



## Application for Works Approval Amendment

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

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<b>Works Approval Number</b>	W5977/2016/1
<b>Works Approval Holder</b>	Tianqi Lithium Kwinana Pty Ltd
<b>ACN</b>	612085364
<b>File Number</b>	DER2018/001280-1~2
<b>Premises</b>	Lithium Hydroxide Processing Plant 61 Donaldson Road KWINANA BEACH WA 6167  Legal description – Lot 201 on deposited Plan 407762 Certificate of Title Volume 2914 Folio 662
<b>Date of Report</b>	02/09/2020
<b>Decision</b>	Revised works approval granted

Chris Malley  
A/Manager, Process Industries

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

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## 1. Decision summary

Works Approval W5977/2016/1 is held by Tianqi Lithium Australia Pty Ltd (Tianqi) (Works Approval Holder) for the Tianqi Lithium Kwinana (TLK) Plant (the Premises), located at 61 Donaldson Road, KWINANA BEACH, WA.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions during time limited operations of the Premises. As a result of this assessment, Amended Works Approval W5977/2016/1 has been granted.

The Revised Works Approval issued because of this amendment consolidates and supersedes the existing Works Approval previously granted in relation to the Premises. The Revised Works Approval has been granted with existing conditions being transferred but not reassessed, to the new Amended Works Approval.

## 2. Scope of assessment

### 2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the Department of Water and Environmental Protection and Regulation (DWER) (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 Amendment summary

On 22 June 2020, the Works Approval Holder applied to the department to amend Works Approval W5977/2016/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Extend the time limited operating period for Stage 1 by 12 months only, to allow for the completion of stack validation sampling requirements. This will by default, push out the time limited operating of Stage 2 by 12 months.
- Update two built stack heights to reflect design changes. It was identified that the calciner refeed discharge end stack has been built to a height of 24.5m and not 33m. The sodium sulphate stack has been built to a height of 30.5m and not 10.4m. Both stack height changes are not predicted to adversely impact emission dispersion or exposure for sensitive receptors.

Tianqi have submitted their first engineering construction certification notification on 24/04/2019. Under the existing works approval there is a 12-month limit on discharges of emissions to air associated with time limited operating the facility from the date the first engineering certification report was submitted. Tianqi indicated that a range of internal and external factors had delayed progress time limited operating Stage 1. The time limited operating of Stage 2 will not occur until Stage 1 is complete. This amendment is limited only to changes to Category 44 (metal smelting or refining) and 31 (chemical manufacturing) activities from the Existing Works Approval and does not change the throughput capacity of the operation.

### 2.3 Works Approval History

Table 1 summaries the works approval history for the premises.

**Table 1: Works approval history**

Instrument	Issued	Summary of approval
W5977/2016/1	21/09/2016	New works approval for works associated with the first process train and ancillary infrastructure (stage 1)
	25/10/2017	Amendment Notice 1, to enable construction of Stage 2 and to increase lithium hydroxide capacity to 48,000 tonnes per year.
	21/12/2018	Amendment Notice 2 to enable staged commencement of Stages 1 and 2 of the Tianqi LHPP to allow emission and discharges from the LHPP through time limited operations for a period of 12 months.
	DRAFT	Amendment to enable changes to two built stack heights to reflect design changes and to extend the time limited operating period for Stage 1 by 12 months to allow for completion of stack validation sampling requirement.

### 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 *Guidance Statement: Risk Assessments* (DER 2017).

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.

Furthermore, the department has not undertaken any additional risk assessments of the Premises related to previous Amendment Notices where emissions have not changed.

#### 3.1 Source-pathways and receptors

##### 3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises environmental time limited operations and changed stack heights for construction have been considered in this Amendment Report and are detailed in Table 2 below.

Table 2 identifies the emissions that relate to the works approval amendment only and details the 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
Air emissions. combustion products consisting of	Spodumene ore concentrate processing and manufacture of Lithium Hydroxide	Air/windborne pathway	As previously assessed: <ul style="list-style-type: none"> <li>Infrastructure and equipment requirements – baghouse filter (operation) in Existing Licence</li> </ul>

Emission	Sources	Potential pathways	Proposed controls
PM, NO <sub>x</sub> SO <sub>2</sub> , SO <sub>3</sub> , CO	Monohydrate (LHM) and sodium sulfate		Condition 12, Table 5. <ul style="list-style-type: none"> <li>Monitoring, in Existing Licence Condition 14, Table 7, Condition 15 Table 8, Condition 16 and 17</li> <li>Reporting in Existing Licence Condition 18 Table 9 and Condition 21</li> </ul>

### 3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), 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 because of activities upon or emission and discharges from the prescribed premises (*Guidance Statement: Environmental Siting* (DER 2016)).

**Table 3: Sensitive human and environmental receptors and distance from prescribed activity**

Human receptors	Distance from prescribed activity
Closest dwelling	2.35km south-east in the residential suburb of Medina
Environmental receptors	Distance from prescribed activity
Wetlands of International Significance – Forestdale and Thompsons Lakes	Approximately 7.3km north-east
Wetlands of national and regional significance – Spectacles Wetlands	Approximately 4.8km east
Geomorphic Wetlands	There are six Conservation category and nine Resource Enhancement or Multiple Use category wetlands located between 1 km and 4.7 km from the Premises.
Cockburn Sound	Approximately 1.2km west
Groundwater encountered at 6 m relative to groundwater level or 1m relative to AHD. Estimates may fluctuate between 0.5 m and 3 m due to seasonal variation and tidal variation / influence. Groundwater contours indicate flow direction conservatively east to west towards Cockburn sound	Groundwater salinity (as TDS) is between 1500 and 3000mg/L and considered brackish. The site is within the Kwinana Industrial Area which is described as unsuitable for domestic garden bores. There are no sensitive groundwater resources on or near the Premises. Water is not used for potable use.

### 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) 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 sufficient controls, 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 W5977 that accompanies this Amendment Report authorises construction and time limited operations. The conditions in the Revised Works Approval have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015). Only the amended activities have been re-assessed for risk in this Amendment Report.

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the Premises i.e. Lithium Hydroxide Plant activities. 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 application.

**Table 4. Risk assessment of potential emissions and discharges from the Premises - operation**

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Reasoning
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls			
Operation							
Spodumene ore concentrate processing and manufacture of LHM and sodium sulfate	Point source emissions to air consisting of PM, NOx SO <sub>2</sub> , SO <sub>3</sub> , CO	Air/windborne pathway causing impacts to health and amenity	Closet dwelling 2.35 km south-east in Medina	The Previous assessments determined the operational phase risk for Stage 1 and 2 of point source emissions to air and controls, This included operational, monitoring and reporting controls see Table 2.	C = Minor L = Unlikely Medium Risk	Y	The Previous assessment considered time limited operating emissions for a period of 12 months for Stage 1 followed by a further 12 months for Stage 2.  The revised assessment considered increased stack heights and time limited operating emissions for 24 months for Stage 1 followed by 12 months for Stage 2 and were modelled to have no predicted increase to air emissions at receptors.  Therefore, the Delegated Officer considers that no changes to the previous risk assessment and conditions of works approval is required.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

## 4. 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.

### 4.1 Summary of amendments

Table 5 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.

**Table 5: Summary of works approval amendments**

Condition no.	Proposed amendments
Condition 9 Table 4	Changes to Authorised emissions table to extend discharges to air to 24 months for Stage 1 (time limited operations) and by default 12 months for Stage 2 pre-commissioning function test).
Condition 13 Table 6	Changes to stack heights to decrease the calciner refeed discharge end stack from 33 to 24.4 meters and increase the height of the sodium sulfate heater stacks from 10.4 to 30.5 meters.

### 4.2 Consultation

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

**Table 6. Consultation**

Consultation method	Comments received	Department response
Applicant was provided with draft documents on 12/08/2020)	Applicant advised of no comments on 02/09/20 (A1929349)	N/A

## References

1. Amended Works Approval W5977/2016/1, Tianqi Lithium Kwinana Pty Ltd (previous works approval issued 21 December 2018)
2. Decision Report for an Amended Works Approval W5977/2016/1, Tianqi Lithium Kwinana Pty Ltd (previous Decision Report, issued 21/12/2018).
3. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
4. DER 2016, *Guidance Statement: Environmental Standards*, Perth, Western Australia
5. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
6. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
7. GHD 2019, Appendix B Updated Air Assessment Memorandum, Perth, Western Australia.
8. Tianqi Lithium, 2020, Application Form Works Approval Amendment

9. Tianqi Lithium, 2020, Stage 1 Commissioning Extension Lithium Hydroxide Plant, Works Approval W5977/2016/1 Amendment Supporting Document, Document No. TLK-000-J-APR-0128

## 5. Definitions of terms and acronyms

In this Decision Report, the terms in Table 7 have the meanings defined.

**Table 7: Definitions**

Term	Definition
ACN	Australian Company Number
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CO	Carbon Monoxide
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation  As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the <i>Public Sector Management Act 1994</i> and is responsible for the administration of the <i>Environmental Protection Act 1986</i> along with other legislation.
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
Existing Works Approval	means W5977/2016/1 issued 21/12/2018
LHM	Lithium Hydroxide Monohydrate
Minister	the Minister responsible for the EP Act and associated regulations
mtpa	million tonnes per annum
NEPM	National Environmental Protection Measure
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997</i> (WA)
NOX	Nitrogen oxide
Occupier	has the same meaning given to that term under the EP Act.
PM	Particulate Matter
PM <sub>10</sub>	used to describe particulate matter that is smaller than 10 microns (µm) in diameter
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Primary Activities	as defined in Schedule 2 of the Revised Licence
Risk Event	As described in <i>Guidance Statement: Risk Assessment</i>
SO <sub>2</sub>	Sulphur dioxide
SO <sub>3</sub>	Sulphur trioxide



## Appendix 1: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)					
<b>Application type</b>					
Works approval	<input type="checkbox"/>				
Licence	<input type="checkbox"/>	Relevant works approval number:		None	<input type="checkbox"/>
		Has the works approval been complied with?			Yes <input type="checkbox"/> No <input type="checkbox"/>
		Has time limited operations under the works approval demonstrated acceptable operations?			Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?			Yes <input type="checkbox"/> No <input type="checkbox"/>
		Date Report received:			
Renewal	<input type="checkbox"/>	Current licence number:			
Amendment to works approval	<input checked="" type="checkbox"/>	Current works approval number:	W5977/2016/1		
Amendment to licence	<input type="checkbox"/>	Current licence number:			
		Relevant works approval number:		N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:		None	<input type="checkbox"/>
Date application received		22 June 2020			
<b>Applicant and Premises details</b>					
Applicant name/s (full legal name/s)		Tianqi Lithium Kwinana Pty Ltd			
Premises name		Lithium Hydroxide Processing Plant			
Premises location		Lot 201 on Deposited Plan 407762, Certificate of Title Volume 2914 Folio 662 61 Donaldson Road, KWINANA BEACH 6167			
Local Government Authority		City of Kwinana			
<b>Application documents</b>					
HPCM file reference number:		DER2020/000143			
Key application documents (additional to application form):		<i>Stage 1 Commissioning Extension Supporting Document that includes:</i> <ul style="list-style-type: none"> <li>Appendix A Updated Environmental Commissioning Plan and</li> <li>Appendix B Updated Air Assessment memorandum (GHD 2019)</li> </ul>			
<b>Scope of application/assessment</b>					

Summary of proposed activities or changes to existing operations.	Works approval amendment <ul style="list-style-type: none"> <li>Extend time limited operating period for Stage 1 by 12 months to allow for completion of stack validation sampling. This will automatically push out Stage 2 by 12 months</li> <li>Update two stack heights that have been built different to the works approval specifications.</li> </ul>	
Category number/s (activities that cause the premises to become prescribed premises)		
Table 1: Prescribed premises categories		
Prescribed premises category and description	[Proposed] [Assessed] production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 31 – Chemical manufacturing	Assessed – production capacity 48 000 tpa (IHM).	No changes to previous assessed capacity.
Category 44 – Metal smelting or refining	Assessed – production capacity 48 000 tpa (IHM).	No changes to previous assessed capacity.
<b>Legislative context and other approvals</b>		
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 checked="" type="checkbox"/> General lease <input checked="" type="checkbox"/> Expiry: 30/09/2041 Mining lease / tenement <input type="checkbox"/> Expiry: Other evidence <input type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	Approval: DA9204 from City of Kwinana Expiry date: issued on 29 August 2018 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 checked="" type="checkbox"/> No <input type="checkbox"/>	CPS No: CPS7198/1

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"/>	Application reference No: N/A Licence/permit No: N/A
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	Name: N/A Type: Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office: N/A
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to <a href="#">WQPN 25</a> )? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
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> )	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	Kwinana
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If Yes, Site is subject to SO <sub>2</sub> requirements of Kwinana EPP.
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	Classification: Contaminated – restricted use Date of classification: 7 Nov 2008