Amendment Report

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 As defined in Attachment 1 to the licence.
Date of Report	22 August 2025
Decision	Revised licence granted

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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 16 land-based evaporators and 16 diesel storage tanks on residue storage areas (RSA) RSA J, RSA F6 and RSA H South 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 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 DWER Regulatory documents | Western Australian Government.

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.

2.3 Application summary

On 2 May 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). Alcoa is seeking an amendment to:

- install and operate 16 additional land-based evaporators and associated diesel generators and diesel storage totally 127,500 L in RSA J, RSA F6 and RSA H South;
- increase the assessed design capacity for category 52: Electric power generation from 66 MW to 76.5 MW to account for diesel generators which will supply power to the evaporators.
- revise the premises boundary to reflect Alcoa's landholdings.

2.3.1 Overview of proposed changes

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 evaporators are proposed to be installed on the perimeters of three RSAs and will be positioned to spray over the residue surface. RSA J and RSA H will each have five evaporators installed, and RSA F6 will have six evaporators installed. A map is provided in Attachment 8 of the licence showing the location of these areas. 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 polyethene (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 2,160 kL/h when all 16 proposed evaporators are operating. 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. Alcoa has proposed to install 16 new 7,500 L diesel storage tanks and replace the tank which services the existing evaporators to increase its capacity from 4,500 L to 7,500 L. A larger tank is required so that refuelling schedules can align. Alcoa has stated that the diesel storage tanks will be self-bunded and located in a lined area within the RSA as some RSAs have clay instead of composite liners.

A change to category 52 design capacity has been requested by the licence holder due to additional power requirements for the evaporators. Table 1 below outlines the proposed changes.

Table 1: Proposed design capacity changes

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
52	66 MW in aggregate	76.5 MW in aggregate	The 16 land-based evaporators will be powered by diesel generators requiring an increase to the premises assessed electric power generation capacity.

2.3.2 RSA Embankment Stability Assessment

Saturation levels of the RSAs are expected to increase when evaporators are installed due to infiltration of water that is not evaporated. A stability 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 each RSA. 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 each RSA has a decant capacity of 833 kL/hour, and the maximum output at any RSA is expected to be 810 kL/hour with six evaporators in RSA F6.

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 VWP 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 VWP 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 the delegated officer notes that in the application the licence holder stated the above recommendations will be implemented and the established VWP network will be expanded by installation of additional VWPs and saturation probes within the 2025 program of works. This installation is expected to be completed by 12 September 2025, with monitoring being captured from 15 September 2025.

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 with a sound power level of 96 dB(A) and the existing evaporators on RSA K with no noise attenuation were modelled with a sound power level of 114 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.

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 – 1 Varris Way	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.

Exceedances of assigned levels were modelled for the following scenarios:

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

Table 3 presents all receptors with instances of predicted exceedances of assigned levels (highlighted in orange) according to each scenario. Receptors not presented in the table are predicted to comply with relevant assigned noise levels for all wind directions.

The noise assessment found that under tonal conditions, assigned levels at all receptors can be complied with when the evaporators on RSA K are switched off at night. Cumulative noise levels at receptor R5 when RSA K evaporators are switched off are presented in Table 3 under ‘Scenario D’. Only wind directions with predicted exceedances under non-tonal conditions were modelled for Scenario D.

For tonal conditions, the noise assessment recommended ongoing compliance monitoring to detect tonal components once the evaporators are operational. If tonality is confirmed, further shutdown scenarios would need to be implemented to ensure compliance with the assigned levels. The noise assessment identified multiple permutations for evaporator

operation/switching off that could be implemented to meet the Noise Regulations. Alcoa also noted in the application that generators are a significant contributor to noise however may not be used for all evaporators, generators with non-tonal noise signatures may be available and that evaporators may be installed in stages which would reduce the probability of exceedances when not all evaporators are in place.

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	40	33	33	40	40	40	39	36	33	31	24	24
Scenario B (All evaporators operating, tonal conditions)												
R5 (daytime)	44	44	44	47	47	47	45	44	43	43	43	43
R5 (evening)	39	38	38	44	45	44	41	36	33	33	29	29
Scenario C (All evaporators operating at night-time, tonal conditions)												
R5	45	38	38	45	45	45	44	41	38	36	29	29
R7	42	40	40	40	43	43	43	43	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
Scenario D (All evaporators except RSA K operating at night-time, non-tonal conditions)												
R5	34	-	-	34	35	35	33	32	-	-	-	-

3.1 Technical review

The department's Environmental Noise Branch (ENB) 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 review also identified existing evaporators as key contributors to cumulative noise levels. ENB agreed with the recommendations to switch off RSA K evaporators at night if the noise is non-tonal and to conduct further noise monitoring to demonstrate compliance with the Noise Regulations 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 operation which have been considered in this Amendment Report are detailed in Table 4 below. Table 4 also details the 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 16 x evaporators on RSA J, RSA F6 and RSA H South	Air / windborne pathway	• 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			• 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	16 x evaporators operating on RSA J, RSA F6 and RSA H South	Air / windborne pathway	• 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 including metals		Air and wind dispersion	• Spray drift managed within the existing RSA Management Area (Attachment 8 of the Licence). • Evaporators installed to point over RSA

Emission	Sources	Potential pathways	Proposed controls
			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	• 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	• 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 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 activity / prescribed premises**
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 900 m north-east of nearest proposed evaporator (RSA F6) 2. 100 m west of premises boundary 1.6 km south-west of nearest proposed evaporator (RSA J) 750 m west of existing ROWS pond 3. 250 m north of premises boundary 700 m north of nearest proposed evaporator (RSA H) 4. 400 m east of premises boundary 800 m east of nearest proposed evaporator (RSA F6)
Nearest township: Orelia (below Thomas Road)	1.7 km south of premises boundary 2.2 km south of nearest proposed evaporator (RSA F6) 1.8 km south of existing ROWS pond
Environmental receptors	**Distance from activity / prescribed premises**
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. 3. Long Swamp (conservation category wetland)	1. 500 m south-east of premises boundary 900 m south-east of nearest proposed evaporator (RSA F6) 2. 150 m east of premises boundary 1.2 km east of nearest proposed evaporator (RSA F6) 3. 400 m north-west of premises boundary 1.2 km west of nearest proposed evaporator (RSA J)
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 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 in-complete 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 16 additional land-based evaporators on 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	Reasoning
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence holder's controls**				
Construction								
Installation and connection of 16 x evaporators, diesel generators and storage tanks, and supporting infrastructure (cabling, transformer, motor control centre, pumps, tanks and pipelines)	Dust Noise	Air/windborne pathway causing impacts to health and amenity	Residences 700m north of RSA H evaporators and 900m north-east of RSA F6 evaporators	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.
Commissioning and operation								
Operation of 16 x evaporators	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 from nearest new evaporators	Refer to Section 4.1	C = Major L = Rare **Medium Risk**	Y	Condition W15 - W22	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

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence holder's controls sufficient ?	Conditions[2] of licence	Reasoning
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence holder's controls**				
								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 metals (via leaks/spills)	Direct discharge to ground resulting in land contamination	Soil on the premises		C = Possible L = Slight **Low Risk**	Y	**Condition W15, Table 16**	The delegated officer considered the licence holder's proposed controls to confine any new transfer pipelines required to existing routes, with pressure testing prior to use and to locate staging tanks/pumps (with overfill protection) within clay or composite lined areas of the RSA sufficiently mitigate the risk of land contamination and imposed these as construction requirements. To ensure any new pipeline installed is fit for purpose the delegated officer elected to include a requirement for the pipeline to be constructed using applicable Australian Standard materials.
	Noise	Air/windborne pathway causing impacts to health and amenity	Residences 700m north of RSA H evaporators and 900m north-east of RSA F6 evaporators		C = Moderate L = Possible **Medium Risk**	N	Condition W15, Table 16 **Condition W18, Table 17** **Condition W20 - W23**	The delegated had regard to the licence holder's noise assessment and noted that noise emissions are predicted to exceed assigned levels at some receptors (dependent on the presence of tonality) and that the licence holder proposes to fit noise attenuation on the evaporators to reduce sound power levels by 19 dB and to manage the operating parameters of the evaporators to ensure compliance with assigned noise levels. The Noise Regulations require compliance with the assigned levels. The delegated officer therefore determined to impose conditions requiring evaporators to be noise attenuated to achieve a sound power level of not more than 96 dB(A) as this is a critical control for noise emissions. Additionally, the delegated officer deemed the existing evaporators at RSA K are a

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence holder's controls sufficient ?	Conditions[2] of licence	Reasoning
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence holder's controls				
								key noise source as they are not noise attenuated therefore a key contributor to potential exceedance under both tonal or non-tonal conditions. The delegated officer therefore determined to impose a requirement for the evaporators in RSA K to only operate during the daytime hours (as set out in the Noise Regulations) to mitigate the risk of non-compliance with the Noise Regulations. Due to the uncertainty around whether the noise emissions will be perceptible as tonal, and modelling predictions that assigned levels will be exceeded at all times if it is found to be tonal, the delegated officer has also determined to condition a noise verification study. 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. The delegated officer notes installation of noise mitigation for existing RSA K noise evaporators may be required to achieve compliance.
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 = Unlikely **Medium Risk**	N	Condition W15, Table 16	The licence holder has specified that the diesel storage tanks and generators will be self-bunded and will be installed within a clay or composite lined area of the RSAs. The delegated officer considers this to be suitable containment and has imposed integral secondary containment that

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence holder's controls sufficient ?	Conditions[2] of licence	Reasoning
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence holder's controls				
								complies with AS 1940 as an installation requirement. The general provisions of the *Environmental Protection Act 1986* and Environmental Protection (Unauthorised Discharges) Regulations 2004 apply during operations.

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. **Bold and underline text** depicts additional regulatory controls imposed by department.

5. Consultation

The licence holder was provided with a draft of the amended licence and this decisions report for comment on 13 August 2025. Refer to Appendix 1 for a summary of the licence holder's comments on the draft amendment and the department's response.

6. Decision

The delegated officer has determined that the proposal to install, commission and operate 16 additional land-based evaporators and associated infrastructure including diesel storage and power generation on RSA J, RSA F6 and RSA H South 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 following will be imposed on the amended licence:

- the evaporators will be installed with automated control units to manage spray according to onsite weather conditions as well as noise attenuation; and
- the diesel storage tanks and generators will be installed with integral secondary containment that complies with the requirements of AS 1940 and within a clay or composite lined area of the RSA.

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 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 K to be operated during daytime hours only; and
- a noise verification study to be conducted upon commencement of operation.

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 altering the boundary of the premises is appropriate on the basis that all infrastructure associated with licence L5245/1967/14 will remain within the premises boundary. The risks posed by emissions and discharges from the operation of the premises are unrelated to the changing of boundary coordinates, 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 authorizing installation and operation of 16 additional land-based evaporators and associated infrastructure with appropriate installation, operation and verification requirements, and by changing the boundary of the premises.

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
Premises boundary	Revised to reflect Alcoa's current landholdings.
W15	Updated to remove requirements relating to already installed evaporators Added installation requirements for new land-based evaporators, pipelines, staging tanks and pumps, and diesel storage tanks.
W18	Updated location and number of land-based evaporators. Added operational requirement for RSA K evaporator operation to be limited to daytime hours as per the Noise Regulations.
W20 - W23	New conditions requiring a noise verification study following commencement of operations.
W24 - W26 (previously W20 - W23)	Renumbered following the addition of new conditions W20 - W23.
W25	Updated the location and number of land-based evaporators.
Attachment 1	Updated to reflect revised premises boundary.
Attachment 8	Updated to show individual RSAs within RSA Management Area.
Attachment 9	New attachment to show location of pipeline routes.

References

1. Alcoa of Australia (Alcoa) 2025, *Kwinana Alumina Refinery Residue Land Evaporators – Licence Amendment Supporting Document*, Applecross, Western Australia.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
5. Wood 2025, *Minetek Evaporators Noise Assessment*, Brisbane, Queensland.
6. Klohn Crippen Berger (KCB) 2025, *Kwinana Residue Storage Areas Dam Safety Impact of Use of Mechanical Evaporators on RSA F6, RSA H South and RSA J*.

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

Condition	Summary of licence holder's comment	Department's response
W15	**Diesel storage tanks** The licence holder requests that the department allow for more flexibility regarding the number and size of diesel storage tanks. Instead of a fixed number and size of tanks. The licence holder requests a maximum total storage capacity and maximum capacity for each tank to instead be conditioned.	The proposed changes were accepted and incorporated into the condition requirements as the Delegated Officer considered they will not increase the assessed risk.
	Pipelines The licence holder requests that the department update the condition to specify requirements separately for some of the proposed additional pipelines. An additional pipeline between RSA F6 and the ROWS pond will not be confined to existing pipeline corridors and the RSA Management Area as to do so would preclude the pipeline from a gravity fed system. Alternate Australian Construction standards for a gravity fed pipeline are also proposed. Additionally, the new pipeline to the Cooling Pond is within an existing pipeline corridor but is outside the RSA Management area as the area doesn't include the Cooling Pond.	The proposed changes were accepted and incorporated into the condition requirements as the Delegated Officer considered they will not increase the assessed risk.
W20	**Noise assessment** The licence holder requests an extension of the timeframe for completing the required noise assessment from 60 to 90 days after operations commence. This is to ensure that compliance is achieved as a comprehensive assessment is dependent on specific weather conditions occurring.	The proposed changes were accepted and incorporated into the condition requirements as the Delegated Officer considered they will not increase the assessed risk and also align with the submission timeframe for the commissioning report required by condition 19.