



Application for Works Approval

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

Works Approval Number W6962/2024/1

Applicant Mardie Minerals Pty Ltd

ACN 152 574 457

File number DER2024/000324

Premises Mardie Project
Partly within General Lease G08/101
MARDIE WA 6714

As defined by the premises maps and coordinates attached to the issued works approval

Date of report 20/01/2025

Proposed Decision Works approval granted

MANAGER, PROCESS INDUSTRIES

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

Table of Contents

1. Decision summary	1
2. Scope of assessment	1
2.1 Regulatory framework	1
2.2 Application summary and overview of premises	1
2.2.1 Proposal description	1
3. Legislative context	4
3.1 Part IV of the EP Act	4
3.2 MARPOL	7
3.3 <i>Ports Authorities Act 1999</i>	7
4. Exclusions	7
5. Risk assessment	8
5.1 Source-pathways and receptors	8
5.1.1 Emissions and controls	8
5.1.2 Receptors	11
5.2 Risk ratings	13
6. Consultation	16
7. Conclusion	17
References	17
Table 1: Relevant approvals	4
Table 2: Summary of Ministerial conditions relating to Category 58A activities	5
Table 3: Proposed applicant controls	8
Table 4: Sensitive human and environmental receptors and distance from prescribed activity	11
Table 5: Risk assessment of potential emissions and discharges from the premises during construction and operation	13
Table 6: Consultation	16
Figure 1: Proposed layout of the stockyard	3

1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, works approval W6962/2024/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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>.

2.2 Application summary and overview of premises

Mardie Minerals Pty Ltd (the applicant) is developing the Mardie Project; a salt and sulphate of potash (SoP) production facility located approximately 80km south of Karratha.

On 28 June 2024, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act) for the construction and time-limited operation of bulk materials handling infrastructure associated with the export (port) facility associated with the Mardie Project.

The application relates to the Category 58A: Bulk material loading and assessed production capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6962/2024/1. 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 W6962/2024/1.

Emissions and discharges associated with the broader Mardie Project including evaporation ponds and processing facilities were assessed and authorised under works approval W6594/2021/1 and are therefore excluded from this assessment.

2.2.1 Proposal description

Due to the shallow coastal waters, transshipment vessels (TSV) will be used to transport salt and SoP products to large ocean-going vessels (OGV) located in deeper water. OGVs will be anchored within a dedicated anchorage area located about 25 km offshore and transport product internationally. The TSVs will dock alongside the OGVs and transfer product via a covered conveyor.

Product is delivered to the TSV via a shiploader located at the end of a 2.2 km long trestle jetty. The jetty conveyor will connect the product stockyard at the tail end of the trestle jetty to the TSV shiploader.

As SoP is a by-product of salt manufacturing, relatively small quantities will be produced (140,000 tonnes per year) compared to salt (5.35 million tonnes per year). As a result, the bulk material loading facility will predominantly handle salt, however, one day per month will be dedicated to handling SoP.

Salt handling

Salt is transferred from the processing plant (authorised under W6594/2021/1) to the port via side-tipper road trains and stockpiled on a compacted pad. Front end loaders will be used to transfer material to the jetty conveyor via two reclaim feeders. Figure 1 provides a layout of the

stockyard area showing the location of the stockpile, jetty conveyor and product reclaim feeders. Salt operations will be continuous, occurring 24/7 except during handling of SoP product.

SoP handling

It is expected that SoP will be handled only once per month and quantities will generally equate to one transshipment load (about 12,000 tonnes). Material will be stockpiled separately to salt product to avoid contamination.

SoP will be transferred from the SoP storage sheds near the SoP processing plant (approved under Works Approval W6594/2021/1) to triple road trains via front end loader. Product will be transferred to the port stockyard on a “just in time” loading method for ship loading. It is anticipated that four truck movements will be required over a 20 hour period to transfer material from the processing plant to the port stockyard.

Front end loaders and dozers will transfer material that is side-tipped from the trucks to a dedicated SoP stockpile located under two dome shelters. Storage beneath dome shelter is required to prevent contact with moisture (rainfall) which can impact product quality.

Front end loaders will transfer SoP product from the stockpile to a hopper where it is conveyed to the main jetty conveyor (Figure 1) for loading into the TSV. TSV loading is expected to take approximately six hours. Any excess product will be stored in the dome shelters until the next scheduled shipment.

TSV washing

Although a shared conveyor system is used for transporting both products to the TSV, salt and SoP products are required to be kept separate to prevent contamination. Cleanout of TSV storage ports will be required when there is a change in product (i.e. change from salt to SoP). Wash water will be sourced from an onboard desalination plant and any wastewater (desalination brine and wash water) will be discharged from the TSV during transit between the shiploader and OGV area. The expected volume of wastewater to be discharged is approximately 1,000m³ one day per month (i.e. 12,000m³ per year).

Conveyor washing

The jetty conveyor, which is designed to transport both salt and SoP products, may also be washed where there is a change of product to avoid contamination. The applicant has indicated that belt scrapers installed on the conveyors should minimise this requirement as the belt should be sufficiently clean. However, in the event that the conveyor is to be washed, seawater will be used, and wash water will discharge direct to the marine environment. Only minor volumes of wash water are anticipated in these circumstances (about 3,400L)

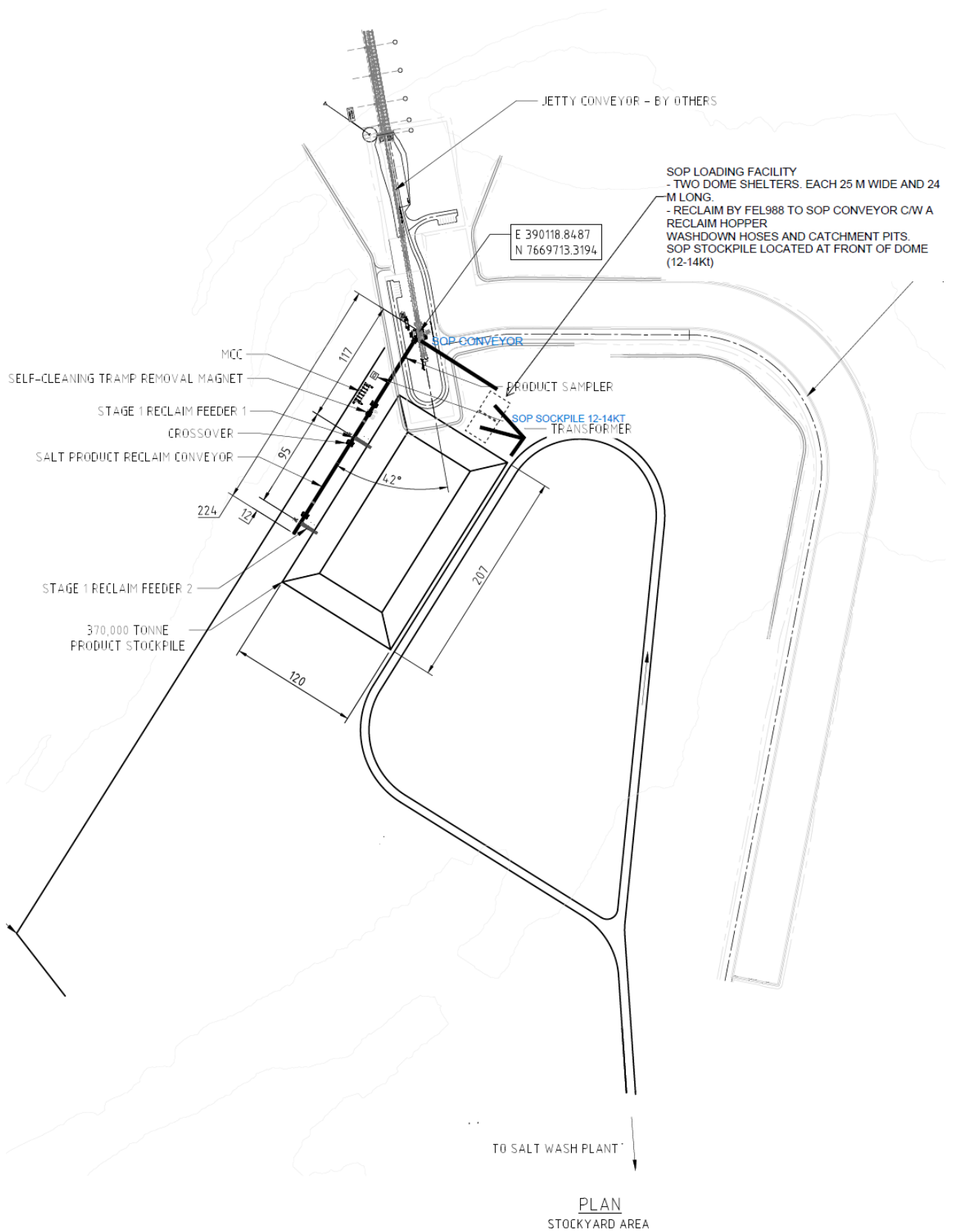


Figure 1: Proposed layout of the stockyard

3. Legislative context

Table 1 summarises approvals relevant to the assessment.

Table 1: Relevant approvals

Legislation	Approval
Part IV of the <i>Environmental Protection Act 1986</i>	Construction and operation of the Optimised Mardie Project was authorised under Ministerial Statement 1211 (MS 1211) (refer to section 3.1).
Part V of the <i>Environmental Protection Act 1986</i>	Works Approval W6594/2021/1 was amended on 29 April 2024 authorising Category 14 and 89 activities associated with the Optimised Mardie Project.
<i>Environmental Protection (Clearing of Native Vegetation) Regulations 2004</i>	Clearing of native vegetation was assessed and authorised under Part IV of the EP Act (MS 1211).
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	The original Mardie Project proposal was determined to be a controlled action and subject to assessment under the EPBC Act for likely impacts to threatened species and communities, migratory species and a Commonwealth Marine Area. The proposal was approved on 26 February 2022 (EPBC 2018/8236) subject to conditions. The Optimised Mardie Project was also determined to be a controlled action requiring assessment under the EPBC Act via an accredited assessment processed under the EP Act. The Optimised Mardie Project was approved on 9 September 2024 (EPBC 2022/9169) with conditions.
Mining Act 1972	The <i>Mardie Salt-Potash Project Initial Mining Proposal</i> (Version 2.1) was approved on 10 October 2022. Bulk loading activities are excluded from the Mining Proposal.

3.1 Part IV of the EP Act

The Mardie Project was referred to the Environmental Protection Authority (EPA) under Part IV of the EP Act in April 2018 and was assessed through a Public Environmental Review (PER) assessment process. The EPA released its report and recommendations on the project in July 2021 (EPA Report 1704) and Ministerial Statement 1175 (MS 1175) was granted on 24 November 2021. MS 1175 authorised the production of up to four million tonnes of salt, 100,000 tonnes of SoP and up to 300,000 tonnes of other salt products sourced from a 150 gigalitre per annum (GL/a) seawater intake.

In February 2022, the Applicant sought to amend the proposal to expand the approved Mardie Project. The expanded project (Optimised Mardie Project) includes, among other things, an increase to approved production rate as follows:

- Increased in the production of salt to 5.35 million tonnes per annum; and
- Increase in the production of SoP to 140,000 tonnes per annum.

The amended proposal was subject to assessment under Referral Information process with a four week public consultation period. The EPA's report and recommendations was published in June 2023. Ministerial Statement 1211 (MS 1211) was subsequently granted in October 2023 and supersedes MS 1175.

The EPA's assessment of the proposal considered the following key environmental factors:

- marine environmental quality;
- flora and vegetation;
- benthic communities and habitat (subtidal and intertidal);

- terrestrial fauna;
- marine fauna; and
- social surroundings.

A summary of Ministerial conditions that relate to the works proposed by this works approval application is provided in the table below.

Table 2: Summary of Ministerial conditions relating to Category 58A activities.

Condition/s	Condition summary and relevance to this assessment
<p>Benthic Communities and Habitats</p>	<p>Condition B1-1 require that the proposal is implemented to achieve set environmental outcomes relating to the loss of benthic communities and habitats including:</p> <ul style="list-style-type: none"> • No irreversible loss of benthic communities and habitats outside of the authorised Zone of High Impact; and • No detectable change from the baseline state of benthic communities and habitats outside of the Zone of High Impact and authorised Zone of Moderate Impact. <p>Condition B1-2 specifies environmental outcomes that must be achieved in relation to the protection of mangrove, intertidal and subtidal habitats.</p> <p>The Applicant is also required to implement the Benthic Communities and Habitat Monitoring and Management Plan which specifies measures for monitoring impacts on benthic communities, as well as contingency measures and remediation actions to be implemented where adverse impact is detected.</p>
<p>Marine Environmental Quality</p>	<p>Requires that the proposal is implemented to meet specified levels of environmental protection to achieve objectives for the protection environmental values associated with marine environmental quality (e.g. Ecosystem Health, Fishing and Aquaculture, Recreation and Aesthetics, Industrial Water Supply, cultural and Spiritual).</p> <p>To ensure set objectives are achieved, the Applicant is required the implement the Marine Environmental Quality Monitoring Management Plan (Rev 8, 2023).</p> <p>The TSV loading area, located at the end of the trestle jetty, falls within the Low Ecological Protection Area.</p> <p>The OGV anchorage is located within a zone of High Ecological Protection.</p>
<p>Marine Fauna</p>	<p>Conditions B5-1 and B5-2 requires that the proposal is implemented to meet environmental outcomes relating to marine fauna. This includes:</p> <ul style="list-style-type: none"> • No mortality, injury, disturbance or displacement of humpback whales; • No change in marine turtle nesting behaviour, nesting success of hatching survival resulting from artificial light; • That significant marine fauna are not prevented/deterred from undertaking critical behaviours in biologically important areas; • Minimise the risk of physical injury or mortality from vessel strike on significant marine fauna; and • Minimise impacts on marine fauna from underwater noise emissions associated with construction and operation of the proposal. <p>The Applicant is required to implement the Mardie Illumination Plan and Marine Turtle Monitoring Program which includes measures for managing light emissions from the proposal. Vessel speed limits are imposed and as well as specific requirements for managing pile drive activities. The Delegated Officer considers that</p>

	impacts to marine fauna associated with light and construction and operational noise is appropriately managed under MS 1211.
Terrestrial Fauna	<p>Conditions of MS 1211 require that the proposal is implemented achieve various environmental outcomes relating to the protection of terrestrial fauna including no change in the abundance and diversity of migratory shorebirds utilising coastal samphire and mudflat habitats.</p> <p>The Applicant is required to develop and implement a Migratory Shorebird Monitoring and Management Plan demonstrating how the above environmental outcome will be achieved.</p> <p>The Applicant is also required to develop and implement the Mardie Illumination Plan for the purpose of ensuring that environmental outcomes specified in MS 1211 relating to terrestrial fauna are achieved, monitored and substantiated.</p>
Flora and Vegetation	Condition B7 of MS 1211 requires that the proposal is implemented to meet a number of environmental outcomes associated with flora and vegetation including restrictions on impacts to the Priority 1 (P1) Horseflat Priority Ecological Community (PEC), Minnie Daisy (<i>Minura tridens</i>) and <i>Tecticornia</i> Taxa (samphires)
Aboriginal Cultural Heritage	Conditions of MS1211 require the implementation of the proposal to avoid direct and indirect disturbance to Aboriginal Cultural Heritage sites. The Applicant is required to develop an environmental management plan in consultation with relevant Traditional Owners that demonstrates how environmental objectives relating to cultural heritage will be achieved.

Key findings: In accordance with DWER’s *Guidance Statement: Setting Conditions* (DER, 2015b), conditions of a Part V licence must not be “...contrary to, or otherwise than in accordance with, an implementation agreement or decision under Part IV of the EP Act.” Further, that conditions “will not unnecessarily duplicate requirements imposed on licensees directly by the EP Act or another written law.”

In granting the works approval, the Delegated Officer has taken into consideration conditions applied under Part IV of the EP Act through MS 1211, and DWER’s *Guidance Statement: Setting Conditions* and determined that the following environmental factors are managed through the Ministerial Statement (MS 1211) and therefore require no further regulation under the Part V licence:

- Benthic communities and habitats;
- Marine fauna, including impacts from lighting and noise;
- Terrestrial fauna and migratory shorebirds, including impacts from light and noise;
- Marine environmental quality;
- Flora and vegetation; and
- Aboriginal cultural heritage.

Due to the conditions applied through MS 1211 and the requirements of the relevant management plans, the Delegated Officer has determined that duplication of controls outlined in Table 2 to manage impacts associated with the proposed bulk loading facility are not required within the conditions of this works approval.

3.2 MARPOL

The International Convention for the Prevention of Pollution from Ships (MARPOL) is the main international convention covering prevention of pollution to the marine environment by ships from operation or accidental causes. The MARPOL Convention was adopted at the International Maritime Organisation (IMO) in 1973. The 1978 Protocol, which was adopted because of multiple tanker accidents in 1976-1977, was absorbed into the parent Convention and the combined instrument entered into force 1983. The six Annexes include the technical requirements of MARPOL for the controls on operational discharges.

The following Annexes are applicable to the potential emissions and discharges associated with this activity:

- Annex I – Regulations for the Prevention of Pollution by Oil;
- Annex V – Prevention of Pollution by Garbage from Ships; and
- Annex VI – Prevention of Air Pollution from Ships.

The department notes that it is applicant's responsibility to ensure that all requirements of the international conventions, specifically MARPOL Convention are adhered to.

3.3 Ports Authorities Act 1999

Pilbara Ports have operational control over the Port of Cape Preston West under the *Ports Authorities Act 1999* (WA). The applicant is required to comply with PPA requirements for operations, separate to conditions under Part V of EP Act. This includes requirements relating to discharges of cargo wash to port waters and the submission of a Cyclone Response Plan.

Pilbara Ports confirmed that a tenure agreement is in place in terms of a Construction Licence, and following Practical Completion, a Lease will be issued. Pilbara Ports does not issue Leases for the OGV, as access to these areas is provided by the Harbour Master under the *Port Authority Act 1999*.

4. Exclusions

The following matters are outside the scope of this assessment and have not been considered within the technical risk assessment detailed in this report:

- Vehicle movements on public roads.
- Ground preparation works including clearing, levelling, blasting and construction of access roads and facilities unrelated to the prescribed activities such as carparks and officer buildings. It does not exclude the construction of infrastructure that could be considered a control in relation to emissions discharges such as impermeable hardstands for processing plant equipment or infrastructure for managing stormwater drainage potentially contaminated by activities on the premises.
- Construction of the trestle and jetty which were considered and authorised under Part IV of the EP Act. Noise emissions associated with the construction of the jetty (e.g. piling) have been considered through the Part IV assessment and are regulated through conditions (B5) of MS 1211 and the Underwater Noise Management Procedure required by EPBC 2018/8236.
- Emissions associated with Category 14 and 89 activities as these are authorised under Works Approval W6594/2021/1 including storage of SoP within the product storage sheds.

5. 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.

5.1 Source-pathways and receptors

5.1.1 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 3 below. Table 3 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 3: Proposed applicant controls

Emission	Potential pathway - Sources	Potential pathways	Proposed controls
Construction			
Dust	Air / windborne pathway - Vehicle movements, earthworks, etc.	Application of water and utilising dust suppressants on roads and cleared areas. High risk weather conditions will be monitored and additional water applied in preparation.	
Noise		Equipment and machinery will be regularly maintained per manufacturer specifications and fitted with appropriate mufflers. Noise attenuating equipment will be used where practicable to minimise noise during construction. Underwater noise is managed under conditions of MS 1211 and the Underwater Noise Management Plan required by EPBC 2018/8236.	
Operation			
Dust	Air / windborne pathway - Storage and handling of salt and SoP product including operation of machinery, conveyors, etc.	Salt will be stockpiled wet (approximately 3%w/w) while SoP will be stockpiled at 0.5%w/w. Granule size of SoP to be maintained between 2 – 4.5mm limiting fines dust. SoP is transferred from the storage sheds to the port “just in time” for shipping to reduce open stockpiling. Majority of bulk loading activities involves salt loading. Handling of SoP for shipping is limited to one day per month and about 12,000 tonnes per shipment (140,000 tonnes per year). Loading of the TSV with SoP is relatively short duration (approximately 6 hours). SoP truck movements are limited; approximately 4 truck movements over a 20 hour period. Trucks will have covered	

Emission	Potential pathway - Sources	Potential pathways	Proposed controls
		<p>trailers when transporting SoP.</p> <p>Residual SoP not shipped is transferred to a dome shelter for storage and covered with tarps until the next scheduled shipment.</p> <p>Loading into the TSV is via an uncovered conveyor system with a retractable chute that maintains drop height.</p> <p>All conveyors will be fitted with a belt cleaning system. The TSV loading conveyor will be fitted with a belt cleaning system comprising of two Kinder K-SmartScrapers on each conveyor.</p> <p>The salt production conveyor (connects salt stockpiles to jetty conveyor) and SoP conveyor (connects SoP stockpiles to jetty conveyor) will be fitted with primary and secondary belt cleaner.</p> <p>Material transfer points will be fitted with skirting.</p> <p>Only one TSV will be loaded at any one time.</p> <p>TSV cargo holds are fully enclosed to prevent ingress of water, and therefore escape of dust, on route to the OGVs.</p> <p>Product is loaded into the OGV hopper via a conventional rubber boom sock that extends below deck level of the OGV.</p> <p>The TSV ship loader boom is not enclosed, however, the deck longitudinal conveyor belt is covered.</p> <p>The Applicant will monitor weather conditions and not carry out transfer of product between TSV and the OGV during extreme weather events.</p> <p>High risk weather conditions (e.g. dry, windy conditions) will be monitored, and additional water applied to the salt product in preparation.</p> <p>Opportunistic inspections for dust will be undertaken during commissioning and operation. If visible emissions are noted that additional water will be applied to key source areas, or alternative treatment applied.</p>	
Noise			<p>Equipment and machinery will be regularly maintained in line with manufacturer specifications.</p> <p>Machinery will be fitted with appropriate mufflers.</p> <p>Noise attenuating / low noise equipment will be used where practicable.</p> <p>Premises location >10km from Mardie Station Homestead. Noise monitoring will be conducted if noise complaints indicate impact to the Homestead.</p> <p>Noise impacts to marine fauna are managed under MS 1211 and the Underwater Noise Management Plan.</p>
Salt/SoP laden stormwater & washwater	Discharge to land infiltrating soil/groundwater and discharge to marine waters - Stormwater		<p>When loading, any rainfall collected on the conveyors will be directed towards the TSV.</p> <p>The shiploader conveyor will have a slight landward fall to ensure that when the conveyor is not operating, stormwater reports to the tail end where it will flow onto stone pitching to</p>

Emission	Potential pathway - Sources	Potential pathways	Proposed controls
	<p>& washwater containing product</p>	<p>prevent erosion.</p> <p>Due to potential impact on product quality, conveyors will be cleared of product and cease operating in the event of a high rainfall event. Rainfall accumulating on conveyors are therefore not likely to contain significant quantities of product when not operating.</p> <p>Belt cleaning systems will reduce build up of product on conveyor belts.</p> <p>Stormwater from the stockpile area will be directed to two retention basins to prevent direct discharge to the environment. The retention basins are designed to capture a 1 in 5 year annual recurrence interval (ARI).</p> <p>Washdown pits installed at the front of the SoP domes to capture conveyor washdown.</p>	
<p>Leachate through base of stockpiles</p>	<p>Salt and SoP stockpiles</p>	<p>The product stockpiles will be situated on a 300mm thick based with an expected permeability between 1×10^{-6} to 1×10^{-7}</p> <p>The project is subject to requirements of managements plans developed under Part IV of the EP Act relating to monitoring of groundwater and impacts to benthic communities and habitat and migratory shorebirds.</p>	
<p>Product spillage</p>	<p>Direct discharge to marine water – Handling of product through conveyors and shiploading infrastructure.</p>	<p>Above dust controls will also assist with minimising spillage of product (e.g. belt cleaning system, covered TSV unloading conveyor, etc.).</p> <p>The conveyor system is fitted with sensors that allow continuous monitoring of belt wear and functionality and will be subject to continuous maintenance (preventative and reactive) to prevent unplanned failure.</p> <p>Loading is via flexible loading chutes (loading sock).</p> <p>The TSV is docked to the jetty bollards to prevent unintentional discharge to the marine environment.</p> <p>Transfer from the TSV to OGV will only occur in authorised anchorage locations. Docking of TSV to OGVs is via a rigid connection to allow both TSV and OGV to move together under the influence of waves/wind.</p> <p>Weather conditions will be monitored and loading of TSV and transfer of product between TSV and the OGV will not occur in extreme weather conditions. The Applicant has indicated that “Non-operating limits” include when wind speeds are ≥ 25 knots (about 46 km/hr) for three consecutive 10 minute periods but that operability is generally limited to a Beaufort Force Scale of 4 or 5 (i.e. 11-21 knots) in order to maintain vessel safety. As such it is expected that ship to ship transfer will cease prior to any potential for uncontrolled discharge of product.</p> <p>The Applicant will monitor and investigate sources of product loss.</p>	

Emission	Potential pathway - Sources	Potential pathways	Proposed controls
Hydrocarbon spills from vessels	Direct discharge/spill to marine waters – Vessels	<p>Subject to MARPOL Convention Annex 1 – Regulations for the Prevention of Pollution by Oil.</p> <p>There is no fuel storage associated with the bulk material loading facility. Fuel required for refuelling TSVs will be trucked from areas outside the premises boundary.</p> <p>Refuelling via systems designed to the relevant standards and fitted with spill abatement devices (i.e. refuelling shut-off valves).</p> <p>Spills managed in accordance with a Spill Management Procedure.</p> <p>Vessel refuelling will not take place at the offshore anchorage.</p>	
TSV wash water	Direct discharge from TSV following cleanout between product loading	<p>Discharged during transit between the berthing area and the OGV area.</p> <p>Discharge expected to occur monthly (approximately), in small volumes (approximately 1,000m³ one day per month).</p>	
Desalination plant brine	Discharge of brine from TSV onboard desalination plant.	<p>Discharge to occur while vessel in transit to ensure sufficient mixing and dilution.</p> <p>Subject to International Convention for the Prevention of Pollution from Ships (MARPOL) which allows wash water to be discharged 12 Nm from the coastline.</p> <p>Discharge is subject to approval by Pilbara Ports and will be managed accordingly.</p>	

5.1.2 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 4 below provide 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 4: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Mardie Homestead and woolshed complex	13 km south of the port landside infrastructure. The site is a European Heritage site and is occupied on a continual basis. There is an Access Deed between the Applicant and Pastoral Management Pty Ltd (the leaseholder)
Environmental receptors	Distance from prescribed activity
Heritage sites	There are no registered heritage sites within 10km of the port export facility. The nearest registered site is situated 12km south of the port landside infrastructure.

Groundwater	<p>The Applicant reports that the depth to groundwater varies between 0.3 – 0.8 m below ground level (mbgl), with salinity up to three times the level of seawater and ranging from 130,000 –210,000 microsiemens per centimetre (µS/cm).</p> <p>The nearest bore lies approximately 1.7 km south of the Mardie Project area. Water is not used for potable or industrial use.</p>
Terrestrial fauna	<p>21 species of conservation significant fauna were reported to be present, or likely to be present, within the Optimised Mardie Project including, among others, the northern quoll (<i>Dasyurus hallucatus</i>), grey falcon (<i>Falco hypoleucos</i>), western pebble-mound mouse (<i>Pseudomys chapmani</i>), line soil-crevice skink (<i>Notoscincus butleri</i>) and 13 species of migratory birds listed under the EPBC Act.</p>
Marine environment	<p>Marine waters adjacent to the premises support many conservation significant fauna including whales, marine turtles and sawfish.</p> <p>Marine turtle nesting mostly occurs on the nearby offshore islands (>8km away) however some turtle nesting activity has been recorded on mainland beaches about 1km east of the premises (Pendoley 2023).</p>

5.2 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 5.1. 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 5.1), 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 5.

Works approval W6962/2024/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 5 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 i.e. Category 58A activities. 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 5: Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
Construction								
Vehicles movements, earthworks, etc.	Dust	Air / windborne pathway causing impacts to health and amenity	Mardie homestead 13km south of port landside area	Refer to Section 5.1.1	C = Slight L = Rare Low Risk	Y	Condition 1	The Delegated Officer considers that there is sufficient separation to sensitive receptors that they are not likely to be impacted by dust and noise during construction. Applicant controls have been conditioned.
	Noise			Refer to Section 5.1.1	C = Slight L = Rare Low Risk	Y	Condition 1	
		Air and underwater transmission causing impacts to marine fauna including impacts to turtle nesting behaviour	Threatened marine fauna in adjacent marine waters. Turtle nesting beach 1km east.	The Delegated Officer considers that impacts to marine and terrestrial fauna are appropriately managed under conditions of MS 1211 and the Underwater Noise Management Plan. Monitoring of impacts to turtles and migratory birds is also a requirement of MS 1211 through the implementation of the Migratory Shorebird Monitoring and Management plan and Marine Turtle Monitoring Program.				
	Light	Air/windborne pathway causing impacts to health and amenity	Mardie homestead 13km south of port landside area	The Delegated Officer considers that the distance to human receptors (Mardie Homestead) is sufficient and that receptors will not be impacted by lighting associated with construction of the proposed bulk loading facility. Additionally, the Delegated Officer notes that while the Mardie Illumination Plan focuses on protection of fauna, proposed management measures in place regarding lighting design and minimising will also mitigate impacts to human receptors.				
Impacts to behaviours of fauna including nesting turtles and migratory birds		Turtle nesting beach 1km east Migratory birds utilising adjacent coastal samphire and mudflat habitats.	The Delegated Officer considers that impacts associated with lighting are appropriately managed through conditions of MS 1211 and implementation of the Illumination Plan. Monitoring of impacts to turtles and migratory birds is also a requirement of MS 1211 through the implementation of the Migratory Shorebird Monitoring and Management plan and Marine Turtle Monitoring Program.					
Operation (including time-limited-operations operations)								
Storage and handling of product at the stockyard, loading via conveyors to TSV and loading into OGVs.	Dust (from SoP)	Air/windborne pathway causing impacts to health and amenity	Mardie homestead 13km south of port landside area	Refer to Section 5.1.1	C = Slight L = Rare Low Risk	Y	Conditions 1 and 6	The Delegated Officer considers that there is sufficient separation to sensitive receptors that they are not likely to be impacted by dust during operation of the premises.
	Noise	Air/windborne pathway causing impacts to health and amenity of humans	Mardie Homestead 13km south	Refer to Section 5.1.1	C = Slight L = Rare Low Risk	Y	Condition 1	The Delegated Officer considers that there is sufficient separation to human receptors that they are unlikely to be impacted by noise associated with operation of the premises. The Applicant has committed to carrying out noise monitoring in the event that complaints are received from the nearest receptor; Maride Homestead. The works approval requires the Applicant to record any complaints and report these to the department along with details of actions taken.
		Air and underwater transmission causing impacts to marine fauna including impacts to turtle nesting behaviour	Threatened marine fauna in adjacent marine waters. Turtle nesting beach 1km east.	The Delegated Officer considers that impacts to marine and terrestrial fauna are appropriately managed under conditions of MS 1211 and the Underwater Noise Management Plan. Monitoring of impacts to turtles and migratory birds is also a requirement of MS 1211 through the implementation of the Migratory Shorebird Monitoring and Management Plan and Marine Turtle Monitoring Program.				

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
	Light	Air/windborne pathway causing impacts to health and amenity	Mardie homestead 13km south of port landside area	As above, the Delegated Officer considers that there is sufficient separation to human receptors that impact from light emissions associated with operation of the bulk loading facility is not expected.				
		Impacts to behaviours of fauna including nesting turtles and migratory birds	Turtle nesting beach 1km east Migratory birds utilising adjacent coastal samphire and mudflat habitats.	The Delegated Officer considers that impacts associated with lighting are appropriately managed through conditions of MS 1211 and implementation of the Illumination Plan. Monitoring of impacts to turtles and migratory birds is also a requirement of MS 1211 through the implementation of the Migratory Shorebird Monitoring and Management plan and Marine Turtle Monitoring Program.				
	Product spillage	Product loss: Loss of salt and SoP to marine waters (including via dust emissions) impacting marine water quality	Marine waters adjacent to premises supporting benthic communities and habitat / threatened fauna.	Refer to Section 5.1.1	C = Minor L = Rare Low Risk	Y	Conditions 1 and 6	<p>The Applicant indicated that product losses during normal operation are expected to be minimal and are associated with trace amounts of carry back on the return conveyor. The Delegated Officer determined that product loss may cause low level impacts with minimal offsite impacts. In making this determination the Delegated Officer considered the controls proposed by the Applicant for managing spillage (e.g. belt cleaning systems), the nature of the product (i.e. that it is derived from the marine environment), and the limited quantities of SoP to be handled each year.</p> <p>The Delegated Officer also noted conditions of MS 1211 outlined in Table 2 which specify environmental objectives and outcomes relating to marine environmental quality and benthic communities and habitats and relate to the area at the jetty head where TSV loading will occur. The conditions also require implementation of the Marine Environmental Quality Monitoring Management Plan and Benthic Communities and Habitat Monitoring to ensure that these objectives and outcomes are being achieved. The Delegated Officer considers that any impacts to marine environmental quality and benthic communities and habitats resulting from TSV loading, including spillage of product, will be appropriately detected and response actions initiated through the implementation of Part IV conditions and relevant management plans.</p> <p>The Delegated Officer notes that the scope of the above Ministerial conditions and management plans does not extend to the OGV anchorage areas. Considering the proposed Applicant controls for loading of OGVs (i.e. covered conveyors, rigid docking and extendable chute) the Delegated Officer determined that product spillage during transfer to OGVs is unlikely to occur.</p> <p>Applicant controls for preventing product spillage during TSV and OGV loading have been conditioned on the works approval including limits on the amount of SoP product handled and requirement to cease loading under extreme weather conditions.</p>
	Salt/SoP laden stormwater	Stormwater containing product potentially causing ecosystem disturbance or impacting marine water quality		Refer to Section 5.1.1	C = Slight L = Unlikely Low Risk	Y	Condition 1	<p>The Delegated Officer notes that the stormwater plan does include diversion infrastructure to limit contact with salt or SoP stockpiles to minimise potential contaminated stormwater flows.</p> <p>The controls proposed by the Applicant relating to the management of stormwater associated with salt stockpiles includes installation of retention basins to capture stormwater and prevent direct discharge to the environment. The Delegated Officer acknowledges that limited quantities of SoP product will be handled at the premises and that contact with water will be prevented to maintain product quality. Given this and the nature of the products, the Delegated Officer considers that stormwater impacts are likely to be limited.</p> <p>The Delegated Officer considers that broad scale impacts to benthic communities and habitats, marine environmental quality and migratory shorebirds will be monitored and managed through the relevant management plans developed under MS 1211.</p>
	Salt/SoP laden wash water (conveyor washing)	Wash water containing product potentially causing ecosystem disturbance or impacting marine water quality		Refer to Section 5.1.1	C = Minor L = Rare Low Risk	Y	Conditions 1 and 6	<p>Noting the proposed controls for minimising carry back on conveyors (i.e. belt cleaners), the nature of the product and low quantities of wash water expected, risks associated with washing of conveyors is considered to be low.</p> <p>As outlined above, the Delegated Officer notes requirements of MS 1211 as they relate to the management and monitoring of impacts to marine environmental quality and benthic communities and habitats.</p>
	Leachate through base of stockpile	Leachate of salt/SoP product entering groundwater and migrating to the marine environment		Refer to Section 5.1.1	C = Slight L = Rare Low Risk	Y	Condition 1	<p>Considering the receiving environment is highly saline, the Delegated Officer considers risks associated with product leaching to the environment are low. Conditions of MS 1211 apply relating to the management and monitoring of impacts to the marine environment including benthic communities and habitats.</p>
	Hydrocarbon spills from refuelling of vessels	Direct discharge / spill of hydrocarbons during refuelling of vessels		Refer to Section 5.1.1	C = Minor L = Unlikely Low Risk	Y	Condition 6	<p>No fuel storage will occur on the premises however refuelling of TSVs will be required.</p> <p>The applicant is required to comply with MARPOL Convention Annex 1 – Regulations for the Prevention of Pollution by Oil. Section 72(1) of the EP Act will still be enforced where in the case a spill is deemed to have caused or is likely to cause pollution, material environmental harm or serious environmental harm, the applicant must notify the CEO of DWER.</p> <p>The applicant will be required to comply with Pilbara Ports requirements under the <i>Ports Authorities Act 1999</i>, which involve standard operational management practices regulated by Pilbara Ports.</p> <p>In line with the intent of other requirements, the Delegated Officer has conditioned that the applicant should take all practicable measures to reduce the risk of hydrocarbon spills to the marine environment.</p>

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
	Desalination plant brine and TSV washwater	Direct discharge to marine waters	Threatened fauna in adjacent marine waters	Refer to Section 5.1.1	C = Minor L = Rare Low Risk	Y	Condition 1 and Condition 6	<p>The Delegated Officer notes that discharge of wash water and brine is subject to the requirements of MARPOL which are considered sufficient in mitigating the risk to marine waters from wastewater discharges. Conditions of MS 1211 are also noted which require implementation of numerous monitoring programs to monitor impacts to the marine environment from the loading activities (e.g. Marine Environmental Quality Monitoring Management Plan and Benthic Communities and Habitat Monitoring).</p> <p>The Delegated Officer notes that authorisation from the Pilbara Ports may be required in relation to any discharge of cargo wash water and that it is the responsibility of the works approval holder to ensure it has obtained all necessary approvals for the proposed activity.</p> <p>Notwithstanding these requirements, the Delegated Officer has determined that wash water controls are added to the works approval to support these requirements during time limited operations. It is noted that should further wash water controls be considered necessary, these can be considered during the assessment for licence for the premises for ongoing operations.</p>

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.

6. Consultation

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

Table 6: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 10 September 2024	None received	N/A
Local Government Authority (City of Karratha)	City of Karratha confirmed that the proposed works are exempt from obtaining Development Approval by virtue of the agreement between the Applicant and Pilbara Ports under s.38 of the <i>Port Authorities Act 1999</i>	Noted.
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS).	DEMIRS confirmed that the proposal is consistent with approved Mining Proposals (Reg ID 85779, 111421 and 114153).	Noted.
Department of Jobs, Tourism, Sustainability and Innovation (DJTSI), Wirrawandi Aboriginal Corporation, Citic Pacific Mining	None received	N/A
Pilbara Ports	<p>Pilbara Ports confirmed that discharge of desalination brine during transit between the berthing area and the OGV area is not in contravention of the International Convention for the Prevention of Pollution from Ships. However, it was noted that the Pilbara Ports' Port Handbook prohibits the discharge of wastewater resulting from deck (or other external 'dry' surfaces of a ship during deck washing/cleaning, including water containing sediments, unless there is another approval in place (e.g. a Licence or Registration from DWER).</p> <p>It also prohibits the discharge of cargo residues (or wash water containing cargo) residues from the cargo of any ship unless approved by the Harbour Master.</p>	<p>Noted. The Applicant has indicated that discharge of wash water will be undertaken in accordance with MARPOL and is in consultation with Pilbara Ports regarding approval of the cargo wash water discharge.</p> <p>The Delegated Officer notes that it is the responsibility of the works approval holder to ensure it has obtained all necessary approvals for the proposed activity.</p>
Applicant was provided with draft documents on 3 December 2024.	The Applicant did not request any changes to the proposed works approval conditions.	N/A

7. 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.

The works approval authorises 180 days of time limited operations consistent with Works Approval W6954/2021/1 to allow the bulk material loading facility to be operated in conjunction with the broader for salt production (Category 14) activities.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. Environmental Protection Authority (EPA) 2023, *Optimised Mardie Project, Mardie Minerals Pty Ltd, Report 1740*.
5. International Maritime Organisation, *International Convention for the Prevention of Pollution from Ships (MARPOL)*. [Accessed at [https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx)]
6. Pendoley Environmental 2023, *Mardie Salt Project: Marine Turtle Monitoring Program* [Accessed from www.bciminerals.com.au].