



Application for Licence Amendment

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

Licence Number	L5646/1994/10
Licence Holder	Iluka Resources Limited
ACN	008 675 018
File Number	DER2016/000799
Premises	Eneabba Mineral Sands Mine Brand Hwy ENEABBA WA 6518 Being part of mining tenements AM70/2667 and M70/879 as depicted in Schedule 1
Date of Report	14 February 2022
Decision	Revised licence granted

**MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES**

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

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1. Decision summary

Licence L5646/1994/10 is held by Iluka Resources Ltd (Licence Holder) for the Eneabba Mineral Sands Mine (the Premises), located at part of tenements AM70/2667 and M70/879.

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 L5646/1994/10 has been granted.

The Revised Licence issued as a result of this amendment consolidates and 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 28 September 2021, the Licence Holder submitted an application to the department to amend Licence L5646/1994/10 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- The processing of South Secondary Concentrator Middlings (SSC Mids) through the Eneabba Phase 1 (EP1) Plant;
- Disposal of sand/clay tailings slurry into the East Dam former mine void in addition to the previously approved sand and clay tailings disposal area at the premises;
- Increase the maximum quantity of Inert waste from 5,000 to 10,000 tonnes per annual period; and
- Addition of the 'East Nursery Dam' mined out void as a disposal site for inert waste type 1.

Table 1: Proposed design changes

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
63	5,000 tonnes per annual period	10,000 tonnes per annual period	The Licence Holder proposes to increase disposal volume to cater for current rehabilitation and closure requirements.

During the assessment of the application, it was identified that it was not clear in the licence that the processing of materials through Eneabba Phase 1 Plant (EP1) was approved. Given this oversight, the department has added Condition 9 and Table 7, identifying the material types that are permitted to be processed through EP1, under the licence. Table 10 was also amended to include the material types that are required to be monitored. As these operations have been assessed under previous EP Act approvals, these have not been reassessed under this risk assessment.

3. Risk assessment

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

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 2 below. Table 2 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Dust	Construction of additional landfill in mine void Processing of SSC Mids through the EP1 Plant	Air/windborne pathway	As per existing controls and conditions in L5646/1994/10 Including; <ul style="list-style-type: none"> • water trucks to wet down roads • Sprinklers used on stockpiles pre-processing; and • shade-cloth fencing around the processing area.
Noise	Construction of additional landfill in mine void Processing of SSC Mids through the EP1 Plant	Air/windborne pathway	As per existing controls and conditions in L5646/1994/10 Including; <ul style="list-style-type: none"> • calibration of equipment
Clay Slimes	Disposal of clay slimes to existing mine void	Infiltration through base of mine void Direct discharge leading to soil contamination Overtopping/breach of containment causing discharge	As per existing controls and conditions in L5646/1994/10 Including: <ul style="list-style-type: none"> • Pipelines equipped with telemetry systems • Pipelines equipped with automatic cut-outs in the event of a pipe failure / blockage / leak via pressure sensors (density and flow) • Pipelines are located in bunded corridors • daily inspections of pipelines and freeboard whilst operating • Groundwater monitoring as per existing Licence condition

Emission	Sources	Potential pathways	Proposed controls
Contaminated surface water run-off (and sediment)	Processing of SSC Midds through the EP1 Plant	Runoff from processing area causing increased load of sediment to stormwater/ soil contamination/ vegetation deaths	As per existing controls and conditions in L5646/1994/10: <ul style="list-style-type: none"> • Infrastructure requirements
Leachate	Increase in design capacity from 5,000 to 10,000 tonnes per annual period	Seepage into soils and groundwater from the base of the landfill cells	As per existing controls and conditions in L5646/1994/10: <ul style="list-style-type: none"> • Limits to waste types and volumes; • Waste disposal requirements; • Cover requirements.

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), 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 3 below provides a summary of potential 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 3: Sensitive environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Geomorphic Wetlands	Within Licence boundary. 600m south west of Yellow Dam fill area.
Threatened and/or priority flora	Multiple records of Endangered and Vulnerable flora within the licence boundary and vicinity of the proposed amendments.
Threatened fauna	Carnabys cockatoo records within licensed premises and the vicinity of the proposed amendments
Public Drinking Water Source Area (Eneabba water reserve Priority 2)	Within the boundary. 2.7km north of the vicinity of proposed amendments. Although this receptor is potentially downgradient of the premises, given the significant distance and nature of materials being deposited at the premises, this receptor is not considered further in this risk assessment.
Groundwater Arrowsmith Groundwater Area (Rights in Water and Irrigation (RIWI) Act 1911)	Two main aquifers: Quaternary aged Superficial; Formation sediments and underlying Yarragadee Formation Iluka abstracts groundwater from Yarragadee aquifer under 2 groundwater licences (GWL's) (up to 11 GL). Around Eneabba East Mine approx. 20 metres below ground level (mbgl); Below Eneabba Monzonite Pit (EMP) approx. 3-5 mbgl Both flow west to north-west direction

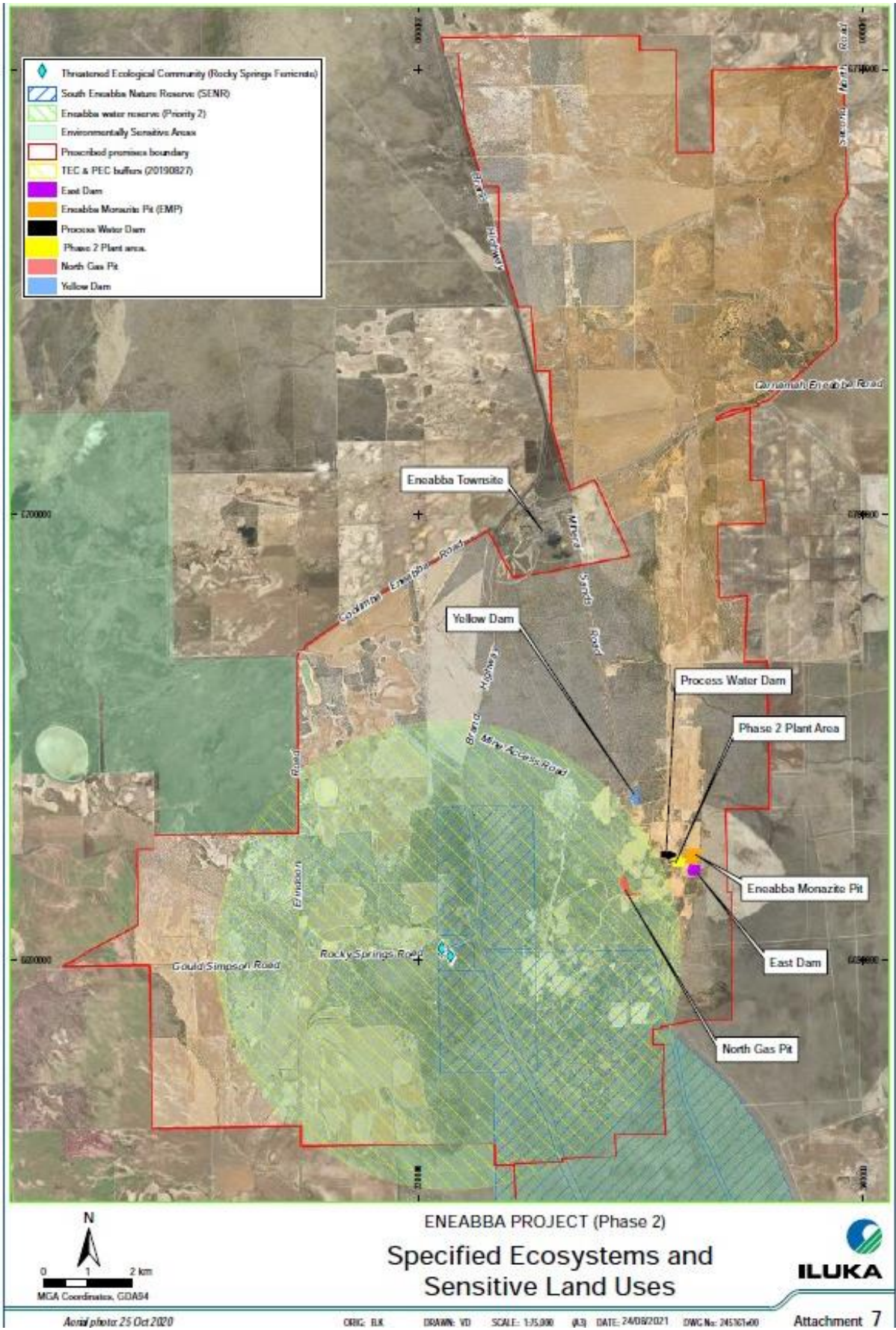


Figure 1: Distance to sensitive receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) 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 4.

The Revised Licence L5646/1994/10 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. category 8 and 63 activities.

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

Whilst there will be noise emissions through the construction and operation, there are no receptors present for these emissions and have therefore not been included in the risk table (Table 4).

Table 4. Risk assessment of potential emissions and discharges from the Premises during construction and 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				
Construction								
Cat 64: Construction of additional landfill in mine void	Dust	Air/windborne pathway causing impacts to health and amenity	Native vegetation and threatened flora	Refer to Table 3	C = Moderate L = Unlikely Medium Risk	Y	Conditions 10 and 11	N/A
Operation								
Processing SSC Mids through the EP1 plant	Dust	Air/windborne pathway causing impacts to health and amenity	Native vegetation; threatened flora and fauna	Refer to Table 3	C = Moderate L = Unlikely Medium Risk	Y	Conditions 10 and 11	N/A
Disposal of clay slimes to existing mine void	Clay slimes	Infiltration through base of mine void, leading to groundwater contamination	Arrowsmith Groundwater Area	Refer to Table 3	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1, 2, 3, 4, 5	N/A
		Rupture of pipeline causing clay slimes discharge to land; Direct discharge leading to soil contamination / vegetation deaths	Native vegetation; threatened flora habitat	Refer to Table 3	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1, 2, 3, 4, 5	N/A

Risk Event					Risk rating ¹	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	C = consequence L = likelihood			
		Overtopping/ breach of containment causing discharge to land	Native vegetation and threatened flora habitat	Refer to Table 3	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1, 2, 3, 4, 5	N/A
Increase in annual throughput for class I inert waste	Leachate	Infiltration through base of landfill, leading to groundwater contamination	Arrowsmith Groundwater Area	Refer to Table 3	C = Slight L = Unlikely Low Risk	Y	Conditions 6, 7 and 8	N/A

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

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

4. Consultation

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

Table 5: Consultation

Consultation method	Comments received	Department response
Licence Holder was provided with draft amendment on 23 December 2021	The licence holder provided a number of minor changes and recommendations to the licence and decision report. The licence holder also provided updated figures and confirmed the material types, process and process limits.	The department agreed with the changes and updated the documents accordingly. Refer to Appendix 1.

5. Conclusion

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

5.1 Summary of amendments

Table 6 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 6: Summary of licence amendments

Condition no.	Proposed amendments
2, Table 1	Inclusion of the East Dam as an option for a Slimes Disposal Dam
5, Table 3	Inclusion of the East Dam in the Scope for inspection
6, Table 4	Increase the quantity limit tonnes/year of Inert Waste Type 1 from 5,000 tonnes to 10,000 tonnes
7, Table 5	Inclusion of the 'East Nursery Dam' as a disposal site for inert Waste type 1.
9, Table 7	Inclusion of condition identifying the material types that are permitted to be processed through Eneabba Phase 1 Plant, under the licence. Table 7, identifies the material types, process and process limits.
16, Table 10	Inclusion of 'Processing of South Secondary Concentrator Middlings (SSC Mids) in the Process monitoring table. Including the parameter of 'amount of mids processed through the EP1 plant. Additional inclusion of processing of MSP by-product as per departments review of previous approved processing.
Schedule1	Environmental monitoring, tailings cells and waste disposal sites figure was updated. Eneabba Monazite Recovery Project Map was updated and the Eneabba Monazite Recovery Project: Site features was replaced by the Eneabba Mineral Sands Mine Project overall Site layout figure.

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. Works Approval W6458/2020/1, available on <https://www.dwer.wa.gov.au/>

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

Condition	Summary of Licence Holder's comment	Department's response
9, Table 7	Change MSP by product to Monzanite concentrate and maximum process limit to 110,000 tonnes per annum	Amendment to licence has been made
9, Table 7	Remove mineral sands ore as a material type	Amendment to licence has been made
16, Table 10	Remove processing of ore from the process monitoring table	Amendment to licence has been made
16, Table 10	Change Processing of 'MSP by product' to Monzanite concentrate	Amendment to licence has been made
18	Change groundwater to air quality	Amendment to licence has been made
Schedule 1	Environmental monitoring, tailings cells and waste disposal sites and Eneabba Monazite Recovery Project: Site features have been updated.	Amendment to licence has been made
Decision Report, Table 4	Update to potential emission of clay slimes, by switching native vegetation and Arrowsmith groundwater area. Removal of direct discharge in relation to overtopping pathway.	Agree with proposed changes.
Decision Report, Table 4	Change of risk from Medium to Low for the 'increase in annual throughput for class I inert waste.	Agree with proposed changes.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)					
Application type					
Amendment to licence	<input checked="" type="checkbox"/>	Current licence number:	L5646/1994/10		
		Relevant works approval number:	W6458/2020/1	N/A	<input type="checkbox"/>
Date application received		28 September 2021			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Iluka Resources limited			
Premises name		Eneabba Minerals Sands Mine			
Premises location		M267SA Vacant Crown Land Victoria location: 12562 CT: LR03121/98 PIN: 1338575			
Local Government Authority		Shire of Carnamah			
Application documents					
HPCM file reference number:		DWERDT508711			
Key application documents (additional to application form):		Nil			
Scope of application/assessment					
Summary of proposed activities or changes to existing operations.		<p><i>Licence amendment</i></p> <p>Operation of Mineral Sands Mine</p> <p>Amendment to redirect clay tailings to the East dam</p> <p>Treatment of South Secondary Concentrator Mids</p> <p>Increase the maximum quantity of Inert Waste from 5,000 to 10,000 tonnes and addition of a mined out void for the disposal of inert waste</p>			
Category number/s (activities that cause the premises to become prescribed premises)					
Table 1: Prescribed premises categories					
Prescribed premises category and description		Proposed production or design capacity	Proposed changes to the production or design capacity (amendments only)		
Category 8: Mineral sands mining or processing: mineral sands ore is mined, screened, separated or otherwise processed.		Assessed 18,600,00 tonnes per year	Increase to 350,000 tonnes of South secondary Mids Material to be processed at the EP1 Plant per year.		
Category 63: Class I inert landfill site: premises on which waste is accepted for burial.		Assessed 5,000 tonnes per annual period.	Increase to a maximum of 10,000 tonnes of inert waste to be disposed of on site.		

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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input type="checkbox"/> Expiry: Other evidence <input type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	CPS No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Licence/permit No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Application reference No: Licence/permit No: GWL104700 and GWL104709
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Name: Arrowsmith GWA Type: Eneabba Creek and Tributaries SWA Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Regional office: Mid-West Gascoyne

<p>Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Name: Eneabba Water Reserve Priority: P1 / P2 / P3 (all are present) Within licence area Are the proposed activities/ landuse compatible with the PDWSA (refer to <u>WQPN 25</u>)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/></p>
<p>Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i>, <i>Environmental Protection (Controlled Waste) Regulations 2004</i>, <i>State Agreement Act xxxx</i>)</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p><i>Mineral Sands (Eneabba) Agreement Act 1975</i></p>
<p>Is the Premises within an Environmental Protection Policy (EPP) Area?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises subject to any EPP requirements?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Classification: multiple areas of possibly contaminated – investigation required (PC–IR) And decontaminated (Decon) Date of classification: June 2021</p>