



Licence Number	L5275/1972/12
Licence Holder	Pilbara Iron Company (Services) Pty Ltd
ACN	107 210 248
Registered business address	Level 22 Central Park 152-158 St Georges Terrace PERTH WA 6000
Date of amendment	15 December 2016
Prescribed Premises	Category 5 – Processing or beneficiation of metallic or non-metallic ore; Category 6 – Mine dewatering; Category 12 – Screening, etc. of material; Category 52 – Electrical power generation; Category 64 – Class II putrescible landfill site; and Category 73 – Bulk storage of chemicals, etc.
Premises	Paraburdoo Iron Ore Mine and Eastern Range Project located within Tenements – AML70/246, L47/326, AG70/4, AG70/14 and AML70/4 MT ROCKLEA WA 6751

Amendment

The Chief Executive Officer (CEO) of the Department of Environment Regulation (DER) has amended the above licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice.

Date signed: 15 December 2016

Alana Kidd

Manager Licensing – Resource Industries

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

Amendment Notice

This Notice is issued under section 59B(9) of the *Environmental Protection Act 1986* (EP Act) and relates to the amendment of licence number L5275/1972/12 (Licence) issued under the EP Act for a prescribed premises.

A detailed risk review of the Licence will occur in the near future following the issue of this Notice, to align the whole of the Licence with DER's new risk-based regulation approach. Once finalised, this amendment will be included in the revised Licence. Changes to the conditions imposed under this Amendment Notice may occur as part of the review.

Amendment Description

On 8 August 2016 Pilbara Iron Company (Services) Pty Ltd (Licence Holder) submitted an application to DER for an amendment to the Paraburdoo Iron Ore Mine Licence (Paraburdoo Mine).

This Notice is the result of the Licence Holder applying for an amendment under section 59B of the EP Act. The Licence Holder has applied to make the following changes:

1. Removal of selected groundwater monitoring sites at the new landfill, tailings storage facility (TSF) and bioremediation facility.
2. A change to the sampling frequency for pH for discharge water at Joe's Crossing.
3. Authorisation to construct an extension to the TSF Southern Cell.

No changes to the design capacities have been requested by the Licence Holder.

1. Removal of selected groundwater monitoring sites

The Licence Holder has requested an amendment to the groundwater monitoring regime for the new landfill, TSF and bioremediation facility.

The Licence Holder requests the removal of the following bores due to the bores being consistently dry or having insufficient water to be sampled:

- New putrescible landfill – MB1, MB2, MB4, MB5, MB6 and MB6A;
- Bioremediation facility – MB12, MB14 and MB18; and
- TSF – PTD01.

Decision

Groundwater monitoring - new putrescible landfill

The Licence Holder has requested the removal of select bores around the new putrescible landfill due to them being consistently dry. The groundwater is considered to flow generally in a south-westerly direction in the area and is located 15 metres below ground level.

The new putrescible landfill has a design capacity of 5 000 tonnes per annum. During the reporting period of 1 January to 31 December 2015 the actual amount disposed was 2 128 tonnes.

The Licence Holder has installed new bores around the perimeter of the new landfill. The new bores MB16PAFL001, MB16 PAFL002 and MB16PAFL003 together with the remaining bores MB3, MB15PAFL001, MB15PAFL002, MB15PAFL003, MBPAFL004 are considered adequate to monitor the flow path of groundwater beneath the facility.

Additionally, the Delegated Officer considers that due to the low potential for leachate

generation (semi-arid climate) and the low volumes disposed at the new landfill, that changes to the groundwater monitoring regime present a low risk to human health and the environment. Table 1 of the Licence has been amended via this Notice.

Groundwater monitoring - TSF

The Licence Holder has requested the removal of bore PTD01D located in Figure 1 below.

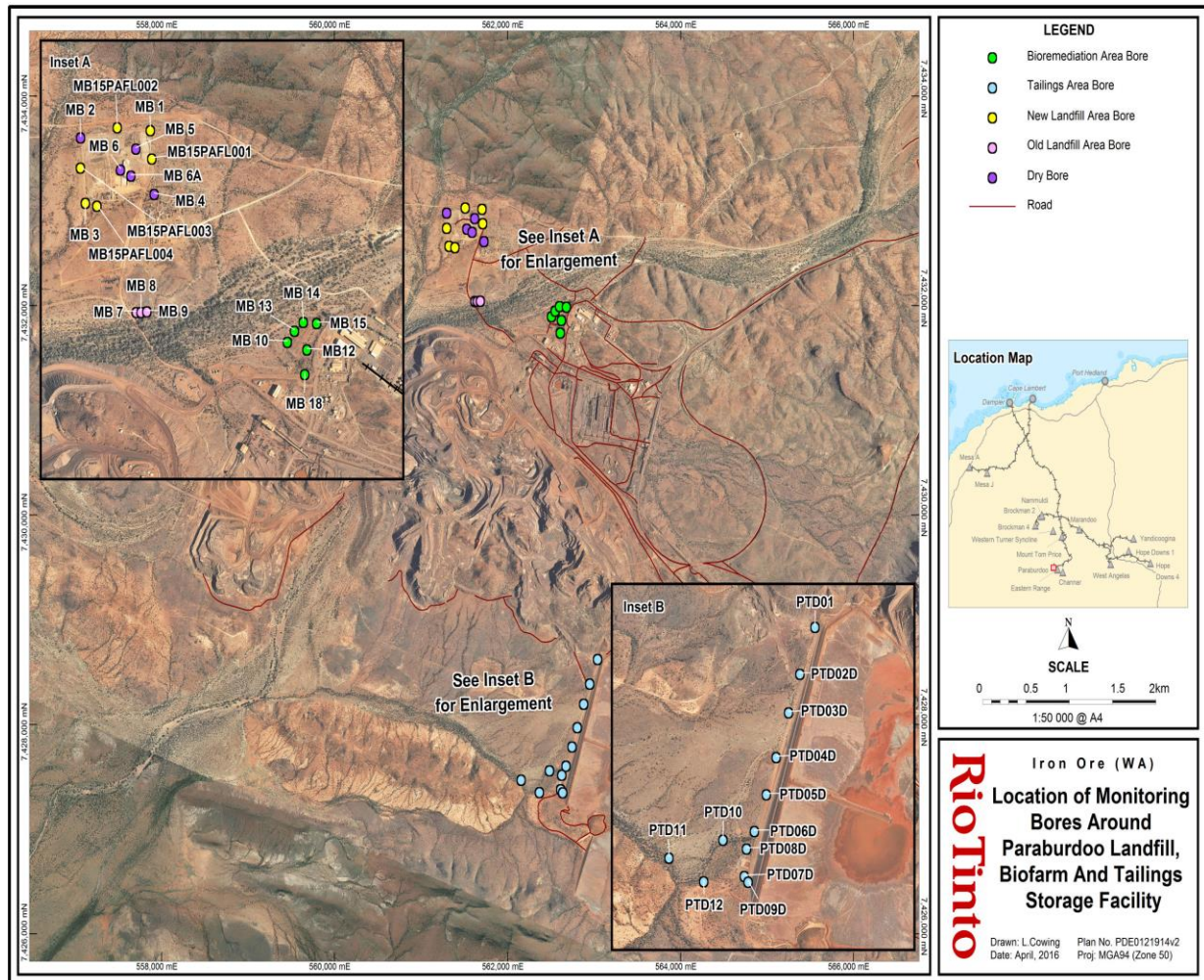


Figure 1. Location of monitoring bores around Paraburdoo landfill, bioremediation facility and TSF

The Licence Holder indicates that the groundwater flows to the west. DER considers that the remaining bores around the TSF will adequately provide coverage to monitor seepage from the TSF. Table 1 of the Licence has been amended to remove bore PTD01D via this Notice.

Groundwater monitoring – bioremediation facility

The Licence Holder has requested the removal of bores MB12, MB14 and MB18. The locations of the groundwater monitoring bores are shown in Figure 2 below.



Figure 2. Locations of groundwater monitoring bores around the Paraburdoo bioremediation facility.

The application supporting documentation indicates that the groundwater flow is in a west to south-westerly direction. DER considers that the upstream bore of MB15 and the downstream bores of MB13 and MB10 to adequately provide coverage to monitor seepage from the bioremediation facility. Table 1 of the Licence has been amended to remove bores MB12, MB14 and MB18 via this Notice. Additionally, the existing parameters have been amended to be more reflective of the activity.

2. Change to the sampling frequency for pH at Joe's Crossing

The Licence Holder has requested a change to the sampling frequency for pH at the Joe's Crossing sample point. The request is to reduce the frequency of sampling from monthly to quarterly. The amendment application states that the discharge is intermittent and of low volume.

Decision

DER has considered the environmental risk of changing the frequency of sampling for pH from monthly to quarterly. The Annual Environmental Report (AER) for 2013 submitted by the Licence Holder does not present results for the Joe's Crossing discharge as no discharge occurred during that annual period. The AERs for the 2014 and 2015 annual periods

submitted by the Licence Holder present results for pH ranging from 7.7 to 8.1 for Joe's Crossing.

DER has made a comparison against the default trigger values for upland rivers in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC and ARMCANZ 2000) and local data available on the Department of Water (DoW) *Statewide River Quality Assessment*.

The elevation of the Premises is at an altitude of 300 to 400 m. The default trigger value for pH is 6.0 to 7.5 for upland rivers (>150 m altitude) in tropical Western Australia (ANZECC and ARMCANZ 2000). However, this default trigger value is not based on data from tropical WA. There is limited local data available for pH on the Department of Water *Statewide River Water Quality Assessment*, however the limited data available indicates that the pH in the region ranges from 7.4 to 8.3 (DoW website).

Due to the results for pH falling within the regional ranges depicted on the DoW website, DER considers the reduction in the sampling frequency to not present an increased risk to the environment. Table 1 of the Licence has been amended to change the sampling frequency for pH at Joe's Crossing via this Notice.

3. TSF Southern Cell extension background and proposed design

The Paraburdoo Further Fines Process Plant (FFPP) produces approximately 2.5 million tonnes per annum (Mt/a) of waste fines. The extension to the TSF Southern Cell is to enable the continued disposal of waste fines from the FFPP. The TSF Northern Cell is due to reach capacity in late 2017.

The TSF Southern Cell extension is required prior to the TSF Northern Cell reaching capacity. The TSF Southern Cell is located in the south-eastern part of the mine site with GPS coordinates (MGA94 Zone 5):

Point	Easting	Northing
1	563,127.27	7,427,028.61
2	565,045.45	7,427,279.91
3	564,590.56	7,425,994.77
4	562,736.00	7,426,230.17

The TSF extension will not change the design capacity for category 5 on the existing Licence (30 Mt/a).

The Licence Holder is proposing to raise the western embankment and the south-eastern saddle embankment. The embankments are to be raised to RL 371 metres (m). The existing embankments are currently at RL 369 m. The central embankment has previously been raised during construction works on the Northern Cell. The current Relative Level (RL) of the Northern Cell is 371 m.

The Southern Cell TSF is expected to have a lifetime of 26 months after the Licence Holder proposes to raise the Northern Cell. The future raise to the Northern Cell will be subject to further approval.

The final embankment height of both the Southern Cell and Northern Cell TSF is anticipated to be RL 393 m.

In addition to the embankment raises, a new road will be constructed around the perimeter of the Southern Cell.

Location, environmental siting and potential receptors

Table 1 and 2 below list the relevant human and environmental receptors in the vicinity of the TSF.

Table 1. Receptors and distance from TSF

Residential and Sensitive Premises	Distance from TSF
Paraburdoo town site	6 km (to the north-east)

Table 2. Environmental receptors and distance from TSF

Specified ecosystems	Distance from TSF
Turee Creek	3 km to the south-east
Seven Mile Creek	3 km to the west north-west
Pirraburdu Creek	5 km to the north-west
Bellary Creek	7 km to the north-east
Tableland Creek	7 km to the north-east
Two Ephemeral creeks	Both flowing to the west of the TSF <ul style="list-style-type: none"> • One from the decant pond • One from the toe of the western embankment
Paraburdoo P1 Public Drinking Water Reserve	8 km to the north-east

Risk assessment

Tables 3 and 4 below apply a risk assessment to the potential emissions which may arise from the construction and operation of the TSF Southern Cell extension.

Risk Assessment

Table 3. Risk assessment for construction of the TSF Southern Cell extension

			Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Material Risk	Reasoning
Source	Category 5: TSF Southern Cell extension	Construction of TSF Southern Cell extension	Dust: Release of particulate matter from construction activities and vehicular movement	Paraburdoo town site	Air: Transport through air then transfer through respiratory system	Human health impacts – respiratory illness	No	<p>The Delegated Officer considers the distance to human receptors to be too great for health impacts to occur. The town of Paraburdoo is three times the recommended separation distance. In addition, construction activities will be of short-term duration.</p> <p>The Delegated Officer considers that impacts on human health will be <i>insignificant</i> and would occur only in <i>rare</i> circumstances. The risk rating for dust impacts on human health from construction activities is therefore <i>low</i>.</p>
				Riparian vegetation along the ephemeral creeks that flow to the west from the TSF	Air: Transport through air then deposition	Smothering and the potential suppression of photosynthetic and respiratory functions of vegetation	No	<p>The Licence Holder has documented in the amendment application that vegetation mapped along the creek from the TSF consists of only scattered low shrubs, and that no species of significant conservation value are present.</p> <p>The Delegated Officer considers that due to the short-term nature of the construction activities, impacts on vegetation will be <i>insignificant</i> and <i>unlikely</i> to occur. The risk rating for dust impacts to vegetation is therefore <i>low</i>.</p>
			Noise and vibration: Associated with construction activities and vehicular movement	Paraburdoo town site	Air or other physical medium: Vibration of particles	Human health/amenity impacts	No	<p>The Delegated Officer considers the distance to human receptors to be too great for health impact to occur. The town of Paraburdoo is three times the recommended separation distance. In addition, construction activities will be of short-term duration.</p> <p>The Delegated Officer considers that impacts on human health will be <i>insignificant</i> and would occur only in <i>rare</i> circumstances. The risk rating for noise impacts on human health from construction activities is therefore <i>low</i>.</p>

Table 4. Risk assessment for the operation of the Southern Cell extension

		Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Material Risk	Reasoning	
Source	Category 5: TSF Southern Cell extension	TSF surface	Dust: Release of particulate matter from TSF surface	Paraburdoo town site	Air: Transport through air then transfer through respiratory system	Human health impacts – respiratory illness	No	<p>The Delegated Officer considers the distance to human receptors to be too great for health impacts to occur. The town of Paraburdoo is three times the recommended separation distance.</p> <p>The Delegated Officer considers that impacts on human health will be <i>insignificant</i> and would occur only in <i>rare</i> circumstances. The risk rating for dust impacts on human health from the tailings surface is therefore <i>low</i>.</p>
				Riparian vegetation along the ephemeral creeks that flow to the west from the TSF	Air: Transport through air then deposition	Smothering and the potential suppression of photosynthetic and respiratory functions of vegetation	No	<p>The Licence Holder has documented in the amendment application that vegetation mapped along the creek from the TSF consists of only scattered low shrubs, and that no species of significant conservation value are present.</p> <p>The Delegated Officer considers that impacts on vegetation will be <i>insignificant</i> and <i>unlikely</i> to occur. The risk rating for dust impacts to vegetation is therefore <i>low</i>.</p>
		Tailings pipeline	Waste: Rupture of pipeline causing tailings discharge to land	Localised soils and vegetation adjacent to tailings pipeline alignment	Direct discharge	Degradation of soil structure and soil contamination inhibiting vegetation growth and survival	No	<p>The application details that the tailings will be deposited by a 400 millimeter diameter, high-density polyethylene pipe (HDPE). An isolation valve is located immediately downstream of the waste fines disposal pumps and additional isolation valves at the entry of the TSF at the junction of the northern and southern cells. The Licence Holder is able to isolate the affected pipeline in the event of spills. Additionally, the new pipeline will be constructed alongside a light vehicle access road which will have a windrow built in along one side. Any potential spillage from the waste fines pipeline will be directed by the windrow back to the TSF facility. Daily inspections of the pipeline will be undertaken by the Licence Holder.</p> <p>The Delegated Officer considers that given the Licence Holder's controls that spills or discharges from the pipelines will be <i>unlikely</i>. Vegetation is only scattered and does not contain vegetation communities that are rare, unique or of significant conservation value, therefore the Delegated Officer considers that impacts will be <i>insignificant</i>. The risk rating for tailings pipeline failure is <i>low</i>.</p>

			Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Material Risk	Reasoning
Source	Category 5: TSF Southern Cell extension	Overtopping	Waste: Uncontrolled release of tailings/decant water outside of containment infrastructure	Surrounding soils and groundwater dependent ecosystems, surface water and livestock	Land: Direct discharge to soils and infiltration through soils to groundwater	Degradation of soil structure and soil contamination inhibiting vegetation growth and survival. Reduction in groundwater quality.	No	<p>The amendment application states that the design of the TSF Southern Cell extension will accommodate rainfall from a 1 in 100 year Annual Recurrence Interval (ARI), 72-hour duration storm event, in addition to the normal operating freeboard of 0.5 m.</p> <p>The Licence Holder has committed to the monitoring of embankments for stability including freeboard.</p> <p>A spillway is to be constructed to guard against overtopping.</p> <p>An operational water balance model has determined that during month 22 of 26 the decant pond will be at its maximum level, but will be 2 m below top of embankment and 0.66 m below the spillway.</p> <p>If an overtopping event was to occur, the contaminant levels may be sufficiently diluted that the consequence would be insignificant. Considering the safeguards in place within the design specifications, the Delegated Officer considers that overtopping and embankment failure will be rare. The risk rating of overtopping is therefore low.</p>

			Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Material Risk	Reasoning
Source	Category 5: TSF Southern Cell extension	Seepage	Leachate: Seepage from the TSF	Groundwater dependent ecosystems, surface water and livestock	Land: Infiltration through soil profile to groundwater	Reduction in groundwater quality and additional risk to vegetation from mounding – due to increased tailings (pore pressure)	Yes	<p>The application details a nominal seepage rate of 300 m³/day based on moderate permeability. This seepage rate is supported by observations of groundwater mounding in downstream bores.</p> <p>The application details that there is a “<i>shallow aquifer with fluctuating levels in the alluvium which is separated from the underlying bedrock aquifer by an aquitard consisting of clay deposits</i>”.</p> <p>The application states that the groundwater flow is likely to be from the east to the west and existing monitoring bores (PTD02D, PTD03, PTD04D, PTD05D, PTD06D, PTD07D, PTD08D, PTD09D, PTD10, PTD11, PTD12) and new bores (PTD21 and PTD 26) will adequately monitor and capture any seepage</p> <p>Geochemical testing and an acid rock drainage (ARD) assessment of Paraburdoo tailings indicate that the tailings are “<i>devoid of sulphur and are classified as non-acid forming</i>”.</p> <p>Based on the groundwater monitoring locations and the geochemical testing and seepage rate, the Delegated Officer considers that the consequence would be minor and the likelihood is possible. Therefore the risk rating for seepage is moderate.</p>

Decision

The Delegated Officer has determined the key emissions associated with the construction and operation of the TSF Southern Cell extension.

Based on the application supporting documentation, the Delegated Officer has determined that the construction and operation of the TSF Southern Cell extension will not result in emissions which are unacceptable to public health or the environment.

The Licence Holder has committed to constructing the TSF to the specifications provided in the supporting documentation. Condition 30 is included in the Licence via this Notice specifying the construction commitments.

The Licence Holder has committed to continuing the groundwater monitoring regime in accordance with the current Licence. To cover the footprint of the proposed extension, additional groundwater monitoring bores proposed by the Licence Holder are to be included in the Licence. Bores PTD21 and PTD26 (already constructed) have been included in table 1 of the Licence via this amendment notice.

Licence condition 31 has been included in the Licence via this Notice to require the Licence Holder to not depart from the requirements of condition 30. Conditions 32 and 33 have been included in the Licence via this Notice requiring the Licence Holder to submit construction compliance documentation.

In addition, DER has expanded the proposed monitoring suite to include major ions and Thallium as the current monitoring suite. The major ions are useful to provide an early warning of potential problems before metal contaminants increase. The inclusion of Thallium in the list of parameters is due to the element being a potentially more toxic metal to humans and other environmental receptors than mercury, cadmium and lead. Thallium can be found in elevated concentrations in drainage from mine sites (Peter and Viraraghavan, 2005). Major ions and Thallium have been included in the groundwater monitoring parameters in table 1 of the Licence for the TSF groundwater bores following amendment via this Notice. Additionally, the existing parameters have been amended to be more reflective of the activity.

From a safety and structural integrity perspective, the Paraburdoo Mine is regulated by the Department of Mines and Petroleum (DMP) under the *Mines Safety and Inspection Act 1994*.

Amendment History

Instrument	Issued	Amendment
L5275/1972/11	12/08/2010	Amendment to include: <ul style="list-style-type: none"> Removal of collapsed groundwater monitoring bores (MB16 and MB11); and Inclusion of dewatering discharge point at Joe's Crossing
L5275/1972/12	15/05/2014	Licence re-issue
L5275/1972/12	29/04/2016	Notice of amendment of Licence expiry dates
L5275/1972/12	19/05/2016	Amendment to include: <ul style="list-style-type: none"> Construction and operation of a new putrescible landfill; Operation of a new waste dump landfill; Removal of Category 61; Addition of categories 12 and 73; and Other administrative changes
L5275/1972/12	15/12/2016	Amendment Notice 1 Licence amendment to include: <ul style="list-style-type: none"> Conditions relating to construction of the extended TSF Southern Cell; Revised groundwater monitoring regime (i.e. sites and parameters); Revised sampling frequency for pH at Joe's Crossing; and Administrative changes

Amendment

1. Condition 5 of the Licence is amended by the deletion of the text with strikethrough below and the insertion of the bold text shown in underline below:

5 *The Licensee shall take representative water samples from the monitoring sites shown in column 1 of Table 1, at the frequencies stated in column 2 of Table 1, and have analysed for the parameters listed in column 3 of Table 1 and present this information in the Annual Environmental Report, including a comparison against previous years' data.*

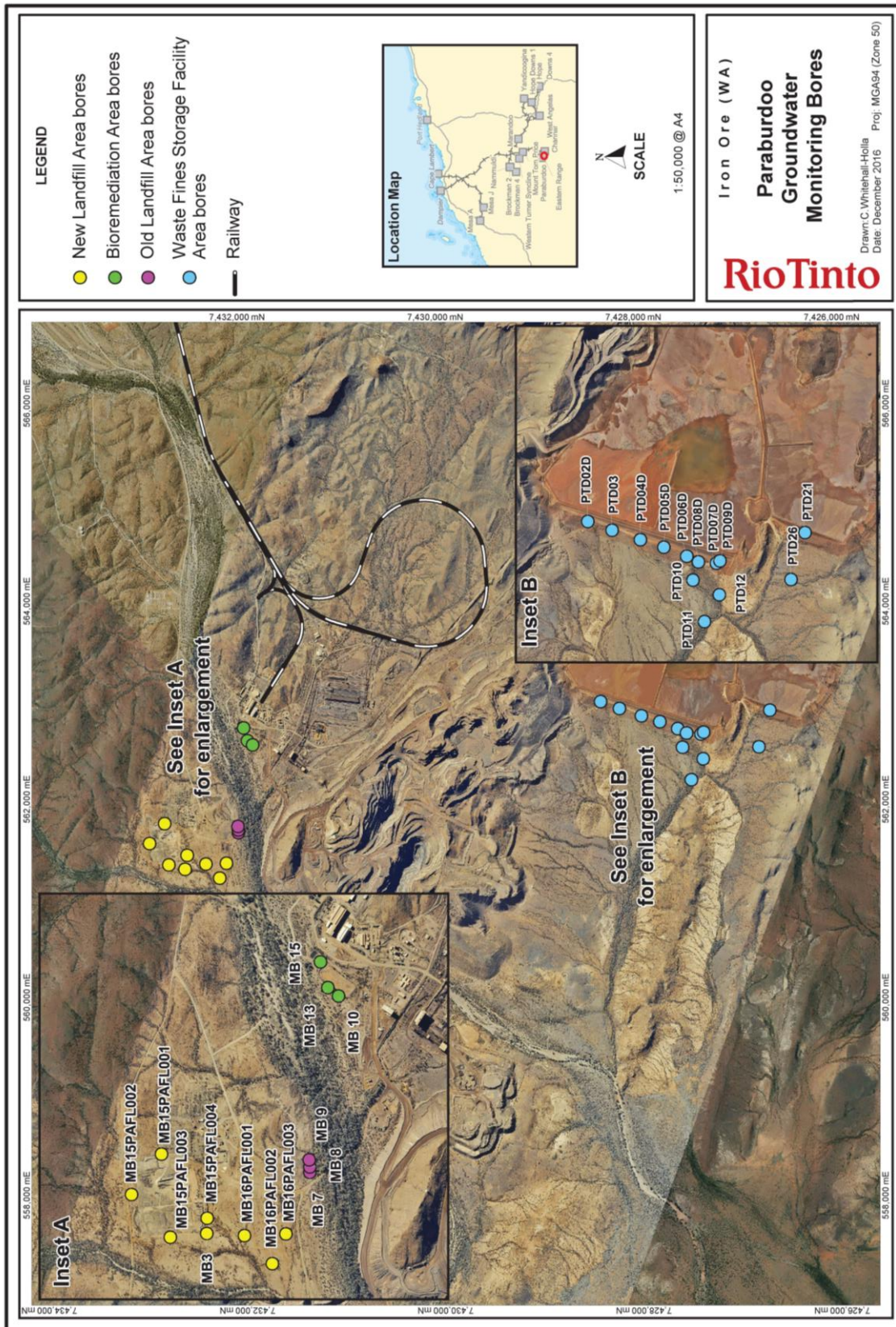
Table 1: Water monitoring schedule

Column 1	Column 2	Column 3
Monitoring sites	Sampling frequency	Parameters to be measured
Surface Water Discharge Sites (Attachment 2)		
<ul style="list-style-type: none"> Primary plant discharge; and Heavy vehicle washdown bay 	Quarterly when discharging	pH (pH units) ¹ Total Dissolved Solids (mg/L) Total Suspended Solids (mg/L) Total Recoverable Hydrocarbons (mg/L) Chemical Oxygen Demand (mg/L) Surfactants (mg/L)

		Metals (mg/L) - Pb, Cu, Fe, Mn, Mo, Zn, As, Hg, Cd, Cr
<ul style="list-style-type: none"> Site sewage treatment plant outlet pipe 	Quarterly	<p>pH (pH units)¹</p> <p>Total Dissolved Solids (mg/L)</p> <p>Total Suspended Solids (mg/L)</p> <p>Biochemical Oxygen Demand (mg/L)</p> <p>Total Nitrogen (mg/L)</p> <p>Total Phosphorus (mg/L)</p> <p>Free Chlorine (mg/L)</p>
	Six-monthly	<p>E.coli (cfu/100mL)</p> <p>Metals and metalloids (mg/L) – Cu, Zn, As, Pb, Hg</p>
Groundwater Sites (Attachment 3)		
<p><u>Bioremediation area</u></p> <p>MB10, MB12, MB13, MB14, MB15, MB18</p>	Annually	<p>pH (pH units)¹</p> <p>Total Dissolved Solids (mg/L)</p> <p>Total Suspended Solids (mg/L)</p> <p>Total Recoverable Hydrocarbons (mg/L)</p> <p>Chemical Oxygen Demand (mg/L)</p> <p>Surfactants (mg/L)</p> <p>Metals and metalloids(mg/L) – Pb, Cu, Fe, Mn, Mo, Zn, As, Hg, Cd, Cr</p>
<p><u>Tailings Area</u></p> <p>PTD01, PTD02D, PTD03, PTD04D, PTD05D, PTD06D, PTD07D, PTD08D, PTD09D, PTD10, PTD11, PTD12, PTD21, PTD26</p>	Annually	<p>pH (pH units)¹</p> <p>Electrical conductivity¹</p> <p>Total Dissolved Solids (mg/L)</p> <p>Total Suspended Solids (mg/L)</p> <p>Total Recoverable Hydrocarbons (mg/L)</p> <p>Chemical Oxygen Demand (mg/L)</p> <p>Surfactants (mg/L)</p> <p>Major ions (mg/L) – Na, K, Ca, Mg, Cl, CO₃, HCO₃, SO₄, NO₃</p> <p>Metals Elements (mg/L) – Pb, Cu, Fe, Mn, Mo, Zn, As, Hg, Cd, Cr, Al, B, Ag, Cd, Ni, Se, Co, Tl</p>
<p><u>New Landfill Area</u></p> <p>MB1, MB2, MB3, MB4, MB5, MB6, MB6A, MB15PAFL001, MB15PAFL002, MB15PAFL003, MB15PAFL004, MB16PAFL001, (once installed), MB16PAFL002 (once installed), and MB16PAFL003 (once installed)</p>	Annually	<p>pH (pH units)¹</p> <p>Total Dissolved Solids (mg/L)</p> <p>Total Suspended Solids (mg/L)</p> <p>Total Recoverable Hydrocarbons (mg/L)</p> <p>Chemical Oxygen Demand (mg/L)</p> <p>Surfactants (mg/L)</p> <p>Metals and metalloids (mg/L) – Pb, Cu, Fe, Mn, Mo, Zn, As, Hg, Cd, Cr,</p>
<p><u>Old Landfill Area</u></p> <p>MB7, MB8, MB9</p>	Annually	<p>pH (pH units)¹</p> <p>Total Dissolved Solids (mg/L)</p> <p>Total Suspended Solids (mg/L)</p> <p>Total Recoverable Hydrocarbons (mg/L)</p> <p>Chemical Oxygen Demand (mg/L)</p> <p>Surfactants (mg/L)</p> <p>Metals and metalloids (mg/L) – Pb, Cu, Fe, Mn, Mo, Zn, As, Hg, Cd, Cr</p>
4 East Pit Dewatering (Attachment 2)		
<p><u>Discharge Point</u></p> <p>Joe's Crossing (Seven Mile Creek)</p>	Monthly when discharging	<p>pH (pH units)¹</p> <p>Total Dissolved Solids (mg/L)</p> <p>Total Suspended Solids (mg/L)</p> <p>Total Recoverable Hydrocarbons (mg/L)</p> <p>Chemical Oxygen Demand (mg/L)</p> <p>Major ions (mg/L) – Na, K, Ca, Mg, Cl, CO₃, HCO₃, SO₄, NO₃</p> <p>Metals and metalloids (mg/L) – Al, B, Fe, Cu, Zn, Ag, As, Cr, Pb, Cd, Hg, Ni, Sn, Mn, Mo</p>
	Quarterly when discharging	

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

- Attachment 3 of the Licence is amended to include the location of the updated groundwater monitoring bores around the Paraburdoo landfill, bioremediation facility and TSF.



3. The Licence is amended by the insertion of condition 30:

30 *The Licensee shall ensure that each item of infrastructure or equipment specified in column 1 of Table 3 is designed and constructed in accordance with the requirements specified in column 2 of Table 3.*

Table 3: Infrastructure or equipment requirements (design and construction) of the TSF Southern Cell Extension

Column 1	Column 2
Infrastructure	Requirements (design and construction)
TSF Southern Cell Extension	Expanded storage capacity – estimated at 2.9 million cubic metres (Mm) ³ /6.0 million tonnes at estimated dry density of 0.9 t/m ³ Freeboard – 0.5 m above stormwater capacity elevation Stormwater capacity – estimated at 1% Annual Exceedance Probability (AEP) (1 in 100 year Annual Recurrence Interval (ARI)), 72 hour rainfall event
Western embankment	Raised to Relative Level 371 m Australian Height Datum (AHD)
South-eastern embankment saddle	Raised to Relative Level 371 m AHD
Spillway capacity	Closure – 1:100 year ARI
Tailings deposition pipeline	<ul style="list-style-type: none"> • 400 mm High Density Polyethylene (HDPE) • Spigots spaced at 40 m intervals • Isolation valves located immediately downstream of the waste fines disposal pumps and additional isolation valves at the entry point of the TSF • Star pickets placed either side of the dropper pipes down the dam embankments. • Pressure monitors at waste fines disposal pumps
Return water pipeline	Gravity fed HDPE pipe to return sump

4. The Licence is amended by the insertion of condition 31:

31 *The Licensee must not depart from the requirements specified in Table 3 except:*
 (a) *where such departures are minor in nature and do not materially change or affect the infrastructure; or*
 (b) *where such departure improves the functionality of the infrastructure and does not increase the risks to public health, public amenity or the environment.*

If condition 31 (b) applies, then the Licensee must provide the CEO with a list of departures which are certified as complying with condition 30.

5. The Licence is amended by the insertion of condition 32:

32 *The Licensee shall submit a construction compliance document to the CEO, following construction of the Southern Cell Extension and prior to operation.*

6. The Licence is amended by the insertion of condition 33:

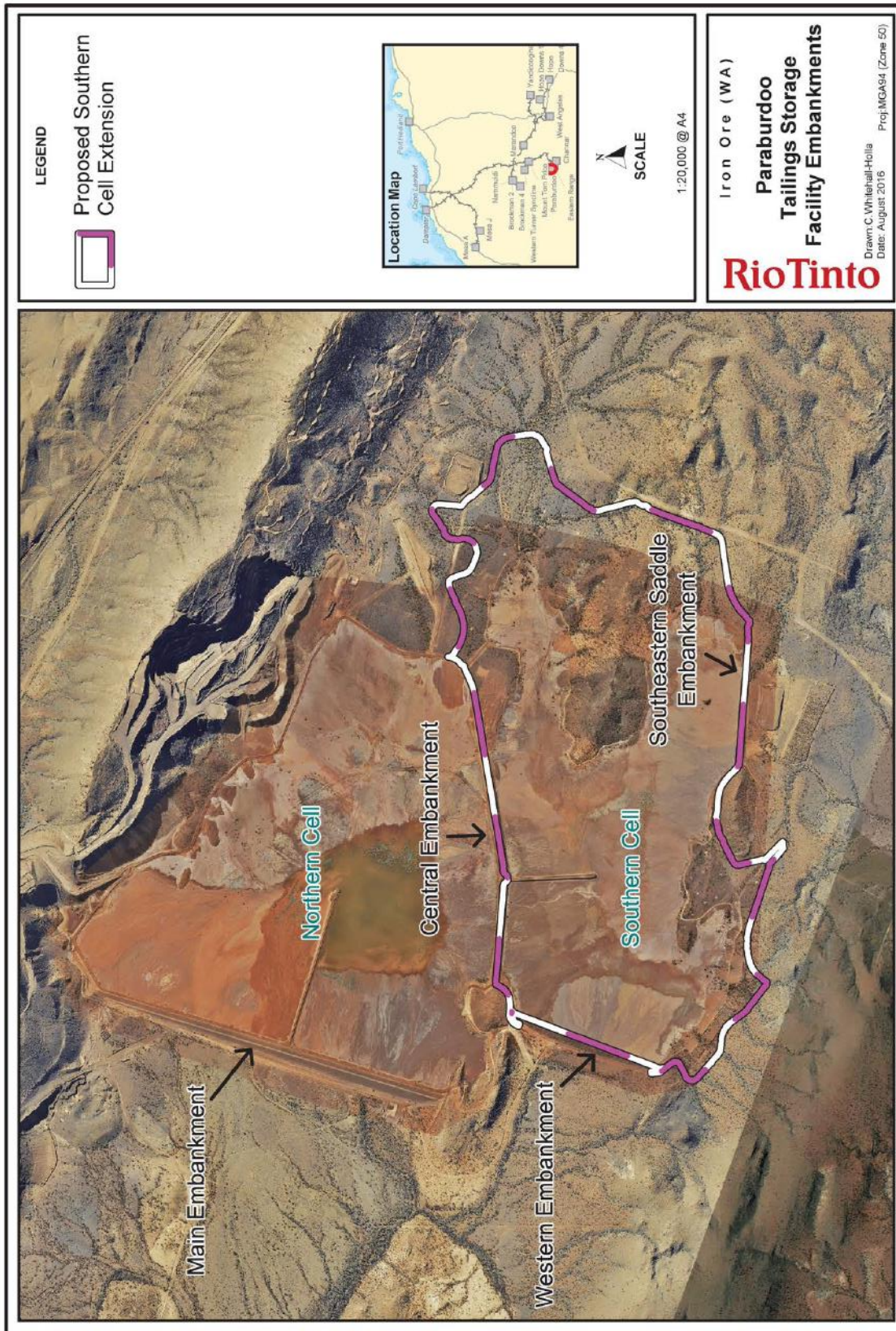
33 *The Licensee must ensure the construction compliance document:*
 (a) *is certified by a suitably qualified professional engineer or builder stating that each item of infrastructure specified in Table 3 has been constructed in accordance with the conditions of the Licence with no material defects beyond those listed under condition 31; and*

(b) *be signed by a person authorised to represent the Licensee and contain the printed name and position of that person within the company.*

7. The Licence is amended by the insertion of condition 34:

34 *The Licensee shall operate the TSF Southern Cell Extension in accordance with the conditions of this Licence, following submission of the construction compliance document required under condition 32 (ATTACHMENT 6).*

8. The Licence is amended by the insertion of Attachment 6 below:



9. The Licence is amended by the removal of the Annual Audit Compliance Report template in Attachment 6.
10. Condition 29 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below.

29 ~~The Licensee shall by 30 April in each year, provide to the CEO an Annual Audit Compliance Report in the form of Attachment 6 to this Licence, signed and certified in the manner required by Section C of the form, indicating the extent to which the Licensee has complied with the conditions of this Licence, and any previous Licence issued under Part V of the Act for the premises, during the period beginning 1 January and ending on 31 December in that year. **The Licensee must submit to the CEO an Annual Audit Compliance Report by 30 April in each year indicating the extent to which the licensee has complied with the conditions in this Licence for the Annual Period.**~~

11. The Licence is amended by the insertion of the definitions below:

‘Annual Audit Compliance Report’ means a report in a format approved by the CEO as presented by the licensee or as specified by the CEO from time to time and published on the Department’s website;

‘Department’ means the department established under s.35 of the Public Sector Management Act 1994 and designated as responsible for the administration of Division 3 Part V of the Environmental Protection Act 1986;

Appendix 1: Key Documents/References

	Document Title	Availability
1	DER <i>Guidance Statement on Regulatory principals</i> , July 2015	Accessed at https://www.der.wa.gov.au
2	DER <i>Guidance Statement on Setting conditions</i> , September 2015	
3	DER <i>Guidance Statement on Licence duration</i> , November 2014	
4	DER <i>Guidance Statement on Licensing and works approval processes</i> , September 2015	
5	Licence amendment supporting documentation received 8 August 2016: <ul style="list-style-type: none"> Paraburdoo Iron Ore Mine – L5275/1972/12 Expansion to Paraburdoo TSF Southern Cell (RTIO, August 2016) Paraburdoo Iron Ore Mine L5275/1972/12 – Licence Amendment Request Attachment 3 – Location of Monitoring Bores around Paraburdoo landfill, bioremediation facility and tailings storage facility 	DER record A1146372
6	Additional information on geochemical testing and permeability received 12 October 2016	DER record A1178807
7	Additional information on groundwater monitoring regime received 11 November 2016	DER record A1324287
8	Peter, A.L. and Viraraghavan, T., 2005. Thallium: a review of public health and environmental concerns. <i>Environment International</i> , 31, 493-501	http://192.185.117.31/~heavymet/wp-content/uploads/2013/07/Thallium1.pdf
9	Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000)	http://www.environment.gov.au/system/files/resources/53cda9ea-7ec2-49d4-af29-d1dde09e96ef/files/nwqms-guidelines-4-vol1.pdf
10	Statewide River Water Quality Assessment (DoW cited 7/10/2016)	http://atlases.water.wa.gov.au/ide/ve/srwqa/
11	DER notification of proposed amendment dated 24 November 2016	DER record A1332036
12	RTIO comments on draft 21 day amendment notice received 6 December 2016	DER record A1339808

Appendix 2: Summary of Licence Holder Comments

Comments received	Environmental risk	DER consideration of risk
Reference to remaining bores MB15PAF001 and MB15PAF002 to be included in decision for changes to groundwater monitoring regime for the new putrescible landfill	Nil risk – administrative change	The Delegated Officer has considered and agreed to the change. The absence of reference to existing bores MB15PAF001 and MB15PAF002 was an oversight
Removal of “once installed” in reference to bores PTD21 and PTD26. The bores are already installed.	Nil risk – administrative change	The Delegated Officer has considered and agreed to the change. The reference to “once installed” has been removed in reference to bores PTD21 and PTD26
Further detail on changes to groundwater monitoring regime requested to be included in the amendment history table	Nil risk – administrative change	The Delegated Officer has considered and agreed to the change. Further detail on the changes has been included in the amendment history table
RTIO provided an updated groundwater monitoring map as requested	Nil risk – administrative change	Attachment 3 is amended by the insertion of the updated groundwater monitoring map via this Notice
Request to insert “estimated at” in reference to the expanded storage capacity of 2.9 million m ³ and the stormwater capacity of 1% Annual Exceedance Probability, 72 hour rainfall event	Nil risk – administrative change	The Delegated Officer has considered and agreed to the change. Table 3 inserted via this Notice has been changed.
Request to add reference to condition 31 within condition 33 inserted via this Notice	Nil risk – administrative change	The Delegated Officer has considered and agreed to the change. Condition 33 inserted via this Notice has been changed to include the reference “ <i>beyond those listed under condition 31</i> ”