Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

Division 3, Part V *Environmental Protection Act 1986*

Works Approval Number	W6160/2018/1
Applicant	Fortescue Metal Group Ltd
ACN	002 594 872
File Number	DER2018/001024
Premises	Eliwana Fly Camp WWTP M47/1523
Date of Report	28 September 2018
Status of Report	Final

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1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
Applicant	Fortescue Metals Group Ltd
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
ANZECC	Australian and New Zealand Environment and Conservation Council (ANZECC) 1997 *Australian Guidelines for Sewerage systems, Effluent Management*, National Water Quality Management Strategy.
BOD	Biochemical Oxygen Demand
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CS Act	*Contaminated Sites Act 2003* (WA)
CWR	*Environmental Protection (Controlled Waste) Regulations 2004*
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DoH	Department of Health
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the *Public Sector Management Act 1994* and is responsible for the administration of the *Environmental Protection Act 1986* along with other legislation.
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)

EP Regulations	*Environmental Protection Regulations 1987* (WA)
ESA	Environmentally Sensitive Area
EWWTP	Eliwana Fly Camp Wastewater Treatment Plant
m^3	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
NATA	National Association of Testing Authorities
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Primary Activities	as defined in Schedule 2 of the Revised Licence
Risk Event	As described in *Guidance Statement: Risk Assessment*
TN	Total Nitrogen
TP	Total Phosphorus
TSS	Total Suspended Solids
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)
WQPN 22	Water Quality Protection Note 22: Irrigation with Nutrient-rich Wastewater (Department of Water, 2008)
WWTP	Wastewater Treatment Plant
mg/L	milligrams per litre

2. Purpose and scope of assessment

The Applicant has applied for a works approval to construct the EWWTP on M47/1523. The WWTP will service the Eliwana Construction Camp which will house 200 people. The Applicant has not applied for a Registration or Licence at this time. The Applicant intends to construct:

- Inlet screen;
- Balance tank;
- Primary tanks 1 and 2;
- Anoxic tank;
- Aerobic tank;
- Clarifier tank;
- Chlorine contact tank;
- Irrigation tank; and
- Treated waste discharge pipeline and associated spray irrigation sprinklers.

The WWTP will be housed within two (2) TRISTAR containerised (mobile Sea Containers) units. All treated wastewater is to be discharged to a dedicated 1.87ha spray irrigation field on the Premises.

The construction is to allow a WWTP production and design capacity of 70m^3/day to treat a camp of 200 people. The Applicant estimates the EWWTP will operate for 3 years post construction.

2.1 Application details

Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
Application form	21 June 2018
Additional Information in Regards to Application Ref: CEO 659/18 for a Works Approval for EWWTP	18 July 2018

3. Background

The Applicant has applied for a Category 85 Sewage facility works approval to construct the EWWTP at M47/1523.

Table 3 lists the prescribed premises categories that have been applied for.

Table 3: Prescribed Premises Categories in the Existing Licence

Classification of Premises	Description	*Approved Premises production or design capacity or throughput*
85	Sewage facility; premises – (a) on which sewage is treated (excluding septic tanks) ; or (b) from which treated sewage is discharged onto land	70m^3/day

	or into waters	

4. Overview of Premises

4.1 Operational aspects

The EWWTP will service the Eliwana Construction camp that has been built to house 200 people with a production and design capacity of 70m^3/day. Treated wastewater will be discharged to a dedicated 1.87ha irrigation spray field on the Premises. Refer to figure 1 for the location of the construction camp. The Applicant intends to construct the WWTP compromising two (2) TRISTAR containerised (mobile Sea Container) units.

- Inlet screen;
- Balance tank;
- Primary tanks 1 and 2;
- Anoxic tank;
- Aerobic tank;
- Clarifier tank;
- Chlorine contact tank;
- Irrigation tank; and
- Treated waste discharge pipeline and associated spray irrigation sprinklers.

Wastewater will initially pass through a mechanical bar screen which removes inorganic waste in the influent. The inorganic waste will be disposed into a bin automatically. The screened influent is gravity fed to the balance tank.

The balance tank stores the screen influent prior to its entry into the WWTP and provides uniform flow of wastewater into the WWTP thereby preventing the WWTP from experiencing shocks during peak loads.

Primary tank 1provide additional buffer capacity of inflow whilst primary tank 2 creates a steady inflow for the Anoxic and Aerobic tanks. After wastewater is delivered to primary tank 1, the top water level of influent wastewater is allowed to overflow into primary tank 2. Both tanks felicitate sedimentation of between 30 – 50% of the influent suspended solids and allow anaerobic digestion to take place.

The Anoxic tank receives overflow from primary tank 2. The Anoxic tank allows nitrate-specific bacteria to use nitrate as an oxygen source and a nutrient in a process called denitrification. This activity helps to remove nitrogen based pollutants by converting them into nitrate and nitrite before releasing them as gas. The tank is enriched with returned activated sludge from the Clarifier tank to provide plentiful supply of food for the bacteria.

The Aerobic tank receives wastewater from the Anoxic tank. Air is introduced into the Aerobic tank by the Biological Air Blower through air diffusers located beneath the submerged media. Air bubbles enrich the wastewater with oxygen and favourable conditions for the growth of aerobic bacteria so the bacteria can consume dissolved matter. The Aerobic tank is partially divided by a baffle to prevent under-aerated wastewater from prematurely moving to the next stage in the treatment process. The baffle can also alter the flow direction.

The Clarifier removes heavier solids by means of settlement and separation from the liquid fraction. It is designed to have a large surface area with adequate retention time. Sediment from the centre of the tank is returned to primary tank 1. The clear liquor at the top of the Clarifier is decanted into the Chlorine Contact Tank.

The Chlorine Contact Tank contains chlorine in tablet form and it is designed to provide 30 minutes minimum contact for effective disinfection of the influent.

The irrigation tank stores treated wastewater prior to discharge at the 1.87ha spray irrigation

field.

The WWTP will also contain ancillary equipment including a number of valves, blowers, protective paint coatings, instrumentation, electrical works and other supporting infrastructure integral to the EWWTP. The EWWTP will be fully automated via an electrical control board to allow unattended operations, however the WWTP can be operated manually if required. The EWWTP will have alarm systems to activate in the case of malfunction. The WWTP will contain flow meter to record inflows and outflows to the spray irrigation field.

The irrigation filed area will include irrigations pumps, above ground sprinklers, safety signage, 5m spray drift buffer and a vehicle access gate. The irrigation areas will be fenced.

Treated wastewater will be treated to meet the Low exposure risk level defined in the DoH Guideline for the Non-potable Uses of recycled water in Western Australia, 2011. Table 4 provides the anticipated treated effluent quality. Sludge produced by the WWTP will be collected in sludge tanks and will be removed periodically by a licensed Controlled Waste Carrier in accordance with CWR.

Table 4 Anticipated treated effluent quality

Parameter	**Concentration**
BOD	<20mg/L
TSS	<30mg/L
TN	<30mg/L
TP	<8mg/L
E. coli	<1000cfu/100mL
Residual Free Chlorine	0.2 – 2.0mg/L

In comparison to ANZECC 1997 guidelines the treated wastewater from the WWTP will be less than ANZECC guidelines as shown in Table 5.

Table 5 ANZECC guidelines effluent targets

Effluent Targets		
BOD_5	30 mg/L	ANZECC (1997) Category C – secondary treatment for infiltration Appendix 6
TSS	40 mg/L	
TN	50 mg/L	
TP	12 mg/L	

Note: *E. coli* upper limit in ANZECC (1997) is 100,000 cfu/100mL

Based on the discharge quality in Table 4 Irrigation area required for TN and TP will be 1.6ha and 1.7ha respectively so the dedicated irrigation area of 1.87ha is sufficient area to discharge treated wastewater. Given Table 4 wastewater quality concentrations and irrigation area the irrigation loading rates for TN and TP are 409.89kg/ha/yr and 109.30kg/ha/yr respectively. These loading rates are less than WQPN 22 Risk category D loading rates of 480kg/ha/yr and 120kg/ha/yr for TN and TP respectively.

Validation monitoring will be undertaken during Commissioning to ensure the WWTP is capable of treating the wastewater to the DoH standard and to confirm ongoing operation of the WWTP. The Applicant has advised Commissioning will occur for 6 weeks and samples will be required to be sent to a NATA accredited laboratory for analyses.

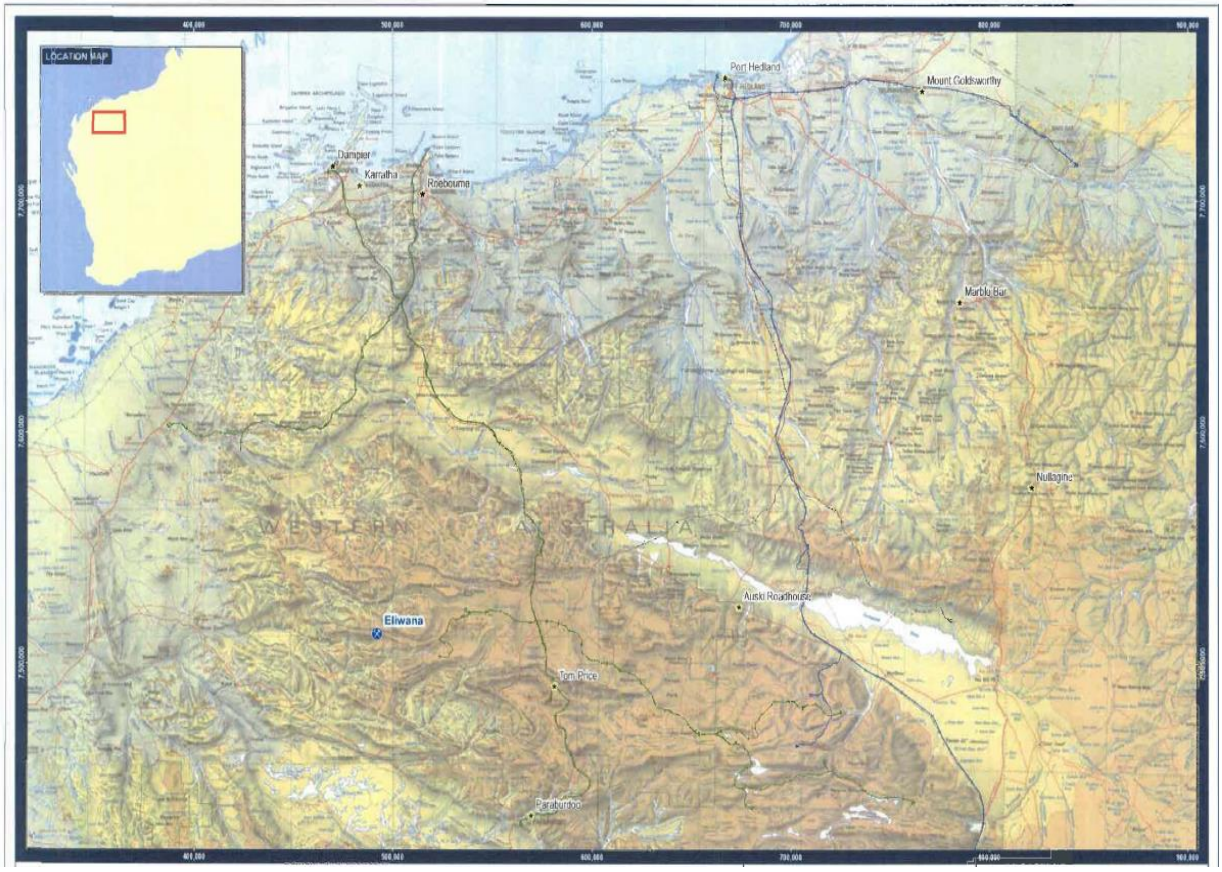

Figure 1 EWWTP location

4.2 Infrastructure

The Sewage facility infrastructure, as it relates to Category 85 activities, is detailed in Table 6 and with reference to the Site Plan (attached in the Attachment 1)

Table 6 lists infrastructure associated with each prescribed premises category.

Table 6: Sewage facility Category 85 infrastructure

	Infrastructure	Site Plan Reference
	Prescribed Activity Category 85	
Sewage facility WWTP will be housed within two (2) TRISTAR containerised (mobile Sea Container) units.		
1	Inlet Screen	Attachment 1: Site Plan
2	Balance Tank	
3	Primary Tank 1 & 2	
4	Anoxic Tank	
5	Aerobic Tank	
6	Clarifier Tank	
7	Chlorine Contact Tank	
8	Irrigation Tank	
9	Irrigation pipe and Sprinklers	
	Other activities	
1	Fence surrounding Irrigation field	Attachment 1: Site Plan

5. Legislative context

5.1 Other relevant approvals

5.1.1 Planning approvals

Shire of Ashburton have advised the Applicant that the site has been inspected by the Shire and the report has been emailed to DoH for approval.

5.1.2 Department of Mines, Industry Regulation and Safety

The Applicant advises that a Programme of Works has been approved by the Department of Mines, Industry Regulation and Safety authorizing construction of the camp.

5.1.3 Department of Health

Part 6 of the Application states that there is no current DoH approval. The Applicant has confirmed that the Shire of Ashburton report on the WWTP has been forwarded to DoH for their approval.

5.2 Part V of the EP Act

5.2.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

The guidance statements which inform this assessment are:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Publication of Annual Audit Compliance Reports (May 2016)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

5.2.2 Clearing

DWER Native Vegetation branch have confirmed that provided that the Applicant is not clearing within an ESA, the clearing activities are approved under the Programme of Works would be exempt.

6. Consultation

The Application was advertised on 3 August 2018 seeking any public comment. Comments were due 24 August 2018. No comments were received.

The Application was sent to the Shire of Ashburton on 7 September 2018 requesting comments by 20 September 2018. No comment were received.

7. Location and siting

7.1 Siting context

The Premises is located on M47/1523. The Premises is 90km north west of Tom Price.

7.2 Residential and sensitive Premises

The distances to residential and sensitive receptors are detailed in Table 7.

Table 7: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Residential Premises	38km west – Duck Creek Homestead

7.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The distances to specified ecosystems are shown in Table 8. Table 8 also identifies the distances to other relevant ecosystem values which do not fit the definition of a specified ecosystem.

The table has also been modified to align with the *Guidance Statement: Environmental Siting.*

Table 8: Environmental values

Biological component	Distance from the Premises
Threatened/Priority Fauna	2.7km north west - Mammal Bat

7.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 9.

Table 9: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Major watercourses/waterbodies	10.3km north – Duck Creek	Environmental & Livestock – ephemeral
Groundwater	Application does not provide information for depth to groundwater No bores located within 1km of Premises (based on available GIS dataset –WIN Groundwater Sites).	Water is not used for potable or industrial use.

7.5 Soil type

DWER's GIS identifies the soil class as Fa15 - Ranges of basalt along with shale, chert, jaspilite, and dolomite; some narrow winding valley plains. The soils are frequently shallow and there are extensive areas without soil cover: chief soils are shallow stony loams (Um5.51) along with (Um6.23) soils. (Dr2.33) soils occur on lower slopes extending onto the narrow valley plains where they are associated with (Uf6.71) and (Um5.52) soils. Occurs on sheet(s): 6

8. Risk assessment

8.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out through Table 10, and 11.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Tables 10 and 11 below.

Table 10. Identification of emissions, pathway and receptors during Construction

Risk Events						Continue to detailed Risk Assessment	Reasoning
Sources/Activities		Potential Emissions	Potential Receptors	Potential Pathway	Potential Adverse Impacts		
Construction, mobilisation and positioning of infrastructure	Vehicle movements when constructing WWTP	Noise from movement of heavy and light vehicles	Residential premises: 38km west	Air / wind dispersion	Amenity impacts causing nuisance	No	No receptor present. The construction works are minimal as the WWTP is containerised (Sea Containers) and is only designed for 70m^3/day so it is not a large Plant. Noise Management Plan employed by Applicant which states as part of Tender the Contractor must comply with the EP Noise Regs. The Delegated Officer has considered the separation distance between the source and receptors as a guide to inform the risk of noise emissions as not foreseeable. Noise can be adequately regulated by the EP Noise Regs.

Risk Events						Continue to detailed Risk Assessment	Reasoning
Sources/Activities		Potential Emissions	Potential Receptors	Potential Pathway	Potential Adverse Impacts		
		Dust from movement of heavy and light vehicles	Residential premises: 38km west	Air / wind dispersion	Health and amenity impacts - Potential suppression of photosynthetic and respiratory functions	No	No receptor present. The Applicant has a Dust Management Plan which will employed during construction activities. The WWTP is small in scale and only a limited small footprint will be cleared so dust lift off will be limited. The Delegated Officer has considered the separation distance between the source and receptors as a guide to inform the risk of dust emissions as not foreseeable. Dust can be adequately regulated by section 49 of the EP Act.

Table 11: Identification of emissions, pathway and receptors during Commissioning

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Wastewater Treatment Plant	Commissioning of treatment plant	Noise from operation of WWTP during Commissioning and movement of light vehicles	Residential premises: 38km west	Air / wind dispersion	Amenity impacts causing nuisance	No	No receptor present. There will only be very limited access to the EWWTP so vehicle movement will be restricted and infrequent. Applicant states Commissioning will only occur for 6 weeks. The Delegated Officer considers the separation distance between the source and receptors as adequate to inform the risk of noise emissions as not foreseeable. Noise can be adequately regulated by the EP Noise Regs.
		Dust from movement of vehicles	Residential premises: 38km west	Air / wind dispersion	Health and amenity impacts - Potential suppression of photosynthetic and respiratory functions	No	No receptor present. The Delegated Officer considers the separation distance between the source and receptors as adequate to inform the risk of dust emissions as not foreseeable. Dust can be adequately regulated by section 49 of the EP Act.
	Seepage / Spills at WWTP	Seepage of effluent to groundwater	Groundwater dependent ecosystems, subterranean fauna Depth to groundwater not provided in Application but expected to be deep	Direct discharge	Groundwater contamination	No	No pathway or receptor. The WWTP are containerised self bunded units which will meet a permeability of at least 1 x 10^{-9} m/s. The Delegated Officer considers the separation distance between the source

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
			given geological review.				and receptors as adequate to inform the risk of seepage emissions as not foreseeable.
	Treatment of sewage	Odour	Residential premises: 38km west	Air / wind dispersion	Amenity impacts causing nuisance	No	No receptor present. The WWTP is sited within two Sea Containers. The Delegated Officer considers the separation distance between the source and receptors as adequate to inform the risk of odour emissions as not foreseeable. Odour can be adequately regulated by section 49 of the EP Act.
	Irrigation of treated effluent	Irrigation of treated effluent; discharge to land	Vegetation adjacent to discharge area	Direct discharge to land. Indirect discharge to groundwater and surface waters	Soil contamination inhibiting vegetation growth and survival Groundwater and Surface water contamination	Yes	See section 9.4

8.2 Consequence and likelihood of risk events

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 12 below.

Table 12: Risk rating matrix

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

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 13 below.

Table 13: Risk criteria table

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

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

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines.*
"onsite" means within the Prescribed Premises boundary.

8.3 Acceptability and treatment of Risk Event

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment table 14 below:

Table 14: Risk treatment table

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

8.4 Risk Assessment – Irrigation of treated effluent

8.4.1 Description of Irrigation of treated effluent

The spray irrigation field will receive treated effluent for 6 weeks during Commissioning and during Operation (three year operation). Irrigation is to occur daily for the 6 week Commissioning period and then daily for the three year operation period and impacts include soil contamination inhibiting vegetation growth and survival and groundwater and surface water contamination.

8.4.2 Identification and general characterisation of emission

The type of emission is direct daily discharge of treated wastewater from the EWWTP. The WWTP has a capacity of 70m^3/day. Irrigation discharges will occur for 6 weeks during Commissioning and for three years during Operation activities. The type of emission will be discharges of treated effluent with the following contaminates: pH, BOD, TN, TP, TSS and *E. coli*.

8.4.3 Description of potential adverse impact from the emission

Soil contamination may inhibit vegetation growth and cause health impacts to fauna. Potential impacts include eutrophication of fresh waters if treated effluent was to enter the freshwater environment via groundwater or surface water.

8.4.4 Criteria for assessment

Relevant land and surface water quality criteria include:

- National Environment Protection (Assessment of Site Contamination) Measure 1999;
- ANZECC & ARMCANZ (2000) – freshwater and marine waters criteria; and
- DoH 2011 – non-potable groundwater use.

8.4.5 Applicant controls

The EWWTP has a capacity of 70m^3/day. The Spray irrigation field irrigation area required for TN and TP will be 1.6ha and 1.7ha respectively. The dedicated irrigation area of 1.87ha is therefore sufficiently sized. Given wastewater quality concentrations (Table 4) and irrigation area, the irrigation loading rates for TN and TP are 409.89kg/ha/yr and 109.30kg/ha/yr respectively. These loading rates are less than WQPN 22 Risk category D loading rates of 480kg/ha/yr and 120kg/ha/yr for TN and TP respectively.

The Spray irrigation field has a 5m spray drift buffer.

A 2m vertical groundwater separation distance will be maintained irrigation activities.

The WWTP spray irrigation field has been adequately located (Duck Creek 10.3km north) so that no surface runoff discharges into any nearby surface waters.

8.4.6 Key findings

The Delegated Officer has reviewed the information regarding Irrigation and has found:

1. *Production and design capacity is 70m^3/day.*
2. *Irrigation area of 1.87ha is sufficient to irrigate based on TN and TP loading.*
3. *Loading rates for TN and TP are 409.89kg/ha/yr and 109.30kg/ha/yr respectively. These loading rates are less than WQPN 22 Risk category D loading rates of 480kg/ha/yr and 120kg/ha/yr for TN and TP respectively.*
4. *A 2m vertical groundwater separation distance will be maintained irrigation activities.*
5. *The WWTP spray irrigation field has been adequately located (10.3km north) so that no surface runoff discharges into any nearby surface waters.*

8.4.7 Consequence

If irrigation occurs, then the Delegated Officer has determined that the impact of irrigation will be minimal on-site impact. Therefore, the Delegated Officer considers the consequence of irrigation to be **Slight**.

8.4.8 Likelihood of Risk Event

The Delegated Officer has determined that the likelihood of irrigation occurring will occur at some point. Therefore, the Delegated Officer considers the likelihood of Irrigation to be **Possible**.

8.4.9 Overall rating of <description Risk Event 1>

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 14) and determined that the overall rating for the risk of irrigation is **Low**.

8.5 Summary of acceptability and treatment of Risk Events

A summary of the risk assessment and the acceptability or unacceptability of the risk events set out above, with the appropriate treatment and control, are set out in Table 15 below. Controls are described further in section 9.

Table 15: Risk assessment summary

	Description of Risk Event			**Applicant controls**	**Risk rating**	**Acceptability with controls (conditions on instrument)**
	Emission	**Source**	**Pathway/ Receptor** **(Impact)**			
1.	Discharge of treated effluent to land, groundwater and surface water	Irrigation of treated effluent	Direct discharge causing impacts on soil /vegetation and indirect discharges to groundwater and surface water quality	Infrastructure and management controls.	Slight consequence Possible likelihood **Low Risk**	Acceptable and not generally subject to regulatory control.

9. Regulatory controls

A summary of regulatory controls determined to be appropriate for the Risk Event is set out in Table 16. The risks are set out in the assessment in section 9 and the controls are detailed in this section. DWER will determine controls having regard to the adequacy of controls proposed by the Applicant. The conditions of the Works Approval will be set to give effect to the determined regulatory controls.

The Applicant has not applied for a Registration or Licence. The Applicant has advised DWER on 26 July 2018 that the Applicant will apply for a Registration; consequently there will be no conditions for Operations.

Table 16: Summary of regulatory controls to be applied to the Works Approval

		Controls **(references are to sections below, setting out details of controls)**			
		9.1.1 Infrastructure and equipment	**9.1.2 Commissioning**	**9.1.3 Emissions**	**9.1.6 Reports**
Risk Items (see risk analysis in section 8)	**1. Irrigation of treated effluent**	●	●	●	●

9.1 Works Approval controls

9.1.1 Infrastructure and equipment

Works Approval condition 1 of the Works Approval is to allow the Works Approval Holder to construct the EWWTP, spray irrigation field and related pipework etc according to the specification outlined in condition 1. Works Approval condition 2 allows for minor departures if required. Works Approval condition 3 requires a construction compliance document be submitted by the Works Approval Holder to the CEO prior to Commissioning to ensure construction occurred with no material defects. Works Approval condition 4 requires the construction compliance document to identify and departures for works consistent with condition 2.

9.1.2 Commissioning

Condition 5 allows Emissions to occur during Commissioning. Condition 6, 7 and 8 have been drafted to allow Commissioning of the WWTP for 6 weeks. Treated effluent must be monitored weekly and the Applicant must submit a Commission Report upon completion of Commissioning.

9.1.3 Emissions

Specified and general emissions have been conditioned within the Works Approval detailing acceptable and unacceptable emissions.

9.1.4 Reports

Controls requiring reports allow DWER to determine compliance with these conditions.

10. Determination of Works Approval and Licence conditions

The conditions in the issued Works Approval (and Licence) have been determined in accordance with the *Guidance Statement: Setting Conditions*.

The *Guidance Statement: Licence Duration* has been applied and the issued Works Approval expires in 3 years from date of issue.

Table 17 provides a summary of the conditions to be applied to this works approval (and Licence).

Table 17: Summary of conditions to be applied

Condition Ref	Grounds
Infrastructure and Equipment 1, 2, 3 and 4	These conditions are valid, risk-based and contain appropriate controls.
Emissions 5	This condition is valid, risk-based and consistent with the EP Act.
Commissioning 6, 7, 8 and 9	This condition is valid, risk-based and consistent with the EP Act.
Record-keeping 6 and 7	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

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

11. Applicant's comments

The Applicant was provided with the draft Decision Report and draft issued Works approval on 7 September 2018. Comments were submitted on 17 September 2018. Refer to Appendix 2 for comments.

12. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

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

Stephen Checker

Digitally signed by Stephen Checker
Date: 2018.09.28 17:04:14 +08'00'

Stephen Checker
MANAGER WASTE INDUSTRIES
Delegated Officer
under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	Waste Water Treatment Plant Works Approval supporting Document Eliwana Iron Ore Project, 13 June 2018 EW-10023-WA-EN-0001	Application	DWER records A1694877
2.	DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
3.	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	DER 2015b	
4.	DER, August 2016. *Guidance Statement: Licence duration.* Department of Environment Regulation, Perth.	DER 2016a	
5.	DER, November 2016. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	DER 2016b	
6.	DER, November 2016. *Guidance Statement: Decision Making*. Department of Environment Regulation, Perth.	DER 2016c	

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder comment	DWER response
Table 2 Column 2(a)	Provide a definition for 'Sewage Treatment System' that excludes the Sprayfield and associated pipework. Whilst the pipeline to the Sprayfield and the Sprayfield itself are part of the prescribed premises boundary, they are not part of the sewage treatment system (they only carry treated effluent). Under the requirements of Table 2 Column 2(a), all above ground infrastructure that is part of the sewage treatment system must be located on a hardstand and be bunded. It would not be possible, nor desirable, for the Sprayfield to be located on a hardstand.	Column 1 Infrastructure / Equipment wording change to exclude Spray Irrigation Field and service pipeline from requirement to be hardstand bunded. Applicant has confirmed the WWTP will be Containerised.
Table 2 Column 2	Sewage Treatment System (b) *have the capacity to determine if seepage or containment failure from below ground infrastructure is occurring*. There is no infrastructure being built below the ground. Fortescue suggests this requirement can be removed.	Condition removed – Applicant has confirmed that, although not stated in the Application, the WWTP will be housed in two Sea Containers.
Table 2 Column 2	Sewage Treatment System (d) *Escherichia coli* <100cfu/100mL should read <1000cfu/100mL	Typo changed.
Table 2 Column 2	Sewage Treatment System (e) *Final treated effluent Irrigation storage tank capable of storing all wastewater not able to be discharged to the spray irrigation field*. Fortescue's application reads 'Treated effluent transferred to the irrigation tank is discharged to the spray irrigation field for disposal'. Fortescue suggests that if it's the DWER's intention that the treated effluent storage tank is	Condition wording changed.

Condition	Summary of Licence Holder comment	DWER response
	capable of storing treated effluent in the event that the spray filed becomes non-operational, the condition wording should read: *The irrigation storage tank be capable of storing all treated wastewater not able to be discharged to the spray irrigation field*.	
Table 2 Column 2 (g)	*Have a sealed connection point for pumping-out tank sludge for offsite ~~for~~ disposal to a licensed waste facility.*	Condition word deleted.
Schedule 3	A figure showing the location of the WWTP infrastructure within the Prescribed Premises boundary was provided to DWER on 26 July 2018. This figure is Attachment 1: Site Plan (page 24) of the Decision Report.	Applicant has confirmed that although not stated in the Application the WWTP will be housed in two Sea Containers so Schedule 3 map has been amended accordingly.

Attachment 1: Site Plan