



Application for Licence Amendment

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

Licence Number	L5245/1967/14
Licence Holder	Alcoa of Australia Limited
ACN	004 879 298
File Number	2010/007402-3
Premises	Kwinana Alumina Refinery Hogg Road NAVAL BASE WA 6167
Date of Report	22 December 2025
Decision	Revised licence granted

Table of Contents

1. Decision summary	1
2. Scope of assessment	1
2.1 Regulatory framework	1
2.2 Background	1
2.3 Application summary	1
2.3.1 Overview of proposed changes	1
2.3.2 Dam Safety Impact Assessment	3
3. Noise Assessment	4
3.1 Technical review	5
4. Risk assessment	5
4.1 Source-pathways and receptors	6
4.1.1 Emissions and controls	6
4.1.2 Receptors	8
4.2 Risk ratings	9
5. Consultation	12
6. Decision	12
7. Conclusion	12
7.1 Summary of amendments	12
References	14
Appendix 1: Summary of licence holder’s comments on risk assessment and draft conditions	15

1. Decision summary

Licence L5245/1967/14 is held by Alcoa of Australia Limited (Alcoa; Licence Holder) for the Kwinana Alumina Refinery (the Premises), located at Naval Base, WA 6167.

This Amendment Report documents the assessment of potential risks to the environment and public health from the proposal to install, commission and operate 6 land-based evaporators and 6 diesel storage tanks on residue storage area (RSA) RSA F7 at the premises. As a result of this assessment, revised licence L5245/1967/14 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the Premises. The Revised Licence has been granted with existing conditions being transferred, but not reassessed.

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 Background

Alcoa notified the department on 9 January 2024 of their plan to curtail production at the Kwinana Alumina Refinery beginning in the second quarter of 2024. The curtailment was expected to result in a surplus water inventory and Alcoa has been investigating options to manage this throughout the curtailment period

An amendment to L5245/1967/14 was granted on 29 April 2024 to authorise the installation and operation of 15 evaporators on the ROWS pond and six land-based evaporators on RSA K as a short-term solution to manage water storage capacity while Alcoa investigated other longer-term water management options for the premises.

Another amendment to L5245/1967/14 was granted on 25 June 2024 to change the operational requirements of these ROWS pond and RSA K evaporators. This change was to allow spray drift to be contained within the RSA management areas.

A further amendment to L5245/1967/14 was granted on 22 August 2025 to authorise the installation and operation of an additional 16 land-based evaporators in RSA J, RSA F6 and RSA H South.

2.3 Application summary

2.3.1 Overview of proposed changes

On 5 September 2025, Alcoa submitted an application to the department to amend Licence L5245/1967/14 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- install and operate 6 additional land-based evaporators and associated diesel generators and diesel storage tanks totalling to 45,000L in RSA F7;
- increase the assessed design capacity for category 52: Electric power generation from 76.5 MW to 78.5 MW to account for diesel generators which will supply power to the evaporators;
- install a liner over part of RSA F7;

- allow the F7 Decant Pipeline to be constructed along existing or approved routes outside of RSA Management Areas; and
- extend the licence expiry date by four years to 02/09/2030.

The Kwinana Refinery is currently in a Transitional Operating Phase (TOP), which is a partially curtailed state. During this time, it is not processing inputs (bauxite and process chemicals) or producing alumina or residue outputs, but port activities (raw material import and export) are still running, and RSAs and the process water circuit are still being managed.

During normal operation, the refinery uses a closed water system, topped up with stormwater, municipal water, and extracted contaminated groundwater. Ongoing operation of the groundwater bores on the premises is required by the *Contaminated Sites Act 2003* and the *Kwinana Groundwater Monitoring and Management Plan* enforced by Condition W1 of L5245/1967/14.

While in TOP, surplus extracted groundwater and stormwater run-off is evaporated through the refinery operations. For the refinery to transition to a non-operational state, additional land-based evaporators are required to adequately manage water volumes without the need for the refinery to operate.

The six evaporators are proposed to be installed on the south-eastern perimeter of RSA F7 and will be positioned to spray over the RSA surface. A map is provided in Attachment 8 of the licence showing the location of RSA F7. The evaporator water supply will initially be from the ROWS pond and later from the Cooling Pond when water quality is improved, and will preferentially be supplied via the existing steel and high density polyethylene (HDPE) pipe network associated with the RSA dust suppression sprinkler system.

The ROWS pond holds surface water runoff from the RSA and water from groundwater recovery bores. The water is characteristically alkaline and saline. The licence holder currently utilises water from the ROWS pond for dust suppression in the RSA sprinkler network, and to direct water to the cooling pond to stabilise water levels to support the TOP.

The licence holder has stated that the feed flow rate of each evaporator is approximately 135 kL/h, totaling to 810 kL/h for all six evaporators on RSA F7. Existing evaporators located in RSA K have an indicative flow rate of 5 L/s (18 kL/h) each. The application indicates that the total output of all land-based evaporators if operated simultaneously is expected to be up to 3,000 kL/hr, dependent on weather conditions.

Evaporators will spray a fine mist of liquor over the RSA surface. A portion of the spray will evaporate to atmosphere and the remainder will fall to the RSA surface where it will either infiltrate into the residue, evaporate, or runoff to lower elevation within the RSA and accumulate as surface liquor (KCB 2025). Accumulated surface liquor will drain into existing decant inlet structures on the RSAs from where it can be removed (i.e. pumped back to the water circuit). Additional pumps and pipelines may be installed within the RSA as required for return of accumulated liquor.

Additional diesel storage tanks are required for supply of diesel generators which provide power for operation of the additional evaporators. A geotextile liner is proposed to be installed over part of RSA F7 to capture fallout from the evaporators and limit infiltration into the surface. Alcoa has also stated that the diesel storage tanks will be self-bunded and located in a lined area within the RSA. Alcoa has also requested authorisation for the F7 Decant Pipeline to be constructed on existing or approved routes outside of RSA Management Areas, which is currently only prescribed to the F6 Decant Pipeline.

This amendment is limited only to changes to Category 52 activities from the Existing Licence. No changes to the aspects of the existing Licence relating to Category 5, 46, 58, 64 and 67 have been requested by the Licence Holder.

Table 1 below outlines the proposed changes to the existing Licence.

Table 1: Proposed design capacity changes

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
52	76.5 MW in aggregate	78.5 MW in aggregate	The addition of 6 land-based evaporators will increase electric power generation capacity to operate the evaporators.

Finally, the extension of licence expiry date is to allow for limited operations whilst the site undergoes curtailment, and normal operations are not expected to restart in the near future.

2.3.2 Dam Safety Impact Assessment

Saturation of RSA F7 is expected to increase when evaporators are installed due to infiltration of water that is not evaporated. Alcoa has proposed to create a basin on RSA F7 to collect precipitation from the evaporators. A dam safety assessment was conducted by the appointed Engineer of Record for the Kwinana RSAs, Klohn Crippen Berger, to determine whether operation of the evaporators may cause a change in the risk associated with dam safety on RSA F7. The assessment was based on the conservative assumptions of no evaporation (i.e. all liquid lands on the RSA surface), and the RSA surface being already fully saturated. Alcoa states that 31% of water from the evaporators is expected to evaporate and the remaining 69% is expected to fall to the RSA surface.

The assessment found that each RSA has a decant capacity more than the maximum flow rate from the evaporators thus operational capacities do not change the risk. The licence holder has stated that RSA F7 has a decant capacity of 833 kL/hour, and the maximum evaporator output is expected to be 810 kL/hour.

The assessment also found that the evaporators have the potential to impact embankment stability due to runoff that infiltrates the RSAs, potentially increasing saturation and pore pressures. While the stability models already assume a saturated RSA surface, the extent of saturation in the sand embankments could rise. This risk can be managed by monitoring saturation levels using instruments such as vibrating wire piezometers (VWPs) and saturation probes.

The assessment concluded that the evaporators are not expected to increase the risk to the embankment stability of any RSA if the following recommendations are adopted:

- daily inspection of RSAs;
- decant management and prompt removal of water from the RSA surface to minimise periods of ponding;
- installation of additional VWPs and saturation probes;
- monitoring via VWPs and saturation probes as per the current practice of readings at 30-minute intervals; and
- implementation of the WVP Trigger Action Response Plan (TARP) which includes adjustment or cessation of evaporator operation if they are found to contribute to a rise in the piezometric level above pre-defined WVP trigger levels.

It is already a requirement for daily inspections of the RSAs as part of the licence to manage risk of spray drift. The existing licence (L5245/1967/14) does not specify conditions related to the design stability of the residue storage area, however Alcoa have confirmed RSA monitoring has been installed.

3. Noise Assessment

Alcoa submitted the Minetek Evaporators Noise Assessment (2025) prepared by Wood as part of their amendment application. The assessment modelled noise emissions from the existing and proposed evaporators as well as associated supporting infrastructure such as pumps and generators. The proposed evaporators were modelled with noise attenuation (aside from RSA K) with a sound power level of 96 dB(A).

Noise levels were modelled across multiple operational scenarios, defined based on wind direction. Depending on the wind direction, evaporators at each RSA are classed as operating, partially operating (interpreted as half operating), or not operating. Wind directions between 0°–22.5° and 292.5°–337.5° were excluded from modelling as evaporators do not operate under these conditions.

Predicted noise levels were assessed against the assigned levels set out in the Environmental Protection (Noise) Regulations 1997 (Noise Regulations), which specify allowable noise levels for different times of day and receptor types. Assigned levels are adjusted to include influencing factors and traffic factors. The location of the sensitive receptors used in the noise assessment along with their adjusted assigned levels during daytime, evening and night-time are displayed in Table 2. All receptors are residential premises except for receptor R2, which is industrial though assigned levels for commercial premises were applied to be conservative as an office building is situated on the premises.

Receptors R10 and R11 are near R9 have been added in this noise assessment as evaporators were considered for the Cooling Pond (shown in Attachment 8 of the licence), though this did not go ahead. The receptors R9, R10 and R11 all have similar noise measurements and are all indicative of predicted noise in the nearby Orelia township.

Table 2: Sensitive receptor locations and adjusted assigned levels

Receptor	Daytime (dB)	Evening (dB)	Night-time (dB)
R2 – 18 Ashley Road (commercial)	60	60	60
R4 – 311 Mandogalup Road	54	49	44
R5 – 33 Norkett Road	45	40	35
R6 – 5 Norkett Road	47	42	37
R7 – 34 Clementi Road	48	43	38
R8 – 205 Abercrombie Road	55	50	45
R9 – 29 Nye Way	51	46	41
R10 – 29 Belvoir Crescent	51	46	41
R11 – 90 Bingfield Road East	51	46	41

The assessment considered predicted noise levels both with and without the application of a tonality correction. A source data measurement was conducted at sensitive receptor R5 in March 2025 and found no perceptible tonality, likely due to high ambient traffic noise from the Kwinana Freeway. However, the assessment noted that tonality can only be confirmed during commissioning of the evaporators. A noise verification study to both determine noise compliance and tonality has been imposed into the licence as part of the August 2025 amendment and has yet to be completed by Alcoa.

Table 3 contains predicted exceedances of assigned levels (highlighted in orange) which were modelled for the following scenarios:

- Scenario A: Night-time at receptors R5 and R7 under non-tonal conditions.
- Scenario B: Daytime and evening at receptor R5 under tonal conditions.
- Scenario C: Night-time at six receptors (R5, R7, R8, R9, R10, R11) under tonal conditions.

Table 3: Predicted cumulative noise levels with tonality correction

Receptor	Predicted cumulative noise level (dB) for varying wind direction (°)											
	Calm	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270
Scenario A (All evaporators operating at night-time, non-tonal conditions)												
R5	41	36	36	41	41	41	40	36	33	31	24	24
R7	41	40	40	41	42	42	40	40	36	33	25	25
Scenario B (All evaporators operating, tonal conditions)												
R5 (daytime)	45	45	45	47	47	47	45	44	43	43	43	43
R5 (evening)	40	40	41	45	45	44	41	36	33	33	29	29
Scenario C (All evaporators operating at night-time, tonal conditions)												
R5	46	41	41	46	46	46	45	41	38	36	29	29
R7	46	45	45	46	47	47	45	45	41	38	30	30
R8	49	38	38	42	43	47	49	49	49	49	40	40
R9	44	39	39	43	43	43	43	43	43	43	40	39
R10	44	39	39	44	44	44	44	44	44	44	40	39
R11	44	39	39	42	44	44	44	44	44	44	40	40

3.1 Technical review

The department undertook a technical review of the noise assessment methodology and found the modelled noise levels and conclusions to be reasonable and reliable. The review confirmed that the modelling approach was appropriate and that the predicted levels were consistent with expectations under the Noise Regulations.

The department's review agreed with the recommendations to switch off RSA K and RSA F7 evaporators at night if the noise is non-tonal until compliance can be demonstrated and to conduct further noise monitoring and implement further noise control measures if the noise is found to be tonal.

4. Risk assessment

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

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

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

4.1 Source-pathways and receptors

4.1.1 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 4 below. Table 4 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 4: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Installation of 6 x evaporators operating on RSA F7	Air/windborne pathway	<ul style="list-style-type: none"> • Speed limits are in place to minimise dust generations from vehicle movement. • Dust will be managed in accordance with Alcoa's existing dust suppression methods.
Noise			<ul style="list-style-type: none"> • Operate heavy vehicles, light vehicles, equipment and machinery in accordance with manufacturer's guidance to minimise noise emissions. • Speed limits are in place onsite to reduce engine noise emissions.
Operation (including commissioning)			
Noise	6 x evaporators operating on RSA F7	Air/windborne pathway	<ul style="list-style-type: none"> • Evaporators pre-fitted with noise attenuation to achieve a sound power level of 96 dB(A). • Evaporators equipped with automated controller or can be manually isolated. • Evaporators to be managed by setting operating parameters to ensure compliance with assigned levels. • Complaints investigation and response system. • Additional noise assessment will be undertaken during commissioning to verify whether tonality is present and inform required noise control criteria based on wind speed, direction and time.
Spray drift of water containing contaminants			Air and wind dispersion

Emission	Sources	Potential pathways	Proposed controls
including metals			<ul style="list-style-type: none"> • Evaporators installed to point over RSA surfaces and away from edges of the RSA Management Area. • The evaporators will be managed through a control system linked to an onsite weather monitoring station. The control system will allow for automated control of the evaporators depending on climatic conditions, including wind speed, wind direction and humidity. A 60-day commissioning period will be undertaken during which time meteorological control criteria will be defined. • The control system will ensure that spray drift from the evaporators is managed to fall onto the RSA surface. • Any water from the RSAs that is not evaporated will be captured by the existing decant or underdrainage controls, and transferred to onsite water storage dams. • Routine visual monitoring will occur of spray drift extent in line with existing evaporator monitoring requirements, 6-hourly during daylight hours during the first 60-days of operation and every 24-hours after that.
Leaks/spills of hydrocarbons	Diesel storage tanks and operation of generators	Direct discharge to ground	<ul style="list-style-type: none"> • Tanks and generators placed within clay or composite lined areas of RSAs, which have underdrainage systems. • Tanks and generators are self-bunded and compliant with AS1940. • Visual inspection of fuel lines and tanks during refueling. • Cumulative storage capacity of 120,000 L, individual tank sizes up to 10,500 L.
Leaks/spills of water containing contaminants including metals	Pipelines between evaporators and source pond and staging tanks	Direct discharge to ground	<ul style="list-style-type: none"> • Staging tanks placed within clay or composite lined areas of RSAs, which have underdrainage systems. • Valves in staging tanks to prevent overflows. • Existing dust suppression pipeline network to be used. • If new pipelines required will duplicate route of existing pipe network (no vegetation) and will be pressure tested prior to use.

4.1.2 Receptors

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

Table 5 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 2020)).

Table 5: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Nearest residential premises 1. Norkett Road (R5, R6) 2. Abercrombie Road (R8) 3. Mandogalup Road (R4) 4. Clementi Road (R7)	1. 150 m north-east of premises boundary 500 m east of RSA F7 2. 100 m west of premises boundary 2.4 km south-west of RSA F7 3. 250 m north of premises boundary 1.5 km north of RSA F7 4. 400 m east of premises boundary 700 m south-east of RSA F7
Nearest township: Orelia (below Thomas Road)	1.7 km south of premises boundary 1.8 km south of existing ROWS pond 2.8 km south of RSA F7
Environmental receptors	Distance from prescribed activity
Wetlands 1. Spectacles Swamp (Important wetlands, nationally significant wetlands identified in A directory of important wetlands in Australia (DIWA)) 2. Mandogalup Swamp South (multiple use category wetland) 3. Long Swamp (conservation category wetland)	1. 500 m south-east of premises boundary 1 km south of RSA F7 2. 150 m east of premises boundary 1 km east of RSA F7 3. 400 m north-west of premises boundary 1.2 km north-west of RSA F7
P3 Threatened Ecological Communities (TECs)/ Green Growth TEC Commitments (endangered)/ Bush Forever	Vegetation surrounding the eastern extent of the RSA management area is classified as P3 TEC/Bush Forever/Green Growth and is approximately 300 m south-east from the RSA surface where evaporators will be established.

4.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 4.1. Where linkages are incomplete they have not been considered further in the risk assessment.

Where the licence holder has proposed mitigation measures/controls (as detailed in Section 4.1), these have been considered when determining the final risk rating. Where the delegated officer considers the licence holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the licence holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 6.

The Revised Licence L5245/1967/14 that accompanies this Amendment Report authorises emissions associated with the operation of the premises i.e. operation of the additional land-based evaporators on RSA F7, RSA J, RSA F6 and RSA H South, and additional diesel storage tanks.

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

Table 6: Risk assessment of potential emissions and discharges from the Premises during construction, commissioning and operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls/ DWER comments
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence holder's controls				
Construction								
Installation and connection of 6 x evaporators, diesel generators and storage tanks, and supporting infrastructure (cabling, transformer, motor control centre, pumps, tanks and pipelines)	Dust	Air/windborne pathway causing impacts to health and amenity	Residences 500m east and 700m south-east of RSA F7	Refer to Section 4.1	C = Minor L = Rare Low Risk	Y	Existing condition A9	The delegated officer does not expect noise and dust emissions associated with the installation of the evaporators and associated infrastructure to impact on sensitive receptors, taking into consideration the application's proposed noise and dust controls for equipment and the distance to the nearest residential receptors. The licence includes existing dust monitoring requirements (A9) in proximity to the RSAs where the works will occur and requirements of the provisions of the Environmental Protection (Noise) Regulations 1997 (Noise Regulations) are also applicable.
	Noise							
Commissioning and operation								
Operation of evaporators including 6 new evaporators at RSA F7.	Process water containing contaminants including metals (via spray drift)	Air and wind dispersion to nearby native vegetation causing decline in vegetation health	TEC, Bush forever and green growth 300m south-east from RSA F7	Refer to Section 4.1	C = Minor L = Rare Low Risk	Y	Condition W15 – W19 Condition W24 – W26	Due to the proximity of TEC/Bushforever/Green growth vegetation in proximity to the RSA where the evaporators will be located, the delegated officer considers it necessary to impose the licence holder's proposed controls to install the evaporators to face the evaporators towards the RSA surface, with automated controls linked to a meteorological monitoring unit as these are critical to mitigating the risk of vegetation impact as a result of spray drift. The delegated officer noted that the operational conditions applicable to the existing evaporators which require operation of the evaporators in a manner that doesn't result in spray drift outside the RSA management area, combined with targeted inspections for spray drift, adequately address the risk and expanded these to apply to the new evaporators.
	Process water containing contaminants including	Direct discharge to ground resulting in land	Soil on the premises	Refer to Section 4.1	C = Slight L = Possible Low Risk	Y	Condition W15	The delegated officer considered the licence holder's proposed controls to confine any new transfer pipelines required to existing or approved routes, with pressure testing prior to use and to locate staging tanks/pumps (with overflow protection) within clay or composite lined areas of the RSA sufficiently

Risk Event					Risk rating ¹	Licence holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls/ DWER comments
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence holder's controls	C = consequence L = likelihood			
	metals (via leaks/spills)	contamination						mitigate the risk of land contamination and has imposed no additional controls.
	Noise	Air/windborne pathway causing impacts to health and amenity	Residences 500m east and 700m south-east of RSA F7	Refer to Section 4.1	C = Moderate L = Possible Medium Risk	N	Condition W15 – W23	<p>Under non-tonal conditions, night-time exceedances are predicted at some receptors. The delegated officer has therefore imposed the requirement that the proposed evaporators on RSA F7 must only operate during the daytime hours (as set out in the Noise Regulations) to mitigate the risk of non-compliance with the Noise Regulations. This is in tandem with the shutdown at night of RSA K evaporators which was imposed in the August 2025 licence amendment.</p> <p>A noise verification study has been imposed into the licence from the August 2025 licence amendment, which will determine whether the noise emissions will be perceptible as tonal.</p> <p>As tonality can only be verified after commencement of operation, and previous monitoring undertaken has indicated the noise to be non-tonal, the delegated officer determined it appropriate to allow operation of the evaporators. The licence holder must comply with the Noise Regulations therefore if the verification study finds noise to be tonal and assigned levels are not met, they are required to prepare and provide the department a plan to ensure premises operations do not exceed assigned levels.</p> <p>Following consultation with the licence holder, the night time shut down has been implemented until such time as the noise verification study, and a plan for any associated noise attenuation measures (if required), have been submitted to the department.</p>
Operation of diesel generators and associated diesel storage	Hydrocarbons (via leaks/spills)	Direct discharge to ground resulting in land contamination	Soil on the premises	Refer to Section 4.1	C = Minor L = Rare Low Risk	Y	Condition W15	<p>The licence holder has specified that the diesel storage tanks and generators will be self-bunded and will be installed within a lined area of the RSA. The delegated officer considers this to be suitable containment and has imposed no additional controls.</p> <p>The general provisions of the <i>Environmental Protection Act 1986</i> and Environmental Protection (Unauthorised Discharges) Regulations 2004 apply during operations.</p>

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

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

5. Consultation

Alcoa were provided a copy of the draft documents on 19 December 2025, and responded on 22 December 2025 with comments summarised in Appendix 1.

6. Decision

The delegated officer has determined that the proposal to install, commission and operate 6 additional land-based evaporators and associated infrastructure including diesel storage and power generation on RSA F7 at the Kwinana Alumina Refinery does not pose an unacceptable risk of impacts to vegetation on site, or off-site receptors. The delegated officer considered the proposed controls from the licence holder and determined the installation of a geotextile liner over part of RSA F7 will be imposed on the amended licence.

Existing operational conditions requiring operation of the automated control units, containment of spray drift to the RSA Management area and visual inspections were expanded to apply to the new evaporators. Existing noise verification, compliance and commissioning reporting requirements have been retained on the licence as they apply to the new infrastructure.

In addition to the licence holder's proposed controls, the delegated officer has determined to impose conditions on the licence which require the evaporators on RSA F7 to be operated during daytime hours only.

The delegated officer notes that as the proposed installation and operation of the evaporators are incorporated as a licence amendment on licence L5245/1967/14, and the delegated officer may determine to remove conditions in future licence amendments once they are obsolete (including once the Environmental Compliance Report, commissioning report and noise verification study have been submitted) or impose additional controls if there are deemed to be any changes to the assessed risk profile of the evaporators.

The delegated officer has also determined that extending the duration of the licence by four years is appropriate on the basis that the premises is undergoing curtailment and shutting down operations. The risks posed by emissions and discharges from the operation of the premises are unrelated to the extension of the licence expiry date, and the licence includes conditions commensurate with the assessed risk and determined controls.

The delegated officer has therefore amended licence L5245/1967/14 in accordance with section 59(1) of the EP Act by authorising installation and operation of 6 additional land-based evaporators and associated infrastructure such as diesel storage tanks, liners and pipelines, with appropriate installation, operation and verification requirements, and by extending the duration of the licence.

7. Conclusion

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

7.1 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 Licence as part of the amendment process.

Table 7: Summary of licence amendments

Condition no.	Proposed amendments
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Licence duration	Expiry date extended by four years to 02/09/2030.
W15	Updated to include installation requirements for the proposed evaporators, diesel storage tanks, liner over RSA F7 and the F7 Decant Pipeline.
W18	Updated to include operational requirements for the six proposed RSA F7 evaporators.
W20	Updated to include the proposed evaporators.
W25	Updated to include the proposed evaporators.
Attachment 8	Updated to show Cooling Pond alongside RSA Management Area.
Attachment 9	Updated to show location of new and existing pipeline routes.

References

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

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

Condition	Summary of licence holder's comment	Department's response
Condition W15, Table 16	Confirmation of the minimum liner area, and request to update liner description to synthetic liner.	Noted and accepted.
Condition W18, Table 17	<p>Once installed, the RSA F7 evaporators will form 27% of Alcoa's installed evaporative capacity used to manage onsite water balance following curtailment. The draft condition requiring RSA F7 to be switched off overnight, on Sundays and on public holidays will significantly reduce the total available run time and therefore capacity to evaporate water.</p> <p>Alcoa considers that the condition is overly prescriptive, as under some wind directions the noise modelling indicated that turning off each RSA F7 evaporator is not required to comply with the Noise Regulations. Additionally, in practice there are a number of combinations of evaporators that could be turned off to achieve compliance with the Noise Regulations and the conditions as worded do not allow for this flexibility.</p> <p>Alcoa have requested either removal of the time restriction on RSA F7, or requested the restriction only remain in place until the noise verification study as required by condition W20 demonstrates that night time closure is not required to achieve compliance with the Noise Regulations.</p>	<p>The Delegated Officer notes that while there are some operating conditions and wind directions within the noise modelling where night time assigned levels are predicted to be met, there is too much uncertainty regarding potential noise impacts and tonality from both RSA K and RSA F7 to allow unrestricted night time operations. The Delegated Officer considers that restriction on night time operation is required initially in order to minimise potential impacts to sensitive receptors until the noise verification study as required by condition W20 can more accurately verify the potential impacts, determine if the noise is tonal, and attenuation measures can be applied as per Condition W23 if required.</p> <p>The Delegated Officer acknowledges the importance of evaporation capacity on the premises water balance, and notes the current wording provides no flexibility to operate the evaporators at night in the event the noise verification demonstrates the Noise Regulations can be met, without an additional licence amendment. Therefore, the Delegated Officer has accepted updates to the licence condition limiting night time operations until noise verification occurs.</p> <p>The Delegated Officer considers the wording proposed by Alcoa may not be sufficiently certain or final in accordance with DWER's Guidance Statement Setting Conditions. The condition has instead been updated to require shut down at night until the reports required by conditions W20-W23 have been submitted to the CEO, as submission of a report can be adequately dated and confirmed.</p>

Condition	Summary of licence holder's comment	Department's response
		<p>Following submission of the report(s) as required, the Department may review the premises control measures and make further amendments if necessary. The Department may also initiate an amendment at any time on the basis of any complaints or any other information received regarding the premises.</p>