Amendment Report

Application for Licence Amendment

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

Licence Number	L4275/1982/15
Licence Holder	Mid West Port Authority
File Number	2011/000451-4
Premises	Geraldton Port Marine Terrace, West End, WA 6530 Part of Lot 503 on Deposited Plan 57801
Date of Report	23 September 2021
Decision	Revised licence granted

Lauren Edmands

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Lauren Edmands
MANAGER RESOURCE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Licence L4275/1982/15 is held by Mid West Port Authority (Licence Holder) for the Geraldton Port (premises), located at Geraldton, Western Australia.

This amendment report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the operation of the premises. As a result of this assessment, Revised licence L4275/1982/15 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this amendment report, the department 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.

2.2 Application summary

On 9 February 2021, the licence holder submitted an application to the department to amend licence L4275/1982/15 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The amendment sought by the applicant includes the addition of up to 250 000 tonnes per year of iron concentrate as authorised product to handle at the premises

Iron concentrate from the tailings storage facility (TSF) at Iluka's Narngulu Synthetic Rutile (NSR) plant (regulated under licence L6129/1987/13) is proposed to be exported out of the premises. The product is transported fully enclosed in containers to the premises and is tipped into the vessel via QUBE Rotainer Handling System on Berth 6. The product is not stored within the premises.

2.2.1 Iron concentrate

The iron concentrate is currently stored in lined TSFs at the NSR plant and is a by-product from the upgrading process of ilmenite to synthetic rutile. Before the NSR plant ceased operations in 2012, following iron oxides were produced:

- Orange oxides (Lepidocrocite rich)
- Purple oxides – (Magnetite and Lepidocrocite with high amorphous content)
- Brown oxides – (Lepidocrocite and slightly more magnetite); and
- Black oxides – (Magnetite rich)

The size distribution analysis of the iron concentrate shows the majority of particles (74.51%) to be fine particulate matter (PM_4). A summary of the geochemical composition which was undertaken on samples from current iron concentrate stockpiles is shown in Table 1.

The transportable moisture limit (TML), setting out the maximum authorised moisture level for this granular bulk material to be safely shipped is 17.5%. The dust extinction moisture (DEM) indicating the moisture content minimising dust emissions is 18.5%, and therefore higher than the TML.

Leachate testing of the iron concentrate was undertaken which indicated some soluble metals present. An overview of the leachate is shown in Table 2.

Table 1 Geochemical composition of the iron concentrate (weighted average)

		Stockpile					Combined
Parameter	**Unit**	**1**	**2**	**3**	**4**	**5**	
Tonnes		33,495	42,723	20,286	52,382	67,788	216,673
LOI		13.5	13.3	15.7	13.8	12.7	13.5
Fe	%	57.3	61.5	57	56.1	57.8	57.9
NH4Cl	%	1.02	0.78	1.54	1.03	1.03	1
B	ppm	2,515	588	325	2,325	2,325	1,825
Al2O3	%	0.45	0.29	0.49	0.42	0.53	0.44
CaO	%	0.35	0.09	0.56	0.53	0.21	0.32
MgO	%	0.15	0.07	0.09	0.09	0.14	0.11
MnO	%	0.68	0.6	0.39	0.69	0.8	0.68
P2O5	%	0.15	0.12	0.17	0.14	0.13	0.14
S	%	0.17	0.09	0.3	0.28	0.08	0.17
SiO2	%	1.3	0.8	1.4	1.1	1.4	1.2
TiO2	%	6.6	5.9	5.5	6.9	7	6.5
Th	ppm	36.4	40.9	11.9	39	31.4	34.1
U	ppm	7.8	4.3	2.5	7.8	4.6	5.6

Table 2 Metals detected in leachate water

m/L	Boron	Barium	Cobalt	Manganese	Nickel	Strontium	Lithium
Metals in iron concentrate (Leachate DI Water)	17	0.11	0.04	20	0.01	1.7	0.12
Freshwater trigger value[1]	0.37	N/A	0.0014[2]	1.9	0.011	N/A	N/A
Marine water trigger value[1]	N/A	N/A	0.001	0.08	0.07	N/A	N/A

Note 1: Trigger values for 95% protection as set out in ANZECC & ARMCANZ (2000) guidelines, unless marked otherwise

Note 2: Unknown level of species protection

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 *Guidance Statement: Risk Assessments* (DER 2017).

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 operation which have been considered in this amendment report are detailed in Table 3 below. Table 3 also details the proposed control measures the licence holder has proposed to assist in controlling these emissions, where necessary.

Table 4: Licence holder controls

Emission	Sources	Potential pathways	Proposed controls
Dust	Iron concentrate handling	Air/windborne pathway causing impacts to health and amenity	• Product transport via rotainers; • Containers washed down prior to transport to the premises; • operational moisture range of 12 – 17%; • Use of Rota-mister for dust suppression during ship loading; • Loading to only occur between November and April, when winds are predominantly from the south; • No loading with westerly wind over 10 knots; • Containers that have moisture levels below the specified moisture range will not be accepted on port. • Sediment Pore Water and Marine Quality Monitoring.
Noise			• 3 rotainers per truck for transport to reduce truck movements
Contaminated surface water runoff		Direct discharge resulting in adverse impacts on water quality and marine ecology	• Product transport via rotainers • Regular sweeping of spillages and correct disposal • Ship loading suspended during rainfall events • Containers washed down prior transport to the premises

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors and contractors of the licence holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 5 and Figure 1 below 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 *(Guidance Statement: Environmental Siting* (DER 2016)).

Table 5 Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
Residential premises	840 m - 900 m from Berth 6
Light industry neighbours	700 m south of Berth 6
Fishing boat harbour	220 m west of Berth 6
Environmental receptors	**Distance from prescribed activity**
Marine environment	Premises borders on marine environment

Figure 1 Distance to sensitive receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for those emission sources which are proposed to change 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 licence holder 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 licence holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the licence holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 5.

The revised licence L4275/1982/15 that accompanies this amendment report authorises emissions associated with the operation of the premises i.e. bulk handling of iron concentrate.

The conditions in the revised licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 6. Risk assessment of potential emissions and discharges from the premises during operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence holder's controls**				
Operation								
Handling of iron concentrate: Received in rotainer boxes and unloaded onto vessel	Dust	Air/windborne pathway causing impacts to health and amenity	Residential and light industry neighbours approx. 400 m to 900 m from proposed activities Fishing boat harbour approx. 200 m west Marine environment	Refer to section 3.1.1	C = Moderate L = Possible **Medium Risk**	Y	Current condition 3.2.1 (Table 3.2.1) sufficient.	Refer to section 3.3 No additional regulatory controls required.
	Dust	Air/windborne pathway causing impacts to water quality and marine ecology	Marine environment	Refer to section 3.1.1	C = Major L = Unlikely **Medium Risk**	N	**Condition 3.2.1, Table 3.2.2**: Monitoring of ambient sediment quality **Condition 3.2.4, Table 3.2.4:** Monitoring of ambient marine quality	Refer to section 3.4
	Noise	Air/windborne pathway causing impacts to amenity	Residential and light industry neighbours approx. 400 m-900 m from proposed activities	Refer to section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	N/A	N/A
	Contaminated surface water runoff	Dust or spills leading to direct discharge resulting in adverse impacts on water quality and marine ecology	Marine environment	Refer to section 3.1.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1.3.5, Table 1.3.1 (Operational requirements for iron concentrate)	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

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

3.3 Detailed risk assessment for dust emissions impacting sensitive receptors from iron concentrate handling

The size distribution analysis of the iron concentrate showed it consists mainly of very fine and respirable particles (PM_4 of 74.51%).

The TML of 17.5% is below the DEM which was reported to be 18.5%. The proposed moisture range for operations is 12-17%, which therefore does not meet the DEM. The proposed handling method (rotainers) does minimise the risk of spillage and dust emissions, however product is exposed to air during the vessels hold. Product moisture levels is the main control to mitigate dust emissions. Due to its fine nature and moisture levels not meeting the DEM, fugitive dust emissions may occur. Multiple sensitive receptors are in close proximity (min 200 m – 900 m)

Advice was sought on this matter from the Department of Health (DOH), and internal Air quality experts (AQS). DOH considers iron concentrate as low toxicity, the increase of particulate matter (PM) as potential impact to sensitive receptors was noted. AQS advised that due to the moisture levels of TML being below the DEM, increased dust emissions during handling is likely with no indication of significance of the increase. DEM and TML are assigned using different procedures and techniques, and each has significant uncertainty. AQS noted that chemical suppressions or enclosed handling facilities could be considered. The high respirable fraction of the product (74.51 wt% as PM_4) was noted, but due to frequency of shipments, current monitoring requirements (PM_{10}) are considered adequate to identify potential impacts.

3.3.1 Rating of this risk event

Taking into consideration that the iron concentrate has a high portion of fine content, and the handling method is only partly enclosed, the Delegated Officer considers the consequence to be **Moderate**.

As part of the 21 day applicant comment period, alternative controls were provided by the applicant to mitigate risk of dust emissions. These have been outlined in section 3.1.1. The Delegated Officer considers that with these additional controls in place, the likelihood is now **Unlikely** (formerly possible).

The Delegated Officer has compared the consequence and likelihood of this risk event and determined the overall risk rating as **Medium.**

3.4 Detailed risk assessment for iron concentrate discharge into the marine environment

As described above, the product has a large fine content and the proposed moisture range for operations is below DEM. While the product is proposed to be handled via rotainers and is enclosed for the majority of handling, the rotainer is tipped directly into the vessels hold where fugitive dust emissions may occur and enter the marine environment.

Internal technical advice identified aquatic organisms in the harbour accessing metals and other harmful chemical constituents derived from the iron concentrate as potential sensitive receptors. The applicant provided results of leaching tests undertaken on the material to be handled using deionised water. The concentrations of metals in the leachate were at least an order of magnitude above the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000* (ANZG) values for protecting marine organisms. It was further raised by internal technical experts that that leachate concentrations of the metals are likely to have been underestimated as the high ionic strength and chloride content of seawater is likely to produce higher concentrations of these metals than leaching with deionised water. Internal technical advice refers to evidence in literature that fine suspension of iron oxide can cause

adverse impacts on aquatic organisms. Impacts are caused by reactions of water molecules on iron-oxide mineral surfaces (Fenton reactions) to form hydroxyl free radicals causing DNA damage in organisms. An oxide particle concentration in seawater should not exceed about 10 mg/L to mitigate potentially harmful impacts from the production of reactive oxygen species in seawater.

The applicant does not propose additional monitoring of the marine environment for the handling of iron concentrate. Due to the high fines content and handling moisture below the DEM, fugitive dust when loading product into the ship and reaching the marine environment, is likely to occur. Impacts on benthic organisms are not currently monitored. Total metal concentrations in marine sediments do not indicate bioavailability to benthic organisms on the seafloor, and available ANZG sediment quality criteria do not cover all chemical constituents of concern which are present in the iron concentrate (particularly cobalt).

3.4.1 Rating of this risk event

Taking into consideration that the iron concentrate has a high portion of fine content, and the handling method is only partly enclosed, the Delegated Officer considers the consequence to be **Major**.

As part of the 21 day applicant comment period, alternative controls were provided by the applicant to mitigate risk of dust emissions. These have been outlined in section 3.1.1. The Delegated Officer considers that with these additional controls in place, the likelihood is now **Unlikely** (formerly possible).

The Delegated Officer has compared the consequence and likelihood of this risk event and determined the overall risk rating as **Medium.** Due to this risk rating, some regulatory controls, including outcome-based conditions where practical and appropriate, may be applied.

3.4.2 Regulatory controls

Taking the above into consideration, the current monitoring program undertaken at the premises is not sufficient to assess potential impacts on the marine environment from handling iron concentrate.

Internal technical expert advice suggested sediment pore water samples are to be collected annually from the same sites (and same time) from where sediment samples are collected.

The monitoring suite proposed by internal technical experts for iron concentrate include: chromium, cobalt, selenium and vanadium. Regulatory limits for all chemical constituents in the pore water samples are the ANZG 95 % trigger values as per recommendation from internal technical experts. Technical advice refers to Simpson and Batley (2016) for guidance on pore-water sampling.

The above annual sediment and sediment pore water is not detecting short term impacts cause by iron concentrate spills, and therefore total-iron (i.e. unfiltered) concentrations are to be measured in at least one fixed monitoring site before and during each iron concentrate loading event. Internal technical experts advised to use a test kit for measurements and to ensure an appropriate reducing agent to concert colloidal Fe oxides into Fe2+ to determine total-iron. Measurements are to be undertaken in field to provide immediate results, allowing for management measures. Iron concentrations are not to be exceeding 10 mg/L. A suitable location is to be determined and nominated by the applicant, to ensure representative sampling.

4. Consultation

Table 6 provides a summary of the consultation undertaken by the department.

Table 7: Consultation

Consultation method	Comments received	Department response
Licence holder was provided with draft amendment on 28/07/2021	Please refer to Appendix 1	Please refer to Appendix 1

5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 7 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Licence as part of the amendment process.

Table 8: Summary of licence amendments

Condition no.	Proposed amendments
1.3.5, Table 1.3.1	Inclusion of iron concentrate operational requirements for handling
3.2.1, Table 3.2.2	Inclusion of passive water quality monitoring for identified compounds likely to leach from iron concentrate into marine environment
3.2.1, Table 3.2.2 3.2.2	Administrative update: Existing limits for parameters in ambient sediment were included now in Table 3.2.2 instead of condition 3.2.2. No changes to existing monitoring requirements and limits. Condition 3.2.2 was updated to remove the limit reference (now included in Table 3.2.2), and now only sets out the reporting requirements for exceedances identified in Table 3.2.2.
3.2.3	Inclusion of requirement of investigation report if limits set out in Table 3.2.2 are exceeded.
3.2.5	Inclusion of condition to monitor total iron in seawater
4.2.1, Table 4.2.1	Inclusion of Table 3.2.4 to report in Annual Environmental Report
3.3.1	Removal of condition as duplicate to condition 3.2.2

References

1. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
2. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
3. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. Mid West Ports Authority, Licence amendment application (DWERDT410749)
5. Simpson, S. and Batley, G., 2016. *Sediment Quality Assessment: A Practical Guide (2nd Edition)*. CSIRO Publication that is available from web site https://www.researchgate.net/publication/287218086_Sediment_Quality_Assessment_A_Practical_guide
6. ANZG, 2000, Australian and New Zealand guidelines for fresh and marine water quality 2000

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

Comments received 19 August 2021

Condition	Summary of licence holder's comment	Department's response
1.3.5, Table 1.3.1	Proposed new wording to include dust suppression *'via fogging system on ship's hold, shall be operational'* during ship loading ~~when required~~	This intent of this condition is to be outcome based, and therefore no specific description of how the dust is suppressed is required. As part of the initial 21 day process, MWPA provided alternative controls for dust control. These have now been included into Table 1.3.5.
3.2.1	MWPA notes in condition 3.2.1 that Table 3.2.3 has been highlighted as a change in the draft Licence. MWPA believes there have been no changes to Table 3.2.3 as this monitoring is specific to fertiliser handling. MWPA recognises that Table 3.2.2 has been changed and Table 3.2.4 added.	This condition only had the reference to condition 3.2.3 and 3.2.4 added. The monitoring requirements in table 3.2.1 remained unchanged. To provide greater clarity to the licence, this condition has been reworded to require monitoring, recording and investigations for Table 3.2.1 only. Reference to Tables 3.2.2, 3.2.3 and 3.2.4 has now been removed.
Table 3.2.2	Table 3.2.2 Monitoring of ambient sediment quality has been changed to include a requirement for sediment pore water sampling for the following parameters: • Chromium, Cobalt, Selenium and Vanadium. MWPA would like the opportunity, to work with our customer, to have further leachate testing completed to confirmed whether Selenium, Vanadium and Chromium are present in a soluble form. Please note: While MWPA only presented DI leaching results in our submission report, it was supported with laboratory analysis which presented leaching via Acetic Acid (pH 5) and with the exception of Zinc there was very little difference in the results. During our meeting I would like to understand what further testing is appropriate to demonstrate that	The risk assessment undertaken by the department was based on the supporting information provided with the application. Controls and conditions were based on information available for the assessment. As the assessment has now been completed, the submission of any new information at this finalised assessment stage, such as leaching tests, will require a new assessment to be undertaken. As a result, this condition remains. MWPA could use the leaching tests data to support any new licence amendment in regards to this condition.

Condition	Summary of licence holder's comment	Department's response
	Selenium, Vanadium and Chromium are not present	
3.2.2	MWPA notes the administrative update: i.e. Existing limits for parameters in ambient sediment are now included in Table 3.2.2 instead of Condition 3.2.2. and the condition now only sets out the reporting requirements for exceedances identified in Table 3.2.2.	Please note that MWPA still has an obligation to record and investigate exceedances under condition 3.2.1, which has not changed from previous condition requirements.
3.2.4	Condition 3.2.4 includes the requirement to record monitoring and investigation of results when targets set in Table 3.2.4 are not met. MWPA disagrees with Condition 3.2.4 and the inclusion of Table 3.2.4. MWPA understands the philosophy associated with sampling for Total Iron in seawater as an indicator of the presence of Iron Concentrate. MWPA has documented an Operational Dust Analysis (ODA) which identifies that the likelihood of Iron Concentrate being present in seawater to be unlikely, as a result of additional controls and the predominant wind patterns associated with the restricted summer loading period. DWER refers to Simpson and Batley (2016) for guidance on pore-water sampling. MWPA notes that Simpson and Batley describe the use of Diffusive Gradients in thin films (DGTs) as an alternative passive water sampling technique. MWPA has a passive water sampling program that includes Cobalt, Nickel and Zinc which were metals identified in the Iron Concentrate Acetic Acid leachate waters. MWPA has been undertaking passive water quality monitoring using DGTs since 2012. This program was implemented as an indicator of the presence of soluble metals and metalloids associated with the bulk cargos handled in the Port. Since 2012 the levels of Cobalt, Nickel and Zinc have remained below ANZG 95% Marine ecological protection values. Therefore, MWPA's passive water quality monitoring program provides a good baseline for assessing the impacts of Iron Concentrate handling. As DGT's passively monitor metal concentrations in the harbour this will allow MWPA to routinely validate the controls outlined in the Iron Concentrate ODA are in place and effective. MWPA will review this program once the additional leachate testing is completed and revise as necessary. MWPA requests DWER consider this additional information and controls outlined it the ODA and remove Condition 3.2.4 and Table 3.2.4.	The comments received for this condition appear to relate to multiple Tables and conditions. To ensure clarity, each Table number or condition has been stated in the responses below. It is noted that conditions 3.2.3 and 3.2.4 each specify the requirement to undertake monitoring and that the inclusion of tables 3.2.3 and 3.2.4 to be monitored under condition 3.2.1 is a duplicate. Condition 3.2.1 will be amended to specify monitoring for Table 3.2.1 only. A new condition 3.2.2 will be inserted to require monitoring of Table 3.2.2 and include an investigation to be undertaken where the limits are exceeded. The Delegated Officer has sought clarification from our technical expert in relation to the use of DGT's as an alternative to passive water sampling technique and this has been agreed as a suitable alternative. Table 3.2.2 will be updated to reflect this. Proposed new condition 3.2.2 (as per the draft provided to MWP dated 28/07/2021) , regarding investigation report for limit exceedances of Table 3.2.2, is proposed to be renumbered as condition 3.2.3. Previous conditions 3.2.3 and 3.2.4 will be renumbered as 3.2.4 and 3.2.5 respectively. The Decision Report has been updated to consider a reduced likelihood to 'unlikely', however, the requirement to undertake monitoring of ambient marine quality for iron concentrate was recommended by DWER technical experts and is still deemed to be necessary to monitor impacts from the proposed operations. The applicant may apply for an amendment to this requirement in the future, using the data obtained under this

Condition	Summary of licence holder's comment	Department's response
		condition to support the reduced monitoring requirements onsite.
3.3.1	MWPA agrees that it is appropriate to remove duplication within the licence and agrees with the removal of condition 3.2.2	Comment noted
4.2.1, Table 4.2.1	As stated above MWPA disagrees with the inclusion of Table 3.2.4. and would like an opportunity to explore alternative methods consistent with existing internal monitoring programs.	As per previous DWER comments outlined above, Table 3.2.4 will remain on the licence. The requirements in condition 4.2.1 (table 4.2.1) will still include the submission of ambient marine monitoring data.
Decision Report - Assessment of Air/windborne pathway causing impacts to water quality and marine ecology Receptor marine ecology	MWPA would like to provide the Department with additional information in the form of leachate testing and an Operational Dust Analysis specific to the Berth 6 Operations. To summarise MWPA have revised the proposed operations and intend to implement the following additional controls: • Loading Restrictions: loading will only occur during the period of November and April each year when winds are predominately from the South; • Dust Suppression: a Rotamister Fogging System will be a mandatory operational control to prevent dust escaping the ship's hold during loading; • Operational Wind Limits: limits set to restrict and prevent loading in westerly wind conditions over 10 knots; • Product Specifications: Container moisture levels will be provided to MWPA prior to ship loading and containers that have moisture levels below the specified moisture range will not be accepted on port; and • Passive Water Quality Monitoring: DGT's will be deployed during the loading of Iron Concentrate as an indicator and validation measure for reviewing the effectiveness of operational controls to prevent fugitive dust emissions entering the marine environment. MWPA believes with these additional controls in place the likelihood of fugitive dust emissions being generated in sufficient quantity to have adverse and detectable impacts to water quality and marine ecology to be unlikely. MWPA determined the residual risk ranking to be a MEDIUM – RISK in accordance with DWER's Risk Rating Matrix (DER 2017) based on the following assessment:	The Delegated Officer has considered the alternative controls proposed for dust emissions and the Decision Report and licence conditions have been updated to reflect this. The new likelihood for dust emissions is 'unlikely', reduced from 'possible'. As per previous DWER comments outlined above, the supply of leaching testing is considered to be new information outside the scope of the original assessment that has been finalised. Additionally, Table 3.2.4 is still deemed necessary and will remain on the licence. This additional information and data from monitoring under Table 3.2.4 could be used by the applicant at a later date to support a new amendment to monitoring requirements.

Condition	Summary of licence holder's comment	Department's response
	• the consequence of causing impacts to water quality and marine ecology remains MAJOR due to specific consequence criteria (ANZG Marine Water Quality) being exceeded for Boron, Cobalt, Manganese and Zinc; and the likelihood to be UNLIKELY of occurring in most circumstances if all ODA controls are in place and functioning correctly.	

Comments received 10 September 2021

Condition	Summary of licence holder's comment	Department's response
Amendment Report, Table 2	Cobalt marine water trigger value should be 0.001	Value corrected
Amendment Report, Table 4	Removal of text: "Use of Rota-mister for dust suppression during ship loading ~~when required~~" ~~'Passive Water quality monitoring, DGT to validate controls for fugitive dust emissions'~~ Inclusion of text: In relation to proposed dust controls: "Sediment Pore Water and Marine Quality Monitoring."	Wording updated as requested.
Amendment Report, Section 3.4.	MWPA request DWER share references as used by DWER's internal technical experts such that these technical references can be used to inform the development of MWPA marine quality sampling and analysis plans. Specifically, in reference to this text: 'Internal technical advice refers to evidence in literature that fine suspension of iron oxide can cause adverse impacts on aquatic organisms. Impacts are caused by reactions of water molecules on iron-oxide mineral surfaces (Fenton reactions) to form hydroxyl free radicals causing DNA damage in organisms. An oxide particle concentration in seawater should not exceed about 10 mg/L to mitigate potentially harmful impacts from the production of reactive oxygen species in seawater.'	This will be provided to MWPA where possible

Condition	Summary of licence holder's comment	Department's response
Amendment Report, Section 3.4.2	Removal of text: Internal technical expert advice suggested sediment pore water samples are to be collected annually from the same sites (and same time) from where sediment samples are collected. ~~As part of the consultation with the licence holder, an alternative method was proposed to the department, being Diffusive Gradients in thin films (DGTs). Internal technical advice considers this an adequate alternative.~~	Wording removed
Amendment Report, Appendix 1	Replace table of comments with revised table provided by MWPA	The original Appendix 1, outlining the initial comments received, have been retained in the Amendment Report to outline what changes were previously made in the draft documents. A new table has been included to outline the comments received following the initial changes being made.
1.3.5, Table 1.3.1	Inclusion of 225-337 degrees in regards to westerly wind conditions. MWPA requests DWER add the wind direction in degrees to align with MWPA's Operational Wind Limits as outlined in the ODA. MWPA confirms wind speed and direction are monitored at Tower 501 with an anemometer. The T501 wind sensor is a solid state ultrasonic FT7 series. https://fttechnologies.com/wind-sensors/ft7-series/ installed in 2018. This instrument is used for all air quality reports submitted to DWER as required under the licence.	Additional wording included for wind direction
Table 3.2.2	MWPA understands the inclusion of pore water sampling inclusive of metals not identified in the mineral sands derived iron concentrate (e.g. Selenium, Vanadium and Chromium) have been included to allow the export of all Iron Concentrates through the Port of Geraldton. MWPA requests DWER reword Table 3.2.2 to specify within the 'Frequency' column that pore water sampling is only required when there has been Iron Concentrate exports in the previous 12-month period. Also replace method using DGT's to pore water sampling.	Table has been reworded to only require monitoring when iron concentrate has been loaded within that annual period and require method to be undertaken via pore water sampling.
3.2.5	MWPA notes Condition 3.2.5 outlines the requirement to undertake surface water monitoring in accordance with Table 3.2.4	N/A
Table 3.2.4	MWPA agrees to the in-field measurement of Total Iron (via test kit).	N/A

Appendix 2: Application validation summary

<table>
<tr><th colspan="6">SECTION 1: APPLICATION SUMMARY</th></tr>
<tr><td colspan="6">Application type</td></tr>
<tr><td rowspan="2">Amendment to licence</td><td rowspan="2">☒</td><td>Current licence number:</td><td colspan="3">L4275/1982/15</td></tr>
<tr><td>Relevant works approval number:</td><td></td><td>N/A</td><td>☐</td></tr>
<tr><td colspan="2">Date application received</td><td colspan="4">9/2/2021</td></tr>
<tr><td colspan="6">Applicant and Premises details</td></tr>
<tr><td colspan="2">Applicant name/s (full legal name/s)</td><td colspan="4">Mid West Port Authority</td></tr>
<tr><td colspan="2">Premises name</td><td colspan="4">Geraldton Port</td></tr>
<tr><td colspan="2">Premises location</td><td colspan="4">Part of Lot 503 on Deposited Plan 57801
Volume: LR3157 Folio: 232
Street Address: Lot 503 Marine Terrace, West End</td></tr>
<tr><td colspan="2">Local Government Authority</td><td colspan="4">City of Greater Geraldton</td></tr>
<tr><td colspan="6">Application documents</td></tr>
<tr><td colspan="2">HPCM file reference number:</td><td colspan="4">2011/000451-4 (there are previous versions, mainly 2011/000451-3)</td></tr>
<tr><td colspan="2">Key application documents (additional to application form):</td><td colspan="4">Application form
Cover letter
Supporting Information Report (with appendices)</td></tr>
<tr><td colspan="6">Scope of application/assessment</td></tr>
<tr><td colspan="2">Summary of proposed activities or changes to existing operations.</td><td colspan="4">Licence amendment
Addition of iron concentrate as authorised product to handle at the premises.
Up to 250 000 tonnes per annum of iron concentrate (IR) originating from the tailings storage facility (TSF) from Iluka’s Narngulu Synthetic Rutile plant is proposed to be handled at the premises.
IR is proposed to be transported in rotaboxes (fully enclosed) to the premises and handled using the rotainer handling system on Berth 6. No storage of the product is proposed. The handling method is already authorised for nickel and copper concentrates.
A DEM of 18.5 % was determined for this product.</td></tr>
</table>

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 58/58A: Bulk material loading or unloading	Proposed – 160 000 tonnes per day (cumulative) 16 million tonnes per year (cumulative)	Proposed – 160 000 tonnes per day (cumulative) 16 million tonnes per year (cumulative)

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes ☐ No ☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☒ No ☐	**Geraldton Port Enhancement (2002)** Ministerial Statement No: 600 EPA Report No: 1050 **Proposed Geraldton Port Expansion (1989)** Ministerial Statement No: 87 EPA Report No: 411 **Geraldton Port Expansion (1994)** Ministerial Statement No: 367 EPA Report No: 752
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Certificate of title ☐ General lease ☐ Expiry: Mining lease / tenement ☐ Expiry: Other evidence ☐ Expiry:
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☐ N/A ☒	Approval: Expiry date: If N/A explain why?

Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☐ No ☒	No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☐ No ☒	Licence / permit not required.
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☐ No ☒	N/A
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	N/A
Is the Premises subject to any other Acts or subsidiary regulations (e.g. *Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx*)	Yes ☒ No ☒	Port Authorities Act 1999 (WA); Port Authorities Regulations 2001 (WA)
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ☐ No ☒	N/A
Is the Premises subject to any EPP requirements?	Yes ☐ No ☒	N/A
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☐ No ☒	N/A