Government of Western Australia
Department of Water and Environmental Regulation

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 Ports Authority
File Number	2011/000451-4
Premises	Geraldton Port Part of Lot 503 on Deposited Plan 57801 GERALDTON WA 6530 Part of Lot 503 on Deposited Plan 57801 As defined by the Premises maps attached to the Revised Licence
Date of Report	23 January 2024
Decision	Revised licence granted

Sonya Poor

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A/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 Ports Authority (Licence Holder) for the Geraldton Port (the 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.

The Revised Licence issued as a result of this amendment supersedes the existing Licence previously granted in relation to the Premises. The Revised Licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

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 31 July 2023, 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 is for the inclusion of lithium direct shipping ore (DSO) and spodumene concentrate to be included to the list of approved bulk granular products regulated under the Licence.

Lithium DSO and spodumene concentrate produced by Liontown Resources Limited (Liontown) at their Kathleen Valley Lithium-Tantalum Project (when operating under time-limited operations under Works Approval W6687/2022/1) is proposed to be exported out of the Premises. The products are transported via trucks to the existing storage sheds located within the Mineral Storage Area (MSA). The sheds are fully enclosed and fitted with dust extraction systems. Handling of the products is via the sheds, which have internal feed hoppers connected to the Berth 4 conveyor system for vessel loading. Alternatively, products can be handled by the truck unloader facility within the MSA to facilitate direct to vessel loading, where required.

There is no change to the existing Category 58: Bulk material handling or unloading assessed production capacity per day and per annual period.

2.2.1 Lithium DSO

Lithium DSO containing 1 percent (%) lithium oxide (LiO) is currently temporarily stored on the run of mine (ROM) pad and then trucked directly to the Premises. Lithium DSO production involves removing the unsaleable overburden and then crushing and screening the pegmatite material.

Mineral composition

A summary of the mineral composition was undertaken on a lithium DSO sample as shown in Table 1. No sulphides were detected in the lithium DSO sample.

An elemental analysis was also undertaken with the total metal and metalloid concentration results presented in Table 2. All environmentally significant elements were significantly less than 1%, with exception to aluminium that requires consideration for health and environmental effects. Lithium DSO contains slightly higher concentrations of vanadium, tin, nickel, iron,

copper, cobalt, and arsenic compared to the spodumene concentrate. During the beneficiation process various mineral and metal species are removed to achieve the 6% spodumene concentrate.

Table 1: Mineral composition of lithium DSO

Mineral Phase	Formula	CAS No.	Content
Amphibole	$Ca_2(Mg, Fe)_5Si_8O_{22}(OH)_2$	1318-09-8	2-4 %
Chlorite	$(Fe, Mg, Al)_{12}(Si, Al)_8O_{20}(OH)_{16}$	1318-59-8	1-2%
Quartz	SiO_2	14808-60-7	22-28%
Muscovite (Mica)	$KAl_3Si_3O_{10}(OH, F)_2$	1318-94-1	7-9%
Potassium Feldspar	$KAlSi_3O_8$	68476-25-5	9-11%
Plagioclase	$NaAlSi_3O_8$	12244-10-9	30-32%
Spodumene	$LiAl(SiO_3)_2$	66057-55-4	6-8%
Amorphous	Various	Various	14-16%

Table 2: Total metals and metalloids for lithium DSO

Ag mg/kg	Al %	As mg/kg	Be mg/kg	Bi mg/kg	Cd mg/kg	Co mg/kg	Cu mg/kg	Fe %	Ga mg/kg	La mg/kg	Li mg/kg
<0.05	5.03	2.4	185	4.37	0.23	3.4	9	0.59	40.16	0.16	3,668
Mn mg/kg	**Mo mg/kg**	**Ni mg/kg**	**Pb mg/kg**	**Sb mg/kg**	**Se mg/kg**	**Sn mg/kg**	**Th mg/kg**	**U mg/kg**	**V mg/kg**	**Zn mg/kg**	
1,374	2	11	5	0.23	<0.5	31.2	2.11	2.54	9	124	

Particle size distribution and respirable fractions

The particles size distribution analysis of lithium DSO shows less 1% of the material is finer than 10 microns (µm). Respirable silica concentration analysis was undertaken with the bulk material as less than 1% (α-Quartz = 0.012%).

Fraction estimates for respirable quartz analysis were estimated as the following:

- respirable fraction particle matter (PM) 4 of 0.08%;
- thoracic fraction (PM10) of 0.26%; and
- inhalable fraction (PM100) of 1.72%.

Approximately 98.28% of lithium DSO analysed contained non-inhalable fractions.

No asbestiform minerals were detected by scanning electron microscope and therefore, the asbestos content is less than 0.01% weight by weight (w/w).

Moisture

The transport moisture level (TML) was indeterminant but remained free draining at 10.59% and the Licence Holder has indicated there is no risk of liquefaction. The dust extinction moisture (DEM) indicating the moisture content minimising dust emissions is 1.72%, which is below the target moisture content of 3% anticipated to be the shipping DSO amount by Liontown.

Ecotoxicity and hazardous material classification

Leachate testing of the lithium DSO was undertaken which indicated exceptionally low total and soluble concentrations of all environmentally significant metals and metalloids and deemed inert in nature present.

The Licence Holder has indicated that the lithium DSO analysis completed and referenced in

the product safety data sheet (SDS) states that the lithium DSO from the Kathleen Valley Lithium Project:

- not classified as hazardous according to the criteria of the Globally Harmonised System (GHS);
- not classified as Harmful to the Marine Environment (HME) according to MARPOL Annex V; and
- not classified for transport as a dangerous good as defined by the Australian Dangerous Goods (ADG) Code.

Radiation

Naturally occurring radiation levels in the lithium DSO are low, based on low concentrations of uranium and thorium as shown in Table 3. The lithium DSO from the Kathleen Valley Lithium Project does not trigger classification under any relevant criteria and is below exemption trigger levels of one becquerel per gram (Bq/g) of the *Mines Safety Inspection Regulations 1995.*

Table 3: Radioactivity of lithium DSO

Sample	Uranium		Thorium	Total U + Th	
Units	mg/kg	Bq/g	mg/kg	Bq/g	Bg/g
Exemption/Trigger Limit	N/A	1	N/A	1	1
Spodumene Concentrate	2.54	0.0314	2.11	0.0086	0.0399

2.2.2 Spodumene concentrate

Mineral composition

A summary of the mineral composition was undertaken on a spodumene concentrate sample as shown in Table 4.

Table 4: Mineral composition of spodumene concentrate

Mineral Phase	Formula	CAS No.	Content
Beryl	$Be_3Al_2(SiO_3)_6$	1302-52-9	<0.5%
Chlorite	$(LiAl_4)$ $[AlSi_3O_{10}]$ $(OH)_8$	14998-27-7	1%
Dolomite	$CaMg(CO3)_2$	16389-88-1	1%
Quartz	SiO_2	14808-60-7	5%
Magnetite	Fe_3O_4	7439-89-6	<0.5%
Mica	(Li, K, Ca, Na) $(Al, Mg, Fe)_2(Si, Al)_4O_{10}(OH)_2$	12001-26-2	2%
Petalite	$LiAlSi_4O_{10}$	1302-66-5	<0.5%
Sodium Plagioclase	$NaAlSi_3O_8$	68476-25-5	4%
Spodumene	$LiAl(SiO_3)_2$	66057-55-4	73%
Tourmaline	$Na_{0.65}Ca_{0.27}Mg_{2.64}Al_{6.36}Si_6B_3O_{27.5}(OH)_{3.5}$	1317-93-7	1%
Amorphous	Various	Various	12%

An elemental analysis was also undertaken with the total metal and metalloid concentration results presented in Table 5. All environmentally significant elements were significantly less than 1%, with exception to aluminium and lithium that required consideration for health and environmental effects. Spodumene concentrate contains higher concentrations of metals and metalloids except for vanadium, tin, nickel, iron, copper, cobalt, and arsenic compared to lithium DSO. Additional processing to the spodumene has removed these metals.

Table 5: Total metals and metalloids for spodumene concentrate

Ag mg/kg	Al %	As mg/kg	Be mg/kg	Bi mg/kg	Cd mg/kg	Co mg/kg	Cu mg/kg	Fe %	Ga mg/kg	La mg/kg	Li mg/kg
0.05	12.0	1.9	283	42.9	1.16	0.7	4	0.44	86.4	10.82	30,000
Mn mg/kg	**Mo mg/kg**	**Ni mg/kg**	**Pb mg/kg**	**Sb mg/kg**	**Se mg/kg**	**Sn mg/kg**	**Th mg/kg**	**U mg/kg**	**V mg/kg**	**Zn mg/kg**	
2,827	15.3	3.0	7.3	0.53	<0.5	69.4	10.85	4.99	2.0	309	

Particle size distribution and respirable fractions

The particles size distribution analysis of the spodumene concentrate shows 1.9% of the material is finer than 10 µm. Respirable silica concentration analysis was undertaken with the bulk material as less than 1% (α-Quartz = 0.009%).

Fraction estimates for respirable quartz analysis were estimated as the following:

- respirable fraction (PM4) of 0.15%;
- thoracic fraction (PM10) of 1.3%; and
- inhalable fraction (PM100) of 39.4%.

Approximately 60% of spodumene concentrate analysed contained non-inhalable fractions.

No asbestiform minerals were detected by scanning electron microscope and therefore, the asbestos content is less than 0.01% weight by weight (w/w).

Moisture

The TML was determined to be 16.1%. The DEM indicating the moisture content minimising dust emissions is 3.4%, which is well below the target moisture content of 9% anticipated of the shipping spodumene concentrate.

Ecotoxicity and hazardous material classification

Spodumene concentrate has exceptionally low total and soluble concentrations of all environmentally significant metals and metalloids and deemed an inert material.

As stated for lithium DSO, spodumene concentrate is:

- not classified as hazardous according to the criteria of the GHS;
- not classified as HME according to MARPOL Annex V; and
- not classified for transport as a dangerous good as defined by the ADG Code.

Radiation

Naturally occurring radiation levels in the spodumene concentrate are low, based on low concentrations of uranium and thorium as shown in Table 6. It does not trigger classification under any relevant criteria and is below exemption trigger levels of 1 Bq/g of the *Mines Safety Inspection Regulations 1995.*

Table 6: Radioactivity of spodumene concentrate

Sample	Uranium		Thorium		Total U + Th
Units	mg/kg	Bq/g	mg/kg	Bq/g	Bg/g
Exemption/Trigger Limit	N/A	1	N/A	1	1
Spodumene Concentrate	4.99	0.062	10.85	0.044	0.106

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 2020a).

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 7 below. Table 7 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 7: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Dust	Handling of lithium DSO and spodumene concentrate via truck, unloader, enclosed storage shed, conveyor and shiploader	Air / windborne pathway	• existing conditions on the licence L4275/1982/15 • maintain and operate dust extraction and suppression systems on conveyors, transfer chutes, shiploaders and truck unloaders • ensure that the product moisture conditioning is above DEM • maintain fully enclosed storage shed • wind shields are in place to partially enclose the conveyor • shiploader chute must be lowered as far as possible in the vessel hold • haulage trucks must be tarped when transporting product within the Port area • maintain and operate road sweeper to remove any product spillage • Dust Management Plan must be implemented • MWPA Air Quality Monitoring Sampling and Analysis Plan must be implemented
Noise	Port operations	Air / windborne pathway	• general provisions of *Environmental Protection (Noise) Regulations 1997* applies
Wastewater	Port and shipping infrastructure	Direct discharge	• existing conditions on the licence

Emission	Sources	Potential pathways	Proposed controls
	washdown		L4275/1982/15 • HumeCeptor and other water containment infrastructure on Berth 4 to retain total suspended solids.
Contaminated stormwater / surface water runoff	Product spillage	Direct discharge	• existing conditions on the licence L4275/1982/15 • procedures in place for promptly recovery of any spillage • road sweeper to remove any product spillage • water management infrastructure to retain total suspended solids prior to discharge to harbour
Waste (inert material, mineral product)	Product recovered from dust extraction and stormwater management systems	Direct discharge	• all recovered material (lithium ore or spodumene concentrate) is returned to the customer for reprocessing as per Port Services Agreement

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020a), 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 8 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 *(Guideline: Environmental siting* (DWER 2020b)).

Table 8: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
Geraldton Foreshore	Approximately 780 m from the Mineral Storage Area (MSA) and 960 m from Berth 4.
Beachlands Residential Properties	Approximately 220 m from the MSA and 510 m from Berth 4.
Point Moore Residential Properties	Approximately 1,010 m from the MSA and 1000 m from Berth 4.
Light Industrial Premises	Approximately 40 m from MSA and 275 m from Berth 4.
Fishing Boat Harbour	Approximately 545 m from MSA and 450 m from Berth 4.
Environmental receptors	**Distance from prescribed activity**
Marine environment	Prescribed premises borders on marine environment
Endangered Fauna Australian Sea Lion (*Neophoca cinerea*)	Within and adjacent to the prescribed premises. Licence Holder has stated that "Sea lions utilise rock walls beneath and adjacent to berths at the port as haul out areas. Lithium DSO and spodumene concentrate are not classified as HME. No adverse impacts to sea lions are anticipated due to this proposal."

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020a) 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 incomplete 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 9.

The Revised Licence L4275/1982/15 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises.

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

Table 9. Risk assessment of potential emissions and discharges from the Premises 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 lithium DSO and spodumene concentrate via truck, unloader, enclosed storage shed, conveyor and shiploader	Dust	Air / windborne pathway causing impacts to public health and amenity and water quality / marine ecology	Residential and light industry properties Fishing boat harbour Marine environment	Refer to section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Conditions 3, 4, 6, 28, 29, **30**, 36, 39, 40, 41, and 42	Existing controls are deemed sufficient to mitigate potential dust emissions to residential and light industry properties, fishing boat harbour, and into the marine environment. **Condition 30:** Refer to section 3.3 for detail.
Port operations	Noise	Air / windborne pathway causing impacts to public amenity	Residential and light industry properties	Refer to section 3.1	C = Slight L = Unlikely **Low Risk**	N/A	No conditions imposed. The *Environmental Protection (Noise) Regulations 1997* apply.	N/A
Port and shipping infrastructure washdown	Wastewater	Direct discharge causing impact to water quality / marine ecology	Marine environment	Refer to section 3.1	C = Minor L = Possible **Medium Risk**	Y	Conditions 5, 7, 26, 28, 29, **31**, 34, 36, 39, 40, 41, and 42	Existing controls are deemed sufficient to mitigate potential discharge into the marine environment. **Condition 31:** Refer to section 3.3 for detail.
Product recovered from dust extraction and stormwater management systems	Waste (inert material, mineral product)	Direct discharge causing impact to water quality / marine ecology if encounters stormwater / surface water	Marine environment	Refer to section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Conditions 3, 4, 8, 36, 39, 40, 41, and 42	Existing controls are deemed sufficient to mitigate potential discharge into the marine environment.

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				
		runoff						

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

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 Additional regulatory controls

Technical advice was sought from the department's Principal Hydrogeologist on the monitoring requirements for the loading of lithium DSO and spodumene concentrate at the Premises.

The Principal Hydrogeologist assumes that most of the lithium exported through the Premises would be in the form of a spodumene concentrate. It was noted that although spodumene is often thought of as being chemically inert, environmentally significant amounts of lithium can be leached from this mineral by seawater. During a ship loading event, spodumene particulates could be released to the environment in dust and by spills of materials directly into seawater.

This means that spillages of spodumene during the loading of vessels at the Premises would have the potential to cause short-term contamination of seawater in the harbour by lithium during a loading event. Additionally, the accumulation of spodumene concentrate on the seafloor in the loading areas could lead to the long-term contamination of benthic sediment pore-water by lithium, which could adversely affect filter feeding organisms in these sediments. These emission pathways are the same as for other mineral concentrates that are already exported through the Premises.

The following recommendation was made:

- the Licence Holder should include crystalline silica as a parameter for the monitoring of ambient air quality at the four dust monitoring locations.
- the Licence Holder should include lithium as a parameter for the monitoring of ambient sediment quality, with a regulatory limit value of 0.5 mg/L in Table 4 of L4275/1982/15.

The department has included these recommendations through conditions 30 and 31 during this licence amendment.

Technical advice was also sought from the department's Air Quality Branch (AQB) on the monitoring requirements for the loading of lithium DSO and spodumene concentrate at the Premises.

AQB noted inconsistencies in the sampling methods as detailed in Table 3, where the metal parameters are determined as either total suspended particulates (TSP) (lead and nickel) or particulate matter of particles less than 10 micrometres in diameter (PM_{10}) (lead, copper, and manganese). Monitoring for different size fractions generally requires separate monitoring equipment and raises the potential for inconsistencies.

The technical advice and following recommendations are summarised below:

- the Licence Holder should amend the monitoring for Manganese as PM_{10} from 'annual rolling average' to '24 hours'.
- the Licence Holder should include target level for Nickel as PM_{10} as 0.02 µg/m^3 derived from the current guideline of the European Union air quality standards as recommended by the Department of Health to adopt this annual guideline.
- the Licence Holder should review the sampling methods for the metal parameters, lead, copper, nickel, and manganese determined as TSP or PM_{10} to be consistent.

The department has included these recommendations through condition 30 during this licence amendment.

4. Consultation

Table 10 provides a summary of the consultation undertaken by the department.

Table 10: Consultation

Consultation method	Comments received	Department response
Application advertised in the Geraldton Guardian newspaper on 5 September 2023	No comments were received.	N/A
Application advertised in The West Australian newspaper on 18 September 2023	No comments were received.	N/A
City of Greater Geraldton advised of proposal on 18 September 2023	No comments were received.	N/A
Department of Health (DoH) advised of proposal on 20 September 2023	DoH response was provided on 11 October 2023. DoH had no comments on the proposal at the time. The department sought further advice from DoH on 4 December 2023 and received a response on 4 January 2024.	The department updated the licence as applicable.
Licence Holder was provided with a draft amendment on 8 November 2023	The Licence Holder provided comments on 20 November 2023, which are summarised in Appendix 1.	The department has provided a response to the comments, which are summarised in Appendix 1.
Licence Holder was provided with a 2nd draft amendment on 9 January 2024	The Licence Holder provided comments on 22 January 2024, which are summarised in Appendix 1.	The department has provided a response to the comments, which are summarised in 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 11 provides a summary of the proposed amendments and will act as record of implemented changes. The licence has been reformatted into the current licence template with the changes summarised in Table 12. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Note: Refer to Appendix 1 for additional updates to the licence following the initial proposed draft licence being provided to the Licence Holder on 8 November 2023 and 9 January 2024.

Table 11: Summary of licence amendments

Condition no.	Proposed amendments
4	Updated in text reference to condition 1.4 as condition 15. Inclusion of lithium DSO and spodumene concentrate to condition.
8, Table 1	Amended reference to Table 1.3.1 in text as reference to Table 1. Amended Table heading to 'Premises operational requirements' and as a standalone table heading. Included operation requirements for the export of lithium DSO and spodumene concentrate. Included reference to 'Figure 1' under the column.
12	Updated in text reference to condition 1.3.8 as condition 11.
15	Inclusion of 15(c) related to details of the nature of the Trial, where the bulk granular material is not specified under Table X in Schedule 4 of the Licence. Amended reference to condition 1.4.2 in text as reference to condition 16. Amended reference to conditions 1.4.1(a) – (f) in text as reference to conditions 15(a) – (g).
16	Amended reference to condition 1.4.1 in text as reference to condition 15. Amended reference to condition 1.4.5 in text as reference to condition 20. Amended reference to condition 1.4.1(g) in text as reference to condition 15(h).
17	New condition related to storage time of products received for the purpose of a Trial.
18	Amended reference to condition 1.4.2 in text as reference to condition 16. Amended reference to condition 1.4.1(g) in text as reference to condition 15(h).
19	Amended the following condition point '*are a waste or waste-derived by-product (except Clean fill)*' to '*are classified as tailings, construction or demolition waste, hazardous waste, or waste-derived by-product (except Clean fill)*'.
20	Amended reference to condition 1.4.1 in text as reference to condition 18.
21	New condition related to recording date and report when the product for the purpose of a Trial has been received.
22	Amended the wording as follows "*In the event that approval is sought for the ongoing shipments of the Trial material, or for the ongoing use of the Trial material handling method, the Licence Holder must provide an application for Licence amendment or Works Approval, along with a report fulfilling the requirements of Condition 23, at least three months prior to the completion of the Trial period."*
23, Table 2	Amended reference to Table 2.3.1 in text as reference to Table 2. Table heading removed from the table to be a standalone table heading.
30, Table 3	Table heading removed from the table to be a standalone table heading. Inclusion of lithium as a parameter for the monitoring of ambient air quality at the four dust monitoring locations. Amended monitoring frequency for Manganese as PM_{10} from 'annual rolling average' to '24 hours'. Included target level for Nickel as PM_{10} as 0.02 µg/m^3. Removal of TSP monitoring for all parameters.

Condition no.	Proposed amendments
31, Table 4	Amended reference to Table 3.2.2 in text as reference to Table 4. Table heading removed from the table to be a standalone table heading. Inclusion of lithium as a parameter for the monitoring of ambient sediment quality in Table 4. Amended the monitoring points and sediment quality guideline references, refer to Appendix for further explanation.
32	Amended reference to Table 3.2.2 in text as reference to Table 4.
33, Table 5	Amended reference to Table 3.2.3 in text as reference to Table 5. Table heading removed from the table to be a standalone table heading. Removal of monitoring point SW05a, refer to Appendix 1 for further explanation.
34, Table 6	Amended reference to Table 3.2.4 in text as reference to Table 6. Table heading removed from the table to be a standalone table heading.
35	Amended to the current licensing condition for complaints.
36	Amended to the current licensing condition for audit of compliance and associated reporting.
37	New condition related to maintaining accurate and auditable books.
38	New condition related to maintaining accurate and auditable books.
39, Table 7	Amended reference to Table 4.2.1 in text as reference to Table 7. Table heading removed from the table to be a standalone table heading. Amended condition and table references within the table.
41, Table 8	Amended reference to Table 4.2.2 in text as reference to Table 8. Table heading removed from the table to be a standalone table heading. Amended condition and table references within the table.
42, Table 9	Table heading removed from the table to be a standalone table heading. Amended condition and table references within the table.
Definitions (Table 10)	Amended existing definitions, inclusion of new definitions and removal of redundant definitions.
Schedule 1	Removal of Figure 3 as this relates to Berth 2 sampling and Berth 2 sampling requirements have been removed from Table 5 under condition 33 of the licence.
Schedule 2	Removed as the methodology is no longer required with the removal of TSP monitoring.
Schedule 3 (previously 4), Table 11	Inclusion of a table of all the regulated bulk granular products loaded and shipped from the Geraldton Port under the current licence.

Table 12: Consolidation of licence conditions in this amendment

Existing condition	Condition summary	Revised licence condition	Conversion notes
-	N/A	-	Revised to current licensing format template and wording.
-	Contents page	-	Removal of contents page.
-	Introduction	-	Removal of the introductory explanation including the premises description and licence summary.
-	Licence history table	-	Inclusion of the heading 'Licence history' and amended the table column heading to the revised current licensing format. Removed reference to several works approvals.
-	Interpretation including definitions	-	Inclusion of the 'Interpretation' explanation as per current licensing format. Removal of the previous 'interpretation' section, with the definitions moved to Table 10 after the licence conditions.
1.1.1	Definitions under the EP Act	Removed	Condition included under the 'Interpretation' explanation as per current licensing format.
1.1.2	Definitions under the EP Act	Removed	Condition included under the 'Interpretation' explanation as per current licensing format.
1.1.3	Reference to an Australian or other standard in the licence	Removed	Condition included under the 'Interpretation' explanation as per current licensing format.
1.1.4	Reference to a guideline or code of practice in the licence	Removed	Condition included under the 'Interpretation' explanation as per current licensing format.
-	N/A	-	Inclusion of the sentence '*The Licence Holder must ensure that the following conditions are complied with:'* as per the current licensing format.
-	General conditions heading	-	Removal of '1.2' from the heading.
1.2.1	Reference to authorise emission not mentioned in the Licence.	Removed	Redundant condition.
1.2.2	Renumbering	1	Renumbering as per current licensing format.
1.2.3	Reference to storage of environmentally hazardous materials.	Removed	Covered under existing regulation, *Dangerous Goods Safety Act 2004*
1.2.4	Reference to recover / remove spills	Removed	Covered under existing regulation, *Environmental Protection (Unauthorised Discharges) Regulations 2004*
1.2.5 & 1.2.6	Renumbering	2 & 3	Renumbering as per current licensing format.

Existing condition	Condition summary	Revised licence condition	Conversion notes
-	Premises operation heading	-	Removal '1.3' from heading.
Table 1.3.1	Operational requirements	Table 1	Renumbered and removed table heading from within the table as per current licensing format.
1.3.1 to 1.3.11	Renumbering	4 to 14	Renumbering as per current licensing format.
-	Trial conditions heading	-	Removal of '1.4' from the heading.
1.4.1 to 1.4.6	Renumbering	15, 16, 18, 19, 20, 22	Renumbering as per current licensing format.
-	Ongoing shipments subheading	-	Inclusion of 'and handling' to subheading
-	Emissions heading	-	Removal of '2' from the heading and addition of 'and discharges'.
-	General subheading	Removed	Redundant subheading
2.1.1	Refers to exceedances and limits	Removed	Exceedances and limits and investigations are referred to in the latter monitoring conditions.
-	Point source emissions to surface water subheading	-	Removal of '2.2' from the subheading.
2.2.1 to 2.4.1	Renumbering	23 to 25	Renumbering as per current licensing format.
Table 2.3.1	Emission points to surface water	Table 2	Renumbered and removed table heading from within the table as per current licensing format.
-	Fugitive emissions subheading	-	Removal of '2.3' from the subheading.
-	Odour subheading	-	Removal '2.4' from the subheading.
-	Monitoring heading	-	Removal '3' from the heading.
-	General monitoring subheading	-	Removal of '3.1' from the subheading.
3.1.1 to 3.1.4	Renumbering	26 to 29	Renumbering as per current licensing format.
-	Ambient environmental quality monitoring subheading	-	Removal of '3.2' from the subheading.
Table 3.2.1	Monitoring of ambient air quality	Table 3	Renumbered and removed table heading from within the table as per current licensing format.
Table 3.2.2	Monitoring of ambient sediment quality	Table 4	Renumbered and removed table heading from within the table as per current licensing format.

Existing condition	Condition summary	Revised licence condition	Conversion notes
3.2.1 to 3.2.5	Renumbering	30 to 34	Renumbering as per current licensing format.
Table 3.2.3	Emissions and discharge monitoring	Table 5	Renumbered and removed table heading from within the table as per current licensing format.
Table 3.2.4	Monitoring of ambient marine quality	Table 6	Renumbered and removed table heading from within the table as per current licensing format.
-	Information heading	-	Removal of '4' from the heading and renamed as 'Records and reporting'.
-	Records subheading	-	Redundant as per current licensing format.
4.1.1	Refers to all information and records.	-	Removed to be in line with the current licensing format.
4.1.2	Refers to person in charge of Premises	-	Removed to be in line with the current licensing format.
4.1.3	Relates to undertaking an audit of compliance and reporting	36	Amended to the current licensing condition for audit of compliance and associated reporting.
4.1.4	Relates to the complaints management system	35	Amended to the current licensing condition for complaints.
-	Reporting subheading	-	Redundant as per current licensing format.
4.2.1 to 4.2.3	Renumbering	39 to 41	Renumbering as per current licensing format.
Table 4.2.1	Annual Environmental Report	Table 7	Renumbered and removed table heading from within the table as per current licensing format.
Table 4.2.2	Non-annual reporting requirements	Table 8	Renumbered and removed table heading from within the table as per current licensing format.
-	Notification subheading	-	Removal of '4.3' from the subheading.
4.3.1	Renumbering	42	Renumbering as per current licensing format.
Table 4.3.1	Notification requirements	Table 9	Renumbered and removed table heading from within the table as per current licensing format.
-	Schedule 1: Maps	-	Relabelled as per current licensing format.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020a, *Guideline: Risk Assessments*, Perth, Western Australia.
3. DWER 2020b, *Guideline: Environmental Siting*, Perth, Western Australia.
4. European Commission 2023, *EU air quality standards,* Directorate-General for Environment. Available from: https://environment.ec.europa.eu/topics/air/air-quality/eu-air-quality-standards_en
5. Safe Work Australia 2022, *Working with silica and silica containing products – Guidance material, February 2022*, Canberra, Australia.

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

Condition	Summary of Licence Holder's comment	Department's response
Licence Holder's comments received on 20 November 2023		
8 Operational requirements for export of lithium DSO and spodumene concentrate.	The Licence Holder request minor changes to the following Operational Requirements to ensure the licence is fit for purpose for all future lithium producers: **Bullet Point #3** - 3% and 9% moisture content is a customer specific target. To prevent the need for future amendments the Licence Holder requests this condition be changed to *'Containing a product moisture content at or above DEM, as averaged over each shipment, with each shipment details recorded and maintained*.' **Bullet Point #4** - Maintaining a minimum vertical drop height of less than 2 m may not be achievable due to different ship hold configurations. The Licence Holder requests the following change to wording "*Loading with ship loader chute lowered and far as possible into the ships hold to minimise vertical drop height*." **Bullet Point #8** – The Licence Holder requests removal of reference to Kathleen Valley Lithium mine site, to allow other lithium and spodumene exporters to be covered by these requirements. Recommend wording be changed to "*Maintain and operate Humeceptors on Berth 4, to recover spilt product and prevent discharge to the marine environment*.	The requested changes have been made in the licence.
30 Inclusion of Nickel as PM10 target of 0.02 µg/m^3 as an annual rolling average.	The Licence Holder has historically monitored Lead, Nickel and Particulates as both TSP and PM10. Consistent with the DWER Air Quality Branch recommendations in the Decision Report, the Licence Holder requests that all TSP parameters be removed from the licence. The Licence Holder considers that monitoring of particulates and metals should be measured as PM10 rather than TSP, as the concentration of respirable particulate matter provides a more accurate assessment of health risks to sensitive receptors. If DWER accepts removal of TSP monitoring, then subsequently Schedule 2 providing the methodology for the lead 3-month rolling average should also be removed. The Licence Holder has a large dataset demonstrating that TSP lead levels have remained consistently below the licence limit (as reported via Annual Environmental Reports). The Licence Holder considers monitoring lead as PM10 to be more representative of peak exposure events as the data isn't averaged over time, and therefore a better measure of the effectiveness of lead management controls.	The department has removed all TSP parameters from Table 3 of the licence, with all ambient air quality parameters measured as PM10. In addition, Schedule 2 has been removed as this relates to TSP monitoring and the methodology for the lead 3-month rolling average. The Nickel PM10 target value of 0.02 µg/m^3 was derived from the current guideline of the European Union air quality standards as recommended by the Department of Health to

Condition	Summary of Licence Holder's comment	Department's response
	It is not clear from the Amendment Report how the Nickel PM10 target value of 0.02 µg/m^3 was derived. The Licence Holder requests DWER provide any references or standards used to set this target, so as this material can be referenced in the Licence Holder's procedures and reports.	adopt this annual guideline. Reference: European Commission 2023, EU air quality standards, Directorate-General for Environment. Available from: https://environment.ec.europa.eu/topics/air/air-quality/eu-air-quality-standards_en
30 Inclusion of respirable crystalline silica PM10 limit of 50 µg/m^3 (24 hr). Monitoring required to be continuous during shiploading events.	It is not clear from the Amendment Report how the value of 50 µg/m^3 was derived for respirable crystalline silica. The Licence Holder requests further information as to the basis for this numerical target. The Licence Holder has concerns that activities not associated with Category 58 may contribute to crystalline silica such as boat building and maintenance or construction activities within the Fishing Boat Harbour or neighbouring industrial areas. Amendment Report section 3.3 discusses crystalline silica as the parameter for monitoring ambient air quality associated with spodumene concentrate loading. The Licence Holder proposes Lithium as a more targeted and appropriate parameter to measure effectiveness of controls, which would also be consistent with other port licences where spodumene concentrate is handled. The Table 10 definition for *shiploading events* "means any shiploading where bulk Metal Concentrate is loaded into a ship or unloaded out of a ship". The Licence Holder understands the monitoring of respirable crystalline silica has been included specifically for lithium DSO and spodumene concentrate. Ship loading events are currently defined as "*means lead sulphide concentrate, copper concentrate, zinc concentrate or nickel concentrate*." The Licence Holder seeks clarification as to when respirable crystalline silica monitoring should be undertaken, if it is to remain as a numerical target.	The value of 50 µg/m^3 for respirable crystalline silica (RCS), which is derived from Safe work Australia (SWA), where the eight-hour time weighted average workplace exposure standard for RCS is 0.05 mg/m^3 (SWA 2022). The department sought further technical advice from DoH regarding silica or lithium as a parameter to measure for ambient air quality monitoring under condition 30. DoH made the following comments: • DoH does not currently recommend the addition of air monitoring for respirable crystalline silica in the amended licence. However, given the close proximity of residents to the Port, it is critical that there is adherence to dust prevention measures by all users of the Port. • The reported relative percentage of respirable crystalline silica in the product are noted and respirable crystalline silica, amphibole fibres and metals are expected to be present as a component of the PM_{10} measured fraction based on all the bulk material handling being undertaken at the Port. Based on this, the department has removed RCS and its associated limit and included Lithium as PM10. The department will review the monitoring

Condition	Summary of Licence Holder's comment	Department's response
		data received during the quarterly air quality reports to determine if further assessment and additional licence conditions are required for lithium DSO and spodumene concentrate handled and loaded at the Premises. The department has included 'spodumene concentrate' to the terms 'Metal Concentrate Shed' and 'Metal Concentrate'.
31 Inclusion of lithium in ambient sediment quality monitoring.	The Licence Holder requests that sediment quality monitoring guideline references be updated to the current versions: • Replace ANZECC/ARMCANZ Guidelines (2000) with Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018) • Replace 'ISQG-Low' and 'ISQG-high' with the terms 'DGV-low' and 'DGV-high' respectively consistent with terminology used in ANZG 2018. • Remove the DoE 2010 Assessment Levels for Soil, Sediment and Water as this is primarily designed for contaminated sites assessments. The Licence Holder believes the ANZG 2018 recommended default guidelines values for toxicants in sediment are most appropriate for marine sediment analysis. The Licence Holder requests a correction and rationalisation of the sediment and porewater monitoring sites as follows: • Monitoring point OF2 is a historical monitoring point which is now represented at the same location by FBH2. Monitoring point OF2 should have been removed in an earlier licence amendment but was missed by both the Licence Holder and DWER. Figure 6 was updated at the time but the listed locations not amended. The Licence Holder requests that monitoring location OF2 be removed from Table 4 (and FBH2 be retained). • The current units for pore water are incorrectly given in mg/kg (for Cr, Co, Se and Va), when they should be in mg/L as proposed for lithium. The Licence Holder requests that all pore water units are corrected to mg/L. • The Licence Holder requests that sampling of sediment pore water be rationalised to focus on potential impacts of spodumene concentrate handling on Berth 4 and Iron Concentrate on Berth 6. Reference sites associated with the Fishing Boat Harbour and beaches (ORA 1, ORA 2, FBH1, FBH2 andTB1) are unlikely to be impacted by these operations nor will other berths within the harbour. The Licence Holder has a baseline dataset for lithium in sediments across all sites within the harbour which will assist in identifying changes at sites CH1, CH2, CH5, CH9 and CH10. Therefore, the Licence Holder believes these sites will be sufficiently monitored by	The department has amended the sediment quality monitoring guidelines reference to the current versions. The department has removed the sediment and porewater monitoring site OF2, as the site was replaced with the monitoring site FBH2. The department has updated the units for porewater in Table 4 from mg/kg to mg/L. Based on the Licence Holder's request, the department has amended the monitoring points for chromium, cobalt, selenium, and vanadium as CS1, CS2, CH6, CH7, and CH8, and lithium as CH3, CH4, CS1, and CS2 for sediment pore water sampling. CH7, and CH8 have also been included as monitoring points for the remaining parameters. Figure 6 has been updated with the new figure provided by the Licence Holder.

Condition	Summary of Licence Holder's comment	Department's response
	the existing sediment monitoring program and proposes a subset of the sediment monitoring locations to be used for porewater in Table 4 as follows - CH6, CH7 and CH8 (Berth 6); CH3 and CH4 (Berth 4); and CS1 and CS2 (control sites). The Licence Holder has provided updated figure with sediment and proposed porewater monitoring locations. The Licence Holder also provides a technical note explaining the sediment sampling site rationale as previously shared with DWER as part of the Annual Environmental Report and investigation reports provided for sediment exceedances.	
33 The Licence Holder requests an additional amendment to Table 5 Emissions and discharge monitoring	The Licence Holder requests a minor amendment to Table 5 Emissions and discharge monitoring. The Licence Holder has identified that Berth 1 and 2 are no longer capable of servicing imports and exports and will be demolished as part of the Port Maximisation Project. Therefore, the Licence Holder requests to remove the Berth 2 stormwater discharge point SW05a from Table 5. This site was added as an alternative fertiliser import berth but was never used and has now been taken out of service.	The department has reviewed the Licence Holder's rationale for the removal of the monitoring point SW05a and has no objection.
Schedule 4 Inclusion of Schedule 4 stipulated Regulated Bulk Granular Products	Regulated products in Table 11 noted.	N/A
Licence Holder's comments received on 22 January 2024		
15c	The licence holder notes that Condition 15c has been changed to include new clauses (i), (ii) and (iii). This change has not been tracked with other changes in the draft licence but has been reference in the Amendment Report, Table 11.	The department notes that the clauses under condition 15c were missed as being highlighted as a change to the drafts. These clauses were added as are part the updated trial notification condition standard.
23	'A typo error has been identified in Condition 23 'The Licence Holder must shall I ensure …'	Amended.

Condition	Summary of Licence Holder's comment	Department's response
31, Table 4	The licence holder has identified that sediment quality concentration units, in Table 4, have been accidentally changed from mg/kg to mg/L when they should stay as mg/kg. MWPA requested a correction to the pore water units which has been corrected to mg/L in the draft licence. However, the units for sediment quality (line 1 of Table 4) should be changed back to mg/kg.	Amended.
Schedule 1, Figure 3	Figure 3 in Schedule 1 could be deleted as Berth 2 sampling requirements have been removed from Table 5 of the licence.	Figure removed.
Amendment Report, Table 11	It is noted in Table 11 of the Amendment Report that Condition 30 description highlights *'Inclusion of respirable crystalline silica as a parameter for the monitoring of ambient air quality at the four dust monitoring locations.'* However, the draft licence now includes monitoring Lithium as PM10 as per the DWER response in Appendix 1 of the decision report (page 20). It may be clearer if Table 11 includes as a table footnote referring to Appendix 1 rewording of this condition.	The department has amended this reference to RCS under Table 11 to the following: *'Inclusion of lithium as a parameter for the monitoring of ambient air quality at the four dust monitoring locations.'*

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	☐				
Licence	☐	Relevant works approval number:		None	☐
		Has the works approval been complied with?		Yes ☐ No ☐	
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes ☐ No ☐ N/A ☐	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes ☐ No ☐	
		Date Report received:			
Renewal	☐	Current licence number:			
Amendment to works approval	☐	Current works approval number:			
Amendment to licence	☒	Current licence number:	L4275/1982/15		
		Relevant works approval number:		N/A	☒
Registration	☐	Current works approval number:		None	☐
Date application received		31/07/2023			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Mid-West Ports Authority			
Premises name		Geraldton Port			
Premises location		Part of Lot 503 on deposited plan 57801, title LR3157/232			
Local Government Authority		City of Greater Geraldton			
Application documents					
HPCM file reference number:		2011/000451-4~1			
Key application documents (additional to application form):		L4275_1982_12 Licence Amendment Spodumene Concentrate and Lithium DSO Supporting Information			
Scope of application/assessment					
Summary of proposed activities or changes to existing operations.		The amendment is for the inclusion of lithium direct shipping ore (DSO) and spodumene concentrate as regulated products for export under Category 58 for Licence L4275/1982/15.			

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

Table 1: Prescribed premises categories

Prescribed premises category and description	Assessed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 58: bulk material loading or unloading	160,000 tonnes per day (cumulative)	No change
Category 58A:	16,000,000 tonnes per annual period (cumulative)	No change

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 ☒	Not a 'significant proposal'
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 ☐	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 ☒	Name: N/A Type: Proclaimed Groundwater Area/Surface Water Area Has Regulatory Services (Water) been consulted? Yes ☐ No ☐ N/A ☒ Regional office: Mid-West Gascoyne
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? 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