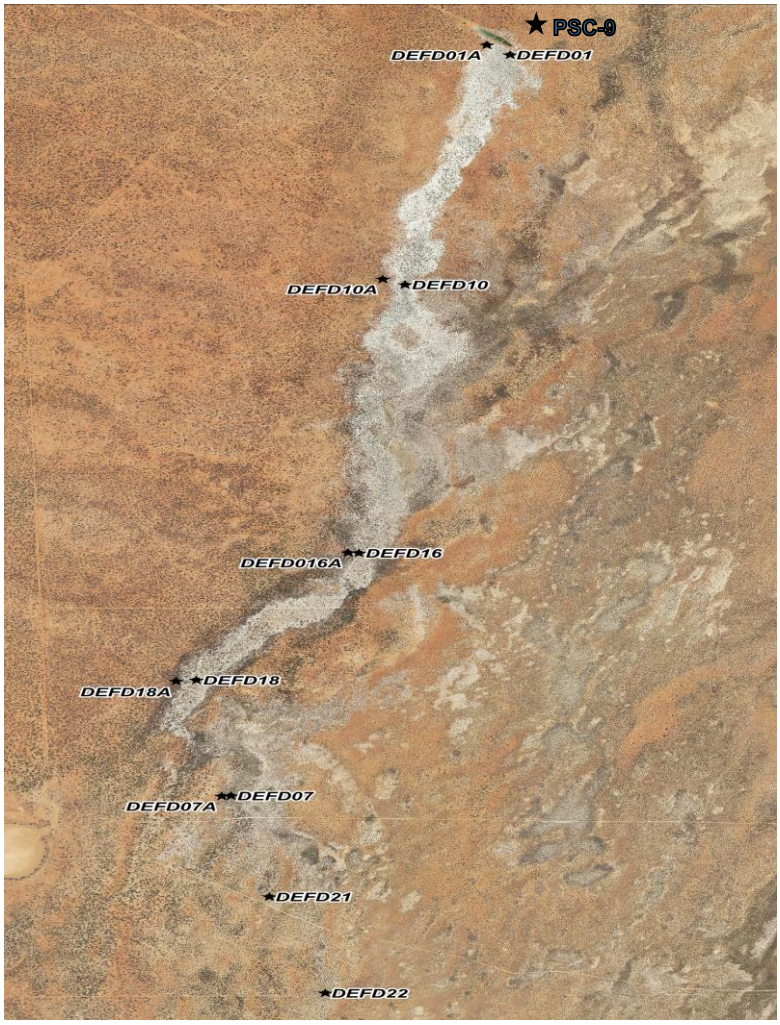


Figure 4: Soil sampling locations

2. Risk Event: Increased discharge of mine dewatering effluent to Salt River

Description of Risk Event

The Premises is located in an area which is subject to infrequent heavy rainfall events due to tropical cyclones originating from the north of the State and larger cold fronts from the west of the State. These intermittent heavy rainfalls can cause widespread flooding which results in large movements of water and sediment across the land due to sheet flow. Any contaminated soils located at the discharged location could be transported in the sheet flow and discharged into the Salt River or downstream salt lakes; floodwaters may widely disperse contaminated soils or may concentrate soils within drainage lines depending on their magnitude and frequency.

Identification and general characterisation of emission

The concentration of some metals within the discharge water were noted to have risen since dewatering recommenced in September 2015, however these levels are now trending down. Three metals of initial concern were cadmium, copper and nickel which are discussed below.

Cadmium concentrations within the discharge water were observed to be trending upwards for just over 12 months initially, with a high of 0.087 mg/L recorded on the 25 January 2017.

Since then the concentration of cadmium has trended down with levels now recorded at around 0.01 mg/L.

Initial copper concentrations remained steady for the first 12 months and remained well below the previous Licence limit of 0.5 mg/L. This limit was removed through a Licence amendment in January 2016. Following the first 12 months the copper concentration within the dewatering discharge water increased as high as 0.65mg/L as recorded in 30 November 2016, however since then have been steadily declining again to levels below 0.2 mg/L.

Nickel concentrations initially increased for the first 10 months with a high of 0.49 mg/L recorded on the 1 June 2016; however after then the concentrations have remained steady. As a comparison a limit of 1.0 mg/L had previously been applied to an earlier Licence version. Current concentrations are well below this previous Licence limit.

Description of potential impacts from contaminated soils being flushed into the Salt River

The Salt River is the main drainage channel for the catchment in the vicinity of the Premises. The Salt River flows in a southerly direction for approximately 15 km, before intercepting a chain of salt lakes including Burra Lake which is the local terminus. While Salt River is substantial in length, drainage along the channel and surrounding floodplain can be highly diffuse (Stantec, 2017).

Although surface drainages and salt lakes in the region are dry for much of the time, infrequent heavy rainfall events cause endemic brine shrimp to hatch and form an important food source for migratory birds. The hatching success of brine shrimp is known to be greatly reduced when water contains elevated concentrations of metals, particularly elevated concentrations of copper (Brix et al., 2006).

Recent sampling for brine shrimp in both the Salt River and Burra Lake was undertaken by the Licensee. Results indicate the absence of brine shrimp in Salt River however were present in Burra Lake.

Recent soil sampling (19 December 2017) conducted within the impacted dewatering discharge area, indicates that the concentration of metals within soils reduces with distance from the Salt River discharge location (see Table 9 and Figure 4). Sampling at the dewatering discharge location (DEFD01) shows the concentrations of metals were above the control site sample with copper noted to be six times and nickel over twelve times the levels sampled at the control site; however these concentrations are shown to reduce with distance to levels just over the control site. With the Salt River located 1.5 km away from the dewatering discharge area, the concentrations of any metals that maybe flushed into the Salt River as a result of a heavy rainfall event are expected to reduce even further. Additionally, there are large volumes of water associated with heavy rainfall events which would dilute the concentration of metals even further.

Cadmium and copper are absorbed strongly by suspended material which would be high during these heavy rainfall events. Also cadmium complexes with chloride, resulting in reduced toxicity at higher salinity. Copper toxicity in algae, invertebrates and fish generally increases as salinity decreases.

The terminus of the Salt River is the Burra Lake. Any metals flushed into the Salt River from the dewatering discharge location are expected to be at or just above background levels and are therefore not expected to have any impacts on the Burra Lake due to the separation distance of 15 km and the large volumes of water associated with heavy rainfall events therefore diluting the metal concentrations even further.

Criteria for assessment

Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 2

Aquatic Ecosystems — Rationale and Background Information (Chapter 8) October 2000, Australian and New Zealand Environment and Conservation Council

The hatching success of brine shrimp is known to be greatly reduced when water contains elevated concentrations of metals, particularly elevated concentrations of copper (Brix et al., 2006).

Licensee controls

The Licensee discharges dewatering water to the settlement ponds prior to discharge to land as required by Condition 1.3.3 of the Licence. All dewatering water is discharged to land through rock-armoured gabions as required by Condition 2.2.2 of the Licence. The discharge to the Golden Stream Pit prior to the settlement ponds also acts to settle suspended materials in the dewatering water prior to discharge to land.

Recent soil sampling (19 December 2017) conducted within the impacted dewatering discharge area, indicates that the concentration of metals within soils reduces with distance from the Salt River discharge location (see Table 9 and Figure 4).

No Licensee controls are in place to prevent elevated levels of cadmium, copper and nickel in soils at the dewatering discharge location from being transported through sheet flow to the Salt River as a result of heavy rainfall events.

Consequence

The impacts from soils, which have elevated levels of cadmium, copper and nickel when compared with the control site, being flushed into the Salt River via overland flow is considered to be **minor** due to soil sampling results showing that the concentration of metals within the soils is reduced with distance, and that there will be absorption onto suspended solids such as sediment and organic material, and a high dilution factor during heavy rainfall.

Likelihood of Risk Event

The likelihood of an occurrence is **possible** given this area is part of the Salt River catchment, noting that the terminus of the Salt River is Burra Lake, approximately 15 km downstream.

Overall rating of Risk Event

The risk rating for dewatering discharge to the Salt River discharge location for a limited time is therefore **moderate** and is deemed acceptable subject to the existing conditions imposed in the Licence and new conditions that limit the increased discharge to Salt River discharge location until the 31 December 2019 and quarterly soil sampling within the discharge area**.**

Other amendments

The emission to Golden Stream Pit is considered an emission to groundwater; therefore condition 2.2.1, table 2.2.1, condition 3.2.1 and table 3.2.1 have been amended by removing all reference to Golden Stream Pit.

Condition 2.3.1 has been amended to authorise the discharge of dewatering water to the Golden Stream pit.

Condition 3.5.1 has been amended to include the monitoring of dewatering water discharged into the Golden Stream pit.

Table 1.3.2 has been amended to include the Golden Stream Pit as infrastructure for the containment of waste and minimum freeboard requirements for the Golden Stream Pit and the settlement ponds.

Amendment

1. The Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below.

1.3.2 The Licensee shall carry out the Authorised Activities on the Premises in accordance with the requirements set out in Table 1.3.1.

Table 1.3.1: Authorised Activities		
Authorised activity	***Process(es)***	***Process limits***
Category 5	*Processing or beneficiation of metallic or non-metallic ore*	*Processing of material at the premises shall not exceed 700,000 tonnes of ore per annual period*
Category 6	*Mine dewatering*	*Dewatering discharge at the premises shall not exceed ~~300,000~~ **750,000** tonnes per annual period*
Category 64	*Class II putrescible landfill*	*4,000 tonnes per annual period*
Category 85	*Sewage facility: premises- a)on which sewage is treated (excluding septic tanks); or b) from which treated sewage is discharged onto land or into waters*	*35 cubic metres per day*

2. The Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below.

2.2 Emission to land

2.2.1 The Licensee shall ensure that where waste is emitted to land 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 to land		
Emission point reference on Map of emission points	*Description*	*Source including abatement*
~~Golden Stream Pit~~	*~~End of pipe discharge~~*	*Water from dewatering of mine.* ***Approved to discharge a maximum of 750,000 tonnes per annual period until the 31 December 2019***
Salt River	*Rock-armoured gabion outlet/s*	
Irrigation spray field	*Discharge of treated wastewater by irrigation to land*	*Treated waste water from the waste water treatment facility.*

3. The Licence is amended by the inclusion of the bold text shown in underline below.

2.3 Emission to groundwater

2.3.1 The Licensee shall ensure that where waste is emitted to groundwater from the emission point 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 to groundwater		
Emission point reference on Map of emission points	*Description*	*Source including abatement*
Golden Stream Pit	***End of pipe discharge***	***Water from dewatering of mine.***

4. The Licence is amended by the deletion of the text shown in strikethrough below:

3.2.1 The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table and present this information in the Annual Environmental Report, including a comparison against ~~the appropriate ANZECC 2000 water quality trigger values and~~ previous years' monitoring data.

Table 3.2.1: Monitoring of emissions to land			
Emission point reference	***Parameter***	***Units***	***Frequency***
Salt River~~; and Golden Stream Pit~~ *As shown in Map of emission points in Schedule 1.*	*Cumulative volume*	*kL*	*Continuous*
	pH[1]	*pH units*	*Quarterly*
	Total Dissolved Solids	*mg/L*	
	Total Suspended Solids		
	Major ions and metals - copper, sodium, chloride, aluminium, cadmium, iron, magnesium, calcium, potassium, manganese, nickel, selenium, arsenic and lead.		

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

5. The Licence is amended by the inclusion of the bold text shown in underline below.

3.5 Monitoring of emissions to groundwater

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 point source emissions to groundwater				
Emission point reference	*Parameter*	*Units*	*Averaging Period*	*Frequency*
Golden Stream Pit	***Volumetric flow rate***	***m^3/day***	***Monthly***	***Continuous***
	Aluminium, arsenic, cadmium, chloride, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, sodium, zinc	***mg/L***	***Spot sample***	***Quarterly***
	Standing water level in pits	***mbgl***		
	Total dissolved solids	***mg/L***		
	Total recoverable hydrocarbons	***mg/L***		
	pH[1]	***-***		

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

6. The Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below.

Table 1.3.2: Containment infrastructure for management of waste			
Storage vessel or compound as shown on the Premises map in Schedule 1	***Material***	***Management Strategy***	***Requirements***
TSF	*Tailings and slurry*	*Containment in the TSF*	*The Licensee must:* (i) *maintain all installed toe drains and associated cut offs along the external toe of the TSF perimeter embankments, so that any liquid matter resulting from seepage or breach of the TSF embankments is contained and recovered;* (ii) *maintain a minimum top of embankment freeboard of 300 mm; and* (iii) *divert stormwater away from the TSF to minimise threat of accidental loss of stored matter due to flooding or erosion.*
Golden Stream Pit and *Settlement pond/s*	*Dewater*	*Containment in the* ***Golden Stream Pit and*** *settlement pond/s prior to discharge to Salt River*	*Prior to discharge to Salt River, the Licensee must:* *(i) direct dewater to the* ***Golden Stream Pit and*** *Settlement Pond/s; and* *(ii) retain dewater in* ***the Golden Stream Pit and*** *Settlement Pond/s for a sufficient time to reduce Total Suspended Solids to less than 5,000 mg/L.* ***The Licensee must maintain a minimum top of embankment freeboard of 300mm.***

7. The Licence is amended by the inclusion of the conditions shown in bold and underline below.

3.4.2 The Licensee shall undertake the monitoring in Table 3.4.3 according to the specifications in that table.

Table 3.4.3: Monitoring of ambient soil quality				
Monitoring point reference and location as depicted in Schedule 1	***Parameter***	***Units***	***Averaging period***	***Frequency***
Soil monitoring sites: PSC-9, DEFD01, DEFD10, DEFD16, DEFD18, DEFD07, DEFD21 and DEFD22	***Cadmium*** ***Copper*** ***Nickel***	***mg/kg***	***Spot sample***	***Quarterly***

8. The Licence is amended by the insertion of the bold text shown in underline below.

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*
-	*Copies of original*	*Not*	*Within 14 days of*	*As received by the*

	monitoring reports submitted to the Licensee by third parties	*Applicable*	*the CEOs request*	*Licensee from third parties*
Condition 3.4.2, Table 3.4.3	***Copies of monitoring results from monitoring undertaken by the Licensee; or Copies of originals submitted to the Licensee by third parties***	***Quarterly***	***Within 30 days***	***As received by the Licensee if compiled by third parties***

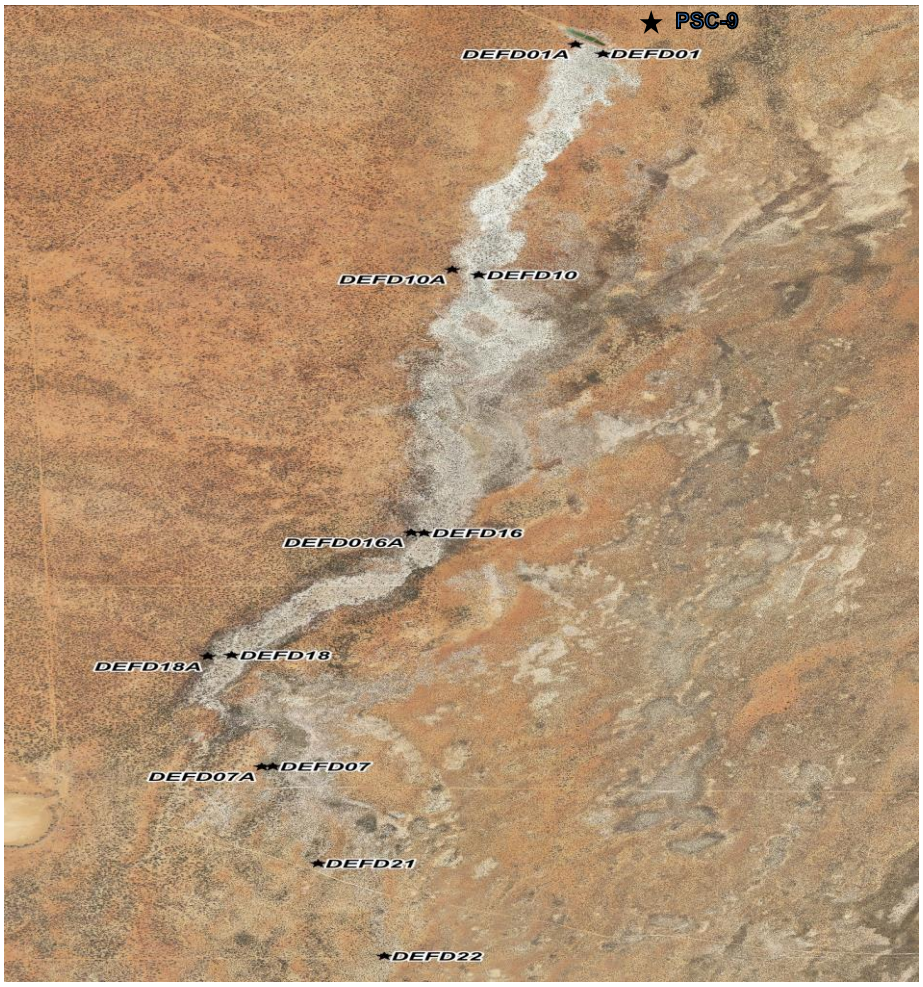
9. The Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below.

4.1.1 The Licensee shall submit to the CEO an Annual Environmental Report by 31 March each year. 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	***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 1.3.1	*Actual throughput for the annual period for Categories 5, 6,* ***and 85***	
Table 3.2.1	*All dewatering water monitoring parameters specified in Table 3.2.1*	
Table 3.2.2	*All discharge to irrigation area monitoring parameters specified in Table 3.2.2*	
Table 3.3.1	*Summary of the TSF inspections including details on any seepage, spills or leaks and corrective measures undertaken to rectify any issues identified.*	
Table 3.3.1	*Summary of the dewatering pipeline and discharge point inspections including details on any identified pipeline failures, seepage, spills or leaks and corrective measures undertaken to rectify any issues identified.*	
Table 3.4.1	*All ambient groundwater quality monitoring parameters specified in Table 3.4.1*	
Table 3.4.2	*All ambient vegetation quality monitoring parameters specified in Table 3.4.2*	
Table 3.4.3	***All ambient soil quality monitoring parameters specified in Table 3.4.3***	
Table 3.5.1	***All emission to groundwater monitoring parameters specified in Table 3.5.1***	
4.1.3	*Compliance*	*Annual Audit Compliance Report (AACR)*
4.1.4	*Complaints summary*	*None specified*

10. The Licence is amended by insertion of the map below into Schedule 1 Map of emission and monitoring points:

The locations of the soil sampling points defined in Table 3.4.3 are shown below:



Licensee comments

The Licensee was provided with the draft Amendment Notice on 15 December 2017.
A second draft of the Amendment Notice was provided to the Licensee on 27 June 2018.

Comments received from the Licensee have been considered as shown in Appendix 2.

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L7798/1993/6 – Gullewa Gold/Copper Operations	L7798/1993/6	accessed at www.dwer.wa.gov.au
2	Works Approval W5188/2012/1	W5188/2012/1	DWER records (A947191 and A1537279)
3	Deflector Gold Mine, Dewatering Discharge Management Plan, 31 August 2017	DDMP	DWER record A1434352
4	Steve Appleyard, DWER Principal Hydrogeologist, Contaminated Sites , memorandum, 1 November 2017	Appleyard, 2017	DWER record A1565716
5	Deflector Mining Limited Annual Environmental Report 2016	AER, 2016	DWER record A1406065
6	Ninox Wildlife Consulting. (2011). A level 1 vertebrate fauna assessment of the Gullewa Gold Copper Project – north of Morowa, Western Australia. Prepared for Mutiny Gold.	Ninox Wildlife Consulting (2011)	DWER record A1514911
7	Stantec Australia Pty Ltd, Deflector Gold and Copper Operations: Desktop Review and Discharge Options Study, prepared for Doray Minerals limited, 31 August 2017	Stantec, 2017	DWER record
8	Munns, R. & Tester, M. (2008) Mechanisms of salinity tolerance. Annual Review of Plant Biology, 59, 651-681.	(Munns and Tester, 2008)	http://research-repository.uwa.edu.au/en/publications
9	Archives of Environmental Contamination and Toxicology, 51, 580 – 583, Brix et al., 2006	Brix et al 2006	researchgate.net/publication

Appendix 2: Summary of Licensee comments

The Licensee was provided with the draft Amendment Notice on 15 December 2017 for review and comment. The Licensee responded on 18 January 2018. The following comments were received on the draft Amendment Notice.

Reference	DWER Licence — Points for clarification/discussion	Summary of Licensee comment	DWER response
Page 4, Amendment background. • paragraph 3	*Any dewatering that was in excess of onsite use was discharged to the Salt River system located about 1.5km away from the discharge location*	The mining history narrative mixes the historic Gullewa workings (pits, underground and plant located West of the Morawa-Yalgoo Rd) with the current Deflector workings (current licenced pits, underground and new plant located East of the Morawa-Yalgoo Rd). Only dewatering from the Deflector Central and Deflector West starter pits (mined in late 2002-early 2003 and treated at Gullewa) would have had dewatering discharged at the current licenced point i.e. the Salt River flood plain area.	Agree. Report has been updated.
Page 5 • paragraph 1	*Reference to discharge of water into Salt River System*	The current licenced discharge point could be better described as flood plain adjacent to Salt River; water is not discharged into the Salt River system proper.	Agree. Update description of discharge point.
Page 5 • paragraph 1	*Gabion*	"Gabion" should be plural as there are three distinct cells in the discharge arrangement.	Agree. Report updated.
Page 5 • paragraph 10	*Reference to submission version of DDMP*	Mentions the Dewatering Discharge Management Plan (DDMP) was submitted on 31 August 2017, however the initial Version 1.0 was actually submitted on 18 May 2017. The date of 31 August 2017 was when Version 1.1 was submitted.	Agree. Update report to reference submission dates for both versions of the DDMP.
Page 5 • last paragraph	*Compliance*	Infers that the DWER (Compliance) team met with DML on these dates, whereas it was the DWER Licensing team. Compliance only met with DML in	Paragraph 8 of page 5 updated to remove 'Environmental Compliance officers'.

		November 2017 in conjunction with a scheduled DML-Licencing meeting.	The department is made up of many sections and divisions however are referred to collectively in correspondence as DWER.
	Reference to a proposal	DWER refer to a proposal to be completed and submitted (by DML?). Please clarify what proposal the DWER are referring to.	DWER issued an Environmental Field Report requiring DML to submit a DDMP to DWER. Report has been updated.
Page 6 Other Approvals (DMIRS)	*Refers to "the most appropriate option for tenure" regarding the Salt River dewatering discharge point.*	Environmental discharge does not require tenure; tenure is only required for infrastructure and discharge outfall infrastructure which was confirmed when DML met with DMIRS (15/11/2017). The tenure option over the dewatering discharge impact area was removed as a consideration by DMIRS. DMIRS has since advised that the tenure option was referring to the gabions on L59/64 and that on review, DMIRS had failed to list the correct tenure activity on L59/64 when the Mining Proposal was approved for the discharge point. This discussion point could be removed from the amendment text as doesn't seem to add anything factual.	DWER is aware that tenure is only required for infrastructure and discharge outfall infrastructure. This is identified in DML's licence as occurring on mining tenement L59/64. However both onsite and offsite impacts from prescribed activities occurring on that tenement are taken into consideration as part of DWER's decision making process. Note DMIRS's comments to DWER have been removed from the document.
	"DMIRS have not, and would not approve this style of discharge (i.e. a large volume of saline water dispersing into vegetated, non-saline land), even if metals were not a concern. The release of water would need to be better controlled for DMIRS to find it acceptable."	Bullet point #2 seems to be opinion from DMIRS, whereas DWER are the lead agency on licencing environmental discharge. Again, it may improve clarity if removed.	Refer to above comment.
Page 7 • Location and receptors table 5	*Reference to Barnong Station Homestead as a residential and sensitive premises.*	The Barnong homestead is an unoccupied, derelict building. The managing agency (DBCA) have indicated there are no plans of refurbishment. It would seem a strange inclusion as either residential or sensitive receptor. Note the managing agency is listed as the Department of Biodiversity, Parks and Attractions - "Parks" should be Conservation".	Supporting documentation for the Licence amendment application submitted to DWER on 12/08/2017 referred to the Barnong Station Homestead as the nearest public residential area. The documentation referred to the homestead as being unoccupied and owned by the Western Australian Government with management through DBCA.

		What distance do DWER consider qualifies a receptor as sensitive? Table 6 describes receptors close to the mine, within the broader region and further afield again.	DWER has now confirmed with DBCA that the homestead is in a state of disrepair and will not be restored for occupational purposes. The report and risk assessment has been updated to reflect this new information. DWER's Guidance Statement "Risk Assessments", February 2017 provides guidance on how risk is assessed to determine regulatory controls.
Page 7 • Table 6 Salt River	*Permanent groundwater fed pools in some places*	This may be the case but DML is unaware of studies or surveys that have evidence of this conclusion. Does DWER have a reference for this comment?	This section has been updated to remove the reference to surface water discharges as it was not considered in the risk assessment.
	The surface drainages and salt lakes in the region are dry for much of the time however infrequent heavy rainfall events cause endemic brine shrimp to hatch and form an important food source for migratory birds (Appleyard, 2017)	Fuller reference requested. Many invertebrates and fish (which are present in Salt River) provide a food source for migratory birds. All available data and recent (September 2017) sampling undertaken by Stantec (on behalf of DML) indicates that there are no brine shrimp within Salt River. There would seem to be material doubt regarding using brine shrimp as a relevant receptor in Salt River. There does not seem to be evidence that Deflector discharge has had any impact on Burra Lake brine shrimp, or that any likelihood of that risk exists. Brine shrimp are characteristic of lakes, and usually salt lakes, and recent sampling has confirmed their existence in Burra Lake.	Advice by Steve Appleyard, DWER Principal Hydrogeologist, Contaminated Sites (memorandum, dated 1/11/2017) advised salt lakes in the region contain endemic brine shrimp to hatch. Results from sampling undertaken by Stantec in September 2017 to determine the presence of brine Shrimp in the Salt River was not available at the time of this assessment. DWER assessed the potential for the presence of brine shrimp in the Salt River based on the latest available information at the time with reference to: Timms, B.V., Pinder, A.M. and Campagna, V.S., 2009, *'The biogeography and conservation status of the Australian endemic brine shrimp Parartemia'*, Conservation Science Western Australia. The report has been updated to reflect the latest sampling data.
Page 7	*Reference to groundwater ranging up to up to 67,000mg/L TDS at the*	DWER to clarify if they mean discharge water or groundwater	DWER is referring to the groundwater quality in the area of the discharge

• Table 6 Groundwater	*discharge location*	by reference to the 67,000mg/L reading (which is a discharge value). Average readings of Salt River discharge are 42,000mg/L and as such is classified as mesosaline. The 67,000mg/L discharge value is an outlier in the data set and not representative.	location. 67,000mg/L was incorrectly reported. The report has been updated to identify that groundwater at the Premises contains salts of between 30-40,000 mg/L which is classified as a saline environment.
Page 7 • Table 6 Fauna	*"There are a large number of brine shrimp species in the region, including a number that should be considered to be threatened species (Timms et al., 2009)"*	All available data and recent (September 2017) sampling undertaken by Stantec on behalf of DML, indicates that there are no brine shrimp within Salt River. There would seem to be material doubt regarding using brine shrimp as a relevant receptor in Salt River. Brine shrimp are characteristic of lakes, and usually salt lakes, and recent sampling has confirmed their existence in Burra Lake. Typically only one brine shrimp species may occur in a lake, and several species may be present in a region such as this, however usually not a large number of species. In addition, most brine shrimp species are not threatened (or further work is required to confirm distribution).	See above comment regarding DWER's decision criteria for determining whether brine shrimp are present in the Salt River in the absence of sampling. The Salt River is one of a number of ephemeral creeks in the area that discharge into a chain of salt lakes including the Burra Lake which is the local terminus. As stated by DML *'recent sampling has confirmed their existence in Burra Lake'.* Therefore any discharge of dewatering water, containing some elevated heavy metals, into the Salt River may end up in the Burra Lake which may have an impact on brine shrimp and is therefore considered in the risk assessment.
	Brine shrimp form a large food source for migratory birds	This comment may well be generally true, but if brine shrimp aren't a relevant receptor for Salt River then the extension as a risk to migratory birds is not valid. The brine shrimp information is somewhat confusing without defining if it is referencing fauna receptors in Salt River (actual) or	Recent sampling has shown brine shrimp are not present within the Salt River, however the Salt River discharges into the Burra Lake during heavy rainfall events where recent sampling has shown that brine shrimp are present. DWER considers any impacts to brine shrimp present in the Burra Lakes may have an impact on migratory birds

		the current discharge point (terrestrial floodplain area).	The report has been updated.
Page 8 • Table 7 Potential Receptors	*Environmental receptors including Salt River, Groundwater, Flora and Fauna.*	Clarification from DWER to confirm if they are defining the area currently affected by discharge as a significant environment in the risk assessment, as there has been no reference to a conservation significant vegetation within the risk assessment. DML has reviewed surveys undertaken within the area and the vegetation within the discharge area aligns with the vegetation codes 364 and 683 (Pre — European extent) and according to data presented by the WA Government (managed by DBCA), the current extent of both vegetation units is 99% of the pre-European extent (i.e. less than 1% of the mapped extent has been cleared at the State, Bioregion, Subregion and Local Government extents). As the actual impacted area is orders of magnitude lower than 1%, DML consider the risk rating of EXTREME, as inconsistent with the supporting evidence.	Risk assessment has been updated. The area receiving the dewatering discharge waters has now been assessed as highly degraded as a result of historical dewatering discharges.
Page 8 • Table 7	*Reference to microfauna*	Can DWER confirm the intended meaning of microfauna in this context? Please clarify if this relates to terrestrial invertebrates?	Microfauna are the smallest of the terrestrial invertebrates. DWER has amended this section to refer only to potential impacts on terrestrial invertebrates.
Page 9 • Table 7	Bioaccumulation of metals through food chain in Potential Pathway column.	Please be more specific with regards the metal of interest, as different metals have different bio-accumulation potential e.g. copper is known to bio-accumulate in aquatic invertebrates but does not biomagnify up the chain to waterbirds, and nickel is not known to bio accumulate or bio magnify up the food chain.	Noted. Report has been updated.

	Contamination of the Salt River with inflow containing high TDS and heavy metals following a flood event in potential adverse impacts column.	The volume of water associated with a flood event crossing the discharge area and reaching Salt River would be orders of magnitude greater than the discharge rate and there would affect corresponding dilution and dispersal of any metals to levels inconsistent with the consequence rating of Severe.	DWER has reassessed the risks following the submission of results from soil sampling conducted in December 2017 which shows metal concentrations in soils reduce with distance, and the discharge to Salt River discharge location will be limited until 31 December 2019.
	Impacts to brine shrimp hatching reproduction as a result of elevated metals in water in potential adverse impacts column.	All available data and recent (September 2017) sampling undertaken by Stantec on behalf of DML, indicates that there are no brine shrimp within Salt River. There would seem to be material doubt regarding using brine shrimp as a relevant receptor in Salt River.	The Salt River discharges into the Burra Lakes where brine shrimp are confirmed to exist. Risk assessment table in report has been amended to reflect this change.
	Impacts to migratory birds	Ingestion of invertebrates by waterbirds is assumed however the uptake of metals to the birds is unlikely to bio-accumulate as the invertebrates have a short life expectancy and it highly unlikely that the metals will have time to bio-accumulate.	Noted. Risk assessment updated to remove '*bioaccumulation of metals through food chain'* as a result of the short life span of invertebrates.
Page 11 • Paragraph 1 & Paragraph 3	*reference to the "Salt River discharge point"*	Terminology could be read as that the discharge is in the Salt River 'proper' i.e. river bed. Distinction should be made that the current discharge point, 'Salt River' is within the floodplain area west of Salt River proper.	'Salt River' discharge point is the emission point reference described in Licence condition 2.2.1 and identified on the map of emission points in Schedule 1 of the Licence. The following sentences in paragraph 1 describe the emission area (discharge point). *'…at the Salt River discharge point. The discharge point is located in a low lying area with no defined drainage channels. The Salt River is located approximately 1.5 km away.'*
Page 11	*"Initial dewatering discharge rates were around 15-18L/s in the last quarter of 2015, however that rate*	The last quarter of 2015 was pre-mining and discharge was to dewater shallow, pre-existing pits. Little	Report updated to remove pre-mining underground figures, anomaly and current dewatering figures of

• Paragraph 2	*has risen to as high as 88L/sec in December 2016."* *"the current discharge rate now sits at around 38L/s"*	variation has occurred over long range data abstraction rates discharged to the Golden Stream pit since the commencement of mining. The quoted high figure of 88L/s is an anomaly across the wider dewatering discharge rates. From July 2017, discharge rates have steadily decreased at the Salt River discharge point, as Dewatering Discharge Management Plan (DDMP) management actions have taken effect. The current discharge rate (with re-use measures in place as part of the DDMP) during summer seasons and higher evaporation rates is between 20-25L/s: - November 2017 approximately 19L/s - December 2017 nil L/s (directive from DWER Licencing and not sustainable), and; - January 2018 less than 20L/s	approximately 20 L/s. DWER notes DML has reduced dewatering discharge volumes due to implementation of the DDMP and an increase of evaporation during the summer months, however DWER also notes at a rate of 23.8 L/s or 750,000 kL per year this is well above the Licence limit of 300,000 kL per year (equivalent tonnes per year as described in the Licence).
Page 11 • Paragraph 4	*"The dewatering discharge water is high in salinity and elevated levels of cadmium, copper and nickel..."*	There has been little change to discharge water quality since 2015. Metal concentrations within the Deflector results are reflective of groundwater in highly mineralised region. Results for copper and cadmium in the discharged water have declined over time, reflecting the change in the mineralogy from oxide / transitional ore to primary ore. DWER's assessment has not acknowledged this trend, the assessment is highlighting maximums which are outliers among the dataset.	Water sampling results presented to DWER show the levels of Cadmium, Copper and Nickel increased significantly in the initial 3 months of dewatering discharge. DWER acknowledges these results reflect the quality of the water contained within the pit. Sampling results for cadmium show an increasing trend in concentration from the beginning of January 2016 with a peak seen in January 2017 (8 times the January 2016 result). There has been a steady decline since that time. Copper was steady for the first 4-5 months of dewatering discharge (<0.062 mg/L) then increased over the

			following 10-11 months with a high of 0.65 mg/L observed (10 fold increase). DWER notes the level of copper has been trending down since that time (0.140 mg/L September 2017). Nickel has remained relatively steady however the last few months an increasing trend has been observed.
Page 13 Paragraph 8	*"The low flow rates and long discharge period would mean that the adsorption of minerals in the overland flow area would rapidly become saturated"*	The area is also characterised by clay material, so there is likely to be capacity for metals to bind to the clay particles and no longer be bio-available. DML acknowledges that further testing over the discharge area is required to confirm the extent of any metals accumulation above background levels.	The risk assessment has been updated. Recent soil sampling conducted by DML in December 2017 showed the metal concentrations in soils in the discharge area decreased with distance from the discharge point.
Page 14 • Criteria for assessment	*"There are no guidelines specifically for the discharge of water to terrestrial environments. Relevant land and freshwater quality criteria for comparison include ANZECC 2000 for fresh and marine water quality."*	DML agrees with this the first sentence of this statement, but disagree that it follows that ANZECC 2000 land and fresh water guidelines are appropriate for regulation of the site.	Risk assessment updated to recognise that dewatering discharge water is not directly discharged into an aquatic environment.
Page 15 • Consequence	*"The impacts from the increasing rate of dewatering water discharged to land high in TDS, and elevated cadmium, copper and nickel will be severe due to both the onsite and offsite impacts already observed"*	Current discharge rates are declining rather than increasing. DML do not dispute the impact that has already occurred, however, given that the impact has already occurred, any further impact from discharge that is lower volume (contained within the current impact footprint), better quality (with metals reduction treatment as currently being implemented), and for short duration, must result in lesser impact. The assigned consequence rating of Severe seems overly harsh in this instance.	Risk has been updated to take into consideration the latest available information.

Page 16 • 1st paragraph	*"The discharged water is hypersaline..."*	According to the salinity classification system of Hammer (1986) the average salinity level of the discharge is mesosaline (42,000 mg/L). The reference made to hypersaline is based on one result (September 2015), which is an outlier within the dataset. Sampling since September 2015 have not exceeded 48,000 mg/L (April 2017) at the Salt River discharge point.	Amended so saline described as water containing salts at levels above 2,000 but less than 10,000 mg per litre. Highly saline described as water containing salts at levels above 10,000 mg per litre.
Page 17 • Description of potential impacts from the emission	*"the dewatering discharge is also shown to have elevated metals, arsenic, cadmium and copper."*	This is the sole reference to arsenic in the risk assessment. The arsenic levels from discharge monitoring results show that apart from one outlier, the levels are low.	Administrative error noted. Cadmium, Copper and Nickel are the metals of concern.
Page 18 • 1st paragraph	*"There is the likelihood that metals will concentrate causing wide spread contamination and impacts to vegetation."*	The level and extent of metal concentration is assumed. Preliminary soil testing has been carried out by DML (December 2017) to begin to inform the development of a remediation strategy, and DML are happy to share the results with DWER as soon as they are interpreted. There is limited definitive information available on metal toxicity of native plants. The available science is ambiguous, far from settled, and unsuitable to use as a basis of supporting a Severe consequence rating in the risk assessment. Tecticornia and Atriplex are surviving (the former is colonising).	The risk assessment has been updated. Recent soil sampling conducted by DML in December 2017 showed the metal concentrations in soils in the discharge area decreased with distance from the discharge point. DWER also acknowledges that vegetation death in the discharge area is attributed to inundation and/or high saline water.
Page 19 • Description of potential impacts from contaminated soils being flushed into the	*"The impacts from discharging dewatering water with elevated cadmium, copper and nickel into the Salt River via overland flow will be* ***severe*** *due to the impact on endemic*	All available data and recent (September 2017) sampling undertaken by Stantec (on behalf of DML) indicates that there are no brine shrimp within Salt River therefore it is not a valid receptor	Noted. Risk assessment has been updated to recognise the most recent results from sampling for Brine shrimp in the Salt River and Burra Lakes.

Salt River	*brine shrimp and other species which form an important food source for migratory birds, and the contamination of downstream salt lakes"*	for this risk. It is very unlikely that the discharge water would reach Salt River (proper) at current rates or flow path, however if as a result of a large flood event it was to reach the Salt River (proper), there would be very significant dispersal and dilution of metals and TDS due to the very large influx of freshwater and it is unlikely it would pose a risk to biota.	
Page 19: • Reference to Brix *et al.,* 2006	*Reference to brine shrimp of Great Salt Lake in Utah, USA*	All available data and recent surveys indicate that there are no brine shrimp present in Salt River. Testing of a different genus in North America may not necessarily be comparable to Australian taxa that have evolved in naturally mineralised zones. DWER has acknowledged there is no experimental data available for Australian brine shrimp species to verify this reference.	DWER acknowledges the recent sampling results show the absence of Brine shrimp in the Salt River system. The reference to brine shrimp of Great Salt Lake in Utah has been removed. DWER accepts that the tolerance to metals by brine shrimp in Great Salt Lake in Utah may differ than brine shrimp in Australia, however, concentrations of metals above background levels as a result of dewatering discharge may have an effect on invertebrates in that area. Therefore they have been considered as a sensitive receptor in the risk assessment.
Page 19 • Description of potential impacts from contaminated soils being flushed into the Salt River	*"...it would generally be assumed that overland flow of the effluent would remove some of the metals prior to discharging into Salt River"*	If the discharge were to reach the Salt River it would be in a very large rainfall event. In this case, metals will be diluted and dispersed, and it is highly unlikely it would pose a risk to biota under such conditions. Current data from the recent baseline aquatic study (September 2017) indicates this has not occurred previously, when comparing water/sediment data upstream and downstream in the vicinity of the current discharge point.	Noted. DWER has updated the risk assessment following the submission of results from recent soil sampling conducted in the dewatering discharge area.

Page 20: • Consequence	*The impacts from discharging water with elevated cadmium, copper and nickel into the Salt River via overland flow will be severe due to the impact on endemic brines shrimp and other species which form an important food source for migratory birds, and the contamination of downstream lakes*	All available data and recent (September 2017) sampling undertaken by Stantec on behalf of DML, indicates that there are no brine shrimp within Salt River. There would seem to be material doubt regarding using brine shrimp as a relevant receptor in Salt River. In addition, many invertebrates and fish (which are present in the river) provide a food source for migratory birds. The baseline study that DML have commissioned will define these relationships in detail. As discussed above, any metals potentially delivered to Salt River by overland flood flow would be highly diluted and dispersed and unlikely to represent a risk to existing biota. The assignment of a Severe consequence to this risk seems overly harsh.	Noted. As discussed above, DWER has updated the risk assessment following the submission of results from recent sampling.
Page 20 • Decision	*"the increased discharge of dewatering to the Salt River Discharge location specified in the licence must cease immediately, unless effective controls are put in place, or an alternate suitable method of disposal is implemented."*	The removal of the Salt River discharge point within the licence amendment will result in the cessation of the Deflector operations as discussed in the above body letter. The draft licence amendment only provides for one method of disposal (Golden Stream), which is limited at 300,000kL per annum, and of very finite capacity. DML have been implementing solutions to address DWERs concerns regarding discharge as previously described, addressing water volume, water quality (metals) and water quality (salinity) via increased evaporation and recycling, active	DWER notes the progress made in implementing alternative strategies for the disposal of dewatering waters and the interim measures taken to reduce the impacts from current operations. As a result DWER has reassessed the risk and has determined the risk of continuing to discharge dewatering waters to the Salt River discharge location identified within the Licence is acceptable subject to existing and new conditions within the Licence, including limiting the discharge until the 31 December 2019.

		water treatment, and a more suitable aquatic environment discharge location. DML believe with the above measures assessed in the risk assessment, a satisfactory outcome will be obtained that temporarily retains the current discharge point and allows the longer term implemented. DML seek the opportunity to work with DWER to achieve this sustainable result.	
Page 21	*It has been determined that the elevated levels of salt, cadmium, copper and nickel in the dewatering discharge waters present an unacceptable extreme risk to the environment*	Salinity levels of the discharge water are within the upper limit of the Yalgoo region and are for example, less than that of Burra Lake. TDS levels for Deflector dewatering discharge were presented in supporting documentation for the initial Works Approval W5188/2012/1, and the more recent 2015 Licence Amendment. As mentioned above, implementation of several mitigating actions have commenced addressing the DWER concerns of volume, water quality (metal levels and salinity) within the discharge water.	As discussed above, DWER has updated the risk assessment following the submission of results from recent sampling and has determined that the receiving environment is considered highly degraded (as opposed to pristine) as a result of previous dewatering discharges.
References to other technical reports within the amendment	*Stantec, 2017—* *no reference provided* *Reference to Steve Appleyard, 2017*	Request that a reference list of technical documentation is included within the licence amendment	Reference list updated.
Terminology Reference	*Terminology confirmation for a saline, meso and hypersaline*	A list of terminology for reference within the document to ensure consistency	Included in definitions

	environment or water quality	throughout this process	
	Terminology confirmation and reference for Salt River (discharge point/location or Salt River actual) and Salt Lake.	There is reference to Salt Lake throughout the licence amendment document e.g. *Page 18 Overall rating of risk event* refers to Salt Lake? Within documentation presented to DWER, there is no mention of a name Salt Lake, there is reference to Salt River (discharge location) and Salt River (proper).	Noted. Updated
Tenure	*All tenure to be included*	Reference to the TSF is included within the licence amendment (Table 1.3.2 Containment Infrastructure) but is not shown on the premises boundary map. Tenements to be included on licence amendment are: M59/49, L59/49, L59/64, M59/68, M59/356, M59/391, M59/392, M59/335, M59/442, L59/35, M59/507, M59/336, M59/522 and L59/71.	The TSF is identified in the Premises map within Schedule 1of the Licence. All tenure is included within this Amendment Notice.
Page 23	*Premise map*	Premise map needs to be updated to include the TSF	Premises map has been updated in Amendment Notice 1 which is under assessment.
Risk Criteria Table • Consequence: Environment - Severe	*Ranking determines the consequence of the risk event occurring:* *"mid to long term or permanent impact to an area of high conservation value*	Assumption this reference of an Extreme rating under the guidance statement refers to the land that the Project is located on, being ex-Barnong pastoral lease. While the land has been identified as a general Conservation Area under the Gascoyne/Murchison Strategy, during recent meetings between DML and DBCA (1/11/2017), DBCA indicated that some areas (such as active or historic mining areas) may be	DWER has reassessed the risk. Refer to above comments.

	or special significance"	excluded from any future conservation tenure. Therefore there may be provision for the discharge area to not be included within the area for tourism or conservation. DBCA could not confirm if and when this may occur. Vegetation surveys of the area both along the impact area and within the DML tenements have determined that there is no conservation significant species within the impact area or within the tenements. Therefore the use of "high conservation value or special significance" description does not seem to be valid.	

The Licensee was provided with an updated draft Amendment Notice on 27 June 2018 for review and comment. The Licensee responded on 9 July 2018. The following comments were received on the draft Amendment Notice.

Reference	DWER Licence — Points for clarification/discussion	Summary of Licensee comment	DWER response
Page 4, Paragraph 1, Amendment Notice	*Prescribed premise*	Naming of Prescribed Premises throughout the document, to be consistent with Table 1, Definitions.	Not applicable. This Amendment Notice 2 only refers to **Prescribed Premises** as shown in Table 1: Definitions
Page 4, Amendment Background	*Table 2*	Table 2 does not have recently approved Category Number 64 and 85 included despite Category 5 having the updated approved 700,000 tonnes per annum processing limit.	Updated.
Page 4, Amendment Background Paragraph 3	*The flood plans of Salt River*	Please update to flood plains of Salt River	Updated.
Page 6, Amendment description	*This impact includes the total death of most vegetation species within the immediate discharge area with only salt tolerate species surviving*	The Salt Tolerant Species have only established since the discharge point became active. In a survey undertaken by Stantec in 2017, it was identified that Tecticornia were becoming more	Not supported. Stantec identified that *Tecticornia* were becoming more prevalent, not **newly established**. The increase in population would be attributed to the altered environment

		prevalent, especially in the *Acacia eremaea* community, due to their ability to cope with higher salt and inundation regimes. DML are requested this wording is updated to **'with only newly established salt tolerant species surviving'** or similar.	from the discharge of saline dewatering water.
Page 8, Table 4	*Amendment Notice not yet issued – Increase the production of category 5 from 300,000 to 600,000 tonnes per annual period to include dewatering discharge to the Monarch Pit*	Correspondence sent from David Niven to Louise Lavery (14 May 2018) in response to queries associated with the dewatering of Monarch Pit confirmed that no other pits are intended to receive mine dewatering other than Golden Stream.	Supported. Updated.
Page 10	*Recent sampling conducted by the Licensee shows brine shrimp*	Please update to *Recent sampling conducted by the Licensee shows brine shrimp*	Updated.
Page 21 Table 1.3.1	*Table 1.3.1 Authorised activity*	Landfill (Category 64) has not been included within this table, please update.	Updated.
Page 22 Table 2.2.1	*Table 2.2.1 Emissions to land*	Irrigation spay field requires correcting to spray.	Updated.
Page 22 Table 2.3.1	*Monarch Pit*	Dewatering of Monarch Pit has been removed from licence as per correspondence to Louise Lavery (14 May 2018)	Updated.
Page 22 Table 3.2.1 Table 3.5.1	*Parameter of chlorine*	Chlorine reference should be replaced with chloride.	Supported. Updated.
Page 22 Table 3.2.1 Table 3.5.1	*Emission Point reference column – Dewatering discharge outlet/s into the Monarch Pit*	Monarch Pit and associated parameters should be removed as the domain is not being used for receipt of dewatering discharge.	Supported. Updated.
Page 23 Table 3.4.3	*Parameter – copies of original monitoring reports submitted to the Licensee by third parties* *Format or form – As received by the Licensee from third parties*	Please confirm what is meant by *third parties sampling and reporting*. Is DWER requiring that this work can only be undertaken by a third party?	Supported. Updated to include monitoring undertaken by either the Licensee or third parties.
Table 4.2.1		This table will require updating as per comments within this response.	Updated.