Government of Western Australia
Department of Water and Environmental Regulation

Amendment Notice 4

Licence Number	L8308/2008/2
Licensee	CITIC Pacific Mining Management Pty Ltd
ACN	119 578 371
File Number:	DER2014/000430
Premises	Sino Iron Project Mine Site Mining Tenements M08/123, M08/124, M08/125, M08/264, M08/265, M08/266, G08/54 and L08/126 MARDIE WA 6714
Date of Amendment	12/01/2018

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: 12 January 2018

Danielle Eyre

Senior Manager, Industry Regulation (Resource Industries)

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
Annual Period	means a 12 month period commencing from 1 July until 30 June in the following year
ACN	Australian Company Number
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-der@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
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 Amendment
GL/a	gigalitres per annum
ha	hectares
HDPE	high density polyethylene
Licensee	CITIC Pacific Mining Management Pty Ltd
mtpa	million tonnes per annum

Term	Definition
Minister	the Minister responsible for the EP Act and associated regulations
MS	Ministerial Statement
Prescribed Premises	has the same meaning given to that term under the EP Act
Premises	refers to the premises to which this Amendment Notice applies, as specified at the front of this Amendment Notice
Risk Event	as described in *Guidance Statement: Risk Assessment*
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)

Amendment Notice

This amendment is made pursuant to section 59 of the EP Act to amend the Existing 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 limited only to an amendment to Category 6. No changes to the other aspects of the Existing Licence including Amendment Notices 1, 2 and 3 relating to Category 5, 12, 52, 54, 57, 64 and 73 have been requested by CITIC Pacific Mining Management Pty Ltd (Licensee).

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

- *Guidance Statement: Regulatory Principles (July 2015);*
- *Guidance Statement: Setting Conditions (October 2015);*
- *Guidance Statement: Decision Making (February 2017);*
- *Guidance Statement: Risk Assessment (February 2017);* and
- *Guidance Statement: Environmental Siting (November 2016).*

Amendment description

On 30 October 2017, the Licensee submitted an application (CPM, October 2017) to DWER to amend the Sino Iron Project Mine Site (Premises) Licence L8308/2008/2 to increase the design capacity for category 6 from 2,000,000 tonnes per annual period to 8,000,000 tonnes per annual period or 8 gigalitres (GL) per annum (GL/a).

The Licensee is proposing to increase the discharge of mine dewater from the Premises to the lower reaches of the Fortescue River from 2 GL/a (currently regulated under the Existing Licence) to up to 8 GL/a. This increase is consistent with Ministerial Statement (MS) 1066 which was approved by the Minister for Environment on 20 October 2017. Table 2 below outlines the proposed design capacity change to the Licence.

Table 2: Proposed design capacity change

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
6	2,000,000 tonnes per Annual Period	8,000,000 tonnes per Annual Period	Increase in the approved rate of excess mine dewater discharge to the Fortescue River mouth from 2 GL/a to 8 GL/a, to accommodate projected inflows

Outside the scope of this Amendment Notice

The Licensee is also seeking to install a secondary off-take and water meter on the existing mine dewater pipeline to facilitate future transfer of excess dewater to an engineered pond for the purpose of algae cultivation. CPM, November 2017 states "*The scope of this licence amendment does not include construction or operation of the algae ponds*". Based on this and that the transfer of excess dewater to an engineered pond for consumptive re-use has not been assessed by DWER, additional construction requirements for the existing mine dewater pipeline (installation of a secondary off-take and water meter) will not be included under this Amendment Notice.

Increase in the discharge of mine dewater to the Fortescue River

The Existing Licence currently authorises the Licensee to discharge up to 2 GL/a of excess mine dewater to the Fortescue River via a diffuser (FR2 as shown in Figure 1). The increased discharge will be via a similar diffuser system and improvements to the discharge infrastructure will be staged to align with the dewatering requirements as shown in Table 3.

Water quality in the lower reaches of the Fortescue River varies between 39,000 mg/L and 41,000 mg/L over the dry season, with typical salinity levels of 37,000 mg/L which is slightly higher than the typical seawater level of 35,000 mg/L. This is due to concentration of salts in the shallow water of the river under the high ambient evaporative conditions typical of the region in summer. The Licensee expects salinity levels to be lower when freshwater floods occur.

CPM, October 2017 states that the "*discharge stream is hypersaline, potentially also containing elevated levels of nitrate and metals (boron, copper, nickel and zinc)". "Based on the expected concentrations of potential contaminants in the discharge and the relevant threshold concentrations for each contaminant, the initial water quality variables of most relevance were salinity, temperature and nitrate. The expected ranges from these variables identified that salinity was clearly the discharge contaminant that will require the highest dilution to achieve its concentration target". "The salinity of the discharge stream will increase over the life of the mine due to the changing nature of the mining operations. The discharge stream is expected to eventually reach a maximum salinity concentration of approximately 70,000 mg/L*".

A performance criterion has been established that seeks to maintain median salinity values within 1,200 mg/L above background (37,000 mg/L) within 10-20 m of the diffuser. This is approximately equivalent to a 27 times dilution of the discharge in ambient waters based on expected river and discharge water qualities (RPS APASA, 2017). The discharge will be synchronised with the ebbing tides to ensure maximum mixing and minimise upstream migration of the water (Existing Licence condition 2.2.3).

Figure 1: Pipeline route and diffuser location

Table 3: Key infrastructure and equipment

Discharge Rate	Indicative Timing	Key Infrastructure
4 GL/a	Immediate	- 42 m diffuser (offset approximately 25 m from the low water mark); - 28 diffuser ports (1.5 m spacing); - Ports orientated 45º from horizontal; and - Pipe/pumping upgrades
6 GL/a	Estimated 2019	- 63 m diffuser (offset approximately 25 m from the low water mark); - 42 diffuser ports (1.5 m spacing); - Ports orientated 45º from horizontal; and - Pipe/pumping upgrades
8 GL/a	Estimated 2023	- 84 m diffuser (offset approximately 25 m from the low water mark); - 56 diffuser ports (1.5 m spacing); - Ports orientated 45º from horizontal; and - Pipe/pumping upgrades

RPS APASA Pty Ltd (RPS APASA) was requested by the Licensee to assess potential impacts of discharge scenarios with rates of flow equal to 6 GL/a and 8 GL/a. A hydrodynamic model was run and validated by comparison to water levels and current velocities that were measured within the Fortescue River. The model was used to assess three potential discharge scenarios:

1. Intermittent discharge with a flow rate of 2 GL/a. This case represents the flow rate and ebb tide discharge schedule that has previously been approved by DWER, that is, commencing 30 minutes after the turning of the tide and ceasing 1 hour prior to the next low tide. The outfall consists of one diffuser that is 21 m in length.
2. Intermittent discharge with a flow rate of 6 GL/a. This case uses the same ebb tide discharge schedule. To manage the higher flow rate it is assumed that the outfall diffuser will be extended across the river by two additional 21 m diffuser units installed in series, giving a total diffuser length of 63 m.
3. Intermittent discharge with a flow rate of 8 GL/a. This case uses the same ebb tide discharge schedule. To manage the higher flow rate it is assumed that the outfall diffuser will be extended across the river by three additional 21 m diffuser units that will be installed in series, giving a total diffuser length of 84 m.

The scope of the modelling assessment for each discharge scenario involved preparing salinity dilution maps for each scenario to demonstrate the potential zone of influence within the river, with a focus on the 27 time dilution threshold for salinity. The assessment of discharge scenarios is presented in Table 4.

Table 4: Assessment of Modelled Discharge Scenarios (CPM, October 2017)

Discharge Scenario	Median Graphs	80th Percentile Graph	Time Series Graphs at Discharge Location (FR2)
2 GL/a	The dilution is greater than 50 times dilution everywhere throughout the domain.	The dilution is greater than 50 times throughout most of the domain except for a localised area at the diffuser outlet where dilution was in the range of 40-50 times.	Over the 30 day time series, the dilutions showed no evidence of any increased tendency to exceed threshold with time. This indicates that there was no significant accumulation of salinity in the model over the 30-day time scale.
6 GL/a	The dilution is greater than 50 times dilution everywhere throughout the domain.	The dilution is greater than the minimum 27 times throughout the entire domain. Dilutions in the range of 30-40 times were observed up to around 175 m downstream from the discharge location. Dilutions in the range of 40-50 were observed up to around 350 m downstream from the discharge location.	During neap tide periods there were occasions when the minimum 27 dilution threshold was either approached or breached before the end of the discharge period; however these events were insufficient to increase the duration of the exceedance, which always remained around approximately 1 hour. The full 30 day time series of dilutions from the simulation period showed no evidence of any increased tendency to exceed threshold with time.
8 GL/a	The dilution is greater than 50 times dilution throughout the domain, except at the discharge location where the dilution was in the range of 40-50 times.	The dilution level is greater than the minimum of 27 times were met throughout the domain. However dilutions in the range of 27-30 times were observed at the discharge location. Dilutions in the range of 30-40 times were observed up to around 400 m downstream from the discharge location. Dilutions in the range of 40-50 times were consistently observed up	During neap tide periods there were occasions when the minimum 27 dilution threshold was either approached or breached before the end of the discharge period; however these events were insufficient to increase the duration of the exceedance, which always remained around approximately 1 hour. The full 30 day time series of dilutions from the simulation period showed no evidence of any increased tendency to

Discharge Scenario	Median Graphs	80th Percentile Graph	Time Series Graphs at Discharge Location (FR2)
		to around 550 m downstream from the discharge location and up to around 1 km upstream of the discharge location.	exceed threshold with time.

Other approvals

The Licensee has provided the following information relating to other approvals as outlined in Table 5.

Table 5: Relevant approvals

Legislation	Number	Approval
Part IV of the EP Act	MS 635	Approval for the construction and operation of a 44.8 million tonnes per annum (mtpa) iron ore mine, power station, desalination plant, processing plant, accommodation and port facilities in the Cape Preston area. Attachments 1 to 5 resulted in approvals to increase the mining rate to 95 mtpa, the production of concentrate to 27.6 mtpa and produced waste to tailings storage to 67.4 mtpa. Other approved changes include a mine pit area of 360 hectares (ha), waste dumps of 600 ha, tailings storage facilities of 987 ha, and other facilities for a total disturbed area of 2,734 ha and discharge of up to 2 GL/a of dewatered groundwater from the mine pit to point near the mouth of the Fortescue River.
	MS 822	Amended conditions in MS 635 to remove the requirement for further investigations into seawater quality and the location of the marine outfall and replaced them with conditions related to Ecological Protection Areas.
	MS 1066	Expansion of the approved iron ore mine, processing plant and export facilities in the Cape Preston area. The mine and processing plant expansion includes the following: deepening the mine pit; expansion of waste rock dumps and tailings storage facilities; Edwards Creek diversion; infrastructure corridors; additional dewatering; and an increase in groundwater discharge to the Fortescue River Estuary from 2 GL/a to up to 8 GL/a.

Legislation	Number	Approval
Mining Act 1978	Reg ID 60104	2 GL/a dewatering discharge operations in accordance with L08/126 mining proposal. This mining proposal contemplated the need for discharge rates to increase (up to approximately 4 GL/a), subject to obtaining the relevant approvals under Part IV of the EP Act. An addendum to the approved mining proposal has been submitted to the Department of Mines, Industry Regulation and Safety to reflect discharges of no more than 8 GL/a and associated infrastructure upgrades.
Rights in Water and Irrigation Act 1914	GWL167151(6)	Groundwater licence for the abstraction of 5.5 GL from the Pilbara Hamersley Fractured Rock aquifer for the purposes of mine dewatering. An application to amend GWL167151(6) to increase the annual water entitlement to 9 GL/a has been submitted. The Licensee has also submitted an application to take 5 GL/a from the Lower Fortescue Alluvial Aquifer. This application is still under assessment.

Amendment history

Table 6 provides the amendment history for L8308/2008/2.

Table 6: Licence amendments

Instrument	Issued	Amendment
L8308/2008/1	23/01/2014	Licence amendment to include the operation of PC1 and PC2 (W5005/2011/1), ML1 (W4447/2008/1) and the Biomax WWTP (W5273/2012/1)
L8308/2008/2	24/03/2016	Licence amended to increase the design capacity of category 5 (inclusion of PC3, PC4, ML2 to ML4 and TSF Stage 1) and category 64, inclusion of categories 12 and 57 and expansion of the premises boundary
L8308/2008/2	28/07/2016	Licence amended to increase the design capacity of category 5 (inclusion of ML5 and 6)
L8308/2008/2	24/11/2016	Licence amended to include category 6 mine dewatering discharge for 2 GL discharge
L8308/2008/2	16/12/2016	Amendment Notice 1 Licence amendment to change the date of completion for

		Improvement program IR1 from 31 December 2016 to 30 June 2018
L8308/2008/2	9/06/2017	Amendment Notice 2 Licence amendment to include controlled surface water discharge points, TSF1B lift and modifications to groundwater monitoring bores BH08-08 and BH08-16
L8308/2008/2	11/08/2017	Amendment Notice 3 Licence amendment to include the MBBR WWTP and transfer TSF Stage 2 construction conditions across from W4447/2008/1 onto the licence
L8308/2008/2	TBA	Amendment Notice 4 Licence amendment to increase the category 6 design capacity from 2 GL/a to 8 GL/a

Location and receptors

Table 7 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 7: Receptors and distance from activity

Residential and sensitive premises	Distance from activity
Fortescue River Mouth recreational area (informal campsite not designated by the City of Karratha)	500 m to the north-east

Table 8 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 8: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from activity
Fortescue River The Fortescue River and adjacent Indian Ocean are used for recreational fishing and locally important commercial fisheries occur offshore	Excess mine dewatering discharge will be disposed of to the Fortescue River

Risk assessment

Tables 9 and 10 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 9: Risk assessment for proposed amendments during construction

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**				
Construction, mobilisation and positioning of diffuser infrastructure for mine dewatering	Mobilisation and positioning of diffuser infrastructure	Dust	Fortescue River mouth recreational area is approximately 500 m from the discharge location	Air / wind dispersion	Health and amenity impacts	Slight	Unlikely	Low	While the Fortescue River mouth recreational area (informal campsite not designated by the City of Karratha) is approximately 500 m from the discharge location, the construction works will be staged and short in duration. Based on this, there should be minimal impacts to health and amenity on a local scale from dust and noise emissions.
		Noise			Health and amenity impacts	Slight	Unlikely	Low	
		Sedimentation	Mangroves at the Fortescue River mouth and marine environment	Direct impact to surface water and substrate at the Fortescue River mouth	Increased turbidity impacting on mangrove communities and the marine environment	Minor	Unlikely	Medium	The impact from the mobilisation and positioning of the diffuser infrastructure within the Fortescue River could result in **minor** impacts to mangroves and the marine environment. Based on the following: • Location of the diffuser (to ensure that mixing is optimum and that there is minimal terrestrial disturbance); • Staged and short in duration improvements to the diffuser infrastructure; and • Surface water quality

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
									monitoring (including limits) at the discharge pipe and ambient vegetation health monitoring in accordance with the Existing Licence. The likelihood of the consequence is **unlikely**. The risk rating for the mobilisation and positioning of the diffuser infrastructure within the Fortescue River is **medium**.

Decision – Construction

The increase in discharge rate will necessitate reconfiguration of the existing diffuser within the Fortescue River and an upgrade of the pipeline. The Licensee controls for the construction of the mine dewatering discharge infrastructure for discharge rates 4 GL/a, 6 GL/a and 8 GL/a have been conditioned on the Licence through condition 1.2.14 and were derived from the Licensee's obligations within CPM, October 2017.

Condition 1.2.15 from the Existing Licence has been updated via this Amendment Notice to allow the operation of the mine dewatering discharge infrastructure following submission of a compliance document for each of the discharge rates (4 GL/a, 6 GL/a and 8 GL/a) as required under condition 5.3.1.

Table 10: 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**				
Category 6 Mine dewatering	Operation of mine dewatering discharge infrastructure	Pipeline ruptures	Terrestrial environment adjacent to the pipeline alignment	Direct discharges to land	Vegetation impacted with saline water and water with elevated metals, pH and temperature	Minor	Rare	Low	The pipeline has previously been assessed and is equipped with a pressure monitoring system. The Existing Licence requires the mine dewatering pipeline to be inspected daily. Vegetation in the majority of the area where the pipeline lays is of very poor condition. The impact from pipeline ruptures would result in a **minor** consequence, with the likelihood of the consequence being **rare**. The risk rating for pipeline ruptures is therefore **low**.
		Discharge of hypersaline groundwater from mine dewatering to the lower reaches of the Fortescue River	Dependent organisms (i.e. mangroves and fish) in the river and adjacent ocean Groundwater-dependent ecosystems and dependent fauna	Direct discharges to surface water	Potential for increases in salinity to affect estuarine water quality and dependent organisms Groundwater drawdown due to dewatering	Major	Possible	High	Refer to detailed risk assessment below - Discharge to the Fortescue River.
		Discharge of hypersaline groundwater to the Fortescue River on	Mangroves and fish	Direct discharges to surface water	Incoming tide will cause the hypersaline water which potentially	Major	Unlikely	Medium	Refer to detailed risk assessment below - Discharge to the Fortescue River on incoming tide due to malfunction or error.

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
		incoming tide due to malfunction or error			contains elevated levels of nitrates and some metals to be exposed to the receptors for a longer period				
		Overtopping of turkey's nests	Terrestrial environment adjacent to the turkey's nests	Direct discharges to land	Degradation of soils as water quality is saline	Slight	Unlikely	Low	The turkey's nests (large and small) have a combined storage capacity of 35,000 m^3. The impact from overtopping of the turkey's nest would be **slight**. Condition on the Existing Licence relating to containment requirements for the Camp 123 turkey's nest including maintaining an operational freeboard of 0.5 m and the requirement to monitor the water quality of the turkey's nest to ensure the dewatered water is of suitable quality, meeting the stipulated limits, prior to discharge to the Fortescue River. Based on this, the likelihood of the consequence is **unlikely**. The risk rating for overtopping of the turkey's nests is **low**.

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
		Seepage from the turkey's nests	Leachate to groundwater	Groundwater dependent ecosystems	Degradation of soils and groundwater as water quality is saline and is elevated in nitrates	Slight	Rare	Low	The turkey's nests are lined with a high density polyethylene (HDPE) liner so impacts from seepage if any will be **slight**. The nests are also located within the mining pit dewatering cone of depression and any seepage should be recaptured. Therefore, likelihood of the consequence occurring is **rare**. The risk rating for seepage from the turkey's nests is **low**. Condition on the Existing Licence for containment requirements for the Camp 123 turkey's nest including lined with HDPE to meet a permeability of $<10^{-9}$ metres per second.

Risk assessment – Discharge to the Fortescue River

The discharge stream is hypersaline, potentially also containing elevated levels of nitrate and metals (boron, copper, nickel and zinc). There could also be potential for the discharge water to have a pH, temperature or dissolved oxygen concentration that varies from the receiving waters.

Modelling was conducted in 2013 for the purpose of selecting a discharge site within the Fortescue River with the least environmental impact. The predictive simulations of the plumes were used to qualitatively inform the mixing, dilution and flushing of the creek system by the local tidal phases. A comparison of the mine dewatering discharge quality to that of the ANZECC (2000) guidelines and the baseline Fortescue River is provided in Table 11 (Existing Licence Decision Document amended 24 November 2016), and indicated that the concentrations of metals and nutrients in the undiluted source water were below the 80% marine protection levels specified in ANZECC (2000) guidelines (Tropical Australia), except for one of the two nitrate samples.

The environmental impact from the discharge of potentially hypersaline water to the Fortescue River would result in mid level off-site impacts on a local scale. Therefore the consequence is **major**.

Based on the Licensee controls, previous modelling and existing regulation under Part IV of the EP Act, an environmental impact from the discharge of potentially hypersaline water to the Fortescue River could occur at some time. Therefore, the likelihood of the consequence is **possible**.

The overall rating of the discharge of hypersaline water to the Fortescue River is **high**.

Table 11: Comparison of groundwater quality with Fortescue River and ANZECC (2000) Guidelines

	ANZECC (2000) Guidelines (Tropical Australia)				Fortescue River Baseline †		In-pit groundwater (pit dewater)		Comparison of groundwater quality to ANZECC (2000) and Fortescue River Baseline
	Tropical Australian Marine Inshore	Marine (99% protection level)	Marine (95% protection level)	Marine (80% protection level)	Range	Average	April - 13 (flow weighted average)	June - 15 (flow weighted average)	
Inorganics									
TDS (mg/L)					36,400 – 42,200	39,808	30,500	20,831	Consistent with the interface between the marine environment and freshwater inputs NOTE: salinity will increase however, refer to model on dilutions
TSS (NTU)	2 – 200				<5 – 118	18	5	<5	Less than Fortescue River
pH	8.0 – 8.4				7.89 – 8.07	8.00	NA	7.6	Less than Fortescue River
Nutrients (mg/L)									
Ammonia		0.5	0.91	1.7	<0.01 – 0.09	0.035	0.6	0.5	Better than 95% species protection level prior to dilution. Potentially slightly higher than the Fortescue River
Nitrate	0.008	0.017 *	0.7*	17*	<0.01 – 0.06	0.02	34.5	12.8	Potential to Exceed the 80% protection level without management. Higher than the Fortescue River
Total nitrogen	0.1				<0.01 – 0.4	0.02	31.1	15.6	Higher than the Fortescue River
Metals (mg/L)									
Boron		0.09*	0.37*	1.3*	3.81 – 5.04	4.44	-	0.75	Better than 80% species protection prior to dilution. Less than Fortescue River
Copper		0.0003	0.0013	0.008	<0.001-0.015	0.003	0.004	0.0031	Better than 80% species protection level prior to dilution Approximately equivalent to average Fortescue River Quality
Nickel		0.007	0.07	0.56	<0.001 – 0.012	0.001	0.006	0.001	Better than 80% species protection level prior to dilution Approximately equivalent to average Fortescue River Quality
Zinc		0.007	0.015	0.043	<0.005 – 0.006	<0.005	0.021	0.005	Better than 80% species protection level prior to dilution Approximately equivalent to average Fortescue River Quality

* ANZECC Freshwater Guideline † Based on 11 monthly sampling events up to October 2015

Note: The flow weighted data for June 2015 also included sampling for other metals, including Cadmium, Chromium (VI), Lead and Mercury which were all below the limit of detection and have not been included.

Decision

The Delegated Officer considers the risk associated with the discharge of hypersaline mine dewater to the Fortescue River to be *high*. It is however noted that the Existing Licence has conditions relating to the following, which the Delegated Officer considers sufficient in terms of regulatory controls:

- Conditions 2.2.1 and 2.2.2 require that all mine dewatering water discharged at the Fortescue River mouth be discharged through a diffuser;
- Condition 2.2.3 ensures that mine dewatering water is only discharged on outgoing tides;
- Condition 3.3.2 requires the recording of the daily volumetric flow rate and monthly in-pipe monitoring for the mine dewater discharge to the Fortescue River. Monitoring is also conducted at the Camp 123 turkey's nest ponds so that the Licensee has the opportunity to obtain and assess results prior to the discharge;
- Condition 3.7.1 (Table 3.7.2) requires ambient monitoring of discharge conditions including nutrients and metals during the discharge for a 12 month period to verify modelling;
- Mangrove health monitoring is required under Condition 3.7.1 – Table 3.7.3;
- Condition 5.2.1 requires a comparison of the data obtained (for Table 3.7.2) against baseline results to be provided within the Annual Environmental Report; and
- Condition 5.2.3 requires a report to be submitted following the 12 months of ambient surface water monitoring to verify the modelling.

Existing Licence condition 1.2.13 has been updated via this Amendment Notice to increase the design capacity for category 6 from 2,000,000 tonnes per Annual Period to 8,000,000 tonnes per Annual Period.

Risk assessment – Discharge to the Fortescue River on incoming tide due to malfunction or error

The Licensee has an internal procedure to manage the discharge on incoming tide due to error or malfunction, which includes the following:

- Discharge ceases;
- Monitoring is conducted within the river at the designated monitoring locations at the discharge point, upstream and downstream of the discharge point (FR1, FR2 and FR3) to determine if impact to the Fortescue River has occurred as a consequence of the error or malfunction. This is undertaken using electrical conductivity as the indicator parameter in comparison with baseline data which provides an indication of the extent that mixing has occurred;
- If impact has occurred discharge remains ceased until sufficient outgoing tidal changes have occurred to reduce the impact. Monitoring continues until the monitored impact has reduced;
- Discharge only recommences after the impact has reduced; and
- A report outlining the cause of the error or malfunction and all the data collection methods and results are documented.

The environmental impact from the discharge to the Fortescue River on incoming tide due to malfunction or error would result in mid level off-site impacts on a local scale. Therefore the consequence is **major**.

Based on the Licensee controls and existing regulation under Part IV of the EP Act, an environmental impact from the discharge to the Fortescue River on incoming tide will probably not occur in most circumstances. Therefore, the likelihood of the consequence is **unlikely**.

The overall rating of the discharge of to the Fortescue River on incoming tide due to malfunction or error is **medium**.

Decision

The Delegated Officer considers the risk associated with the discharge to the Fortescue River on incoming tide due to malfunction/error to be *medium*. It is however noted that the Existing Licence has a condition (condition 2.2.3) which ensures that discharges only occur on outgoing tides and according to tidal analysis from measurement locations under the following conditions:

- Discharges shall only commence 30 minutes after the turning of the tide from incoming to outgoing; and
- Discharges shall cease 1 hour prior to the turning of the tide from outgoing to incoming.

The Delegated Officer considers this condition sufficient in terms of regulatory control.

Other amendments

During this amendment the following changes have also been made to the Licence:

- Inclusion of definition for GL/a.
- Reference to EC3, EC4, DC1 and DC2 has been removed from within Table 1.2.6. The Licensee provided compliance documentation (CPM, November 2017) for this infrastructure to DWER on 24 November 2017.
- Condition 2.2.1 for FR2 has been updated in line with the compliance documentation (CPM, February 2017) for the 2 GL/a mine dewatering discharge infrastructure.
- Condition 2.2.4 has been removed as the Licensee submitted compliance documentation (CPM, February 2017) for the 2 GL/a mine dewatering discharge infrastructure (FR2) to the former Department of Environment Regulation on 6 February 2017 satisfying this condition.
- Condition 5.2.1 has been updated to include silver and vanadium for Tables 3.3.1 and 3.7.2 in line with the Existing Licence requirements.
- Condition 5.3.1 for 1.2.14 has been updated to include submission of a compliance document for the mine dewatering discharge infrastructure for each of the discharge rates (4 GL/a, 6 GL/a and 8 GL/a).
- The two maps of emissions and monitoring points have also been updated via this Amendment Notice.
- Form WR1 for monitoring of point source emissions to surface water has been updated via this Amendment Notice to include updates from the Existing Licence.

Licensee comments

The Licensee was provided with the draft Amendment Notice on 5 January 2018. Comments received from the Licensee have been considered by the Delegated Officer as shown in Appendix 2.

Amendment

1. Pages 1 and 2 of 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:

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*	*Primary Crushers (1, 2, 3 and 4) 85,400,000 tonnes per Annual Period* *Concentrators (Mill Lines 1, 2, 3, 4, 5 and 6) 85,400,000 tonnes per Annual Period (producing 27,600,000 tonnes per Annual Period)* *Tailings Storage Facility (Stage 2) 67,400,000 tonnes per Annual Period*
6	*Mine dewatering discharge*	*50,000 tonnes or more per year*	***8*~~2~~*,000,000 tonnes per Annual Period* *(**8*~~2~~ *gigalitres per A~~a~~nnual P~~p~~eriod)*
12	*Screening, etc. of material*	*50,000 tonnes or more per year*	*2,700,000 tonnes per Annual Period*
52	*Electric power generation*	*20 megawatts or more in aggregate (using natural gas)*	*480 megawatts*
54	*Sewage facility*	*100 cubic metres or more per day*	*1,160 cubic metres per day*
57	*Used tyre storage (general)*	*100 tyres or more*	*No more than 500 tyres*
64	*Class II putrescible landfill site*	*20 tonnes or more per year*	*Landfill Facility - 15,000 tonnes per annual period (excluding Clean Fill used for cover material)* *Waste Rock Landforms – 1,000 tonnes of tyres*
73	*Bulk storage of chemicals, etc*	*1,000 cubic metres in aggregate*	*4,800 cubic metres in aggregate*

2. The Licence is amended by the insertion of the bold text shown in underline below for section 1.1.2:

'GL/a' means gigalitres per annum;

3. Condition 1.2.13 of 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:

1.2.13 The Licensee shall ensure the limits specified in Table 1.2.5 are not exceeded.

Table 1.2.5: Production or design capacity limits		
Category[1]	***Category description[1]***	***Premises production or design capacity limit***
5	*Processing or beneficiation of metallic or non-metallic ore*	*Primary Crusher (1 to 4) - 85,400,000 tonnes per Annual Period* *Mill Line (1 to 6) - 85,400,000 tonnes per Annual Period* *(producing 27,600,000 tonnes per Annual Period)* *TSF Stage 2 – 67,400,000 tonnes per Annual Period*
6	*Mine dewatering discharge*	***8****~~2~~,000,000 tonnes per Annual Period*
12	*Screening, etc. of material*	*2,700,000 tonnes per Annual Period*
52	*Electrical power generation*	*480 megawatts*
73	*Bulk storage of chemicals, etc.*	*4,800 cubic metres in aggregate*

Note 1: Environmental Protection Regulations 1987, Schedule 1.

4. Condition 1.2.14 of 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:

*1.2.14 The Licensee shall construct the **mine dewatering discharge infrastructure**, controlled surface water discharge points, the MBBR WWTP and TSF Stage 2 in accordance with the requirements specified in the infrastructure requirements detailed in Table 1.2.6. The Licensee must not depart from the design and construction requirements specified in Table 1.2.6 except:*

(a) where such departure is minor in nature and does not materially change or affect the infrastructure; or

(b) where such departure improves the functionality of the infrastructure and does not increase risks to public health, public amenity or the environment;

(c) and all other conditions in this Licence are still satisfied.

Table 1.2.6: Infrastructure requirements	
Infrastructure	***Requirements (Design and construction)[1]***
Controlled surface water discharge points:	*Layer of riprap will be installed at each discharge point to protect the receiving water bank from erosion*
EC1	*Discharge pipe to Edwards Creek located approximately 300m north of the enviro dam to an existing rock armoured culvert that traverses the north-south infrastructure corridor*
EC2	*Discharge pipe to Edwards Creek to a rock armoured culvert that traverses the public Fortescue River Mouth access road*
~~EC3~~	*~~Discharge pipe to a tributary of Edwards Creek to a rock armoured section of a 2km creek diversion, that was required to protect the integrity of the TSF embankments, and eventually meets up to the~~*

	~~*natural flow path of the tributary downstream of EC4*~~
~~*EC4*~~	~~*Discharge pipe to a remnant tributary of Edwards Creek, which natural flows no longer traverse, and flows under the North-South road and intersects Edwards Creek downstream of EC1 and EC2 to a tidally affected area*~~
~~*DC1*~~	~~*Discharge pipe to a tributary of DuBoulay Creek that is within the footprint of the proposed west pit scheduled to be mined within the next five years*~~
~~*DC2*~~	~~*Discharge pipe to a tributary of DuBoulay Creek that has a width of 100m*~~
MBBR WWTP	- *Seven heavy duty enclosed polyethylene tanks (Primary/Secondary Settling Tank 50 m^3; Denitrification Tank 50 m^3; Aeration Tank 50 m^3; Clarification Tank 50 m^3; and Effluent Tank 50 m^3);* - *Common Balance Tank (50 m^3) provides in-built emergency storage capacity of 0.5 – 1.0 days assuming normal flow;* - *WWTP placed within a 2 mm HDPE lined bund to capture overflow;* - *Audible alarm fitted;* - *Process interlocks fitted;* - *Sampling point and flow meter installed on the outflow pipeline;* - *WWTP provides a further in-built emergency storage capacity of 0.8 – 1.0 days flow assuming normal flow; and* - *Daily inspections*
TSF Stage 2	- *The embankment height shall be 49 mRL^2;* - *A liner system comprising of 2 mm thick textured Linear Low Density Polyethylene geomembrane underlain by a Geosynthetic Clay Liner installed on a compacted clayey material shall be installed on the TSF Stage 2 northern and western flanks;* - *Low permeability zones comprising highly weathered waste rock material shall be installed along the upstream zone of the northern and the south-western embankments;* - *The existing series of finger drains shall be extended to the toe of the TSF Stage 2 embankment; and* - *The seepage collection trench shall be relocated to the toe of the TSF Stage 2 embankment*
Mine dewatering discharge infrastructure	***Discharge rate of 4 GL/a - the diffuser length shall be 42 m with 28 diffuser ports 1.5 m apart, orientated downstream*** ***Discharge rate of 6 GL/a - the diffuser length shall be 63 m with 42 diffuser ports 1.5 m apart, orientated downstream*** ***Discharge rate of 8 GL/a - the diffuser length shall be 84 m with 56 diffuser ports 1.5 m apart, orientated downstream***

Note 1: Where the details and commitments of the documents listed in condition 1.2.14 are inconsistent with any other condition of this Licence, the conditions of this Licence shall prevail.

Note 2: The Licensee will be required to obtain approval from the Department of Mines, Industry Regulation and Safety prior to the construction of TSF Stage 2 beyond 39 mRL.

5. Condition 1.2.15 of the Licence is amended by the insertion of the bold text shown in underline below:

1.2.15 *The Licensee shall operate the **mine dewatering discharge infrastructure,** controlled surface water discharge points, the MBBR WWTP and TSF Stage 2 in accordance with the conditions of this Licence, following submission of the compliance document required under condition 5.3.1.*

6. Condition 2.2.1 of 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:

2.2.1 *The Licensee shall ensure that where waste is emitted to surface water 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: Emission points to surface water		
Emission point reference and location on Map of emission points	***Description***	***Source including abatement***
FR2	*Discharge pipe to Fortescue River Mouth*	*Mine dewatering water discharged through a diffuser:* *(a) the diffuser shall be submerged beneath the water;* *(b) the diffuser shall be **offset approximately 25 m from the low water mark;** ~~at least 10 m from the Fortescue River embankment;~~ **and** ~~the diffuser length shall be 21 m with ports 1.5 m apart, orientated downstream; and~~* *~~(d)~~**(c)** the pipeline shall be equipped with a pressure monitoring system.*
EC1	*Discharge pipe to Edwards Creek located approximately 300m north of the enviro dam*	*Stormwater and process water discharged in a controlled manner as a result of an uncontrollable event:* *(a) control the discharge rate so that erosion and scouring is minimised;* *(b) use multiple discharge points to spread the flow; and* *(c) maintain a layer of riprap to protect the receiving water bank from erosion.*
EC2	*Discharge pipe to Edwards Creek*	
EC3	*Discharge pipe to a tributary of Edwards Creek*	
EC4	*Discharge pipe to a remnant tributary of Edwards Creek*	
DC1	*Discharge pipe to a tributary of Du Boulay Creek within footprint of proposed west pit*	
DC2	*Discharge pipe to a tributary of*	

	Du Boulay Creek with a width of 100 metres	

7. The Licence is amended by the deletion of the following Condition 2.2.4:

2.2.4 The Licensee shall not discharge mine dewatering water through the diffuser at FR2 until after the submission of compliance documentation required under condition 5.3.1.

8. Condition 5.2.1 of the Licence is amended by the insertion of the bold text shown in underline below:

5.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 120 calendar days after the end of the Anniversary Date. The report shall contain the information listed in Table 5.2.1 in the format or form specified in that table.

Table 5.2.1: 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	*Volumetric flow rate, pH, Temperature, Dissolved Oxygen, Electrical Conductivity, Total Dissolved Solids, Total Suspended Solids, Total Nitrogen, Bioavailable Nitrogen, Nitrate, Ammonia, Total Phosphorus, Bioavailable Phosphorus, Bioavailable Organic Carbon, Chlorophyll a, Aluminium, Arsenic, Boron, Cadmium, Chromium (III), Chromium (VI), Cobalt, Copper, Iron, Lead, Mercury, Manganese, Nickel, Selenium,* ***Silver****, Strontium,* ***Vanadium****, Zinc, Total Recoverable Hydrocarbons*	*WR1*
Table 3.4.1	*pH, Biochemical Oxygen Demand, Total Suspended Solids, E.coli, Total Nitrogen and Total Phosphorus*	*LR1*
Table 3.5.1	*Inert Waste Type 1, Inert Waste Type 2, Special Waste Type 1, Special Waste Type 2, Clean Fill, Putrescible Waste, Contaminated Solid Waste and Other wastes*	*None specified*
Table 3.6.1	*pH, Biochemical Oxygen Demand, Total Suspended Solids, E.coli, Total Nitrogen, Total Phosphorus, Total Recoverable Hydrocarbons, Combined decant water and seepage water recovery volumes and volume of tailings deposited*	*None specified*
Table 3.7.1	*pH, Total Nitrogen, Total Phosphorus, Total Dissolved Solids, Lead, Mercury, Copper, Chromium (hexavalent), Arsenic, Nickel, Zinc, Cadmium, Total Recoverable Hydrocarbons, Standing Water Level, Oxidation Reduction Potential, Dissolved Oxygen, Temperature, Electrical Conductivity, Total Sulfur, Calcium, Sodium, Total Alkalinity, Chloride, Magnesium, Potassium, Sulfate*	*None specified*

	(SO_4^{2-}), Bicarbonate (HCO_3), Carbonate (CO_3^{2-}), Aluminium, Cobalt, Iron and Manganese	
Table 3.7.2	*pH, Temperature, Dissolved Oxygen, Electrical Conductivity, Total Dissolved Solids, Total Suspended Solids, Total Nitrogen, Bioavailable Nitrogen, Nitrate, Ammonia, Total Phosphorus, Bioavailable Phosphorus, Bioavailable Organic Carbon, Chlorophyll a, Aluminium, Arsenic, Boron, Cadmium, Chromium (III), Chromium (VI), Cobalt, Copper, Iron, Lead, Mercury, Manganese, Nickel, Selenium,* ***Silver****, Strontium,* ***Vanadium****, Zinc, Total Recoverable Hydrocarbons* *A comparison of the data obtained against baseline results shall be provided.*	*None specified*
Table 3.7.3	*Visually estimate the average foliage cover* *Score the health condition* *General environmental description of the site and record any changes since previous monitoring* *Take replicate photographs of foliage density and shadow areas beneath trees.* *Signs of stress on native flora and fauna at areas of stream discharge:* *EC1, EC2, EC3, EC4* *DC1, DC2*	*None specified*
1.2.12	*Annual water balance for the TSF*	*None specified*
3.3.1	*Discharge commencement and cessation date and times recorded, along with tidal data from measurement locations.*	*None specified*
5.1.2	*Compliance*	***Annual Audit*** *Compliance Report*
5.1.3	*Complaints summary*	*None specified*

Note 1: Forms are in Schedule 2

9. Condition 5.3.1 of 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:

5.3.1 The Licensee shall ensure that the parameters listed in Table 5.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 5.3.1: Notification requirements			
Condition or table (if relevant)	***Parameter***	***Notification requirement[1]***	***Format or form[2]***
-	*Unauthorised fire at the Landfill Facility*	*Within 14 days of unauthorised fire*	*ET1*
1.2.1 *1.2.13* *2.2.2*	*Breach of any limit specified in the Licence*	*Part A: As soon as practicable but no later than*	*N1*

		5pm of the next usual working day. *Part B: As soon as practicable*	
*1.2.1**~~4~~**5*	*The Licensee shall submit a compliance document to the CEO, following construction of the controlled surface water discharge points, the MBBR WWTP and TSF Stage 2 (following the installation of the liner system, low permeability zones and all other seepage controls). The compliance document shall:* a) *be certified by a suitably qualified engineer and certify that the works were constructed in accordance with the construction requirements specified in Table 1.2.6 ;* b) *note the TSF Stage 2 embankment height at the time of submission;* c) *provide a list of departures from the specified works certified by a suitably qualified engineer; and* d) *be signed by a person authorised to represent the Licensee and contain the printed name and position of that person within the company.*	*Within 7 days of the completion of construction*	*None specified*
~~2.2.4~~ ***1.2.14***	*The Licensee shall submit a compliance document to the CEO, following construction of the mine dewatering discharge infrastructure for each of the **discharge rates 4 GL/a, 6 GL/a and 8 GL/a**. The compliance document shall:* a) *certify that the works were constructed in accordance with the specifications in Table **1.2.6** ~~2.2.1~~; ~~and~~* b) ***provide a list of departures from the specified works certified by a suitably qualified engineer; and*** c) *be signed by a person authorised to represent the Licensee and contain the*	*Within 7 days of the completion of construction*	*None specified*

	printed name and position of that person within the company.		
3.1.4	*Calibration report*	*As soon as practicable*	*None specified*

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

10. The Maps of emissions and monitoring points in Schedule 1 has been deleted and replaced with the maps in Attachment 1 of this Amendment Notice.

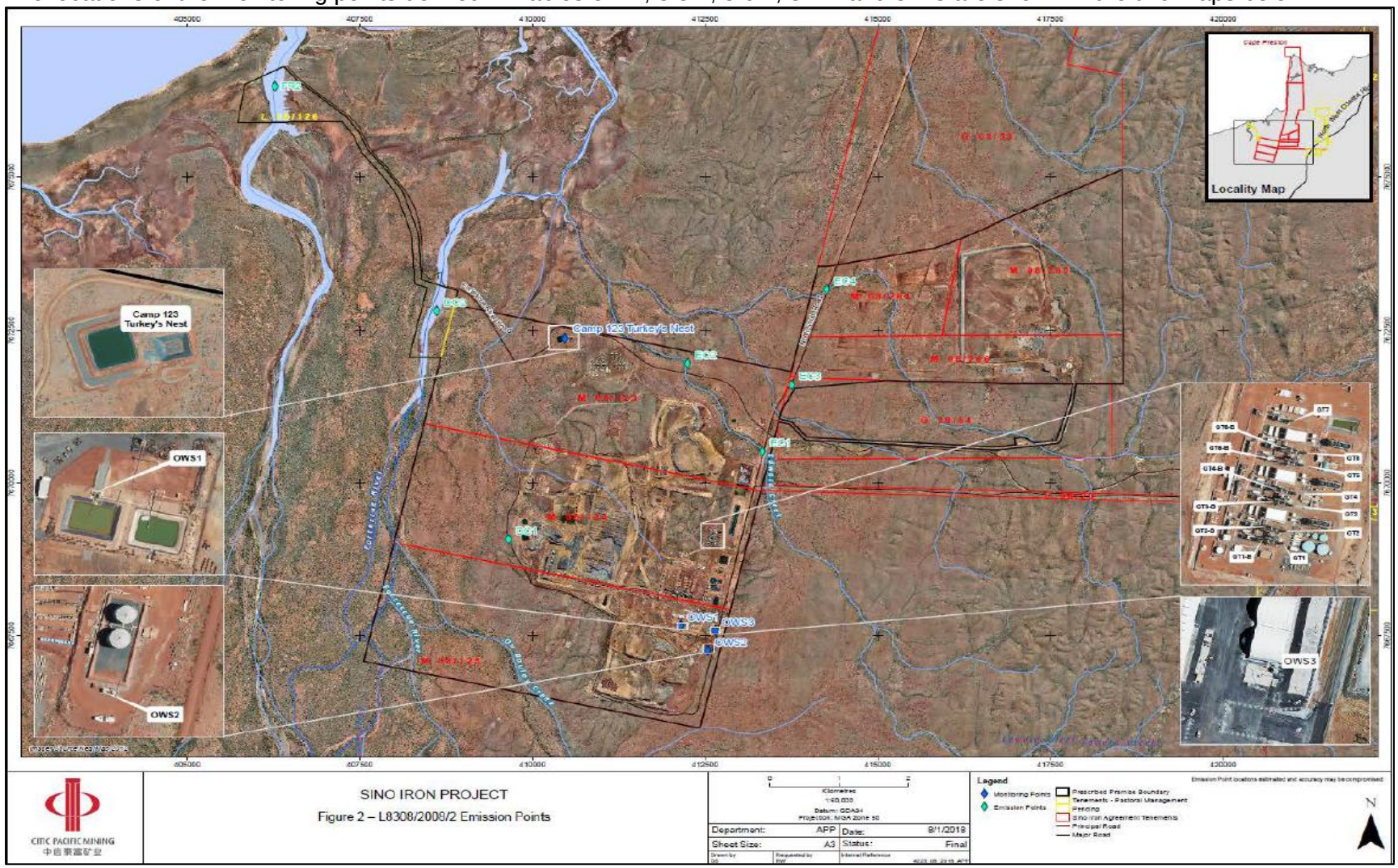
11. The WR1 Form in Schedule 2 is deleted and replaced with the form in Attachment 2 of this Amendment Notice.

Attachment 1

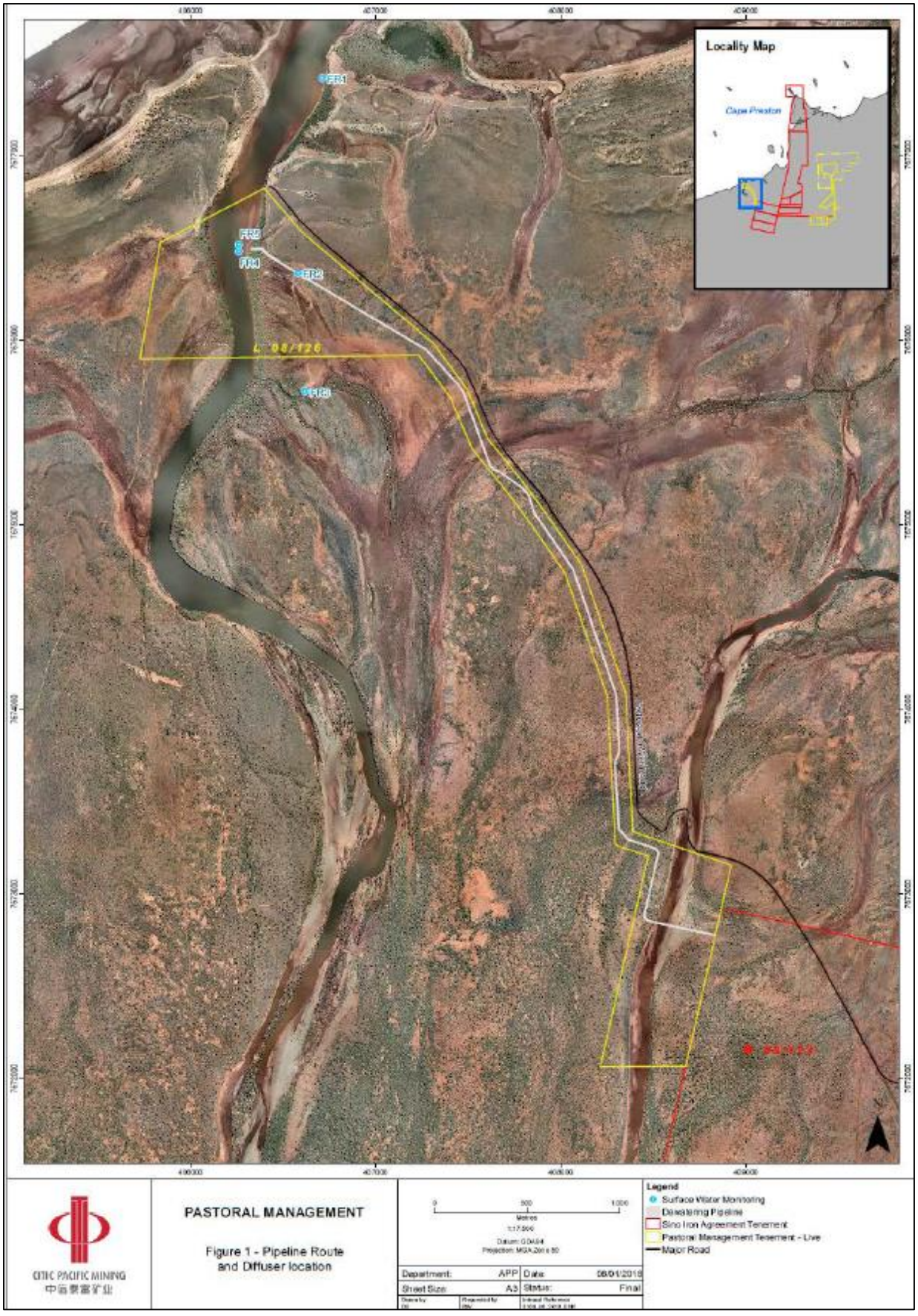
Map of emissions and monitoring points

The location of the emission points defined in Tables 2.1.1 and 2.2.1 are shown below.

The locations of the monitoring points defined in Tables 3.2.1, 3.3.1, 3.6.1, 3.7.2 and 3.7.3 are shown in the two maps below.



Licence: L8308/2008/2


Locality Map
Cape Preston
SFR1
FR2
FR3
FR4
SFR2
L 08/126
SFR3
PASTORAL MANAGEMENT
Figure 1 - Pipeline Route and Diffuser location
CITIC PACIFIC MINING
中信泰富矿业
Department: APP
Date: 08/01/2019
Sheet Size: A3
Status: Final
Legend
Surface Water Monitoring
Dewatering Pipeline
Sino Iron Agreement Tenement
Pastoral Management Tenement - Live
Major Road

Attachment 2

Licence: L8308/2008/2 Licensee: CITIC Pacific Mining Management Pty Ltd
Form: WR1 Period:
Name: Monitoring of point source emissions to surface water

Form WR1: Monitoring of point source emissions to surface water					
Emission point	**Parameter**	**Result[1]**	**Averaging period**	**Method**	**Sample date & times**
FR2 – monitoring conducted in-pipe from a sampling tap	Volumetric flow rate	m^3/day			
	pH[1]	pH units	Spot sample		
	Temperature[1]	^oC			
	Dissolved Oxygen[1]	mg/L			
	Electrical Conductivity	µS/cm			
	Total Dissolved Solids	mg/L			
	Total Suspended Solids	mg/L			
	Total Nitrogen	mg/L			
	Bioavailable Nitrogen	mg/L			
	Nitrate	mg/L			
	Ammonia	mg/L			
	Total Phosphorus	mg/L			
	Bioavailable Phosphorus	mg/L			
	Bioavailable Organic Carbon	mg/L			
	Chlorophyll a	mg/L			
	Aluminium	mg/L			
	Arsenic	mg/L			
	Boron	mg/L			

Form WR1: Monitoring of point source emissions to surface water					
Emission point	**Parameter**	**Result[1]**	**Averaging period**	**Method**	**Sample date & times**
	Cadmium	mg/L			
	Chromium (III)	mg/L			
	Chromium (VI)	mg/L			
	Cobalt	mg/L			
	Copper	mg/L			
	Iron	mg/L			
	Lead	mg/L			
	Mercury	mg/L			
	Manganese	mg/L			
	Nickel	mg/L			
	Selenium	mg/L			
	Silver	mg/L			
	Strontium	mg/L			
	Vanadium	mg/L			
	Zinc	mg/L			
	Total Recoverable Hydrocarbons	mg/L			
Camp 123 Turkey's nest	pH[1]	pH units			
	Temperature[1]	^{o}C			
	Dissolved Oxygen[1]	mg/L			
	Electrical Conductivity[1]	µS/cm			
	Total Dissolved Solids	mg/L			
	Total Suspended Solids	mg/L			

Form WR1: Monitoring of point source emissions to surface water					
Emission point	**Parameter**	**Result[1]**	**Averaging period**	**Method**	**Sample date & times**
	Total Nitrogen	mg/L			
	Bioavailable Nitrogen	mg/L			
	Nitrate	mg/L			
	Ammonia	mg/L			
	Total Phosphorus	mg/L			
	Bioavailable Phosphorus	mg/L			
	Bioavailable Organic Carbon	mg/L			
	Chlorophyll a	mg/L			
	Aluminium	mg/L			
	Arsenic	mg/L			
	Boron	mg/L			
	Cadmium	mg/L			
	Chromium (III)	mg/L			
	Chromium (VI)	mg/L			
	Cobalt	mg/L			
	Copper	mg/L			
	Iron	mg/L			
	Lead	mg/L			
	Mercury	mg/L			
	Manganese	mg/L			
	Nickel	mg/L			
	Selenium	mg/L			

Form WR1: Monitoring of point source emissions to surface water					
Emission point	**Parameter**	**Result[1]**	**Averaging period**	**Method**	**Sample date & times**
	Silver	mg/L			
	Strontium	mg/L			
	Vanadium	mg/L			
	Zinc	mg/L			
	Total Recoverable Hydrocarbons	mg/L			
EC1 EC2 EC3 EC4 DC1 DC2	pH[1]	pH units			
	Total Dissolved Solids[1]	mg/L			

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

Signed on behalf of CITIC Pacific Mining Management Pty Ltd: …….. Date: …….

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Existing Licence L8308/2008/2 including Amendment Notices 1, 2 and 3	Existing Licence L8308/2008/2	accessed at www.dwer.wa.gov.au
2	Discharge Modelling Assessment, Fortescue River Outfall (MAW0506J; Rev 1), prepared by RPS APASA Pty Ltd for CITIC Pacific Mining Management Pty Ltd, 31 January 2017	RPS APASA, 2017	DWER records (A1553557)
3	*Guidance Statement: Decision Making*, Department of Environment Regulation, February 2017	Guidance Statement: Decision Making	accessed at www.dwer.wa.gov.au
4	*Guidance Statement: Environmental Siting*, Department of Environment Regulation, November 2016	Guidance Statement: Environmental Siting	
5	*Guidance Statement: Regulatory Principles,* Department of Environment Regulation, July 2015	Guidance Statement: Regulatory Principles	
6	*Guidance Statement: Risk Assessments*, Department of Environment Regulation, February 2017	Guidance Statement: Risk Assessments	
7	*Guidance Statement: Setting Conditions,* Department of Environment Regulation, October 2015	Guidance Statement: Setting Conditions	
8	Ministerial Statement 822	MS 822	accessed at www.epa.wa.gov.au/
9	Ministerial Statement 1066	MS 1066	
10	National Water Quality Management Strategy, Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Australian and New Zealand and Conservation Council and Agriculture and Resources Management Council of Australia and New Zealand, 2000	ANZECC (2000)	accessed at www.environment.gov.au
11	Report and recommendations of the Environmental Protection Authority, Sino Iron Mine Continuation, Sino Iron Pty Ltd and Korean Steel Pty Ltd, Report 1602, August 2017	Report 1602	accessed at www.epa.wa.gov.au/
12	Sino Iron Project – Compliance Document – Controlled Surface Water Discharges – L8308/2008/2, CPM Ref: DR044173, CITIC Pacific Mining,	CPM, November 2017	DWER records (A1569944)

	Document title	In text ref	Availability
	24 November 2017		
13	Sino Iron Project – Mine Dewater Discharge – Compliance Documentation – L8308/2008/2, CPM Ref: DR043001, CITIC Pacific Mining, 6 February 2017	CPM, February 2017	DWER records (A1371850
14	Sino Iron Project Mine Site – Mine Dewater Discharge (8GL/Annum) – Application to Amend L8308/2008/2, CPM Ref: DR044848, CITIC Pacific Mining, 24 October 2017	CPM, October 2017	DWER records (A1553557)
15	Sino Iron Project Mine Site – Mine Dewater Discharge (8GL/Annum) – Application to Amend L8308/2008/2, CPM Ref: DR045204, CITIC Pacific Mining, 8 January 2018	CPM, January 2018	DWER records (A1590362)

Appendix 2: Summary of Licence Holder comments

The Licensee was provided with the draft Amendment Notice on 5 January 2018 for review and comment. The Licensee responded on 9 January 2018 (CPM, January 2018) waiving the remaining comment period. The following comments were received on the draft Amendment Notice.

Condition	Summary of Licence Holder comment	DWER response
Figure 1	Figure 1 updated to reflect the final diffuser location as detailed within CPM, February 2017	Figure 1 has been updated
Table 3	Under key infrastructure for the 6 GL/a discharge rate it should read "*63 m (offset approximately 25 m from the low water mark)*" rather than "*46 m (offset approximately 25 m from the low water mark)*"	Table 3 has been updated to state 63 m for the discharge rate of 6 GL/a
Attachment 1	Attachment 1 updated to omit emission point AP1 which is outside the scope of this Amendment Notice and FR2 updated to reflect final diffuser location as detailed within CPM, February 2017	Attachment 1 has been updated with the two Maps of emissions and monitoring points