Review of Existing Premises

Division 3, Part V *Environmental Protection Act 1986*

Applicant:	**Hamersley HMS Pty Ltd**
ACN:	**115 004 129**
Licence Number:	**L8688/2012/1**
File Number:	**DER2014/000622**
Premises:	**Hope Downs 4 Mine** **Part of AM70/282, L47/399 and L47/702 within coordinates in Schedule 1 of the Revised Licence (Attachment 1)** **NEWMAN WA 6753**
Date of report:	**Wednesday, 10 April 2019**
Status of Report	**Final**

Table of Contents

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Definitions of terms and acronyms

Term	Definition
AACR	Annual Audit Compliance Report
AER	Annual Environmental Report
AMD	Acid and/or Metalliferous Drainage
ANCOLD	Australian National Committee on Large Dams
annual period	The inclusive period from 1 January until 31 December in that year
AS1940-2004	Australian Standard AS1940-2004: The storage and handling of flammable and combustible liquids
BOM	Bureau of Meteorology
Category	As used in Schedule 1 of the EP Regulations
Category Threshold	The production or design capacity threshold for each category as defined under Schedule 1 of the EP Regulations
Decision Report	This document
Delegated Officer	An officer to whom all of the powers and duties under - (a) sections 54, 57, 59, 59B, 60, 62 and 64 of the EP Act; and (b) regulations 5B and 5O of the EP Regulations have been delegated by the CEO of DWER pursuant to section 20 of the EP Act.
DER	refers to the former Department of Environment Regulation, now DWER
DMIRS	Department of Mines, Industry Regulation and Safety
DSP WFSF	Desertplains Satellite Pit Waste Fines Storage Facility
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986*
EP Regulations	*Environmental Protection Regulations 1987*
Existing Licence	The licence L8688/2012/1 issued under Part V, Division 3 of the EP Act and in force prior to the commencement of this review (amendment date 17 March 2016)
GL/a	gigalitres per annum
HDPE	High density polyethylene

IBC	Intermediate Bulk Container
ICMS	Incidents and Complaints Management System
Licence Holder	Hamersley HMS Pty Ltd
m^3	Cubic metres
mbgl	Metres below ground level
MEM	Mobile Equipment Maintenance
MS	Ministerial Statement
mtpa	Million tonnes per annum
Occupier	As defined by the EP Act
OEPA	Office of the EPA
PDWSA	Public Drinking Water Source Area. These are PDWSA proclaimed under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* and the *Country Areas Water Supply Act 1947*
PER	Public Environmental Review
Prescribed Premises	Premises of the types listed in Schedule 1 of the EP Regulations.
the Premises	The Hope Downs 4 Mine as defined by the coordinates in Schedule 1 of the Revised Licence
Primary Activities	Refers to the activities on the front of the Licence and the description provided in Schedule 2 of the Licence.
Review	This licence review
Reviewed Licence	The amended licence issued under Part V, Division 3 of the EP Act following the finalisation of this review
RiWI Act	*Rights in Water Irrigation Area 1914*
Rio Tinto	Rio Tinto Limited
ROM	Run-of-Mine pad
STP	Sewage Treatment Plant
WFSF	Waste Fines Storage Facility

1. Purpose and Scope of Assessment

This review of the Licence (the Review) for the Hope Downs 4 mine site (the Premises) was initiated by the Department of Environment Regulation (DER, now Department of Water and Environmental Regulation, or DWER[1]) following consultation with Hamersley HMS Pty Ltd (the Licence Holder). The purpose of the Review is to align the Licence with DWER's Regulatory Framework as described in the *Guidance Statement: Regulatory principles* (DER 2015).

This Decision Report details the Delegated Officer's assessment of risks arising from emissions and discharges generated by the Primary Activities undertaken at the Premises.

The Reviewed Licence (L8688/2012/1) is set out in Attachment 1.

2. Background

The Licence Holder is a subsidiary of Rio Tinto Limited (Rio Tinto). Rio Tinto and Hope Downs Iron Ore Pty Ltd (owned by Hancock Prospecting Pty Ltd) have entered into a 50/50 unincorporated joint venture to develop the Hope Downs 4 iron ore assets. The development and ongoing operation of the mine site are managed by the Licence Holder which is therefore considered to be the Occupier of the premises for the purposes of regulation under Part V of the *Environmental Protection Act 1986* (EP Act).

The Licence Holder has held the Existing Licence L8688/2012/1 under the EP Act since it was issued on 6 December 2012. The Existing Licence relates to the activities at the Premises for the Prescribed Premises categories defined by Schedule 1 to the *Environmental Protection Regulations 1987* (EP Regulations) listed in Table 1 below.

Table 1: Prescribed Premises Categories on Existing Licence (RTIO, 2018)

Category	Description	Approved Premises Production or Design Capacity	2017 throughput
05	Processing or beneficiation of metallic or non-metallic ore: premises on which — (a) metallic or non-metallic ore is crushed, ground, milled or otherwise processed; or (b) tailings from metallic or non-metallic ore are reprocessed; or (c) tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam	15,000,000 tonnes per annual period	16,122,982 tonnes
06	Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore	20,000,000 tonnes per annual period[1]	19,988,889 tonnes
12	Screening etc. of material: premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed,	10,000,000 tonnes per annual period	0 tonnes

[1] DWER was formed on 1 July 2017, through the amalgamation of the Department of Water (DoW), Department of Environment Regulation (DER) and the Office of the Environmental Protection Authority (OEPA). DER is only referred to in this Decision Report when discussing correspondence and reference documents issued by, or to the former department.

	crushed, ground, milled, sized or separated		
54	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	372 m^3/day	111 m^3/day
64	Class II putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer and as amended from time to time) is accepted for burial	1,000 tonnes per annual period	780.93 tonnes

Note 1: Assumed tonnages based on a maximum dewater discharge rate of 20 gigalitres per annum (GL/a).

Key Finding: The Delegated Officer has reviewed the information regarding throughputs notes that in the 2017 annual period the Licence Holder exceeded the nominated throughputs for Category 5 activities by 1,122,982 tonnes (7.5% of authorised volumes).

Emissions and discharges that occur where operations exceed the assessed/authorised throughputs listed on the licence and assessed through the Decision Report may not be afforded the same defences provided under the EP Act.

The Licence Holder has since requested an additional amendment to the application to increase the authorised throughput to 16,500,000 tonnes per annum, representing an increase in throughputs of up to 10%. Therefore the emissions assessed for Category 5 activities is based on this revised throughput amount.

3. Overview of the Premises

3.1 Infrastructure

The Premises infrastructure, as it relates to Category 5, 6, 12, 54 and 64 activities and activities outside the scope of this assessment, but within the Premises, are detailed in Table 2 below with reference to Figures 1, 2 and 3 of this Review.

Table 2: The Premises infrastructure

Category 5: Processing or beneficiation of metallic ore
Iron ore is mined at the Premises using conventional open cut mining methods of drilling and blasting. Waste rock is transported to designated waste dumps using load and haul machinery. Ore is mined from one active mining area and is processed through the onsite processing plant. Ore from the Run-of-Mine pad (ROM) is fed into the ROM bin, which then goes through front end processing (crushing) and feeds into the wet plant and dry plant for further processing. The process plant has a production output of 15 million (dry) tonnes per annum (mtpa). The final product is stockpiled prior to transport to the Dampier Port Operations for export (RTIO, 2011a). Waste fines slurry is currently transported via a pipeline to a 77 hectare (ha) above ground Waste Fines Storage Facility (WFSF) approximately 4 kilometres (km) away and a central decant tower reclaims water for process use. On 27 March 2017, the Licence Holder notified DWER that construction of the WFSF within the mined out Desertplains Satellite Pit (DSP), as authorised under the Existing Licence (amended 17 March 2016), was complete. The DSP is located immediately south of Area 4 pit and 2km to the east of the existing wet process plant at the Premises. Waste fines discharge location will be

alternated between the WFSF and DSP WFSF until both facilities reach design capacity in 2021. Mobile crushing and screening is also undertaken on site.		
No.	**Infrastructure**	**Map reference in Decision Report**
1.	Primary and secondary crushers	Figure 2: Primary Crusher, Secondary Crusher
2.	Processing Plant (wet and dry plant) including primary crushing facility, wet scrubbing, screening modules and conveyors	Figures 1 and 2: Processing Plant / Scrubber and Screens
3.	Mobile crushing and screening plants	Figure 1: Within the prescribed premises boundary
4.	Ore stackers, stockpiles, reclaimers, transfer stations, and train load-out facilities	Figure 2: Stacker, Reclaimer, Transfer Stations, Train Load Out
5.	Above ground WFSF	Figure 1: WFSF
6.	In-pit DSP WFSF	Figure 1: DSP WFSF
Category 6: Mine dewatering		
Approximately 80 percent of the ore at the Premises is situated below the water table. Up to 20 gigalitres per annum (GL/a) of excess water from dewatering activities is disposed of via dewatering infrastructure to Kalgan Creek, as approved under Ministerial Statement 854 (see section 4.1.2). Where possible, dewatering water is used onsite in the first instance to supply water for operational purposes (processing and dust control). Only excess dewatering water, exceeding the operational water requirement is discharged to Kalgan Creek (RTIO, 2013b).		
7	3 x Borefields (Eastern, Western and Northern)	N/A – refer to section 4.1.2
8	Raw water pond	Figure 2: Raw water pond
9	Kalgan Creek Dewatering Discharge Point	Figure 1: Kalgan Creek Discharge Point (refer to section 4.1.2)
10	Dewatering pipeline infrastructure	Figure 1: Within the prescribed premises boundary (location may be altered during operations)
Category 12: Screening etc. of material		
Mobile crushing and screening of up to 10 Mtpa of non-ore material is undertaken on site for use in construction, maintenance and blasting activities.		
No.	**Infrastructure**	**Plan reference**
11	Mobile crushing and screening plants	Figure 1: Within the prescribed premises boundary
Category 54: Sewage facility		
Raw sewage is collected as part of the installed services in the camp / village and pumped to the Sewage Treatment Plant (STP) for treatment. The Premises STP consists of two packaged Sequential Batch Reactors located adjacent to one another to service the Premises accommodation		

village.

Screened solids are disposed to a solids bin and removed off-site by a contractor at an appropriately licensed landfill site. Settled suspended solids from the treatment process are pumped to the sludge drying beds. The sludge drying beds comprise three independent beds of concrete. Liquid sludge deposited on the bed drains to form semi-solids and is left to dry prior to disposal off-site. Leachate gravitates to a sump and is pumped back into the anoxic tanks (RTIO, 2011a).

Treated effluent from both modules is disposed of via irrigation to a shared sprayfield. The sprayfield is approximately 11.2 hectares in extent and comprises a series of impulse sprinklers. The Village STPs have a combined design capacity of 372m^3/day.

To contain overflow and spillage from the waste water treatment tanks, untreated wastewater is directed to an overflow pond. The pond is sized for approximately two days storage of average inflow to the STP.

The Licence Holder also operates three, less-than-20 cubic metres per day (m^3/day) STPs at the Premises (Central facilities Biomax – 14.4 m^3/day, Plant Biomax – 10.8 m^3/day and In-pit crib Biomax – 7.2 m^3/day).

No.	Infrastructure	Plan reference
12	Village STP1 and STP2	Figure 1: Village STP1 & STP2 Figure 2: Sewage Treatment Facility
13	Irrigation Sprayfields	Figure 3: Sewage Treatment Plant Layout
14	Sludge drying beds	Figure 3: Sewage Treatment Plant Layout
15	Overflow pond	Figure 3: Sewage Treatment Plant Layout

Category 64: Class II putrescible landfill site

The Premises has a putrescible landfill facility (Waste Dump Landfill) located within the Dump 4 (DP4) mineral waste dump. The Waste Dump Landfill accepts rubber tyres, conveyor belt, concrete, broken wooden pallets and inert plastics in accordance with Department of Environment and Conservation (DEC), *Landfill Waste Classification and Waste Definitions 1996*, as amended from time-to-time (DER, 2018).

Waste is placed at the toe of the waste rock dump, with waste being tipped directly onto the floor below and covered over as the dump tip head progresses. Waste is placed in the centre of the dump so that at closure the Waste Dump Landfill can be capped with a minimum of one metre (m) of excavated material and rehabilitated appropriately (RTIO, 2013a).

Other putrescible waste generated onsite (from crib/office areas) is kept in dedicated waste storage bins onsite prior to collection and disposal to an appropriate off-site landfill (Hamersley HMS Pty Ltd, 2010). Refer to section 4.5 for further explanation about the reasoning for Category 64 landfill, rather than 63.

No.	Infrastructure	Plan reference
16	Waste Dump Landfill	Figure 1: Waste Dump Landfill

Other infrastructure

No.	Infrastructure	Plan reference

17	Landfarm	Figure 1: Landfarm
18	Mobile Equipment Maintenance (MEM) workshop and Oily Water Separator	Figure 1: Oily Water Treatment System
19	Fuel storage and refueling areas	Figure 3: Bulk Fueling facility
20	Washdown bays	Not shown – not related to a Primary Activity.
21	3 x STP each less than 20m^3/day Central Facilities Biomax – 14.4m^3/day; Plant Biomax – 10.8m^3/day; and In-pit crib Biomax – 7.2m^3/day	Not shown – refer to section 3.2.3

3.2 Category review

This Review has considered the appropriateness of the Prescribed Premises categories from Schedule 1 of the EP Regulations that have been applied to the Existing Licence. Primary Activities associated with Categories 5 and 64 have been risk-assessed through this Decision Report and conditioned on the Reviewed Licence where applicable. Through the risk-assessment process DWER has also considered the appropriateness of Categories 6, 12 and 54/85 in accordance with DWER's Regulatory Framework.

3.2.1 Category 6

As discussed further in section 4.1.2 of this Decision Report, dewatering activities (Category 6) have been thoroughly assessed and are regulated through Part IV of the EP Act. To avoid unnecessary duplication with Part IV of the EP Act, Category 6 is not conditioned under the Reviewed Licence. However, Category 6 has been included as a specified emission and in Schedule 2 of the Licence to authorise the activity under Part V.

3.2.2 Category 12

The Licence Holder operates mobile crushing and screening equipment from time to time as part of construction and maintenance campaigns and drill and blasting activities. Although a similar activity, the crushing and screening of material not classified as 'ore' does not satisfy the definition of Category 5 under Schedule 1 of the EP Regulations.

3.2.3 Category 54/85

In addition to its two main treatment facilities (STP1 and STP2), the Premises also includes three smaller STPs with design capacities of 14.4 cubic metres per day (m^3/day), 10.8m^3/day and 7.2m^3/day. Individually these throughputs fall below the Category thresholds detailed in Schedule 1 to the EP Regulations for Categories 54 and 85.

Key Finding: The Delegated Officer has reviewed the information regarding the activities occurring within the Premises and determined the following in relation to the Categories listed in Schedule 1 to the EP Regulations:

1. To avoid duplication between Part IV and Part V regulation under the EP Act, conditions relating to Category 6 activities is to be removed from the Reviewed Licence. Dewatering from the Kalgan Creek Discharge Point is specified as an authorised emission in the Licence with regulatory controls applied through Part IV

(MS 854).

2. Category 12 will be retained in the Reviewed Licence to allow for the crushing and screening of material which is not ore.
3. The three smaller STPs with design capacities lower than 20 m^3/day do not trigger thresholds for Categories 54 or 85 and therefore are not subject to licence conditions. However, general provisions of the EP Act continue to apply to emissions and discharges from these facilities. No further assessment has been undertaken in relation to STPs that do not treat and discharge wastewater in volumes greater than 20 m^3/day.

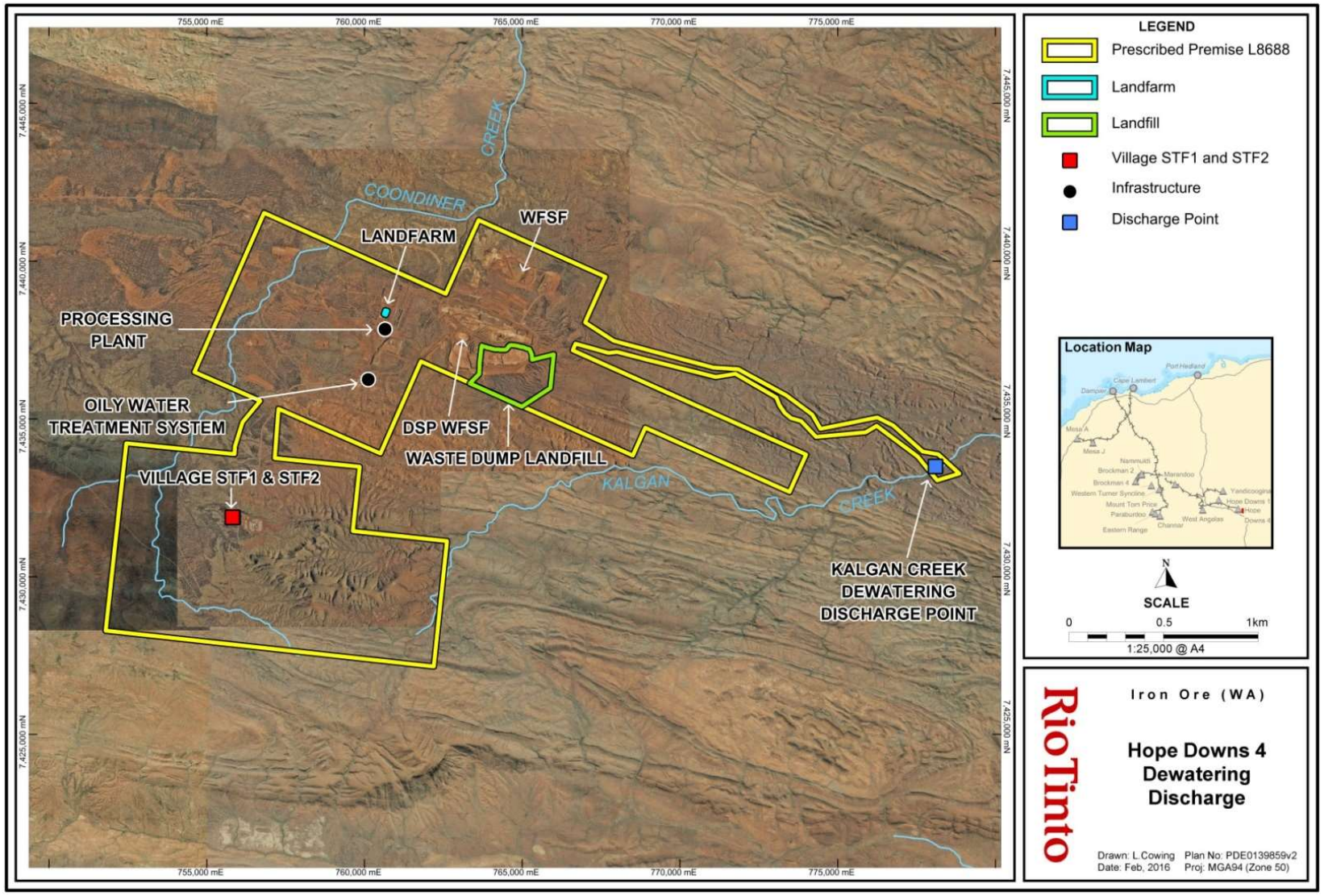

Figure 1: The Premises Mine Site Overview

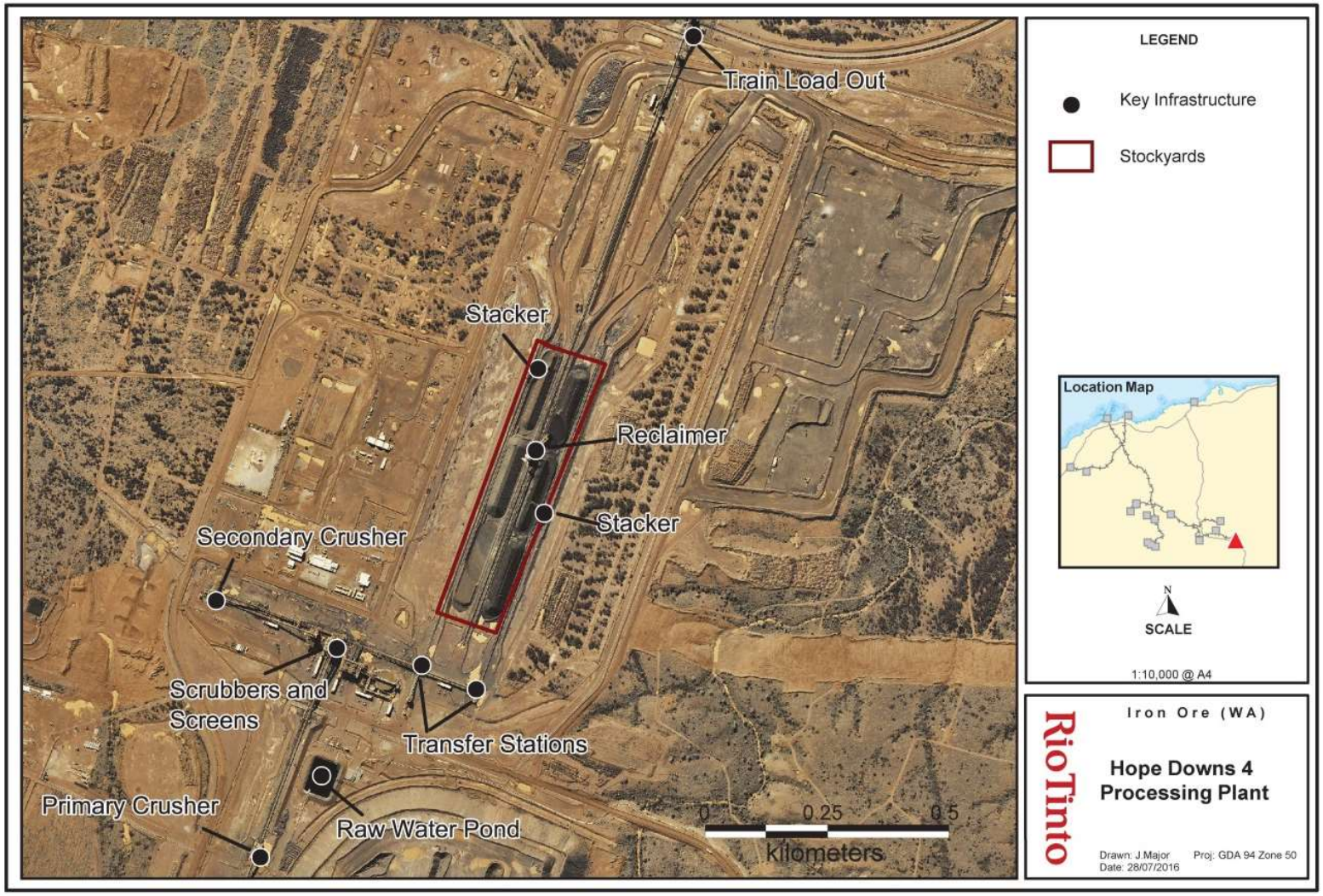

Figure 2: The Premises Processing Plant

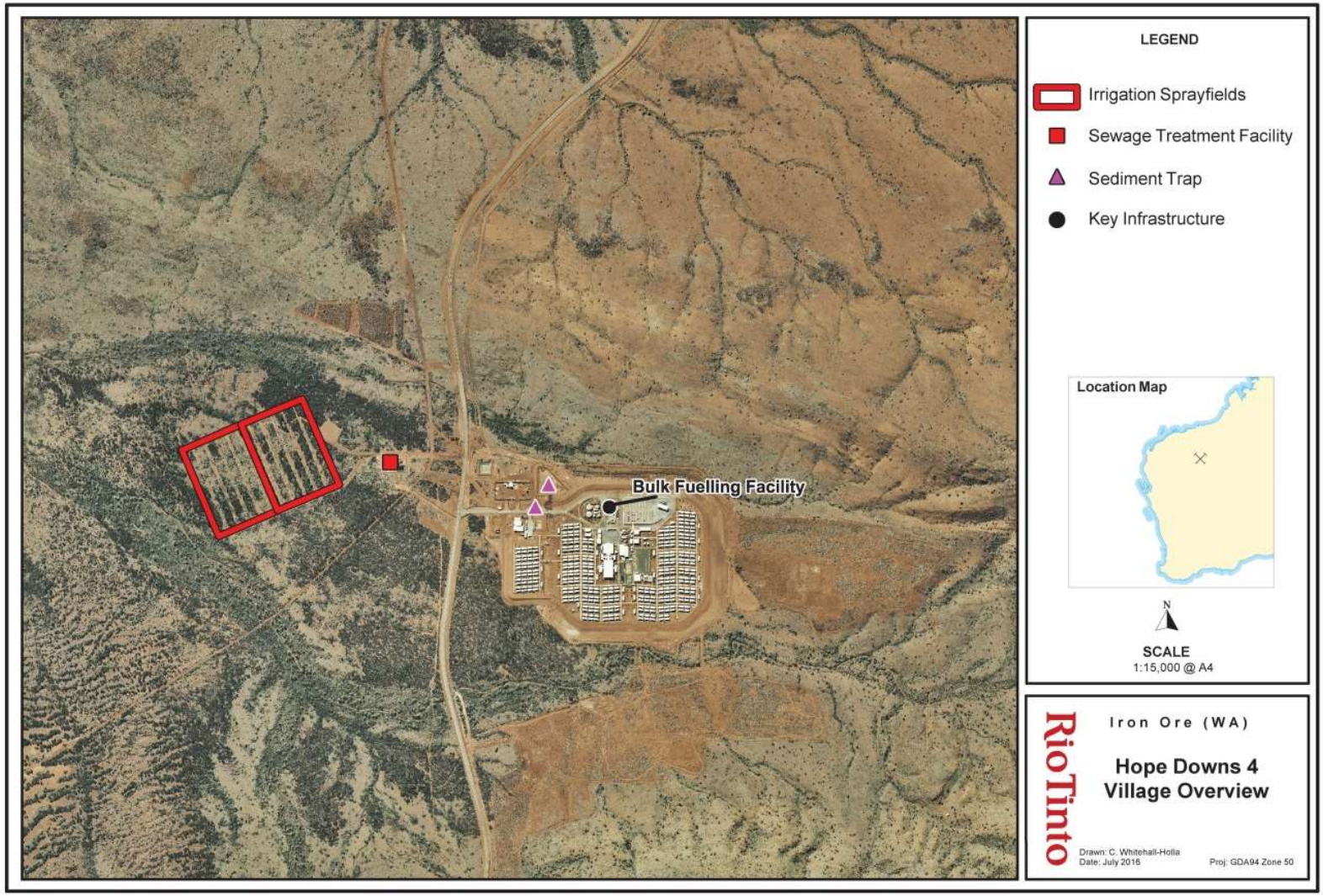

Figure 3: Sewage Treatment Facilities

4. Legislative Context

Approvals and underlying tenure associated with the Premises which are held by Rio Tinto and subsidiaries and related companies are outlined in Table 3.

Table 3. Relevant approvals and tenure

Legislation	Number	Date of Approval	Subsidiary	Approval
Iron Ore (Hope Downs) Agreement Act 1992	N/A	30 November 1992 (As updated 15 December 2011)	Hamersley WA Pty Ltd	State Agreement - Hope Downs Limited and Hamersley WA Pty Ltd
Mining tenements granted under the *Mining Act 1978 pursuant* to Clause 12 of the *Iron Ore (Hope Downs) Agreement Act 1992*	AM70/282 (Hope Downs Iron Ore Pty Ltd); L47/399 (Hamersley WA Pty Ltd and Hope Downs Iron Ore Pty Ltd); and L47/702 (Hamersley WA Pty Ltd and Hope Downs Iron Ore Pty Ltd).	31 March 2006 12 October 2010 4 July 2013	Hamersley WA Pty Ltd	Miscellaneous licences L47/399 (exp. 23/02/2032) and L47/702 (exp. 15/04/2035) Mining lease - AM70/282 (exp. 30/3/2027).
Dangerous Goods Safety Act 2004	Dangerous Goods Licence DGS021476	29 July 2016	Pilbara Iron Pty Ltd	Authorisation to store various dangerous goods up to a cumulative total of 2,260 kL within Western Australia.
Part IV of the EP Act (WA)	Ministerial Statement 854	1 February 2011	Hamersley HMS Pty Ltd	Construct and operate an iron ore mining area and associated infrastructure at the Hope Downs 4 Iron Ore Mine
Part IV of the EP Act (WA)	Ministerial Statement 932	30 January 2013	Hamersley Hope Management Services Pty Ltd	Update - amendment of conditions and procedures
Part V of the EP Act (WA)	L8688/2012/1	Last amended 17 March 2016	Hamersley HMS Pty Ltd	Amendment to operating licence (refer to section 4.5.2).
	W5785/2014/1*	9 March 2015		Mobile Crushing and Screening Plant
	W5592/2014/1*	7 April 2014		Dewatering Pipeline
	W5551/2013/1*	17 March 2014		Putrescible Landfill
	W5428/2013/1*	03/06/2013		Putrescible Landfill
	W5222/2012/1*	17/09/2012		Temporary crushing plants
	W5080/2011/1*	16/01/2012		Sewage facility
	W4965/2011/1*	22/08/2011		Construction of the

				processing plant, primary crusher, stacker and stockyard
	W4914/2011/1*	06/06/2011		Sewage facility

* Denotes inactive DWER approval

4.1 Part IV of the EP Act

4.1.1 Background

The Licence Holder referred a proposal to the Environmental Protection Authority (EPA) on 2 May 2008 to develop and operate an open pit iron ore mining area and associated infrastructure at the Premises. The level of assessment was set by the EPA as a Public Environmental Review (PER). The PER was reviewed by the EPA and the Report and Recommendations of the EPA (EPA Report 1374) were submitted to the Minister for Environment (the Minister) on 6 December 2010. Approval was granted through Ministerial Statement 854 on 31 January 2011 for the project to be implemented.

On 24 April 2012, the Licence Holder wrote to the Office of the EPA (OEPA) proposing changes to Ministerial Statement 854 under section 46(1) of the EP Act. Ministerial Statement 932 was signed by the Minister on 30 January 2013 and specified changes to Ministerial Statement 854.

4.1.2 Ministerial Statement 854

Ministerial approval was granted 1 February 2011 under Ministerial Statement 854 to construct and operate an iron ore mining area and associated infrastructure at the Premises. This included the construction and operation of two infrastructure corridor options, excess water discharge infrastructure, an accommodation area and the realignment of a 2.5km section of Coondiner Creek.

Relevant to Part V of the EP Act, the EPA's assessment (EPA Report 1374) determined that groundwater and surface water could potentially be impacted from Primary Activities such as pit dewatering, contamination of surface and groundwater quality due to leachate from tailings storage facility/waste dumps and potential Acid and/or Metalliferous Drainage (AMD).

Ministerial Statement 854 requires Hamersley HMS Pty Ltd to ensure that:

(a) all excess water discharged to meet *National Water Quality Management Strategy, Australian and New Zealand Guidelines for Fresh and Marine Water Quality* default trigger values for the protection of marine and freshwater ecosystems (ANZECC/ARMCANZ, 2000);

(b) excess water discharged to Kalgan Creek does not result in permanent surface water flow extending closer than 30km to the boundary of Fortescue Marsh; and

(c) excess water discharged does not adversely affect Kalgan Creek or associated surrounding riparian vegetation.

Excess water may be discharged to Kalgan Creek until such time as dewatering at the Hope Downs 1 iron ore mine ceases, at which point MS 854 requires the Licence Holder to transfer surplus dewater to Hope Downs 1 for aquifer reinjection, unless it can be demonstrated that discharges to Kalgan Creek can continue.

The EPA in its report (1374) recommended conditions requiring the licence holder to ensure that any discharged water from the tailings storage facility, mine voids or waste dumps is monitored, managed and treated to ensure that water quality is maintained. Condition 7-1 of MS 854 requires the licence holder to ensure that run-off and/or seepage from the tailings

storage facility (WFSF) and waste material landforms does not lead to the quality of surface water or groundwater within or adjacent to the proposal area exceeding the ANZECC/ARMCANZ 2000 trigger values.

In a letter to the Licence Holder, the EPA has clarified that the proposal to deposit waste fines to the DSP WFSF does not alter the main characteristics of the original proposal, which only included the WFSF, and therefore no amendment to Ministerial Statement 854 is required (EPA, 2015).

Other conditions have also been applied to Ministerial Statement 854 for the management of:

(a) Flora;

(b) Fauna; and

(c) Closure and Rehabilitation.

Key Findings: The Delegated Officer has determined:

1) The following environmental aspects are managed through Part IV of the EP Act and therefore will not be further assessed through this Review:
    (a) Mine dewatering including discharge, surface water monitoring, groundwater drawdown, tree health monitoring and vegetation transect monitoring;
    (b) AMD; and
    (c) Water quality management for all waste material landforms and the WFSF (not including the DSP WFSF) is currently managed under conditions 7-1 to 7-6 of Ministerial Statement 854.
2) Impacts to surrounding vegetation as a result of seepage from waste fines disposal is not managed through Part IV and can be assessed.
3) The waste materials landform seconds as a Waste Dump Landfill. Groundwater quality beneath the waste materials landform must also be monitored in accordance with Ministerial Statement 854. The EPA considered this a requirement to measure any potential impacts from AMD (EPA Report 1374), however there is a requirement to ensure that groundwater quality does not exceed ANZECC Guideline trigger values for a range of parameters. Therefore impacts to groundwater and surface water from landfilling operations at the Waste Dump Landfill have not been assessed in this Review.
4) As groundwater mounding at both WFSFs has not been conditioned through the Ministerial Statement, the groundwater monitoring conditions can also be required through Part V to oversee potential risks to surrounding vegetation. Groundwater quality impacts as they relate to both WFSFs may also be considered through Part V.
5) Ministerial Statements 854 and 932 do not regulate the risks of overland discharges from pipelines carrying waste fines to tailings facilities. Therefore risks associated with the transport of waste fines and return water have been assessed in this Review (refer to section 7.4).
6) Although the EPA did assess potential impacts to surface waters from embankment erosion from incidental rainfall, the EPA did not specifically assess WFSF stability and the impacts associated with a failure of the WFSF embankments or tailings pipelines during operation. Therefore, these aspects have been considered through this Review in section 7.4.

4.1.3 Ministerial Statement 932

Report Number 1465 brought about the amendment of conditions and procedures detailed in section 4.1.2 to Ministerial Statement 854 through the implementation of Ministerial Statement 932, which was signed by the Minister on 30 January 2013. MS 932 amends MS 854 but does not replace it and both are active instruments under Part IV.

The amendments in MS 932 relate to fauna, flora and vegetation conditions and definitions. Ministerial Statement 932 also removes conditions on Ministerial Statement 854 that are no longer required due to changes to the project scope and do not affect the Decision Report's risk assessment.

4.2 Contaminated Sites

The Premises is not currently registered as a contaminated site under the *Contaminated Sites Act 2003*.

4.3 Other Approvals

4.3.1 Department of Jobs, Tourism, Science and Innovation

The Premises operates under the *Iron Ore (Hope Downs) Agreement Act 1992*.

4.3.2 Groundwater licences

The Licence Holder holds two Groundwater Licences (GWLs) under the *Rights in Water Irrigation Act 1914* (RIWI Act). Water is abstracted for both from the Pilbara Hamersley – Fractured Rock aquifer.

- GWL173443(3) for the following authorised activities: Dust suppression for earthworks and construction purposes; Earthworks and construction purposes; Exploratory drilling operations; Geotechnical Investigation purposes; Mining camp purposes; Potable Water Supply purposes; and Road construction purposes.
- GWL172872(7) for the following authorised activities: Dewatering for mining purposes; Dust suppression for earthworks and construction purposes; Earthworks and construction purposes; Exploratory drilling operations; Geotechnical Investigation purposes; Mineral exploration activities; Mineral ore processing and other mining purposes; Mining camp purposes; Potable Water Supply purposes; Railway construction and maintenance and Road construction purposes.

4.3.3 Department of Mines, Industry Regulation and Safety (DMIRS)

The transport and storage of chemicals and dangerous goods at the Premises is in accordance with the following DMIRS legislation:

- *Dangerous Goods Safety Act 2004*;
- *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007*; and
- *Dangerous Goods Safety (Explosives) Regulations 2007*;

DMIRS also regulates employee safety under the *Mines Safety and Inspection Act 1994*.

4.4 Applicable Regulations, Standards and Guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations. DWER Guidance Statements which inform the assessment in line with this legislation are as

follows:

- *Guidance Statement: Risk Assessments* (February 2017)
- *Guidance Statement: Decision Making* (February 2017)
- *Guidance Statement: Setting Conditions* (October 2015)
- *Guidance Statement: Regulatory Principles* (July 2015)
- *Guidance Statement: Licence Duration* (August 2016)

The following regulations and guidance documents applicable to the regulation of the Premises under Part V, Division 3 of the EP Act were also considered:

- *Environmental Protection (Noise) Regulations 1997*
- *Environmental Protection (Controlled Waste) Regulations 2004*
- *Environmental Protection (Unauthorised Discharges) Regulations 2004*
- *Landfill Waste Classification and Waste Definitions 1996 (as amended 2018)*

Other documents used in this assessment are documented in Appendix 2.

4.5 Part V of the EP Act

4.5.1 Works Approvals

Since 1 January 2015, three works approvals have been issued in relation to the Premises under section 54(3)(a) of the EP Act. Summarised below are the details of the works approval applications for the past three years.

W5551/2013/1

Works approval W5551/2013/1 was issued 13 March 2014 for the construction of the putrescible landfill under Category 64. The original submission was for the inclusion of Category 63 however this was changed to Category 64 to allow for the burial of wooden pallets (putrescible waste). The capacity of the landfill was approved at 1,000 tonnes per annum. Compliance documentation was received 23 June 2014 confirming that the landfill had been constructed in accordance with the works approval.

W5592/2014/1

Works approval W5592/2014/1 for the construction of the Premises dewatering pipeline under Category 6 (20mtpa) was issued 3 April 2014. Compliance documentation was received 24 October 2014 confirming that the dewatering pipeline had been constructed in accordance with the works approval.

W5785/2014/1

Works approval W5785/2014/1 for the construction of the Premises mobile crushing and screening plant under Category 12 was issued on 5 March 2015. W5785/2014/1 was amended on 30 July 2015 to extend the commissioning period. Compliance documentation was received on 17 August 2015 and an addendum to this compliance documentation was received 20 August 2015, confirming that the screening plant had been constructed in accordance with the works approval.

4.5.2 Licence Amendments

The most recent amendment to the Existing Licence L8688/2012/1 was on 17 March 2016. The main changes to the Licence during that amendment included the following:

- Inclusion of Category 12;
- Construction and notification requirements for the DSP WFSF;
- Removal of dewater discharge monitoring conditions;
- Removal of stormwater conditions that can sufficiently be regulated under provisions of the *Environmental Protection (Unauthorised Discharges) Regulations 2004*.
- Removal of conditions that were not associated with a Category under Schedule 1 of the EP Regulations (i.e. soil bioremediation facilities); and
- Removal of conditions that can sufficiently be regulated under other provisions of the EP Act or another Act (e.g. *Dangerous Goods Safety Act 2004*) or associated Regulations.

From the date the licence was originally issued on 6 December 2012, the Existing Licence has been amended five times with amended licences issued on 7 March 2013, 16 January 2014, 16 October 2014, 15 January 2015 and 17 March 2016.

Construction of the DSP WFSF

On 27 March 2017, and in accordance with reporting requirements of Condition 22 of the Existing Licence, the Licence Holder submitted documentation to confirm compliance with Condition 2:

"The Licensee shall construct the WFSF in accordance with the document titled Hope Downs 4 – L8688/2012/1 Desertplains Satellite Pit Waste Fines Storage Facility (RTIOHSE-0274771), Rio Tinto, February 2016."

Compliance documentation confirmed the construction of the following environmental controls, infrastructure and equipment for the DSP WFSF:

- Waste fines delivery pipeline constructed within a bunded corridor;
- Two emergency containment/dump ponds at the lowest elevation along the waste fines delivery pipeline;
- Groundwater recovery bores in the event of seepage being detected and elevated groundwater;
- Pond level staffs (25) to measure the depth of tailings; and
- Monitoring bores located up and down hydrogeological gradient.

The Licence Holder further confirmed that the capacity of the facility to store waste fines was reduced from 2.9 million cubic meters (Mm^3) as described in the application to 2.57 Mm^3 following review of the built surface and while allowing for a 1 in 100 year 72 hour annual recurrence interval storm event to the pit crest level.

DWER identified that the Licence Holder had not completed all construction works specified in the application for works, responding by letter on 31 March and 12 April 2017 noting that the initially proposed mobile decant pump and return pipelines were not constructed.

Key finding: Following review of compliance documentation and further supporting documentation submitted by the Licence Holder, the Delegated Officer has made the following determinations:

1) The Licence Holder did not achieve compliance with Condition 2 of the Licence as it did not construct the DSP WFSF in accordance with all specifications of the application documentation.
2) Based on information provided relating to high regional evaporation rates, and the understanding that tailings at the base of the DSP WFSF will consolidate over time,

it is unlikely that seepage from the facility will have a significant effect on the quality of groundwater over time. Therefore variation from the requirement to install a mobile decant pump and return pipeline is acceptable.

3) Ministerial Statement 854 requires the Licence Holder to ensure that ANZECC Guideline trigger values for a slightly to moderately disturbed ecosystem are not exceeded as a result of waste fines disposal.

4) Conditions for the construction of the DSP WFSF are now redundant and have been removed from the Reviewed Licence.

4.5.3 Compliance inspection 2013

DWER has undertaken compliance inspections on two occasions during the previous three years. The inspection undertaken on 21 May 2013 identified non-compliances with the following conditions of the licence in force at the time of inspection (ICMS 28998):

- Condition 3(b)(iv) – The sea container in which Intermediate Bulk Containers (IBCs) are stored at the plant workshop and the area surrounding this container, would not capture contaminated material should jetting from the IBC occur. DWER was informed that there is no high density polyethylene (HDPE) liner in this area and the transfer point of the IBC when pulled out from the sea container is not located within a bund or containment area.
- Condition 3(c) – There was evidence of recent spill/overflow at the MEM refueling area, which hadn't been cleaned up or remediated.
- Conditions 9 and 10 – The Licence Holder failed to provide to the Director an Annual Environmental Report (AER) and Annual Audit Compliance Report (AACR) by the 30 April 2013.

A letter was received from the Licence Holder on 10 July 2013 outlining the actions taken to achieve compliance with the non-compliances identified during the May 2013 inspection. DWER was satisfied that the inspection could be closed and that no further action was required.

4.5.4 Compliance inspection 2017

On 3 and 4 May 2017, DWER conducted a second compliance inspection on the Premises. During the inspection DWER officers inspected the STP and witnessed waste solids (biosolids) on an unsealed area of the site. In accordance with Conditions 6, 7 and 8 of the Existing Licence the Licence Holder must only store biosolids on a bunded drying bed with a low hydraulic conductivity or dispose offsite at an appropriately licensed or registered landfill.

In response, DWER issued Environmental Field Report (EFR 3214) at the time of the inspection requiring the Licence Holder to move the biosolids to the drying bed specified in the Existing Licence. On 18 May 2017, the Licence Holder submitted photographic evidence to DWER to demonstrate compliance with the requirements of EFR 3214. Further photographic evidence was provided to demonstrate the removal of minor hydrocarbon spills at the Premises' Intermediate Bulk Container storage area and input service pad.

DWER closed out Licence non-compliances identified through the 2017 compliance inspection on 29 June 2017 following receipt of further information and evidence from the Licence Holder to indicate that biosolids had been relocated to the STP hardstand.

4.5.5 Annual Audit Compliance Reports

A requirement of the Existing Licence is the submission of an AACR by 30 April each year for the calendar year annual period of the previous year. A review of the previous AACRs has

been undertaken and the non-compliances reported detailed below.

2017 AACR

The Licence Holder notified DWER on 30 April 2018 of non-compliance with conditions 6, 7 and 8, which relate to the management of biosolids from the STP. This non-compliance was identified by DWER officers during an inspection in May 2017 (refer to section 4.5.4).

Category 5 throughputs were exceeded during the period with cumulative tonnages processed on site exceeding authorised throughputs by 1,122,982 tonnes for the annual period. As discussed in section 2, authorised throughputs are not established limits of the Existing Licence and the exceedance of these volumes does not represent a non-compliance with the Licence. Refer to section 2 for discussion on defence provisions under the EP Act.

2016 AACR

During the 2016 annual reporting period the Licence Holder declared exceedances with Dissolved Oxygen targets for dewatering provided in Ministerial Statement 854. DWER notes that this target exceedance does not represent a non-compliance with Licence conditions.

The Licence Holder also did not sample Total Recoverable Hydrocarbon (TRH) from a surface water discharge point in July 2016. However, all other sampling events conducted during the reporting period demonstrated continued compliance with the TRH limit of 15 mg/L specified on the Licence.

Similar to the 2017 AACR, the Licence Holder declared that the actual Category 5 throughput in the 2016 annual period exceeded assessed tonnages (refer above). In the 2016 annual period, the Licence Holder exceeded authorised throughputs for Category 5 (processing of ore) by 566,549 tonnes.

2013 to 2015 AACRs

AACRs have been received for each annual period covering 1 January to 31 December for 2013, 2014 and 2015 (Hammersley HMS Pty Ltd, 2014; 2015; and 2016). In the 2015 AACR the Licence Holder declared non-compliances in relation to dewater discharge monitoring requirements. Reports for the 2014 and 2015 annual periods declared non-compliances in relation to monitoring and reporting requirements. As these related to administrative requirements, no environmental impacts are expected to have occurred.

4.5.6 Complaints history

DWER's Incident and Complaints Management System (ICMS) is the system used to record complaints received and non-compliances requiring investigation. A review of ICMS indicates that no complaints have been received from members of the public or surrounding operators in relation to the Premises.

4.5.7 Modelling and monitoring data

A requirement of the Existing Licence is the submission of an AER by 30 April each year that provides all annual monitoring data related to emissions from prescribed activities. A review of these AERs has been undertaken and key observations noted below.

Annual Environmental Reports 2013 to 2017

The annual nutrient loading rates for total nitrogen and total phosphorus for the STP irrigation area and the quarterly effluent quality monitoring results for the Village STPs have been submitted to DWER. Nitrogen and phosphorus loading rates from treated effluent discharges to the combined STP irrigation area have consistently been measured around 250kg/ha/year and 25kg/ha/year respectively. This demonstrates that nutrient loading rates at the STP irrigation field fall well below recommended application rates for both Total Nitrogen

(480kg/ha/year) and Total Phosphorus (120kg/ha/year) for category D soils, which are described as loam/clay soil draining to surface water with low eutrophication risk (DoW, 2008).

AERs also provide a comparison of treated effluent quality against targets, as set under *NWQMS (1997) Australian Guidelines for Sewerage Systems: Effluent Management*. No exceedances of licence targets for wastewater treatment were recorded for the annual periods 2014 to 2017 inclusive. However in quarter 2 of 2013, the Licence Holder recorded one exceedance of guideline targets for Biochemical Oxygen Demand at the Temporary Construction Camp STP and one exceedance of Total Phosphorus at the Village STP.

TRH discharge was monitored at levels below the detection limit of 0.5mg/L, well below licence limits of 15 mg/L TRH.

The Licence Holder is required under Part IV of the EP Act to complete riparian vegetation transect surveys bi-annually. A summary of the riparian vegetation transect survey for the monitoring locations along Kalgan Creek was provided in the AER. Some changes were observed during 2015 at potential response sites, but these changes were not outside the range of variation observed during baseline or at reference sites. Species richness generally increased during 2015 at both potential impact and reference sites.

4.6 Clearing

Vegetation clearing up to 5,470ha comprising of the mining area, infrastructure corridor, excess water discharge infrastructure and accommodation area has been assessed and authorised under Ministerial Statement No. 854, and as such does not require a clearing permit under Part V of the EP Act.

5. Consultation

This licence Review and amendment process does not involve a public comment period. Drafts of this Decision Report and the Reviewed Licence were transmitted to the Licence Holder for comment on 10 July 2018 and again on 19 March 2019. Final Licence Holder comments were provided to DWER on 10 April 2019 and a summary, along with DWER's responses, is presented in Appendix 2.

6. Location and Siting

6.1 Siting Context

The Premises is located within the east Pilbara region of Western Australia, approximately 30km north-west of Newman and approximately 40km south-east of the Hope Downs 1 Iron Ore Mine (also operated by the Licence Holder). Figure 4 shows the regional location of the Premises.

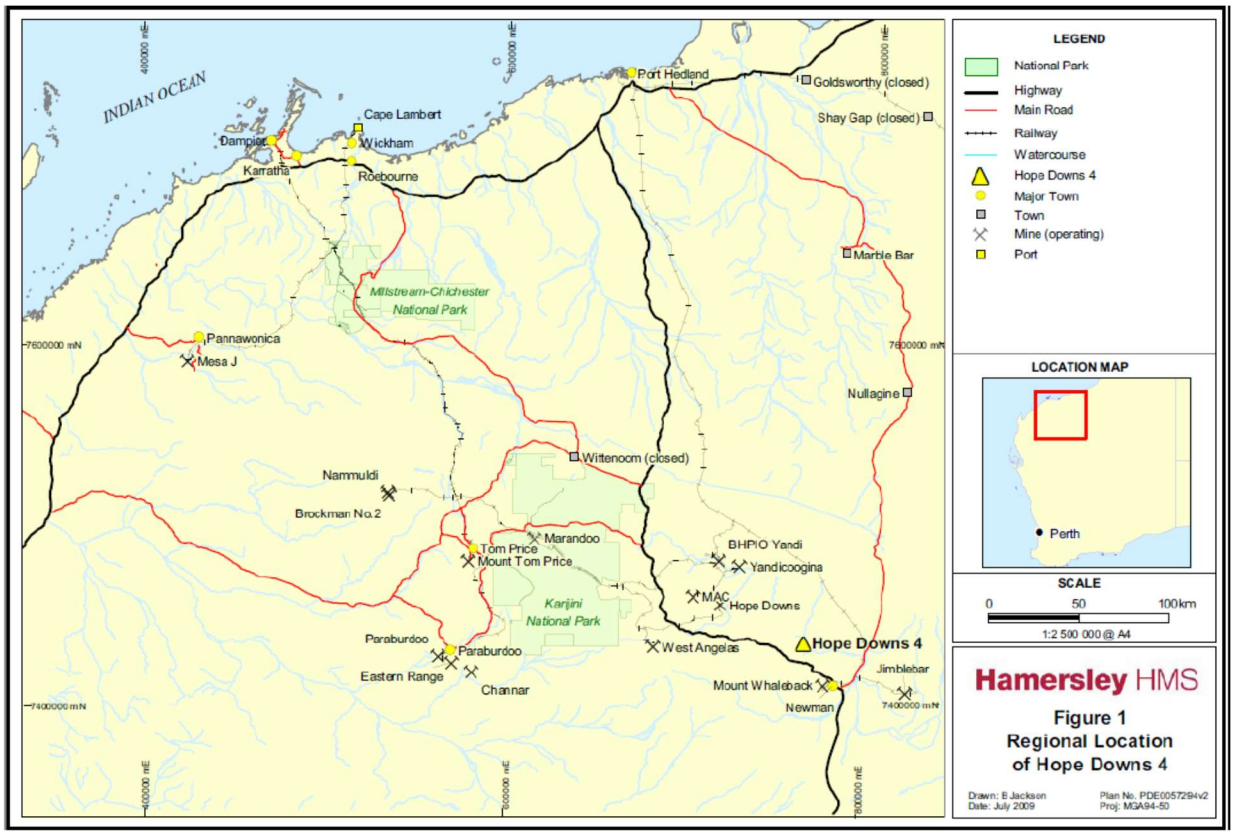

Figure 4: Regional location of the Premises

6.2 Sensitive Land Uses

The distances to residential and sensitive receptors are detailed in Table 4. The closest residential area to the Premises is the township of Newman shown in Figure 4, which had a population of 6,162 in 2014 (Australian Bureau of Statistics, 2016).

The Premises Village is 400m to the south-east of the STP and within the Premises boundary, however as this facility is operated by the Licence Holder the Premises Village will not be considered as a sensitive land use or receptor. It is expected that any dust, noise and odour issues will be appropriately managed by the Licence Holder for the comfort of their transient workforce and in compliance with obligations under occupational health and safety legislation.

Table 4: Receptors and distance from prescribed activity

Sensitive Land Uses	Distance from Prescribed Activity
Closest residential zoned premises – Newman (zoned residential Shire of East Pilbara Planning Scheme No. 4)	Approximately 30km to the south-east of the process plant
Closest recreation zoned premises - Newman (zoned recreation – Local Authority Reserve Shire of East Pilbara Planning Scheme No. 4)	Approximately 30km to the south-east of the process plant
Marillana Pastoral Lease L3114/984 Homestead	Approximately 50km north of the Premises.

6.3 Specified Ecosystems

The distances (within a 30km radius) to specified ecosystems are shown in Table 5.

Table 5: Specified ecosystems

Specified ecosystems	Distance from Prescribed Premises
Department of Biodiversity, Conservation and Attractions (DBCA) tenure*	No DBCA tenure are located within a 30km radius of the process plant.
Public Drinking Water Source Area (PDWSA)	Beneficial use of groundwater at the Premises is limited (EPA Report 1374). A PDWSA is identified at distances greater than: • 6km to the south of the STP; • 8km to the south of the process plant; and • 7km to the south of the dewatering discharge point.
RAMSAR wetland – Fortescue Marsh	Greater than 30km to the north of the WFSF
Geomorphic Wetlands	No geomorphic wetlands are located within a 30km radius of the process plant
Threatened Ecological Communities and Priority Ecological Communities	There are no Threatened Ecological Communities within a 30km radius of the process plant. An Endangered Threatened Ecological Community (Ethel Gorge aquifer stygobiont community) is located approximately 21km south-east of the dewatering discharge point. A Priority 3 Priority Ecological Community (Vegetation of sand dunes of the Hamersley Range/Fortescue Valley) previously known as the Fortescue Valley Sand Dunes* is located approximately 26km north-east of the process plant.
Declared Rare Flora	There are no Declared Rare Flora within the Premises. *Lepidium catapycnon* (previously Declared Rare Flora, now Priority 4) is located within the Premises. Condition 8-1 of MS 854 ensures the loss of no more than one population (consisting of no more than 20 plants) during construction and operation.

*Parks and Wildlife, 2015

6.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 6.

Table 6: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental Value
Groundwater and	The hydrogeology of the Premises is	Groundwater salinity (Total Dissolved

Groundwater and water sources	Distance from Premises	Environmental Value
groundwater salinity	Rocks of Low Permeability, Fractured and Weathered Rocks – Local Aquifers. Depth to groundwater is approximately: • 47 metres below ground level (mbgl) at the STP • 30-34mbgl at the process plant • 18-24mbgl at the WFSF • 35-55mbgl at the Waste Dump Landfill. Recharge occurs via direct infiltration and through localised drainage systems during large rainfall events. There are a number of groundwater bores located within the Premises (based on available GIS dataset – WIN Groundwater Sites)	Solids is 500-1,000mg/L), which is considered marginal (Department of Water, date unknown) The three borefields that currently exist at the Premises are: • the eastern borefield - supplies water for ore processing, dust suppression and site administration use with excess water discharged to the Kalgan Creek discharge point • the western borefield - operational for construction and rail water supply • the northern borefield - provides water for dust suppression and construction purposes
RIWI Act	The Premises is located in the RIWI Act Pilbara Groundwater Area	N/A
Watercourses	The main drainage channel of Coondiner Creek runs north through the western part of the Premises and approximately 4km to the west of the process plant	There are a number of major creek lines in the region, including Kalgan Creek, Mindy Mindy Creek and two un-named creeks, as well as many small, ephemeral tributaries where continuous stream flow only occurs after significant rainfall events. The STP irrigation field is located approximately 1,750m from Coondiner Creek, a significant stream and 70m from a minor tributary to Coondiner Creek. The process plant is located approximately 4km to the east of the nearest significant stream (Coondiner Creek). The dewatering discharge point discharges surplus dewater directly to Kalgan Creek, a minor river.

6.5 Other Receptors

Rainfall is the dominant source of water in most permanent pools around the Premises. These permanent pools listed in Table 7 have a range of ecological, social and Aboriginal heritage values.

Table 7: Other landscape features, relevant factors or receptors

Other receptors or areas of concern	Location
Eagle Rock Pools	Located in Coondiner Creek approximately 5km (downstream) of the process plant area
Eagle Rock Falls	Located in Coondiner Creek approximately 6km (downstream) of the process plant area
Stuarts Pool	12.8km to the west (upstream) of the dewatering discharge point
Kalgan Pool	2.3km to the west (upstream) of the dewatering discharge point
Kalgan Pool Heritage Rights Reserve	530m (from reserve boundary) to the west (upstream) of the dewatering discharge point

6.6 Soil Type

Geotechnical Investigations undertaken within the Premises show soils in the vicinity of the process plant area are predominantly clayey/silty, gravel/sand and gravelly clay/silt/sand of very loose to medium dense consistency (RTIO, 2011a).

6.7 Meteorology

6.7.1 Wind direction and strength

The following wind roses (Figures 6 and 7) provide the annual wind direction and strength (km/h) for the periods 9am and 3pm between the years 1965 to 1998 at Newman (Bureau of Meteorology (BoM), 2016a). The region has a dominant annual wind direction consisting of easterlies during both the summer and winter months. Spring shows a high north-westerly dominance.

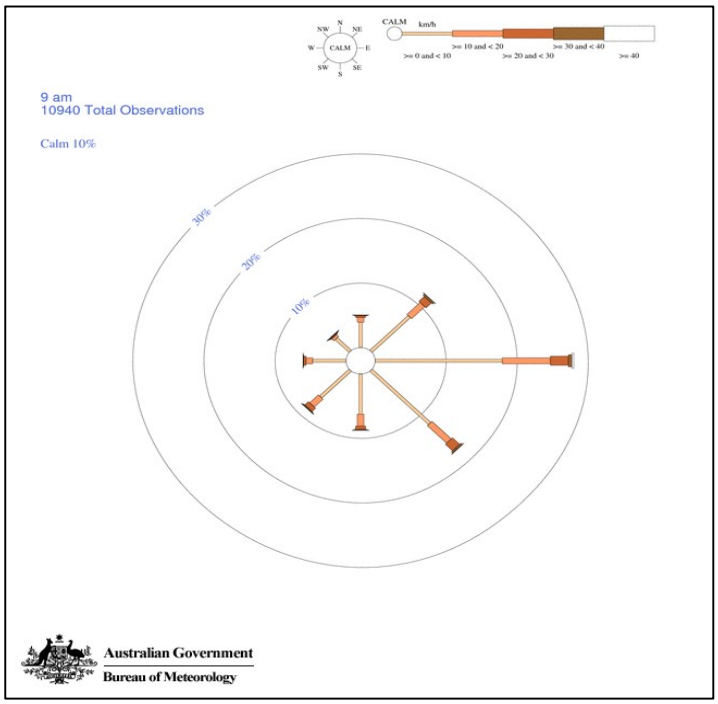

Figure 6: Wind rose at Newman for 9am

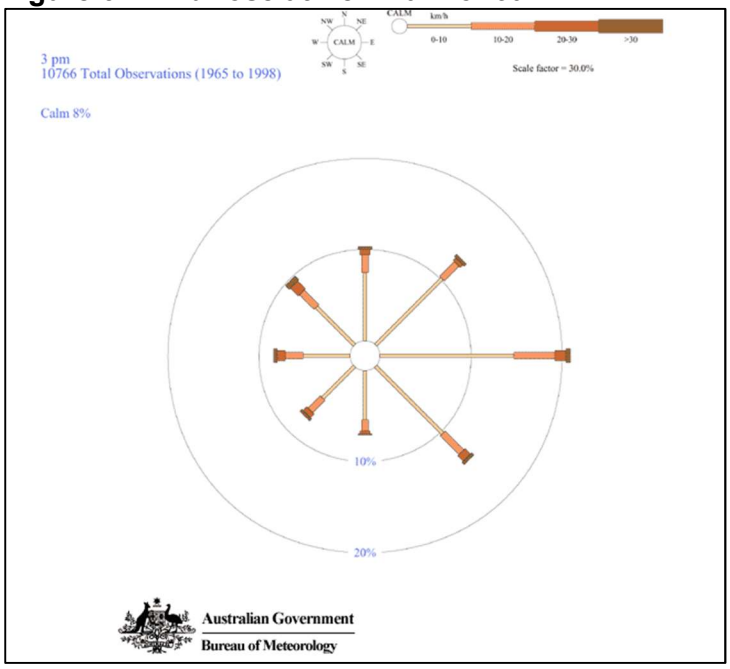

Figure 7: Wind rose at Newman for 3pm

6.7.2 Regional climatic aspects

Newman has an arid climate characterised with very hot summers and mild winters.

BoM (2016b) provides the mean rainfall and maximum temperatures for Newman (mean maximum temperature 1996-2016 and mean rainfall 1971-2016) as shown in Figure 8. The wet season extends from October to April when maximum daily temperatures can exceed 47 degrees Celsius (ºC). The dry season extends from May to September with temperatures ranging from approximately 6ºC to 26ºC.

The average annual rainfall near the project area is approximately 310mm and rain generally results from scattered thunderstorms and tropical cloud bands which produce heavy localised falls over short periods of time. The evaporation rate in the region greatly exceeds the average annual rainfall, which contributes to the arid environment in the area.

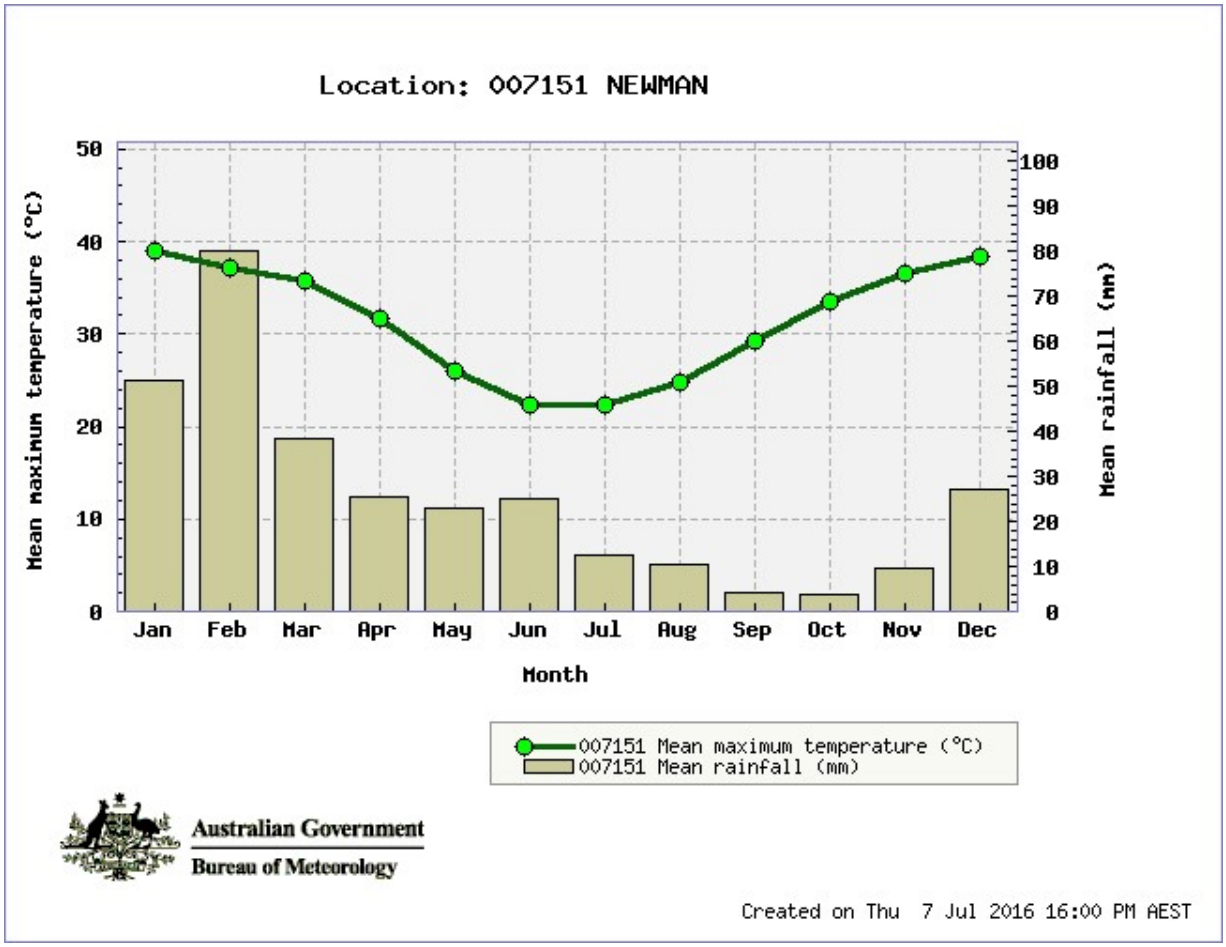

Figure 8: Mean temperature and rainfall, Newman

7. Risk Assessment

7.1 Emissions, pathway, receptor identification

Table 8: Identification of key emissions

			Potential Emissions	Potential Receptors	Pathway	Potential Impacts	Continued to detailed risk assessment?	Reasoning
Source	**Category 5:** Processing or beneficiation of metallic or non-metallic ore: premises on which — (a) metallic or non-metallic ore is crushed, ground, milled or otherwise processed; or (b) tailings from metallic or non-metallic ore are reprocessed; or (c) tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam. **Category 12 Screening etc. of material:** premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.	Operation of crushing and screening equipment, movement of ore product between these and the stockyard via conveyors.	Dust	No sensitive land uses in proximity	Air (windborne)	None	No	No receptors present.
				Vegetation including vegetation adjacent to mining areas	Air (windborne)	Potential to be deposited on vegetation and may prevent photosynthesis and plant respiration	No	Even in areas most impacted by dust it is likely that the natural dust tolerance of Pilbara vegetation species will prevent widespread vegetation impacts. There are also no rare flora within the Premises. Local fauna is expected to avoid the area due to noise and traffic movements, reducing their exposure to dust.
			Noise	No receptors present	Air (windborne)	None	No	No receptors present.
		Washwater, stormwater or process water from process and handling areas.	Waste discharges	Terrestrial ecosystems Groundwater Surface waters	Discharges to land/seepage No pathway to surface waters due to site bunding and surface water diversion.	Potential contamination of soil and groundwater due to presence of iron, hydrocarbons and chemicals within stormwater, leaks and spills.	No	There are no other groundwater users in the vicinity of Licence Holder activities where impacts to groundwater may occur as a result of upset events. The most notable contaminant within site water is expected to be iron, which is inert and unlikely to impact the quality of the already iron-rich groundwater. Hydrocarbon and chemical storage on site does not trigger threshold volumes under Schedule 1 of the EP Regulations and can be managed by DMIRS under *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007*.
			Leachate from Potentially Acid Forming waste rock	Terrestrial ecosystems Groundwater	Mining of ore / discharges to land	Sulfides, when present in significant quantities, have the potential to generate AMD, which could pose a risk to the environment	No	Regulated under Condition 7-1 of Ministerial Statement 854 (refer section 4.1.2).
		WFSF and DSP WFSF (operation) and tailings pipelines	Tailings discharge	Terrestrial and freshwater ecosystems	Discharges to land	Risk of structural failure leading to physical damage or smothering of vegetation by tailings or sedimentation of watercourses Soil contamination with the possible addition of ions and metals	Yes	Refer to section 7.4
			Leaching to groundwater	Groundwater dependent ecosystems PDWSA – Newman Water Reserve, which is greater than 8km south of the process plant and 7km from the DSP WFSF.	Discharges seeping to groundwater	Groundwater contamination Groundwater mounding	Yes	Refer to section 7.4.
	Category 6 Mine dewatering: premises on which water is extracted	Abstraction of groundwater	None (groundwater drawdown)	Groundwater dependent ecosystems	Abstraction of groundwater lowering groundwater levels	Reduction in groundwater availability for dependent vegetation as a result of drawdown.	No	Regulated under Condition 5-1 of Ministerial Statement 854 (refer section 4.1.2).

			Potential Emissions	Potential Receptors	Pathway	Potential Impacts	Continued to detailed risk assessment?	Reasoning
	and discharged into the environment to allow mining of ore.	Excess mine dewatering discharge	Waste water: Dewatering discharge	Riparian vegetation Terrestrial fauna with habitat around dewatering discharge point Aquatic ecosystems	Discharges to surface water	Water quality Impact on plant root system due to waterlogging and altered ecology through permanent presence of water Erosion and scouring	No	Regulated under Condition 6-6 of Ministerial Statement 854 (refer section 4.1.2). However, the Reviewed Licence continues to authorise the discharge of dewater to Kalgan Creek in accordance with Part IV requirements.
	Category 54 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.	STP - Treatment of sewage	Odour	No receptors in proximity	Air (windborne)	None	No	No receptor present.
		STP - Sewage pipeline and holding tank rupture/ overtopping or runoff from sludge drying beds	Raw sewage discharge to land	Terrestrial ecosystems adjacent STP and sludge drying beds	Discharges to land	Soil contamination and impacts to native vegetation	Yes	Refer to section 7.5
		STP - Irrigation of treated effluent	Treated effluent discharged to sprayfield	Terrestrial ecosystems Groundwater	Discharges to land/seepage	Facilitated growth of weeds Increase in nutrients levels in the soil and/or groundwater Ponding in the irrigation area	Yes	Refer to section 7.5
	Category 64: Class II or III putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer and as amended from time to time) is accepted for burial (DWER, 2018)	Waste Dump Landfill Disposal of waste (putrescible and inert)	Fire	Terrestrial ecosystems including fauna	Discharges to land	Soil contamination	No	The disposal of tyres is regulated under Part 6 of the EP Regulations, which specifies conditions that mitigate the risk of fire.
			Gaseous emissions (from decomposition of putrescible waste and fire)	No receptors in proximity	Air (windborne)	Public Health and amenity	No	No receptors present. In addition, putrescible wastes disposed (wooden pallets only), have a low odour/noxious emission potential when broken down.
			Noise	No receptors in proximity	Air (windborne)	Public Health and amenity	No	No receptors present.
			Vermin and pathogens	Terrestrial ecosystems	Discharges to land	None	No	Wooden pallets are the only putrescible waste disposed of at the Waste Dump Landfill. Other putrescible waste (from crib / office areas) is disposed off-site.
			Seepage of leachate to groundwater	Groundwater dependent ecosystems	Discharges to groundwater	Water quality	No	Based on the limited leachability of putrescible waste disposed (wooden pallets only), the potential for leachate is negligible and is therefore not risk assessed. In addition, groundwater quality beneath the Waste Dump Landform is managed under Condition 7-1 of Ministerial Statement 854 (refer section 4.1.2).
			Dust	No receptors in proximity	Air (windborne)	Public Health and amenity	No	No receptors present.
	Non Prescribed Activities	Oily water separator (OWS) discharges	Discharge of hydrocarbon contaminated wastewater.	Terrestrial ecosystems	Discharges to land	Soil contamination Groundwater and surface water contamination	No	The discharge of treated water from the oily water separator for the purposes of dust suppression is not a Primary Activity that is directly related to Categories specified in Schedule 1 of the EP Regulations. Discharges of hydrocarbons, degreasers and detergents to the environment can be regulated through the *Environmental Protection (Unauthorised Discharges) Regulations 2004* and general provisions of the EP Act. Under the *Contaminated Sites Act 2003*, the Licence Holder has an obligation to report soil contamination within Premises.

7.2 Risk Criteria

During the assessment the risk criteria in Table 9 below will be applied to determine a risk rating set out in section 7.6.

Table 9: Risk criteria

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		The following criteria has been used to determine the consequences of a Risk Event occurring:		
			Environment	Public health* and amenity (such as air and water quality, noise, and odour)
Almost Certain	The risk event is expected to occur in most circumstances	Severe	• **onsite impacts**: catastrophic • **offsite impacts local scale**: high level or above • **offsite impacts wider scale:** mid-level or above • Mid to long-term or permanent impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are significantly exceeded	• Loss of life • **Adverse health effects:** high level or ongoing medical treatment • Specific Consequence Criteria (for public health) are significantly exceeded • **Local scale impacts:** permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	• **onsite impacts**: high level • **offsite impacts local scale**: mid-level • **offsite impacts wider scale**: low level • Short-term impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are exceeded	• **Adverse health effects:** mid-level or frequent medical treatment • Specific Consequence Criteria (for public health) are exceeded • **Local scale impacts**: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	(a) **onsite impacts**: mid-level (b) **offsite impacts local scale**: low level (c) **offsite impacts wider scale**: minimal (d) Specific Consequence Criteria (for environment) are at risk of not being met	(e) **Adverse health effects:** low level or occasional medical treatment (f) Specific Consequence Criteria (for public health) are at risk of not being met (g) **Local scale impacts:** mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	(h) **onsite impacts**: low level (i) **offsite impacts local scale**: minimal (j) **offsite impacts wider scale**: not detectable (k) Specific Consequence Criteria (for environment) likely to be met	(l) Specific Consequence Criteria (for public health) are likely to be met (m) **Local scale impacts:** low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	• **onsite impact**: minimal • Specific Consequence Criteria (for environment) met	• **Local scale**: minimal to amenity (n) Specific Consequence Criteria (for public health) met

^ Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting.*

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines.*

7.3 Risk Treatment

DWER will treat risks in accordance with the Risk Treatment Matrix in Table 10 below.

Table 10: Risk Treatment

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk event will not be tolerated. DWER may refuse application.
High	Acceptable subject to multiple regulatory controls.	Risk event will be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled	Risk event is acceptable and will generally not be subject to regulatory controls.

7.4 Risk Assessment – Discharges to Land (WFSF and DSP WFSF)

7.4.1 Description of risk event

There is the potential for discharges of tailings to the terrestrial environment through burst pipes, overtopping or breached dam walls at the WFSF. Similar events at the DSP WFSF are not expected to occur as it is a below ground storage facility meaning that any collapse will be directed into the DSP WFSF. However, waste fines may enter the environment from pipelines used to deliver the material to either storage facility.

The WFSF is located approximately 2.2km upstream of Coondiner Creek meaning that an embankment failure is not expected to result in waste fines being transported to the surface water body. Pipelines used to deliver waste fines material to either storage facility are located further away from Coondiner Creek.

Seepage from the waste fines facilities may result in groundwater mounding and changes to water quality, which could impact surrounding vegetation. Groundwater flow in the vicinity of the WFSF and the DSP is from the south to the north. Flow between the WFSF and DSP is not connected as it is interrupted by dewatering bores. Seepage and runoff from both waste fines storage facilities is also managed under Part IV (refer to section 4.1.2).

7.4.2 Identification and general characterisation of emissions

Waste fines disposal will alternate between the WFSF and DSP WFSF at an average rate of 5,000 tonnes of solid tailings per day. The waste fines will be thickened and then transferred to either facility via slurry pipeline (around 40% solids) depending on the ore type. Water from within the waste fines slurry will either evaporate or seep to groundwater.

An embankment failure is expected to result in significant, localised areas of land adjacent to the WFSF being smothered by waste fines. Alternatively, the size of a spill from a pipeline rupture is likely to vary depending on the response times of the Licence Holder and the volume of waste fines flowing through the pipeline at the time.

7.4.3 Description of potential adverse impacts from the emission

Groundwater mounding may result in groundwater entering the root zone of native vegetation

impacting its survival.

Spillages could impact upon adjacent vegetation through physical smothering. Smothered vegetation is not expected to survive a large spill event from either pipeline discharge or embankment failure.

7.4.4 Criteria for Assessment

There are no criteria for the toxicity of iron to native vegetation. Equally the concentration of sediment required to limit the ability for native vegetation to photosynthesise cannot be quantified. Therefore impacts to native vegetation have been assessed against the complete smothering of vegetation as a result of a spill.

Criteria for the construction and operation of WFSFs is provided in the following key policies and guidance documents:

- Department of Mines and Petroleum, Code of Practice, Tailings storage facilities in Western Australia, 2013 (DMP, 2013);
- Department of Mines and Petroleum, Safe Design and Operating Standards for Tailings Storage, May 1999;
- Department of Minerals and Energy, Guidelines on the Development of an Operating Manual for Tailings Storage, October 1998;
- Australian National Committee on Large Dams (ANCOLD) Guidelines on the Consequence Categories for Dams, October 2012;
- ANCOLD Guidelines on Tailings Dams, Planning, Design, Construction, Operation and Closure, May 2012 (ANCOLD, 2012); and
- Department of Mines and Petroleum Guide to Departmental requirements for the management and closure of tailings storage facilities (TSFs), August 2015.

Criteria for groundwater mounding is considered on a site specific basis determined from the typical root depth and depth to groundwater. Groundwater at the WFSF is approximately 18 to 24mbgl with a cleared buffer zone of 50 to 100m around the WFSF and limited vegetation within 600m of the DSP WFSF.

7.4.5 Assessment of Licence Holder controls

The Licence Holder has the following controls in place to reduce and manage discharges to land from waste fines disposal infrastructure as outlined in Table 11.

Table 11: Licence Holder controls for the waste fines storage infrastructure

Objective	Site Infrastructure	Reference to Reviewed Licence (Schedule 1)
No overflows of waste fines material from the WFSF or DSP WFSF.	Embankment (freeboard)	WFSF and DSP WFSF
Keep the supernatant pond off embankment walls to prevent collapse.	Spigots – deposition rotated to control the location of the supernatant pond. Decant system	WFSF
Prevent discharges to land from DSP WFSF embankment failure.	DSP WFSF – embankment height constructed no higher than 5m above the pit crest.	DSP WFSF

Objective	Site Infrastructure	Reference to Reviewed Licence (Schedule 1)
Contain spillage caused by pipeline rupture or leaking valves/flanges.	Pipeline infrastructure (steel and HDPE pipeline) Emergency containment ponds located at the lowest elevation along the waste fines delivery pipeline. Vacuum breaks located at high spots along the waste fines delivery pipeline.	N/A
Provide an early warning indicator for any potential change in groundwater quality arising from seepage from the waste fines storage facilities.	Groundwater bores monitored monthly for standing water levels, electrical conductivity, TDS, nutrients, dissolved oxygen, major ions, metals and metalloids monitored quarterly. Decant system	WFSF and DSP WFSF

Key Findings: The Delegated Officer has reviewed the information regarding the risks of discharges to land and has found:

1) Waste fines are largely inert suggesting that any impacts from dam or pipeline failures are likely to only be from smothering.
2) The DSP WFSF is an in-pit storage facility and therefore is significantly less likely to have an embankment failure resulting in discharges to land when compared to the WFSF, which has a final design height of approximately 33m and is nearing capacity.
3) Tailings pipelines are unbunded with containment ponds located at topographical low points for the catchment of any spills that may occur.
4) Impacts to groundwater and surface water quality from seepage and/or runoff of stormwater/supernatant water from either WFSF is also managed under Part IV of the EP Act. In accordance with DWER's *Guidance Statement: Setting Conditions*, the focus of seepage through this risk assessment will be limited to impacts from groundwater mounding. Groundwater mounding is not regulated through Part IV.
5) Vegetation surrounding both waste fines facilities are a combinations of xerophytes that are adapted to survive with minimal water, and vadophytes, which have root zones that are expected to be very shallow. Therefore any intrusion of the root zone by groundwater is expected to negatively impact surrounding vegetation.

7.4.6 Consequence

Pipelines are located in pre-disturbed areas and the vegetation surrounding pipelines and the WFSF is sparse. There are also no Priority or Threatened Ecological Communities in proximity to either of the storage facilities or to waste fines delivery pipelines.

WFSF embankment failure and seepage

In the absence of declared rare or Priority 1 flora species in the vicinity of the Premises, the Delegated Officer considers that the result of an embankment failure or groundwater mounding as a result of seepage would include localised, mid-level impacts to vegetation within the Premises. The Delegated Officer has therefore determined that the consequence of an embankment failure and groundwater mounding is ***moderate***.

Tailings pipeline failure

Taking into consideration the inert nature of tailings, low density of nearby vegetation and the likely small size of such a discharge, the Delegated Officer has determined that the consequence of a tailings pipeline failure will be ***minor***.

7.4.7 Likelihood of consequence

Seepage

Standing water levels will continue to be monitored by the Licence Holder on a quarterly basis. The depth to groundwater is expected to decline at distance to each waste fines facility. Based on the distance to vegetation that has a shallow root depth, the risk event will probably not occur in most circumstances and the likelihood has been assessed as ***unlikely***.

WFSF embankment failure

A WFSF embankment failure may only occur in exceptional circumstances. Therefore, the Delegated Officer considers the likelihood of to be ***rare***.

Tailings pipeline failure

Leaks/spills from smaller discharges the result of pipeline failure will ultimately be contained within ponds situated at low points. However, as the pipelines remain unbunded, there is a potential for larger discharges to spread over greater areas, but not in most circumstances. Therefore the Delegated Officer has determined that the likelihood of pipeline ruptures or leaks resulting in impacts to vegetation is ***unlikely***.

7.4.8 Overall rating

Seepage

The Delegated Officer has compared the consequence and likelihood ratings described above through the Risk Matrix (Table 9) and determined that the overall rating for the risk of groundwater mounding as a result of waste fines facility seepage to be **Medium**.

WFSF embankment failure

The Delegated Officer has compared the consequence and likelihood ratings described above through the Risk Matrix (Table 9) and determined that the overall rating for the risk of structural failure of the WFSF and subsequent tailings discharges to land on sensitive receptors during operation to be **Medium**.

Tailings pipeline failure

The Delegated Officer has compared the consequence and likelihood ratings described above through the Risk Matrix (Table 9) and determined that the overall rating for the risk of pipeline ruptures during operation to be **Medium** based on Licence Holder controls.

7.5 Risk Assessment - Discharges to Land Risk (STP and irrigation sprayfield)

7.5.1 Description of risk event

Discharges to land from the irrigation of inadequately treated sewage from STP 1 and STP2 to native vegetation within the irrigation sprayfield.

In addition, there remains the potential for overflows of untreated sewage from non-enclosed treatment tanks to enter the environment if not captured by the overflow ponds. Stormwater that comes into contact with sludge on drying beds may also runoff to the environment.

7.5.2 Identification and general characterisation of emissions

Treated effluent at STP1 and STP2 achieved the performance identified in Table 12 during the 2017 annual period prior to discharge. During this period an average of 120.6 cubic metres per day were discharged to a 11.2 hectare irrigation sprayfield.

Untreated effluent and sludges are expected to have significantly higher nutrient and biochemical oxygen demand (BOD) concentrations. Table 12 also depicts the approximate influent quality, which is expected to be similar to that found within the overflow pond.

Table 12: Effluent quality at STP1 and STP2 in 2017

Parameters (including units)	Approximate influent quality	Average treated effluent quality from STP1[1]	Average treated effluent quality from STP2[1]
Biochemical Oxygen Demand (mg/L)	300	<5.0	<5.0
Total Suspended Solids (mg/L)	300	<5.0	<5.0
Total Nitrogen (mg/L)	80	12.8	13.1
Total Phosphorus (mg/L)	15	1.8	2.7
Escherichia coli (cfu/100mL)	Unknown	<4	<30

Note 1: Based on recorded effluent quality from quarterly sampling conducted in 2017 (RTIO, 2018)

7.5.3 Description of potential adverse impact from the emission

During the 2017 annual period it is anticipated that native vegetation was capable of absorbing the vast majority of nutrients within irrigated treated effluent. However, the quality of effluent discharged from the sewage treatment facilities was variable and dependent on inflow quality as well as equipment performance. Inadequate maintenance of STP1 and STP2 could result in the ongoing irrigation of poorly treated effluent contaminating soil, which may impact upon vegetation growth and survival. Similarly, one off discharges from the overflow pond or sludge drying bed may have similar effects on soil and vegetation although discharges of untreated effluent are expected to be significantly poorer quality.

In the event that the STP fails to treat wastewater to equipment specifications (upset conditions) and irrigated vegetation is unable to absorb nutrients, seepage of nutrients to groundwater may also occur.

7.5.4 Criteria for Assessment

Relevant freshwater quality criteria at Coondiner Creek and groundwater beneath the irrigation fields include *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000* (ANZECC 2000).

The most relevant guidance material for STP effluent disposal to land is the 1997 ANZECC/ARMCANZ *Australian Guidelines for Sewerage Systems – Effluent Management*. For the irrigation of treated effluent to land, these guidelines recommend a minimum of secondary treatment. Secondary treatment is defined by the guidelines to involve “a level of treatment that removes 85 per cent of BOD and suspended solids”. In terms of sampling frequencies, for small plants (between 0.5 - 3 megalitres per day) the guidelines recommend a minimum of quarterly sampling.

The Effluent Management Guidelines provide a list of typical effluent qualities following various levels of treatment. These are provided in Table 13 below against the expected effluent quality from the Village STP at the Premises.

Table 13: Typical effluent qualities (expected performance) of STPs against Effluent Management Guidelines

Parameters (including units)	Targeted Effluent Quality of the Village STP[1]	Effluent Management Guidelines[2]
Biochemical Oxygen Demand (mg/L)	20	20-30
Total Suspended Solids (mg/L)	30	25-40
Total Nitrogen (mg/L)	20	20-50
Total Phosphorus (mg/L)	8	6-12
Escherichia coli (cfu/100mL)	10^4	10^5 - 10^6

Note 1: Information sourced from RTIO, 2011b. Refer to section 7.5.2 for effluent quality recorded during monitoring.
Note 2: ANZECC/ARMCANZ,1997

7.5.5 Assessment of Licence Holder controls

The Licence Holder has the following controls in place to reduce and manage discharges to land at the STP and irrigation sprayfield as outlined in Table 14.

Table 14: Licence Holder controls for STP and irrigation sprayfield

Objective	Site Infrastructure	Reference to Reviewed Licence (Schedule 1)
Prevent overflow of STP	Sewage treatment facility – Process electrical interlocks ensure feed to overfull tanks are stopped and high level alarms with an audible siren, flashing strobe and panel indication lights. The majority of the treatment tanks are enclosed.	Figure 3: Village STP1 & STP2
Prevent discharges of untreated effluent to the environment.	Overflow pond – An HDPE lined overflow pond is located at the STP to contain overflow and spillage from the waste water treatment tanks. The pond is sized for approximately two days storage of the average inflow to the STP. Overflow contained in the pond is pumped back into the treatment tanks when the capacity becomes available.	Figure 3: Overflow pond
Contain sludges	Sludge drying beds – At the end of the aeration/decant cycle and during a low load period, settled suspended solids are pumped to the sludge drying beds. The drying beds are made of concrete and have inbuilt drainage to recirculate liquid draining from the sludge back into the process. Once the sludge has dried, it is removed and disposed of to a local off-site landfill.	Figure 3: Sludge drying beds
Ensure vegetation is capable of absorbing nutrients within treated effluent.	Irrigation sprayfield - Heavy duty impact sprinklers are utilised to provide an even spray radius and distribution the flow and pressure are designed to prevent pooling and remain	Figure 3: Irrigation Field Village STP1 and STP2

Objective	Site Infrastructure	Reference to Reviewed Licence (Schedule 1)
	below the Department of Health recommended maximum limit of 10mm/day. Sewage treatment facility – maintained to ensure treatment achieves performance criteria.	

7.5.6 Key findings

Key Findings: The Delegated Officer has reviewed the information regarding the risks of discharges to land and has found:

1) Treated wastewater is discharged to irrigation sprayfields that have a covering of native vegetation, which based on the irrigation field area, is expected to absorb most of the nutrients. There are no Threatened or Declared Rare Flora within the Premises.
2) Treated effluent quality monitoring data submitted as part of the AERs received between the annual periods 2014 to 2017 indicate that the STP is capable of consistently treating wastewater to within effluent quality criteria as defined in Table 13.
3) There are no other groundwater users in the vicinity of the STP or irrigation sprayfield. However, DWER has had regard for the principles of *intergenerational equity* and *conservation of ecological integrity* when considering groundwater as a receptor for the purpose of this risk assessment in accordance with section 4A of the EP Act.
4) In the event of a STP tank overflow, untreated effluent will be captured by an HDPE-lined overflow pond with the capacity to store approximately two days of average inflow.

7.5.7 Consequence

Irrigation of treated effluent

Based on the high diluting factor of any rainfall event sufficient to transport effluent runoff into Coondiner Creek located approximately 1,750m from the irrigation field, the quality of surface water runoff from the STP irrigation field at the point of Coondiner Creek is expected to meet consequence criteria. Due to the significant distance to groundwater at the irrigation fields (47mbgl) elevated nutrients in irrigated wastewater (as a result of upset conditions) are expected to be bound to soils prior to reaching groundwater. Therefore the Delegated Officer considers the consequence of irrigated wastewater runoff to surface water bodies and seepage to groundwater to be *slight*.

Minimal impacts to offsite vegetation at a local scale are anticipated from the irrigation of treated wastewater due to the lack of specified ecosystems nearby and the fact that wastewater will undergo treatment prior to discharge to the irrigation sprayfield. The most significant impacts from irrigation will be low-level and localised to the irrigation sprayfield vegetation, which is likely to show signs of increased growth from the elevated nutrients.

Therefore, the Delegated Officer considers the consequence of irrigating treated wastewater to the irrigation sprayfield to be ***minor***.

Untreated effluent and sludge

Impacts from the runoff of untreated effluent and sludges are likely to be greater due to the significantly higher concentrations of nutrients. However, the STP is located in a cleared area

where effluent is not expected to come into contact with native vegetation unless volumes are significant and/or rainfall encourages runoff into vegetated areas whereby rainfall would likely dilute nutrient concentrations. Therefore, the Delegated Officer considers the consequence of untreated effluent overflowing to be ***minor***.

7.5.8 Likelihood of consequence

Irrigation of treated effluent

Based on the high evaporation rates and expected treatment quality, contaminated irrigation runoff is not expected to reach the nearest significant stream over 1.7km away unless in exceptional circumstances. Similarly, seepage of elevated nutrients to groundwater will probably not occur in most circumstances due to the expected quality of treated effluent and the ability for vegetation to absorb these nutrients.

The Delegated Officer has determined that the level of treatment of wastewater prior to irrigation reduces the likelihood of adverse impacts to off-site vegetation to ***unlikely*** as the risk event will probably not occur in most circumstances.

Untreated effluent and sludge

The Delegated Officer considers the likelihood of a discharge from the overflow pond to be ***unlikely*** based on Licence Holder controls, such as the two day storage capacity of the overflow pond, that prevent the runoff of overflow water beyond disturbed areas. Controls such as a concrete hardstand and inbuilt drainage systems that recirculate potentially contaminated stormwater back to the STP also make it reduce the likelihood of untreated effluent material entering the environment.

7.5.9 Overall rating

The Delegated Officer has compared the consequence and likelihood ratings described above through the Risk Matrix (Table 9) and determined that the overall rating for the risk of discharges to land from the STP and irrigation on sensitive receptors during operation to be **Medium**.

7.6 Summary of Risk Assessment and Acceptability

The risk items identified in section 7 including the application of risk criteria and the acceptability with treatment are summarised in Table 15 below.

Table 15: Risk rating of emissions

	Emission		Pathway and Receptor	Licence Holders controls	Impact	Risk Rating	Acceptability with treatment (conditions on instrument)
	Type	Source					
1	Discharges to land from the WFSF and DSP WFSF	Waste fines	Disposal of fines tailings in the WFSF	Refer to section 7.4.5	Potential localised impact on vegetation. Contamination of groundwater from seepage.	Moderate consequence Rare **Medium risk**	Acceptable, subject to Licence Holder's existing controls conditioned.
2	Discharges to land from the transport of tailings	Waste fines	Pipeline ruptures	Refer to section 7.4.5	Potential localised impact on vegetation.	Minor consequence Unlikely **Medium risk**	Acceptable subject to Licence Holder controls conditioned

	Emission		Pathway and Receptor	Licence Holders controls	Impact	Risk Rating	Acceptability with treatment (conditions on instrument)
	Type	**Source**					
3	Discharges to land from the irrigation of wastewater	STP	Irrigation of treated effluent	Refer to section 7.5.5	Localised contamination of soil and impacts to vegetation.	Minor consequence Unlikely **Medium risk**	Acceptable, subject to Licence Holder's existing controls conditioned.
4	Discharges to land of untreated effluent and sludge	STP	Storage pond overflows and sludge drying beds	Refer to section 7.5.5	Localised contamination of soil and impacts to vegetation.	Minor consequence Unlikely **Medium risk**	Acceptable, subject to Licence Holder's existing controls conditioned.
5	Disposal of waste at the Waste Dump Landfill	Waste Dump Landfill	Infiltration to groundwater Attraction of vermin and pathogens	No putrescible waste accepted other than wooden pallets.	Negligible	N/A – not risk assessed based on negligible impacts.	Acceptable subject to specification of authorised waste types conditioned.

8. Determined Regulatory Controls

8.1 Summary of Controls

A summary of the regulatory controls determined by the risk rating of emissions in section 7.6 is summarised in Table 16.

Table 16: Regulatory controls

	Controls		
	8.2 Specified Infrastructure and Equipment Controls	**8.3 Specified Actions**	**8.4 Monitoring and limits**
1. Discharges to land from the WFSF		●	●
2. Discharges to land from the transport of tailings		●	
3. Discharges to land from the irrigation of wastewater			●
4. Discharges to land during upset conditions	●	●	

5. Disposal of waste at the Waste Dump Landfill		●	

8.2 Specified Infrastructure and Equipment Controls

8.2.1 Operation of the WFSF and DSP WFSF

Freeboard limits on the Existing Licence will be replaced in the Reviewed Licence with conditions that do not allow overflow of tailings from the WFSF and DSP WFSF. Conditions have also been placed on the Licence to prevent supernatant water from coming into contact with embankment walls.

The Licence Holder must ensure that emergency containment ponds located at the lowest elevation along the DSP WFSF delivery pipeline are maintained for the purposes of containing spillage caused by pipeline rupture or leaking valves/flanges. Pipeline infrastructure associated with the WFSF will require either regular inspection, secondary containment or equipped with telemetry systems and remotely controlled cut-outs.

The management and monitoring of potential impacts from run-off from the waste fines facilities and their associated pipeline infrastructure will be regulated by the Part V licence. Groundwater monitoring conditions for bores surround the waste fines facilities have been applied to the Amended Licence with management of potential impacts regulated through Part IV Ministerial Statement 854 (see also section 8.4.1).

Note: Infrastructure controls such as toe drains and storage infrastructure permeability relate to seepage risks and the contamination of groundwater, which is managed under Part IV of the EP Act (refer to section 4.1.2). In the event that groundwater management requirements of Ministerial Statement 854 are removed, DWER will continue to maintain regulatory oversight of groundwater quality and standing levels near to the waste fines facilities.

Any increase to embankment heights also increase the likelihood of an embankment failure. However, no limits to the embankment height of both the WFSF and DSP WFSF have been applied to the licence. Under s.53(1)(b) of the EP Act, any future lift to increase the Premises' waste fines storage capacity may only be carried out in accordance with a licence or works approval.

Grounds: Conditions for the prevention of overtopping from the WFSF and DSP WFSF on the Existing Licence are outcome based conditions that require the Licence Holder to manage an appropriate freeboard. Keeping supernatant liquid off the embankment walls reduces the risk of wave action and/or liquefaction causing embankment failure. Short term occurrences due to extreme rainfall are not expected to result in embankment failure.

In the event that an extreme weather event occurs, defined in the Amended Licence as a 1 in 100 year, 72 hour rainfall event, the Licence Holder will be required to notify DWER under s.72 of the EP Act where pollution, material or serious environmental harm has occurred.

Infrastructure and equipment requirements for the pipelines including emergency ponds, visual inspections or telemetry systems are considered necessary based on the potential risk of pipeline ruptures causing tailings discharges to land.

8.2.2 STP Overflow Pond and Sludge Drying Beds

The Licence Holder will be required to ensure that a two-day storage capacity at the overflow pond is maintained. Any captured water from the overflow ponds or sludge drying bed stormwater catchment area must be returned to the STP as soon as capacity is available.

Note: Sludge drying bed hardstand/bunding requirements have been transferred across to the Revised Licence. Condition 7 of the Existing Licence has been transferred to the Revised Licence to require that the sludge drying bed has a low hydraulic conductivity to prevent seepage to groundwater.

Grounds: Impacts are anticipated in the event of a discharge of untreated effluent as a result of a treatment tank overflow. The likelihood of impacts was assessed as unlikely due to the presence of an HDPE lined overflow pond capable of storing up to two days wastewater. Similarly the likelihood of discharges and seepage of high nutrient sludge from drying beds were reduced based on the low hydraulic conductivity of drying beds.

8.3 Specified Actions

8.3.1 Operation of the WSFS and DSP WFSF

A condition will be included in the Revised Licence which specifies that the discharge of waste fines is confined to the WFSF.

Minor pipeline leaks or ruptures are expected to be captured within containment sumps at topographical low points. To ensure that any discharge of waste fines or return water do not enter the environment, and in the absence of additional controls to prevent runoff, the Licence Holder will be required to visually inspect pipelines for discharges.

Other Licence Holder controls such as the operation of a decant system at the WFSF and minimising the size of the supernatant ponds at both WFSF and DSP WFSF (through deposition management) relate to seepage risks and the contamination of groundwater. These controls are not specified on the current Ministerial Statement although MS854 does require management for the protection of groundwater quality.

Note: Annual compliance reporting must provide evidence of pipeline inspections, if applicable or containment controls. At least 90% of inspections in a month shall be completed when pipelines contain tailings or return water with secondary containment capable of capturing any spill for a period equal to the time between routine inspections.

In accordance with DWER's *Guidance Statement: Setting Conditions*, and s.54(4) of the EP Act, DWER has not prescribed management controls on the Reviewed Licence for the management of seepage from waste fines disposal.

8.3.2 Operation of the Waste Dump Landfill

The Delegated Officer has determined that Licence Holder shall only be permitted to dispose of those waste products currently disposed of at the Premises. This includes wooden pallets and Inert Waste Types 1 and 2 as defined by the *Landfill Waste Classification and Waste Definition 1996 (As amended 2018)*.

Note: Limits to throughputs have not been applied based on the negligible environmental impacts from disposing inert wastes and wooden pallets. Tyres must be disposed in accordance with Part 6 of the EP Regulations, which specifies conditions that mitigate the risk of fire.

Grounds: The Delegated Officer's determination not to assess risks associated with the attraction of vermin or pathogens is based on the waste types currently disposed at the Premises landfill. Therefore authorised waste classifications have been specified in the

Licence. The Delegated Officer notes that all other putrescible waste generated onsite, including STP solid sludges and crib room wastes, will be disposed offsite at an appropriately licensed landfill.

8.4 Monitoring and Limits

8.4.1 Operation of the WFSF and DSP

Groundwater monitoring will be conducted at groundwater monitoring bores surround the WFSF and DSP WFSF. This requirement mirrors that of MS 854. Monitoring locations remain the same as the Part IV requirements with the exception of bore MB14HD4023 located at the DSP. This bore has been replaced due to better quality and more representative samples able to be obtained from the production bore – WB14HD4012 located adjacent.

Quarterly sampling is required for groundwater levels, and bi-annual sampling for physio-chemical water quality analysis. Groundwater sampling results will be reported in the Annual Environmental Report and compared against the *ANZECC (2000) Australian Water Quality Guidelines for Fresh and Marine Waters* and natural background groundwater quality determined pre-disturbance.

Note: The monitoring bore locations were selected based on their proximity to the facility and their potential to record parameters in the event of seepage from the storage facilities. Bores are also located upstream of both the WFSF and DSP WFSF to provide a reference site and downstream to indicate potential seepage.

Groundwater flow in the vicinity of the WFSF and the DSP is from the south to the north. There is no ground flow between the WFSF and DSP due to structural barriers impeding flow of groundwater and active dewatering operations within the adjacent pits.

Water quality management trigger criteria for the WFSF and all waste material landforms is currently managed under conditions 7-1 to 7-6 of Ministerial Statement 854 and has not been transitioned across to the Amended Licence.

Grounds: Monitoring requirements are included to determine the impact of run off and seepage and are considered necessary to ensure Part V regulatory oversight during the operation of waste fines facilities.

Management trigger criteria for groundwater quality parameters exceeding ANZECC Guidelines has not been transferred as impacts from groundwater are expected to be lagged and are able to be managed via regular oversight of monitoring data through annual reporting. Vegetation surrounding the waste fines facilities is sparse, with a typically shallow root zone and has not been identified as a specified ecosystem in Table 5 of this Decision Report.

8.4.2 Operation of the STPs

Treated wastewater monitoring requirements have been transferred across to the Reviewed Licence. Limits will be applied to the annual nutrient loading rates to the irrigation field.

Note: Limits have not been applied to all STP monitoring parameters.

Grounds: Monitoring requirements have been applied to ensure the treatment of effluent continues to be effective. Limits relating to nutrient loading rates are designed to ensure that the risks of surface water eutrophication are minimised.

9. Setting Conditions

The conditions in the Reviewed Licence have been determined in accordance with DWER's *Guidance Statement: Setting Conditions* (October 2015). The grounds for the applied conditions are shown in Table 17.

DWER's *Guidance Statement: Licence Duration* (November 2014) has been applied and the Reviewed Licence expires 9 December 2028.

Table 17: Grounds for applied conditions

Condition Ref	Grounds
Emissions 1	This condition is valid, risk-based and consistent with the EP Act.
Infrastructure and Equipment 2	This condition is valid, risk-based and contain appropriate controls.
Waste Fines Discharge 3, 4, 5, 6, 7 and 8	This condition is valid, risk-based and consistent with the EP Act.
Treated wastewater irrigation 9, 10, 11 and 12	These conditions are valid, risk-based and consistent with the EP Act.
Waste disposal restrictions 13	This condition is valid, risk-based and consistent with the EP Act.
Information 14, 15, 16 and 17	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

DWER notes that it may review the appropriateness and adequacy of controls at any time, and that following a review, DWER may initiate amendments to the licence under the EP Act.

10. Conclusion

This assessment of the risks of activities on the premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this decision report (summarised in Appendix 1). This assessment was also informed by a site inspection by DWER officers on 28 April 2016.

Based on this assessment, it has been determined that the Reviewed Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Clarrie Green
A/Manager Licensing, Resource Industries
Regulatory Services
delegated Officer under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key Documents and References

	Document Title	In text ref	Availability
1.	ANCOLD, 1998. *Guidelines for Design of Dams for Earthquake*.	ANCOLD, 1998	ancold.org.au
2.	ANCOLD, May 2012. *Guidelines on Tailings Dams, Planning, Design, Construction, Operation and Closure*.	ANCOLD, 2012	
3.	ANZECC/ARMCANZ, 2000, *National Water Quality Management Strategy – Paper No. 4: Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 1, The Guidelines.* Australian and New Zealand Environment and Conservation Council & Agriculture and Resources Management Council of Australia and New Zealand. Canberra.	ANZECC/ ARMCANZ, 2000	environment.gov.au
4.	Agriculture and Resource Management Council of Australia and New Zealand and Australian and New Zealand Environment and Conservation Council (1997) *National Water Quality Management Strategy, Australian Guidelines for Sewerage Systems – Effluent Management*.	ANZECC/ARMCANZ	environment.gov.au
5.	AS 1940-2004. *Australian Standard 1940-2004: The storage and handling of flammable and combustible liquids.*	AS 1940-2004	saiglobal.com/online
6.	Australian Bureau of Statistics, 2016, *Climate statistics for Australian locations – Newman SA2*.	Australian Bureau of Statistics, 2016	stat.abs.gov.au
7.	Bureau of Meteorology, 2016, *Wind speed and direction rose: Newman*.	BoM, 2016a	bom.gov.au
8.	Bureau of Meteorology, 2016, *Climate statistics for Australian locations: Newman*.	BoM, 2016b	
9.	Department of Parks and Wildlife, 2015. Priority Ecological Communities for Western Australia version 23, Species Communities Branch, 3 December 2015	Department of Parks and Wildlife, 2015	dpaw.wa.gov.au
10.	Department of Water, date unknown, Salinity status classifications. Understanding-salinity - Salinity status classifications, by total salt	Department of Water, date unknown	http://www.water.wa.gov.au/water-topics/water-quality/managing-water-quality/understanding-salinity

	concentration table. Accessed 11 August 2016		
11.	Department of Water, Licence to Take Water – Instrument No. GWL173443(3)	GWL173443(3)	DWER internal
12.	Department of Water, Licence to Take Water – Instrument No. GWL172872(7)	GWL172872(7)	
13.	DER *Guidance Statement: Regulatory principles* (July 2015)	N/A	der.wa.gov.au
14.	DER *Guidance Statement: Setting conditions* (September 2015)		
15.	DER *Guidance Statement: Licence duration* (November 2015)		
16.	DER *Guidance Statement: Risk Assessment* (November 2016)		
17.	DER *Guidance Statement: Decision Making* (November 2016)		
18.	DER, 2009, Landfill Waste Classification and Waste Definitions 1996. Department of Environment and Conservation, Landfill Waste Classification and Waste Definitions 1996 (As amended 2009)	DER, 2009	
19.	DER, 2011, *Works Approval W4914/2011/1 – Hope Downs 4 Village Sewage Treatment Facility*.	W4914/2011/1	
20.	DER, 2011, *Works Approval W4965/2011/1 – Hope Downs 4 Process Plant and Waste Fines Storage Facility*.	W4965/2011/1	
21.	DER, May 2013, Compliance Inspection Checklist and Report – 21 May 2013 DEC inspection.	N/A	
22.	DER, 2014, *Works Approval W5551/2013/1 – Hope Downs 4 putrescible landfill*.	W5551/2013/1	
23.	DER, 2014, *Works Approval W5592/2014/1 – Hope Downs 4 dewatering pipeline*.	W5592/2014/1	
24.	DER, May 2015, Compliance Inspection Checklist and Report - 5 May 2015 DER inspection	N/A	
25.	DER, March 2016, *Licence L8688/2012/1 – Hope Downs 4 Mine* (amended 17 March 2016).	L8688/2012/1	
26.	DMP, 2013, *Code of Practice: Tailings storage facilities in Western Australia*. Department of Mines and Petroleum,	DMP, 2013	dmirs.wa.gov.au

	Perth.		
27.	EPA, 2015. Letter to Hamersley HMS Pty Ltd: Ministerial Statement 854 & 932 – Update of Conceptual Layout, August 2015.	EPA, 2015	DWER internal
28.	EPA Reports 1374 and 1465	EPA Report 1374 EPA Report 1465	epa.wa.gov.au
29.	Hammersley HMS Pty Ltd, 2014, *1 January 2013 to 31 December 2013 AER and AACR – Hope Downs 4 Mine – Conditions 17 and 18*. RTIO, Perth.	Hammersley HMS Pty Ltd, 2014	DWER internal
30.	Hammersley HMS Pty Ltd, 2015, *1 January 2014 to 31 December 2014 AER and AACR – Hope Downs 4 Mine – Conditions 26 and 27*. Rio Tinto Iron Ore, Perth.	Hammersley HMS Pty Ltd, 2015	
31.	Hammersley HMS Pty Ltd, 2016, *1 January 2015 to 31 December 2015 AER and AACR – Hope Downs 4 Mine – Conditions 32 and 33*. Rio Tinto Iron Ore, Perth.	Hammersley HMS Pty Ltd, 2016	
32.	*Iron Ore (Hope Downs) Agreement Act 1992*	N/A	slp.wa.gov.au
33.	Ministerial Statement No. 854	MS 854	epa.wa.gov.au
34.	Ministerial Statement No. 932	MS 934	epa.wa.gov.au
35.	RTIO, 2011, *Works Approval Application Hope Downs 4 Village Waste Water Treatment Plant*. Rio Tinto Iron Ore, Perth.	RTIO, 2011b	DWER internal
36.	RTIO, 2011, *Works Approval Application Hope Downs 4 Category 5a and 5c Iron Ore Processing Plant and Waste Fines Storage Facility (WFSF)*. Rio Tinto Iron Ore, Perth.	RTIO, 2011a	
37.	RTIO, 2013, *Works Approval Application Hope Downs 4 Inert Landfill*. Rio Tinto Iron Ore, Perth.	RTIO, 2013a	
38.	RTIO, 2013, *Works Approval Application Hope Downs 4 Dewatering Pipeline and Discharge*. Rio Tinto Iron Ore, Perth.	RTIO, 2013b	
39.	RTIO, 2013, *L8688/2012/1 Licence Amendment Supporting Document. Hope Downs 4 Iron Ore Processing Plant Waste Fines Storage Facility*	RTIO, 2013c	

	(WFSF). Rio Tinto Iron Ore, Perth.		
40.	RTIO, 2015, *2015 Annual Environment Report for L8688/2012/1 – Hope Downs 4 Mine.* Rio Tinto Iron Ore, Perth.	RTIO, 2015	
41.	RTIO, 2016. *Licence amendment supporting documentation, Hope Downs 4 – L8688/2012/1 Desertplains Satellite Pit Waste Fines Storage Facility (RTIO-HSE-0274771)*. Rio Tinto Iron Ore, Perth.	RTIO, 2016	
42.	RTIO, 2018, *2017 Annual Environment Report for L8688 – Hope Downs 4*. Rio Tinto Iron Ore, Perth.	RTIO, 2018	DWER internal (A1679435)
43.	Strategen, October 2010, *Hope Downs 4, Environmental Management Plan; Fauna Management Plan,* Section 4.6.	Strategen, 2010	Rio Tinto internal

Appendix 2: Summary of Applicant's Comments on Risk Assessment and Draft Conditions

Condition/ Section	Comments received	DWER response
Condition 1, Table 2	It is requested that dewatering discharge be added as a specified emission. As the condition states that the Licence Holder must not cause any emissions except those specified and subject to the exclusions/limitations or requirements, this leaves discharge of dewatering water as a general emission only which is subject to the listed exclusions which includes, for example, unauthorised discharges under the *Environmental Protection (Unauthorised Discharges) Regulations 2004*, and therefore the discharge of sediment laden water. Given a specified emission requires a control, it is suggested a condition stating excess dewatering water must be discharged at approved locations is added. See Condition 21 from Yandicoogina Licence L7340 for reference.	Noted. Table 2 has been amended to include Category 6 dewatering as a "Specified emission" to authorise the discharge of abstracted groundwater to Kalgan Creek. Impacts to riparian vegetation and water quality are managed through Part IV. No further conditions have been applied in relation to dewatering discharges.
Table 3, Condition 2	The Licence Holder requests the amendment to the following text relating to waste fines storage facility operational requirements: The Licence Holder must ensure that there is no overflow of tailings or supernatant water from the WFSF or DSP WFSF *during normal operating conditions*.	Noted and partially accepted. The condition has been revised to acknowledge that there may be overflows during extreme weather events, defined as a 1 in 100 year, 72 hour rain event. Further discussion is provided in section 8.2.1.
Condition 4	The Licence Holder requested the removal of condition 4, which limits the maximum height of the WFSF embankment height to 33m, as per the findings of section 8.2.1 of this Decision Report.	Noted. Condition 4 was left on the draft licence in error. DWER has removed restrictions on TSF embankment heights. Any future lift on the WFSF will require Part V approval.
New proposed conditions (Table 4)	The Licence Holder proposed the insertion of groundwater monitoring conditions for groundwater surrounding waste fines facilities, including an assessment and comparison of monitoring results against the appropriate ANZECC 2000 guidelines. The addition of these conditions follows the Licence Holder's anticipation of changes to the Part IV Ministerial Statements. The proposed monitoring regime mirrors that specified in MS854.	Noted. DWER has determined that groundwater monitoring conditions align with, but do not exceed the requirements of MS854. Duplication of Part IV conditions relating to groundwater monitoring around waste fines storage facilities is considered necessary and in accordance with DWER's *Guidance Statement: Setting Conditions*.
New proposed conditions	The Licence Holder requests clarification on what must be calculated in part (c) of Condition 5 "the monitoring results calculated for the period specified in Column 4 of	Noted. The term "calculated" has been removed.

Condition/ Section	Comments received	DWER response
	Table 4”	
Condition 7	The Licence Holder requests the following changes to the drafted condition 7 to account for scenarios where significant rainfall events cause ponding that potentially comes in contact with embankment walls: The Licence Holder must ensure that *under normal operations* supernatant water does not come in contact with WFSF embankment walls ~~at any time~~.	As above. Refer to section 8.2.1 for further discussion.
Condition – pipeline spill management	The licensee requests this 'and' in condition 7(b) be replaced with 'or'. At time of design, containment ponds associated with the ex-pit facility were not designed to hold sufficient volume "to contain a spill for a period equal to the time between routine inspections". They are designed to contain spills and for maintenance purposes, but could not contain all tailings if a major spill were to occur and not be detected for 24 hours (which is unlikely given other controls). The DSP facility meets this requirement, but the ex-pit facility does not.	Noted. On the basis that tailings and return water pipelines associated with the new facility have this capacity, and that other pipelines have controls in place to capture non-major spills, the proposed change to the wording is considered acceptable. However, the licence does not provide a defence to potential offences under the EP Act where tailings or return water escapes containment infrastructure and enters the environment.
Condition 14	The Licence Holder requests to change the reporting date from 31 March each year to 30 April to align with the reporting date for all RTIO managed licences.	Noted. Reporting dates have been amended to align with other Licence Holder reporting anniversaries.
Schedule 1: Premises map	The prescribed premises boundary in Figure 1 and 2 do not match. Please delete Figure 1 as the prescribed premises is shown correctly in Figure 2 and therefore Figure 1 is not required.	Noted. Figure 1 has been removed.
Figure 4: Groundwater Monitoring Sites	The Licence Holder provided an additional figure depicting the groundwater monitoring locations to support the addition of proposed WFSF groundwater monitoring conditions.	Noted. To support the addition of groundwater monitoring conditions proposed by the Licence Holder, the figure has been inserted to the Licence.
Schedule 2: General Description	In light of the imposition of condition 1, which imposes new express limits on activities, flexibility associated within potentially exceeding production limits for Category 5 that do not have the potential to increase emissions (i.e. no significant changes to existing approved infrastructure) is requested. It is noted that the actual Category 5 capacity at a particular site (which could include multiple primary, secondary and tertiary crushing facilities and waste fines facilities) could exceed the production capacity listed in Schedule 2, which is determined taking into consideration other approvals (such as State Agreement and Part IV approvals).	Noted. In accordance with the *Guidance Statement: Setting Conditions*, for a condition to be valid and enforceable it must be clear and certain. Terminology such as “approximately” does not satisfy this requirement. The Licence Holder has since requested that emissions and discharges be assessed for a throughput of 16.5Mtpa. The Amended Licence

Condition/ Section	Comments received	DWER response
	Request to define the Premises Production or Design Capacity as "*Approximately* 15,000,000 tonnes per annual period"	now authorises this increase as assessed through this Decision Report.
Licence Holder comments on the draft Decision Report		
Section	**Comments received**	**DWER response**
Section 2 Background	Flexibility is requested where production / design capacities may be exceeded through the use of existing infrastructure, and that don't have any potential to significantly increase emissions.	As above.
Section 3.1, Table 2: Premises infrastructure	The licence holder confirms that the DSP is not the primary facility – the WFSF and DSP are both in use and are used in conjunction to enable the most efficient deposition of waste fines (i.e. creates better settling of waste fines allowing more storage)	Noted.
Section 7.4 Discharges to Land (risk assessment)	The Licence Holder requests that seepage from waste fines facilities be risk assessed and conditions with Part IV duplicated in the Reviewed Licence. Additional controls include the creation of early warning indicators for any potential change in groundwater quality arising from seepage from the waste fines storage facilities.	Noted. Refer to sections 7.4 and 8.4.1.
Section 8.2 Specified infrastructure and equipment controls	The ponds on the DSP line are designed to contain spillage not the WFSF line as per condition 2 of the licence.	Noted. Condition 2 of the Licence, requires that any unforeseen discharge from the tailings and return water pipelines of the DSP WFSF is directed to two emergency containment ponds. This condition does not apply to the WFSF. However, the monitoring of pipelines for both facilities is required by conditions of the Reviewed Licence. Section 8.2 of this Decision Report has been amended to reflect this.
8.3 Specified actions	In line with recently amended Marandoo licence (L6869) the licensee requests the addition of a 90% compliance inspection rate (averaged over one month), so that it is not non-compliant if one daily inspection was missed and there was no impact to the environment as a result of missing the inspection.	Noted. The condition has been amended to allow for up to 3 missed inspections per month, consistent with conditions of Licence L6869/1992/12.

Attachment 1: Revised Licence L8688/2012/1