

Amendment Report

Application for Works Approval Amendment

Part V Division 3 of the Environmental Protection Act 1986

Works Approval Number	W6283/2019/1
Works Approval Holder	Talison Lithium Australia Pty Ltd
ACN	139 401 308
File Number	DER2019/000216
Premises	Talison Lithium Mine Maranup Ford Road, GREENBUSHES WA 6254 Legal description – Mining tenements M01/3, M01/6, M01/7, M01/8, M01/9, M01/16 General purpose leases G01/1, G01/4 As defined by the Premises map attached to Schedule 1 of the Revised Works Approval
Date of Report	21 December 2022
Decision	Revised works approval granted

A/MANAGER, RESOURCE INDUSTRIES REGULATORY SERVICES

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

Table of Contents

1.	Decis	ion summary	1
2.	Scop	e of assessment	1
	2.1	Regulatory framework	1
	2.2	Application summary	1
	2.3	Changes to scope of amendment	1
		2.3.1 Extension of works approval expiry date	2
	2.4	Relocation of CGP3	2
	2.5	Relocation of meteorological monitoring station	1
	2.6	Change to reporting frequency of dust trigger level exceedances	1
		2.6.1 Summary of reported exceedances	3
		2.6.2 Decision	4
	2.7	Part IV of the EP Act	4
3.	Risk a	assessment	4
	3.1	Source-pathways and receptors	5
		3.1.1 Emissions and controls	5
		3.1.2 Receptors	1
	3.2	Risk ratings	2
CGP	3.3 3 at pro	Detailed risk assessment for noise emissions from construction and operation of posed location	
•••	ср.с	3.3.1 Background	
		3.3.2 Noise assessment	
		3.3.3 Regulation 17 exemption	9
		3.3.4 Decision	
4.	Cons	ultation	0
5.		lusion1 [,]	
	5.1	Summary of amendments1	
Refe		s1	
		2: Application validation summary14	
1.1.			
Table	e 1: Sur	mmary of dust monitoring exceedances reported through W6283/2019/1	3
Table	e 2: Wo	rks Approval Holder controls	1
Table	e 3: Ser	nsitive human and environmental receptors and distance from prescribed activity.	1
		k assessment of potential emissions and discharges from the premises during and operation	3
Table	e 5: Cor	nsultation10	0
Table	e 6: Cor	nments from Department on Health10	0

Table 7: Summary of works approval amendments	11
Figure 1: Approved and proposed location for construction of CGP3	1
Figure 2: CGP3 sedimentation pond and drainage plans	2
Figure 3: Approved and current location of meteorological station	2
Figure 4: Sensitive human receptors	3
Figure 5: Conservation significant flora locations within and around the premises	1
Figure 6: Surface water bodies within and around the premises	1
Figure 7: Modelled noise contours for the operation of CGP3 ¹ at the (S4) current and (S3) proposed locations	7
Figure 8: Noise bund design proposed in the (a) initial acoustic assessment and (b) updated acoustic assessment.	

1. Decision summary

Works approval W6283/2019/1 is held by Talison Lithium Australia Pty Ltd (Works Approval Holder) for the Talison Lithium Mine (the premises), located along Maranup Ford Road, Greenbushes, Western Australia 6254. The premises is located on parts of mining tenements M01/3, M01/6, M01/7, M01/8, M01/0, M01/16 and general purposes leases G01/1 and G01/4.

The Works Approval Holder currently operates the premises under licence L4247/1991/13, while undertaking a mine expansion at mining tenements M01/6 and M01/7 under this works approval (W6283/2019/1) to increase production capacity of Category 5 activities.

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 construction and operation of the premises. As a result of this assessment, the revised works approval W6283/2019/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary

On 11 July 2022, the Works Approval Holder submitted an application to the department to amend works approval W6283/2019/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). As part of the ongoing mine expansion project, the following amendments are being sought:

- Relocation of Chemical Grade Plant (CGP) 3;
- Authorisation of time limited operation of CGP3 for 180 calendar days;
- Relocation of meteorological monitoring station; and
- Changes to the reporting frequency of dust trigger level exceedances.

No change to the approved Category 5 design/production capacity of 11.6 million tonnes per annum (mtpa) have been requested.

2.3 Changes to scope of amendment

Following a meeting between the department and the Works Approval Holder on 18 November 2022, the Works Approval Holder provided written notification to the department on 24 November 2022 to remove the request for authorisation of time limited operation for CGP3 from the scope of this amendment in order to expedite the assessment process and meet the necessary timeframes to commence construction of CGP3 at the proposed location.

It is understood that the Works Approval Holder requested approval to commence time limited operation of CGP3 around the second quarter of 2025. At the meeting on 18 November 2022, the department indicated that time limited operation could not be granted for CGP3 because:

 An updated dust impact assessment that reflects the premises operational conditions during time limited operation of the relocated CGP3 (expected early 2025 at a Category 5 throughput of 9.2 mtpa has not been provided. This assessment would need to include the operation of Crusher 3 (which time limited operation has not been requested for under this or any previous amendment) as Crusher 3 is required to be operating at the same time as CGP3 to feed crushed ore to CGP3. Without this updated assessment, the department can not properly assess the cumulative impact of dust from the operation of CGP3 and the other relevant Category 5 infrastructure occurring during the time limited operations phase in 2025; and

• The existing works approval W6283/2019/1 expires on 1 April 2023. Therefore, the time limited operation could not be authorised beyond that date. The department has advised the Works Approval Holder to first amend the works approval to extend the duration of the works approval, before applying to amend it to assess and authorise time limited operation in the future, if desired.

2.3.1 Extension of works approval expiry date

On 18 November 2022, the Works Approval Holder submitted a second application to the department to amend works approval W6283/2019/1 to extend the duration of the works approval by an additional five years to allow the remaining infrastructure (i.e., CGP3, CGP4 and Crusher 3) already authorised under W6283/2019/1 to be constructed. The extension in timeframe has been requested due to the delay in construction activities that have occurred. As the works approval currently only authorises construction of these infrastructure, there were no operational risks that may have been affected by this extension. As such, the Delegated Officer has decided to amalgamate the two amendments and grant the request for extension.

2.4 Relocation of CGP3

The Works Approval Holder has identified an opportunity to relocate CGP3 to the east side of Maranup Ford Road, adjacent to the operational CGP2, approximately 400 m from the current approved location (Figure 1). The primary purpose of the relocation was to avoid clearing vegetation by utilising land that had already been previously cleared.

Management, monitoring measures and primary infrastructure components (e.g., processing plant, run of mine [ROM] pad, stockpile area, sedimentation pond, etc.) for CGP3 would remain unchanged. The relocated CGP3 will integrate with and expand on the existing drainage design of the neighbouring CGP2 (Figure 2). Some ancillary infrastructure of CGP2 will also be utilised by CGP3, including workshop, offices, amenities, parking, water treatment facility, oleic acid storage and fire water tank.



Figure 1: Approved and proposed location for construction of CGP3

Works Approval: W6283/2019/1

IR-T15 Amendment report template v3.0 (May 2021)



Figure 2: CGP3 sedimentation pond and drainage plans

As a result of the relocation, the extent of earthworks required during the construction of the infrastructure will be reduced, as the proposed location has already been cleared, as well as the smaller infrastructure footprint due to sharing of ancillary infrastructure with CGP2.

Further, the proposed overland conveyor crossing Maranup Ford Road would no longer be required to transfer crushed ore from Crusher 3 to CGP3. Nevertheless, CGP4 is currently in design phase with no plans to deviate from its approved location (Figure 1). Therefore, an overland conveyor will still be required to transfer ore to CGP4 once operational, noting that the amount of ore transferred will be reduced as the conveyed ore quantities will not be required to service CGP3 due to the relocation. An additional crusher (i.e., Crusher 4) will also be required to service CGP4 which has yet to be assessed by the department and is not authorised for construction in works approval W6283/2019/1. Any potential changes to CGP4 and the addition of Crusher 4 will be addressed in a separate amendment in the future.

2.5 Relocation of meteorological monitoring station

Condition 1 of the existing works approval W6281/2019/1 required the Works Approval Holder to install an onsite meteorological monitoring station and to monitor meteorological conditions in accordance with condition 6.

The meteorological station was constructed by 30 April 2020 and an environmental compliance report was submitted to the department on 29 May 2020. On 8 December 2021, the Works Approval Holder provided written notification to the department indicating that the meteorological station would be relocated from its approved location to Southampton Dam later that month to avoid damage from works undertaken at TSF1 (Figure 3). The department is not aware of the exact dates when the relocation works were undertaken or whether the siting of the relocated meteorological station is complaint with relevant AS/NZS standards.

As the meteorological station has already been relocated, reinstalled and is currently operational at the time of this amendment, the works approval cannot be amended to authorise the relocation in retrospect.

In a meeting with the Works Approval Holder on 18 November 2022, the department advised that the most appropriate action to condition the operation of the meteorological station at its current location through an amendment to licence L4247/1991/13. The Works Approval Holder was also advised that they would need to provide adequate supporting documentation to demonstrate compliance with AS/NZS 3580.1.1 and AS/NZS 3580.14 for this new location.

2.6 Change to reporting frequency of dust trigger level exceedances

Since the granting of works approval W6283/2019/1 (i.e., April 2020), the Works Approval Holder has undertaken dust monitoring and submit a monthly report to the department for assessment, in accordance with condition 17 of the works approval. Condition 17 also requires the reporting of exceedances of trigger levels and limits on a weekly basis.

The Works Approval Holder has requested a change to the reporting frequency and format of dust trigger level exceedances such that a weekly report is only required to be submitted if an exceedance was deemed to be attributable to activities detailed in works approval W6283/2019/1 during that weekly reporting period. All other exceedances (i.e., not attributed to activities detailed within the works approval) would be reported in the monthly report. The rationale for this was due to the large administration burden on producing weekly reports, where the data was also duplicated in the routine monthly report.

The Works Approval Holder indicated that they had investigated each exceedance to date and that no exceedance of the total suspended particulate (TSP) trigger value of 100 μ g/m³ to date has been attributed to activities detailed within works approval W6283/2019/1 (i.e., they have only been attributed to existing operations at the premises or external events, such as smoke

412000 414000 Talison Premises Boundary Proposed Weather Station Current Weather Station 6254000 5254000 ocation Proposed Location 6252000 **Current Location** Internal Ref: 0275 02, 2021 6250000 6250000 412000 414000 **METEOROLOGICAL STATION LOCATION - CURRENT & PROPOSED** 500 Datum: GDA94 0 SCALE 1:25,000 @ A4 FIGURE 2 on: MGA Zone 50 IN

from bushfires or construction works).

Figure 3: Approved and current location of meteorological station

2.6.1 Summary of reported exceedances

Since works approval W6283/2019/1 was granted (i.e., 4 April 2020) to the 30 October 2022, the Works Approval Holder has submitted 72 weekly exceedance reports (and 29 monthly reports), of which two of the reports were submitted a day late. In total, the Works Approval Holder has submitted 894 exceedances, as summarised in Table 1.

		Number of exceedances						
Type of exceedance	Monitoring location	Unfiltered ¹	Error ²	Filtered ³	Non- premises related ⁴	Premises- related ⁵		
Total suspended	Osiris-North	742	291	451	289	162		
particulates (TSP) 15-minute rolling average	Osiris-Southeast	150	60	90	69	21		
PM ₁₀ 24-hour daily average	TEOM (South- east)	2	0	2	2	0		
TOTAL		894	351	543	360	183		

Table 1: Summary of dust monitoring exceedances reported through W6283/2019/1

Note 1: Comprises all exceedances submitted to the department.

Note 2: Comprises exceedances that were attributed to erroneous measurements or malfunction of the monitoring instrument.

Note 3: Comprises exceedances that exclude erroneous measurements (see Note 2).

Note 4: Comprises Filtered exceedances (see Note 3) that were attributed to causes that were not related to activities at the premises.

Note 5: Comprises Filtered exceedances (see Note 3) that were attributed to causes that were related to activities at the premises, or where it was found that activities at the premises could not be discounted as a potential cause.

Approximately 183 of the 894 exceedances (20.4%) were potentially attributable to activities at the premises, due to the activities being undertaken and the prevailing wind direction at the time of the exceedance. These exceedances were reported over 51 non-consecutive days where such exceedances were observed, approximately 5.6% of the monitoring period to date.

Activities at the premises that were identified as potentially causing the 183 exceedances included (but were not limited to):

- blasting (14 May 2020);
- crushing (3 July 2022);
- mining pit excavation (26 and 29 December 2020);
- construction of the Mine Services Area (4 February 2022, 19 February 2022);
- clearing at TSF4 (15 March 2022);
- activities at the Floyds Waste Dump (3 February 2021, 20 March 2021, 5 October 2022);
- activities at the operational areas (18 February 2021, 18 August 2021, 4 November 2021, 23 January 2022, 23 October 2022);
- activities at TSF2 (8 January 2022);
- activities at CGP2 ROM pad and stockpiles (9 February 2022);
- activities at the rehabilitation stockpiles (11 February 2022); and
- activities at the Final Goods Stockpile (22 February 2022).

2.6.2 Decision

The exceedances reported to date indicate that the controls implemented at the premises may not be adequate in managing dust emissions, regardless of whether the source of the emission was from standard operations or operations related to works approval W6283/2019/1.

The department intends to undertake a review of the existing dust management, controls, monitoring, emission limits and targets as part of a current amendment to the premises operating licence L4247/1991/13 relating to an increase in throughput from 5.0 mtpa to 7.1 Mtpa. The review will address these exceedances and will likely result in additional dust monitoring conditions and other controls being added to the licence.

As part of this amendment the Works Approval Holder has only requested a change to the reporting frequency for exceedances, to reduce administrative burden for both the department and the Works Approval Holder. Based on this and the timeliness and completeness of the weekly exceedance reports received to date, the Delegated Officer has decided to amend works approval W6283/2019/1 such that exceedances are only required to be reported on a monthly basis. With only a change in reporting frequency, the department expects the Works Approval Holder to continue implementing the same (or greater) level of detail to investigating and managing each exceedance as they had done previously with the weekly reports.

2.7 Part IV of the EP Act

In June 2018, the Works Approval Holder referred the proposal for mine expansion activities at the existing premises to the Environmental Protection Authority (EPA). The proposal included the development and operation of additional infrastructure for the processing of ore.

Main findings were published in the EPA Assessment Report 1635 (EPA 2019) and conditions were stipulated in Ministerial Statement (MS) 1111, which was granted on 19 August 2019.

The EPA Report 1635 identified the following key environmental factors relevant to the proposal:

- Flora, Vegetation and Terrestrial Fauna: Direct losses of up to 350 hectares (ha) of native vegetation and priority species, as well as potential indirect impacts to vegetation and flora, and habitat for matters of national environmental significance, requiring a Conservation Significant Terrestrial Fauna Management Plan;
- **Terrestrial Environmental Quality:** Impacts from potential contamination of soil from tailings and waste storage;
- **Inland Waters:** Potential impacts to surface and groundwater quality through mining operations;
- Air Quality: Potential impacts from dust emissions and changes to air quality, requiring a Dust Management Plan and detailed assessed under Part V of the EP Act; and
- **Social Surroundings:** Potential impacts from changes to visual amenity, vibration levels and noise, requiring a management plan for visual amenity and Noise Management Plan to meet the specified assigned noise levels.

The existing works approval W6283/2019/1 considered the outcomes of EPA Report 1635. The changes proposed in this amendment were not referred to the EPA.

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 2020b).

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 Amendment Report are detailed in Table 2 below. Table 2 also details the proposed control measures the Works Approval Holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Works	Approval Holder	controls
----------------	------------------------	----------

Emission	Sources	Potential pathways	Proposed controls
Dust	Construction and	Air/windborne pathway	Implement Dust Management Plan (DMP), which included the following:
	operation of CGP3 at proposed location		 Continue existing site controls (including water carts to control dust from earthworks area);
			Apply dust suppressing stabilisers on appropriate surfaces;
			 Real-time TSP and PM₁₀ monitoring at the northern and south-eastern boundary of the premises;
			 Plan activities and implement management actions (in accordance with DMP) with consideration to existing conditions, weather forecast and dust monitoring program;
			 Review clearing and earthworks program schedule to minimise the period where surfaces are bare/open;
			 Conduct investigation into the cause and potential contributing sources and implement appropriate management actions; and
			 Cease non-essential activities during excessively windy, high-risk conditions, if dust cannot be adequately controlled.
			These changes were proposed and considered in the Decision Report for works approval W6283/2019/1. No additional controls or changes were proposed as part of this amendment.
Noise	Construction and	Air/windborne	Implement Noise Management Plan (NMP), which included the following:
	operation of CGP3 at proposed location	pathway	 Continuous noise monitoring to determine compliance against assigned noise levels, in accordance with Regulation 17 of the <i>Environmental Protection (Noise)</i> <i>Regulations 1997</i>;
			 Undertook predictive noise modelling for the project expansion, including the relocated CGP3;
			 Maintain noise bund that was established and construct a noise bund extension, according to findings of predictive noise modelling;
			Implement buffer zone on Floyd's waste rock landform to reduce noise

Emission	Sources	Potential pathways	Proposed controls				
			emissions to receptors to the east of the premises;				
			 Mobile equipment used for construction operated and serviced in accordance with manufacturer's specifications; and 				
			 Construction works undertaken predominantly during daylight hours, avoiding construction works at night, where practicable. 				
			These changes were proposed and considered in the Decision Report for works approval W6283/2019/1. No additional controls were proposed as part of this amendment.				
			However, the design of the proposed bund extension was altered, as a result of the updated noise modelling (refer to Section 3.3)				
Sediment laden stormwater	Construction and operation of CGP3 at	Overland runoff, during rainfall event	 Implement sediment control (e.g., sumps) at topographical low of clearing or earthworks area, if sediment laden runoff/stormwater was observed; 				
	proposed location		 Pond SM501, SM502 and SM503 will be constructed with sufficient capacity to contain 1% annual exceedance probability (AEP) rainfall events and are clay- lined to facilitate sediment cleaning; and 				
			Drainage infrastructure will be integrated into the premises' Mine Water Circuit to allow for contaminated pond water to be contained appropriately at the premises				
Hydrocarbon and chemical spill	Construction and operation of CGP3 at	Discharge to land	Hydrocarbons will be stored within secondary containment (i.e., bunding), which meets the AS 1940:2017 standard;				
	proposed location		 If hydrocarbon release occurs, it will be controlled, contained, and removed using spill kit and other absorbent material. Contaminated soils will be collected and disposed in site bioremediation area; 				
			 Hydrocarbon and chemical spills reported internally as environmental incident, with larger spills with potential to cause contamination reported to the department; and 				
			 Mobile equipment operated and serviced in accordance with manufacturer's specifications, with servicing only undertaken within designated servicing and refuelling facilities. 				

Emission	Sources	Potential pathways	Proposed controls
			These changes were proposed and considered in the Decision Report for works approval W6283/2019/1. No additional controls or changes were proposed as part of this amendment.
Light	Construction and operation of CGP3 at proposed location	Air/windborne pathway	 Implement Light Management Plan; Construction works undertaken predominantly during daylight hours, avoiding construction works at night, where practicable; Where night works are required, lighting design will ensure illumination is directed away from receptors and nearby public roads.
			Light emissions have been addressed under Part IV assessment and conditioned under MS 1111. Therefore, this emission will not be considered further as part of this assessment.

3.1.2 Receptors

Г

In accordance with the *Guideline: Risk assessments* (DWER 2020b), the Delegated Officer has excluded employees, visitors and contractors of the Works Approval 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 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 2020a)).

Table 3: Sensitive h	uman and	environmental	receptors	and	distance	from	prescribed
activity							

Human receptors	Distance from prescribed activity				
Greenbushes township	The town of Greenbushes abuts the northern boundary of the premises and is located approximately 1.5 km north of the proposed CGP3 location (Figure 4). All residential, commercial and industrial premises within the townsite are considered sensitive receptor due to the town's proximity to the operation.				
	The closest residence to the premises is located approximately 80 m from the northern boundary of the premises.				
	The Greenbushes Primary School is located at the southern portion of the town, directly adjacent to the premises' northern boundary.				
Rural residential premises	Excluding the Greenbushes township, approximately 21 residential premises are located near the premises, with half of them located within 2 km of the premises boundary (Figure 4).				
	Receptors D, E, H, I, L and M are owned by the Works Approval Holder, while receptors B, C, F and K have an amenity agreement in place, as labelled in Figure 4.				
Environmental receptors	Distance from prescribed activity				
Native vegetation	Native vegetation surrounding the premises consists of forest and woodland comprising <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> and <i>E. wandoo</i> .				
	While the proposed location for CGP3 is in a cleared area, the closest patch of uncleared native vegetation is located 380 m to the west of CGP3, within the premises boundary, and approximately 1.8 km to the south of CGP3, bordering the premises boundary.				
Conservation significant areas	The majority of the premises is located within the Greenbushes State Forest/State Forest 20, which is a Class A State Forest managed by the Department of Biodiversity, Conservation and Attractions (DBCA).				
	The area of the State Forest is approximately 6,088 hectares and encompasses areas further north and north-west. Distance between CGP3's proposed location and uncleared forest area is specified under the ' <i>Native vegetation</i> ' receptor.				
	The Hester State Forest, another Class A State Forest, is located to the south and south-east of the premises, with the closest patch located approximately 840 m south of the premises boundary.				
	An environmentally sensitive area (ESA) is located approximately 800 m west of the south-western corner of the premises. The ESA comprises a				

Works Approval: W6283/2019/1

	winter-wet dampland, which supports of population of <i>Caladenia harringtoniae</i> (classified as Vulnerable under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> [EPBC Act]).
Conservation significant flora	Flora surveys undertaken to date have encountered several priority flora species within and surrounding the premises (Figure 5), including:
	 Acacia semitrullata (Priority 4) – A population located within the Greenbushes State Forest area to the north-west of the proposed CGP3 location and close to the north-western premises boundary;
	 Caladenia harringtoniae (Vulnerable, EPBC Act) – A population located in an unincised drainage line/dampland, south-west of the premises. The dampland area is classified as an ESA;
	 Melaleuca viminalis (Priority 2) – Sighted approximately 650 m north of the premises boundary and 800 m west of the Greenbushes township boundary; and
	 Tetratheca parvifolia (Priority 3) – A population located over 3 km north-west of the premises boundary.
Surface water bodies	The premises is located within the Middle Blackwood Surface Water Area, within the Norilup Brook sub-area, the upper reaches of the Hester Brook sub-area and the Woljenup Creek sub-area.
	The proposed location for CGP3 is located directly east of Clear Water Dam, Austins Dam and Southampton Dam, which abut each other. Cowan Brook Dam is also located 1.3 km to the west of the proposed CGP3 location (Figure 6). These dams are utilised by the Works Approval Holder to store process water, decant water, mine dewater, contaminated stormwater, runoff and overflow from the premises.
	Watercourses within these sub-areas are all tributaries of the Blackwood River, which flows southwards to the Hardey Inlet in Augusta (Figure 6).
	The premises is not located within a proclaimed surface water area under the <i>Rights in Water and Irrigation Act 1914</i> .



Figure 4: Sensitive human receptors



Figure 5: Conservation significant flora locations within and around the premises

Works Approval: W6283/2019/1

IR-T15 Amendment report template v3.0 (May 2021)



Figure 6: Surface water bodies within and around the premises

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020b) 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 Works Approval 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 Works Approval Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the Works Approval 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 works approval W6283/2019/1 that accompanies this Amendment Report authorises construction. The conditions in the Revised Works Approval have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A risk assessment for the operational phase has been included in this Amendment Report, however licence conditions will not be finalised until the department assesses the licence amendment application.

Risk Event					Risk rating ¹	Works			
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls	C = consequence L = likelihood	Approval Holder's controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls	
Construction	Construction								
Construction of CGP3 at proposed location; and Movement of light and heavy vehicle	Dust	Pathway: Air/ windborne pathway Impact: Impacts to human health, ecological health and amenity	Town of Greenbushes and surrounding rural residential receptors Native vegetation, including Greenbushes State Forest and priority flora Surface water bodies	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Yes	Condition 1 Condition 5 Condition 6 Condition 9 Condition 10 Condition 11	N/A	
	Noise	<i>Pathway:</i> Air/ windborne pathway <i>Impact:</i> Impacts to human health	Town of Greenbushes and surrounding rural residential receptors		C = Minor L = Possible Medium Risk	Yes	N/A	Noise impacts to human receptors are regulated through a regulation 17 approval for the premises. The Works Approval Holder is required to implement a Noise Management Plan to meet specified limits set out in current Regulation 17 approval <i>Environmental Protection (Talison Lithium Australia Greenbushes</i> <i>Operations Noise Emissions)</i> <i>Approval 2015</i>).	
	Sediment laden stormwater	Pathway: Overland runoff during rainfall events Impact: Discharge to land and potentially water, resulting in impacts to ecological health	Native vegetation, including Greenbushes State Forest Surface water bodies		C = Minor L = Rare Low Risk	Yes	N/A	N/A	
	Hydrocarbon and chemical spills	Pathway: Loss of containment, resulting in spills or leaks	Surface water bodies		C = Minor L = Rare	Yes	N/A	N/A	

Table 4. Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk Event					Risk rating ¹	Works		
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls	C = consequence L = likelihood	Approval Holder's controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
		<i>Impact:</i> Discharge to land and potentially water, resulting in impacts to ecological health			Low Risk			
Operations								
Operation of CGP3 at proposed location	Dust	Pathway: Air/ windborne pathway Impact: Impacts to human health, ecological health and amenity	Town of Greenbushes and surrounding rural residential receptors Native vegetation, including Greenbushes State Forest and priority flora Surface water bodies	Refer to Section 3.1	Not determined	N/A	Condition 1 Condition 5 Condition 6 Condition 9 Condition 10 Condition 11	A risk rating for this event is unable to be determined at this time, as an updated dust impact assessment that reflects the premises operational conditions during the operation of CGP3 at its proposed new location has not been provided. Without this assessment, the department cannot properly assess the cumulative impact of dust from the operation of CGP3 (at its proposed location) and the other relevant Category 5 infrastructure during operations. As a result, it has been determined that time limited operations cannot be authorised under this amendment. Any change in risk from dust emissions as result of the relocation of CGP3 will be assessed when the Works Approval Holder reapplies for authorisation to operate CGP3 through another amendment, application, either through this works approval (W6283/2019/1) or the premises licence L4247/1991/13. It is noted that the works approval has existing conditions that require the management and monitoring of dust.

Risk Event					Risk rating ¹	Works		Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls	C = consequence L = likelihood	Approval Holder's controls sufficient?	Conditions ² of works approval	
	Noise	<i>Pathway:</i> Air/ windborne pathway <i>Impact:</i> Impacts to human health	Town of Greenbushes and surrounding rural residential receptors		Refer to section 3.3	Yes	Condition 1 (updated)	Refer to Section 3.3. Noise impacts to human receptors are regulated through a regulation 17 approval for the premises. The Works Approval Holder is required to implement a Noise Management Plan to meet specified limits set out in current Regulation 17 approval <i>Environmental Protection (Talison Lithium Australia Greenbushes</i> <i>Operations Noise Emissions)</i> <i>Approval 2015</i>).
	Contaminated stormwater	Pathway: Overland runoff during rainfall events Impact: Discharge to land and potentially water, resulting in impacts to ecological health	Native vegetation, including Greenbushes State Forest Surface water bodies		C = Minor L = Rare Low Risk	Yes	Condition 1	N/A
	Hydrocarbon and chemical spills	Pathway: Loss of containment, resulting in spills or leaks Impact: Discharge to land and potentially water, resulting in impacts to ecological health	Surface water bodies		C = Minor L = Rare Low Risk	Yes	N/A	N/A

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

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

3.3 Detailed risk assessment for noise emissions from construction and operation of CGP3 at proposed location

3.3.1 Background

The construction and operation of CGP3 would result in noise (and dust) emissions to surrounding receptors. In terms of noise emission, the primary receptors of concern comprise the Greenbushes township and surrounding rural residential premises to the east, south and west of the premises.

The Works Approval Holder is currently authorised under the *Environmental Protection (Talison Lithium Australia Greenbushes Operation Noise Emissions) Approval 2015* to exceed or vary from the assigned noise levels in the *Environmental Protection (Noise) Regulations 1997*. The approval is valid for ten years from the date of being granted (27 February 2015). Although the approved noise levels apply to neighbouring noise sensitive receptors, they were primarily designed to protect the residential receptors within the township, which were closest to the premises' operations. The current mine expansion of the premises was found to increase noise emissions on a number of rural residential receptors to the south, west and east.

3.3.2 Noise assessment

The relocation of CGP3 could potentially alter the extent and severity of noise emissions during operations on surrounding receptors. To better understand the risk profile, an updated acoustic assessment was undertaken (Herring Storer Acoustics 2022). The updated assessment included updated modelling scenarios, which comprised different mobile equipment configurations and excluded CGP4.

The assessment demonstrated that the operation of CGP3 at its proposed location would not result in a significant increase in noise emission impacts to the surrounding receptors, when compared to the current authorised location (Figure 7).

The updated acoustic assessment also altered the proposed controls for managing noise emissions, namely the design of the proposed noise bunds. Controls proposed in the initial acoustic assessment, which included the operation of CGP4, comprised two noise bunds (i.e., new bund at the northern end of the existing ROM pad and eastern extension of the existing noise bund) (Herring Storer Acoustics 2019) (Figure 8).

In the updated assessment, only an extension to the west of the existing bund was proposed (Figure 8). Although the predicted noise emission levels will still comply with the approved noise levels in the Greenbushes township, comparison of the noise contours between initial and updated assessment indicated that noise emission levels with the proposed bund design will result in a slight increase to noise emission levels in the township (Figure 7). Based on the noise level contours, the increase most likely attributed to the change in bund design, rather than the relocation of CGP3.



Figure 7: Modelled noise contours for the operation of CGP3¹ at the (S4) current and (S3) proposed locations

Note 1: Modelling scenario also included the operation of the Mine Service Area, CGP1 and CGP2 (and their associated crushers).



Figure 8: Noise bund design proposed in the (a) initial acoustic assessment and (b) updated acoustic assessment

3.3.3 Regulation 17 exemption

Approval granted under Regulation 17 of the *Environmental Protection (Noise) Regulations 1997* is based on what is practicably achievable in terms of noise reduction at the time of the application. Condition 7(1) of the *Environmental Protection (Talison Lithium Australia Greenbushes Operation Noise Emissions) Approval 2015* states that the Works Approval Holder *'is to take all reasonable measures to reduce noise emissions from the mine site'*. As such, the change in noise bund design in the updated acoustic assessment (which would lead to slightly higher noise emission levels compared to the initial design) would not typically be supported, unless the approval holder can demonstrate that the previous noise bund designs are not practicable or reasonable.

In a letter to the department dated 24 November 2022, the Works Approval Holder provided the following justification for the change in noise bund design:

- The revised design has a smaller footprint and requires fewer construction material quantities. As such, less clearing would be required, with reduced emissions and impacts related to the construction works (i.e., dust, noise, traffic);
- The Works Approval Holder do not possess sufficient quantities of geotechnically and geochemically suitable waste rock for the construction of the initial bund design within the relevant timeframes (i.e., prior to the operation of CGP3);
- The initial bund designs would excessively restrict access to the north-east of the premises, which may be required in the present and/or future; and
- Noise modelling undertaken as part of this updated acoustic assessment indicated that the revised noise bund design would still be adequate for complying with the approved noise emission levels.

Unlike the initial acoustic assessment, the modelling scenarios of the updated acoustic assessment does not include the operation of CGP4. As such, the updated noise bund may not be adequate to manage noise emissions from cumulative premises operations in the future, when CGP4 is operational. Another acoustic assessment will need to be undertaken in the future, prior to the operation of CGP4. The outcomes of the acoustic assessment may necessitate further modifications to the existing noise bunds or the construction of new noise bunds.

3.3.4 Decision

Based on the detailed risk assessment undertaken, the following conclusions have been made:

- The consequence rating was classed as moderate, as the proposed controls (including the revised noise bund design) would mitigate noise emissions during operations to an extent. However, it was noted that the noise bund was designed primarily for the township. Rural residential receptors surrounding the premises may be impacted to a greater extent;
- The likelihood rating was classed as **possible**, as noise emissions may vary depending on operational and meteorological conditions. Concerns from direct interest stakeholders and previous complaints were also considered in this assessment;
- Overall, the consequence and likelihood presented above have resulted in a **medium risk rating**.

The Delegated Officer considers the controls proposed by the Works Approval Holder to be adequate to manage noise emissions from the premises from impacting surrounding noise-sensitive receptors. The construction of the noise bund has been conditioned in the amendment works approval, in accordance with the Guideline: Risk Assessments (DWER 2020b).

4. Consultation

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

Table 5: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 13 October 2022.	No comments received.	N/A
Application advertised in The West Australian on 17 October 2022.	No comments received.	N/A
Application advertised in the Manjimup Bridgetown Times on 19 October 2022.	No comments received.	N/A
Department of Mines, Industry Regulation and Safety (DMIRS), Department of Health (DoH), Department of Education (DoE), Shire of Bridgetown- Greenbushes, Greenbushes Primary School advised of proposal on 13 October 2022.	DoH provided comments on 14 November 2022, which is summarised in Table 6. No comments were received from other relevant stakeholders.	The department's response to DoH's comments is provided in Table 6.
Local rural residents advised of proposal on 12 October 2022.	No comments received.	N/A
Works Approval Holder was provided with draft amendment on 13 December 2022.	The Works Approval Holder provided specifications for the CGP3 noise bund, as well as updated figures, as requested by the department.	The department found the information provided to be adequate and have included them in the revised works approval.
	The Works Approval Holder also waived the remainder of the comment period.	

Table 6: Comments from Department on Health

Item	Comments received	Department response
1	No information was provided on prevailing winds and topography, which may affect emissions on sensitive receptors during construction and operation of the relocated CGP3.	Based on the previous risk assessment, existing controls and meteorological data submitted by the Works Approval Holder, the risk rating of emissions and discharges associated with the construction of CGP3 at the proposed location was deemed acceptable. Note that the time limited operations for CGP3 has not been authorised as part of this amendment due to lack of information
2	Time limited operation of CGP3 should be subject to licence conditions to ensure	On 24 November 2022, the Works Approval Holder notified the department to remove the

	sensitive receptors are not impacted by emissions.	request for time limited operation from the scope of this amendment.
2	In relation to dust monitoring exceedances, a high level of regulatory oversight was recommended to ensure that emission controls are continuously effective in preventing impacts to nearby receptors,	The department acknowledges the high level of regulatory oversight that is expected, given the potential for emissions and discharges and the sensitivity of nearby human health and environmental receptors.
	including the Greenbushes Primary School.	The department intends to continue assessing applications relating to the premises in line with the department's regulatory best practice principles and endeavour to involve all relevant direct interest stakeholders in our assessment process, including the DoH, DoE and Greenbushes Primary School.
3	Consistent application of the NEPM PM_{10} standard of 50 μ g/m ³ and non-compliances are addressed with corrective actions.	The department is aware that the specified limits for PM_{10} is not consistent between licence L4247/199/13 and the NEPM and intends to align the specified limit in an upcoming amendment to the licence.
4	Inclusion of air monitoring for metal contaminants to understand the associated exposure risks.	The department will consider this when assessing dust emissions as part of upcoming amendments to licence L4247/1991/13.
5	All validated environmental data, including non-compliance to licence conditions and actions taken to investigate and resolve them, should be accessible to stakeholders (including DoE and Greenbushes Primary School) during construction and mining activities.	Condition 5 of Ministerial Statement 1111 requires the holder to make publicly available all validated environmental data, management plans and reports relevant to the proposal. Further, non-compliances relating to licence L4247/1991/13 is summarised in an Annual Audit Compliance Report, which is uploaded to the department's website and is publicly available.

5. Conclusion

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

5.1 Summary of amendments

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

Condition no.	Proposed amendments
Cover page	Updated formatting of cover page. Updated the <i>Duration</i> of the works approval from 01/04/2023 to 01/04/2028.

Premises instrument history	Updated formatting of table and included previous amendments to licence L4247/1991/13 and current amendment.
Condition 1	Updated formatting of Table 1, including separation of CGP3 and CGP4 as separate items of infrastructure and amending references to the correct figures.
	Included design and construction/installation requirements for noise bund for CGP3.
Condition 2	Updated condition formatting.
Condition 3	Updated condition formatting.
Condition 6	Updated figure number to reference correct figure in Table 3.
Condition 9	Updated Table 4 to remove reference to NEPM, 2016.
Condition 15	Updated reference to relevant conditions.
Condition 17	Removed weekly reporting period for condition 15.
	Included condition 15 under monthly reporting period.
Definitions	Updated Table 10 to include definitions for: m/s, Mt, Mtpa, NATA, PM ₁₀ and RL.
	Updated Table 10 to remove definitions for: TSF.
Schedule 1	Updated Figure 1 to reflect new location of CGP3 and new general purpose lease G01/4.
	Removed Figure 2 due to redundancies with the updated Figure 1 (Figure 3 is now Figure 2, and so forth).
Schedule 2	Updated Figure 4 to reflect new layout for CGP3 (Figure 4 is now Figure 3).
	Included additional Figure 4 to show layout of CGP4 and Crusher 3.
	Updated Figure 4 to reflect new layout for CGP3, CGP4 and Crusher 3.
	Included Figure 5 to show drainage plan and sedimentation pond locations for CGP3.
	Included Figure 12 to show updated noise bund design for CGP3.

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: Environmental Siting*, Perth, Western Australia.
- 3. DWER 2020b, Guideline: Risk Assessments, Perth, Western Australia.
- 4. Environmental Protection Authority (EPA) 2019, *Report and recommendations of the Environmental Protection Authority Greenbushes Lithium Mine Expansion (Talison Lithium Australia Pty Ltd*, Perth, Western Australia.
- 5. Herring Storer Acoustics 2019, *Proposed Expansion Greenbushes Acoustic Assessment*, Como, Western Australia.
- 6. Herring Storer Acoustics 2022, *Proposed Expansion Greenbushes Acoustic Assessment*, Como, Western Australia.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)						
Application type						
Works approval						
		Relevant works approval number:		None		
		Has the works appr with?	Has the works approval been complied with?		No 🗆	
Licence		Has time limited operations under the works approval demonstrated acceptable operations?		Yes 🗆	No 🗆 N/A 🗆	
		Environmental Com Critical Containmen Report submitted?		Yes 🗆	No 🗆	
		Date Report receive	ed:			
Renewal		Current licence number:				
Amendment to works approval	\boxtimes	Current works approval number:	W6283/2019/1			
Amendment to licence		Current licence number:				
		Relevant works approval number:		N/A		
Registration		Current works approval number:		None		
Date application received		11 July 2022, 18 No	ovember 2022			
Applicant and Premises details						
Applicant name/s (full legal name/s)		Talison Lithium Aus	tralia Pty Ltd			
Premises name		Talison Lithium Mine				
		Maranup Ford Road, Greenbushes WA 6254				
Premises location		Mining tenements – M01/3, M01/6, M01/7, M01/8, M01/9, M1/16 General purpose lease – G01/1, G01/4				
Local Government Authority		Shire of Bridgetown-Greenbushes				
Application documents						
HPCM file reference number:		DER2019/000216 DER2019/000216~1 DER2019/000216~2 DER2019/000216~3				
Key application documents (additional to application form):		 Infrastructure Relocation – Supporting Document; Updated acoustic assessment; Shapefile for premises boundary, existing and proposed CGP3 location; and Response to RFI (dated 9 September 2022) 				

Scope of application/assessment					
	Works approval amendment (11 July 2022)				
	Relocation of CGP3 processing plant;				
Summary of proposed activities or	 Authorisation of time-limited operation for CGP3 processing plant; 				
changes to existing operations.	Relocation of meteorological monitoring station;				
	Reduction in dust exceedance reporting frequency;				
	Works approval amendment (18 November 2022)				
	Extension of duration of works approval.				

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 5: Beneficiation or processing of metallic and non- metallic ore	11,600,000 tonnes per annual period (i.e., 11.6 Mtpa)	No change	
Legislative context and other appro	vals		
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 ⊠	Proposal for this amendment was not significant. The initial proposal for the works approval was already referred to the EPA and assessed under Part IV of the EP Act (EPA Report 1635). EPA Report identified the following key environmental factors: flora and vegetation, terrestrial environmental quality, terrestrial quality, inland waters, air quality and social surroundings. The report also noted that many of the potential emissions and discharges assessed will be regulated under Part V of the EP Act.	
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes 🛛 No 🗆	Ministerial statement No: 1111 EPA Report No: 1635	
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ⊠ No 🗆	Reference No: EPBC 2018/8206 EPBC 2013/6904	

Has the applicant demonstrated occupancy (proof of occupier status)?	Yes 🛛 No 🗆	Occupancy demonstrated for general purpose lease G01/4 (Expiry: 20 April 4032).
Has the applicant obtained all relevant planning approvals?	Yes □ No □ N/A ⊠	Mining tenement regulated under Mining Act (Reg ID 80328), with a new MP covering scope of this amendment currently being assessed by DMIRS.
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 🖂	N/A
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes □ No ⊠	N/A
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes □ No ⊠	N/A
Is the Premises subject to any other Acts or subsidiary regulations (e.g. Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx)	Yes ⊠ No □	 Mining Act 1984 EPBC Act 1999 Dangerous Goods Safety Act 2004 EP (Unauthorised Discharge) Regulations 2004 EP (Talison Lithium Australia Greenbushes Operation Noise Emissions) Approval 2015
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 <i>Contaminated Sites Act</i> 2003?	Yes ⊠ No □	Classification: Contaminated – restricted use (C–RU) (CSS Site ID 1821) Date of classification: 7 Oct 2020
		Date of classification: 7 Oct 2020