Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Application for Licence Amendment

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

Licence Number	L6465/1989/10
Licence Holder	Alcoa of Australia Limited
ACN	004 879 298
File Number	APP-0031693
Premises	Willowdale Mine Willowdale Road (via Wagerup Refinery Access Road) WAROONA WA 6215 Legal description – Part of mineral lease ML 1SA As defined by the Premises map attached to the Revised Licence
Date of Report	11 February 2026
Decision	Revised licence granted

Table of Contents

1. Decision summary

Licence L6465/1989/10 is held by Alcoa of Australia Limited (Licence Holder) for the Willowdale Mine (the premises), located within mineral lease ML 1SA.

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 Licence L6465/1989/10 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Premises overview

The premises was established in 1984 to mine and supply bauxite ore to the nearby Wagerup refinery. The premises consists of numerous mining hubs that are at varying stages of mining, including the Orion mine hub, Larego mine hub, and Arundel mine hub (Figure 1). The mine hubs are connected to each other and the Wagerup refinery through overland conveyors.

In 2021, crushing infrastructure at the Orion mine hub was transferred to the Larego mine hub to establish mining activities in that region. Currently, Orion mine hub no longer produces ore. Arundel mine hub houses maintenance and fixed plant workshop facilities. In establishing mining infrastructure, an overland conveyor (CV374) approximately 8.4 km long was constructed to send ore from Larego mine hub to Arundel mine hub. Ore was then placed onto existing overland conveyor CV371 to the Wagerup refinery for downstream processing.

To facilitate these activities, relevant approvals associated with licence L6465/1989/10 are summarised below:

- **May 2020** – Amendment to:
    - Construct and operate key for the Larego mine hub, including relocation of Crusher 360 from Orion mine hub to Larego mine hub, as well as construction of conveyor CV374, Arundel transfer station, dissolved air flotation (DAF) plant and water storage reservoir for hydrocarbon treatment.
    - Based on noise modelling investigations, the department also required the Licence Holder to complete a noise compliance verification assessment.
- **November 2021** – Minor amendment to extend timeframe for constructing infrastructure at Larego mine hub.
- **February 2024** – Amendment to:
    - Construct and operate a per- and polyfluoroalkyl substance (PFAS) treatment unit (PTU) at Arundel mine hub, along with associated water storage ponds and pipelines.
    - Authorise trucking of PFAS-impacted water from Orion mine hub to Arundel mine hub for treatment via PTU, and to discharge treated water to McKnoes Brook.
    - Upgrade existing DAF pre-treatment sump ASP2, and construct and operate an additional DAF pre-treatment sump ASP3.

- Construct and operate an additional stormwater pond ASW3.
- Implement noise mitigation measures at the Arundel transfer station and conveyor CV371 and undertake an updated noise compliance verification assessment. DWER initiated this requirement based on the noise compliance verification assessment undertaken in 2021.

- **October 2024 –** Minor amendment to Arundel mine hub infrastructure and equipment approved in the February 2024 amendment.

2.3 Application summary

On 2 October 2025, the Licence Holder submitted an application to the department to amend licence L6465/1989/10 under section 59 and 59B of the Environmental Protection Act 1986 (EP Act). The following amendments are being sought:

1. Removal of requirements to install noise-mitigating infrastructure and undertake environmental noise verification assessment.
2. Modification of location and design of Anpress pre-treatment sump ASP3 and stormwater collection pond ASW3.
3. Authorisation to undertake spot sampling of treated water in the event of autosampler failure.
4. Administrative changes to the licence, including updating infrastructure naming convention, streamlining figures, and removing conditions that have been met and are therefore no longer required.

No changes to the assessed production capacity of the existing licence have been requested by the Licence Holder.

2.3.1 Removal of noise-mitigating infrastructure and noise monitoring

Background

In 2019, the department assessed an application submitted by the Licence Holder to establish mining operations at the Larego mine hub. A noise assessment commissioned by the Licence Holder indicated that the transition from Orion mine hub to Larego mine hub may not result in an increase in overall noise emissions (Wood 2019). However, the department found that the noise objectives applied were not appropriate, where the concept of 'significantly contribute to' (as defined under regulation 7 of the *Environmental Protection (Noise) Regulations 1997* [Noise Regulations]) was inappropriately applied in relation to other mining operations within the premises. While the Licence Holder demonstrated that noise emissions from the proposed Larego mine hub were acceptable, overall noise emissions from the premises (including existing operations) also needed to be demonstrated.

Consequently, the department required the Licence Holder to undertake a noise verification assessment to demonstrate compliance with the relevant assigned noise levels (as specified in regulation 8 of the Noise Regulations) during operation of the Larego mine hub (along with the other activities at the premises).

Following installation and commissioning of Crusher 360 at the Larego mine hub in 2021, the Licence Holder completed noise monitoring at receptor R1 and R9, which were situated near conveyor CV371 and Crusher 360, respectively (Figure 2) (Wood 2021). Post-monitoring analysis found that the assigned level of 35 dB(A) was exceeded at both receptors. Major noise contributors at receptor R1 were conveyor CV371, Arundel transfer station, and conveyor CV374; while at receptor R9, they were mobile equipment, Crusher 360, and conveyor CV374.

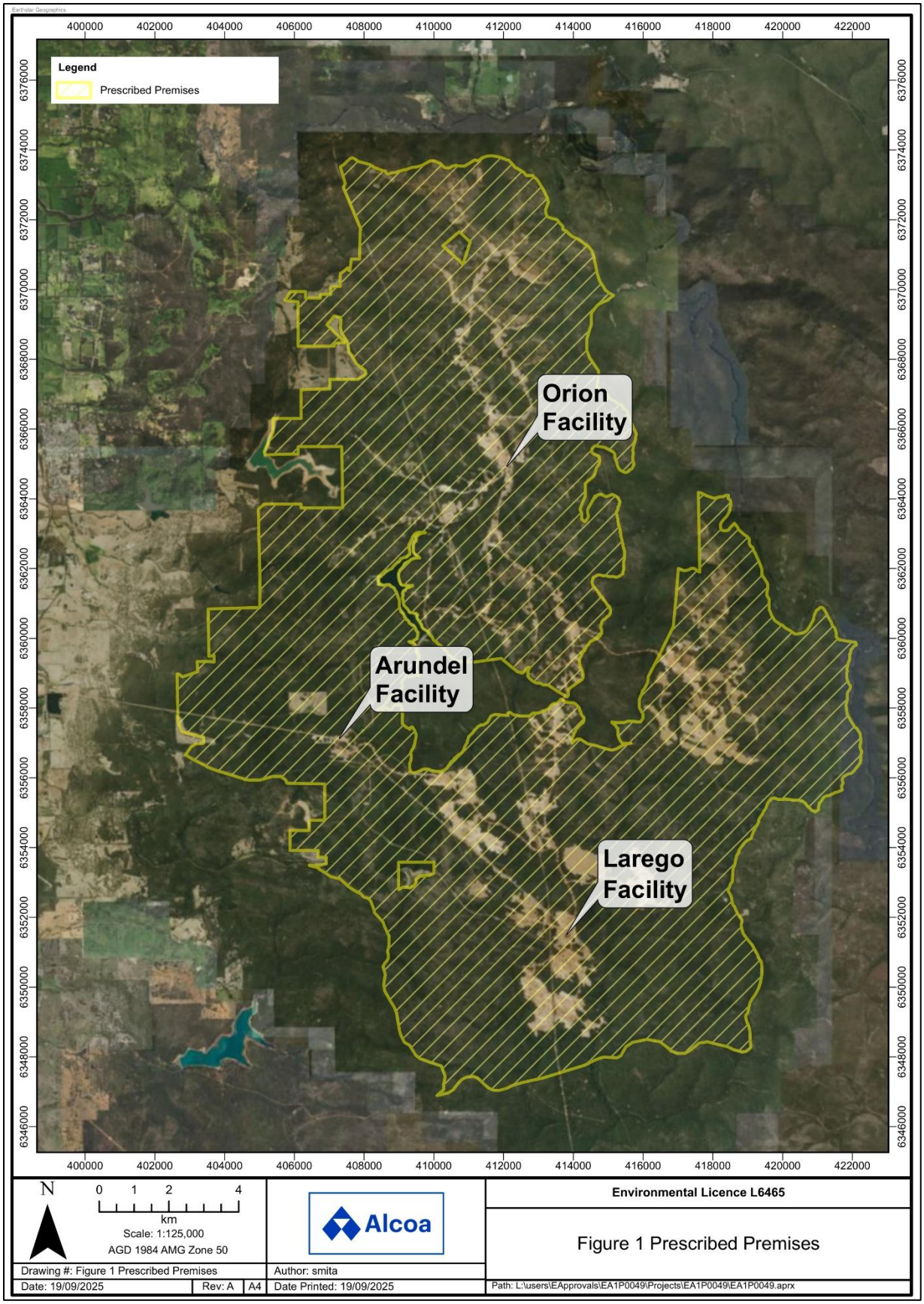

Figure 1: Prescribed premises boundary for Willowdale mine and mine hubs

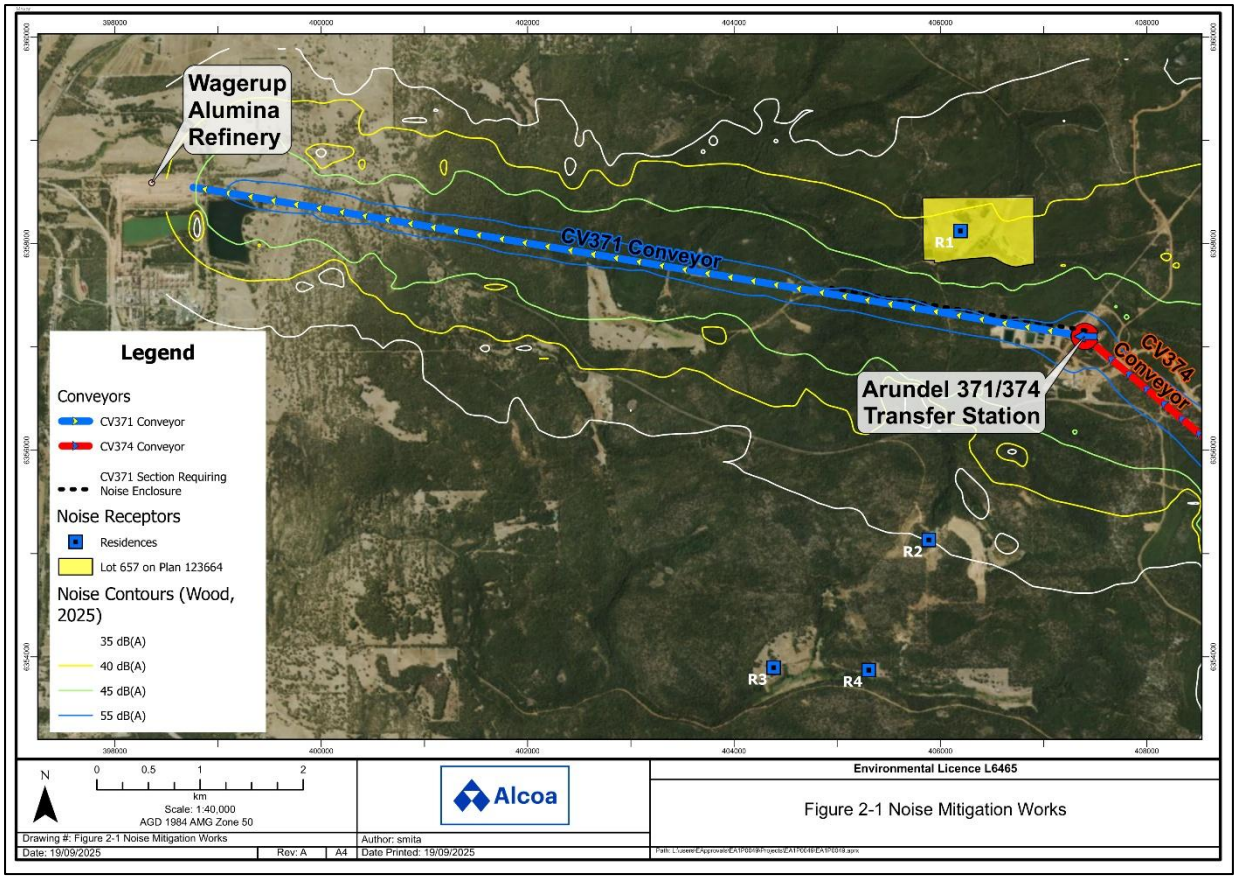

Figure 2: Location of conveyor CV371, Arundel transfer station, and sensitive receptor R1

To address noise impacts at receptors R1 and R9, the Licence Holder developed a Noise Management Plan (NMP) (Alcoa 2021). While noise impacts at receptor R9 were primarily from mobile sources and could be managed to minimise emissions during nighttime operations, noise impacts at receptor R1 were caused by fixed plant infrastructure. In the NMP, the Licence Holder proposed to install engineering noise controls at the Arundel transfer station and conveyor CV371.

To ensure the timely construction of these controls, the department amended licence L6465/1989/10 in February 2024 to require these works be completed by 31 December 2025. The amended licence also required an updated noise verification assessment be undertaken to determine the efficacy of these controls.

Current status

At the time of this assessment, the installation of noise engineering controls (as required under condition 1 of existing licence L6465/1989/10) have been partially completed. Sealing of gaps between acoustic panels on the upper floor of the Arundel transfer station has been completed, though the installation of the 2.5 km noise enclosure around conveyor CV371 has not commenced. These works were primarily aimed at reducing noise emissions received at receptor R1.

Nevertheless, the nature of receptor R1 has recently changed, as it is no longer a residential premises. Currently, the building is utilised as an office during daytime and remains unoccupied during nighttime. Due to this, the Licence Holder argued that receptor R1 is no longer considered a '*noise sensitive premises: highly sensitive area*' (as defined under regulation 8 of the Noise Regulations). With its current status as a '*noise sensitive premises: any areas other than highly sensitive area*', the relevant assigned level has increased to 60 dB(A). Therefore, noise emissions from the premises' operations are able to comply with the assigned level at receptor

R1 without the need to construct the remaining noise enclosure at conveyor CV371.

To demonstrate this, the Licence Holder undertook additional environmental noise modelling under conservative conditions (e.g., worst-case meteorological conditions and mining occurring in areas closest to receptors) (Wood 2025).

Table 1: Predicted noise level at sensitive receptors considering both fixed plant only and fixed plant with mobile equipment

Receptor	Assigned level (nighttime) [dB(A)]	Predicted noise level [dB(A)]	
		Fixed plant only	Fixed plant and mobile equipment
R1	60	40.3	41.1
R2	35	34.9	**35.1**[1]
R3	35	25.2	25.3
R4	35	20.8	29.2
R5	35	9.3	12.3
R6	35	16.4	19.8
R9	35	28.9	33.1
R10	35	14.9	19.5
R11	35	13.3	16.6

Note 1: Exceedance of assigned level (nighttime).

When considering noise contribution from only fixed plant sources, predicted noise level at all receptors were found to comply with their respective assigned levels (Table 1). As such, the outstanding noise enclosure around conveyor CV371 (which forms part of the fixed plant configuration) was no longer considered necessary for the purposes of complying with the Noise Regulations.

When both fixed and mobile plant sources were considered, predicted noise levels at all receptors increased, but remained under their respective assigned levels, except at receptor R2 (Table 1). A marginal exceedance of 0.1 dB(A) was predicted at receptor R2 during nighttime operations, where mobile plant activities are also considered (Table 2).

Table 2: Noise contribution from premises operations at receptor R2

Noise source	Assigned level [dB(A)]			Noise contribution [dB(A)]
	Daytime	Evening	Nighttime	
Conveyor CV371	45.0	40.0	35.0	31.5
Conveyor CV374				29.0
Arundel transfer station				28.4
Conveyor CV371 drive				22.1

Noise source	Assigned level [dB(A)]			Noise contribution [dB(A)]
	Daytime	Evening	Nighttime	
Larego Crusher 360	45.0	40.0	35.0	13.8
Cumulative (fixed plant only)				34.9
Mobile equipment				21.3
Cumulative (fixed plant and mobile equipment)				**35.1**[1]

Note 1: Exceedance of assigned level (nighttime).

Proposed amendments

In considering the change in the nature of receptor R1, as well as the findings from the updated noise assessment, the Licence Holder considers the installation of engineering noise controls to no longer be required, and the requirements to install these controls before 31 December 2025 under existing licence L6465/1989/10 be removed.

The Licence Holder also requested that the requirement to undertake an updated noise verification assessment be removed from existing licence L6465/1989/10, as the engineering noise controls will no longer be constructed and the exceedance of the assigned noise level at receptor R1 was no longer likely to occur.

2.3.2 Design modifications to Anpress pre-treatment sump ASP3

Background

In an amendment to licence L6465/1989/10 granted in February 2024, the department authorised the construction of the Anpress pre-treatment sump ASP3.

The ASP3 was designed as a 1.5 ML storage pond for hydrocarbon-impacted water. Currently, contaminated water drains from the Arundel workshops and passes through an oily water separator before being directed to existing pre-treatment sumps ASP1 and ASP2. The contaminated water is then treated through an Anpress plant, which utilised dissolved air flotation (DAF) to remove hydrocarbons. Following hydrocarbon treatment, the water is piped to Arundel pond AP1, which flows through to AP2, AP3, and finally AP4[1], where the water is then pumped via a supply pipeline to the pre-treatment dams APTD-001 and APTD-002 for PFAS treatment via the PTU.

Proposed amendments

The location of the Anpress pre-treatment sump ASP3 will be modified slightly to minimise the need for clearing of remnant native vegetation (Figure 3). The design and storage capacity of the sump will remain unchanged. In addition, the Licence Holder will also install a bi-directional, double-skinned HDPE pipeline between ASP3 and the existing ASP1 to manage storage capacities of untreated hydrocarbon-impacted water.

[1] Arundel pond AP5 is no longer discharged to from AP4, as the pond intersects groundwater when it rises due to heavy rainfall. Licence L6465/1989/10 was amended in February 2025 to remove AP5 as an authorised discharge point due to concerns associated with contaminant migration.

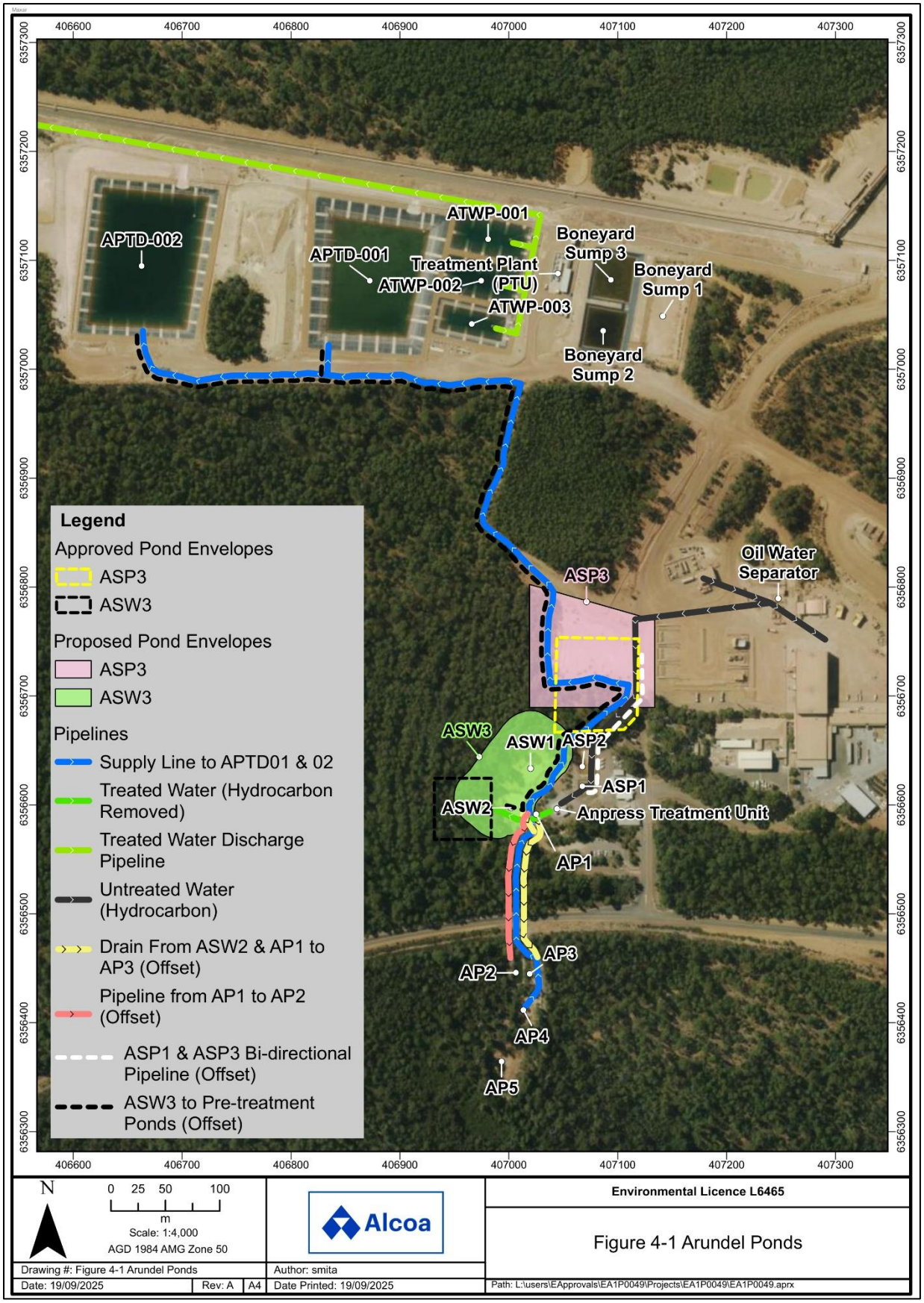

Figure 3: Previously assessed and proposed location for stormwater collection pond AS3 and Anpres pre-treatment sump ASP3

2.3.3 Design modifications to stormwater collection pond ASW3

Background

In an amendment to licence L6465/1989/10 granted in February 2024, the department authorised the construction of the Arundel workshop stormwater collection pond ASW3.

The ASW3 was intended to have a nominal storage capacity of 1.5 ML to manage stormwater runoff around the Arundel workshops. The pond would provide additional capacity to existing stormwater ponds ASW1 and ASW2, which could contain 0.26 ML and 1.1 ML, respectively. Stormwater collected in these ponds will be sent through a supply pipeline to the pre-treatment dams APTD-001 and APTD-002 for PFAS treatment via the PTU.

Proposed amendments

While the Licence Holder still intends to construct stormwater collection pond ASW3, they proposed to modify the infrastructure location as well as its storage capacity (Figure 3). The modified ASW3 footprint will overlap and incorporate existing unlined stormwater collection ponds ASW1 and ASW3. Doing so will increase the storage capacity of ASW3 from 1.5 ML to 3.0 ML, which compensates for the storage capacity that will be lost as a result of decommissioning of ASW1 and ASW2.

The proposed design of stormwater collection pond ASW3 will remain the same as initially proposed and assessed, as summarised below:

- Installed with a clay and high-density polyethylene (HDPE) liner to a minimum permeability of 1 x 10^{-9} m/s.
- Sufficient freeboard to contain rainfall and runoff from 1:100 annual exceedance probability storm event for up to 72 hours (i.e., 231 mm), as well as a 1,000 mm operational freeboard.
- Equipped with a pontoon mounted pump system or turret abstraction system.
- A new double-skinned HDPE pipeline will be installed to send water from ASW3 to the pre-treatment dams, along the existing supply pipeline corridor. Once constructed, the redundant sections of the existing pipeline between ASW3 and the pre-treatment dams will be decommissioned and dismantled.

Following construction and commissioning, stormwater collection pond ASW3 will act as a singular storage location for stormwater within the Arundel mine hub, due to the planned decommissioning of existing stormwater collection ponds ASW1 and ASW2.

Further, hydrocarbon-treated water from the Anpress treatment unit, which is currently sent to Arundel ponds AP1 to AP4 that are mostly unlined, will also be sent to ASW3 for storage. The operation of stormwater collection pond ASW3 will enable Arundel Ponds AP2 to AP5, south of Wagerup-Willowdale Road, to stop receiving treated water from the Arundel mine hub[2]. The ponds will only be used for storage of stormwater runoff from Wagerup-Willowdale Road until removal and rehabilitation of the ponds can be completed. Arundel Pond AP1, north of Wagerup-Willowdale Road, will continue operating as a temporary holding pond for hydrocarbon-treated water prior to its transfer to stormwater collection pond ASW3.

[2] Upon cessation of discharge of hydrocarbon-treated water to Arundel Ponds AP2 to AP5, the ponds will be used to store stormwater runoff from the Wagerup-Willowdale Road until the water can be diverted. Stormwater from the Arundel mine hub will be diverted to the proposed stormwater collection pond ASW3, ensuring no runoff from the mine hub intersects with Wagerup-Willowdale Road and ends up in AP2 to AP5.

2.3.4 Modifications to sampling methodology of PFAS-treated water

Background

In an amendment to licence L6465/1989/10 granted in February 2024, the department authorised the construction and operation of a PTU to treat PFAS-impacted water at Arundel mine hub. The treated water is temporarily stored in newly constructed batching ponds ATWP-001, ATWP-002, and/or ATWP-003. An autosampler has been installed to collect samples of the treated water at fixed intervals (i.e., one sample for every 0.5 ML of treated water). Condition 26 of existing licence L6465/1989/10 requires the Licence Holder to send the composite sample obtained of each treated water batch for laboratory analysis prior to its discharge to McKnoes Brook. Discharge is only authorised once laboratory analysis has demonstrated that the treated water meets the water quality criteria specified in condition 20 of the existing licence.

Currently, condition 26 of the existing licence does not allow for such sample to be collected using any other methodology other than the autosampler. Spot sampling directly from the batching ponds, for the purposes of demonstrating compliance for the discharge of treated water to McKnoes Brook, is not authorised under the existing licence. Due to this, where the autosampler has malfunctioned, the Licence Holder has had to return water to the pre-treatment dams and re-treat the water for the express purpose of obtaining a composite sample from the autosampler. This resulted in unnecessary re-treatment of water that may have already met the water quality criteria specified in the licence. Autosampler failure may be due to either mechanical malfunction or contamination of the composite sample collected[3].

Proposed amendments

To prevent the unnecessary recycling and re-treatment of treated water in the event of an autosampler failure, the Licence Holder has proposed condition 5 of licence L6465/1989/10 be amended to authorise spot sampling from the batching ponds in the event of autosampler failure.

2.3.5 Administrative changes to licence conditions

Removal of completed infrastructure and activities

The Licence Holder has requested conditions relating to completed works be removed from the amended licence L6465/1989/10. These are summarised in Table 3.

Table 3: Completed infrastructure and activities in existing licence L6465/1989/10

Condition	Relevant infrastructure / activities	Comments
Condition 1 – Infrastructure construction requirements	PFAS treatment unit (PTU)	Construction and environmental commissioning of the PTU was completed on 31 January 2025. The relevant Environmental Compliance Report was submitted to the department on 27 February 2025. The department understands that the PTU is currently operational. This infrastructure will be removed from Table 1 of the amended licence.

[3] The Licence Holder stated that there have been previous instances where the composite sample collected via autosampler was compromised, as a result of zinc and hydrocarbon contamination associated with the use of lubricants. Subsequently, the treated water batch had to be re-circulated through the PTU for re-treatment in order to obtain an additional composite sample to demonstrate compliance with condition 26.

Condition	Relevant infrastructure / activities	Comments
Condition 1 – Infrastructure construction requirements	Pipelines from Arundel mining area to PTU, and from PTU to McKnoes Brook discharge point	Construction of the pipelines was completed on 15 January 2025. The relevant Environmental Compliance Report was submitted to the department on 14 February 2025. The department understands that the pipelines are currently being used to transport treated water from batching ponds following PFAS treatment by the PTU (see above). This infrastructure will be removed from Table 1 of the amended licence.
	McKnoes Brook water level monitoring device	Installation of the monitoring device was completed on 24 September 2024. The relevant Environmental Compliance Report was submitted to the department on 24 October 2024. The relevant infrastructure was installed upstream of the McKnoes Brook discharge point. This infrastructure will be removed from Table 1 of the amended licence. However, requirements relating to the installation of a water level monitoring device downstream of the McKnoes Brook discharge point (included in the licence in a subsequent amendment in October 2024) will remain on the licence, as the works have not been completed and the associated Environmental Compliance Report has not been received by the department at the time of this assessment. Removal of the relevant infrastructure from Table 1 does not negate the requirement to undertake the relevant monitoring at the upstream monitoring location in accordance with condition 29, until the installation of the downstream monitoring device.
Condition 4 – Environmental commissioning requirements	PFAS treatment unit (PTU)	Environmental commissioning of the PTU was completed on 31 January 2025 Upon request of the CEO, information on the environmental commissioning was submitted to the department on 30 May 2025. The department understands that the PTU is currently operational. Condition 4 of the existing licence will be removed from the amended licence.

Condition	Relevant infrastructure / activities	Comments
Condition 5 – Monitoring requirements during environmental commissioning	Monitoring of treated water at Arundel treated water ponds ATWP-001, ATWP-002, and ATWP-003	Environmental commissioning of the PTU was completed on 31 January 2025. Upon request of the CEO, information on the monitoring undertaken during environmental commissioning was submitted to the department on 30 May 2025. The department understands that the PTU is currently operational. Condition 5 of the existing licence will be removed from the amended licence. During the operation of the PTU, monitoring at the treated water ponds is required under condition 26.

Update to figures in Schedule 1

The Licence Holder requested that, where possible, figures within Schedule 1 of the existing licence L6465/1989/10 be reviewed and consolidated to streamline the licence.

Specifically, the Licence Holder also indicated inconsistencies in figures associated with drainage and pipelines routes at the Arundel mine hub (Figure 8 and 9), Orion mine hub (Figure 7), and Larego mine hub (Figure 11 and 12).

At the Arundel mine hub, Figure 8 and 9 in the existing licence:

- Do not accurately reflect the as-constructed footprint of the supply pipeline route, from approximately the Anpress treatment unit area to pre-treatment dams APTD-001 and APTD-002. The supply pipeline was constructed within existing easements to comply with construction requirements in condition 1 of the licence.
- The pipeline route for untreated hydrocarbon-impacted water from the oily water separator to the Anpress treatment unit is also misaligned.

Furthermore, as part of proposed modifications to water containment infrastructure, additional pipeline will be installed to connect stormwater collection pond ASW3 with the pre-treatment dams (refer to Section 2.3), as well as the between Anpress pre-treatment sumps ASP1 and ASP3.

For completeness, the Licence Holder has also provided the footprint for existing pipeline routes (1) connecting Arundel ponds AP1 to AP2, which allows hydrocarbon-treated water to flow passively from the former to the latter, as well as (2) connecting AP1 and ASW2 to AP3, for the transfer of hydrocarbon-treated water and stormwater, respectively. Upon commissioning of the modified stormwater collection pond ASW3 and Anpress pre-treatment sump ASP3, both pipelines will be disconnected, as Arundel ponds AP2 to AP5 will no longer be utilised for storing hydrocarbon-treated water or stormwater from the Arundel mine hub catchment.

At the Orion mine hub, Figure 7 of the existing licence shows the catchment area where stormwater runoff is collected within the Orion sumps OS1, OS2, and OS3. However, the Licence Holder indicated that the catchment area is not consistent with current drainage assessments and has requested that the figure be amended to accurately depict the relevant catchment area. No changes to the Orion sumps were requested.

At the Larego mine hub, Figure 11 and 12 of the existing licence shows the drainage line from the Tasman Haul Rd B sump for stormwater and treated water extending further east than was constructed. The Licence Holder requested that the drainage line in the figures be updated to reflect site conditions. No changes to the sump layout at Larego mine hub were requested.

Other administrative changes

The Licence Holder requested changes to the naming convention of infrastructure specified within the existing licence in order to improve clarity. Administrative amendments were made to the existing licence to improve consistency across licence conditions.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020b).

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation, which have been considered in this Amendment Report, are detailed in Table 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	Construction of stormwater collection pond ASW3 (3.0 ML) and Anpress pre-treatment sump ASP3 (1.5 ML) at modified locations and associated pipelines.	Air/ windborne pathway	Water carts will be utilised during construction.
Noise			• Construction activities will be restricted to Monday to Friday, between 07:00am and 07:00pm. • Immediate neighbours will be notified of proposed commencement date and duration of construction works. • Construction equipment with low sound power level will be utilised.
Operation			
Noise	Operation of mining activities at premises, including operation of overland conveyor CV371 without noise enclosure	Air/ windborne pathway	• Gaps between acoustic panels at the Arundel transfer station have been sealed. • Nexus noise system will provide real-time predictive modelling of noise received at sensitive

Emission	Sources	Potential pathways	Proposed controls
			receptors and will inform mining activities during high-risk periods. Existing licence L6465/1989/10 requires the following: • **Condition 12** – Arundel transfer station must have low noise idlers maintained and operating while the transfer station is operating. Further, noise mitigation controls must be maintained to ensure compliance with the *Environmental Protection (Noise) Regulations 1997*.
Potentially impacted water (PFAS and/or hydrocarbon)	Operation of stormwater collection pond ASW3 (3.0 ML) and Anpress pre-treatment sump ASP3 (1.5ML)	Seepage through base and walls of infrastructure	• ASW3 and ASP3 will be constructed with clay (or geosynthetic clay) and high-density polyethylene (HDPE) liner with permeability of 1 x 10^{-9} m/s or lower. Existing licence L6465/1989/10 requires the following: • **Condition 29** – Ambient groundwater monitoring must be undertaken on a monthly basis.
		Overtopping of infrastructure	• ASW3 and ASP3 will be constructed with sufficient freeboard to contain a 1:100 annual exceedance probability storm event for up to 72 hours. • Operating freeboard of at least 1,000 mm will be maintained at all times. • Ponds will be equipped with either pontoon-mounted pump system or turret abstraction system to manage storage capacities. Existing licence L6465/1989/10 requires the following: • **Condition 13** – Dams and sumps at the Arundel mine hub must be visually inspected daily to ensure sufficient freeboard is maintained.
		Pipeline failure	• Double-skinned HDPE pipelines will be installed within existing pipeline corridor. • Pipelines will be installed aboveground, where able. In

Emission	Sources	Potential pathways	Proposed controls
Potentially impacted water (PFAS and/or hydrocarbon)			areas where roads or vehicle access are present, pipelines will be installed within culverts belowground. Existing licence L6465/1989/10 requires the following: • **Condition 12** – Pipelines must be maintained during operations. Pipelines transporting PFAS-impacted water must be double-skinned and have leak detection systems in place. • **Condition 13** – Pipelines must be visually inspected daily to confirm pipe integrity and identify any potential leaks.
	Discharge of PFAS-treated water at McKnoes Brook in the event of autosampler failure	Direct discharge to surface water	• Spot sampling will be collected to demonstrate compliance with treated water quality discharge criteria prior to discharge to McKnoes Brook. • Spot sampling will only be undertaken in the event of an autosampler failure. Existing licence L6465/1989/10 requires the following: • **Condition 18** – Prior to discharge to McKnoes Brook, treated water must meet treated water quality discharge criteria, through monitoring in accordance with condition 26. Discharge criteria have been specified to be more conservative than existing water quality guidelines. • **Condition 21** – Monitoring of treated water must be undertaken in accordance with the relevant Australian Standards and the PFAS National Environmental Management Plan (NEMP), as well as sent to a NATA-accredited facility for laboratory analysis. • **Condition 29** – Ambient surface water monitoring must be undertaken at the discharge point and downstream environment on a quarterly basis.

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020b), 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 2020a)).

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

Human receptors	**Distance from prescribed activity**
Rural residential premises	A number of rural residential premises are located near the Arundel mine hub, either within or at the boundary of the prescribed premises. Receptor R1 is the nearest residential premises to the Arundel mine hub, located approximately 500 m north-west of the mine hub boundary. The department understands that the premises was previously considered a highly (noise) sensitive premises as it was potentially inhabited. Recently, the premises has been converted into an office for day use, while remaining empty at night. Receptor 2 is located further away, approximately 1.8 km south-west of the Arundel mine hub, with receptors R3 and R4 present further south-west. The department understands these to be residential dwellings.
Human users of McKnoes Brook	McKnoes Brook is used for recreational activities and is valued as an important fishing site, particularly for trout. The downstream Samson Brook also contains recreationally important marron and trout, as well as minor recreational fishes (e.g., native freshwater cobbler), which may be used for human consumption. Furthermore, water from McKnoes Brook contributes to the Waroona Irrigation District, where water is utilised for agricultural and irrigation purposes. The nearest agricultural land use is located approximately 4.5 km downstream from the McKnoes Brook discharge point, approximately the same to the Waroona Irrigation District. Further, the Waterous Campsite is located approximately 800 m downstream of the McKnoes Brook discharge point, along the drainage line. The department understands that water from McKnoes Brook is not used for drinking or showering purposes at the campsite, nor are there water-based activities such as fishing, though camp users may undertake environmental activities around McKnoes Brook.
Environmental receptors	**Distance from prescribed activity**
Native vegetation	The premises is located within Dwellingup State Forest and is part of the Northern Jarrah Forest subregion. Vegetation in this region is characterised by jarrah (*Eucalyptus marginata*) forest on iron gravels and Marri-Wandoo (*Corymbia calophylla – E. wandoo*) woodland on loamy soils, with sclerophyll understoreys. A significant portion of the premises footprint is uncleared vegetation, with the Arundel mine hub surrounded by native vegetation. Proposed activities, including construction of additional containment infrastructure, are located near the vegetation fringe, at the boundary of the mine hub.

Surface water bodies	The McKnoes Brook is located within a catchment that comprises valleys, lateritic uplands and minor valleys. From the discharge point at the Arundel mine hub, McKnoes Brook flows towards north-west before discharging into Samson Brook approximately 8.5 km downstream. The McKnoes Brook, including the discharge point at the Arundel mine hub, is located within the Waroona Irrigation District, proclaimed under the *Rights in Water and Irrigation Act 1914*. The brook and the associated mine hub are also located near the Samson Brook Catchment Area, which is a Priority 1 public drinking water source area. McKnoes Brook contains many native fish species in the southwest region, some of which are important for mosquito control. A number of conservation significant aquatic and riparian species have also been recorded from the Samson Brook catchment area, including the vulnerable Carter's freshwater mussel (*Westralunio carteri*).
Groundwater aquifer	At the Arundel mine hub, groundwater level ranges between 14 metres below ground level (mbgl) and 18 mbgl, flowing towards west and north-west towards McKnoes Brook.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020b) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are 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 3.1), 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 L6465/1989/10 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Category 5 activities.

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 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
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Construction								
Construction of stormwater collection pond ASW3 (3.0 ML) and Anpress pre-treatment sump ASP3 (1.5 ML) at modified locations and associated pipelines.	Dust	***Pathway:*** Air/windborne pathway ***Impact:*** Impact to ecological health	Native vegetation; Surface waterbodies	Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	None.	N/A
	Noise	***Pathway:*** Air/windborne pathway ***Impact:*** Impact to amenity	Rural residential premises	Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	None.	N/A
Operation								
Operation of mining activities at premises, including operation of overland conveyor CV371 without noise enclosure	Noise	***Pathway:*** Air/windborne pathway ***Impact:*** Impact to amenity	Rural residential premises	Refer to Section 3.1	C = Moderate L = Unlikely **Medium risk**	Y	None.	Refer to Section 3.3.
Operation of stormwater collection pond ASW3 (3.0 ML) and Anpress pre-treatment sump ASP3 (1.5 ML)	Potentially impacted water (PFAS and/or hydrocarbon)	***Pathway:*** Seepage through base and walls of infrastructure ***Impact:*** Migration of seepage to groundwater, potentially resulting in groundwater contamination and/or groundwater mounding.	Native vegetation; Surface water bodies; Groundwater aquifer.	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1 – Infrastructure construction requirements Condition 6 – Infrastructure operational requirements	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Operation of stormwater collection pond ASW3 (3.0 ML) and Anpress pre-treatment sump ASP3 (1.5 ML)		***Pathway:*** Overtopping of infrastructure, resulting in direct discharge to land ***Impact:*** Impact to ecological health.	Native vegetation; Surface water bodies.	Refer to Section 3.1	C = Moderate L = Rare **Medium Risk**	Y	Condition 1 – Infrastructure construction requirements Condition 6 – Infrastructure operational requirements Condition 7 – Inspection requirements	N/A
		Pathway: Pipeline failure, resulting in direct discharge to land ***Impact:*** Impact to ecological health	Native vegetation; Surface water bodies.	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1 – Infrastructure construction requirements Condition 6 – Infrastructure operational requirements Condition 7 – Inspection requirements	N/A
Discharge of PFAS-treated water at McKnoes Brook in the event of autosampler failure		***Pathway:*** Direct discharge to surface water ***Impact:*** Migration of water containing residual PFAS, potentially resulting in surface water contamination and impact to ecological health	Human users of McKnoes Brook, including recreational watersports, recreational fishing, camping, agricultural and irrigation activities; Native vegetation, including riparian vegetation; Surface water bodies, including aquatic fauna.	Refer to Section 3.1	C = Major L = Unlikely **Medium risk**	Y	Condition 6 – Infrastructure operational requirements (PTU) Condition 13 – Authorised discharge release rates Condition 14 – Emission and discharge limits Condition 15 – Water sampling standards Condition 20 - Treated water monitoring requirements Condition 21 – Native vegetation health assessment requirements Condition 23 – Ambient surface water monitoring requirements	Refer to Section 3.3.

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

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

Licence: L6465/1989/10

3.3 Decision and rationale

In completing the risk assessment detailed in Section 3.2, the Delegated Officer has made the following decision, supported by the relevant rationale, which is summarised in Table 7.

Table 7: Decision and rationale on proposed activities

Proposed activities	Decision	Rationale
Removal of noise-mitigating infrastructure and monitoring requirements.	The department has removed conditions relating to installation of noise-mitigating infrastructure and environmental noise monitoring in the amended licence L6465/1989/10.	Updated noise assessment indicated that the risk of noise impact to receptor R1 is no longer unacceptable under current mining operations. While an exceedance of the nighttime assigned level was predicted at receptor R2, the exceedance is marginal. Further, the updated noise assessment was completed under conservative conditions, where the downwind from all noise sources to all receptors were assumed, rather than considering only a single downwind direction. In reality, it is highly unlikely that a receptor is under downwind condition for all noise sources at the same time, particularly where noise sources are present over a large area such as the premises. Due to this, the predicted noise levels at receptor R2 were evidently higher compared to previous assessments. Where only noise emissions from fixed plant is considered, predicted noise received at receptor R2 is expected to comply with the assigned levels (marginally). In accordance with the Licence Holder's Noise Management Plan, excessive noise emissions during nighttime operations can be adequately controlled through adequate scheduling and management of mobile equipment to comply with assigned levels. Although ore extraction is not an activity typically regulated within a Category 5 premises, the *Environmental Protection (Noise) Regulations 1997* applies to the premises, and the Licence Holder will be required to comply with the requirements of the regulations. As part of the Mining and Management Program approved by the Bauxite Strategic Executive Committee, the Licence Holder has assigned mining areas with noise sensitivity criteria, which includes daytime and ambient weather restrictions, for protection of sensitive receptors from mining impacts. The Licence Holder also holds a formal agreement with the relevant community group for receptor R9 (Hoffman Mill), which remains unoccupied except for a single weekend each year.

Proposed activities	Decision	Rationale
Modification to the design of stormwater collection pond ASW3 and Anpress pre-treatment sump ASP3.	The department has amended the specifications of the containment infrastructure and their location. Additionally, the department has also specified existing containment infrastructure (e.g., ASW1, ASW2, ASP1, ASP2, AP1, etc.) in the amended licence.	Updated risk assessment did not indicate an increase in risk rating. The proposed design changes are acceptable. Construction and operation of the stormwater collection pond ASW3 may result in better environmental outcomes, as flows to existing unlined stormwater and hydrocarbon-treated water will be sent to a lined facility for storage. This will reduce the risk of residual contaminants from seeping into the subsurface environment and streamlines water management prior to PFAS treatment. Furthermore, the department has considered regulation of existing containment infrastructure to be warranted and appropriate, noting that stormwater and process water collected within the Arundel mine hub may potentially be impacted by either hydrocarbon and/or PFAS.
Modification to sampling methodology of PFAS-treated water.	The department has authorised the use of spot sampling as a method for determining compliance with condition 26 of the amended licence.	While sampling of treated water using the installed autosampler is preferred for the purposes of collecting a composite sample that is representative of each treated water batch, the department acknowledges that equipment issues may unintentionally constrain the Licence Holder from releasing treated water, where the water has already been adequately treated. The department considers spot sampling to be an acceptable alternative sampling method, in the event of autosampler failure, for the following reasons: • The volume of the treated water ponds and discharge method is unlikely to result in highly heterogenous distribution of residual contaminants within the waterbody. • The Licence Holder must comply with the relevant Australian Standards when collecting spot samples. • Routine monitoring of the discharge location and the downstream environment has also been required under existing licence L6465/1989/10 to detect changes in water quality at the receiving environment. Consequently, the department has authorised the use of spot sampling from treated water ponds for demonstrating compliance with the water quality criteria specified in condition 20. Nevertheless, spot sampling should only be undertaken where sampling via autosampler is

Proposed activities	Decision	Rationale
		unavailable. Treated water batches that have been spot sampled should be recorded.
Administrative amendment to existing licence L6465/1989/10.	The department has removed redundant conditions as well as updated existing figures in the amended licence. Further, licence formatting has been updated to improve clarity of licence conditions.	Amendments to the existing licence are administrative in nature and do not alter the obligations of the Licence Holder nor the requirements of the licence conditions.

4. Consultation

Table 8 provides a summary of the consultation undertaken by the department.

Table 8: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website from 6 November 2025 to 27 November 2025.	Two public submissions were received during the advertisement period. Refer to Appendix 1.	Refer to Appendix 1.
Licence Holder was provided with draft amendment on 9 January 2026.	Comments were received on 29 January 2026. Refer to Appendix 2.	Refer to Appendix 2.

5. Conclusion

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

5.1 Summary of amendments

Table 9 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 9: Summary of licence amendments

Condition no.	Proposed amendments
General	Updated licence and condition format to: • Realign condition numbering following removal of redundant conditions; • Update figure numbering and licence conditions referencing figures. • Update condition wording to correct grammatical error and align with current licence formatting.

Condition no.	Proposed amendments
Condition 1	Updated Table 1 to: • Remove constructed items of infrastructure: PFAS treatment unit (PTU), pipelines from Arundel mining area to PTU, and from PTU to McKnoes Brook discharge point. • Update design specifications and location for stormwater collection pond ASW3 and Anpress pre-treatment sump ASP3, including associated pipelines. • Remove constructed items of infrastructure: (i) PFAS treatment unit (PTU), (ii) pipelines from Arundel mining area to PTU, and from PTU to McKnoes Brook discharge point, and (iii) McKnoes Brook water level monitoring device (upstream). • Remove items of infrastructure as requested by the Licence Holder: noise mitigation infrastructure and works at Arundel (refer to Section 2.3.1, Section 3.2, and Section 3.3 for risk assessment).
----	Removed condition 4 and condition 5 from existing licence, as environmental commissioning of the relevant infrastructure (i.e., PTU) has been completed.
----	Removed condition 6, condition 7, condition 8, and condition 9 associated with the updated noise assessment, as requested by the Licence Holder (refer to Section 2.3.1, Section 3.2, and Section 3.3 for risk assessment).
Condition 6	Updated Table 4 to: • Align operational requirements for the Arundel 371/374 transfer station and the 371 and 374 conveyors with noise mitigation infrastructure that were not constructed under condition 1 (refer to Section 2.3.1, Section 3.2, and Section 3.3 for risk assessment). • Include operational requirements for existing Arundel Anpress pre-treatment sumps (ASP1, ASP2), Arundel ponds (AP1, AP2, AP3, AP4), Arundel stormwater collection ponds (ASW1, ASW2), Boneyard sumps Stage 1 to 3. • Include operational requirements for Anpress pre-treatment sump ASP3 and Arundel stormwater collection ponds ASW3. • Remove requirement to maintain storage capacities at Arundel pre-treatment dams and PTU treated water ponds. • Update naming convention for PTU treated water ponds, as requested by the Licence Holder.
Condition 20	Updated Table 11 to: • Authorise spot sampling from Arundel treated water ponds in the event of autosampler failure and/or compromised composite sample. Updated Table 12 to: • Update naming convention for Larego DAF treated water ponds, as requested by Licence Holder.
Condition 28	Updated and contemporised condition wording for submission of Environmental Report.
----	Updated Table 17 (Definitions) to: • Include definitions for the following terms: (i) AS/NZS 3500.3, (ii) AS/NZS 5667.1, (iii) AS/NZS 5667.6, (iv) AS/NZS 5667.9, (v) AS/NZS 5667.10, (vi) AS/NZS 5667.11, (vii) DAF, (viii) HDPE, (ix), NATA, and (x) USEPA Method 5520B. • Remove definitions for the following terms, which are no longer mentioned in the licence or are redundant: (i) APTD-001 and APTD-002, (ii) Arundel mining area infrastructure, (iii) Assessment of Site Contamination NEPM, (iv) Guideline: Assessment and management of contaminated sites, and (v) dampened. Updated Schedule 1: Maps to: • Remove redundant figures from existing licence: Figure 2, Figure 3, Figure 4, Figure

Condition no.	Proposed amendments
	6, Figure 9, and Figure 13. • Streamline number of figures shown in the amended licence, such that the existing 14 figures (with eight remaining after removal of redundant figures) have been reduced to seven figures to improve clarity and readability, as requested by the Licence Holder. • Update Figure 2 (Arundel mine hub – site layout) to indicate updated location for ASW3 and ASP3, as well as the associated pipelines.

References

1. Alcoa of Australia Limited (Alcoa) 2021, *Noise Management Plan – Willowdale Mine – Noise Sensitive Premises R1 and R9*, Perth, Western Australia.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020a, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020b, *Guideline: Risk Assessments*, Perth, Western Australia.
5. Wood 2019, *Larego Project Environmental Noise Impact Assessment*, Perth, Western Australia.
6. Wood 2021a, *Willowdale Mine Noise Compliance Verification Assessment – Larego Crusher Relocation and Mining*, Perth, Western Australia.
7. Wood 2025, *Alcoa Willowdale CV371 Noise Assessment*, Perth, Australia.

Appendix 1: Summary of public submission on the proposed activities

Proposed activities	Summary of comment	Department's response
Removal of obligations for further noise mitigation (refer to Section 2.3.1).	• Based on updated noise modelling, there are concerns on the marginal assigned level exceedance predicted at receptor R2, if the conveyor CV371 noise enclosure is not constructed. • The assumptions made about land use and occupancy (at receptor R1 but can be broadly applied to other receptors) may shift over time. • Nexus real-time predictive noise monitoring system may fluctuate in effectiveness. • It was recommended that real-time noise monitoring be undertaken at all sensitive receptors, not solely at receptor R1.	The department has considered the updated noise modelling in its risk assessment. Specifically, in regard to the marginal exceedance at receptor R2, the department acknowledges that while an exceedance was predicted at this receptor, the exceedance itself is marginal. The predicted noise level in the recent noise model was significantly higher than previously predicted, as worst-case meteorological conditions were adopted in the former, where the downwind from all noise sources to all receptors were assumed in the modelling (as compared to a single downwind direction). Therefore, it is likely that noise levels at receptor R2 were overestimated. In regulating noise emissions from a prescribed premises, the department takes a risk-based approach in accordance with the *Guideline: Risk Assessments* (DWER 2020b). Based on the noise investigations undertaken to date, the department has not required additional noise monitoring be undertaken in the amended licence, noting that the receptor of greatest concern (R1) has been addressed. Noise emissions at receptor R2 may warrant further investigation, should there be adverse impacts from exceeding the relevant assigned noise levels. Moreover, the Licence Holder is required to comply with the assigned levels specified in the *Environmental Protection (Noise) Regulations 1997* for the premises.
PFAS management	• While the constructed PFAS treatment unit (PTU) aims to treat water to meet ultra-trace levels, below both national and international guidelines for aquatic ecosystems, the Licence Holder has been found to have historically constructed PFAS management infrastructure without proper authorisation. History of non-compliance raises concerns about ongoing operational diligence and risk management. • It was recommended that ongoing third-party verification of PFAS treatment be required, with consequences for exceedances or operational lapses.	The construction and operation of the PTU have been assessed and regulated under a previous amendment to licence L6465/1989/10, dated 20 February 2024. In accordance with the *Guideline: Risk Assessments* (DWER 2020b), the department had regard for the fitness and competency of the Licence Holder in determining the likelihood of an impact occurring. The operation of the PTU, beyond the proposed use of spot sampling to collect treated water, has not been reassessed as it is not within the scope of this assessment. In deciding to grant this amendment, the department considered the historical performance of the PTU to date, as well as non-compliances associated with the Licence Holder.

Proposed activities	Summary of comment	Department's response
Modification to design of stormwater collection pond ASW3 (refer to Section 2.3.3)	• While the proposed ASW3 will have modern lining and reduce reliance on older, unlined sumps, the department should have adequate oversight over pipeline installations, leak detection systems and pond integrity to ensure environmental impacts are minimised. • It was recommended that pipeline and pond infrastructure meet highest engineering and regulatory standards.	The department has assessed the proposed modifications and has included relevant conditions relating to the containment infrastructure's construction, operation and reporting, in conditions 1, 2, 12 of the amended licence.
Rehabilitation	• There are concerns over cumulative impacts of mining on the jarrah forest system, where cleared areas have not been rehabilitated to their pre-disturbed conditions. • This amendment has not addressed these legacy impacts. Independent, long-term ecological monitoring should be attached to any approval. • It was recommended that conditions requiring demonstrable progress in ecological restoration are included in the licence.	Activities related to rehabilitation of cleared areas are not regulated under Part V Division 3 of *the Environmental Protection Act 1986*. At the Willowdale Mine, clearing, mining, exploration, and rehabilitation activities are detailed in a five-year Mining and Management Plan that is submitted to the Minister for State Development under the *Alcoa Refinery (Wagerup) Agreement and Amendment Act 1978*. Therefore, activities relating to rehabilitation have not been assessed under this amendment and relevant conditions have not been included in the amended licence L6465/1989/10.
Transparency and public interest	• Prior non-compliances have caused significant concern from community and First Nations groups over environmental and cultural impacts. • It was recommended that conditions with stringent requirements for transparency, frequent public reporting and measurable benchmarks are included in the licence.	The department requires annual reports be submitted to the department, in the form of an Annual Audit Compliance Report and an Annual Environmental Report (condition 27 and 28). Furthermore, non-compliances must also be reported to the department (condition 25). The department publishes on its website Annual Audit Compliance Reports for licences, which outlines the production capacities and relevant non-compliances that have occurred in the preceding annual period. Further, during the assessment of any applications for a works approval, licence, and/or significant amendment to an instrument, the department will publish the application for public comment, as was the case for this application to amend the licence. Comments from third parties and the public are considered by the department in its decision. Following granting of this amendment, third parties may lodge an appeal against a decision. Appeals are managed by the independent Office of the Appeals Convenor, with decision-making undertaken by the Minister for Environment.

Appendix 2: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
Condition 1 – Design and construction requirements	In Table 1, the Licence Holder requested that pipelines associated with the proposed stormwater collection pond ASW3 and Anpress pre-treatment sump ASP3 be authorised for underground culvert installation, where it intersects roads or areas requiring vehicle access aboveground within the existing pipeline easement. This requirement is consistent with previous requirements for installing pipelines to transport PFAS-impacted water to the pre-treatment dams.	The department has amended the requirement in Table 1 accordingly.
	In Table 1, the Licence Holder highlighted that the pipeline between the proposed stormwater collection pond ASW3 to the existing Arundel pond AP1 was not included. The relevant pipeline route was shown in Figure 2 of the amended licence.	The department has amended Table 1 to include the relevant pipeline.
	In Table 1, the Licence Holder requested that the requirement for liner permeability at stormwater collection pond ASW3 be clarified, such that the permeability specified (1×10^{-9} m/s) was applied to both liners combined, rather than a requirement for the clay and HDPE liner individually.	The department has amended the requirement in Table 1 accordingly, with the intent that the permeability of 1×10^{-9} m/s would be achieved through the HDPE liner, with a clay liner installed underneath it to form a composite liner.
Condition 6 – Infrastructure and equipment requirements	In Table 4, the Licence Holder specified unintended omissions and typographical errors in referring to the relevant infrastructure (e.g., ASW3, Orion Sump 3).	The department has corrected the omissions and errors in Table 6 accordingly.
	In Table 4, the Licence Holder requested operational requirements relating to the Arundel stormwater collection ponds ASW1, ASW2, and ASW3 be clarified, as the requirements permit transfer of hydrocarbon-treated water only between the Anpress hydrocarbon treatment unit to ASW3, but not from Arundel pond AP1 to ASW2.	The department has amended the requirements in Table 4 accordingly, to reflect current water management practices at existing stormwater collection pond ASW2. The wording of the requirement has also been revised to improve clarity.

Condition	Summary of Licence Holder's comment	Department's response
	Based on current mine water circuit, an emergency overflow spillway at AP1 allows excess water to flow into ASW2 via a channel. Similarly, ASW2 can divert excess flow to AP3 and AP4. This configuration will continue to be used until ASW3 has been constructed (and ASW2 decommissioned). Therefore, the Licence Holder request that the operational requirements for stormwater collection ponds be amended such that stormwater may be accepted at all three ponds, while hydrocarbon-treated water may be accepted at ASW2 and ASW3. The relevant channel route is shown in Figure 2 of the amended licence.	
	In Table 4, the Licence Holder requested that minimum freeboard requirements be removed for stormwater collection ponds ASW1 and ASW2 and Anpress pre-treatment sump ASP1, as these ponds and sumps are equipped with spillways to manage excess water and prevent overtopping (i.e., ASW1 flows to ASW2, ASW2 flows to AP3, ASP1 flows to ASP2). This proposed change would be consistent with requirements for the Arundal ponds AP1 to AP4 and boneyard sumps Stage 1 to Stage 3, where ponds and sumps with a spillway is exempt from freeboard requirements. Freeboard requirements will be retained for ASW3 (once constructed), ASP2, and ASP3.	The department has amended the requirements in Table 4, such that existing ponds equipped with spillway to divert excess water do not require a minimum freeboard to be maintained. However, the requirement of a minimum freeboard has been specified for terminal containment infrastructure.
	In Table 4, the Licence Holder requested that the requirement to maintain storage capacities of containment infrastructure (e.g., Anpress pre-treatment sumps, Arundel ponds, stormwater collection ponds, boneyard sumps) be removed from the amended licence. This is because demonstrating and maintaining compliance against these specified storage capacities is disproportionately challenging, such that the accumulation of some sediment may technically result in a breach of the licence condition. These containment infrastructures were designed to allow sediments to accumulate and minimise the frequency of dredging required. Frequent dredging may increase the risk of incidental liner damage. Further, the licence also specifies minimum freeboard requirements to manage the risk of overtopping during and after rainfall events. In addition,	The department has amended the requirements in Table 4 to remove requirements to maintain storage capacities of containment infrastructure, noting that these infrastructures have been constructed to their design capacities and are required to either drain through a spillway to manage excess water or maintain the relevant freeboard. The maintaining of spillways, drains, and inspections for required freeboard should be the primary control implemented to manage the risk of overtopping.

Condition	Summary of Licence Holder's comment	Department's response
	emergency spillways have been installed, such that excess water at ASW1, ASW2, AP1, AP2, and AP3 will eventually flow into AP4, where the key control for managing overtopping is the freeboard requirement at AP4.	
Condition 7 – Inspection of infrastructure	In Table 5, the Licence Holder specified table referencing that have not been updated in the draft licence amendment. Furthermore, the Licence Holder requests the infrastructure name for the 'DAF water treatment facility' be updated to 'Anpress treatment unit' to better align with naming convention throughout the licence text and in Figure 2.	The department has amended Table 5 accordingly.
Condition 12 – Authorised discharge points	The Licence Holder indicated a formatting error with the condition wording.	The department has corrected the formatting error in the amended licence accordingly.
Condition 20 – Monitoring of point source emissions to surface water	In Table 11, the Licence Holder indicated that the amendment to authorise monitoring of treated water samples using spot sampling was only limited in situations where the autosampler experienced mechanical failure. Other reasons for authorising use of spot sampling were not specified, including where the composite sample collected by the autosampler becomes compromised. There have been instances where the composite sample was compromised due to contamination of zinc and hydrocarbons associated with the autosampler. Where this had occurred in the past, the Licence Holder has had to unnecessarily re-treat the treated water to meet the requirements of the licence for discharge, despite meeting the relevant water quality discharge criteria in Table 8 of the licence. The Licence Holder is supportive of including requirements for reporting to the department in batches where suspected composite sample contamination has occurred.	The department has amended Table 11 accordingly, to authorise the use of spot sampling for the purpose of demonstrating compliance with condition 20 in the event of suspected contamination or compromise of the composite sample. It is expected that the Licence Holder take the necessary steps to ensure that proper sample collection and preservation protocols are implemented, such that the need for spot sampling is minimised as much as practicable.