Government of Western Australia
Department of Environment Regulation

AMENDED LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

LICENCE NUMBER: L7774/2000/6 **FILE NUMBER:** DER2014/000873

LICENSEE AND OCCUPIER
Robe River Mining Co Pty Ltd
Level 27, Central Park
152-158 St Georges Terrace
PERTH WA 6000
ACN: 008 694 246

PREMISES
West Angelas Iron Ore Mine
AML70/248 sections 71, 72 and 79, L47/50, L47/52, L47/53, L47/60, L47/409, E47/2963, G47/1236 and G47/1235
NEWMAN WA 6753
(as depicted in Attachment 1)

PRESCRIBED PREMISES CATEGORY
Schedule 1 of the *Environmental Protection Regulations 1987.*

CATEGORY NUMBER	CATEGORY DESCRIPTION	CATEGORY PRODUCTION OR DESIGN CAPACITY	PREMISES PRODUCTION OR DESIGN CAPACITY
5	Processing or beneficiation of metallic or non-metallic ore	50,000 tonnes or more per year	35,000,000 tonnes per annual period
6	Mine dewatering	50,000 tonnes or more per year	6,000,000 tonnes per annual period
12	Screening, etc. of material	50,000 tonnes or more per year	10,000,000 tonnes or more per annual period
52	Electrical power generation	10 MW or more in aggregate	90 MW
54	Sewage facility	100 cubic metres or more per day	610 cubic metres per day
64	Class II putrescible landfill site	20 tonnes or more per year	11,500 tonnes per annual period
73	Bulk storage of chemicals, etc	1,000 cubic metres in aggregate	18,300 cubic metres in aggregate

CONDITIONS
This Licence is subject to the conditions set out in the attached pages.

Date signed: 31 March 2016

Alana Kidd
Manager Licensing – Resource Industries
Officer delegated under section 20
of the *Environmental Protection Act 1986*

ISSUE DATE Thursday, 26 May 2011
COMMENCEMENT DATE: Sunday, 29 May 2011
AMENDMENT DATE: Thursday, 31 March 2016
EXPIRY DATE: Monday, 28 May 2029

AMENDED LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

LICENCE NUMBER: L7774/2000/6 **FILE NUMBER:** DER2014/000873

DEFINITIONS

In these conditions, unless inconsistent with the text or subject matter:

'Act' means the *Environmental Protection Act 1986*;

'**annual period'** means the inclusive period from 1 January to 31 December in that year;

'ANZECC 2000' means the most recent version and relevant parts of the Australian and New Zealand Environment guidelines for fresh and marine water quality Volume 1 – 3 (Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand);

'Australian Standard 5667' means the most recent version and the relevant parts of the Australian and New Zealand series of guidance standards on Water Quality Sampling;

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' for the purpose of correspondence means;

Chief Executive Officer
Department Administering the Environmental Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Email: info@der.wa.gov.au;

'CO' means carbon monoxide;

'cfu/100ml' means colony forming units per 100 millilitres;

'Clean Fill' has the meaning defined in Landfill Definitions;

'Commissioning' means the process of operation and testing that verifies the works and all relevant systems, plant, machinery and equipment have been installed and are performing in accordance with the design specification set out in the works approval application;

'Inert Waste Type 1' has the meaning defined in Landfill Definitions;

'Inert Waste Type 2' has the meaning defined in Landfill Definitions;

'kL' means kilolitres;

'Landfill Definitions' means the document titled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer of the Department of Environment as amended from time to time;

'Licence' means this Licence numbered L7774/2000/6 and issued under the Act;

'Licensee' means the person or organisation named as Licensee on page 1 of the Licence;

'm^3' means cubic metres;

'm^3/s' means the volumetric flow of exhaust stack gases in cubic metres per second at exit temperature and pressure of those gases;

'mg/m^3' means milligrams per cubic metre, i.e. corrected to dry gas (eliminating any volume contribution from water vapour or droplets) and corrected to Standard Temperature and Pressure (STP);

'mg/L' means milligrams per litre;

'mm' means millimetres;

'MW' means megawatt;

'µS/cm' means microSiemens per centimetre;

'NATA' means the Australian National Association of Testing Authorities;

'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'NEPM' means the "National Environment Protection (Ambient Air Quality) Measure" guidelines;

'NO' means nitric oxide;

'NO_2' means nitrogen dioxide;

'NO_x' means oxides of nitrogen, calculated as the sum of nitric oxide and nitrogen dioxide and expressed as nitrogen dioxide;

'NWQMS 1997' means the most recent version and relevant parts of the "National Water Quality Management Strategy, Australian Guidelines for Sewerage Systems - Effluent Management" as published by the Agriculture and Resource Management Council of Australia and New Zealand and Australian and New Zealand Environment and Conservation Council, 1997;

'Putrescible' has the meaning defined in the Landfill Definitions;

'Special Waste Type 1' has the meaning defined in the Landfill Definitions;

'stack test' means a discrete set of samples taken over a representative period at normal operating conditions;

'Standard Methods for Examination of Water and Wastewater-APHA-AWWA-WEF' means the best current practice of American water analysts developed by the American Public Health Association, American Water Works Association, Water Environment Federation;

'STP' means standard temperature and pressure (0^{o}Celsius and 101.325 kilopascals respectively), dry;

'Tipping area' means the area of the landfill where waste is currently being disposed;

'USEPA Method' means the corresponding standard monitoring method as promulgated by the United States (of America) Environmental Protection Agency;

'Western Australian guidelines for biosolids management' means the document titled "Western Australian guidelines for biosolids management, December 2012" published by the Department of Environment and Conservation as amended from time to time; and

'WWTPs' means the Village 1, Village 2 and Mine Wastewater Treatment Plants.

GENERAL CONDITIONS

1 The Licensee shall only operate the Mobile Crushing and Screening Plant in accordance with the Iron Ore (WA) Mobile Crushing and Screening Management Plan (RTIO-HSE-0235877).

DISCHARGE TO LAND

2 The Licensee shall ensure that all effluent discharged consists only of treated wastewater.

3 The Licensee shall ensure that effluent is only discharged to the irrigation areas depicted in Attachment 3.

WWTP MONITORING

4 The Licensee shall record the cumulative volume of treated wastewater discharged for the purpose of irrigation and this data shall be included in the Annual Environmental Report in tabular form.

5 The Licensee shall for each of the WWTPs collect and have analysed, representative effluent discharge samples for the locations listed in column 1 of Table 1 for the parameters listed in column 2 of Table 1 at the frequency stated in column 3 of Table 1 and present this information in the Annual Environmental Report, including an assessment and comparison against the NWQMS 1997 and all recorded monitoring data.

Table 1: West Angelas WWTPs effluent quality monitoring requirements

Column 1	Column 2	Column 3
Sampling location	**Parameters**	**Monitoring Frequency**
Village WWTP1, Village WWTP2 and Mine WWTP (Attachment 3)	Biochemical Oxygen Demand (mg/L)	Quarterly
	Total Suspended Solids (mg/L)	
	pH (pH units)	
	Total Nitrogen (mg/L)	
	Total Phosphorus (mg/L)	
	E.coli (cfu/100mL)	

AMENDED LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

LICENCE NUMBER: L7774/2000/6 **FILE NUMBER:** DER2014/000873

DISPOSAL OF BIOSOLID AND OTHER RESIDUALS

6 The Licensee shall dispose of sludge and biosolids in accordance with the *Western Australian guidelines for biosolids management* or to a licensed or registered landfill facility.

7 The Licensee shall ensure that sludge is immediately removed offsite or stored onsite within a hardstand area or drying bed with a hydraulic conductivity of equal to or less than 1×10^{-9} metres per second.

8 The Licensee shall ensure that the storage area referred to in condition 7 is bunded to enable the containment and evaporation or recovery of any liquid matter.

STORMWATER MANAGEMENT

9 The Licensee shall install and maintain mechanisms to ensure that stormwater from the following areas, is diverted to facilities for treatment and disposal or reuse:
(a) Process plants;
(b) Washdown bays;
(c) Refuelling areas; and
(d) Mechanical workshops.

SURFACE WATER - DISCHARGE OUTFALL

10 The Licensee shall ensure that the concentration of Total Recoverable Hydrocarbons in waters discharged from the premises does not exceed 30 mg/L.

WASTE MANAGEMENT FROM ANCILLARY OPERATIONS

11 The Licensee shall as soon as practicable recover, or remove and dispose of, any liquid resulting from spills or leaks of chemicals including fuel, oil or other hydrocarbons, from inside or outside the low permeability compound(s).

12 The Licensee shall utilise, and maintain, protective bunding, skimmers, silt traps, neutralisation pits, fuel and oil traps, drains and sealed collection sumps around the process plant, maintenance workshops, laboratory and power generation areas to enable recovery of spillages and protection of surrounding soils and groundwater.

MANAGEMENT OF PUTRESCIBLE LANDFILL(S) (ATTACHMENT 4)

13 The Licensee shall bury only the following types of waste within the putrescible landfill(s):
(i) Clean Fill;
(ii) Inert Waste Type 1;
(iii) Inert Waste Type 2;
(iii) Putrescible waste; and
(iv) Special Waste Type 1
as defined in the Landfill Definitions.

14 The Licensee shall ensure that the tipping area of the putrescible landfill(s) is not greater than:
(i) 30 metres in length; and
(ii) 2 metres above ground level in height.

15 The Licensee shall ensure that waste in the tipping area of the putrescible landfill(s) is covered:
(i) at least weekly;
(ii) with a dense (at least 200 mm), inert and incombustible material; and
(iii) totally, so that no waste is left exposed.

16 The Licensee shall ensure that there is no waste within:
(i) 100 metres of any surface water body at the site; and
(ii) 3 metres of the highest level of the water table aquifer at the putrescible landfill(s).

17 The Licensee shall manage stormwater on the putrescible landfill(s) so that:
(i) it is diverted from areas of the site where there is waste; and
(ii) water that has come into contact with waste is to be diverted into a sump on the site, or otherwise retained on the site.

MANAGEMENT OF WASTE DUMP LANDFILL (ATTACHMENT 4)

18 The Licensee shall bury only the following types of waste within the waste dump landfill facility:
(i) Inert Waste Type 1;
(ii) Inert Waste Type 2;
(iii) Special Waste Type 1; and
(iv) Putrescible Waste (wooden pallets only)
as defined in the Landfill Definitions.

19 The Licensee shall ensure that waste in the tipping area of the waste dump landfill is covered with a dense (at least 200 mm), inert and incombustible material at final landform design.

20 The Licensee shall ensure that there is no waste within:
(i) 100 metres of any surface water body at the site; and
(ii) 3 metres of the highest level of the water table aquifer at the waste dump landfill site.

21 The Licensee shall manage stormwater on the waste dump landfill site so that water that has come into contact with waste is retained on the site.

TYRE STORAGE AND DISPOSAL

22 The Licensee shall ensure that the following criteria is met when tyres are stored and buried at the premises:
(i) the quantity of used tyres stored at the premises shall not exceed 100 at any one time;
(ii) the tyres are buried as soon as practicable after placement in the waste dumps;
(iii) a minimum depth of 100 mm of soil cover is maintained over the buried tyres following disposal;
(iv) batches of tyres are separated from each other by at least 100 mm of soil with each batch consisting of not more than 1,000 whole tyres or 40 m^3 of tyre pieces;
(v) tyres are buried with a minimum cover to tyre ratio of 4 to 1. That is 4 m^3 of soil or rubble cover to 1 m^3 of tyre waste; and
(vi) tyres are buried under a final cover of not less than 2 metres of soil.

DEWATERING (ATTACHMENT 5)

23 The Licensee shall ensure that all dewatering discharge to Turee Creek flows through the dewatering discharge point.

24 The Licensee shall collect and have analysed representative water samples whilst discharging, from the discharge location in column 1 of Table 2, for the parameters listed in column 2 of Table 2, at the frequencies in column 3 of Table 2 and present this information in the Annual Environmental Report, including an assessment and comparison against the appropriate ANZECC 2000 water quality trigger values and all recorded monitoring data.

Table 2: Dewatering discharge monitoring

Column 1	Column 2	Column 3
Sample location	**Parameter**	**Frequency**
Turee Creek discharge point (Attachment 5)	Volume (kL)	Monthly
	Electrical Conductivity (µS/cm)	Quarterly
	pH (pH units)	
	Total Recoverable Hydrocarbons (mg/L)	
	Major ions (mg/L) – Na, K, Ca, Mg, Cl, CO_3, HCO_3, SO_4, NO_3	
	Metals (mg/L) - Al, Bo, Fe, Cu, Zn, As, Cr, Pb, Cd, Hg, Ni, Se, Mn	
	Total Suspended Solids (mg/L)	

25 The Licensee shall monitor the extent of the discharge water saturation zone quarterly (in metres) from the Turee Creek discharge point.

WEST ANGELAS POWER STATION

26 The Licensee shall construct the *West Angelas Power Station* in accordance with the documentation detailed in Table 3 (Attachment 6).

Table 3: Construction requirements[1]

Document	Parts	Date of Document
Works Approval Application Form.	All	11 October 2011
Works Approval Application, Power System Upgrade – West Angelas Power Station: Construction and Commissioning. Rio Tinto Iron Ore (RTIO-HSE-0123651).	All, including Drawings and Appendices	15 December 2011
West Angelas Power Station Environmental Noise Assessment. SVT Engineering Consultants.	All, including Drawings and Appendices	17 August 2010
West Angeles Power Station – Air Quality Assessment. Sinclair Knight Merz.	All, including Drawings and Appendices	26 July 2010
Email correspondence from Lisa Last, Rio Tinto Iron Ore, titled "*West Angelas Power Station and WWTP works approval application – further information required*".	All	16 December 2011

Email correspondence from Katrina Burke, Rio Tinto Iron Ore, titled "*Power Station Upgrade Project – Works Approval Application Response to DEC. West Angelas Power Station: Permanent Infrastructure".*	All	15 March 2012
Email correspondence from Katrina Burke, Rio Tinto Iron Ore, titled "*W5116/2011/1 – West Angelas Power Station works approval – RTIO response to queries".*	All	2 April 2012
West Angelas Power Station - Works Approval Amendment. Rio Tinto Iron Ore (RTIO-HSE-0238089).	All, including Drawings and Appendices	9 October 2014
Commissioning Plan for the West Angelas Power Station. UGL (Document No: 3200-0448-PLN-004)	All, including Drawings and Appendices	14 November 2014
Compliance Statement – Works Approval W5116/2011/1 – West Angelas Iron Ore Mine – Power Upgrade. Rio Tinto Iron Ore (Ref. RTIO-HSE-0252715).	All, including Drawings and Appendices	18 March 2015
Email correspondence from Kate Philp, Rio Tinto Iron Ore, titled "*RE: West Angelas Power Station W5116 amendment query".*	All	23 March 2015
Letter and Form P4 from Sean Savage, Rio Tinto Iron Ore, titled "West Angelas PS – W5116 – Commissioning extension request – Nov 2015".	All	27 November 2015
Signed Application Form (Part 10)	All	4 December 2015

Note 1: Where the details and commitments of the documents listed in condition 26 are inconsistent with any other condition of this Licence, the conditions of this Licence shall prevail.

27 The Licensee shall undertake commissioning in accordance with the *Commissioning Plan for the West Angelas Power Station* (Document No: 3200-0448-PLN-004).

28 The Licensee shall submit a commissioning report for the *West Angelas Power Station* to the CEO by 30 July 2016.

29 The Licensee shall ensure the commissioning report required in Condition 27 includes:

(i) a summary of the emissions testing and monitoring results outlined in Section 4.3 of the *Commissioning Plan for the West Angelas Power Station* (Document No: 3200-0448-PLN-004);

(ii) a list of any original testing or monitoring reports submitted to the Licensee from third parties for the commissioning period;

(iii) a summary of the environmental performance of *West Angelas Power Station* as installed, against the design specification set out in the works approval application; and

(iv) a review of performance against the Licence conditions; and where they have not been met, measures proposed to meet the design specification and/or Licence conditions, together with timescales for implementing the proposed measures.

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30 The Licensee shall undertake commissioning of the West Angelas Power Station until 30 September 2016.

AIR MONITORING

31 The Licensee shall ensure that where waste is emitted to air it is only done so from the following emission points:
(i) Gas Turbine Generator 1 (GTG1); and
(ii) Gas Turbine Generator 2 (GTG2),
as depicted in Attachment 6.

32 The Licensee shall arrange stack tests for the exhaust gases emitted from the air emission points listed in column 1 of Table 4, for the parameters listed in column 2 of Table 4, expressed in the units as stated in column 3 of Table 4, at the frequencies stated in column 4 of Table 4, with the method specified in column 5 of Table 4, and present this information in the Annual Environmental Report, including an assessment and comparison against all recorded monitoring data.

Table 4: Air emission monitoring.

Column 1	Column 2	Column 3	Column 4	Column 5
Emission point as depicted in Attachment 6	**Parameter to be monitored**	**Units[1]**	**Monitoring Frequency**	**Monitoring Method**
GTG1 and GTG2	Volumetric Flow Rate	m^3/s	Annual	USEPA Method 2
	Moisture Content	% $H_2O_{(g)}$ of stack gas		USEPA Method 4
	Sulphur dioxide (SO_2)	mg/m^3 g/s		USEPA Method 6
	Oxides of Nitrogen (NO_x) as NO_2	mg/m^3 g/s		USEPA Method 7E or 7D
	Carbon monoxide (CO)	mg/m^3 g/s		USEPA Method 10

Note 1: All units are referenced to STP dry

REPORTING CONDITIONS

33 The Licensee shall collect and preserve all water samples required by conditions 5 and 25 in accordance with the relevant parts of Australian Standard 5667.

34 The Licensee shall ensure that all parameters requiring laboratory analyses pursuant to condition 5 and 25 are conducted by an organisation with NATA accreditation for the specified parameters in accordance with the current Standard Methods for Examination of Water and Wastewater – APHA-AWWA-WEF.

35 The Licensee shall ensure that all air emission sampling and analysis undertaken pursuant to condition 32 is undertaken by a holder of NATA accreditation for the relevant methods of sampling and analysis.

AMENDED LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

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ANNUAL ENVIRONMENTAL REPORT

36 The Licensee shall provide the CEO, by **30 April** each year, a copy of an Annual Environmental Report containing data collected, as required by any condition of this licence during the period beginning **1 January** the previous year and ending on **31 December** in that year.

ANNUAL AUDIT COMPLIANCE REPORT

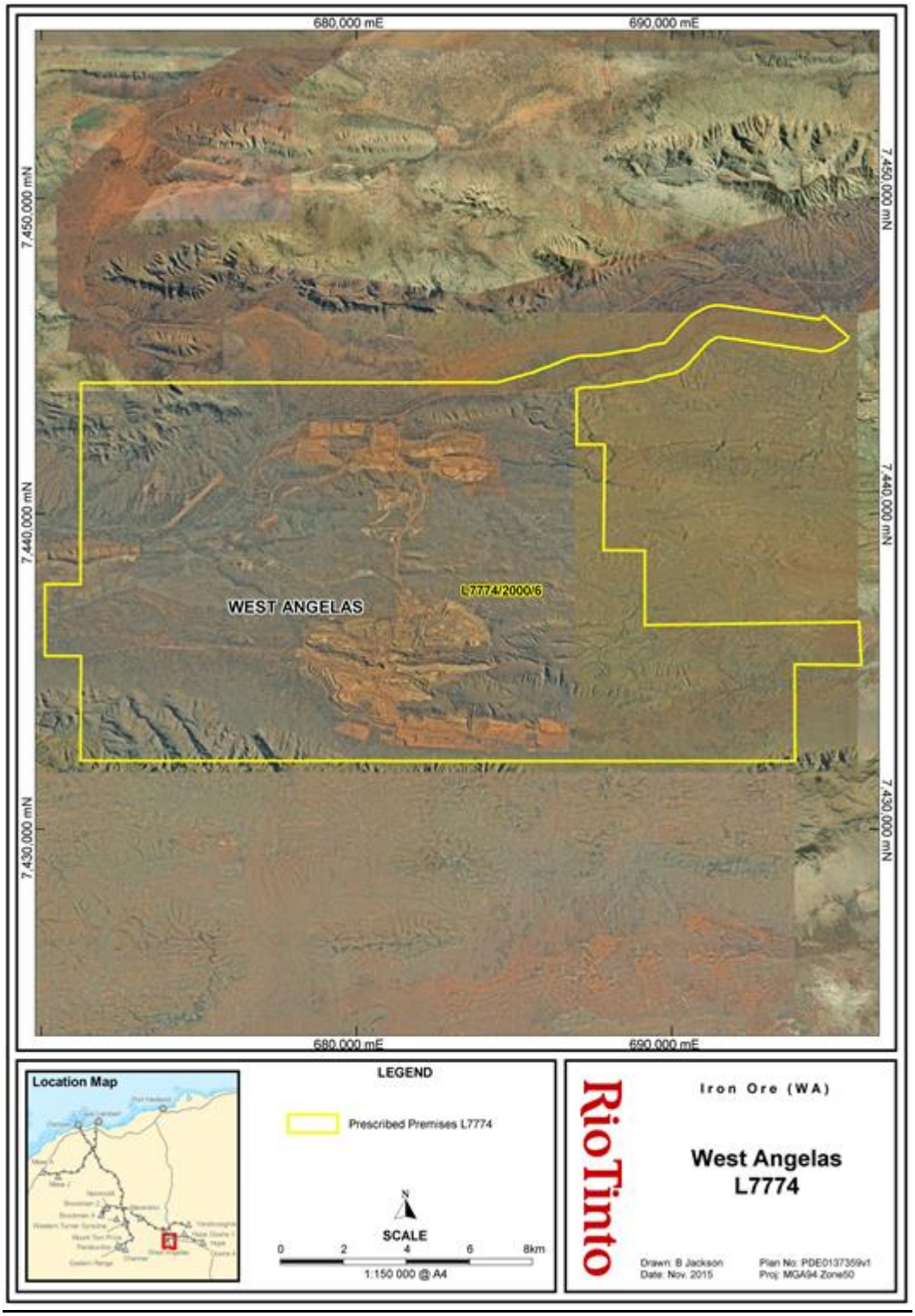
27 The Licensee shall by **30 April** in each year, provide to the CEO an Annual Audit Compliance Report in the form in Attachment 7 to this Licence, signed and certified in the manner required by Section C of the form, indicating the extent to which the licensee has complied with the conditions of this Licence, and any previous Licence issued under Part V of the Act for the premises, during the period beginning **1 January** the previous year and ending on **31 December** in that year.

AMENDED LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

LICENCE NUMBER: L7774/2000/6 **FILE NUMBER:** DER2014/000873

ATTACHMENT 1 – WEST ANGELAS PRESCRIBED PREMISE BOUNDARY

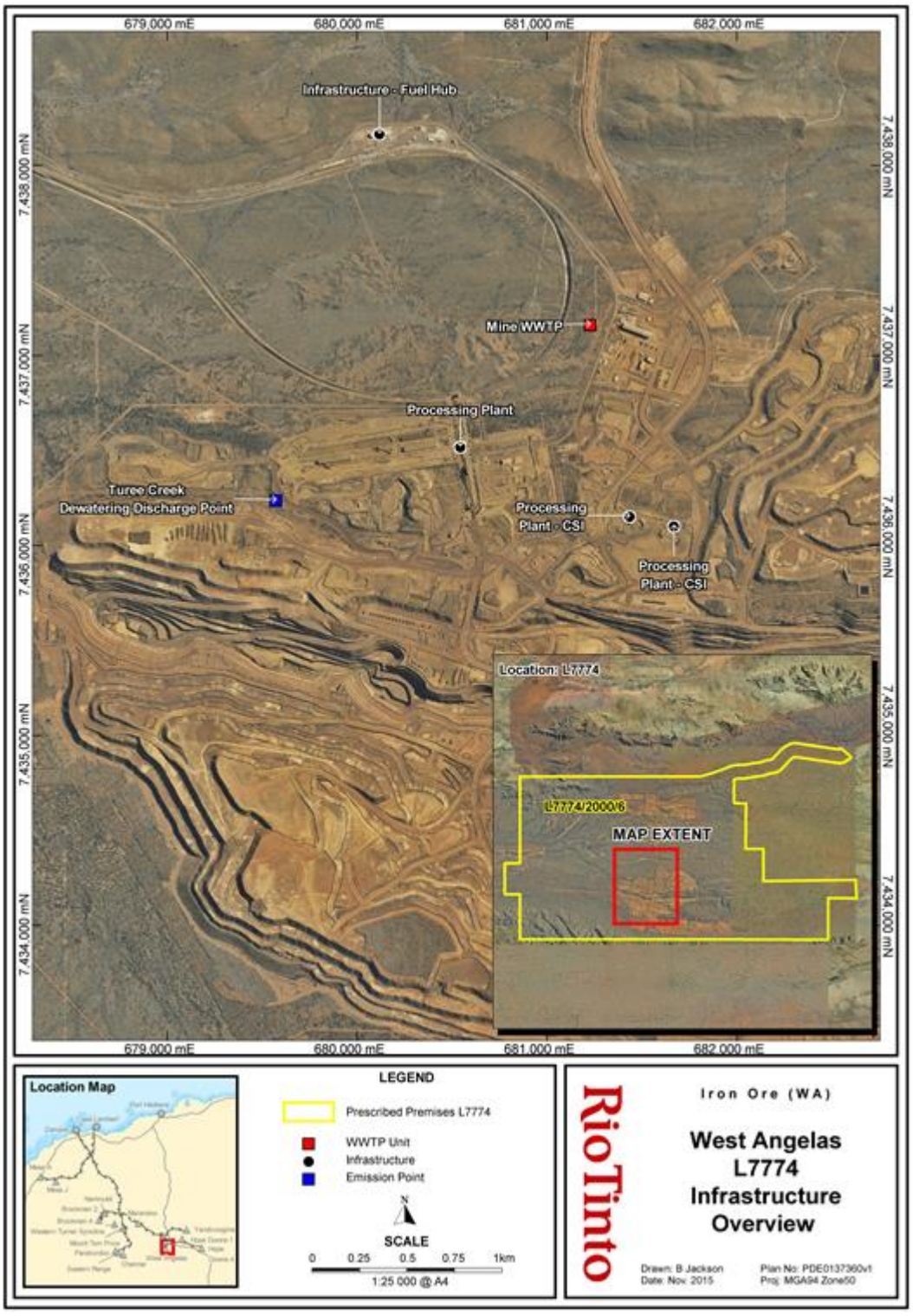


AMENDED LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

LICENCE NUMBER: L7774/2000/6 **FILE NUMBER:** DER2014/000873

ATTACHMENT 2 – PREMISES INFRASTRUCTURE OVERVIEW

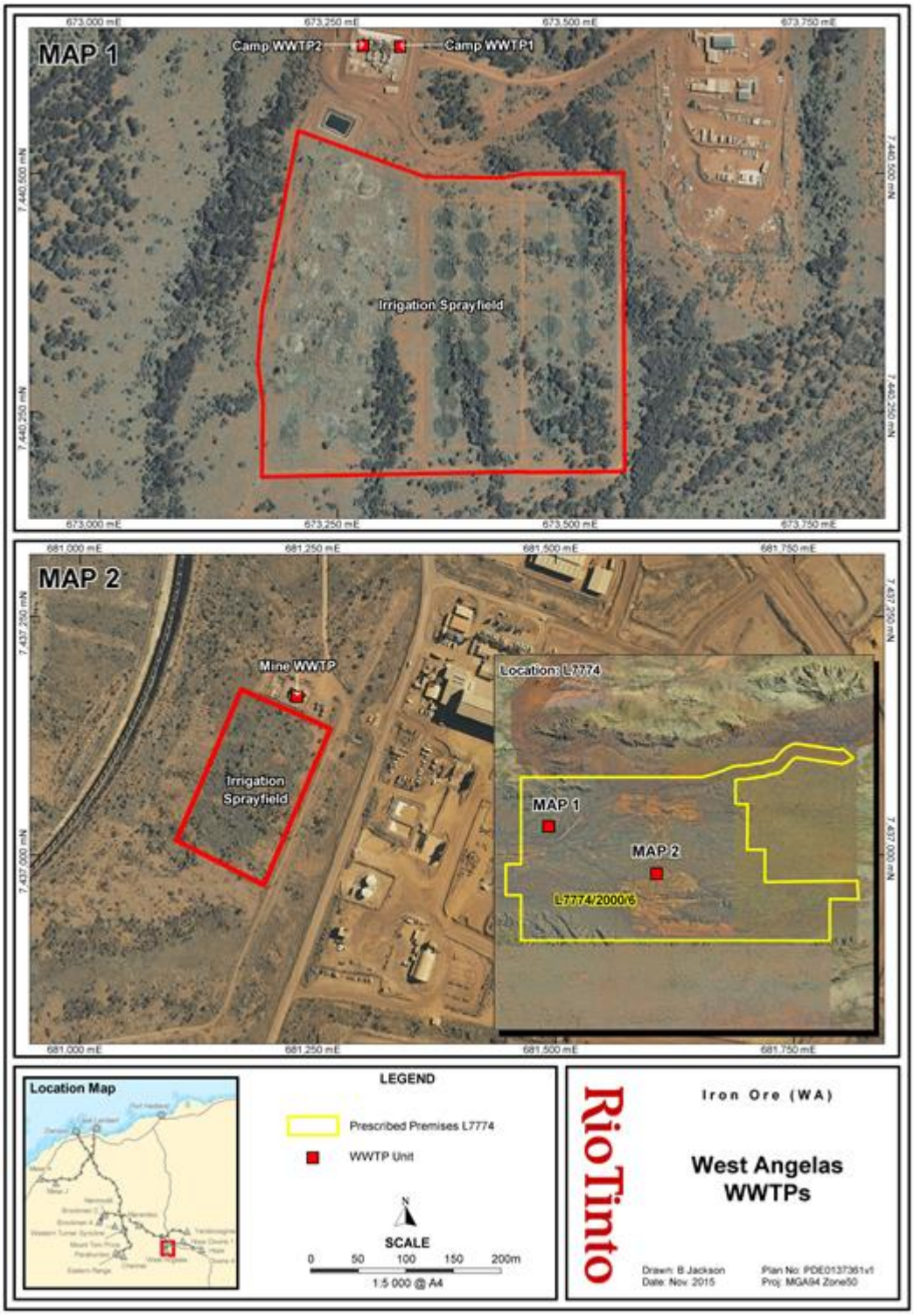


AMENDED LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

LICENCE NUMBER: L7774/2000/6 **FILE NUMBER:** DER2014/000873

ATTACHMENT 3 – PREMISES WWTPS

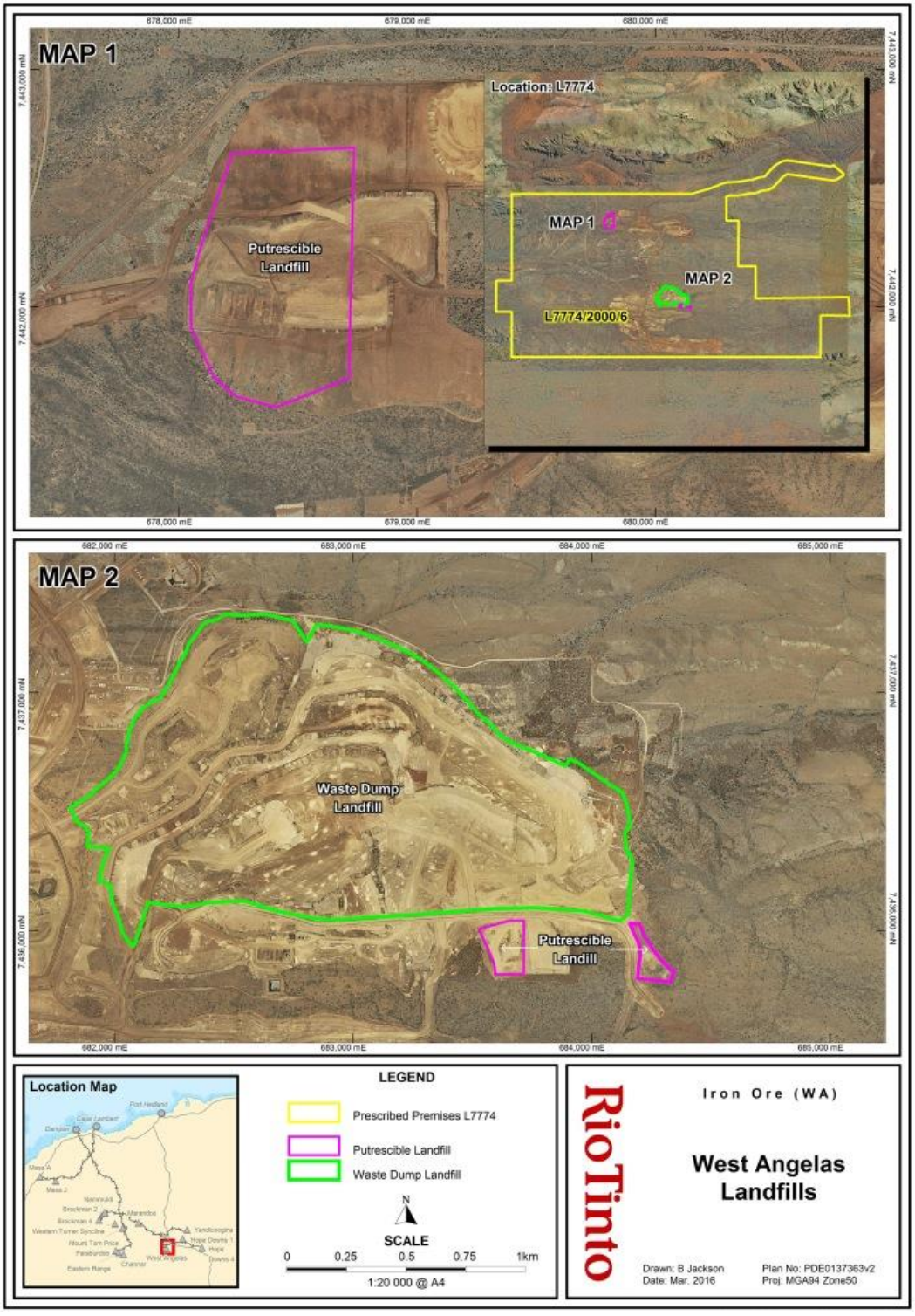


AMENDED LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

LICENCE NUMBER: L7774/2000/6 **FILE NUMBER:** DER2014/000873

ATTACHMENT 4 – PREMISES LANDFILLS

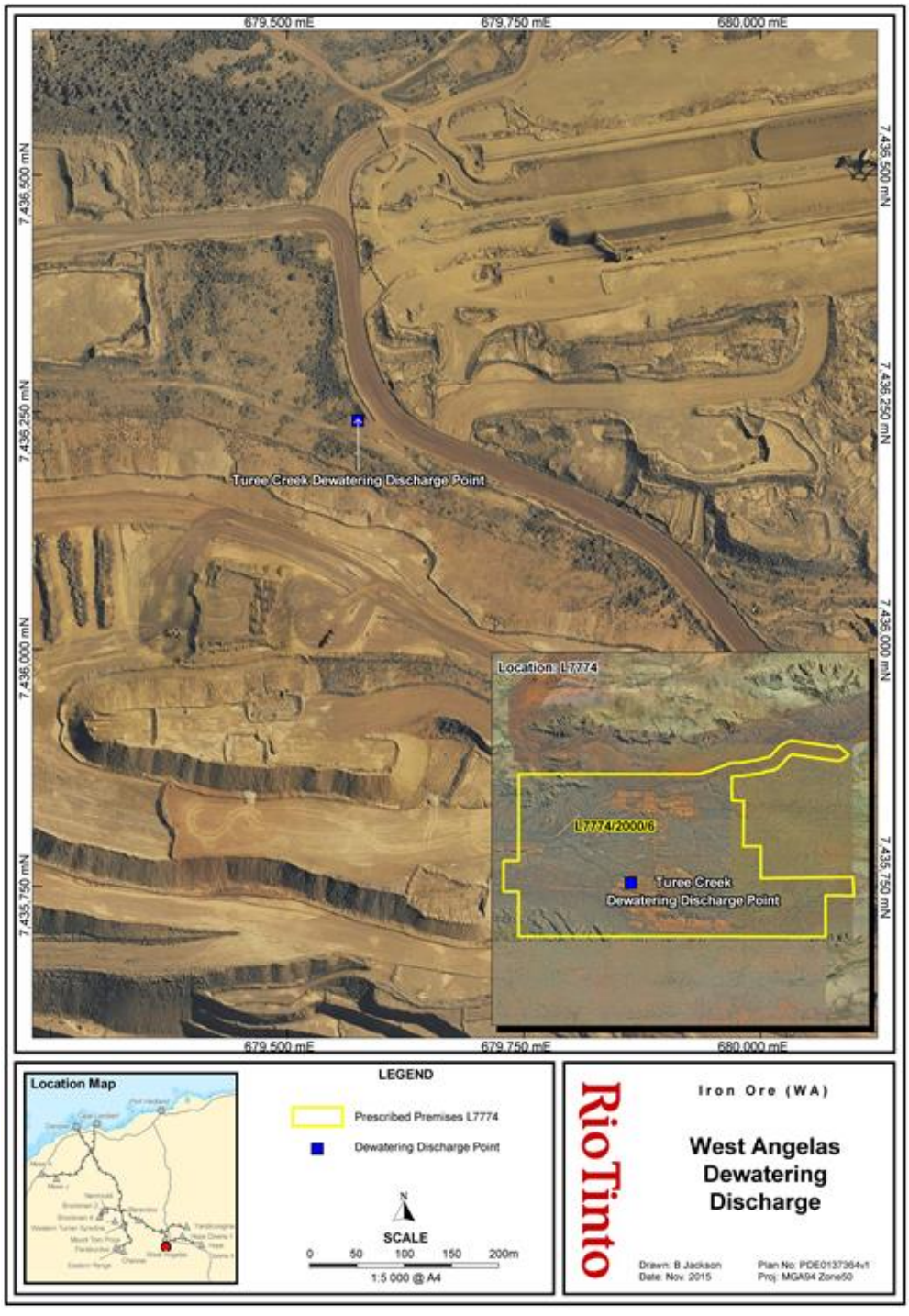


AMENDED LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

LICENCE NUMBER: L7774/2000/6 **FILE NUMBER:** DER2014/000873

ATTACHMENT 5 – PREMISES DEWATERING DISCHARGE POINT



AMENDED LICENCE FOR PRESCRIBED PREMISES

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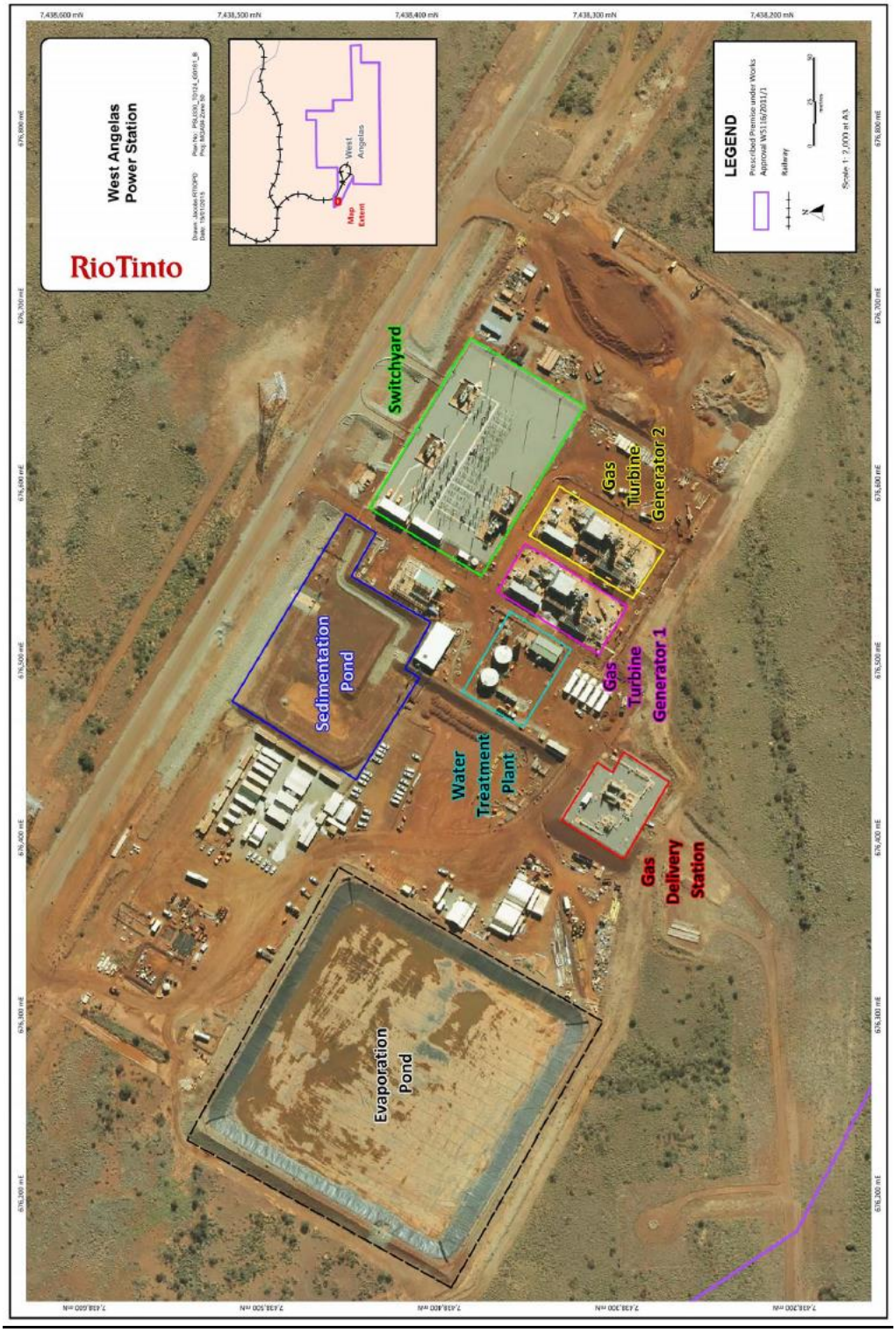
ATTACHMENT 6 – WEST ANGELAS POWER STATION (WAPS)



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ATTACHMENT 7 – ANNUAL AUDIT COMPLIANCE REPORT

SECTION A

LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name: Trading as:	ABN:
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of licence complied with within the reporting period? (please tick the appropriate box)

Yes □ Please proceed to Section C
No □ Please proceed to Section B

Each page must be initialed by the person(s) who signs Section C of this Annual Audit Compliance Report

INITIAL:_____

AMENDED LICENCE FOR PRESCRIBED PREMISES

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LICENCE NUMBER: L7774/2000/6 **FILE NUMBER:** DER2014/000873

SECTION B - DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.

Please use a separate page for each licence condition that was not complied with.

a) Licence condition not complied with?	
b) Date(s) when the non compliance occurred, if applicable?	
c) Was this non compliance reported to DER?	
☐ Yes ☐ Reported to DER verbally Date_____ ☐ Reported to DER in writing Date _____	☐ No
d) Has DER taken, or finalised any action in relation to the non compliance?	
e) Summary of particulars of compliance non compliance, and what was the environmental impact?	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)	
g) Cause of non compliance	
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance	
i) Action taken or that will be taken to prevent recurrence of the non compliance	

Each page must be initialed by the person(s) who signs Section C of this Annual Audit Compliance Report

INITIAL:_____

AMENDED LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

LICENCE NUMBER: L7774/2000/6 **FILE NUMBER:** DER2014/000873

SECTION C - SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report must only be signed by a person(s) with legal authority to sign it. The ways in which the Annual Audit Compliance Report must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this Annual Audit Compliance Report is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
an individual	□	by the individual licence holder, or
	□	by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	□	by affixing the common seal of the licensee in accordance with the Corporations Act 2001; or
	□	by two directors of the licensee; or
	□	by a director and a company secretary of the licensee, or
	□	if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or
	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	□	by the chief executive officer of the licensee; or
	□	by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of $50,000 for an individual or body corporate.

I/We declare that the information in this Annual Audit Compliance Report is correct and not false or misleading in a material particular.

SIGNATURE: _____ SIGNATURE: _____

NAME: (printed) _____ NAME: (printed) _____

POSITION: _____ POSITION: _____

DATE: _____/_____/_____ DATE: _____/_____/_____

SEAL (if signing under seal)

Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Robe River Mining Co Pty Ltd

Licence: L7774/2000/6

Registered office: Level 27, Central Park
152-158 St Georges Terrace
PERTH WA 6000

ACN: 008 694 246

Premises address: West Angelas Iron Ore Mine
AML70/248 sections 71, 72 and 79, L47/50, L47/60, L47/409, E47/2963, G47/1236 and G47/1235
NEWMAN WA 6753

Issue date: Thursday, 26 May 2011

Commencement date: Sunday, 29 May 2011

Expiry date: Monday, 28 May 2029

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue an amended Licence. DER considers that in reaching this decision, it has taken into account all relevant considerations and legal requirements and that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by: Ty Hibberd
Licensing Officer

Decision Document authorised by: Alana Kidd
Manager Licensing – Resource Industries

Contents

1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986.* Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☐ Licence amendment ☒ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	**Category number(s)**	**Assessed design capacity**
	5	35,000,000 tonnes per year
	6	6,000,000 tonnes per year
	12	10,000,000 tonnes per year
	52	90 MW
	54	610 cubic metres per day
	64	11,500 tonnes per year
	73	18,300 cubic metres in aggregate
Application verified Application fee paid	Date: N/A Date: N/A	
Works Approval has been complied with Compliance Certificate received	Yes☒ No☐ N/A☐ Yes☒ No☐ N/A☐	
Commercial-in-confidence claim	Yes☐ No☒	
Commercial-in-confidence claim outcome	N/A	
Is the proposal a Major Resource Project?	Yes☒ No☐	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes☒ No☐	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☒
Is the proposal subject to Ministerial Conditions?	Yes☒ No☐	Ministerial statement No: 970 EPA Report No: 970
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes☐ No☒ Department of Water consulted Yes ☐ No ☒	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☐ No☒ If Yes include details of which EPP(s) here.		
Is the Premises subject to any EPP requirements? Yes☐ No☒ If Yes, include details here, eg Site is subject to SO_2 requirements of Kwinana EPP.		

3 Executive summary of proposal

Robe River Mining Co Pty Ltd (the Licensee) operate the West Angelas Iron Ore Mine (West Angelas) under Licence L7774/2000/6 for category 5, 6, 54, 64, 70 and 73 activities outlined under the *Environmental Protection Regulations 1987*. West Angelas is located in the eastern Pilbara region of Western Australia, 120 kilometres (km) north-west of Newman.

The Licensee has requested an amendment to L7774/2000/6 to include the West Angelas Deposit B landfill constructed under Works Approval W5721/2014/1. As a part of this amendment, the following changes were also made:

- Category 12 was included on the Licence;
- Conditions were added to the Licence for the construction and commissioning of the West Angelas Power Station (W5116/2011/1), including the addition of Category 52 "Electrical power generation";
- Category 70 was removed;
- The Premises production or design capacity for Category 73 was amended;
- The Licence expiry date was also extended until Monday, 28 May 2029; and
- Existing Licence conditions were also reassessed in accordance with Departmental reform as published on the Department of Environment Regulation's (DER) website under "*Administrative changes implemented within the Department of Environment Regulation*".

West Angelas Deposit B landfill

The West Angelas Deposit B (WADB) landfill is a Category 64 putrescible landfill and has a design capacity of 8,000 tonnes per annum (tpa). The landfill will accept putrescible waste (such as general waste, cardboard, wooden pallets), Inert Waste Type 1 (e.g. waste bricks, concrete and other household type wastes), Inert Waste Type 2 and clean fill. A compliance document and Form P4 pertaining to works completed under W5721/2014/1 was received by DER on 29 June 2015.

The WADB landfill is located outside the existing prescribed premises boundary for L7774/2000/6. The nearest waterway is more than 500 metres (m) south of the WADB landfill and the WADB landfill is located approximately 4.5 km away from the West Angelas Village accommodation facility. The depth to groundwater is estimated at 95 m.

As a part of this amendment, the prescribed premises boundary was expanded to incorporate the location of the WADB landfill and to increase the design capacity of Category 64 to 11,500 tpa (from 3,500 tpa).

Category 12

The Licensee has requested that Category 12 be included onto the Licence as per other Premises operated by the Licensee. A nominal design capacity of 10,000,000 tpa was requested in case multiple plants are required onsite simultaneously in the future to process materials other than ore. The plants will be managed in accordance with the *Iron Ore (WA) Mobile Crushing and Screening Management Plan*, Rio Tinto, 2015 (RTIO-HSE-0235877) and Licence conditions.

West Angelas Power Station

The Licensee has constructed the West Angelas Power Station (WAPS) under Works Approval W5116/2011/1. The WAPS includes two 45 megawatts (MW) duel fuel open cycle generation turbines (OCGTs), a process water treatment plant, diesel storage and conveyance infrastructure, evaporation pond, stormwater sedimentation pond, a workshop, administration complex and a small wastewater treatment plant (3 cubic metres per day (m^3/day)). At the time of this amendment, the Licensee was commissioning the WAPS. Commissioning commenced on 31 March 2015.

A letter was received from the Licensee on the 27 November 2015 informing DER that commissioning of the WAPS was underway, but was likely to extend beyond the date of completion specified in W5116/2011/1 due to delays experienced with diesel line flushing through the OCGTs. As such, the Licensee submitted a Form P4 requesting an extension of the commissioning period until 31 August

2016, with submission of the commissioning report by 30 June 2016. W5116/2011/1 was due to expire on 22 April 2016; hence an extension of the expiry date until 31 August 2016 was also requested. The Licensee later requested that the due date for the commissioning report, and completion date for the commissioning period, be extended by 1 month until the end of July and September, respectively.

Rather than amending W5116/2011/1 and extending the expiry date, DER has determined to include conditions for the construction and commissioning of the WAPS on the West Angelas operating Licence L7774/2000/6. Including conditions for construction of works under the Licence is in accordance with Departmental reform. In doing so, Category 52 with a design capacity of 90 MW has been included on the Licence. The Licensee will no longer be required to report against W5116/2011/1 but rather report against conditions specific to the WAPS on L7774/2000/6.

Category 70
The Licensee requested the removal of Category 70 as the screening plant pertaining to this category was demobilised from the premises in November 2014. Category 70 was removed.

Category 73
The Premises design capacity for Category 73 was increased to to 18,300 m^3 cubic metres (m^3) in aggregate (from 15,845 m^3) to account for 2 x 110 kilolitre (kL) horizontal diesel storage tanks constructed to service the WAPS and other infrastructure on the Premises for the storage and handling of environmentally hazardous materials.

Licence expiry date
Licence L7774/2000/6 was due to expire Saturday, 28 May 2016. At the time of this amendment, DER and Rio Tinto Iron Ore (RTIO) is strategizing to convert all RTIO Part V Licences to DERs most current Licence template. To allow time to convert L7774/2000/6, the Licence expiry date was extended until Monday, 28 May 2029. Before this date, L7774/2000/6 will be reviewed, converted and reissued in liaison with RTIO.

Administrative amendments
Other changes to the Licence as a part of this amendment include:

- Updated 'Definitions' section;
- Removal of previous conditions 1, 2, 7, 8, 9, 13, 14, 16, 17, 18, 20, 21, 31, 32, 36, 38;
- Condition L13 was amended to include 'Special Waste Type 1';
- Condition L18 was amended to include 'Inert Waste Type 2';
- Condition L24, Table 2, was amended to remove silver (Ag) from the monitoring parameters, as the Licensee considers the risk are negligible given that Ag has been reported as below detectable limits for the past five years; and
- Updated appendices including a new Premises map and others depicting major infrastructure, WWTPs, landfills, the dewatering discharge point and the WAPS.

Where conditions have been included, amended or removed from the existing Licence these have been justified in Section 4.

4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Definitions	N/A.	Various definitions have been removed where no longer relevant to the current Licence, or added where necessary to account for current operations and Licence conditions.	N/A.
Premise operation	L1	**Category 12** Category 12 with a design capacity of 10,000,000 tpa has been included onto the Licence to allow for multiple plants to operate onsite simultaneously in the future. The Licensee must ensure that the combined design capacity of all Category 12 mobile plants onsite at the same time is restricted to 10,000,000 tpa. Condition L1 has been added to the Licence. The mobile plants are to be managed in accordance with the *Iron Ore (WA) Mobile Crushing and Screening Management Plan*, Rio Tinto, 2015 (RTIO-HSE-0235877) and Licence conditions.	General provisions of the *Environmental Protection Act 1986*. *Environmental Protection (Unauthorised Discharges) Regulations 2004.* DER public website at: www.der.wa.gov.au. *Licencing and works approvals process* (September 2015). *Iron Ore (WA) Mobile Crushing and Screening Management Plan*, Rio Tinto, 2015 (RTIO-HSE-0235877). Works Approval W5721/2014/1. Works Approval W5116/2011/1. *Compliance Statement –*
	N/A.	**Changes to design capacity for Categories 52, 64, 70 and 73** Category 52 with a design capacity of 90 MW was included on the Licence to account for the WAPS. Category 64 design capacity was increased to 11,500 tpa (from 3,500 tpa) to account for the WADB landfill constructed under W5721/2014/1. Category 70 was removed at request of the Licensee. Category 73 design capacity was increased to 18,300 m^3 (from 15,845 m^3). .	
	L9	**Removal / Restructuring of previous conditions** Previous conditions L13 and L14 were removed in accordance with Departmental reform and instead condition L9 was included on the Licence to ensure appropriate management of infrastructure which has the potential to contaminate stormwaters at West Angelas. Previous conditions L16, L17 and L21 were removed in accordance with Departmental	

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		reform. These conditions have been deleted as it is the occupier's responsibility to ensure they comply with relevant legislative requirements for the storage and handling of environmentally hazardous materials. Unauthorised discharges of environmentally hazardous materials maybe subject to the provisions of the *Environmental Protection (Unauthorised Discharges) Regulations 2004*. Previous condition L20 relating to the use of measures or agents such to prevent oil-water emulsions was removed as this is a secondary activity, which does not contribute to the nature and type of emissions from the primary activity. This is in accordance with the DER guidance statement *Licencing and works approvals process* (September 2015)	*Works Approval W5116/2011/1 – West Angelas Iron Ore Mine – Power Upgrade.* RTIO (Ref. RTIO-HSE-0252715). *Commissioning Plan for the West Angelas Power Station*. RTIO (Document No: 3200-0448-PLN-004).
	L26 – L30	**Commissioning and Operation of the WAPS (W5116/2011/1)** Condition L26 has been included on the Licence to ensure that the WAPS is constructed and operated in accordance with the documentation provided and assessed for W5116/2011/1. In accordance with conditions W2 and W8 of W5116/2011/1, a compliance document was submitted to DER on 18 March 2015 and a commissioning plan 18 November 2014. As such, the requirements of these conditions have been met. Condition L27 has been included on the Licence requiring the Licensee to undertake commissioning in accordance with the submitted *Commissioning Plan for the West Angelas Power Station* (Document No: 3200-0448-PLN-004). Condition L30 has been included on the Licence to allow commissioning of the WAPS until 30 September 2016. Condition L28 requires the Licensee to submit a commissioning report for the WAPS by 30 July 2016 and Condition L29 details the requirements of this report. The Licensee will no longer be required to report against W5116/2011/1 but rather report against conditions L26 – L30 on L7774/2000/6. Conditions L26 – L30 will be removed from the Licence once compliance has been met.	

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Point source emissions to air including monitoring	L31, L32 and L35	**Operation – WAPS** Details of DER's assessment and decision making are included in Appendix A.	General provisions of the *Environmental Protection Act 1986.* Works Approval W5116/2011/1. *Compliance Statement – Works Approval W5116/2011/1 – West Angelas Iron Ore Mine – Power Upgrade.* RTIO (Ref. RTIO-HSE-0252715). *National Environment Protection (Ambient Air Quality) Measure* guidelines. *Protection of Environment Operations (Clean Air) Regulation 2010.*
Point source emissions to surface water including monitoring	L23 – L25	Details of DER's assessment and decision making are included in Appendix B.	General provisions of the *Environmental Protection Act 1986.* *Environmental Protection (Unauthorised Discharges) Regulations 2004.* Ministerial Statement 970.
Emissions to land including monitoring	L2 - L5, L9, L10 and L14 – L18	Details of DER's assessment and decision making are detailed in Appendix C.	General provisions of the *Environmental Protection Act 1986.*

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
			Environmental Protection (Unauthorised Discharges) Regulations 2004. DER public website at: www.der.wa.gov.au. Works Approval W5116/2011/1. *Compliance Statement – Works Approval W5116/2011/1 – West Angelas Iron Ore Mine – Power Upgrade.* RTIO (Ref. RTIO-HSE-0252715).
Fugitive emissions	N/A.	**Operation** Emission Description *Emission:* Fugitive dust may result from the daily operation of West Angelas where sources of dust can be attributed to stockpiles, materials handling and crushing, and vehicle movements on dirt roads. *Impact:* Dust emissions can be harmful to human health and the environment. Elevated total suspended particulates (TSP) can impact ambient environmental quality resulting in amenity impacts and can smother vegetation. The nearest sensitive receptor to West Angelas is the town of Newman 120 km north-west, and hence impacts to human health from dust are unlikely. *Controls:* The Licensee will implement the following controls to limit the creation and spread of dust: • rotating sprinklers over stockpiles; • water carts operating on both day and night shifts; • deluge sprays while tipping and crushing; • sprinklers operating on reclaimers and train load out; • spray bars installed along the conveyor belts;	General provisions of the *Environmental Protection Act 1986.* *Environmental Protection (Unauthorised Discharges) Regulations 2004.* DER public website at: www.der.wa.gov.au.

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		• coverings on transfer points; • the use of skirtings and dust filters; and • dust extraction systems maintained as required. Risk Assessment *Consequence:* Insignificant *Likelihood:* Possible *Risk Rating:* Low Regulatory Controls Given the Licensees regulatory controls, the siting of the West Angelas (120 km north-west of Newman) and excess water onsite (dewatering water), the risk of fugitive dust emissions was assessed as low. Consequently, previous conditions L1 and L2 were removed in accordance with Departmental reform. Dust emissions can be sufficiently regulated under section 49 of the *Environmental Protection Act 1986*. Risk Assessment *Consequence:* Insignificant *Likelihood:* Possible *Risk Rating:* Low	
Noise	N/A.	**Operation – WAPS** Emission Description *Emission:* Noise generated from the operation of the WAPS, namely the OCGTs. *Impact:* Noise impacting nearby sensitive receptors. The nearest sensitive receptor is the West Angelas Village accommodation camp (the camp) more than 4 km away, followed by Newman 120 km north-west. A noise assessment was conducted to assess the environmental noise impacts of the operational WAPS on the camp. Noise levels predicted around the camp were based on worst case meteorology and were compared against the requirements of the *Environmental Protection (Noise) Regulations 1997* (the EP Noise Regulations). The predicted noise level at camp was 27.5 dB(A), which is 78% of the limit required under the EP Noise Regulations. Impacts due to noise are	General provisions of the *Environmental Protection Act 1986*. *Environmental Protection (Noise) Regulations 1997.*

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		therefore considered unlikely. *Controls:* The Licensee will implement the following controls to manage noise emissions from the WAPS site: • The OCGTs are installed within a steel enclosure; • Operational noise levels will be monitored during commissioning to confirm the noise modelling study; and • Noise levels from the WAPS will to comply with the EP Noise Regulations. <u>Risk Assessment</u> *Consequence:* Insignificant *Likelihood:* Rare *Risk Rating:* Low <u>Regulatory Controls</u> Noise emission can be sufficiently regulated under the EP Noise Regulations and general provisions of the *Environmental Protection Act 1986*. No further conditions relating to noise are required on the Licence. <u>Residual Risk</u> *Consequence:* Insignificant *Likelihood:* Rare *Risk Rating:* Low	
Ambient quality monitoring	N/A.	Previous condition L38 has been removed. The Licensee is obligated under Ministerial Statements 970 to monitor and manage vegetation health at West Angelas. Vegetation health can be adequately regulated by this Ministerial Statement.	Ministerial statement 970.
Licence Duration	N/A.	Licence L7774/2000/6 was due to expire Saturday, 28 May 2016. At the time of this amendment, DER and RTIO is strategizing to convert all RTIO Part V Licences to DERs most current Licence template. To allow time to convert L7774/2000/6, the Licence expiry date was extended until Monday, 28 May 2029. Before this date, L7774/2000/6 will be reviewed, converted and reissued in liaison with RTIO.	N/A.

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
3/03/2016	Proponent sent a copy of draft instrument (21 day amendment)	The following comments were received on 15/03/2016: • The Licensee requested that Category 12 be included onto the Licence as per other premises operated by the Licensee. A nominal design capacity of 10,000,000 tonnes per annum (tpa) was requested in case multiple plants are required onsite simultaneously in the future to process materials other than ore. The plants will be managed in accordance with the *Iron Ore (WA) Mobile Crushing and Screening Management Plan*, Rio Tinto, 2015 (RTIO-HSE-0235877); • The Licensee requested the removal of Category 70 as the screening plant pertaining to this category was demobilised from the premises in November 2014; • The Licensee advised that the Premises production or design capacity for Category 73 should be 18,300 m^3; • Condition L13 should include 'Special Waste Type 1'; • Condition L18 should include 'Inert Waste Type 2', similarly to other Waste Dump Landfills managed by the Licensee; • The Licensee requested that silver (Ag) be removed from the list of monitoring parameters in Condition L24, Table 2. The Licensee considers the risk of Ag as negligible given that the concentration of Ag has been reported as below detectable limits for the past five years; • The Licensee requested that water quality analysis for pH, Electrical Conductivity and Volume in Condition L24 be undertaken quarterly (as oppose to Monthly) due to limited discharge from the Turee Creek Dewatering Discharge Point and commensurate with risk; • The Licensee requested that the due date for the commissioning report, and completion date for the commissioning period, for the WAPS be extended by 1 month (conditions L28 and L30); and • The Licensee requested that the map of landfills be replaced by an updated map.	The following changes were made: • Category 12 with a nominal design capacity of 10,000,000 tpa was included on the Licence. Condition L1 was included on the Licence so that the plants are managed in accordance with the *Iron Ore (WA) Mobile Crushing and Screening Management Plan*, Rio Tinto, 2015 (RTIO-HSE-0235877); • Category 70 was removed; • The Premises production or design capacity for Category 73 was corrected to 18,300 m^3; • Condition L13 was amended in include 'Special Waste Type 1'; • Condition L18 was amended in include 'Inert Waste Type 2'; • Condition L24, Table 2, was amended to remove Ag; • Condition L24, Table 2, was amended to reduce the monitoring frequency for Electrical Conductivity and pH to 'Quarterly'. The monitoring frequency for Volume remains unchanged as it is necessary to confirm compliance with the approved Category 6 Production or Design Capacity; • The due date for the commissioning report, and completion date for the commissioning period, were extended by 1 month; and • The map of landfills was replaced.

6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High

Appendix A

Point source emissions to air including monitoring

Air emissions will occur from the WAPS two OCGTs constructed under W5116/2011/1. Each OCGT is fitted with an 18 m height exhaust stack (1.62 m radius). Both stacks have been fitted with air emissions sampling points.

Oxides of Nitrogen (NO_X) are expected to be the primary gaseous emission of concern from the WAPS given its potential for human health impacts. Emission of other pollutants such as sulphur dioxide (SO_2), particulate matter ($PM_{2.5}$ and PM_{10}), ozone and volatile organic compounds (VOC) are likely to be insignificant given the low sulphur content of natural gas and diesel in Western Australia and the low predicted emission rates for other pollutants.

Table 2 presents the expected point sources emissions from the WAPS at standard operating conditions (dry and 15% oxygen). These source emission characteristics are based on USEPA AP-42 emission factors for stationary gas turbines and are considered to represent a conservative scenario for assessment purposes.

Table 2: Point source emissions when operating at standard conditions. Units = milligrams per standard cubic metre (mg/Nm^3).

Parameters	Estimated Concentration (mg/Nm^3)	
	Gas firing	*Distillate (diesel)*
Nitrogen oxide (NOx) as Nitrogen dioxide (NO_2)	46.53	127.96
Sulfur dioxide (SO_2)	10.79	11.59
Total Volatile organic compounds (VOC) as propane	37.09	7.24
Carbon dioxide (CO_2)	11.92	0.48
Total particulates	10.80	19.63

The Licensee modelled the potential effects on air quality from emissions to air prior to construction of the WAPS. The results of the modelling are presented in the Table 3 below and represent the maximum ground level concentrations predicted by dispersion modelling at the nearest sensitive receptor, being the West Angelas Village accommodation camp 4 km from site. From this information it is apparent that the maximum predicted concentrations are well within the *National Environment Protection (Ambient Air Quality) Measure* (NEPM) guidelines. Measurements were highest when modelled under diesel operation; however, diesel is intended as a backup fuel only for situations where natural gas is not available.

Table 3: Modelling results for diesel and gas operation, presented as the maximum expected concentrations (% NEPM guideline) over the West Angelas accommodation camp. Results were measured against the NEPM guidelines in parts per mission (ppm).

Measurement	Diesel operation (%)	Gas operation (%)	NEPM guideline (ppm)
NO_x 1 hour average	23	15	0.12
NO_x Annual average	3.2	1.8	0.03
$S0_2$ 1 hour average	0.011	N/A.	0.20
$S0_2$ Annual average	0.004	N/A.	0.02

The way in which the proponent used the model, its selection of input data and the assumptions made was reviewed by DER prior to issuing W5116/2011/1 and DER were then satisfied that the modelling presented reliable conclusions on the predicted concentrations of all pollutants. However, DER determined that the modelling results would require verification through monitoring in the

commissioning phase. Operations post-commissioning will only commence once these model predictions have been verified.

Emission Description

Emission: Emissions to air from the WAPS stacks (Gas Turbine Generator 1 and Gas Turbine Generator 2) include that of nitrogen dioxide, sulphur dioxide, carbon monoxide and volatile organic compounds.

Impact: Reduction in local air quality and potential impacts to human health. The nearest sensitive receptor is the townsite of Newman, 120 km north-west, and hence impacts to human health are unlikely.

Controls: The Licensee will implement the following controls to minimise the risk of airs emission for the WAPS stacks:

- Emission reducing technology including Dry Low Emission (DLE) burners have been fitted in the constructed WAPS to ensure air emission quality meets NEPM guidelines;
- The Licensee will undertake annual stack sampling measuring of NO_x, SO_2, CO, volumetric flow rate and moisture content and report the results to DER in their Annual Environmental Report (AER); and
- Routine maintenance of the equipment will be undertaken.

Risk Assessment

Consequence: Insignificant
Likelihood: Unlikely
Risk Rating: Low

Regulatory Controls

According to the Licensee, and air modelling results for the WAPS, no impacts are anticipated for the nearest human receptors greater than 4 km away. DER will need to evaluate air monitoring results obtained during commissioning to confirm that there will not be a reduction in local air quality, above NEPM standard.

Condition L31 was included on the Licence to denote air emission points on the Premises, being ‘Gas Turbine Generator 1’ and ‘Gas Turbine Generator 2’.

Condition L32 was included requiring the Licensee to monitor these air emission points, and present this information in the AER, including an assessment and comparison against the appropriate NEPM guidelines and all recorded monitoring data. Monitoring during operation (i.e. post-commissioning) is necessary to ensure local air quality is maintained above NEPM stands. The requirement for, or specifications of, Condition L32 will be reviewed by DER following the submission of the commissioning report for the WAPS.

Risk Assessment

Consequence: Insignificant
Likelihood: Unlikely
Risk Rating: Low

Appendix B

Point source emissions to surface water including monitoring

The West Angelas deposits lie in the upper catchment of the Turee Creek East, a highly ephemeral tributary of the Ashburton River. The upper catchment has a complex drainage pattern characterised by intermittent flow and infrequent wide-spread flooding, depending on the occurrence of high rainfall events.

Robe River discharges excess dewatering water into an ephemeral tributary of the Turee Creek East Branch. Water flows down a weakly defined drainage line for approximately 350 m before merging with the tributary that flows to the Turee Creek East Branch. Discharge water is estimated to extend up to 12 km from the discharge outlet at the maximum discharge of 6 gigalitres per year (GL/yr). Water discharged into the creek system is expected to be contained within the creek bed, between banks for the entire inundation footprint.

Emission Description

Emission: Discharge of dewatering water into a tributary of Turee Creek. Based on measured groundwater quality, excess water being discharged is fresh with calculated total dissolved solids ranging between 280 and 560 milligrams per litre (mg/L) and pH between 7.1 and 8.1.

Impact: Contamination of surface water channels and potential impacts on the ecology of surface water from the addition of nutrients and heavy metals. The creek ecosystem should not be adversely affected by the quality of the dewatering water as it is near potable if not potable.

Controls: Key management and monitoring measures from the Environmental Management Plan include, but are not limited to the following:

- Dewatering water is used on site in the first instance to supply water for operational purposes (processing and dust suppression) wherever possible. If the volume exceeds the site requirements it is discharged into natural channels;
- All West Angelas personnel and contractors receive an environmental induction, which includes a section on the importance of water conservation;
- Water use efficiency is monitored;
- The quantity of water discharged to the environment is monitored to ensure discharge water does not exceed the carrying capacity of the receiving creekline;
- Water quality sampling is undertaken to ensure any water discharged to the natural environment does not exceed the ANZECC 2000 Guidelines;
- The discharge outlet conforms to the *Pilbara Iron Sediment and Drainage Control Design Criteria* to reduce erosion, sediment loads and associated water quality impacts; and
- The potential increase in the distribution and abundance of weeds is managed in accordance with a site specific Weed Management Plan.

Risk Assessment

The Licensee's Annual Environmental Report for the 2014 reported no exceedances of ANZECC 2000 trigger values for dewatering waters discharged to Turee Creek from the West Angelas operations.

Dewatering water quality results to Turee Creek for 2013 were consistent throughout the reporting period, with minor fluctuation in pH and temperature. The pH concentration was slightly elevated during July and December 2013 at levels of 8.63 and 8.64, respectively (target = 8.5). The pH concentration was consistently lower than 8.5 throughout 2014. Temperature of samples collected during May, July, August and September 2013 did not meet the target for temperature range of 21.4°C to 44.6°C (range based on historic groundwater temperature). Instead, temperature of samples ranged from 17.4°C to 20.9°C. The Licensee explains that lower temperatures are

anticipated during these winter months given that water is exposed to cooler ambient air temperature through settlement ponds and piping infrastructure. In addition, results are highly dependent on what time of the day the temperature reading was taken. In the 2013 AER the Licensee states that no environmental impact is expected from these pH or temperature target exceedances.

Throughout the 2013 and 2014 reporting periods, surface water quality results from excess dewatering water discharge to Turee Creek were comparable to groundwater quality results, aside from the minor deviations described above. This indicates that water discharge from West Angelas is of comparable quality to abstracted groundwater, and is expected to pose a low environmental risk.

Consequence: Insignificant
Likelihood: Possible
Risk Rating: Low

Regulatory Controls
The Licence has conditions L23 – L25 requiring monitoring of dewatering discharge water and management of the Turee Creek discharge point. The License also has condition L10 imposing a limit of 30 mg/L for total recoverable hydrocarbon (TRH) in waters discharged from the Premises.

Condition L23 (previously L34) was amended to specify that dewatering waters only be discharge thought the dewatering discharge point specified in Attachment 5.

Condition L24 (previously L35) was amended to require the Licensee to compare the dewatering water monitoring results to the appropriate ANZECC 2000 guideline in the AER, including a comparison against previous years monitoring data. Due to limited discharge from the Turee Creek Dewatering Discharge Point, and the general history of compliance with surface water quality targets, at the request of the Licensee, the monitoring frequency for Electrical Conductivity and pH was reduced to 'Quarterly' (as oppose to 'monthly'). The monitoring frequency for Volume remains unchanged.

Ministerial Statement 970 also has conditions relating to monitoring of dewatering onsite, specifically potential impacts to groundwater. Ministerial condition L6-1 requires the Licensee to *"….manage groundwater abstraction and dewatering activities to ensure minimal adverse impacts on the availability and quality of groundwater resources and the dependent ecology"* and L6-2 to monitor groundwaters to ensure the requirements of 6-1 are met. Ministerial condition L7-1 also requires the Licensee to *"….manage surface water drainage and discharge to ensure minimal adverse impacts on existing surface water drainage patterns or the water dependent ecosystems"* and L7-2 to monitor surface waters in accordance with a Surface Water Management Strategy to ensure the requirements of 7-1 are met. In this strategy, it is stated that discharge water is monitored according to the Part V Licence and hence condition L24 and requirements for monitoring were retained.

Previous condition L36 was removed in accordance with Departmental reform which includes the removal of target conditions where an activity is considered to pose a low environmental risk.

Residual Risk
Consequence: Insignificant
Likelihood: Possible
Risk Rating: Low

Appendix C

Emissions to land including monitoring

(a) WWTPs

West Angelas has three WWTPs (Village WWTP1, Village WWTP2 and Mine WWTP). Sewage and wastewater from the West Angelas Village is directed to Village WWTP1 and Village WWTP2. The Village WWTPs are located approximately 7 km from the mine. Sewage and wastewater from the main buildings at the mine are directed to the Mine WWTP. The combined design capacity for the Village WWTPs is 560 m^3/day and the Mine WWTP has a design capacity of 50 m^3/day, giving Category 54 a total capacity of 610 m^3/day.

All three WWTPs irrigate to sprayfields. The Village WWTPs both irrigate to a 12 hectare (ha) sprayfield and the Mine WWTP disposes of treated wastewater to a 1.5 ha sprayfield. The expected water quality performance standards for the WWTPs are outlined in Table 4 and nutrient loading rates in Tables 5 and 6.

Table 4: WWTPs performance standards for water quality

Parameter	Expected performance standard		Australian Guidelines*
	Village WWTPs	Mine WWTP	
Biochemical Oxygen Demand (mg/L)	<20	20	20-30
Total Suspended Solids (mg/L)	<30	30	25-40
Total Nitrogen (mg/L)	<20	35	20-50
Total Phosphorus (mg/L)	<6	9	6-12
Residual free Chlorine (mg/L)	>0.2-2.0		N/A
pH (pH units)	6.5-8.5	6-9	6-9
E.coli (cfu/100mL)	<1 000	<1 000	10^5-10^6

* Refers to Secondary Treatment of wastewater - *National Water Quality Management Strategy, Australian Guidelines for Sewerage Systems – Effluent Management* (Agriculture and Resource Management Council of Australia and New Zealand Australian and New Zealand Environment and Conservation Council, 1997)

Table 5: Expected nutrient loadings for the 12 ha irrigation field

Parameter	Nitrogen	Phosphorus
Maximum throughput	560 m^3	
Irrigation area	12 ha	
Effluent Quality	<20 mg/L	<6mg/L
Nutrient loading	*340.7 kg/ha/yr*	*102.2 kg/ha/yr*

Table 6: Expected nutrient loadings for the 1.5 ha irrigation field

Parameter	Nitrogen	Phosphorus
Maximum throughput	50 m^3	
Irrigation area	1.5 ha	
Effluent Quality	35 mg/L	9 mg/L
Nutrient loading	*425.83 kg/ha/yr*	*109.5 kg/ha/yr*

Emission Description

Emission: Discharge from the WWTPs to the irrigation sprayfields.

Impact: Contamination of surrounding environment and potential impacts on the ecology of ground and surface water from the addition of nutrients and heavy metals.

Controls: The Licensee will implement the following management measures:

- 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 below the Department of Health recommended maximum limit of 10 mm per day;
- The sprayfields are bunded to prevent stormwater from entering/exiting the site;
- The sprayfields are sized appropriately to ensure that nutrient loadings are consistent with the Department of Water standards; and
- Every day maintenance procedures.

The WWTPs and sprayfields are sited so as to minimise potential environmental risk or amenity impacts such as odour.

Environmental siting of the Village WWTPs:

- Depth to groundwater is >3 m below ground level (mBGL);
- There are no major drainage channels present in the spray irrigation area, however, ephemeral drainage lines are present approximately to the 95 m east and 60 m west of the area;
- The WWTP is located more than 150 m from the camp and is positioned to minimise the potential for odour impacts on camp residents (i.e. consideration the direction of the prevailing winds); and
- The nearest sensitive receptor is the townsite of Newman, approximately 120 km to the south-east.

Environmental siting of the Mine WWTP:

- Depth to groundwater is >50 m mBGL;
- There are no surface water features in the vicinity of the Mine WWTP;
- The West Angelas workforce is accommodated at the site village located approximately 12 km north-west of the Mine WWTP; and
- The nearest sensitive receptor is the townsite of Newman, approximately 120 km to the south-east.

No complaints have been received in relation to either WWTPs or their associated sprayfields.

Risk Assessment

The Licensee's AER/AACR the 2014 reporting period recorded no exceedances of effluent quality targets for the West Angelas WWTPs.

A target exceedance was reported in the 2013 for *E. coli* from the Village WWTP1 (Licence L7642/2000/7 prior to amalgamation with L7774/2000/6). This target exceedance was investigated and found to result from the failure of an aerator pump. The aerator pump was subsequently fixed and the Village WWTP1 has since met expected water quality performance standards. No target exceedances were reported for the Mine WWTP in 2013.

Consequence: Insignificant
Likelihood: Unlikely
Risk Rating: Low

Regulatory Controls

Condition L5 (previously L6) requires the Licensee to monitor the WWTPs water quality on a quarterly basis and report these results in the AER. This condition has been updated to ensure the Licensee provides an assessment and comparison against the *National Water Quality Management Strategy, Australian Guidelines for Sewerage Systems - Effluent Management*, Agriculture and Resource Management Council of Australia and New Zealand and Australian and New Zealand Environment and Conservation Council, 1997 (NWQMS 1997) and all recorded monitoring data. A definition for NWQMS 1997 has been added to the Licence.

Previous conditions L7 and L8 relating to effluent water quality and nutrient loading rates were removed in accordance with Departmental reform which includes the removal of target conditions where an activity is considered to pose a low environmental risk.

Residual Risk
Consequence: Insignificant
Likelihood: Unlikely
Risk Rating: Low

(b) WADB landfill

Emission Description

Emission: Discharge of leachate from waste onto land, generation of wind-blown waste and the release of contaminated stormwater (that has been in contact with waste) on to land from the newly constructed WADB landfill (W5721/2014/1).

Impact: Contamination of the surrounding environment including soil, surface water and groundwater causing potential death of vegetation and fauna. The nearest surface water body is more than 500 m away. The depth to groundwater based on the existing level of land (natural water level) in the landfill area is approximately 95 m. However the WABD landfill has been constructed on a waste dump bench, which has a height of 20 m above the existing ground level, and hence the actual depth to groundwater is approximately 115 m. The nearest public drinking water source area (PDWSA) is located 76 km from the project area, which is the Newman Water Reserve. Hence there is a significant buffer distance between the WADB landfill and both groundwater and surface waters bodies.

Controls: The Licensee states that waste to be disposed of at the WADB landfill is not expected to generate significant amounts of leachate or windblown rubbish. The Licensee will implement the following controls to manage emissions from the WADB landfill site:

- waste will be compacted and covered, at least weekly with a minimum of 200 millimetres (mm) of inert incombustible fill;
- tipping area will not be greater than 30 m in length and 2 m above the ground level in height;
- as far as practicable, materials which are suitable for recycling will be segregated and held for removal from site rather than being placed in the landfill;
- fencing will be regularly inspected for damage and cleared of any windblown waste; and
- signage has been erected at the entrance to the WADB landfill demonstrating what can and cannot be disposed of at the landfill.

Stormwater will be managed at the WADB landfill so that water that has come into contact with the waste is retained onsite. No hydrocarbons or chemicals will be stored at the WADB landfill.

Risk Assessment
Consequence: Insignificant
Likelihood: Rare
Risk Rating: Low

Regulatory Controls
The existing Licence has conditions relating to the management of the site's putrescible landfill(s) (now L13 – L17). Condition L13 specifies the types of waste that may be accepted at a putrescible landfill(s), while conditions L14 - L17 are operational conditions ensuring appropriate covering and positioning of waste so as to minimise environmental risks. No additional conditions are required on the Licence for management of WADB landfill.

Residual Risk
Consequence: Insignificant
Likelihood: Rare
Risk Rating: Low

(c) Soil Bioremediation Facilities (Landfarm)

Emission Description
Emission: Discharges of hydrocarbon contaminated soils beyond the landfarm area into the environment.

Impact: Hydrocarbons in high concentrations can have toxic effects on aquatic organisms if allowed to enter surface waters near to the facility.

Controls: Soil bioremediation facilities are bunded to prevent the ingress and egress of stormwater during heavy rain events. In the rare event that a significant rainfall causes the release of hydrocarbon contaminated stormwater beyond the landfarm area, it is likely that concentrations would be very low.

Risk Assessment
Consequence: Minor
Likelihood: Rare
Risk Rating: Low

Regulatory Controls
Previous conditions L31 and L32 for the soil bioremediation facility have been removed as this is a secondary activity, which does not contribute to the nature and type of emissions from the primary activity. This is in accordance with the DER guidance statement *Licencing and works approvals process* (September 2015). The *Environmental Protection (Unauthorised Discharges) Regulations 2004* adequately regulate the discharge of hydrocarbon contaminated materials. As contaminated soils are effectively separated from the environment through bunding and hardstanding, the regulation of how soils are remediated is not required. The Licensee will still be required to effectively treat contaminated soils prior to disposal or have contaminated soils removed by a licensed contractor.

Risk Assessment
Consequence: Minor
Likelihood: Rare
Risk Rating: Low

(d) WAPS

Emission Description
Emission: Contaminated and/or sediment laden stormwater discharging to land due to operation of the WAPS.

Impact: Contamination of surrounding land and ephemeral water drainage lines draining towards and into the Turee Creek East, which is a tributary of the Ashburton River. The nearest drainage line is approximately 300 m from the WAPS and typically flows in the wet season only (November to April).

Controls: The Licensee will implement the following controls at the WAPS to minimise the risk of contaminated and/or sediment laden stormwater discharging to land:

- WAPS pad is designed so that stormwater runoff will flow into drains that discharge to the Sedimentation Pond;

- Potentially contaminated stormwater will be directed to an oily-water separator (target of 10mg/L Total Recoverable Hydrocarbons (TRH)) prior to discharge to the Sedimentation Pond;
- The Sedimentation Pond has been designed to contain a 100 year ARI storm event of 72 hour duration;
- The Sedimentation Pond contains spillways to allow discharge of excess stormwater into Turee Creek East; and
- Rock or rip-rap will be installed at discharge points to reduce velocity and thus erosion impacts.

An Evaporation Pond has also been constructed to contain brackish process water treatment plant wastewater and minor volumes of OCGT blowdown and internal wash wastewater. The evaporation pond is lined with a HDPE plastic liner (permeability less that $2x10^{-10}$ metres/second) and will maintain freeboard of 1020 mm. An 1800 mm height fence has been constructed around the pond to prevent fauna entry. The quality of the water discharged from the process water treatment plant to the evaporation pond will be similar to the source water.

Risk Assessment
Consequence: Minor
Likelihood: Rare
Risk Rating: Low

Regulatory Controls
Condition L9 was included on the Licence to ensure appropriate management of infrastructure which has the potential to contaminate stormwaters at West Angelas. The Licence also has Condition L10 (previously L15) which specifies that the concentration of TRH in waters discharged from the premises does not exceed 30 mg/L. No additional conditions are required for the operation of the WAPS under the Licence.

Risk Assessment
Consequence: Minor
Likelihood: Rare
Risk Rating: Low