



Amendment Notice 1

Licence Number L8562/2011/004969

Licence Holder Hamersley Iron Pty Ltd

ACN 004 558 276

File Number: DER2014/000869

Premises Koodaideri Exploration Camp
Mining Tenement ML252SA Section 2, within
coordinates –E708,070 N7,510,070; E706,830
N7,507,440; E708,850 N7,506,520; E709,670
N7,508,230; E715,870 N7,505,370; E716,310
N7,506,300

Date of Amendment 29/11/2018

Amendment

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

Alana Kidd

MANAGER, RESOURCE INDUSTRIES

REGULATORY SERVICES

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

Definitions and interpretation

Definitions

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

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Amendment Notice	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
cfu	Means colony forming units per 100 millilitres
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
Landfill definitions	The document titled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive officer of the Department of Water and Environmental Regulation as amended from time to time.
Licence Holder or Licensee	Hamersley Iron Pty Ltd
m	metre

m ³	cubic metres
MS	Ministerial Statement
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Putrescible	has the meaning defined in the Landfill Definitions
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
Rural Landfill Regulations	<i>Environmental Protection (Rural Landfill) Regulations 2002</i>
Special Waste Type 1	has the meaning defined in the Landfill Definitions
Special Waste Type 2	has the meaning defined in the Landfill Definitions
mg/L	milligrams per litre
WWTP	Wastewater Treatment Plant
WWTP1	Wastewater Treatment Plant 1 – the existing wastewater treatment plant
WWTP2	Wastewater Treatment Plant 2 – the new wastewater treatment plant
WQPN 22	“Irrigation with nutrient rich waste water” by the Department of Water and Environmental Regulation, 2008

Amendment Notice

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

This notice is limited to an amendment for Categories 54 (sewage facility), 64 (Class II or III putrescible landfill) and 85 (sewage facility).

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

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

Amendment description

The Licence Holder requested this amendment on 24 August 2018 to facilitate increased activity associated with mine development. The amendment application is to:

- Delete category 85 prescribed premises (Wastewater Treatment Plant – WWTP) from the Licence and replaces it with category 54. This change is to facilitate an increase in capacity of wastewater treatment from 46.5m³/day to 418.5m³/day. This is required as category 85 has a maximum threshold of 100m³/day, while category 54 has no maximum.
- Increases the disposal capacity of the category 64 Class II or III landfill from 50 tonnes per year to 2,000 tonnes per year and include special waste types 1 and 2. The latter is to cater for the disposal of asbestos wastes, which may be located during the refurbishment of the camp and clinical wastes from the medical centre.
- Changes the boundary of the prescribed premises, with the new boundary coordinates shown in table 2.

Table 2: Amended boundary of the Prescribed Premises

Prescribed Premises Corner	Easting	Northing
1	708,070	7,510,070
2	706,830	7,507,440
3	708,850	7,506,520
4	709,670	7,508,230
5	715,870	7,505,370
6	716,310	7,506,300

Table 3 outlines the proposed changes to the Licence, while the locations of the existing WWTP (WWTP1) and proposed new WWTP (WWTP2) as well as the existing landfill and premises

boundary are shown in Figure 1. Both Prescribed Premises categories are intended to be operated for at least 10 years.

Table 3: Proposed changes

Category	Current capacity	Proposed capacity	Description of proposed amendment
54	-	418.5m ³ /day	New category 54 owing to increase in personnel and wastewater
64	50 tonnes/year	2,000 tonnes per year	Increase from 50 tonnes per year to 2,000 tonnes per year
85	46.5m ³ /day	-	Removal of category 85 owing to increase in wastewater discharge
-	-	-	Change to the boundary of the prescribed premises

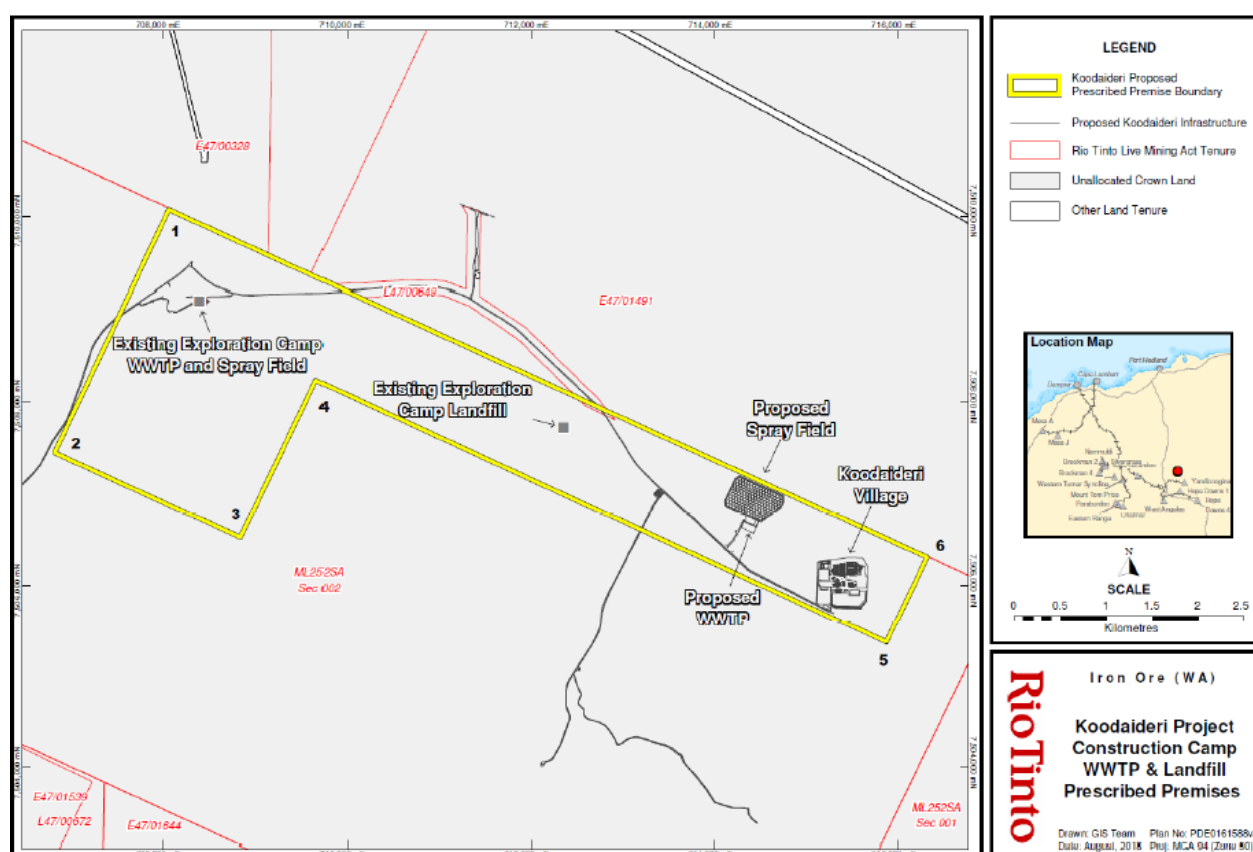


Figure 1: Koodaideri prescribed premises WWTP and landfill locations

Wastewater Treatment Plant – Categories 85 and 54

The Licence Holder proposes to establish a new WWTP towards the southern end of the prescribed premises to increase total wastewater treatment capacity at the premises from 46.5m³/day to 418.5m³/day. The operations at WWTP1 including spray field at the north end of the premises will be retained with a capacity of 46. 5m³/day, while the capacity of the new WWTP2 is 372kL/day. Construction of WWTP2 is intended to commence in November 2018, with commissioning from December 2018 and full operations from January 2019.

WWTP2 is a sequencing batch reactor that has been used at a previous coastal location where

a high quality discharge effluent was required. The Licence Holder states that the process produces less sludge than other treatment types owing to the high oxidation levels facilitating bacterial growth that consumes its own biomass. This results in conversion of most biomass into carbon dioxide and water.

Influent to WWTP2 is expected to be 250kL/day when the camp is at full capacity of 800 people, which is well within its maximum capacity. Peak influent flows will be moderated by the installation of a 458kL balance tank at the front of the plant process. Power supply during construction will be from portable diesel generators, while permanent overhead power lines that are to be constructed for the main Koodaideri village (associated with the new Koodaideri Mine Project) provide power once built. Construction of WWTP2 is expected to take two weeks.

WWTP2 Process Flows

The wastewater treatment starts by pumping macerated influent wastewater into a balance tank where solids are screened and removed into a collection bag for offsite disposal, with licensed controlled waste carriers used on public roads. The influent is discharged to the balance tank where it is continuously agitated and blended with nitrified liquor from the aeration / decant tank to promote growth of processing bacteria. The mixture from the balance tank is then gravity fed to the anoxic tank where it is blended with more nitrified liquor from the aeration / decant tank to promote denitrification. A schematic layout is shown in Figure 2 and flow diagram in Figure 3.

Aeration / Decant Tank Cycle

The aeration / decant tank operates in a batch cycle to reduce phosphorus, sludge and nitrogen. The process commences with a filling phase where blended denitrified liquor from the anoxic tank is aerated, enabling bacteria to oxidise ammonia into nitrate (nitrification phase) with nitrified liquor returned to the anoxic tank.

The next phase of the cycle starts towards the end of the filling phase and involves dosing with sodium aluminate (alum) to assist with removal of phosphorus by precipitation. The third phase involves filling the aeration / decant tank with liquor from the anoxic tank until the high working level point is reached, then shutting down the aerator and pumps for an hour to allow settling of contents. During this period influent accumulates in the anoxic tank to avoid disturbing the settling process. At the end of the settling phase, the top layer of the supernatant liquid is drawn off through a floating take-off, disinfected with liquid sodium-hypochlorite in the transfer piping to ensure mixing and directed to the effluent tank.

Effluent Discharge

The decanted water in the effluent tank is retained for 30 minutes to provide contact time for disinfection then pumped to the spray field for disposal via sprinklers. The spray field consists of 11 rows of (on average) 15 sprinklers over an area of 18Ha (500m x 360m) producing a hydraulic loading of 3.5-4mm/day. Only 9Ha will be required initially, with the full field planned to be developed by the second quarter of 2019.

Sludge Discharge and Storage

Waste sludge from the aeration / decant tank will be periodically removed for disposal. This will involve pumping the sludge to drying beds located adjacent to WWTP 2, where the filtrate will be collected and pumped back to WWTP2. The dried sludge will be collected by licensed contractors for offsite disposal. However, future disposal is intended to be at the onsite landfill that is part of this amendment once constructed and licensed.

The sludge drying beds consist of an enclosed concrete structure divided into two separate 200m² beds that are used alternately and each of which has an 80m³ capacity. The drying beds have under drains to collect the filtrate and direct it to a collection sump, which is then pumped back to the WWTP2 anoxic tank.

Emergency overflows

Emergency overflows from the anoxic tank, the aeration / decant tank and effluent tank are directed to a high density polyethylene (of 10^{-9} m/s permeability) lined containment pond, while excess capacity in other tanks will gravity feed to these tanks from where they will be discharged. High level audible and visual alarms will be installed to notify maintenance personnel of issues.

Emissions and soil nutrient loading

Emissions from the construction phase are expected to be limited to noise and dust while, operational phase emissions are expected to be noise, odour and effluent (including nutrients). The expected effluent discharge water quality from WWTP2 is shown in table 4 along with target values already approved under the Licence for WWTP1. While the slightly different target values reflect the different design criteria for each plant, nutrient loading from the spray field has been designed to meet the requirements of the Department's Water Quality Protection Note 22 (WQPN22) "Irrigation with nutrient rich waste water".

The Licence Holder has applied risk category level "D" from WQPN 22 for WWTP2. This applies to fine grained soils such as clay, loam or peat with a phosphorus buffering index of greater than 100 where there is a low eutrophication risk.

Table 4: WWTP1 and 2 expected effluent discharge quality

Emission Output	WWTP1 target value	WWTP2 target value
5 day biological oxygen demand	<20mg/L	<20mg/L
Total suspended solids	<30mg/L	<30mg/L
pH	6.5-8.5	6.5-8.5
Total nitrogen	<20mg/L	<30mg/L
Total phosphorus	<8mg/L	<7.5mg/L
Thermotolerant faecal coliforms	<1,000 cfu/100mL	<1,000 cfu/100mL
Residual free chlorine	-	>0.5mg/L

The Licence Holder has advised that soil in the region has a phosphorus buffering index of 86-100, and is comprised of stony, clayey alluvial plains with the nearest drainage line being more than 100m distant. The Licence Holder reports that the nearest waterbody to WWTP2 is the Koodaideri spring gorge about 3km to the south west, while the Ramsar nominated Fortescue marshes lie about 7km north of the premises.

The Licence Holder has calculated the annual nitrogen and phosphorus loading to the spray field using WQPN22 for a 9 hectare discharge area and maximum output of 372m³/day, which is the initial area intended to be applied as shown below:

- N: Design output = 30mg/L x 372m³/day = 11.16kg/day (x 365 = 4,073.4kg/year)
Average per hectare per year = 4,073.4 kg / 9 = 452.6 kg N / ha / yr
- TP: Design output = 7.5mg/L x 372m³/day = 2.79kg/day (x 365 = 1018.35kg/year)
Average per hectare per year = 1018.35 kg / 9 = 113.15 kg P / ha / yr

These maximum nutrient loadings are based on a 9 hectare field (this is half the size of the full spray field), which is less than the maximum loadings that must not be exceeded to avoid eutrophication risk as recommended in WQPN22 and shown in table 5.

Table 5: Comparison of WWTP2 nutrient output and WQPN22 target levels

Parameter	WQPN22 Target	WWTP2 Output
Total nitrogen (kg/ha/year)	480	452.6
Total phosphorus (kg/ha/year)	120	113.15

Commissioning and Operation

The Licence Holder plans to commission WWTP2 over a three month period, undertaking the following tasks:

- Instrument setting and operations and fluid transfer between tanks
- Establishing tank operation levels
- Complete process automation
- Setting and priming of chemical metering pumps
- Testing for leaks and on tanks and piping
- Testing irrigation equipment
- Testing electrical, mechanical and safety systems and alarms

Spill and leak control management measures to be implemented include signal and audible alarms in process tanks to alert of high and low levels; pump control level indication devices installed in process tanks and covering buried pipework with at least 150mm of soil. Above ground pipework will be constructed of acrylonitrile-butadiene-styrene or high density polyethylene and where it is adjacent to vehicle routes will be protected by concrete sleeves.

Upon start up, WWTP2 will be filled with water to ensure that effluent discharges are diluted until the system stabilises. Testing of final effluent will be conducted monthly during commissioning and quarterly thereafter. Discharge volumes and water quality will also be monitored quarterly to the requirements of the existing Licence. The existing Licence requires monitoring of effluent to be conducted as shown in table 6. There are no groundwater or vegetation monitoring requirements in the existing Licence.

Table 6: Koodaideri effluent water quality monitoring requirements

Parameter	Units	Frequency	Discharge Target
Biochemical oxygen demand	mg/L	Quarterly	<20
Total suspended solids	mg/L	Quarterly	<30
pH	-	Quarterly	6.5-8.5
Total Nitrogen	mg/L	Quarterly	<20
Total phosphorous	mg/L	Quarterly	<8
<i>E. coli</i>	cfu/100mL	Quarterly	1000

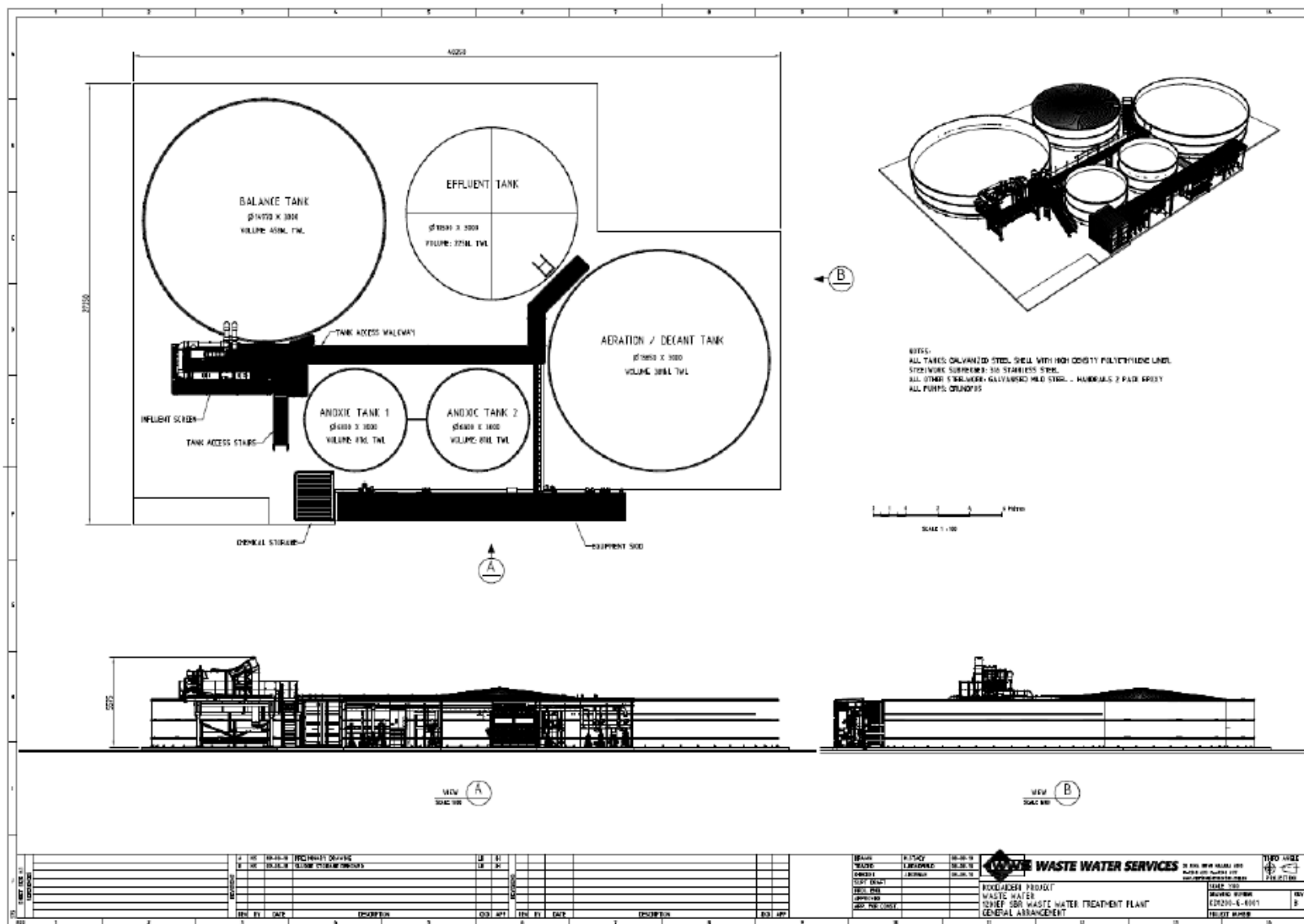


Figure 2: WWTP2 schematic layout

L8562/2011/1

IR-T08 Amendment Notice (Major) template v2.0 (July 2017)

Landfill – Category 64

The Licence Holder seeks to increase the approved capacity of the existing landfill from 50 to 2,000 tonnes per year of putrescible waste (40 fold increase) and add special wastes types 1 and 2 to facilitate disposal of asbestos and clinical waste. The increase in capacity of putrescible waste is required to support mining expansion works associated with the construction and operational phases of the Koodaideri accommodation village, facilities, processing plant and associated infrastructure. The landfill will cover 9 hectares and is expected to receive about 1,250 tonnes of inert material and 750 tonnes of putrescible wastes per year. Special waste types 1 and 2 are defined in the document titled “Landfill Waste Classification and Waste Definitions 1996”, as:

- Special waste type 1: Waste that includes asbestos and asbestos cement
- Special waste type 2: Waste consisting of certain types of biomedical waste which are regarded as hazardous but which, with the use of specific management techniques, may be disposed of safely within specified classes of landfill.

Special waste type 1 is intended to be included to enable disposal of any asbestos products that may be identified during the refit of the accommodation and facilities associated with mine project development works.

The Licence Holder proposes to continue managing the landfill consistent with the conditions of the existing Licence, with any asbestos and clinical wastes managed consistent with the requirements of the *Environmental Protection (Rural Landfill) Regulations 2002* (Rural Landfill Regulations). In summary, the existing Licence conditions require:

- Ensuring the tipping area of the landfill is no greater than 30m in length and 2m above ground level
- Totally covering waste at least monthly with a dense (at least 200mm) inert and combustible material (Note: the increase in waste disposed will require an increase in the frequency of coverage to at least once per fortnight to be consistent with the Rural Landfill Regulations)
- Preventing waste from leaving the premises
- Returning any washed or windblown waste to the tipping area at least monthly
- Ensuring there is no waste within 100m of any surface water body or within 3m of the highest known level of the groundwater table
- Managing stormwater to divert away from waste and where stormwater comes into contact with waste diverting it to a sump on site.

Specific asbestos and clinical waste management requirements in the Rural Landfill Regulations require (in summary):

- Disposal under supervision of the occupier
- Covering of the waste material with a dense, inert, incombustible material to a depth of at least 1m as soon as practicable after disposal
- Maintaining at the landfill site a register showing where clinical waste and asbestos is buried
- Updating the register within 2 hours of disposal with details including, date, name, confirmation that the waste has been disposed of in accordance with the regulations, provide grid coordinate reference points where more than 1m² of waste is buried.
- Marking grid references from the register on a plan of the landfill.

The Licence Holder has also stated that the following additional management practices will be applied:

- Surrounding the facility with a 1.8m high fence with lockable gates
- Installation of signage to advise of waste types accepted
- Covering of waste at least weekly with a dense, inert, non-combustible material (note: this is in excess of requirements in the Rural Landfill Regulations).

Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 7.

Table 7: Relevant approvals

Legislation	Number	Approval
<i>Environmental Protection Act 1986</i>	Ministerial Statement 999 (EPA bulletin 1933)	Koodaideri iron ore mine
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Referral No. 2012/6422	Koodaideri iron ore mine
<i>Environmental Protection Act 1986</i>	CPS4615/7 CPS2725/3	Clearing permits
<i>Rights in Water and Irrigation Act 1914</i>	GWL 158473(6) GWL 164672(7) GWL 171847(3) GWL 177962	Licences to take water
<i>Department of Health and City of Karratha</i>	In process	Wastewater treatment plant

Amendment history

Table 8 provides the amendment history for L8562/2011/1.

Table 8: Licence amendments

Issued	Amendment
7/03/13	Inclusion of category 64 and adjustment to the reporting year.

Location and receptors

There are no sensitive residential premises within 15km of the Prescribed Premises. Other than the accommodation for the premises, which is not considered a sensitive receptor, the nearest residential accommodation is over 15km away at the Yandi, Spinifex and Mulga Downs mining camps.

Table 9 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 9: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Mine accommodation village	3.2km from the landfill and 950m from WWTP2
Mulga Downs, Yandi and Spinifex mining camps	More than 15km from the premises

Table 10 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 10: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Ramsar Sites in Western Australia	7km south of the Fortescue Marshes, which is a proposed Ramsar site.
Important wetlands – Western Australia	7km south of the Fortescue Marshes, which is a proposed Ramsar site.
Parks and Wildlife Managed Lands and Waters	Approximately 31km east of Karijini National Park
Threatened Ecological Communities and Priority Ecological Communities	7km south of the Fortescue Marshes, which is a proposed Ramsar site, and 13km northwest of the Fortescue Sand Dunes
Threatened/Priority Flora	<p>The Department's GIS records 10 species of threatened or priority flora that can be found within 40km of the premises. This includes two priority 1 species (those recorded from generally less than 5 locations) (<i>Eremophila spongiorpa</i> and <i>Tecticornia globulifera</i>), with the others being category 3 or 4. The nearest record of a priority 1 species was 10km to the south west of the premises.</p> <p>The Licence Holder reports that <i>Lepidium catapcynon</i> (recorded on the Departments GIS database above) and <i>Synostemon hamersleyensis</i> (not reported on the database) have been identified in Ministerial Statement 999 as being of conservation significance and protected under that statement. The Licence Holder reports that these species are not within the immediate vicinity of WWTP2 or landfill.</p>
Threatened/Priority Fauna	<p>The Department's GIS has numerous records of threatened or priority fauna from the surrounding area from the following species: <i>Rhinonictis aurantia</i> (Pilbara leaf nosed bat, listed as vulnerable), <i>Dasyurus hallucatus</i> (northern quoll, listed as endangered), <i>Liasis olivaceus barroni</i> (Pilbara olive python, listed as vulnerable), <i>Falco peregrinus</i> (peregrine falcon, listed as vulnerable), <i>Pseudomys chapmani</i> (pebble mound mouse listed as priority 4) and <i>Macroderma gigas</i> (ghost bat, listed as vulnerable).</p>

Groundwater and water sources

The distances to groundwater and water sources are shown in Table 11.

Table 11: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Public drinking water source areas	There are no sources within 100km	Nil
Major watercourses/waterbodies	7km south of the Fortescue Marshes and 3km north east of Koodaideri Spring Gorge	The Fortescue Marshes are a proposed Ramsar site
Groundwater	The licence holder has advised that groundwater is 70m below ground level in the vicinity of the proposed WWTP and 53 – 70m in the vicinity of the landfill and the nearest groundwater bores are 2.4km from the WWTP and 2.7km from the landfill	Nil

Soil type

Table 12 details soil types and characteristics relevant to the assessment.

Table 12: Soil and sub-soil characteristics

Groundwater and water sources	Distance from Premises	Environmental Value
Soil type classification	The Licence holder has described the soil types as being stony, clayey alluvial plains.	Nil
Acid sulfate soil risk	The Licence Holder has reported that risk from acid mine drainage was assessed by the EPA as being low in report number 1533 (November 2014). The exception was from Mount McRae shale underlying the ore body, which will not be disturbed during mining or landfill construction.	Nil

Risk assessment

Tables 13 and 14 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 13: Risk assessment for proposed amendments during construction

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Construction, mobilisation and positioning of infrastructure	Vehicle movements on unsealed access roads	Noise	No sensitive receptors adjacent to the premises	Air	Noise	Slight	Rare	Low	Absence of sensitive receptors near the premises and short construction periods.
		Dust	No sensitive receptors adjacent to the premises	Air	Suppression of photosynthesis on dust covered plants	Slight	Rare	Low	

Table 14: Risk assessment for proposed amendments during commissioning and operation

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Cat 64 Landfill	Waste disposal	Dust	No sensitive receptors in proximity	Air	Amenity	Slight	Rare	Low	No sensitive receptors adjacent to the landfill. Nearest sensitive receptors are the Koodaideri Spring Gorge (3km south west) and Ramsar nominated Fortescue Marshes (7km north). Controls include regular burial with inert material.
		Noise							
		Odour							
		Windblown waste	No sensitive receptors in proximity	Air	Amenity	Slight	Possible	Low	No sensitive receptors adjacent to the landfill. Nearest sensitive receptors are the Koodaideri Spring Gorge

									(3km south west) and Ramsar nominated Fortescue Marshes (7km north). Controls include regular burial of waste and monthly collection of windblown waste.
		Leachate to groundwater	Groundwater and wetlands	Seepage of leachate	Adverse impacts to the health and survival of vegetation dependent upon groundwater	Moderate	Possible	Medium	Nearest sensitive receptor 7km distant and groundwater >50m deep. Controls include siting of landfill distant from surface water and groundwater.
Cat 54 Sewage Facility	Treatment of sewage	Odour: associated with effluent treatment and disposal	No sensitive receptors in proximity	Air	Amenity	N/A	N/A	N/A	No sensitive receptor present.
		Noise	No sensitive receptors in proximity	Air	Amenity	N/A	N/A	N/A	No sensitive receptor present
	Sewage pipes and holding tanks	Discharge to land from rupture, spills or overflows	Vegetation and fauna adjacent to discharge area	Direct discharge	Soil contamination and nutrient enrichment, affecting vegetation growth and survival and health of fauna	slight	Possible	Low	No sensitive receptors adjacent to the WWTP. Groundwater depth of about 70m. Nearest sensitive receptors are the Koodaideri Spring Gorge (3km south west) and Ramsar nominated Fortescue Marshes (7km north). Controls include monitoring and overflow containment ponds.
	Irrigation of treated effluent	Effluent discharge to land	Vegetation and fauna adjacent to discharge area	Direct discharge	Soil contamination and nutrient enrichment, affecting vegetation	Slight	Possible	Low	No sensitive receptors adjacent to the WWTP. Groundwater depth of about 70m. Nearest sensitive receptors are the

					growth and survival and health of fauna				<p>Koodaideri Spring Gorge (3km south west) and Ramsar nominated Fortescue Marshes (7km north).</p> <p>Nutrient discharge rates are within guidelines from DWERs WQPN 22 Note: the target criteria as shown in Table 4 have been removed from the licence owing to the low risk level.</p>
	Storage of chemicals and hydrocarbons	Breach of containment causing chemical discharge to land	Land and groundwater contamination	Direct discharge	Soil and groundwater contamination	Slight	Possible	Low	<p>No sensitive receptors adjacent to the WWTP. Groundwater depth of about 70m. Nearest sensitive receptors are the Koodaideri Spring Gorge (3km south west) and Ramsar nominated Fortescue Marshes (7km north).</p> <p>Controls include storage in lockable and bunded containment module, with hydrocarbons also stored in accordance with the requirements of AS1940 (storage and handling of flammable and combustible liquids).</p>

Decision

Licence Holder controls for the landfill and wastewater treatment plant are conditioned on the Licence to ensure that emissions from these activities are managed appropriately.

The licence has been amended to change the boundary of the Prescribed Premises, insert new definitions, change the diagram showing the location of the landfill and WWTPs, and delete Attachment showing the irrigation area of WWTP1 as this is covered in Attachment 1.

Condition 2 has been amended to refer to new diagram, which shows the WWTP and discharge fields for WWTPs 1 and 2.

Condition 8, has been updated to remove the requirement to compare data from WWTP1 against target criteria, while still requiring reporting of monitoring results for WWTP1 and WWTP2.

Condition 14 has been modified and 14B inserted to cover the disposal of special waste types 1 and 2, covering asbestos and clinical wastes respectively.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 23 November 2018. No comments were received from the Licence Holder. The 21 day consultation period was waived.

Amendment

1. The location of the Prescribed Premises is amended by deletion of the existing description and replacing with the following coordinates that are within mining tenement ML252SA Section 002:

Prescribed Premises Corner	Easting	Northing
1	708,070	7,510,070
2	706,830	7,507,440
3	708,850	7,506,520
4	709,670	7,508,230
5	715,870	7,505,370
6	716,310	7,506,300

2. The Table identifying the Prescribed Premises Categories on page 1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the text shown in bold and underline below:

Category Number	Category Description	Category Production or Design Capacity	Premises Production or Design Capacity
64	Class II putrescible landfill site	20 tonnes or more per year	50 tonnes per year <u>2,000 tonnes per year</u>
85	Sewage facility	More than 20 but less than 100 cubic metres per day	46.5 cubic metres per day
<u>54</u>	<u>Sewage facility</u>	<u>100 cubic metres or more per day</u>	<u>418.5 cubic metres per day</u>

3. The Licence is amended by insertion of the following definitions.

Term	Definition
Landfill definitions	The document titled “Landfill Waste Classification and Waste Definitions 1996” published by the Chief Executive officer of the Department of Water and Environmental Regulation as amended from time to time.
Licence Holder or Licensee	Hamersley Iron Pty Ltd
m	metre
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Putrescible	has the meaning defined in the Landfill Definitions
Rural Landfill Regulations	<i>Environmental Protection (Rural Landfill) Regulations 2002</i>
Special Waste Type 1	has the meaning defined in the Landfill Definitions
Special Waste Type 2	has the meaning defined in the Landfill Definitions
WWTP1	Wastewater Treatment Plant 1 – the existing wastewater treatment plant at the northern end of the premises
WWTP2	Wastewater Treatment Plant 2 – the new wastewater treatment plant at the southern end of the premises

4. Condition 2 of the Licence is amended by the insertion of text in bold and underline and deletion of the text shown in strikethrough below:
- 2 The Licensee shall ensure that effluent is only discharged to the **spray fields** depicted in ~~Attachment 2~~ **Attachment 1 of this Amendment Notice.**
5. Condition 8 of the Licence is amended by the insertion of the text shown in bold and underline and deletion of the text shown in strikethrough below:
- 8 The Licensee shall **report on and discuss** ~~compare~~ the results of the water quality monitoring required by condition 5, ~~to the targets stated in column 2 of Table 2 for the parameters in column 1 of Table 2 and present this information in the Annual Environmental Report. and report any exceedances in the Annual Audit Compliance Report.~~

Column 1	Column 2
Parameter	Target Discharge
Biochemical oxygen demand (mg/L)	<20
Total suspended solids (mg/L)	<30
pH	6.5-8.5
Total Nitrogen (mg/L)	<20
Total Phosphorous (mg/L)	<8
E. coli (cfu/100mL)	1,000

6. Condition 14 of the Licence is amended by the insertion of the text shown in bold and underline below:

PUTRESCIBLE LANDFILL

14A The Licensee shall ensure that the tipping area of the putrescible landfill is not greater than:

- (i) 30 metres in length; and
- (ii) 2 metres above ground level in height.

14B The Licensee shall ensure that when asbestos or clinical waste is disposed of to the landfill:

- i. It is covered with a dense, inert, incombustible material to a depth of at least 1m as soon as practicable after disposal;
- ii. It is recorded within 2 hours of disposal on a register held at the site showing where the asbestos and clinical waste is buried;
- iii. The register is to include details that state:
 - a. The date;
 - b. The name of person disposing of the waste and
 - c. confirmation that the waste has been disposed of in accordance with this Licence; and
 - d. Grid coordinates of the disposal location where more than 1 square metre of waste is buried so that the waste may be easily located
- iv. Grid references entered in the landfill register are marked on a plan of the landfill

7. The Licence is amended by the insertion of conditions 19 to 22 and Table 3 shown in bold and underline below:

INFRASTRUCTURE AND EQUIPMENT

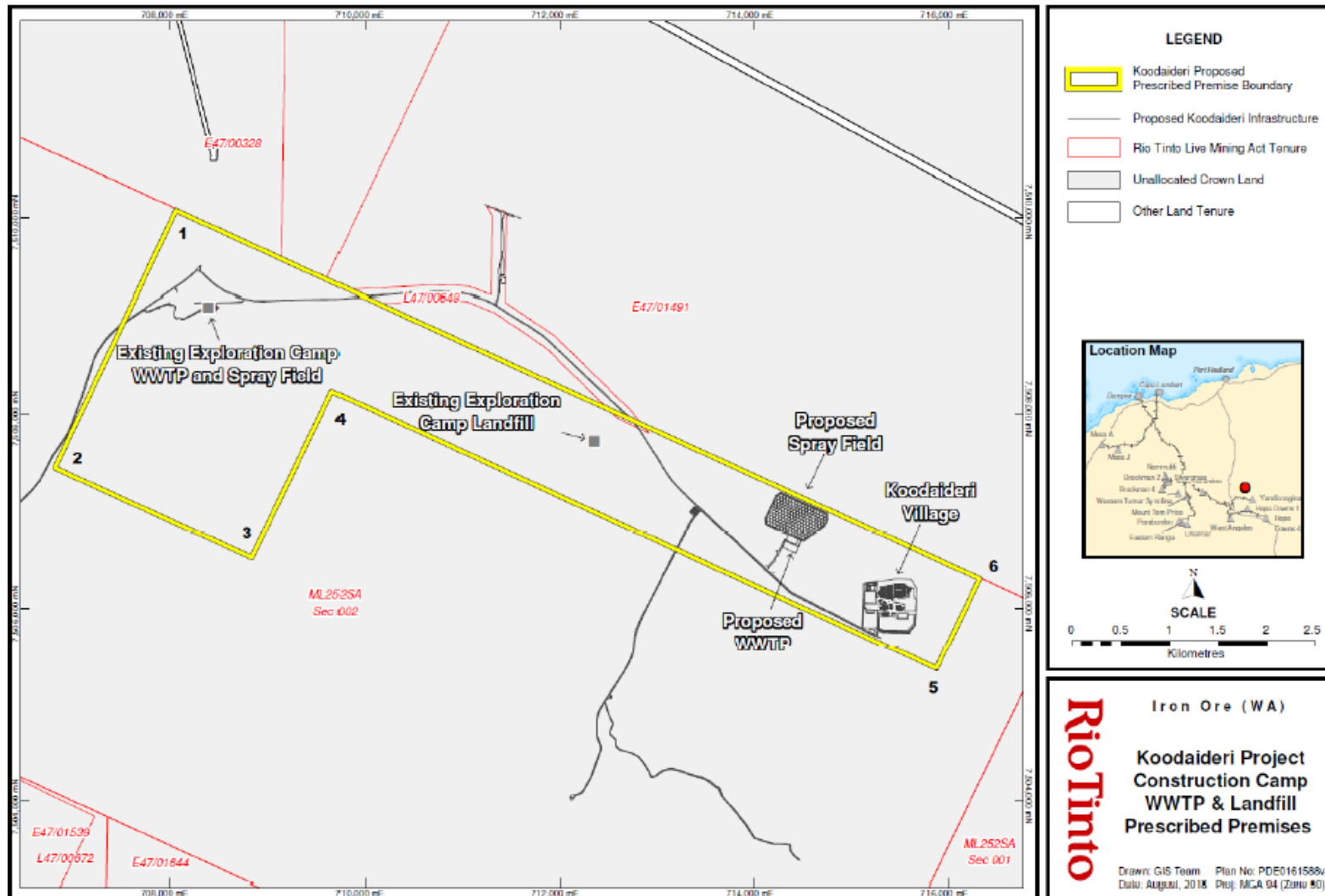
19. **The Licensee must install and undertake the Works for the infrastructure and equipment:**
- i. **specified in Column 1; and**
 - ii. **to the requirements specified in Column 2.**
of Table 3 below.
20. **The Licensee must not depart from the requirements specified in Column 2 of Table 3 except:**
- i. **where such departure does not increase risks to public health, public amenity or the environment; and**
 - ii. **all other Conditions in this Licence are still satisfied.**
21. **Subject to Condition 19, within 30 days of the completion of the Works specified in Column 1 of Table 3, the Licensee must provide to the CEO a report confirming each item of infrastructure or component of infrastructure specified in Column 1 of 3 below has been constructed with no material defects and to the requirements specified in Column 2.**
22. **Where a departure from the requirements specified in Column 2 of Table 3 occurs and is of a type allowed by Condition 20, the Licensee must provide to the CEO a description of, and explanation for, the departure along with the certification required by Condition 21.**

Table 3: Infrastructure and equipment requirements table

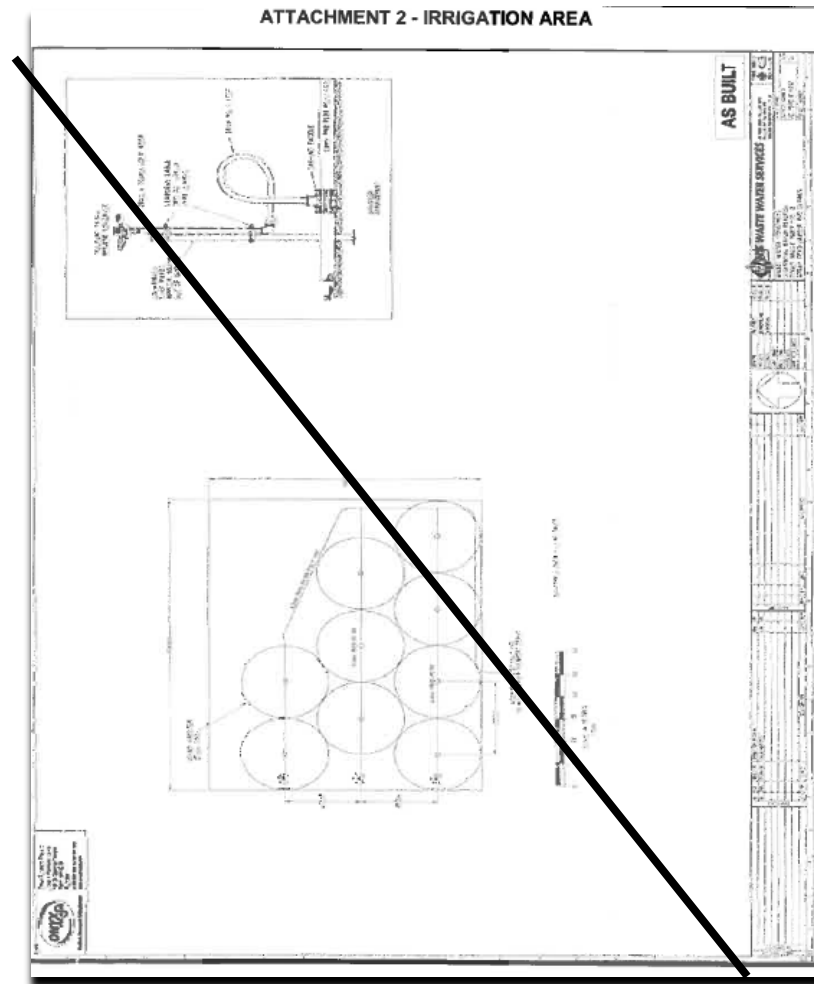
<u>Column 1</u>	<u>Column 2</u>												
<u>Infrastructure/Equipment</u>	<u>Requirements (design and construction)</u>												
<u>WWTP</u>	<ul style="list-style-type: none"> • <u>Sequencing batch reactor with a throughput capacity of 372 kL per day</u> • <u>9 hectare irrigation area</u> • <u>Sludge drying bed adjacent to WWTP2, consisting of an enclosed concrete enclosure with two separate drying beds with filtrate drain</u> • <u>High level and audible alarm installed</u> • <u>Emergency overflow from the Anoxic tank, Aeration/decant tank and effluent tank to a high density polyethylene line containment pond</u> 												
	<ul style="list-style-type: none"> • <u>Designed and constructed to meet the following emission standards:</u> <table> <tr> <td><u>Biochemical Oxygen Demand</u></td><td><u><20 mg/L</u></td></tr> <tr> <td><u>Total Suspended Solids</u></td><td><u><30 mg/L</u></td></tr> <tr> <td><u>Total Nitrogen</u></td><td><u><30 mg/L</u></td></tr> <tr> <td><u>Total Phosphorus</u></td><td><u><7.5 mg/L</u></td></tr> <tr> <td><u>pH</u></td><td><u>6.5-8.5</u></td></tr> <tr> <td><u>E.coli</u></td><td><u><1,000 cfu/100 mL</u></td></tr> </table> 	<u>Biochemical Oxygen Demand</u>	<u><20 mg/L</u>	<u>Total Suspended Solids</u>	<u><30 mg/L</u>	<u>Total Nitrogen</u>	<u><30 mg/L</u>	<u>Total Phosphorus</u>	<u><7.5 mg/L</u>	<u>pH</u>	<u>6.5-8.5</u>	<u>E.coli</u>	<u><1,000 cfu/100 mL</u>
<u>Biochemical Oxygen Demand</u>	<u><20 mg/L</u>												
<u>Total Suspended Solids</u>	<u><30 mg/L</u>												
<u>Total Nitrogen</u>	<u><30 mg/L</u>												
<u>Total Phosphorus</u>	<u><7.5 mg/L</u>												
<u>pH</u>	<u>6.5-8.5</u>												
<u>E.coli</u>	<u><1,000 cfu/100 mL</u>												

8. The Licence is amended by deletion of original Attachment 1 – Plan of Premises and replacement with the following Attachment 1.

Attachment 1: Koodaideri prescribed premises WWTP, landfill locations and spray field



9. The Licence is amended by deletion of Attachment 2



Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L8562/2011/6	L8562	accessed at www.dwer.wa.gov.au
2	Amendment application and clarifications	-	DWER records (A1714201, A1722757 and DWERDT102116)
4	Ministerial Statement 999: Koodaideri Iron Ore Mine and Infrastructure Project	MS 999	Accessed at www.epa.wa.gov.au/
5	EPA Report 1533, Koodaideri Iron Ore Mine and Infrastructure Project	EPA report 1533	Accessed at www.epa.wa.gov.au/
6	DWER, July 2015. <i>Guidance Statement: Regulatory principles.</i> Department of Water and Environmental Regulation, Perth.	DWER 2015a	Accessed at www.dwer.wa.gov.au
7	DWER, October 2015. <i>Guidance Statement: Setting conditions.</i> Department of Water and Environmental Regulation, Perth.	DWER 2015b	
8	DWER, November 2016. <i>Guidance Statement: Environmental Siting.</i> Department of Water and Environmental Regulation, Perth.	DWER 2016	
9	DWER, February 2017. <i>Guidance Statement: Land Use Planning</i> Department of Water and Environmental Regulation, Perth.	DWER 2017	
10	DWER, February 2017. <i>Guidance Statement: Decision Making.</i> Department of Water and Environmental Regulation, Perth.	DWER 2017	
11	DWER, February 2017. <i>Guidance Statement: Risk Assessments.</i> Department of Water and Environmental Regulation, Perth.	DWER 2017	
12	DWER, 2008, Water Quality Protection Note 22: Irrigation with Nutrient Rich Waste Waters, Department of Water and Environmental Regulation	WQPN 22	