# Amendment Report

## Application for Licence Amendment

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

| | |
|---|---|
| **Licence Number** | L4467/1972/14 |
| **Licence Holder** | Chevron Australia Pty Ltd |
| **ACN** | 086 197 757 |
| **File Number** | DER2013/000939-4 |
| **Premises** | Barrow Island Oil and Gas Facility<br><br>Legal description –<br><br>Crown Reserve 11648<br>BARROW ISLAND WA 6712<br><br>As defined by the Premises maps attached to the Revised Licence |
| **Date of Report** | 24 June 2024 |
| **Decision** | Revised licence granted |

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# 1. Decision summary

Licence L4467/1972/14 is held by Chevron Australia Pty Ltd (Licence Holder) for the Barrow Island Oil and Gas Facility (the Premises), located at Barrow Island WA.

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 operation of the Premises. As a result of this assessment, Revised Licence L4467/1972/14 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the Premises.

# 2. Scope of assessment

## 2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the Department of Water and Environmental Regulation (department) has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://www.wa.gov.au/service/building-utilities-and-essential-services/integrated-essential-services/dwer-regulatory-documents.

## 2.2 Application summary

On 6 December 2023, the Licence Holder submitted an application to the department to amend Licence L4467/1972/14 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Addition of category 61 to the licence to accommodate receival of wastewater from the Gorgon Gas Development on Barrow Island at the existing Wellwork wash down facilities on the premises.
- An amendment to the boundary of the prescribed premises to remove part of the Bridging Utilities Area and the Oliver Bund Area from the licence due to the areas being part of the Gorgon Gas Development tenure and needing to be incorporated into the Gorgon licence (L9102/2017/1)

This amendment is limited only to changes to Category 61 activities and a prescribed premises boundary amendment. No changes to the aspects of the existing Licence relating to Category 10, 37 or 57 have been requested by the Licence Holder.

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

**Table 1: Proposed design or throughput capacity changes**

| Category | Current throughput | Proposed throughput | Description of proposed amendment |
|---|---|---|---|
| 61 | N/A | 4,680 tonnes | Addition of Category 61 to authorise receival of an estimated 116 tonnes per annum of wastewater at the premises Wellworks wash down facilities which is generated from well workover activities from the Gorgon Gas Development. |

The Wellworks wash down facilities are located at the Old Airport on Barrow Island and comprise concrete settlement basins used to capture washout from equipment used in well workover operations which may contain residual cement and barite muds. The facility consists of two pits, Snake Pit 1, a sunken concrete settlement basin designed to contain 29 $m^3$ of liquid (design capacity of 1,740 tonnes per year) and Snake Pit 2 a concrete and HDPE lined settlement basin with a design capacity of 2,940 tonnes per year. Wash out water is retained in the pits and allowed to evaporate. Each pit has an adjacent concrete drying bay where sludge is dried prior to placing in lined containers. Liquids from the drying bays drain back into the settlement basin. The dimensions of the bays are Snake Pit 1, 4 m by 5.25 m and Snake Pit 2, 8 m by 9.25 m.

The pits are expected to generate approximately 3,534 tonnes of solid waste which will be sampled for waste classification and taken to a licensed waste disposal facility.

The licence holder has maintained this facility since 2016 for treatment of wastewater from within the premises. In the future the facility is expected to receive an additional 116 tonnes per year of liquid waste from well workover activities at the Gorgon Gas Development.

# 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 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.

## 3.1 Source-pathways and receptors

### 3.1.1 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 2 below. Table 2 also details the control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

**Table 2: Licence Holder controls**

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| Contaminated wastewater (containing potassium chloride brine, barite muds, calcium carbonate and/or cement) | Storage of liquid waste (industrial wash waters) within settlement basins | Direct discharge to land due to overflow or spills from containment | – Maintain minimum freeboard of 0.5 metres<br>– When the freeboard is reached the settlement basin will be emptied in accordance with internal procedure/guideline, liquid waste will be removed via a vacuum truck to the premises liquid waste disposal facility (L71) and solids are dried in adjacent concrete dry out bays then removed for storage in a plastic lined lidded skip bin.<br>– Settlement basins are inspected during use and prior to predicted rainfall or cyclone to confirm freeboard.<br>– When using the wellwork washdown facility a form is completed documenting the activity |

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| | | | being undertaken at the facility, the type and volume of material being washed into or removed from the facility, and the freeboard remaining in the facility. |
| | | Seepage to soils and groundwater | – Both settlement basins are concrete lined with a surrounding concrete apron.<br>– Snake Pit 2 has additional HDPE lining. |
| | | Ingestion of, or contact with, contaminated water. | – Facility surrounded by chain link fence and covered with bird netting.<br>– Settlement sumps are designed with ramps to enable fauna egress. |
| Contaminated sludge/solids | | Direct discharge to land from containment | – Maintain minimum freeboard of 0.5 metres<br>– When using the wellwork washdown facility a form is completed documenting the activity being undertaken at the facility, the type and volume of material being washed into or removed from the facility, and the freeboard remaining in the facility.<br>– When the freeboard is reached the settlement basin will be emptied in accordance with internal procedure/guideline with solids are dried in adjacent concrete dry out bays then removed for storage in a plastic lined lidded skip bin which is stored on a hardstand before being transported to the Waste Transfer Station at the Gorgon Gas Development to await removal from Barrow Island for disposal. |
| Hydrocarbons | Power supply (generator) | Direct discharge to land from spills or leaks | – Generators have secondary containment which is sufficiently impervious to enable the recovery of spillage and has capacity to contain 110% of the tank volume. |

### 3.1.2 Receptors

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

Table 3 below provides a summary of potential 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)). Human receptors are not included as they are sufficiently far that impacts are not expected to occur as a result of the proposed amendments.

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

| Environmental receptors | Distance from activity / prescribed premises |
|---|---|
| Managed Lands and Waters | Located within the Barrow Island Class A Nature Reserve (BINR) |
| Threatened Ecological Communities and Priority Ecological Communities | The BINR is listed as a Priority Ecological Community. Smaller areas identified as Priority Ecological Communities are located on Barrow Island. |
| Threatened / priority flora | Three species of priority flora are located on Barrow Island |
| Threatened / priority fauna (terrestrial and marine) | A considerable number of threatened and priority fauna are known to occur on Barrow Island including a number species that are listed under the *Biodiversity Conservation Act 2016* (WA) (BC Act) and the Threatened (Vulnerable) Species list of the EPBC Act.<br>Green and flatback turtles (both listed as vulnerable under the BC Act and EPBC Act) nest on Barrow Island. Flatback turtle rookies are recorded on the eastern coast of the island. |
| Groundwater | There is one shallow unconfined freshwater aquifer predominantly within Tertiary limestone on Barrow Island. This freshwater aquifer forms a lens of relatively fresher groundwater floating upon denser, saline ground water at depths between 9 m and 53 m. The aquifer supplies domestic water for oil and gas operations and supports subterranean fauna.<br>The groundwater system is linked to the marine ecosystem. |

## 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and 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 4.

The Revised Licence L4467/1972/14 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises.

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

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

| 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** | | | | |
| Storage of liquid waste (industrial wash waters) within containment sumps | Contaminated wastewater (containing potassium chloride brine, barite muds, calcium carbonate and/or cement) | Direct discharge to land due to overflow or spills from containment causing contamination of soil or overland flow potentially impacting the health of flora adjacent to the facility. | Soils on the premises and flora within the Barrow Island Class A Nature Reserve | See section 3.1 | C = Major<br>L = Unlikely<br>**Medium Risk** | Y | Condition 1<br>**Condition 2**<br>Condition 16 (c) | The Delegated Officer determined the licence holder's proposed controls are sufficient to mitigate the likelihood of loss of containment via spills/overtopping and applied operational controls based on these as conditions in the licence. A condition specifying acceptance criteria for liquid waste has also been included in the licence to ensure the activity is aligned with that proposed by the licence holder. |
| | | Seepage to soils and infiltration to groundwater causing contamination | Soils on the premises<br>Groundwater ~ 9m below ground level | See section 3.1 | C = Minor<br>L = Unlikely<br>**Medium Risk** | Y | Condition 1 | The Delegated Officer determined the settlement basins have been constructed of suitable material (concrete) to mitigate the risk of loss of containment via seepage. Operation and maintenance of the infrastructure to ensure it remains suitably constructed to contain liquid waste is necessary to maintain an acceptable level of risk of seepage impacts therefore the Delegated Officer has specified this as an operational requirement. |

| Risk Event | | | | | Risk rating[1]<br>C = consequence<br>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** | | | | |
| | | Ingestion of, or contact with, contaminated water.<br>Drowning | Fauna within the Barrow Island Class A Nature Reserve (includes threatened species) | See section 3.1 | C = Major<br>L = Unlikely<br>**Medium Risk** | Y | Condition 1 | The Delegated Officer determined the licence holder's proposed controls are sufficient to mitigate the risk of the proposed activity impacting native fauna and applied these as operational conditions within the licence |
| | Contaminated sludge/solids | Direct discharge to land causing contamination of soils | Soils on the premises | See section 3.1 | C = Minor<br>L = Unlikely<br>**Medium Risk** | Y | Condition 1<br>**Condition 2**<br>Condition 16 (c) | The Delegated Officer determined the licence holder's proposed controls are sufficient to mitigate the risk of impacts from wastewater sludges entering the environment and applied operational controls based on these as conditions in the licence. A condition specifying acceptance criteria for liquid waste has also been included in the licence to ensure the activity is aligned with that proposed by the licence holder. |
| Power supply (generator) | Hydrocarbons | Direct discharge to land from spills or leaks causing contamination of soils and/or groundwater | Soils on the premises<br>Groundwater ~ 9m below ground level | See section 3.1 | C = Minor<br>L = Unlikely<br>**Medium Risk** | Y | Condition 1 | The Delegated Officer determined the licence holder's proposed controls are sufficient to mitigate the risk of hydrocarbon contamination and applied these as operational conditions in the licence. |

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.

# 4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

**Table 5: Consultation**

| Consultation method | Comments received | Department response |
|---|---|---|
| Local Government Authority advised of proposal 28 February 2024 | The Shire of Ashburton replied 20 March 2024 advising that they had no objections to the proposal. | The Delegated Officer noted this advice. |
| DBCA advised of proposal 28 February 2024 | DBCA replied 20 March 2024 and advised that they had no comment. | The Delegated Officer noted this advice. |
| Licence Holder was provided with draft amendment on 8 May 2024. | Licence holder replied on 21 May 2024 with further additional information supplied on 13 June 2024. Comments are included in Appendix 1 | Refer to Appendix 1 |

# 5. Decision

Based on the assessment in this amendment report the Delegated Officer has determined the proposal to accept liquid waste from well workover activities onto the premises does not pose an unacceptable risk of impacts to receptors and determined to make amendments to authorise acceptance of liquid waste from the Gorgon Gas Development onto the Barrow Island Oil and Gas Facility premises. The determination is based on the following:

- Liquid waste will be received at existing infrastructure (Snake Pit 1 and 2) which is already used to manage similar liquid waste generated by well workover activities on the premises.
- Operational conditions based on the licence holder's proposed controls have been included in the licence to ensure:
    - the liquid waste infrastructure is suitably operated and maintained to prevent loss of containment of the liquid waste and sludges; and
    - fauna is prevented from accessing the facility.
- Conditions have been included in the licence to ensure only the waste types and quantities considered in this assessment are received onto the premises.

The Delegated Officer additionally determined to amend the premises boundary to remove the Bridging Utilities Area and the Oliver Bund Area which are now under the operational control of the Gorgon Gas Development.

# 6. 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.

## 6.1 Summary of amendments

Table 6 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 6: Summary of licence amendments**

| Condition no. | Proposed amendments |
|---|---|
| Cover page | Addition of Category 61 the prescribed premises table |
| Condition 1, item 7 | Addition of operational requirements for Wellworks Washdown Facility |
| Condition 2 | Addition of wastewater acceptance criteria |
| Condition 16 (c) | Addition of a record keeping requirement relating to liquid waste receivals |
| Maps | New maps at Figure 1 and Figure 8 |

# References


1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. Chevron 2023, *Application for licence amendment and supporting information*, Perth, Western Australia

# Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

| Condition | Summary of Licence Holder's comment | Department's response |
|---|---|---|
| Prescribed premises category 61 (in the instrument and decision report)<br><br>Condition 2 Table 2 | The expected breakdown of liquid waste received at the wellworks washdown facility is 4,564.8 tonnes from WA Oil operations (the premises) and 115.2 tonnes from the Gorgon Gas Development. This could change as operational needs evolve.<br><br>Chevron requests amending conditions and category 61 to the following effect:<br>'4,680 tonnes per year, received from locations across Barrow Island (including the Gorgon Gas Development)'.<br>Chevron requests the licence does not impose limits on the breakdown of waste between WA Oil and Gorgon. | Category 61 is for waste accepted from premises other than the prescribed premises itself. Therefore, only the quantity received from the Gorgon Gas Development is relevant to the category and relevant licence conditions. The Delegated Officer has specified an assessed capacity of 250 tonnes per annum to provide some flexibility if there is an increase in volume received onto the premises. |
| Several places throughout Decision Report and Licence | To the extent it is referred to request references to 'Gorgon GTP' are changed to 'Gorgon Gas Development' as the waste comes from Gorgon operations across Barrow Island: | The requested changes were made to the decision report and licence. |
| Table 1 Item 7d | Requested to remove reference to concrete in the requirements below as this would create a new control rather than utilising existing controls which are drying of the sludge before loading into plastic lined enclosed vessels stored located on a hardstand. Further information was provided that the sludge is dried in a concrete bay adjacent to the settlement pits prior to loading into plastic lined enclosed vessels.<br><br>'Sludge removed from the settlement basins must be contained within enclosed vessel/s located on a ~~concrete~~ hardstand area | The intent of the control is to prevent discharge of contaminated material into the environment. If hardstands are not constructed with suitable permeability they are ineffective at containing spillage. The Delegated Officer was unable to establish that the proposed area was a hardstand which meets a permeability of $1x10^{-9}$ m/s or less therefore there is insufficient evidence it is an effective control so the condition has been amended to:<br>*Dry sludge removed from the drying bays must be contained within enclosed and plastic lined vessel such that no leaks occur.* |
| Table 1 Item 7f | Requested revision of the condition as follows to allow some flexibility to adopt the most reasonable and effective solutions:<br><br>'Bird ~~netting~~ deterrents must be maintained over each settlement basin.' | While noting that the sumps are currently covered by bird netting the Delegated Officer recognises that operational requirements may necessitate a change in the future and agrees to make the requested change. |