

23 September 2025

Deana Burn
Planning Officer
Department of Planning, Housing and Infrastructure

By Major Projects Portal

EPA Advice on Orica Chlor-Alkali Plant Modification (DA35/98-Mod-6)

Dear Deana

I am writing in response to your request for the NSW Environment Protection Authority (EPA) to provide advice for the construction and operation of a Chlor-Alkali Plant (CLP) (DA35/98-Mod-6) at 16-20 Beauchamp Road, Banksmeadow (the project).

The EPA has reviewed the following documents:

- *Chlorine Liquefaction Plant Modification to State significant Development: Modification Report (rev.3.)* prepared by Element Environment Pty Limited (August 2025).
- *Quantitative Risk Assessment Report Proposed Chlorine Liquefaction Plant Modification to Chloralkali Facility Botany Industrial Park (rev.2)* prepared by Sherpa Consulting Pty Ltd (July 2025).
- *Noise and Vibration Impact Assessment* prepared by Muller Acoustic Consulting Pty Ltd (July 2025).
- *Air Quality Impact and Greenhouse Gas Assessment Chlorine Liquefaction Plant* prepared by Todoroski Air Sciences Pty Ltd (July 2025).
- *Project Gemini Chlorine Liquefaction Plant Definitive Feasibility Study & Detailed Design Flood Impact and Risk Assessment Report (rev. b)* prepared by Kellogg Brown & Root Pty Ltd (February 2025)
- *Detailed Site Investigation (rev.1)* prepared by JBS&G Australia Pty Ltd (February 2025).
- *Remedial Action Plan (RAP) (rev. A)* prepared by JBS&G Australia Pty Ltd (January 2025).
- *Environmental Management Plan (rev.2)* prepared by IXOM Botany (September 2021).
- *Dangerous Goods Transport Risk Assessment (rev.1)* prepared by Sherpa Consulting (March 2025).

The EPA understands the proposal is for:

- The construction and operation of a Chlor-Alkali Plant to enable on-site liquefaction and packaging of chlorine that will have a maximum production capacity of 50 tonnes per day of liquid chlorine.

NSW Environment Protection Authority

As the environmental steward and regulator of our State we are committed to a sustainable future. Join us on our mission to protect tomorrow together.

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The Applicant currently holds environment protection licence No. 20547 under the Protection of the Environment Operations Act 1997 (POEO Act) for general chemicals storage, non-thermal treatment of hazardous and other waste, waste storage - hazardous, restricted solid, liquid, clinical and related waste and asbestos waste and dangerous goods production. The EPA notes that a Licence Variation will be required if the Department of Planning, Housing and Infrastructure (DPHI) approves this proposal.

The EPA has reviewed the modification report and notes that it does not provide the information required to allow us to complete our assessment. The EPA has the following comments and recommendations:

Matters to be addressed prior to determination

- Greenhouse Gas Assessment
- Environmental Management Plan

Please find the EPA's request for further information in **Attachment A** and recommended conditions of consent in **Attachment B**, should the project be approved. This response addresses the Greenhouse Gas Assessment, Air Quality Assessment and Environmental Management Plan. The EPA advises the proposal is still being reviewed for several issues and will provide further advice to DPHI addressing Major Hazards Facility, Dangerous Goods and Contaminated Land Management (CLM), once the review has been completed.

If you have any questions about this request, please contact Jenny Gustafson via email at environmentprotection.planning@epa.nsw.gov.au.

Yours sincerely



Christie Jackson
Unit Head – Environment Protection Planning
NSW Environment Protection Authority

ATTACHMENT A – ADDITIONAL INFORMATION REQUIRED

Greenhouse Gas Assessment

The EPA reviewed the Greenhouse Gas component in the *'Modification Report'* and *'Air Quality Impact and Greenhouse Gas Assessment'* concluding that the Scope 1 and Scope 2 greenhouse gas (GHG) estimates for the 'maximum production capacity' is expected to generate more than 25,000 tonnes per annum (tpa) of Scope 1 and Scope 2 emissions. Based on these estimates, the proposal will trigger the assessment requirements outlined in the NSW EPA Guide for Large Emitters (Large Emitters Guide).

The EPA recommends that DPHI request a revised GHG assessment which is prepared consistent with the principles in the NSW EPA Guide for Large Emitters.

Input data and assumptions should be justified and supporting evidence provided to reduce the risk of delays or the need to request additional information during the assessment. This should include supporting information detailing the assumptions behind the estimated emissions.

It is recommended that the revised GHG assessment should detail the following:

- The report is to consider Appendix C of the NSW EPA Guide for Large Emitters. If the Applicant considers that certain requirements of the guide are not applicable, this can be specified. However, supporting evidence and justification are to be provided.
- Discuss and mention the Applicant's emission reduction goals.
- Discuss and mention GHG mitigation measures and how the Applicant applied the principles of avoidance, reduction, substitution, and offset as per Figure 1 (GHG emissions mitigation hierarchy) of the large emitters guide.
- The report notes that the GHG emissions impacts from construction and operation of the project have been assessed in accordance with the interim climate change assessment requirements for large emitters (EPA, 2024). However, the NSW Guide for Large Emitters has since been finalised and is to be considered in GHG assessment.
- While the report includes Scope 1 and Scope 3 emissions, the calculations seem to have used outdated emission factors. It is recommended that the Applicant use the most updated emissions factors published in the *National Greenhouse Accounts Factors: 2025* by DCCEEW ([National Greenhouse Accounts Factors: 2025 - DCCEEW](#)). Additionally, indirect emissions from energy consumption (Scope 2) should be revised using the latest emissions factors available in *Australia's Emissions Projections 2024 – DCCEEW* ([Australia's emissions projections 2024 - DCCEEW](#)).
- The assessment boundary for the modification needs to be clarified, defining which emission sources and activities are included and excluded in the assessment, as per Box 3 of the NSW Guide for Large Emitters.
- The report appears to project Scope 1 and Scope 2 emissions only to 2035. If the project will continue beyond 2035, the revised GHG assessment is to include the projected emissions during the project's operational life.
- The Scope 3 emissions could not be replicated. Please outline the assumptions and data inputs used to estimate emissions for all scenarios.
- The operational scenarios presented in the assessment require clarification, in line with Box 5 of the NSW Guide for Large Emitters. The definitions and adequacy of the scenarios, particularly the modification only scenario, are unclear and should be further detailed as per the following comments:
 - The report states that Chlor-Alkali Plant (CAP) currently sources steam from neighbouring facilities, but this is expected to cease, requiring on-site generation and

increased LPG use, accounted for in the BAU scenario. It is unclear whether this change forms part of the modification under assessment, and if so, whether associated GHG emissions have been adequately considered. Further detail on the anticipated additional LPG consumption and related emissions is needed to clarify this.

- For the modification only scenario, the report attributes change in Scope 1 emissions to increased diesel use for transporting liquefied chlorine and additional LPG requirements for CAP operations. Scope 2 emissions are described as a minor increase, yet they contribute significantly compared to Scope 1. Further details are needed to support and clarify these statements.
- The EPA notes that the modification does not seek to increase the existing approved production limit of 35,000 tpa of chlorine products but included GHG estimates for the 'maximum production capacity' scenario which assumes the project operates at 50 tonnes per day (tpd). GHG estimates for the maximum approved production limit of 35,000 tpa should also be provided in the revised GHG assessment.

Environmental Management

Environmental Management Plan:

The *Environmental Management Plan* (EMP) dated 21 September (2021) is outdated and does not include information regarding the proposed Chlorine Liquefaction Plant and the impacts of onsite stormwater, effluent drainage locations and capacity.

The EPA recommends that an updated EMP be provided detailing:

- a) the current installed systems, environmental risks and mitigation measures at the premises.
- b) the current effluent management system, stormwater, effluent drainage locations and capacity, layout plan, operational procedures and responsibilities.
- c) the proposed Chlorine Liquefaction Plant and layout plans for the stormwater and effluent treatment system installed at the premises including any internal drains that will be installed and directed to the existing effluent treatment system.

Environmental Mass Balance:

The EPA reviewed the *Modification Report* and *Environmental Management Plan* and there is no information regarding an *Environmental 'Mass Balance' assessment*.

The maximum estimated daily production capacity of liquified chlorine for the Proposal is 50 Tonnes – or, 18,250 Tonnes per annum and that no impact on the existing production capacity of the Chlor-Alkali Plant will occur, however there is no information provided on the existing production capacity of the plant other than a maximum production limit of 35,000 tonnes of Chlorine Products per annum.

The EPA recommends that DPHI requests the Applicant to conduct an environmental 'Mass Balance' assessment detailing inputs and outputs of the development, both at normal and maximum operating capacity.

Sodium Hypochlorite Management

The Modification Report outlines that the process of scrubbing air emissions will generate sodium hypochlorite as a by-product. There is a lack of information provided regarding the management of sodium hypochlorite as a by-product and the storage location.

The EPA recommends that DPHI requests the Applicant to provide further information on the waste management, including storage location, for waste Sodium Hypochlorite generated during both normal operations and in the event of an incident, noting that up to 350,000 Litres of sodium hypochlorite would be generated in the event of a chlorine stock tank rupture.

Attachment B – Recommended Conditions

Air Quality

Exhaust Stack

The final design of the exhaust stack and of the pollution control system must allow for emission testing requirements and have consideration for the requirements outlined in Australian Standard AS4323.1 *Stationary source emissions - Selection of sampling positions* (2021).

Post-commissioning verification study

The EPA recommends that the Applicant perform a Post-Commissioning Verification Study to verify the air emissions from the new chlorine liquefaction and packaging plant within 6 months of commissioning the new chlorine liquefaction and packaging plant.

The Applicant must:

- Engage a suitably qualified person to undertake the emissions sampling;
- Undertake sampling for all pollutants listed in the table below for Point 1, Point 3 and Point 4;
- Select all sampling positions for the air monitoring in accordance with TM-1;
- Undertake sampling when the plant is operating at full capacity and provide a suitable characterisation of the emissions during normal plant operations.

Pollutant	Units of measure	Frequency	Sampling Method
Chlorine	mg/m ³	Special Frequency 1	TM-7
Dry gas density	kg/m ³	Special Frequency 1	TM-23
Oxygen	Percent	Special Frequency 1	TM-25
Temperature	Celsius	Special Frequency 1	TM-2
Velocity	Metres per second	Special Frequency 1	TM-2
Volumetric flowrate	Cubic metres per second	Special Frequency 1	TM-2

Special Frequency 1 means within 6 months of commissioning.

The results of the post commissioning emission verification must be presented in a detailed report to NSW EPA within six weeks of completing the monitoring. The report must contain, as a minimum:

- All monitoring results;
- A detailed description of the sampling locations;
- All information listed under Analytical report, Stationary source monitoring in accordance with the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*,
- Details of plant operating conditions at the time of testing;
- A comparison of monitoring results with the standards of concentration prescribed in the Protection of the Environment Operations (Clean Air) Regulation (2021) and the emission parameters assessed in the *Air Quality Impact and Greenhouse Gas Assessment Chlorine Liquefaction Plant - Modification to State Significant Development Consent* (TAS, 2025).
- A comparison with the continuous measurements from the inline monitoring.

Noise

Construction Noise

All feasible and reasonable noise mitigation measures and work practices should be implemented during the construction phase of the proposal, to minimise impacts to surrounding sensitive receivers. Construction activities should be carried out during the recommended standard hours in Table 1 of the Interim Construction Noise Guideline (ICNG).

Operational Noise

The Applicant holds Environment Protection Licence (EPL) 20547 and contains noise limits under Condition L4. The EPA considers that the proponent has adequately assessed the noise impacts of the proposal and recommends that the existing EPL noise conditions continue to apply to the premises, inclusive of the proposed chlorine liquefaction plant.