Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Application for Works Approval Amendment

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

Works Approval Number	W6154/2018/1
Works Approval Holder	Albemarle Lithium Pty Ltd
ACN	618 095 471
File Number	DER2018/000968
Premises	Albemarle Kemerton Plant Wellelsey Road Wellesley, WA 6233 Legal description – Lot 254 on Deposited Plan 416513 As defined by the coordinates in Schedule 1 of the Revised Works Approval
Date of Report	23/06/2022
Decision	Revised works approval granted

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MANAGER, PROCESS INDUSTRIES
REGULATORY SERVICES

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

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1. Decision summary

Works Approval W6154/2018/1 is held by Albemarle Lithium Pty Ltd (works approval holder, Albemarle) for the Albemarle Kemerton Plant (the premises), located at Wellesley Road, Wellesley 6233.

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, revised works approval W6154/2018/1 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 in a new format with existing conditions being transferred, but not reassessed beyond the scope of the amendment application, to the new format.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Application summary

On 23 December 2021, the works approval holder submitted an application to the department to amend works approval W6154/2018/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- update to the legal address of the premises;
- construction and commissioning of multiple storage tanks for the capture and reuse of potentially contaminated stormwater (stormwater tanks);
- construction and time limited operation of a waste transfer station (WTS);
- update infrastructure descriptions within Schedule 2 Table 8 Authorised works, and.
- increase emission limit for nitrous oxides (NOx) for the calciner off-gas stacks (condition 11)

Albemarle wrote to the department on the 23 May 2022 to withdraw the portion of the application relating to the NOx limit increase. Therefore, a change to the NOx limit and associated air emission supporting information was not further consider in this assessment and there was no change to the existing NOx limit specified in condition 11 of the existing works approval.

The scope of amendments requested by Albemarle are discussed in further detail below.

Change of premises address

A subdivision of Lot 253 has occurred, and the premises' legal address has changed from Part Lot 253 on Plan 411027 to Lot 254 on Deposited Plan 416513. There are no changes to the boundary of the premises.

Stormwater tanks - construction and operation

Albemarle has identified an opportunity to capture and reuse stormwater from within bunded areas of the lithium hydroxide monohydrate (LHM) production process areas to reduce freshwater demands within the refinery. Albemarle proposes to construct and integrate a

series of stormwater storage tanks, collecting stormwater from roofs, and within bunds surrounding the process tanks and process areas.

Five common ancillary stormwater tanks will be constructed with two additional tanks constructed for each LHM production train, being 15 stormwater tanks in total with a total storage capacity of approximately 12,400 m^3. Stormwater will be collected and deposited into the tanks either manually via a water cart or reticulated to capture runoff from roofed areas.

Waste transfer station (WTS) - construction and operation.

Albemarle proposes to construct and operate a new WTS located within the existing refinery prescribed premises boundary, to the north of the existing plant infrastructure and the south of the northern access road. The WTS will provide interim storage of specific bulk waste generated from process maintenance activities and other related activities before collection by a suitably licensed contractor for transport to an appropriate facility. Waste stored within the storage area includes filter cloths, calcine bags, waste oil, lubricants, and other hydrocarbons contaminated wastes. The estimated throughput of the WTS will be approximately 270 tpa of solid waste and approximately 15 tpa of liquid waste (waste oil). This gives a total throughput of approximately 285 tpa. The WTS is not expected to meet or exceed the design capacity threshold (500 tpa) for a Category 62 Prescribed Premise (solid waste depot) as listed in the *Environmental Protection Regulations 1987*.

Infrastructure updates – construction

Albemarle has requested changes to the infrastructure to accurately represent the design of the refinery. It did not expect emissions to change. The requested changes within Schedule 2, Table 8 of the existing works approval along with Albemarle's reasoning is summarised in the table below.

Table 1: Proposed changes to existing infrastructure

Infrastructure	Existing approval	Proposed change	Albemarle's reasoning
Acid roast	Mixing system. Natural gas-fired, indirect heated, acid roasting kiln venting roast kiln flue gas to atmosphere via a 33 m stack. Vapour scrubber vented to atmosphere via a stack	Mixing system. Natural gas-fired, indirect heated, acid roasting kiln venting roast kiln flue gas to atmosphere via a 33 m stack. Cooling system	A cooling system will be installed as part of the acid roast system (similar to the calcine cooler, described as a cooling system under Calcining). The previous inclusion of a vapour scrubber and additional stack under Acid Roast was incorrect.
Calcine Crushing	Screen and small mobile crusher. Grated ball mill and calcine cooler with bag filter	Screen, grated ball mill with bag filter	A mobile crusher will not be installed. The calcine cooler is specifically part of calcining and not associated with calcine crushing.
Acid ore storage	Fully enclosed warehouse with a ventilation system	Naturally ventilated roofed warehouse	The warehouse will be naturally ventilated. The warehouse with a ventilated system has been replaced with a naturally ventilated warehouse. Natural ventilation is created by heat generated in stockpiles which forces air out of the warehouse vents.

2.3 Part IV of the EP Act

Albemarle referred the lithium refinery under part IV of the *Environmental Protection Act 1986* and was granted ministerial approval on 26 October 2018 under Ministerial Statement (MS) 1085 (EPA report 1617).

The department's decision report for the granting of a works approval is published and retained on the website at www.dwer.wa.gov.au and provides a discussion on EPA Report 1617 and consideration to the conditions of MS1085.

The key findings in the decision report include that there are requirements on MS1085 relating to:

- Lithium hydroxide product, sodium sulfate and tailings production capacity;
- LHM Plant construction and operational impacts on vegetation beyond the premises boundary;
- LHM Plant construction and operational impacts on groundwater and surface water to prevent impacts on receiving environments including but not limited to the threatened orchid habitat; and
- LHM Plant operation impacts from the generation of waste, including tailings

Conditions 7-2 to 7-6 relate to the preparation and implementation of a Water Management Plan. Its scope is to include management actions including but not limited to potential impacts from acid sulphate soils, stormwater runoff and sedimentation and is required to detail the frequency, timing and locations of groundwater and surface water monitoring for potential contamination. This plan was submitted to Part IV on 6 January 2022.

2.4 Consolidation of Licence

As part of this amendment package, the department has consolidated the licence by incorporating changes made under the Amendment Notices as summarised in Table 2.

Table 2: Licences consolidated in this amendment

Instrument	Issued	Summary of approval
W6154/2018/1	16/11/2018	Licence granted
W6154/2018/1	10/03/2021	Amendment to redefine boundary, infrastructure changes, increase design capacity from 100,000 to 125,000 tpa of lithium hydroxide monohydrate (LHM), and include additional stacks.
W6154/2021/1	DRAFT	Amendment to refine boundary, update infrastructure, install stormwater tanks and waste transfer station

The obligations of the works approval holder have not changed in consolidating the works approval. The department has not undertaken any additional risk assessment of the premises related to previous works approval amendments.

In consolidating the licence, the CEO has:

- updated the format and appearance of the works approval;
- revised works approval condition numbers, removed any redundant conditions, and realigned condition numbers for numerical consistency; and
- corrected clerical mistakes and unintentional errors.

The full consolidation of works approval conditions as they relate to this revised works approval is detailed in Section 6.1.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the

potential source, pathway, and impact on receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor that 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 pathways during premises construction and time-limited operation which have been considered in this amendment report are detailed in Table 4 below. Table 4 also details the proposed control measures the works approval holder has proposed to assist in controlling these emissions, where necessary.

Table 3: Works approval holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction of contaminated stormwater storage tanks and waste transfer station within the refinery	Air/windborne pathway	No controls
Noise			
Operation			
Dust	Operation of waste transfer station	Air/windborne pathway	Shipping container will be stacked on the western and eastern edges to be containment wall (5.8m high by 24.38m long). Fabric dome is attached to shipping containers to forma roof to reduce wind disturbance (25 m span with max height of 12.5m). Solid waste will be stored in 30m^3 receptacles. Class III and Class IV categorised landfill materials and controlled waste will be covered to prevent windblown waste.
Odour			Liquid waste is a sealed tank to minimise odours.
Noise			Shipping container will be stacked on the western and eastern edges to be containment wall.
Spill, leaks of contaminated stormwater,		Overland runoff contaminated soil and	All WTS waste is to be collected by a licensed contractor.

Emission	Sources	Potential pathways	Proposed controls
Construction			
liquid and solid wastes		infiltrating to groundwater	Oil storage tanks will be bunded. Oil tank will be routinely inspected for leaks and overflow. Class III and Class IV landfills materials and Controlled waste will be covered to prevent water ingress. All waste receptacle and tanks placed on concrete hardstand. Installation of a waterproof, tensioned, fabric covered dome attached to the stacked shipping containers on each side which will form the roof. The dome will extend to one gable end only on south elevation reducing stormwater and rainfall. WTS have an internal bunded concrete floor graded to drain to a sump (0.932m diameter, 1.5m height, 1.540 m^3). Installation of a hardstand gravel area that surrounding the WTS. All leachate from the storage of solids will be drained to sump. Sump will be pumped clean, and material transferred to a suitable disposal facility. Oil waste storage will be complaint with AS 1940:2017 The Storage and Handling of Flammable and Combustible Liquids. Solid spills will be cleaned up as soon as possible.
Spill, leaks, overflow of contaminated stormwater	Stormwater Storage tanks	Overland runoff contaminated soil and infiltrating to groundwater	Five common ancillary and two additional tanks for each train with 15 in total (approx. 12,400 m^3 storage in total). Majority of tanks steel construction and lined with polypropylene liner for leak prevention. Distribution tank for each train constructed from HDPE. Fitted with pumps to feed back into process water stream. Positioned within existing bunded areas. Tanks and pumps positioned away from trafficable areas.

3.1.2 Receptors

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

Table 4 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 4: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
Closest residential receptor	1.2 km east of the premises within the boundary of the Kemerton Strategic Industrial Area
Rural residential receptor	37 residential premises between 1.2 and 4.2 km of the premises in all directions.
Environmental receptors	**Distance from prescribed activity**
Geomorphic Wetlands	Multiple use wetland areas mapped within the premises extending north and south of the premises. Hydraulically linked to the superficial groundwater, surrounding wetlands and Wellesley River. Conservation category wetlands 530 m northeast, 1.2 km east, 1.1 km south and 2 km southeast. of the premises boundary Resource enhancement wetland (Kemerton Wetlands) mapped approximately 1 km northeast of the premises boundary. Resource enhancement wetlands mapped approx. 880 m south of the premises boundary (excluding the main access road) Wellesley River located 1.7 km west of the premises
Department of Biodiversity, Conservation and Attractions (DBCA) Managed Lands and Waters	DBCA managed lands are located northwest (approx. 530 m), south (approx. 1.7 km) and west (approx. 1.8 km) of the premises boundary.
Priority Ecological Community (PEC) – '*Low lying Banksia attenuate woodlands or shrublands'*	Two vegetation associations identified as being representative of the PEC and covers an area of 6.37 ha within the premises and extends into areas outside the premises. Almost all the PEC (6.27 ha) was recorded as being in 'Good' or 'Excellent' condition, within the remaining area classed as 'Completely Degraded.' Vegetation associations that form this PEC are also representative of the 'Banksia woodlands of the Swan Coastal Plain' Threatened Ecological Community (TEC) listed as endangered under the EPBC Act. *(Source: EPA Report 1618)*
Underlying groundwater (non-potable purposes) Southwest Coastal Groundwater Area	1. Superficial Unconfined, approx. 20 – 40 m thick and recharged by rainfall. Groundwater flow generally westwards or towards waterways with seasonal variations in the water table of 1 – 2 m due to rainfall. Groundwater within 2m of the surface. 2. Leederville Confined, mainly recharged by downward leakage from superficial. Upward leakage from Yarragadee

	may also occur. Groundwater flow westwards and discharges to the ocean.
Threatened/Priority Flora	No threatened flora listed under the EPBC Act and WC Act were identified within the premises. Desktop searches identified two locations of an orchid (*Drakaea elastic* - Glossy-leafed Hammer Orchid) listed as endangered under the EPBC Act and Threatened under the WC Act, approx. 45 m from the northern premises boundary. Two other orchids listed as threatened under the WC Act are known to occur within the KSIA; *Diuris micrantha* (dwarf bee-orchid) and *Drakea micrantha* (dwarf hammer-orchid) were not considered likely to occur within the premises due to long-term ground disturbance. *(Source: EPA Report 1618)*

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and considers 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 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 5.

The revised works approval W6154/201/8/1 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).

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 refinery 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 5. Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Works approval holder's controls sufficient?	Conditions[2] of works approval/	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Works approval holder's controls**				
Construction								
Construction of waste transfer station within the refinery.	Dust	Air/windborne pathway causing impacts to amenity	37 rural residential premises between 1.2 and 4.2 km of the premises in all directions.	None specified	C = Slight L = Unlikely **Low Risk**	Y	No conditions	Taking into account the scope of new works for a WTS within the context of location/siting of the premises and the construction activities for the broader refinery, the delegated officer does not expect the construction of the WTS to result in changes to the risk profile for fugitive dust or noise during construction. Condition 5 on the existing works approval specifies fugitive dust requirements during construction activities and remains adequate to manage risk. No additional conditions are required related to construction nose.
	Noise			None specified	C = Slight L = Unlikely **Low Risk**	Y	No conditions	
Operation								
Operation of waste transfer station including handling and storage prior to disposal off site	Dust	Air/windborne pathway causing impacts to amenity	37 rural residential premises between 1.2 and 4.2 km of the premises in all directions.	Shipping containers are stacked to make a wall on the eastern and western edges, all solids are stored in 30m^3 receptacles, Class III and IV landfill materials and controlled waste will be covered to prevent windblown waste and WTS is covered by a fabric dome attached to shipping containers reduce wind disturbance. See Table 3	C = Minor L = Unlikely **Medium Risk**	Y	Conditions 1 and 6	The delegated officer considered the distance to receptors (1.2 km), the works approval holders controls including the container walls, covering of waste products, dedicated receptor bins for waste types, and fabric dome covering the waste site, and assessed the risk as medium. The works approval holders' controls were assessed and were considered acceptable to mitigate the risk of wind-blown dust impacting on sensitive receptors. The delegated officer applied the works approval holders' controls and infrastructure requirements and considered that they were critical for maintaining an acceptable level of risk as conditions within the works approval for minimising dust impacts. Works approval holders controls to be conditions are: *Construction* • Walls on the eastern and western edges of the waste transfer station are built to 5.8 m high and 24 m long. *Operation* • All solid waste products must be stored within receptacles. • All class III and IV solid waste products are to be covered when stored. • Eastern and western container walls are maintained to reduce wind blown dust.
	Odour	Air/windborne pathway causing impacts to amenity	37 rural residential premises between 1.2 and 4.2 km of the premises in all directions.	Liquid waste in sealed tank. Refer to Table 3	C = Slight L = Unlikely **Low Risk**	Y	No conditions	The nature of the solid waste products, i.e. filter bags are not inherently odorous and oil waste will be stored within a sealed tank. The delegated officer considered the distance to sensitive receptors the nature of the solid materials and sealed liquid waste tank and considered the risk of odour to be low. The delegated officer did not reasonable foresee that odour from the operation of the waste transfer station will impact on offsite human receptors.

Risk Event					Risk rating[1] C = consequence L = likelihood	Works approval holder's controls sufficient?	Conditions[2] of works approval/	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Works approval holder's controls**				
	Noise	Air/windborne pathway causing impacts to amenity	37 rural residential premises between 1.2 and 4.2 km of the premises in all directions.	Shipping containers will be stacked on the western and eastern edges to be make containment walls. Refer to Table 3	C = Slight L = Unlikely **Low Risk**	Y	No conditions	The delegated officer considered the distance to the receptors (1.2km) the existing noise from the refinery and considered that due to the nature of the operation, noise levels were not reasonably expected to differ significantly from the existing activities at the premises and the general area. The risk of noise affecting human receptors offsite was low. The delegated officer has considered the existing assessed noise levels and that there is sufficient separation in place to sensitive receptors, therefore does not expect the noise to impact on offsite human receptors.
	Spills and leaks of contaminated liquid or solid wastes	Surface water, groundwater, and soil	Direct discharge and infiltration through soils	Refer to Table 3	C= Minor L= Unlikely **Medium Risk**	Y	Conditions 1 and 6	The delegated officer considered the distance to receptors (surface water and groundwater), the works approval holders controls including liquid waste stored within bunded tank, waterproof fabric cover dome over WTS, concrete floors directing all leachate to sump, sump cleaning, and assessed the risk as medium. The works approval holders' controls were assessed and were considered acceptable to mitigate the risk of spills and leak impacting on sensitive receptors. The delegated officer applied the works approval holders' controls and infrastructure requirements and considered that they were critical for maintaining an acceptable level of risk as conditions within the works approval for minimising contamination of the soil/surface and ground water. Works approval holders' controls to be conditions are: *Construction* • Waterproof fabric dome cover is attached to sea containers reducing rainfall within WTS • WTS solid and liquid waste is stored on a concrete hardstand that drains to a sump. • The concrete hardstand has a bund on the external edge to prevent stormwater ingress. *Operation* • Sump is pumped out to prevent overflow of products and taken to a waste disposal facility. • Oil waste is stored within a bunded tank compliant to AS1940. • All receptacles are stored upon the hardstand.
Operation of contaminated stormwater tanks and stormwater from WTS	Spill, leaks of contaminated stormwater, liquid	Surface water, groundwater, and soil	Direct discharge and infiltration through soils	Refer to Table 3	N/A	N/A	Condition 1	As discussed in section 2.3, MS 1085 specifies conditions for the management of potential construction and operational impacts on groundwater and surface water, including the requirement for a Water Management Plan. Requirements under Part IV of the EP Act regulate the potential for surface water and groundwater impacts, including from stormwater, and consequent impacts on receiving environments. The delegated officer found that the proposed controls for the design and construction of the stormwater tanks was reasonable, noting that they are located with the bunded processing area

Risk Event					Risk rating[1] C = consequence L = likelihood	Works approval holder's controls sufficient?	Conditions[2] of works approval/	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works approval holder's controls				
								footprint, double lined in most cases and would contain primarily captured stormwater with a risk of trace contaminants from surface areas. Water is to be recycled back into the process. The infrastructure table will include tank specifications consistent with controls proposed by the works approval holder. The ongoing operation of the tanks to prevent potential impacts to groundwater a and surface water is the subject of conditions in MS 1085.

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

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

4. Consultation

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

Table 6: Consultation

Consultation method	Comments received	Department response
Draft decision provided to works approval holder for comment on 27 May 2022.	Applicant provided comments on the 10 June 2022. See Appendix 1.	See Appendix 1. A final change was also made to Table 3 Item 11 to change the word 'product' to 'spodumene'

5. Decision

The delegated officer has considered the requested amendments and undertaken risk assessment of emissions and changes where necessary. The following summarises the delegated officer's decision.

Change of premises address

The delegated officer considered this to be an administrative change. The premises description on the revised works approval will be updated from Part Lot 253 on Plan 411027 to Lot 254 on Deposited Plan 416513. There are no changes to the boundary of the premises.

Stormwater tanks - construction and operation

The delegated officer found that the proposed controls for the design and construction of the stormwater tanks was reasonable, noting that they are located with the bunded processing area footprint, double lined in most cases and would contain primarily captured stormwater with a risk of trace contaminants from surface areas. Water is to be recycled back into the process. The ongoing operation of the tanks to prevent potential impacts to groundwater and surface water is the subject of conditions in MS 1085 and the works approval will be limited to construction related infrastructure requirements consistent with the works approval holder's controls.

Waste transfer station (WTS) - construction and operation.

Based on the assessment of risk, the delegated officer considered the key risks were associated with fugitive dust and contaminated spills or runoff. The delegated officer accepted the works approval's holders proposed controls as reasonable and adequate to manage risk and will specify design and construction requirements consistent with what the works approval holder proposed. Operational controls will also be specified for time limited operations to ensure appropriate containment is maintain, however it is noted that MS 1085 imposes operational requirements to protect groundwater and surface water impacts, including implementation of a Water Management Plan with monitoring provision.

The risk assessment and determined conditions also considers the small-scale, throughput and capacity of the proposed WTS. It is proposed to be well below the production or design capacity threshold of Category 62 (Solid waste depot) indicating its overall low risk.

Infrastructure updates – construction

The delegated officer agreed to requested amendments to requirements for the design and construction of infrastructure in Schedule 2, Table 8 of the existing works approval. These changes are summarised in Table 1 of this report. The delegated officer agreed these changes did not impact on the previously assessed risk profile of emissions and discharges and no additional changes to conditions are required.

In revising this works approval, the CEO has also:

- Updated the format and appearance of the licence;
- Realigned commissioning conditions under time limited operations to be a specific Environmental Commissioning phase of conditions, consistent with the department's published *Industry Regulation Guide to Licensing*
- Revised works approval conditions and removed redundant conditions and realigned condition numbers for numerical consistency;
- Added standard reporting conditions for consistency and
- Corrected clerical mistakes and unintentional errors.

The full consolidation of the existing works approval conditions as they relate to this revised works approval is detailed in Section Table 7.

6. 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.

6.1 Summary of amendments

Table 7 provides a summary of the proposed amendments and conversation table of the reformatted works approval. This 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 7: Summary of works approval amendments and consolidation of works approval in this amendment.

Existing condition	Condition summary	Revised licence condition	Conversion notes
N/A	Premises address amendment Part of Lot 253 on Plan 411027 Certificate of Title Volume 2945 Folio 681	Lot 254 on Deposited Plan 416513	Revised premises address
N/A	Explanatory notes	N/A	Redundant information. Revised to current licensing format.
Table 1	Definitions	Definitions relocated to end of licence Table 6	Revised to current licensing format.
Condition 1 Table 10 Schedule 3	Infrastructure and equipment table	Condition1, Table 1	Revised to current licensing format. Waste transfer station and infrastructure details updated with proposed amendments.
Condition 2	Specified requirements	Condition 2	No changes
Condition 3	Works report	Condition 3	Updated to new licence format for an environmental compliance report with updated tables.

Existing condition	Condition summary	Revised licence condition	Conversion notes
Condition 4	Departure from requirements	Condition 4	Updated table references, same condition.
Condition 5 Table 2	Fugitive dust – constructions activities	Condition 5 Table 2	No changes
Condition 6 Table 3	Authorised emission table	n/a	Redundant condition. Adequately covered by EP (Unauthorised Discharges) Regulations 2004 and alternative existing conditions. Deleted from licence.
Conditions 7 and 8	Noise emissions requirements	n/a	Redundant conditions. Deleted from works approval.
Condition 9 Table 4	Infrastructure and equipment operations	Condition 7 Table 3	Revised to current licensing format. Waste transfer station and infrastructure operational details updated with proposed amendments.
Condition 10 Table 12 Schedule 5	Discharges to air	Environmental commissioning – authorised discharge point for emissions. Condition 8, Table 8 Schedule 3	Updated table references, same condition.
Condition 11 Table 5	Discharges to air limits	Emission limits Condition 9 Table 4	Updated table and condition number, same condition
Condition 12 Table 13 Schedule 6	Monitoring of discharges to air	Environmental commissioning – monitoring Condition 10, Table 5	Updated table references, same condition
Conditions 13 and 14	Sampling requirements	Conditions 11 and 12	Updated references, same condition
Condition 15	Emission reporting	Conditions 13, 14, 22 and 23.	Updates to new licence format with environmental commissioning and time limited operations as separate reporting functions.
Condition 16	Maintain accurate books	Condition 26	Updated references, same condition
Condition 17	14-day request	n/a	Redundant condition, requirement covered under the under the EP Act, condition deleted.
Condition 18	Non-compliance notification	Condition 27	Updated references, same condition
Condition 19	Complaints management	Condition 26	Updated references, same condition
Schedule 1 map	Premises map	Schedule 1 Figure 1 premises map	Updated references and provided figure numbers.

Existing condition	Condition summary	Revised licence condition	Conversion notes
	Premises boundary Table 7 Premises layout and discharge to air locations	Table 7 premises boundary Figure 2 premises layout and discharge to air locations	
Schedule 2 Works Table 9	Authorised works – processing trains	n/a	Redundant schedule, updated to new licence format. Deleted from works approval. Details have been placed into infrastructure and operations tables.
Schedule 3 Infrastructure and equipment Table 10	Infrastructure and equipment requirements (design and construction) table.	Condition 1 Table 1	Update references, relocated to front of works approval.
Schedule 4 Infrastructure and equipment Table 11	Primary activity infrastructure and equipment	n/a	Redundant schedule and table. Key infrastructure listed within Condition 1 Table 1.
Schedule 5 Authorised points to air Table 12	Authorised discharge points to air	Schedule 3 Table 8	Updated references, no change.
Schedule 6 Monitoring Table 13	Monitoring of discharges to air	Condition 10 Table 5	Updated references, moved monitoring table within works approval.
n/a	n/a	New conditions Environmental commissioning Conditions 6, 7, 13 and 14	Updated to new licence format that includes environmental commissioning for discharge to air, emission limits, monitoring and reporting requirements. All monitoring, air emissions and limits are those previously assessed in the existing works approval, reporting requirements have been separated into environmental compliance (works) and environmental commissioning.
n/a	n/a	New conditions Time limited operations Conditions 15,16, 17,18,19, 20 ,21, 22, and 23.	Updated to new licence format that includes time limited operations for discharge to air, emission limits, monitoring and reporting requirements. All monitoring, air emissions and limits are those previously assessed in the existing works approval.
n/a	n/a	New condition Condition 26	New records requirement for new licence format for maintaining accurate books

Existing condition	Condition summary	Revised licence condition	Conversion notes
n/a	n/a	New figure Schedule 1, Figure 3 Waste transfer station layout.	New figure for proposed waste transfer station.

References

1. Albemarle Lithium Pty Ltd (Albemarle) 2021, *Application for an amendment and supporting documents*, Perth Western Australia.
2. Albemarle 2021, *Waste Management Plan, October 2021*, Perth Western Australia.
3. Preston Consulting, 2022, *Albemarle Kemerton Plant – Water Management Plan, January 2022*, Perth, Western Australia.
4. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
5. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
6. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
7. Environmental Protection Authority (EPA) 2018, *Albemarle Kemerton Plant, Report of the Environmental Protection Authority:1618, Ministerial Statement -1085*, Perth, Western Australia.

Appendix 1: Summary of works approval holder's comments on risk assessment and draft conditions

Condition	Summary of works approval holder's comment	Delegated Officer's response
Works Approval Amendment Comments		
Condition1 Table 1 Item 6 Calciners	Works approval holder recommend rewording the requirements to '*The Calciner* ***consists of*** **(remove '*are fitted with*')** *a natural gas-fired kiln with a dust removal circuit consisting of a bag filter and wet alkaline scrubber venting to atmosphere via a 33 m stack and cooling system'.*	Agreed and updated to state '*the calciner must consist of*….'.
Condition 1 Table 1 Item 11 Stormwater tanks	Works approval holder recommend rewording the requirements to "(a) ***fitted with a leak detection system*** *or positioned within existing bunding and containment system for the processing trains.* The commitment made by the works approval holder was for the option of a leak detection.	Noted the clarification and updated the wording.
Condition 3	Recommend merging item 'b' and 'c'.	Identified error. Corrected.
Condition 7 Table 3 Item 11 Operation requirements spodumene storage and feed preparation.	Reword description of spodumene storage to "*spodumene must be located in covered storage areas as designed*".	Agreed.
Condition 7 Table 3 Item 16 Operation requirements Reverse osmosis (RO) water system	Reword description to - *"Raw water for the RO System is to be stored in raw water tanks. Wastewater from the RO plant is to be discharged to brine"*	Agreed
Condition 10 Table 5 Monitoring and discharges to air.	Works approval holders notes that stack testing takes 15 business days. To comply with two tests in 3 months may result in the plant not operating consistently. The works approval holder wishes to undertake two stack sampling tests in four months.	Agreed
Conditions 13, 14 and 15	Works Approval holder requested that Condition 14 is revised to ensure	Albemarle has up to 180 calendar days (i.e approx. 6 months) in aggregate for the environmental commissioning period. At

Condition	Summary of works approval holder's comment	Delegated Officer's response
Environmental commissioning report	that TLO can occur within the 30 days when the environmental commissioning ends and the environmental commissioning report is. Requesting that '*the Environmental Commissioning period as defined by this Works Approval will cease upon the submission of the Environmental Commissioning Report to DWER.'*	any time within this period, it may submit an Environmental Commissioning Report that meets the reporting requirements in order to transition to Time Limited Operations. If at the end of the 180 calendars days Albemarle is yet to lodge its Environmental Commissioning Report, it is unable to transition to Time Limited Operations until it has lodged its Environmental Commissioning Report. The transitional conditions are standard. In further discussion with Albemarle (phone call between Chris Malley and Clive Thompson), the Delegated Officer agreed that an alteration to monitoring requirements in Table 5 would provide greater clarity. The specified frequency was separated into Environmental Commissioning and Time Limited Operations phases. It was also clarified that the duration applies to each train separately. Finally, the wording "in aggregate" provides flexibility if commissioning is not seamless. If commissioning activities are ad-hoc or circumstances arise the result in period of source/emission inactivity, then the department does expect this to be included in the 180 calendar days of allowed commissioning for each train.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY			
Application type			
Amendment to works approval	☒	Current works approval number:	W6154/2018/1
Date application received		23 December 2021	
Applicant and Premises details			
Applicant name/s (full legal name/s)		Albemarle Lithium Pty Ltd	
Premises name		Albemarle Kemerton Plant	
Premises location		Part of Lot 253 on Plan 411027	
Local Government Authority		Shire of Harvey	
Application documents			
HPCM file reference number:		DER2018/000968-1	
Key application documents (additional to application form):		*Kemerton Lithium Hydroxide Plant – Air Quality Assessment August 2020*	
Scope of application/assessment			
Summary of proposed activities or changes to existing operations.		*Works approval -amendment* Construction of lithium hydroxide refinery. Albemarle is seeking the following amendments: • An update to the legal address of the prescribed premises from Lot 253 on Plan 411027 to Lot 254 on Deposited Plan 416513. • New construction and time limited operation of multiple (15) storage tanks for capture and reuse of potentially contaminated stormwater to maintain the water balance of the refinery (update Condition 1, Table 10 Schedule 3 and Condition 9 (operational infrastructure and equipment)) • New construction and time limited operations of a waste transfer station (update Condition 1, Table 10 Schedule 3, Condition 9 (operational infrastructure and equipment). • Update of the infrastructure descriptions for acid roast, calcine crushing and acidifies ore storage listed in Schedule 2, Table 8 that reflect the design of the lithium refinery. This includes corrections of descriptions and update of infrastructure from submitted compliance reports 1 – 5, which are not expected to increase emissions or change the risk assessment of the current licence. • Increase in emission limit for nitrous oxide (NOx) for the calciner off gas stacks (1-1, 1-2, 1-3, 1-4 and 1-5) Condition 11 Table 5 from 350 mg/m^3 to 500 mg/m^3 to reflect Clean Air Regulations (Schedule 3).	

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 31 Chemical manufacturing	100,000 tonnes per year (lithium hydroxide monohydrate) 200,000 tonnes per year (sodium sulfate)	No changes to production
Category 44; metal smelting or refining	1,000,000 tonnes per year (spodumene ore concentrate)	
Category 67: Fuel burning	4,800 kg/hr	
Category 73: bulk storage of chemicals etc.	4,080 m^3 (sulfuric caid) 3,150 m^3 (sodium hydroxide)	

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes ☒ No ☐	Referral decision No: MS1085 Managed under Part V ☒ Assessed under Part IV ☒ Assessment Number 2153
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☐ No ☐	Ministerial statement No: MS1085 EPA Report No: 1618
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Certificate of title ☒
Has the applicant obtained all relevant planning approvals?	Yes ☒ No ☐ N/A ☐	Approval: As per original assessment
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☐ No ☒	No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☐ No ☒	Licence / permit not required.
Does the proposal involve a discharge of waste into a designated area (as defined	Yes ☐ No ☒	

in section 57 of the EP Act)?		
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	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 ☐	Have a Dangerous Goods Licence – no details provided
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ☐ No ☒	
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☒ No ☐	Classification: Acid Sulfate SoilDate of classification: N/A