

Attachment A - EPA Comments on Response to Submissions Report

Contents

Water	2
Appropriate Level of Protection for Port Kembla Harbour	2
Marine Growth Prevention System (MGPS)	2
Cold Seawater discharges from FSRU	3
Dredging and Sediment Disposal	3
<i>Mobilisation of sediment and attached contaminants</i>	4
<i>Disposal Method and Bunding Structure</i>	4
<i>Monitoring</i>	4
<i>Coal Terminal East Stockyard Spoil Disposal Option</i>	4
<i>Spoil Transport</i>	5
<i>Long term fate of Contaminants</i>	5
Contamination	5
Air	6
Construction Phase - Site preparation and establishment	6
Project Operation	7
<i>Fugitive emissions and leak detection and repair</i>	7
<i>POEO Clean Air Regulation Emission standards</i>	7
Noise	8
Construction hours	8
Methodology and Modelling of Sensitive Receiver Impacts	8
The Adequacy of Any Mitigation Measures Proposed	8

Water

Appropriate Level of Protection for Port Kembla Harbour

The Proponent has now adopted appropriate trigger levels for the construction and operational stages of this project.

Marine Growth Prevention System (MGPS)

In relation to the proposed Marine Growth Prevention System (MGPS), the EIS did not adequately address the following:

- proposed levels of chlorine discharge and the applicability of the adopted discharge criterion to NSW
- assessment of the mixing zones (both near-field and far-field) and the toxicity of the discharge
- assessment of MGPS by-products in the discharge.

Proposed level of chlorine discharge & the applicability of the adopted discharge criterion to NSW and Assessment of the mixing zones (both near-field and far-field) and the toxicity of the discharge

The Response to Submissions Report (RTS) responded to the EPA's comments on the EIS regarding high proposed chlorine discharges of 200 µg/L and now propose a 20 µg/L (80th percentile) total residual chlorine (TRC) discharge criteria. However, there remains some uncertainty regarding maximum levels of residual chlorine and the potential for acute toxicity at the point of discharge and potential chemical by-product impacts.

EPA policy is that all practical and reasonable measures should be implemented to ensure a discharge does not have acute toxicity risk at the point of discharge. The EPA EIS submission requested further information on the potential for acute toxicity in the immediate area around the discharge point, in particular the area that would be affected by concentrations above the US EPA marine water acute chlorine criteria of 13µg/L. At a meeting with the proponent in January 2019 the EPA also requested a breakdown of the data from within the mixing zone to identify potential acute risks. This information has not been provided.

A discharge concentration of 20 µg/L is above the 13µg/L acute figure. Additionally, a percentage of samples are likely to be above 20 µg/L (based on a proposed 80th percentile criteria) and the maximum TRC concentrations are not stated. The area and extent of acute toxicity risk is therefore unknown and the need for further mitigation of potential risk therefore has not been considered.

The EPA also requested a more detailed assessment of by-products of the sodium hypochlorite MGPS. The RTS assessment is limited to a statement that: "ANZECC guidelines stipulate concentrations of total residual chlorine (TRC), which considers the effects of not only sodium hypochlorite but also its by-products in the form of free chlorine (Cl₂, HOCl and hypochlorite ion OCl⁻ in equilibrium) and combined chlorine (N-chlorinated compounds such as chloramines). The aquatic toxicology testing for marine waters where iodide and bromide are present, measured and assessed total residual oxidants as µg Cl per L." It is recommended that verification monitoring accounts for the full range of sodium hypochlorite by-products.

In consideration of the above the EPA recommends the following conditions:

- a TRC limit of 13 µg/L; and
- a verification program to assess:
 - the residual acute toxicity risk in the immediate area around the discharge point

- discharge concentrations under the full range of operating conditions including median, 80th percentile, 90th percentile and maximum levels of all key pollutants
- mixing zone modelling predictions of achieving a guideline trigger value of 3 µg/L total residual chlorine at the edge of the near-field mixing zone
- the levels of any disinfection by-products that are not accounted for by total residual chlorine / total residual oxidant measurement
- accounts for the full range of sodium hypochlorite by-products
- operational monitoring requirements for ongoing monitoring of the discharge and mixing zone.
- a condition committing the proponent to specific contingency measures that could be implemented to address any residual risk of acute toxicity or chemical by-products for any deviation from modelled predictions and consent requirements.

Cold Seawater discharges from FSRU

The EIS states that during operation, seawater used in the regasification process will be discharged into the Inner Harbour via a horizontal discharge outlet at a rate of approximately 10,000m³ per hour at up to 7° Celsius cooler than the ambient sea water temperature. EIS modelling predicts that initial mixing will reduce the temperature differential to one degree at each end of the proposed berth and average temperatures within the port are expected to decrease by 0.1 to 0.2 degrees. EPA sought revised modelling per standard guidelines and more resolution in the presented modelled scenarios.

The additional modelling assessed the discharge against the water quality guidelines for temperature. Minor cases of non-compliance with the temperature criteria (based on median temperatures at the harbour floor during Summer and Autumn when the Bluescope discharge is excluded) are expected.

The EPA recommends a verification program condition that seeks confirmation of the following:

- that mixing zone modelling predictions are achieving guideline trigger values at the edge of the near-field mixing zone,
- modelling of potential cumulative temperature impacts on Port Kembla Harbour; and
- recommendations for ongoing operational monitoring.

This recommended condition of approval also requires the proponent to identify contingency measures that could be implemented to address any residual risk of any deviation away from modelling predictions or unacceptable impacts.

Dredging and Sediment Disposal

The EIS provided limited detail on the dredging / excavation and disposal. An estimated 720,000 m³ of material will be excavated and dredged from Berth 101 and moved by truck or barge to a disposal area largely located within the footprint of the proposed Outer Harbour berth structure. There are existing project and concept approvals for the Port Kembla Outer Harbour Development Expansion (under Part 3A).

EPA supports the reuse and reclamation of materials when it is safe and appropriate to do so. The EPA sought confirmation from the proponent that dredged and excavated Berth 101 material will be utilised as part of the Outer Harbour berth structure and demonstrate it is aligned with the Port Kembla Outer Harbour Development Expansion. Temporary emplacement of material in the Outer Harbour, particularly land based excavated material, is not an appropriate management measure for this material.

Pending EPA review of a complete Dredging Management Plan (DMP), the outline DMP provided in the RTS appears to provide an adequate basis for developing recommended

approval conditions. The RTS also stated that disposal of sediments will be undertaken to be consistent with the existing management requirements for disposal in the existing Outer Harbour Approvals.

The EPA recommends conditions that are currently required under the existing Outer Harbour Concept Approval conditions, in particular the *Containment Structures and Emplacement Report*. The complete DMP should also address specific contamination management and mitigation measures raised by EPA and inform relevant licensing requirements.

Mobilisation of sediment and attached contaminants

The EIS stated that elevated metal levels were found in both the Berth 101 area and the outer harbour, at levels above screening levels, and the potential for mobilisation was flagged during dredging. The sampling was limited but does confirm previous assessments of the harbour that there is acid sulfate soil, and heavy contamination of sediment by metals, and also PAHs. The EIS indicated that there is a high risk of contaminant mobilisation during the proposed works. Further assessment was warranted to quantify risks associated with exposure to contamination during construction and operation of the project.

As stated above, the outline DMP may provide an adequate basis for developing conditions in conjunction with existing Outer Harbour approval conditions. EPA has also recommended a condition where, *in addition to armouring of bund walls exposed to tidal and wave forces, the contaminated material emplaced in the bunds should have a low permeability clean capping to minimise the potential for contaminant mobilisation from rainfall and tidal movement, including both emerged and submerged surfaces.*

Disposal Method and Bunding Structure

The EIS stated that “Emerged” (up to 4m out of the water) and “Submerged” disposal (-3 m) is proposed. Prior to disposal a stabilising bund will be constructed along the perimeter of the disposal area. The stabilising bund is proposed to be constructed from the granular and sandy material excavated and dredged from the Berth 101 site.

Given the above variation in dimensions, it is unclear what the disposal area profile (RL -4 to RL -3 metres) will look like and how much will be above and below the water line. This information and the final stabilising / containment structures is critical to ensuring the stability of the emplaced material and the containment of the contaminated material. This issue could be addressed by appropriate approval conditions (such as the DMP, the Containment Structures and Emplacement Report, clean capping condition listed above as well as ongoing monitoring).

Monitoring

The EIS stated that continuous turbidity monitoring is proposed to be undertaken using a series of monitoring buoys to provide impact and background data (turbidity (NTU), pH, temperature). Periodic contaminant monitoring was also proposed. A Water Quality Monitoring Program is proposed to oversee compliance against a marine water quality criterion of background plus 50 mg/L of suspended sediment.

The EPA recommends the proponent develop specific triggers for contaminants related to background levels and based on routine monitoring. Visual inspections should also be incorporated as part of monitoring methods. The EPA recommends Water Quality Monitoring Programs incorporate these monitoring requirements.

Coal Terminal East Stockyard Spoil Disposal Option

The Proponent has removed this option from the proposal.

Spoil Transport

The EIS stated almost 35,000 proposed truck movements from Berth 101 to the Outer Harbour may occur over the construction period. The EPA requested that the proponent clearly justify the need for this number of truck movements and to consider transport options with fewer environmental impacts and to propose options to mitigate the impacts. These impacts may include noise, dragout, air emissions as well as traffic issues.

The RTS has revised proposed barge volumes to between 50 and 90% of excavated material equating to 360,000 cubic metres to 650,000 cubic metres. Further the RTS states that this will have a corresponding 50 to 90% in potential truck movements.

The EPA recommends as part of the detailed DMP the proponent assess and implement all feasible dredge spoil and excavated material transport options which represent the least environmental impact.

Long term fate of Contaminants

The EIS indicated that the Outer Harbour structure completed as an outcome of this project may remain in a partially completed state for an extended period of time. Environmental risks include the potential for infiltration of the finished structure by rainfall and tides that could mobilise emplaced contaminants. The long-term fate of the contaminants was not adequately considered in the EIS in terms of:

- the potential for future impacts from the emplaced material; and
- viable alternative options that could remove the contaminants from Port Kembla as a permanent solution.

There was also uncertainty in the fate of the structure as the separate Outer Harbour reclamation footprint has only concept plan approval and that concept appears to have changed. It appears the proposed emplacement fits with a likely new design, however that new design could change in future, with the potential for contaminated sediment to be disturbed again.

The EPA sought an assessment of alternative options for managing contaminated sediments or details of solutions to manage and contain contaminated sediments.

The RTS response proposes internal emplacement at depth in the final structure and clay capping. The combination of the finalised Dredging Management Plan, Outer Harbour approvals conditions (eg Containment Structures and Emplacement Report) and ongoing monitoring should be considered by DPE in developing conditions to manage this risk.

If uncertainty remains in the long-term containment of emplaced contaminants, the can consider recommending specific licence conditions, such as Financial Assurances, to manage any remaining risks associated with this material.

Contamination

The EPA EIS submission raised concerns regarding the:

- absence of an assessment of the risks to benthic marine organisms for Berth 101 material.
- limited assessment of polychlorinated biphenyls (*PCBs*), Benzo(a)pyrene-TEQ impacts and Groundwater characterisation at Berth 101
- extent of the assessment (characterisation, vertical depths, nutrients, groundwater and remediation) along the proposed Pipeline route

The EPA recommended the proponent conduct further detailed site assessments across the footprint of the site to provide certainty on the extent of contamination and site suitability for the intended use, for Berth 101 and the Gas Pipeline, as follows:

In the RTS response the Proponent states that:

- contaminated sediments were identified and concentrations were largely consistent across dredging and disposal areas
- the benthic communities were assessed and found to be limited in extent and further any construction impacts would not be long term
- the dredging and disposal methodologies would limit impacts
- PCB investigations were adequate an presence of elevated concentrations at depth is considered low
- Benzo(a)pyrene-TEQ was detected in only 2 locations
- groundwater investigations were adequate
- the high level assessment to identify potential contamination risks along the pipeline alignment were adequate

In response the EPA has proposed conditions requiring:

- the proponent engage a *NSW EPA accredited Site Auditor* to review and endorse remediation and management plans and to issue a Site Audit Statement at the completion of the works,
- *unexpected finds protocols* for Berth 101 and the gas pipeline. The protocol should include procedures and mitigating measures to be followed in the event unexpected contamination is encountered during the development (which potentially could include asbestos containing materials), prior to commencing any work on the development site. The proponent should ensure that the procedure includes details of who will be responsible for implementing the unexpected finds procedure and the roles and responsibilities of all parties involved.
- Contamination considerations listed in the Water Quality Monitoring plan, and Acid Sulfate Soil Management Plan

Air

The Air Quality Impact Assessment has been undertaken with reference to the EPA's guidance, however, there were limitations with the assessment, as detailed below.

Construction Phase - Site preparation and establishment

The EPA submission advised that the assessment did not include a detailed characterisation and evaluation of potential air emissions from bulk earthworks activities. EPA sought a revised assessment to:

- account for potential air emissions from site establishment works, including excavation, stockpiling and material handling. As a minimum, the revised assessment must consider potential for particulate and vapour phase emissions, including air toxics associated with contaminated material;
- benchmark excavation, dredging, material handling and stockpiling activities against best practice process design and emission control/management.

The RTS report includes air dispersion modelling results for PM10 and PM2.5 (presumably 24-hour average) from excavation, dredging and material disposal activities during site establishment and construction. Results indicate that particle impacts could be adequately managed via comprehensive proactive and reactive management measures.

The RTS report:

- provides a qualitative discussion of potential for contaminated material (air toxics) to be emitted during site establishment and construction activities.

- advises that there is a low risk of individual toxic emission due to the low levels of contaminants (including volatiles) identified and the implementation of management practices, such as maintaining a high sediment moisture content.

The RTS report provides additional information indicating that site establishment and construction emissions can be adequately managed via proactive and reactive management. EPA has proposed air quality / dust management plans as conditions of any approval.

Project Operation

Fugitive emissions and leak detection and repair

The EIS did not account for, or assess, gas losses due to leaks or other 'working losses'. EPA believes that gas and liquid storage can potentially result in emissions due to working losses (such as transfers), standing losses (such as tank storage) and leaks in process infrastructure. The Proponent has committed to a leak detection and repair program which has been conditioned in the EPA response.

POEO Clean Air Regulation Emission standards

The EIS advised that during operations of the project, compliance with International Maritime Organization (IMO) legislation and guidelines will minimise the impacts and ensure compliance with domestic air quality guidelines. It is also stated that the project would be operated to ensure it complies with the POEO (Clean Air) Regulation.

EPA considered the FSRU is likely to be incorporated within the EPA licence premises description as the vessel will be stationary and moored for the life of the project. Accordingly, the FSRU could be subject to Protection of the Environment Operations (POEO) Act and POEO (Clean Air) Regulation requirements including Part 3 and Part 4 Clean Air Regulation limits.

To assess impacts associated with the operational stage of the project, EPA requested:

- The air impact assessment incorporate an assessment against POEO Clean Air Regulation, Part 3 and or Part 4 emission limits.
- The proponent provide advice on any legislation that overrides the Protection of the Environment Operations Act and/or the Protection of the Environment Operations (Clean Air) Regulation applying to the FSRU. Eg Commonwealth maritime legislation such as Protection of the Sea (Prevention of Pollution from Ships) Act 1983 and Maritime Legislation Amendment Act 2015.

The RTS report:

- provides a cursory comparison of the modelled emission concentrations with NSW POEO (Clean Air) Regulation emission limits. The comparison indicates that compliance would be achieved for all pollutants under all proposed operating scenarios with the exception of NOx emissions when operating on fuel oil.
- does not include detailed advice or discussion about Commonwealth legislation and its potential interaction with specific elements of the POEO Act and POEO (Clean Air) Regulation, in the context of the proposal. However, section 4.11.3 of the submissions report does generally discuss the application of Commonwealth and State pollution regulations, surmising that "... *the usual construction would apply to state environmental protection legislation: it will be in force unless a Commonwealth Act purports to cover the same field. In that case the Commonwealth Act prevails.*

The EPA has included NSW Clean Air Regulation limits and monitoring requirements. This matter will require further discussions based on more precise information from the proponent as well as legal advice from DPE and EPA and possibly the Crown Solicitors Office on the activities.

Noise

Construction hours

The EPA required further justification be provided to demonstrate the need for construction outside of the recommended standard hours of work defined in Table 1 of the *Interim Construction Noise Guideline*. A copy of the document can be found at <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/noise/09265cng.pdf>

The construction noise predictions incorporated in the reviewed documentation are based on adjusted sound power levels for construction activities. They are likely to under predict construction noise impacts.

The *Interim Construction Noise Guideline* includes a methodology to justify out of hours work which includes consideration of feasible and reasonable mitigation. The proponent's justification listed in the RTS on convenience and economic grounds does not satisfy this methodology or the need for construction work outside recommended standard hours .

There is insufficient information to evaluate the duration and extent of the impact or the adequacy of any mitigation. The proponent's information also includes a predicted exceedance up to 22dBA of the Construction noise Management Levels during the night time period for the pipeline construction (in NCA2).

A noise condition has been recommended which limits construction to standard hours until justification has been provided per the EPA Interim Construction Noise Guidelines.

Methodology and Modelling of Sensitive Receiver Impacts

The EPA recommends the proponent review the predicted operational noise levels, including the validity of the nominated sound power levels. The proponent should also assess any potential annoying characteristics from operational activities.

EPA is satisfied with the response regarding sound power levels of equipment used for operational noise modelling and have provided recommended noise limits for operation.

The Adequacy of Any Mitigation Measures Proposed

The Noise Impact Assessment in the EIS did not include any recommended mitigation measures for operation, as the noise levels were not predicted to exceed the Project Noise Trigger Levels. As mentioned above, the predicted operational noise levels may have been underestimated.

EPA is satisfied with the response in the RTS and has provided recommended noise limits for operation.