



Application for Works Approval

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number	W6664/2022/1
Applicant	Fortescue Metals Group Ltd
ACN	002 594 872
File number	DER2022/000074
Premises	Eliwana Flying Fish Camp Wastewater Treatment Plant Part of Mining Tenement M47/1509 TOM PRICE WA 6751
Date of report	13 April 2023
Status of report	Final

1. Purpose and scope of assessment

Fortescue Metals Group Ltd (the applicant) proposes to upgrade the existing wastewater treatment plant and irrigation spray field area to accommodate an increase in workers at the Eliwana Exploration Camp. The premises currently operates under L9221/2019/1 for the Eliwana Iron Ore Mine. An application for a works approval was submitted under Division 3 Part V of the *Environmental Protection Act 1986* (EP Act) on 17 February 2022.

This decision report sets out the Delegated Officer's assessment of potential risk events arising from emissions and discharges during construction, installation, commissioning and subsequent time-limited operations relating to the prescribed activity.

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2. Application details

2.1 Overview of premises

The application relates to the upgrade of the existing wastewater treatment plant and extension of the existing irrigation spray field to support additional workers at the Eliwana Exploration Camp. The premises is located approximately 90km west-northwest of Tom Price within the Pilbara region of Western Australia.

Currently, the Eliwana Exploration Camp accommodates 200 persons with a WWTP treatment capacity of 40m³ per day and a 1.3 ha irrigation spray field (authorised under Registration R2451/2017/1). This works approval seeks to upgrade the WWTP to accommodate 250 persons with a treatment capacity of up to 87.5m³ of raw wastewater effluent (350L/person/day).

The applicant will also be constructing and operating a Reverse Osmosis (RO) plant at the camp to produce potable water. As the volume of water to be treated by this plant will remain under 0.5GL/year, a registration for a Category 85B prescribed premises under Schedule 1 of the *Environmental Protection Regulations 1987* (the Regulations) will not be required. The applicant is proposing to mix the RO reject water with the treated effluent prior to discharge to the proposed expansion of the irrigation spray field from 1.3ha to 3 ha. The estimated RO reject water discharge volume is 26.25kL/day (26.25m³ /day) thus a combined total of 113.75kL/day (113.75 m³ /day) of RO reject and treated effluent is to be discharged to the irrigation spray field.

DWER is aware that this wastewater treatment plant may also accept untreated effluent from maintenance workshops and similar facilities external to the Eliwana Exploration Camp. It is the responsibility of the licence holder to ensure all specified limits within the works approval are adhered to at all times.

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6664/2022/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6664/2022/1.

2.2 Part IV of the EP Act

The premises is subject to Ministerial Statement 1109 (MS1109), issued on 14 August 2019 which specifies criteria for the development and operation of the Eliwana Iron Ore Mine and associated infrastructure.

The Environmental Protection Authority (EPA) report 1641 concluded that the proposal was environmentally acceptable and could be implemented, subject to certain conditions. The increase in wastewater and RO brine disposal to land and expansion of the irrigation spray field may affect the following conditions in MS 1109:

- Condition 7, Flora and vegetation; where the proponent is to monitor and manage impacts to flora and vegetation, including the preparation of a Flora and Vegetation Monitoring and Management Plan (the Vegetation Health Management and Monitoring Plan, 100-PL-EN1020).
- Condition 9, Inland waters; where the proponent is to monitor and manage hydrogeological regimes, and surface water and groundwater quality, including the preparation of a Water Management Plan (the Inland Waters Management Plan, 751EW-0000-PL-EN-0005)
- Condition 10, Terrestrial Fauna; where the proponent is to avoid, where possible, and minimise direct and indirect impacts to significant fauna and their habitat, including the preparation of a Significant Fauna Monitoring and Management Plan (the Conservation Significant Fauna Management Plan, 100-PL-EN-0022).
- Condition 11, Subterranean fauna; where the proponent is to avoid, where possible, and minimise direct and indirect impacts to subterranean fauna and their habitat including the preparation of a Subterranean Fauna Monitoring and Management Plan (the Subterranean Fauna Management Plan, 100-PL-EN-1022).

Flora and vegetation, terrestrial fauna and subterranean fauna are considered to be adequately addressed by the respective plans as required under MS 1109 and are not considered further in the assessment of this works approval.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

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.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction and installation			
Dust	Vehicle movements Earthworks for the installation of the wastewater infrastructure and equipment	Air / windborne pathway	<ul style="list-style-type: none"> • Implementation of Fortescue’s mine and rail dust management plan during construction of the WWTP.

Emission	Sources	Potential pathways	Proposed controls
Noise	Operation of vehicles and machinery	Air / windborne pathway	<ul style="list-style-type: none"> No controls proposed – negligible risk due to remoteness of site (~80 km from the nearest town, Tom Price).
Spills/unintended releases of hydrocarbons or chemicals	Chemical handling and storage	Seepage to soil and groundwater	<ul style="list-style-type: none"> Implementation of Fortescue's chemical and hydrocarbon management plan (100-PL-EN-0011) during construction of the WWTP. Chemical containers are stored within bunded areas. Maintain a stock register and site holdings for all stored chemicals and hydrocarbons. All personnel and contractors involved in chemical handling to trained appropriately in accordance with Fortescue's guidelines and procedures. Chemicals and hydrocarbons are stored in accordance with Australian Standards including: <ul style="list-style-type: none"> AS1940-2004 – Storage and Handling of Flammable and Combustible Liquids. AS3780-2008 – Storage and Handling of Corrosive Substances. AS3833-2007 – Storage and Handling of Mixed Classes of Dangerous Goods. Chemicals and hydrocarbons (other than minor storage) to be stored in bunded compounds with a capacity of 110% of the volume of the largest vessel and at least 25% of the total volume.
Commissioning and time-limited operations			
Dust	Vehicle movements	Air / windborne pathway	<ul style="list-style-type: none"> Implementation of Fortescue's mine and rail dust management plan during operation of the WWTP.
Noise	Operation of vehicles and machinery	Air / windborne pathway	<ul style="list-style-type: none"> No controls proposed – negligible risk due to remoteness of site (~80 km from the nearest town, Tom Price).
Odour	Commissioning works, WWTP operations and sludge removal	Air / windborne pathway	<ul style="list-style-type: none"> WWTP tanks are fully contained. Each pump station is fitted with a carbon scrubber vent to absorb odours. Any odour complaint from site personnel will be logged and investigated.
Spills/unintended releases of hydrocarbons or chemicals	Chemical handling and storage	Seepage to soil and groundwater	<ul style="list-style-type: none"> Implementation of Fortescue's chemical and hydrocarbon management plan (100-PL-EN-0011) during operation of the WWTP. All chemicals used in the treatment process will be fully contained within HDPE contained chambers. Chemical containers are stored within bunded areas. Maintain a stock register and site holdings for all stored chemicals and hydrocarbons.

Emission	Sources	Potential pathways	Proposed controls
			<ul style="list-style-type: none"> • All personnel and contractors involved in chemical handling to trained appropriately in accordance with Fortescue's guidelines and procedures. • Chemicals and hydrocarbons are stored in accordance with Australian Standards including: <ul style="list-style-type: none"> ○ AS1940-2004 – Storage and Handling of Flammable and Combustible Liquids. ○ AS3780-2008 – Storage and Handling of Corrosive Substances. ○ AS3833-2007 – Storage and Handling of Mixed Classes of Dangerous Goods. • Chemicals and hydrocarbons (other than minor storage) to be stored in banded compounds with a capacity of 110% of the volume of the largest vessel and at least 25% of the total volume.
Spills/ unintended releases of partially treated wastewater or solid waste	Infrastructure and equipment failure Maintenance works	Seepage to soil and groundwater	<ul style="list-style-type: none"> • Groundwater separation at the camp is 43-50 mbgl ±10 m. and risk of permeation to groundwater is low. • WWTP systems will monitor tank volumes with an audible and visual alarm system to notify of high-risk volumes and pump failure. • Overflow lagoon constructed with a HDPE/impermeable liner to provide 200kL of emergency overflow storage capacity in accordance with FMG engineering specifications. • 0.5m freeboard maintained on the overflow lagoon. • WWTP tank sensors will generate an alarm during any overflow event. • Liquid waste within the overflow lagoon will be pumped into the WWTP for retreatment or emptied via a licensed waste contractor where required. • Overflow lagoon sized in accordance with a 10% annual exceedance probability (AEP) storm event. • Volumes as a result of rainfall events greater than 10% AEP storm events will either be managed through evapotranspiration or reclaimed and returned to the WWTP and disposed of via the irrigation spray field. • 5m spray drift buffer from edge of sprinkler radius. • WWTP screened solids are contained in a sealed bin before removal and disposal at a licensed disposal facility.
Contaminated or potentially contaminated stormwater	Stormwater interaction with plant and irrigation spray-field	Seepage to soil and groundwater	<ul style="list-style-type: none"> • Groundwater separation at the camp is 43-50 mbgl ±10 m. and risk of permeation to groundwater is low. • WWTP systems will monitor tank volumes with an audible and visual alarm system to notify of high-risk volumes and pump failure.

Emission	Sources	Potential pathways	Proposed controls
			<ul style="list-style-type: none"> Spray disposal not to occur during heavy rainfall events. Clean water cut-off drains will be installed along the east and south boundary of the spray field to direct natural surface run-off from beyond the spray field boundary during rainfall events. Perimeter cut-off drains are to be constructed within the spray field fence along the south, west and north boundaries. The perimeter drains will intersect excess rainfall run-off falling directly on the spray field or seepage within the permeable fill layer. This potentially contaminated stormwater will be directed to the overflow lagoon. 0.6m high protection windrows will be installed within the spray field fence line to prevent run-off entering from outside the spray field.
Discharge of treated sewage to irrigation spray-field	Camp wastewater and RO brine quality	Seepage to soil and groundwater	<ul style="list-style-type: none"> Controlled discharge to the 3ha irrigation spray-field only to prevent ponding. Groundwater separation at the camp is 43-50 m. and risk of permeation to groundwater is low. Expected field permeability of 3.8mm/day. Regular monitoring of treated wastewater quality. Ensuring wastewater is treated to below target concentration limits for all parameters. Sludge to be collected in sludge tanks and periodically removed by a licensed carrier to an appropriately licensed facility.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation.

Table 2 provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Native Title Holders - The PKKP Aboriginal Corporation RNTBC	The proposed premises is located within the PKKP Native Title Determination area (WCD2015/003). Native Title Holders visiting this area are considered a potential human receptor to activities on the premises.
Environmental receptors	Distance from prescribed activity

<p>Aboriginal Sites and Heritage Places:</p> <p>PK10_053</p> <p>PUU22-017</p> <p>PUU22-016</p> <p>PUU17-052</p>	<p>4 locations within 1km of the prescribed activity.</p>
<p>Surface Water</p>	<p>The proposed premises is located within the Pilbara Surface Water Area (proclaimed under the RIWI Act 1914).</p> <p>Based on the 1:250,000 Hydrography WA map of the region:</p> <ul style="list-style-type: none"> • The Pinarra Creek (minor non-perennial watercourse) line runs 600m south of the prescribed premises boundary. • An unnamed minor non-perennial watercourse runs approximately 800m north-west and 1.1km north-east of the prescribed premises boundary.
<p>Threatened/priority fauna</p>	<p>One species recorded within 5km of the prescribed premises boundary.</p>
<p>Priority Flora</p>	<p>One species within 5km of the prescribed premises boundary.</p>
<p>Groundwater</p>	<p>The proposed premises is located within the Pilbara Groundwater Area (proclaimed under the RIWI Act 1914).</p> <p>The applicant has reported that groundwater depth at the camp is 43-50m (± 10m) and is compartmentalised by dolerite dykes and low permeability strata.</p> <p>Groundwater licence GWL202596(3) permits the taking of 7,000,000kL of water per annum from the Hamersley – Fracture Rock aquifer. This water is used for a range of activities which includes dust suppression for earthworks and construction activities and mining camp purposes associated with this works approval application.</p> <p>Groundwater salinity is mapped at 500-1000 TDS.</p>
<p>Soils</p>	<p>The applicant has indicated that the land system within the Eliwana prescribed premises boundary is associated with the 'stony soil' Western Australia soil group (soil group 203).</p>

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works approval W6664/2022/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 3: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Works approval regulatory controls				
Source/ Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls									
Construction and installation												
Vehicle movements Earthworks for the installation of the wastewater treatment plant, infrastructure and equipment	Noise and fugitive dust	Unreasonable interference with the health, welfare, convenience, comfort or amenity of nearby sensitive receptors	Refer to Table 1	Minimal onsite impact Slight	Not likely to occur in most circumstances Unlikely	Low Acceptable, based on applicant controls being implemented	The Delegated Officer considers there is sufficient separation in place (~80 km to nearest town), and therefore does not reasonably foresee that noise and dust or noise from construction and installation works will impact on the amenity or health of off-site human receptors.	No regulatory controls specified in works approval - applicant controls sufficient.				
	Spills/ unintended releases of hydrocarbons or chemicals			Seepage/ infiltration causing soil and groundwater contamination					Low-level onsite impacts Minimal offsite impacts Minor	May only occur in exceptional circumstances Rare	The Delegated Officer considers the applicants controls sufficient in preventing and managing any chemical spills during construction and installation and has included applicable controls on the works approval.	<u>Applicant works approval controls:</u> - Condition 1, Table 1, 4d, 4e
Commissioning and time-limited operations												
Vehicle movements Earthworks for the installation of the wastewater treatment plant, infrastructure and equipment Operation of the WWTP	Noise and fugitive dust	Unreasonable interference with the health, welfare, convenience, comfort or amenity of nearby sensitive receptors	Refer to Table 1	Minimal onsite impact Slight	Not likely to occur in most circumstances Unlikely	Low Acceptable, based on applicant controls being implemented	The Delegated Officer considers there is sufficient separation in place (~80 km to nearest town), and therefore does not reasonably foresee that noise and dust or noise from commissioning and time-limited operations will impact on the amenity or health of off-site human receptors.	No regulatory controls specified in works approval - applicant controls sufficient.				
	Odour			Minimal onsite impact Slight					Not likely to occur in most circumstances Unlikely	Low Acceptable, based on applicant controls being implemented	The Delegated Officer considers the applicants controls sufficient in preventing and managing any odours during commissioning and time-limited operations. Applicable applicant controls have been included on the works approval.	<u>Applicant works approval controls:</u> - Condition 1, Table 1, 1e, 1i - Condition 5, Table 2, 2b, 2c - Condition 12, Table 5, 2b, 2c
	Spills/ unintended releases of hydrocarbons, chemicals, solid waste or partially treated wastewater			Seepage/ infiltration causing soil and groundwater contamination					Mid-level on-site impacts Low-level off-site impacts on local scale Moderate	Not likely to occur in most circumstances Unlikely	Medium Acceptable, subject to applicant controls and additional regulatory controls being implemented	The applicant has proposed to construct a 18m x 18m x 2m HDPE lined overflow lagoon to the east of the wastewater treatment plant to provide 200kL of emergency overflow storage capacity with a 0.5m freeboard. The applicant has not provided the engineering specifications of this lagoon however due to the low risk nature of this lagoon only being used in an emergency and given the remoteness of this premises from receptors, the Delegated Officer considers standard maximum permeability, bunding and certification requirements will be imposed in the works approval. This is to ensure that any wastewater captured by the lagoon is appropriately contained prior to being reintroduced through the WWTP or trucked to an alternative wastewater treatment facility as specified by the applicant. The Delegated Officer considers all other applicant controls sufficient in preventing and managing spills of hydrocarbons, chemicals, solid waste and partially treated wastewater during commissioning and operation.

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Works approval regulatory controls
Source/ Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Discharge to the irrigation spray-field	Treated wastewater	Seepage/ infiltration causing soil and groundwater contamination	Refer to Table 1	Mid-level on-site impacts Low-level off-site impacts on local scale Moderate	The risk event could occur at some time Possible	Medium Acceptable, subject to applicant controls and additional regulatory controls being implemented	Refer to Section 3.3 for assessment of wastewater and RO reject discharge to land.	<u>Applicant works approval controls:</u> - Condition 1, Table 1, 1c, 1d, 2a, 2b, 2c, - Condition 5, Table 2, 1a, 1b, 1c - Condition 6, Table 3 - Condition 7, Table 4 - Condition 12, Table 5, 1a, 1b, 3a - Condition 13, Table 6 - Condition 14, Table 7 - Condition 15, Table 8

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

3.3 Assessment of wastewater and RO reject discharge to land

3.3.1 Irrigation spray-field sizing

The applicant intends to discharge treated wastewater combined with RO reject to the designated irrigation spray-field. The existing spray-field infrastructure currently covers 1.3ha. This licence amendment seeks to construct an additional 1.7ha of sprinkler units (3ha total). This increase is based on the expected increase in camp accommodation occupancy to 250 persons. Based on the soil conditions in the wider region, the applicant has calculated a design permeability rate of 3.8mm/day. The applicant has indicated that a geotechnical investigation that includes permeability testing in accordance with appendix G of AS 1547 will be conducted to confirm this irrigation rate. To minimise the likelihood of pooling across the irrigation spray-field, the Delegated Officer has determined a maximum of 113.75m³/day (87.5m³ of treated wastewater combined with 26.25m³ of RO reject water) is permitted to be discharged during time-limited operations based on this irrigation rate.

During and following heavy rain, there is the potential for this effluent to pool on the ground surface. Pooling of effluent may lead to dispersion off-site via overland flow or infiltration and migration in groundwater. The Delegated Officer considers this pooling would cause low level off-site impacts and minimal impacts at the wider scale due to the dilution effect from rainfall, the presence of a deep groundwater table and the conditions relating to irrigation operations added to the works approval as per the applicant's proposed controls.

3.3.2 Effluent quality

The applicant proposes to discharge a maximum of 113.75m³/day of blended effluent to the irrigation spray-field. Based on preliminary sampling of the groundwater to be extracted for RO treatment, the applicant has calculated and expects the blended effluent to meet concentrations for the following parameters prior to discharge to the irrigation spray-field:

Table 4: Proposed effluent quality to be discharged to the irrigation spray-field

Parameter	Expected concentration
5-day biochemical oxygen demand (BOD ₅)	<20mg/L
pH	6.5-8.5
Total suspended solids (TSS)	<30mg/L
Total nitrogen (TN)	<30mg/L**
Total phosphorous (TP)	<8mg/L**
Total dissolved solids (TDS)	<1500mg/L
<i>E. coli</i>	<1000cfu/100mL
Residual free chlorine	0.2 – 2.0mg/L*
Sodium ions (Na ⁺)	136.6 mg/L***
Calcium ions (Ca ²⁺)	79.1 mg/L***
Magnesium ions (Mg ²⁺)	48.2 mg/L***
Electrical conductivity	1530 µs/cm***

*Residual free chlorine concentrations may be measured in treated wastewater prior to mixing with RO reject.

**Analysed over an annual period to assess nutrient loading potential.

*** Calculated from supply bore sampling results and addition of the human component (sewage, chemicals etc.) Expected human component increases adapted from information provided by the applicant for W6596/2021/1.

3.3.3 Nutrient loading assessment

In accordance with field data conducted by the applicant, it has been determined that the soil in the irrigation spray-field and expected end use of this area will allow for:

- Appropriate nutrient uptake in accordance with risk category D described in Table 1 - Eutrophication risk based on soil type and location, Water Quality Protection Note 22 – Irrigation with nutrient-rich wastewater;
- A low-risk exposure category level in line with Table 7 – Commissioning validation and verification monitoring requirements and Table 8 – Minimum ongoing monitoring requirements, Guidelines for the Non-potable Uses of Recycled Water in Western Australia;
- A medium water salinity rating (< 1500 mg/L TDS) that can be tolerated by vegetation endemic to this area; and
- A stable soil structure after conducting a soil sodicity assessment using the blended effluents expected sodium adsorption ratio against the electrical conductivity in accordance with the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3, Primary Industries – Rationale and Background Information.

Considering the applicants proposed controls in ensuring the nutrient loading on the receiving environment is managed appropriately in accordance with the above, The Delegated Officer has determined the overall rating for the risk of blended effluent discharge and soil sodicity is **Medium**.

4. Decision

The Delegated Officer has determined the upgrades to the existing wastewater treatment plant and extension of the existing irrigation spray field, with an assessed discharge maximum of 114m³ per day, does not pose an unacceptable risk of impacts to on and off-site receptors. This determination is based on the following:

- sufficient separation to nearby (human) sensitive receptors, groundwater and surface water features;
- calculation of the nutrient loading of the expected wastewater quality to the receiving environment; and
- the applicants proposed controls for the construction, commissioning and operation of the wastewater treatment plant.

The above controls proposed by the applicant are considered critical for maintaining an acceptable level of risk of environmental impacts; as such, they will be imposed where required on the works approval as infrastructure controls.

5. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 12 April 2022	None received.	N/A
Local Government Authority advised of	None received.	N/A

proposal on 12 April 2022		
Department of Health (DoH) advised of proposal on 12 April 2022 and 9 February 2023.	None received.	The Department advises that the applicant is to ensure approval to construct or install an apparatus for the treatment of sewage is sought from the DoH which may detail additional conditions to which the applicant must adhere to.
PKKP Aboriginal Corporation RNTBC advised of proposal on 12 April 2022	None received.	N/A
Applicant was provided with draft documents on 21/03/2023	Refer to Appendix 1	Refer to Appendix 1

6. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. ANZECC & ARMCANZ, October 2000. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Volume 3, Primary Industries – Rationale and Background Information. Perth, Western Australia. Accessed at: www.waterquality.gov.au
2. Department of Water (DOW), July 2008. *Water Quality Protection Note 22 (WQPN22): Irrigation with nutrient rich wastewater*. Perth, Western Australia. Accessed at: www.wa.gov.au
3. Department of Health (DOH), 2011. *Guidelines for the Non-potable Uses of Recycled Water in Western Australia*. Perth, Western Australia. Accessed at: www.health.wa.gov.au
4. Department of Water (DOW), August 2013. *Water Quality Protection Note 26 (WQPN26): Liners for containing pollutants, using synthetic membranes*. Perth, Western Australia. Accessed at: www.wa.gov.au
5. Department of Environmental Regulation (DER), July 2015. *Guidance Statement: Regulatory principles*. Perth, Western Australia. Accessed at: www.wa.gov.au
6. DER, October 2015. *Guidance Statement: Setting conditions*. Perth, Western Australia. Accessed at: www.wa.gov.au
7. DER, February 2017. *Guidance Statement: Risk Assessments*. Perth, Western Australia. Accessed at: www.wa.gov.au

8. Department of Water and Environmental Regulation (DWER), June 2019. *Guideline: Decision Making*. Perth, Western Australia. Accessed at www.wa.gov.au
9. DWER, June 2019. *Guideline: Industry Regulation Guide to Licensing*. Perth, Western Australia. Accessed at www.wa.gov.au
10. Department of Environment and Science (QLD), June 2020. *Disposal of effluent using irrigation*. Perth, Western Australia. Accessed at: www.publications.qld.gov.au
11. DWER, December 2020, *Guideline: Environmental Siting*. Perth, Western Australia. Accessed at: www.wa.gov.au
12. DWER, December 2020, *Guideline: Risk Assessments*, Perth, Western Australia. Accessed at: www.wa.gov.au
13. Fortescue Metal Group Ltd, 2022, Works approval supporting documentation – Eliwana Flying Fish Camp WWTP (February). Accessed from DWER Record No. DWERDT565600.
14. Fortescue Metal Group Ltd, 2022, Fortescue response to the Eliwana Flying Fish Camp WWTP W6664/2022/1 RFI (July). Accessed from DWER Record No. A2115489
15. Fortescue Metal Group Ltd, 2023, Fortescue response to the Eliwana Flying Fish Camp WWTP W6664/2022/1 RFI (February). Accessed from DWER Record No. DWERDT725818

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Draft condition	Applicant's comment	Department's response
<p>Condition 1: Table 1 - Wastewater Treatment Plant (1a,vi)</p>	<p>Fortescue confirms that depicted within the Process Flow Diagram for the WWTP, as provided in Figure 4 of the draft works approval, there is no RO brine storage tank(s).</p> <p>The brine produced from the WWTP is pumped directly from the RO plant into the WWTP Effluent Tank.</p> <p>There is no RO brine storage tank/s storage capacity to be advised, nor location to be shown on a map.</p> <p>Fortescue requests for the removal of Condition 1: Table 1 - Wastewater Treatment Plant, section vi. from the draft works approval.</p> <p>a) vi. RO brine storage tank/s with a combined storage of XX KL.</p>	<p>The Delegated Officer notes this information and has removed reference to RO brine storage from the works approval. It is the responsibility of the works approval holder to ensure the wastewater discharge does not exceed the specified concentration limits for all parameters in Table 7.</p>
<p>Condition 1: Table 1 - Wastewater Treatment Plant (1b)</p>	<p>Fortescue notes this condition relating to hardstands, and its slight variation in wording when compared to the same condition within other current operational works approvals and licences of its minesites.</p> <p>A minor change to the wording of this condition is sought to provide consistency and alignment with existing compliance wording of Fortescue's approval instruments.</p> <p>Fortescue requests the following changes to the condition:</p> <p>b) All above ground infrastructure to be located on a hardstand with a permeability of 1×10^{-9} m/s and be bunded to retain spills within the hardstand area. <u>All above ground infrastructure located on an impervious, earth bunded hardstand.</u></p>	<p>The Delegated Officer considers the applicants request to alter the wording of the condition to remove reference to a permeability limit acceptable, as the suggested insertion references 'impervious' and would be more desirable in lowering the risk of potential discharges of wastewater to the environment through seepage.</p> <p>Condition updated accordingly.</p>
<p>Condition 1: Table 1 - Irrigation spray field (2a)</p>	<p>Fortescue notes a misprint error in the quantity of total sprinkler units that will be contained within the irrigation spray-field.</p> <p>Based on the spray field layout provided in Figure 1 and Figure 5 of the draft works approval, a total of 20 sprinklers units are to be installed over the irrigation spray field area.</p> <p>Fortescue requests for the following update to the wording as provided below.</p> <p>Irrigation spray field to meet the following specifications:</p> <p>a) Installation of 24020 <u>24020</u> sprinkler units over 3ha.</p>	<p>The Delegated Officer notes this information and has updated the works approval accordingly.</p>

Draft condition	Applicant's comment	Department's response
<p>Condition 1: Table 1 - All infrastructure and equipment (4a)</p>	<p>Fortescue notes part a) of this condition relates to hardstands, and its slight variation in wording when compared to the same condition within other current operational works approvals and licences of its minesites.</p> <p>Fortescue requests for the following minor change to align with the compliance wording within other Fortescue operational works approvals and licences.</p> <p>Fortescue requests the following changes to the condition:</p> <p>a) Installed hardstands to be certified by a suitably qualified person <u>All above ground infrastructure is to be located on an impervious, earth bundled hardstand.</u></p>	<p>The Delegated Officer accepts the modification to condition 4a as it is a duplication - Certification requirements will already be captured through the submission of the Environmental Compliance Report.</p>
<p>Condition 2</p>	<p>Fortescue notes this condition relating to the installation of a liner differs in wording when compared to the same condition within other current operational works approvals and licences of its minesites. Therefore, Fortescue requests a slight variation to the wording to provide consistency and alignment with the wording within other current operational works approvals and licences of its minesites.</p> <p>Fortescue requests for the following changes to the wording, as provided below.</p> <p>Where a geosynthetic clay liner (GCL), synthetic liner <u>and/or HDPE liner</u> is installed for an item of infrastructure specified in condition 1, following installation the works approval holder must submit a Construction Quality Assurance Validation Report (CQAVR) <u>compliance document to the CEO, in accordance with Condition 4.</u></p>	<p>The Delegated Officer considers this condition a duplication which is able to be captured within the submission of the Environmental Compliance Report to reduce administrative burden. Reference to a geosynthetic clay liner is considered an error as the applicant has not advised that this type of liner will be used. Reference to a HDPE liner has been included in Table 1 as per the applicants suggested wording.</p> <p>Draft conditions 2 and 3 and been relocated into now condition 3 (Environmental Compliance Report) to consolidate the reporting requirements.</p>
<p>Condition 3</p>	<p>Fortescue notes this condition relating to suitably qualified persons differs in wording when compared to the same condition within other current operational works approvals and licences of its minesites. Therefore, Fortescue requests a slight variation to the wording to provide consistency and alignment with the wording within other current operational works approvals and licences of its minesites.</p> <p>Fortescue requests for the following changes to the wording, as provided below.</p> <p>The works approval holder must ensure the report required by condition 2 are written and certified by a suitably qualified person and includes, but is not limited to:</p> <p>a) documentation of the quality of the completed works <u>provide a list of departures from the specified works certified by a suitably qualified engineer; and</u></p>	<p>The Delegated Officer has revised the definition of suitably qualified person to suitably qualified engineer in Table 9 to the standard requirement for a civil or structural engineer to certify the construction requirements listed in Table 1.</p> <p>As a part of the previous follow up request for information to the applicant on 24/11/2022, The Delegated Officer requested permeability, installation and certification specifications for the lined overflow lagoon. As this detail was not provided for assessment, the relevant requirements for synthetic liner installations extracted from Water Quality Protection Note 26 were included in the draft works approval (Schedule 3) The Delegated Officer notes that due to the risk profile of this wastewater containment, reference to Schedule 3 is not required and is therefore removed, however the applicant is still required to have the synthetic liner certified in accordance with the requirements of Table 1.</p>

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	<p>b) demonstration of whether all requirements of the works specified in Table 1 and quality assurance provisions in Schedule 3 have been complied with be signed by a person authorised to represent the Licence Holder and contain the printed name and position of that person within the company.</p> <p>c) certification the installed liner is free of defect or defect and is fit for purpose; and</p> <p>d) copies of all surveys and drawings of the 'as installed' liners, inspections, and materials testing results.</p>	<p>The Delegated Officer considers the inclusion of a works departures condition for the liners installation not appropriate as a maximum permeability and appropriate bunding as minimum requirements is considered necessary to contain wastewater within the overflow lagoon where required.</p>
Condition 4	<p>Fortescue seeks to reduce the administrative burden of submitting multiple compliance reports following the submission of each individual infrastructure or equipment required by condition 1.</p> <p>Rather, Fortescue requests an administrative change to the wording to enable the submission of 1 compliance report once all items of infrastructure or equipment required by condition 1 has been installed.</p> <p>Fortescue requests for the following changes to the wording, as provided below.</p> <p>The works approval holder must within 30 calendar days of an <u>all</u> items of infrastructure or equipment required by condition 1 being installed:</p> <p>(a) undertake an audit of their compliance with the requirements of condition 1; and</p> <p>(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.</p>	<p>The Delegated Officer considers this change acceptable to limit the administrative burden for the applicant.</p> <p>Works approval updated accordingly.</p>
Condition 6	<p>Fortescue requests for the removal of this condition to allow for commissioning to occur as soon as construction has been completed.</p> <p>The works approval holder may only commence environmental commissioning of an item of infrastructure listed in condition 5 once the Environmental Compliance Report has been submitted for that item of infrastructure in accordance with condition 4 of this works approval.</p>	<p>The department must verify that works have been completed in accordance with the works approval, prior to the commencement of commissioning. As such, commissioning may only commence once the environmental compliance report has been submitted following construction.</p>
Condition 7, Table 2 – WWTP and Pipeline (2d)	<p>Fortescue requests the following minor change to the replace the wording to enable the cleaning up on spills as 'soon as practicable'.</p> <p>Fortescue requests for the following changes to the wording, as provided below.</p> <p>Spills of wastewater, RO brine or chemicals outside of a vessel/container to be cleaned up immediately <u>as soon as practicable</u></p>	<p>The Delegated Officer accepts this change and expects the applicant to clean up all spills as soon as they are identified.</p> <p>Works approval updated accordingly.</p>

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Condition 11	<p>Fortescue seeks to reduce the administrative burden of submitting multiple compliance reports following the submission of each individual infrastructure or equipment required by condition 1.</p> <p>Rather, Fortescue requests an administrative change to the wording to enable the submission of 1 compliance report once all the infrastructure specified under condition 1 has been installed</p> <p>Fortescue requests for the following changes to the wording, as provided below.</p> <p>The works approval holder must submit to the CEO an Environmental Commissioning Report within 30 calendar days of the completion date of environmental commissioning for <u>all items</u> each of infrastructure specified in Table 1.</p>	<p>The Delegated Officer considers this change acceptable to limit the administrative burden for the applicant.</p> <p>Works Approval updated accordingly.</p>
Condition 13	<p>Fortescue requests for the removal of this condition to allow for time limited operations to occur as soon as possible after construction has been completed.</p> <p>Fortescue requests for the removal of Condition 13 from the draft works approval.</p> <p>The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 15 where the Environmental Commissioning Report for that item of infrastructure as required by condition 11 has been submitted by the works approval holder.</p>	<p>The Delegated Officer considers the removal of this condition acceptable and has modified now condition 11 to allow time limited operations to commence once environmental commissioning is complete.</p>
Condition 14	<p>Fortescue requests the additional wording to enable the operation of the premises under time limited operations until the licence is granted.</p> <p>Fortescue requests for the following additional wording to the condition, as provided below.</p> <p>The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 15:</p> <p>(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 13 for that item of infrastructure; or</p> <p>(b) until such time as a licence for that item of infrastructure is granted in accordance with Part V of the Environmental Protection Act 1986, if one is <u>not</u> granted before the end of the period specified in condition 14(a).</p>	<p>The applicant is advised to submit a licence application following the completion of construction, to ensure a licence can be issued within 180 days of the completion of commissioning.</p> <p>No changes are proposed.</p>
Condition 20	<p>Fortescue seeks the following minor change to clarify the condition relating to the timing of the time limited operations report. The phrase of</p>	<p>The Delegated Officer has removed the requirement for a time limited operations report.</p>

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	<p>'or' statement and the second half of the condition is currently able to be misinterpreted.</p> <p>The condition should support the single purpose of the submission of a report on the time limited operations within 30 calendar days of the completion date of time limited operations only.</p> <p>Fortescue requests for the following update to remove the extra wording, as provided below.</p> <p>The works approval holder must submit to the CEO a report on the time limited operations within 30 calendar days of the completion date of time limited operations or 30 calendar days before the expiration date of the works approval, whichever is the sooner.</p>	