



## Application for Licence

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

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<b>Licence Number</b>	L9295/2021/1
<b>Applicant</b>	Qube Bulk Pty Ltd
<b>ACN</b>	138 868 756
<b>File number</b>	DER2021/000237
<b>Premises</b>	Qube Esperance 139 Sims Street CHADWICK WA 6450  Legal description Lots 2, 3, 4 & 9003 on Plan 75537
<b>Date of report</b>	17 March 2022
<b>Status of report</b>	Intent to Grant

## 1. Decision summary

This report documents the assessment of potential risks to the environment and public health from emissions and discharges during the operation of the premises. As a result of this assessment, licence L9295/2021/1 has been granted.

## 2. Scope of assessment

### 2.1 Regulatory framework

In completing the assessment documented in this 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

On 22 April 2021, Qube Bulk Pty Ltd (the applicant) submitted an application for a licence under section 57 of the *Environmental Protection Act 1986* (EP Act).

The application seeks a licence relating to the storage and blending of chemical products to produce bulk fertiliser at an existing fertiliser storage shed in Esperance. The applicant is also seeking approval to extend the existing fertiliser storage shed.

The premises relates to prescribed activity category 33: chemical blending or mixing and assessed production capacity of 20,000 tonnes per year under Schedule 1 of the Environmental Protection Regulations 1987. 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 licence L9295/2021/1.

### 2.3 Overview of premises

#### Existing

The existing shed holds a product called spodumene. The existing shed has 3 cells that can store a total of 53,892 tonnes at any one time. The spodumene is delivered from the Galaxy Mine with trucks tipping off the load into the shed. The spodumene is stored for up to 60 days, where it is loaded onto rota-box containers. The containers are sealed before exiting the shed and taken to the port.

#### Proposed

The applicant is proposing to extend the existing storage shed to include additional storage cells, a fertiliser blending plant and loadout area.

A 50 x 100 metre shed extension will be constructed abutting the existing storage shed. The applicant proposes the shed extension will be fully enclosed to prevent rain ingress and reduce dust drift. The shed extension area will contain the following.

- Two doors, one roller door on the south exit and a PVC one piece curtain that slides on the eastern entry.
- Louvres on the eastern walls and roof top cowls to ventilate the shed.
- Four (4) storage cells (cells 4 to 7) for raw material storage that are bunded with three walls.
- A fertiliser blending plant to mix and blend raw materials to make fertiliser products.
- A truck loading and drive through with rumble strips.
- A 620 m<sup>2</sup> concrete apron on the exterior exit on the southern of the shed.

Once construction of the extension is complete the following solid materials will be stored and

blended on the premises to produce a fertiliser product:

- Mono-ammonium phosphate (MAP) stored in bulk in storage cells;
- Copper sulphate, stored in bags within the storage shed;
- Zinc sulphate, stored in bags within the storage shed;
- Flutriol liquid stored on IBC bunding within Bay 4, and
- Urea stored in bulk in storage cells.

Drainage on the premises is managed by diverting roof runoff to soak wells and surface runoff to existing infiltration basins.

### 3. Risk assessment

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

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

#### 3.1 Source-pathways and receptors

##### 3.1.1 Emissions and controls

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

**Table 1: Proposed applicant controls**

Emission	Sources	Potential pathways	Proposed controls
<b>Construction</b>			
Dust	Construction of new shed onto existing shed and earthworks	Air / windborne pathway	No controls proposed.
Noise			No controls proposed.
<b>Operation</b>			
Fertiliser dust	Receipt, storage, and dispatch of bulk fertilisers including vehicle movements.	Air / windborne pathway	<p><u>Unloading of bulk raw materials</u> All unloading of bulk materials will occur within a shed that has a concrete floor slab and is enclosed (existing shed is enclosed, the shed extension will have four walls with a PVC sliding curtain and a roller door). Unloading area in shed will be cleaned prior to truck entering for unloading. Trucks will reverse into shed and rear tip. Truck chassis and tailgate will be swept off after unloading to remove product before exiting the shed.</p> <p><u>Loading of fertiliser/product</u> Loading of trucks with blended fertiliser will be undertaken within the shed extension A bund</p>

Emission	Sources	Potential pathways	Proposed controls
	Blending / mixing of fertiliser products;		<p>occurs along the exterior edge of the apron. Loading of fertiliser product into trucks will occur from the blending plant via an enclosed chute. Trucks will be cleaned (air blown) to remove product spillages. Loads will be covered before dispatching. Rumble strips are located on the exit of the shed to remove residual product on truck exits (5x 8 metre lengths). A 650 m<sup>2</sup> concrete apron is on the exit exterior (southern end) of the shed to capture further spills on exit. Spills will be immediately cleaned up with a broom and shovels. Any product spilt during loading will be immediately recovered.</p> <p><u>Storage</u></p> <p>All raw materials are stored within storage cells with bunding consisting of concrete tilt panels and nib walls or within bags within the shed (existing shed is enclosed and shed extension will have 4 walls). The internal door between the existing shed and extension shed will be closed when vehicles enter or exit the shed.</p> <p>All blending/mixing will occur within an enclosed Yargus Declining Weight Blend System with a fully enclosed bucket elevator and chute for loading direct into trailers. The Yargus Declining Weight Blend System will be located on a loading apron located within the shed extension. All products spilt on the sealed apron will be immediately recovered.</p>
Noise	Operation of fertiliser blending and packaging equipment. Vehicle movements (trucks and front-end loader including reversing alarms.	Air / windborne pathway	No controls.
Potentially contaminated stormwater (fertiliser)	Runoff from the storage shed	Direct discharge to soil and seepage to groundwater	Shed is roofed, enclosed on four sides, and a concrete bunded floor to prevent rainfall and surface runoff ingress. Bunding around the outside of the apron. Shed exit points will have bunding to prevent contaminated water runoff to outside of the shed

Emission	Sources	Potential pathways	Proposed controls
			and to prevent stormwater entering the shed. Contaminated water within the shed will be removed via a tanker. Concrete exterior exit apron that diverts contaminated water to the stormwater basins.
	Collection and disposal of premises stormwater runoff via soak wells and infiltration basins.	Fertiliser dust on soil outside shed being collected by stormwater and infiltrated to groundwater	Premises is graded to drain stormwater outside the storage shed toward collection sumps and four existing infiltration basins. Shed exit points will have bunding to prevent contaminated water runoff and to prevent stormwater entering the shed. Fertiliser dust controls referred to are relevant controls as they prevent dust exiting the shed, depositing on the ground, and contaminating the premises stormwater runoff.

### 3.1.2 Receptors

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

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

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

Human receptors	Distance from prescribed premises boundary
Closest rural residential residence	260 m east of the premises boundary
Closest residential receptor	1,060 m from southern edge of the premises boundary
Closest industrial receptor	Adjacent to premises north, east and south within 10 m of the premises boundary.
Crown reserve (R44921) (community use)	Adjacent to premises north and east within 10 m of the premises boundary
Esperance sporting facility	960 m from southern edge of the premises boundary
Environmental receptors	Distance from prescribed activity
Vegetated Crown land (Lot 556 on Plan 407032, Lot 555 on Plan 407032)	Adjacent to premises east within 10 m of the premises boundary.
Public Drinking Water Source Area (PDWSA) Priority 3 (P3) Esperance Water Reserve <i>Country Areas Water Supply Act 1947</i> (CAWSA)	466 m south of the premises boundary
RAMSAR wetland - Lake Warden System	1.7 km northwest of the premises boundary
Lake Warden and Pink Lake groundwater dependent ecosystems (GDA)	1.7 and 2.8 km northwest and west of the premises boundary

Esperance foreshore	2 km east of the prescribed boundary
Located within Proclaimed Esperance Groundwater Area (RIWI Act)	Esperance, Town Bremer East Superficial Groundwater depth 4-5 mbgl, with a south east flow towards coastline and Esperance WWTP, hydraulic conductivity between 4 to 14 m/day (CSBP 2020). Three bores located in the superficial within 1 km down gradient of the premises boundary. Twelve licenced bores located within the superficial 1.5 km down gradient of the premises boundary. Soil type Tooregullup 5 Subsystem – which is a level plain with moderate dunes, associated swamps and calcareous deep sands associated with pale deep sands.
Surface water	Surface water flows from the premises from the northwest and southwest of the premises and exits into lower forested crown land (potentially a wetland).

### 3.2 Risk ratings

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

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

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

Licence L9295/2021/1 that accompanies this report authorises emissions associated with the construction of an extension to a fertiliser shed and operation of the premises i.e. raw material storage and chemical and fertiliser blending activities.

The conditions in the issued licence, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

**Table 3: Risk assessment of potential emissions and discharges from the premises during operation**

Risk events					Risk rating <sup>1</sup>	Applicant controls sufficient?	Conditions <sup>2</sup> of licence	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
<b>Construction</b>								
Construction of new shed onto existing shed and earthworks	Dust and noise associated with construction works	Air / windborne pathway causing impacts to health and amenity	Rural residual premises located 257 m east of the premises boundary. Industrial receptors adjacent on the north, east and southern boundaries of the premises	Refer to Section 3.1- no controls proposed	C = Slight L = Possible <b>Low Risk</b>	NA	No conditions	The existing fertiliser storage shed is located within an industrial area. Some additional noise and dust are expected during construction works however, due to the nature of the works, levels are not expected to differ significantly from existing activities on the premises.  The delegated officer has also considered the short-term nature of the works and does not reasonably foresee that noise and dust from construction works will impact on off-site receptors.
<b>Operation</b>								
Unloading, storage and loading of bulk fertilisers Blending chemicals to produce fertiliser products	Fertiliser dust	Air / windborne pathway causing impacts residents amenity	Rural residual premises located 257 m east of the premises boundary. Industrial receptors adjacent on the north, east and southern boundaries of the premises.  Vegetated crown land within 10 m east of the premises boundary.	Refer to Section 3.1	C = Minor L = Possible <b>Medium Risk</b>	N	Condition 1 Condition 4	The delegated officer considers the enclosed extension shed, the roller door and PVC curtain on exit and entry, the closed internal door on all vehicle movements (between exist and external shed), the strong and continuous winds during the summer months, where there is an increased risk of fertiliser dust drift within and outside the shed that may cause amenity and health impacts to off-site receptors within the operational proximity. To minimise the potential for off-site impacts, the delegated officer considers it critical that fertiliser storage and blending operations are conducted within a fully enclosed environment with operational conditions to reduce door openings.  The delegated officer has considered the applicant's other relevant infrastructure and operational controls, which are all considered critical for maintaining an acceptable level of risk during operations. The key construction and operational controls to be included in the conditions of the licence are listed below: <u>Construction</u> <ul style="list-style-type: none"> <li>Rumble strips will be located on the exit of the shed to remove residual product from trucks exiting.</li> <li>Construction of a fully enclosed shed, with four enclosed walls and a roof.</li> <li>Bunding of containment storage cells to prevent spills.</li> <li>Enclosed bucket elevator and chute for fertiliser mixing and delivery.</li> <li>Three tilt panels on three sides of the storage cells.</li> <li>Two exterior door with a roller door and PVC curtain.</li> <li>Concrete apron on the exterior of the exit door.</li> </ul> <u>Operation</u> <ul style="list-style-type: none"> <li>Truck chassis and tailgate will be swept off after unloading to remove product before vehicle exits the shed.</li> <li>Unloading and loading sections of the shed will be cleaned prior to truck entering.</li> <li>Trucks will be air blown to remove any product spillages.</li> <li>Loading of trucks will be completed within the shed through enclosed chute.</li> <li>Loads will be covered before dispatching</li> <li>All products spilt will be immediately recovered.</li> <li>Rumble strip on the exit to remove dust from vehicle.</li> <li>All blending will occur within the shed.</li> <li>All external doors to remain closed except to allow vehicle entry and exit.</li> <li>Concrete apron on the exit exterior must be swept after each vehicle passes.</li> <li>Internal door between shed must be closed on all vehicle entries and exits.</li> <li>Vehicle movement between sheds must not occur via the internal door.</li> </ul>
	Noise	Air / windborne pathway causing impacts to amenity	Rural residual premises located 257 m east of the premises boundary. Industrial receptors adjacent on the north, east and	Refer to Section 3.1	C = Slight L = Possible <b>Low Risk</b>	Y	No Conditions	The existing fertiliser storage shed is located within an industrial area. Some additional noise and dust is expected during operations, however due to the nature of the operations, noise levels are not expected to differ significantly from existing activities on the premises.  Based on the above, the delegated officer does not reasonably foresee that



Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of licence	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
			southern boundaries of the premises					noise during fertiliser blending activities will impact on off-site receptors.
	Contaminated runoff from storage shed	Direct discharge and seepage, contaminating soil and groundwater	PDWSA P3 located 466 m south of the premises. 12 bores located within 1.5 km down gradient in the superficial aquifer. Proclaimed Esperance Groundwater Area - Superficial Aquifer, 4-5 mbgl with a soil hydraulic conductivity between 4-14 m/day.	Refer to Section 3.1	C= Moderate L= Rare <b>Medium Risk</b>	Y	Condition 1 Condition 4	The applicant's controls were assessed and determined to be suitable to mitigate against the risk of contaminated runoff impacting groundwater quality. The delegated officer applied the applicant's relevant infrastructure and operational controls which are considered critical for maintaining and acceptable level of risk as construction and operational requirements for the licence. The key construction and operational controls to be regulated are: <u>Construction</u> <ul style="list-style-type: none"> <li>Bunding of shed to prevent stormwater ingress and egress.</li> <li>Building a shed with four walls with a roof to prevent stormwater ingress.</li> <li>Internal storage cells with containment bunds to prevent internal stormwater ingress to stored fertiliser.</li> <li>Trafficable bunding at exit points.</li> </ul> <u>Operation</u> <ul style="list-style-type: none"> <li>All internal wastewater (including contaminated stormwater) is vacuumed out and removed by a truck.</li> <li>All external doors to remain closed except to allow vehicle entry and exit.</li> </ul>
Stormwater soak wells and basins	Stormwater contaminated by fertiliser dust	Fertiliser dust on soil outside shed being carried by surface water events, contaminating soil, and infiltrating to groundwater.	PDWSA P3 located 466 m south of the premises. 12 bores located 1.5 km down gradient in the superficial aquifer. Proclaimed Esperance Groundwater Area - Superficial Aquifer, 4-5 mbgl with a soil hydraulic conductivity between 4-14 m/day.	Refer to Section 3.1	C = Moderate L = Possible <b>Medium Risk</b>	N	<b>Condition 1</b> <b>Condition 4</b>	The delegated officer considers the enclosed extension shed, the roller door and PVC curtain on exit and entry, the concrete apron on the exterior exit, the strong and continuous winds during the summer months (section 3.1.3). These winds in summer are likely to cause fertiliser dust drift within and outside the shed. Therefore, it is possible for emission of raw material and fertiliser products from the shed to occur and be deposited on areas of the premises outside the shed on a continual basis. This dust will be collected by stormwater runoff which is directed into infiltration basins and allowed to infiltrate. Based on the soil type, hydraulic conductivity, and distance to groundwater the delegated officer considered there was a medium risk of soil and groundwater contamination occurring as a result and determined that applicant controls were not sufficient to prevent this event from occurring. Based on this risk the delegated officer considers it necessary to specify that the: <ul style="list-style-type: none"> <li>spills on the concrete external apron on the exit door are immediately sweep after each truck exit, and</li> <li>when in operation shed doors will remain closed other than for receipt of bulk deliveries and exit of loaded fertiliser materials.</li> </ul> These conditions are to prevent stormwater on the premises becoming contaminated by raw material and fertiliser dust being emitted from the shed and impacting on groundwater quality.

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. The following controls are for administrative and reporting requirements 2,3,6,7,8 and 9.



## 4. Consultation

**Table 4: Consultation**

Consultation method	Comments received
Application advertised on the department's website on 16 June 2021	<p>One public submission was received on the 5 July 2021. Key issues raised:</p> <ul style="list-style-type: none"> <li>• Activities likely cause contamination of stormwater, soil and groundwater.</li> <li>• No stormwater monitoring was proposed by the applicant to demonstrate effectiveness of the proposed controls.</li> <li>• No groundwater monitoring was proposed to detect contamination of stormwater infiltration downgradient of the premises.</li> </ul>
Shire of Esperance advised of proposal on 15/06/2021	The Shire of Esperance replied on 15 July 2021 confirming that the applicant had received development approval AD21/692 on 22 January 2021 subject to conditions issued under their Local Planning Scheme No. 24.
The applicant was provided with a draft on the 7 October 2021. Comments were provided on the 16 February 2022.	See Appendix 2 for details.

## 5. Decision

The delegated officer determined the proposal to expand the existing storage facility and install a fertiliser blending plant does not pose an unacceptable risk of impacts to public health or the environment. This determination is based on the following:

- the existing storage facility is currently being used for spodumene storage and is located within an existing industrial area; and
- low annual throughput of fertiliser to be blended (< 20,000 tpa).

The delegated officer notes the proposed shed expansion will be fully enclosed to the environment, however there is an increased risk of off-site amenity and health impacts and impacts to nearby surface water systems due to the proximity of nearby receptors and the prevailing wind conditions in summer and airborne fertiliser dust movements. The delegated officer has therefore required the shed to be fully enclosed with an exterior concrete apron on the exit point. Where operational doors will remain closed (other than for receipt of bulk deliveries and exit of loaded fertiliser trucks), and the concrete apron swept after each truck exit to ensure the risk of fertiliser dust generated from handling, storage and blending activities escaping the facility and causing impacts is acceptable.

The delegated officer is satisfied the above controls lower the overall risk profile of the proposal, and adequately address the concerns raised in public submissions regarding the risk of amenity and health impacts and impacts to soil and groundwater from fertiliser dust.

## 6. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a licence L9295/2021/1 will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

## References

1. CSBP 2020, Esperance Site Contamination Management Plan, Perth, Western Australia
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

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

Condition	Summary of applicant's comment	Department's response
Condition 1: Design and construction	The shed will be enclosed with a roller door on the southern (exit) side. A new opening on the eastern side (so trucks will not move through the spodumene storage area) that will be enclosed with PVC weather curtain. The weather curtain is one piece that moves as required.	These details will be added to the decision report and the licence.
Condition 4: Infrastructure and equipment requirements:	<p>The licence holder provided the following information:</p> <ul style="list-style-type: none"> <li>• Handheld blower is used to blow off residual product of truck and trailers before vehicle leaves the shed.</li> <li>• The blow off product is blown into cells and off vehicle pathway.</li> <li>• Brooms and shovels will be used to clean up small spills as required.</li> <li>• A front-end loader within the shed will move all product residual product outside cells to within cell confines.</li> <li>• Shed has external bunding around the perimeter of shed to prevent runoff and stormwater entering shed.</li> </ul>	These details will be added to the decision report and the licence.
Draft report Section 2.3	<p>The licence holder provided the following additional information on infrastructure and operations of the facility.</p> <ul style="list-style-type: none"> <li>• The existing shed will not be used as an entry point for extension shed. The entry for the extension shed is on the eastern side of the shed.</li> <li>• Cladding will be placed along the open half wall on the eastern side to enclose the shed entirely.</li> <li>• Existing shed internal roller door to extension shed will not allow vehicle movement via the roller door.</li> <li>• Spodumene is stalled within the existing shed and the internal roller door will be closed during operations.</li> <li>• A ventilation system consisting of roof top cowls and side wall louvres will be installed to comply with AS1668.4 (mechanical ventilation) for an enclosed building to have vehicles operating inside.</li> <li>• The existing shed holds a product called spodumene. The existing shed has 3 cells that can store a total of 53,892 tonnes.</li> <li>• The spodumene is delivered from the Galaxy Mine and trucks tip off the load. The loader then pushes product into cells and maintains stockpiles. The loader is designated to the spodumene shed only. The truck and trailer are washed down including wheels and then allowed to exit the shed. The product is stored until shipped with a sprinkler system used to keep the moisture content ready for shipping. The spodumene is loaded within the shed using rotabox containers. The containers are sealed before exiting building. Any wastewater is kept within the shed and absorbed into the spodumene.</li> </ul>	These details will be added to the decision report and the licence.