

Submissions

## Pamela Morales

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**To:** Grant Greene-Smith  
**Subject:** RE: Caltex Kurnell Refinery - Demolition and Removal of Redundant Infrastructure - Notice of Exhibition

**From:** Grant Greene-Smith [<mailto:ggreenes@ausgrid.com.au>]  
**Sent:** Wednesday, 17 December 2014 3:26 PM  
**To:** Pamela Morales  
**Cc:** James Hart; Rod Funnell; Steve Taylor; Tim Knight  
**Subject:** Fw: Caltex Kurnell Refinery - Demolition and Removal of Redundant Infrastructure - Notice of Exhibition

Dear Pamela

Firstly apologies for not responding sooner and secondly thank you very much for your follow up communications.

I have just been advised that on reviewing the submitted material Ausgrid will not be making a formal response.

Yours

Grant  
9269 2169

Christine Edney - 9710 0838

File Ref: DN14/0034

15 December 2014



Department of Planning & Environment  
GPO Box 39  
SYDNEY NSW 2001

By email: [Pamela.Morales@planning.nsw.gov.au](mailto:Pamela.Morales@planning.nsw.gov.au)

Dear Sir/Madam

**Development Referral No. DN14/0034**

**Proposal: SSD5544\_MOD1 - Modification Application for the Demolition of Redundant Infrastructure at the Kurnell Terminal (160-166 Captain Cook Drive, Kurnell)**

Following your referral, Council has reviewed the proposal and considers that the modification application can be supported subject to consideration of the matters raised below.

Council recommends that the Department consider whether the proposal is appropriate as a Section 96 application given that:

- it involves the demolition of pipelines on Silver Beach and to the 'Continental Carbon' site, which are outside the Caltex Refinery site as identified in the EIS for the Conversion as forwarded to Council in early 2013
- the proposal is arguably not substantially the same as the proposal originally approved. Part 4.1 of the original Refinery Conversion EIS stated "*No demolition, dismantling or remediation works would be undertaken on the site as part of the project. Should it be required this work would be subject to separate approvals at a later stage.*"

Should the Department be satisfied that the proposal can be considered as a s.96 modification then it is requested that the following environmental, heritage and traffic issues be addressed.

#### Heritage

The Caltex Refinery is a local industrial archaeological heritage item listed in Schedule 6 of Sutherland Shire Local Environmental Plan 2006. As such, the impacts on the heritage significance of the item should be assessed before any works are undertaken. This should include Aboriginal, European and movable cultural heritage. The listing is Local, but it has been assessed as being of State significance. The site is

in the vicinity of National and State heritage items, as well as other local heritage items. The impacts on these heritage values should also be assessed.

The development application for the conversion of the refinery is considered to be of state significance and was approved by the Department of Planning and Infrastructure under SSD provisions (SSD5544). A Heritage Management Strategy (HMS) was prepared for the Caltex Kurnell Refinery by AM Consulting in early 2014, to fulfil the Minister's conditions of approval (MCoA) C31 for the project.

To assess the impacts on the heritage significance of the item that the demolition works will impinge upon, and to devise appropriate strategies to minimise any impacts, Caltex Kurnell Refinery has commissioned AM Consulting to prepare a Heritage Impact Statement (HIS) as part of the Secretary's Environmental Assessment Requirements (SEARs) for the modification application.

The HIS report is considered adequate and professional in its findings and recommendations. The strategy is clear towards the conservation of any valuable heritage contained on the site and proposes methods of archival recording that includes tangible and intangible heritage. However, the HIS report states that the impacts of the demolition work are likely to be of a greater adverse impact than previously foreseen in the Heritage Assessment and HMS report.

Further recommendations have been included to ameliorate any significant adverse affects of the proposed works.

Although Caltex has to date implemented a series of actions towards the management and archival recording of significant built and intangible elements of heritage significance on the site (which have been approved by the Heritage Division of the Office of Environment and Heritage) not all the recommendations have been fulfilled as yet.

#### Heritage Recommendations:

1. Implementation of all of the recommendation stated in Chapters 4 and 5 of the document titled: Caltex Kurnell Refinery Demolition: Heritage Impact Statement by Australian Museum Consulting for URS Australia Pty Ltd, October 2014, including but not limited to the mitigation and management measures (5.6).
2. Review of the adaptive re-use capabilities of some highly significant buildings which are proposed to be demolished.
3. Monitoring the effect of vibration on medium and highly significant buildings in the vicinity of the demolition works.
4. Completion of appropriate archival records of items to be demolished, as per the recommendations of Australian Museum Consulting's management strategy report and other initiatives supported by the Heritage Division of the Office of the Environment and Heritage.

5. Copies of those documents shall be lodged with Sutherland Shire Council and other State departments as required.

### Environmental

Council is of the opinion that environmental issues previously raised have been adequately commented on in the EIS. However, two issues that Council believes should be given further attention are:

- contamination of sediments surrounding the cooling water outlet pipe, and
- the stabilisation of dune sands following removal of the cooling water outlet pipe.

In light of the recent pollution event concerning the cooling water outlet pipe (where oil was discharged into the bay through the pipe) a contamination assessment of the sediments surrounding and beneath the pipe should be undertaken and any contaminated sediments remediated to remove the contamination.

It has been identified that there is the potential for erosion of dune sands for a period of up to 2 weeks following removal of the cooling water outlet pipe. Measures need to be put in place to prevent erosion during this time, and long term stabilisation of the dune sands will need to be implemented.

### Traffic

In addition to the high traffic generating events (which Council advised Caltex of at our meeting regarding removal of the pipelines from the refinery to Silver Beach) it has subsequently come to Council's attention that there are likely to be two other large traffic generating events at Kurnell during the works period. They are an international catamaran competition over the Easter 2015 weekend and the water events for the Australian Scout Jamboree during the first two weeks of January 2016. Works that involve partial or full road closures during these events must be avoided.

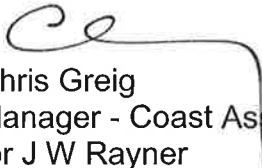
Council has requested previously that site access plans be reviewed and updated as part of the demolition / conversion process, in particular:

- At the Solander St/Captain Cook Drive intersection:- concerns are raised with regard to the movement of B-Double tankers, ie the corner splay adjacent to the petrol station is insufficient and causes trucks of this size to cross onto the wrong side of the carriageway (into oncoming traffic) when turning left. It is understood that Caltex owns the petrol station and there is an opportunity here to address this safety concern.
- There is also an opportunity for the refinery to rationalise its entry/exit to the refinery, particularly if the weighbridge is no longer required. The management of non-refinery traffic and parking in this area could be improved.

Council feels that this aspect has not been addressed in the EIS.

If you require clarification of the above comments, please contact Council's Development Assessment Officer Christine Edney on 9710 0838 (Mondays to Thursdays) or email [cedney@ssc.nsw.gov.au](mailto:cedney@ssc.nsw.gov.au) and quote Council's reference number in the subject.

Yours faithfully

  
Chris Greig  
Manager - Coast Assessment Team  
for J W Rayner  
General Manager

## Pamela Morales

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**From:** Wayne Jones <wayne.jones@dpi.nsw.gov.au>  
**Sent:** Wednesday, 17 December 2014 4:33 PM  
**To:** Pamela Morales  
**Subject:** Caltex Kurnell Refinery Conversion (SSD\_5544 Mod 1)

Hi Pamela

Please see following draft DPI comments on the above project. Formal response should follow shortly.

Regards  
Wayne

OUT14/41047

Ms Pamela Morales  
Industry Assessments  
NSW Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001

[Pamela.Morales@planning.nsw.gov.au](mailto:Pamela.Morales@planning.nsw.gov.au)

Dear Ms Morales,

**Caltex Kurnell Refinery Conversion (SSD\_5544 Mod 1)  
Proposed Modification**

I refer to your email dated 27 November 2014 requesting advice from the Department of Primary Industries (DPI) in respect to the above matter.

Comment by NSW Office of Water

The NSW Office of Water (Office of Water) has reviewed the Statement of Environmental Effects (SEE) and provides detailed comments at Attachment A.

Should you require further information please contact Janne Grose, Water Regulation Officer on (02) 4729 8262 at the Penrith office.

Yours sincerely

Kristian Holz  
**Director Policy, Legislation and Innovation**

**Attachment A**

**Caltex Kurnell Refinery Conversion (SSD\_5544 Mod 1)  
Proposed Modification  
Comment by NSW Office of Water**

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Groundwater

The SEE indicates the demolition works are likely to have negligible impacts on groundwater provided the management and mitigation measures are implemented.

Within demolition works area, Appendix C indicates the groundwater depth ranges from approximately 1 - 4 mbgl but it is generally encountered within 2 to 2.5 mbgl (see Section 1.5, page 4). The SEE notes the ground disturbance associated with the removal of the infrastructure would be to a maximum depth of 2 metres below ground level and indicates groundwater is expected to be encountered (Section 5.3.3.8, page 49).

The SEE implies the works may involve minor temporary dewatering which are estimated to take less than 3 ML/year of groundwater for the entire project, and indicates that regular consultation with the Office of Water will occur to ensure that licensing requirements are met as demolition proceeds (page 49). Depending on the volumes encountered and the duration of pumping, an authorisation may be required from the Office of Water in relation to the dewatering activities associated with this project.

Currently, temporary construction dewatering activities remain licensable under the *Water Act 1912*. The Office of Water can advise on the need for an authorisation once information is available on the expected volumes of groundwater to be intercepted and dewatered, but at this stage it should be assumed that an authorisation would be required for the temporary dewatering works if the take will be over 3ML/year.

### **Marton Park Wetland**

Appendix D indicates overall the change in volume and quality of stormwater discharged from the site arising from the demolition works is not expected to be significant (see section 3.3.2, page 29). As Marton Park wetland is one of the destinations for site stormwater and it is a designated GDE, it is recommended further details are provided on the quantity of stormwater runoff /groundwater that is proposed to be discharged to the wetland during the demolition works and whether this is likely to modify the wetland's hydrology, ecology etc over the 1.5 -2.5 year period that the works would be staged (see section 3.4, page 12 of Appendix C). It is unclear if the Demolition Environmental Management Plan (DEMP) is to provide details on the quantity of stormwater that is proposed to be discharged to Marton Park wetland and the management of these flows to mitigate impacts on the wetland during the demolition works.

It is recommended a monitoring program of the wetland is undertaken during the demolition period to assess the potential impacts of discharging stormwater/groundwater on the health/condition of Marton Park wetland.

### **Management and Mitigation measures**

#### *Demolition Environmental Management Plan*

Item A3 of Table 20.1 indicates a DEMP is to be prepared and implemented for the demolition works to manage any project impacts. Section 6.2.1 of Appendix C recommends the DEMP outlines what should be done if excavation works are required to be deeper than 2mbgl (page 38). As there is a greater potential for groundwater to be intercepted if the depth of excavation exceeds 2 mbgl, it is recommended this issue is addressed by the DEMP.

The Office of water requests it is provided with a copy of the DEMP to review.

#### *Soil and Water Management Plan*

Table 21.4 in the SEE indicates a Soil and Water Management Plan (SWMP) would form part of the DEMP for the project (page 291). Item C18 of Table 20.1 indicates SWMP would identify measures for the dewatering, storage, movement and treatment of groundwater encountered in excavation and procedures for dewatering including the need to liaise with the Office of Water (page 270-271). The inclusion in the Management and Mitigation Measures to liaise with the Office of Water is supported.

Section 9.5.3 of SEE indicates a quarterly groundwater monitoring program is implemented at the site (page 84). Section 9.7.1.1 states the existing groundwater monitoring program would continue noting groundwater monitoring wells down gradient of the works would continue to be tested on a quarterly basis to assess changes in concentrations of chemicals of concern and changes in groundwater flow direction or gradient (see page 108) but Section 10.5.1.3 notes annual groundwater monitoring is undertaken on the site (page 119). It is recommended the frequency of groundwater monitoring is clarified.

Table 20.1 (see Item c19) notes the SWMP would ensure the "existing groundwater monitoring program would continue" but it does not specify if the monitoring is to occur annually or quarterly. Table 21.4 notes the SWMP would require "*annual groundwater monitoring to continue during the demolition works*" (page 293). It is recommended Table 21.4 and Table 20.1 (see Item c19) should be amended to confirm that groundwater levels and quality in the current groundwater monitoring network is tested on a quarterly basis throughout the works. This monitoring is required to assess changes in concentrations of chemicals of concern and changes in groundwater flow direction or gradient, particularly as Section 9.6.1.4 notes an increase in surface water infiltration (caused by the removal of hardstand areas) may cause localised groundwater mounding and localised changes to groundwater gradient and flow direction (page 103).

The Office of Water requests that it is provided with a copy of the SWMP to review, and the results of the Groundwater Monitoring Program are included in an existing annual reporting framework (e.g. AEMR).

**End Attachment A**

Regards  
Wayne

Wayne Jones | Land Use Planning Coordinating Officer  
Department of Primary Industries  
Level 48, MLC Centre, 19 Martin Place Sydney NSW 2000  
T:02 9338 6708 | E: [wayne.jones@dpi.nsw.gov.au](mailto:wayne.jones@dpi.nsw.gov.au)

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Our reference: EF13/2741:DOC14/206077-03:CP  
Contact: Craig Patterson (02) 4224 4100

NSW Department of Planning and Environment  
(Attention: Pamela Morales)  
GPO Box 39  
SYDNEY NSW 2001

Dear Sir/Madam

**KURNELL REFINERY CONVERSION  
DEMOLITION AND REMOVAL OF REDUNDANT INFRASTRUCTURE (SSD 5544 MOD 1)  
NOTICE OF EXHIBITION**

I am writing in reply to your letter to the Environment Protection Authority (EPA) dated 28 November 2014 seeking comments on the above modification application. This included a Statement of Environmental Effects (SEE).

On the basis of a review of the information submitted in the SEE and taking into consideration the existing approval conditions for the conversion project (SSD 5544), the EPA provides its comments on this application in the attachment to this letter (Attachment 1). These comments relate to the following sections of the SEE:

- General comments on the SEE
- Legislation, Planning Policy and Approvals
- Soil, Groundwater and Contamination
- Waste Management
- Surface water, Wastewater and Flooding
- Noise and Vibration
- Air Quality and Odour

It should be noted EPA's comments relate to the development as proposed in the documents and information currently provided to EPA. In the event that the development is modified either by the applicant prior to the granting of consent or as a result of the conditions proposed to be attached to the consent, it will be necessary to consult with EPA about the changes before the consent is issued. This will enable EPA to make additional comments and ensure consistency with the Environment Protection Licence and/or the requirements of the Protection of the Environment Operations Act 1997.

The EPA may have further comments on receipt and review of any additional information provided.

Please contact Craig Patterson on (02) 4224 4100 if you have any comments regarding this letter.

Yours sincerely

**PETER BLOEM**  
Manager Illawarra  
Environment Protection Authority

Att

## ATTACHMENT 1

### General comments on the SEE

1. The SEE states the project relates to the demolition, dismantling and removal of redundant infrastructure. This includes demolition of refinery process units and associated infrastructure. There is insufficient information in the SEE to understand the demolition techniques proposed to be used.

The SEE states demolition of refinery process units will involve lowering to ground level where they may be cut up using heavy machinery. It also states that structures will be pushed over and cut up.

Further information is required on the demolition techniques of “lowering” and “pushing over” to understand potential environmental impacts and the necessary measures to mitigate them. For example, the demolition of tall structures such as the chimneys or Fluidised Catalytic Cracking Units has not specifically been addressed. It is unclear whether top down segmenting techniques will be used or structures may be felled using cutting at ground level or explosives.

2. The nature of the materials that may be contained within structures to be felled should be assessed and documented. This will assist in selecting the most appropriate demolition techniques and the measures required to mitigate any impacts. These materials could include asbestos, crystalline silicas, heavy metals/PAH and residual hydrocarbon products. This information will also assist in waste management (including sorting, reuse, disposal, future grinding and crushing operations) and the development of relevant air monitoring and reporting programs.
3. There is a strong reliance in the SEE on the preparation of a Demolition Environmental Management Plan (DEMP) and supporting subplans including:
  - soil and water management plan
  - contamination management plan
  - air quality management plan
  - asbestos management plan
  - noise and vibration management plan
  - waste and resource management plan

Underpinning these management plans must be clear environmental performance outcomes. The proposed actions must support the delivery of these outcomes. This is not clear from the SEE. The environmental outcomes are defined in the Environment Protection Licence (EPL) and associated Protection of the Environment Operations (POEO) Act 1997. Some are reflected in the project approval SSD 5544. For example, these outcomes include no odours beyond the boundary of the premises, air pollution (including dust) to be prevented/minimised and no pollution of waters (except in accordance with licence requirements).

4. The SEE appears to lack clear connections between the existing requirements for the conversion project approval and those proposed for the demolition project. This demolition project is a modification to an existing project approval. There is an opportunity for plans to be better integrated/consolidated between both projects. It is unclear how some proposed plans for the demolition project relate to existing plan requirements for the conversion project. For example, the Contamination Management Plan and Water Management Plan are requirements of the existing consent. A Soils and Water Management Plan is proposed for the demolition project. The existing conversion project approval also includes a requirement for erosion and sediment control. The SEE does not appear to take into account existing project approval conditions and identify where modifications or new conditions are sought.
5. Given its sensitive location a specific Management Plan should be considered for the removal of the cooling water outlet pipeline in Caltex’s right of way and at Silver Beach.

Section 9.6.1.2 states that the removal of the cooling water outlet from below low tide mark would result in the disturbance of sediments within Botany Bay. Given the recent incident involving the discharge of hydrocarbons from this pipe, Caltex will need to consider and implement appropriate management measures to address this issue. The marine growth and associated sediments on top of the pipe may also be impacted by hydrocarbons and will need to be considered.

Section 18.6.2 states that Section 18.7 provided management and mitigation measures to manage the risk of releasing contaminants from the use of plant and equipment within the water column during pipeline removal works. Section 18.7 does not include any management or mitigation measures to this effect. Appropriate measures must be identified to manage identified risks associated with this activity.

### **Legislation, Planning, Policy and Approvals**

6. The SEE states the demolition works are not defined as a scheduled activity under the POEO Act and no licensed emission source has been identified. The EPA reminds Caltex of its general obligations under this Act to prevent pollution of waters, minimise/prevent air pollution where emission source requirements are not specified on a licence.
7. The SEE has assessed the need for other scheduled activities such as *Contaminated Soil Treatment and Crushing, Grinding and Separating* that may be relevant to the demolition works. These are not currently regulated under the existing EPL. If this modification is approved, Caltex should carefully consider the need to apply to vary the licence to include scheduled activities not current listed prior to these activities commencing.

### **Soils, Groundwater and Contamination**

8. The SEE states remediation of the land will not occur. Contaminated land management is currently regulated by the EPA under the EPL and the Contaminated Land Management Act 1997.
9. The SEE states approximately 150,000 tonnes of soil may be excavated during demolition. This soil will be stockpiled and then assessed/classified for backfill in the excavated site. It is unclear from the SEE what the assessment and classification criteria are for use of fill for backfill. It appears to be based on visual and olfactory assessment. The Trigger Action and Response criteria should be defined.

Where material is proposed to be reused onsite, Caltex must undertake an assessment of the suitability of the material to remain onsite and a detailed description of any management measures considered necessary to allow its reuse. The EPA also reminds Caltex that it is an offence to cause land pollution under the POEO Act.

10. Section 9.6.1 states that a potential soil and groundwater impact from the demolition works is contaminants from stockpiles. Whilst the SEE states that the stockpiles would be placed on plastic sheeting and appropriately bunded and managed, it is unclear as to what contingencies measures are proposed to manage the stockpiles during heavy rainfall events which may cause localised flooding at the site. The EPA also reminds Caltex that suitable measures must be implemented for the storage of contaminated material so as not to cause land pollution.
11. Section 9.7.14 refers to an Asbestos Management Plan. This appears to focus on contaminated soils handling. In relation to asbestos management, Caltex must comply with conditions specified in this licence or where no specific conditions are outlined in this licence, Caltex must comply with the POEO (Waste) Regulation 2005. Caltex should also implement an appropriate asbestos monitoring plan during all works associated with the removal, handling and management of asbestos materials.

## Waste Management

12. Section 11.7.9 states that a database inventory would be used to record and report all waste streams, volumes and management measures for all waste streams arising through the demolition work. The database should also be used to track all materials reused at the premises including its reuse location, type of waste and classification.

## Surface water, Wastewater and Flooding

13. The EPA continues to regulate the premises under an EPL. As the premises are transitioning from a refinery to a distribution terminal, the EPL will be important in regulating this activity over time through limit, monitoring, reporting conditions and pollution reduction programs.
14. The Soil and Water Management Plan needs to be clearly underpinned by the EPL requirements. There is no detail on the monitoring and reporting of water quality data. This could include data required by the EPL. It could also include additional data that may be used to provide confidence to the community that the site is being appropriately managed.
15. The Soil and Water Management Plan must identify appropriate measures that will be implemented to manage impacts on stormwater quality from contaminated soils and stockpiles potential exposed or generated by the demolition/excavation works. As indicated above, measures should include periods of heavy rainfall which may cause localised flooding on the site.
16. Section 12.6.1 states that the main ongoing potential impact on catchment yields following demolition works are on Catchment B where the refinery process units are located. It also states that these areas would be disconnected from the oily water sewer system and some bunding and oily water sewer system connection infrastructure removed. Prior to disconnecting this area from the oily water sewer system, Caltex must ensure that any contaminated water from these areas is managed appropriately so as not to cause pollution of waters.

## Noise and Vibration

17. The existing development approval for the conversion project (SSD 5544) includes construction noise limits. The SEE states that these limits are appropriate for assessing demolition works. These limits may be appropriate for the demolition project, however the following should be considered:
  - a) The background noise levels may have changed (reduced) following closure of the refinery and cessation of refinery operations in late 2014; and
  - b) The limits and noise assessment are based on 15 minute averaging periods. Depending on the nature of demolition work, smaller averaging periods may become important for impact noises, for example one minute averaging periods (sleep arousal).
18. The SEE states that there are some predicted noise criteria exceedances during both demolition activities and pipeline removal works at Kurnell wharf and Silver Beach. Caltex must ensure that appropriate respite periods are implemented to minimise potential noise impacts on the Kurnell community and to address any noise complaint(s) associated with demolition activities.

## Air Quality and Odour

19. The proposed measures under the Air Quality Management Plan outlined in the SEE do not clearly state the expected environmental outcomes and how they will be achieved. This includes but is not limited to:
  - No odours beyond the premises, prevent minimise dust as per licence requirements.
  - An assessment and statement of compliance against recognised air impact assessment criteria (as specified in the EPA Approved Methods for Modelling and Assessment of Air Pollutants).

- Further work is required on the Various Trigger, Action, Response Procedures to prevent minimise dust. This should include the use of air quality monitoring data; for example, continuous (real time) particle monitoring.
20. The SEE does not clearly describe the locations and type of ambient air quality monitoring that will be undertaken during the entire demolition project and public access to this information. This monitoring is vital in demonstrating to the community impacts are not occurring in residential areas or other sensitive locations neighbouring the premises. Table 14-2 does not appear to mention the type of monitoring that will be undertaken. It only states during adverse weather monitoring will be undertaken during crushing operations. Section 14.7.2 appears to make a recommendation for real time particulate monitoring associated with the crusher start up only. The types of substances should include as a minimum PM<sub>10</sub>, PM<sub>2.5</sub> and asbestos. There is a strong focus on the protection of worker health in the SEE from air impacts. Ambient air quality monitoring and the public reporting of this information is also important for the community.
  21. Section 14.6.1.5 of the SEE states "*The majority of asbestos in the infrastructure to be removed would have been removed as part of the decommissioning process, prior to the demolition works*". This is an ambiguous statement. Table 11-1 indicates an estimated 2,000 tonnes of asbestos will be generated from insulation on lines and vessels, refractory and building materials. As stated above further information is required on the demolition techniques. The extent of these materials contained within structures to be felled also needs to be assessed and documented. This will assist in selecting the most appropriate demolition techniques and the measures required to mitigate any impacts. This information will influence further decisions on waste management (including sorting, reuse, future grinding and crushing operations) and the development of air monitoring and reporting programs. There is mention of asbestos monitoring but there is no details of the number and location of these monitors. In developing an appropriate monitoring plan, Caltex should also consider monitoring at suitable locations within the community in addition to any onsite monitoring. This information should be made publically available.
  22. Section 14.6.1.5 makes reference to amending an existing Site Safety Management Plan to manage asbestos during demolition. The relationship of this plan to the proposed Asbestos Management Plan is unclear.
  23. The SEE states a jaw crusher will operate in the last three months of the demolition project at the CLOR site. This will process concrete, aggregates and asphalt. The SEE states it has the potential to result in dust impact on commercial receivers to the south west of the site. An air impact assessment of this operation should be undertaken in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants to demonstrate compliance with recognised air impact assessment criteria.
  24. Section 14.7.1 refers to odour and VOC monitoring. It is unclear from the SEE whether the odour surveys will include both onsite and offsite surveys. Where Caltex identify odours materials during demolition activities, appropriate surveys should also be conducted offsite to ensure there is not potentially offensives odours emitted from the premises.

File Ref. No: BFS14/3402 (7185)  
TRIM Doc. No: D14/84819  
Contact: Station Officer Mark Castelli

18 November 2014

Attention: Pamela Morales  
Dept. of Planning & Environment  
GPO Box 39  
SYDNEY NSW 2571

Email: [Pamela.Morales@planning.nsw.gov.au](mailto:Pamela.Morales@planning.nsw.gov.au)

Dear Madam,

**SECTION 96(2) MODIFICATION APPLICATION (SSD-5544 MOD)  
CALTEX KURNELL REFINERY  
DEMOLITION AND REMOVAL OF REDUNDANT INFRASTRUCTURE**

I refer to your email submission dated 27 November 2014 in regards to the above application. Fire and Rescue NSW (FRNSW) note that we have been invited by the Department of Planning & Environment (DPE) to comment upon the above proposal (including advice on recommended conditions of consent).

The relevant details of the Statement of Environmental Effects (SEE) reviewed by FRNSW and accessed from the DPE website are:

- SEE prepared by Nicole Brewer, William Miles and Rachel O'Hara of URS Australia Pty Ltd ,
- SEE dated November 2014,
- SEE Declaration signed by William Miles, November 2014.
- SEE Appendix 'B', Hazard and Risk Analysis, prepared by Karin Nilsson of Planager (Document No. URS\26-B388, Revision 0).

FRNSW has reviewed the SEE and the following FRNSW comments have been derived from specific review of Appendix 'B' of the SEE, (i.e. Hazard and Risk Analysis).

**Comment**

The following comments form the basis of our recommendations to the DPE and are provided for informative purposes, (please note, FRNSW does not object to our comments being forwarded to the proponent for their information should the Department so wish).



The Fire Brigades Act 1989 assigns statutory responsibility for safe resolution of fire incidents and hazardous material incidents (hazmat) to the Commissioner of FRNSW. Therefore our review is primarily concerned with the hazard incident scenarios identified and discussed in Appendix 'B' of the SEE.

FRNSW considers that the following hazard scenarios (detailed in Table 3 of Section 4 of the Hazard & Risk Analysis) will require FRNSW involvement:

- Process Safety Related Hazards: Scenarios 1 to 5 inclusive.
- General Health & Safety Related Hazards: Scenario 13.
- Other Risk to the Biophysical Environment: Scenario 19.

Should a fire or hazardous material (hazmat) incident occur during the refinery demolition works, it is important that first responders have ready access to information which enables effective control measures to be quickly implemented. Information which should be readily available to first responders should include:

- The names of chemicals and heavy metals which may be involved in a fire/hazmat incident,
- The properties of each chemical and heavy metal (including when involved in a fire).
- The risk to health posed by identified chemicals (especially when involved in a fire).
- The appropriate control measures which must be implemented in order to safely mitigate potential risks. Such measures would include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures, minimum evacuation zone distances and the means to bund or confine contaminated water and fire water runoff.
- Unique control measures implemented which are specific to the demolition works.
- The location of any nearby public infrastructure which may be at risk from a significant fire and its contaminated smoke plume, (e.g. shipping corridors, flight paths, public road ways and public assembly areas).

Further, FRNSW notes that Scenario 5 (i.e. Introduction of Ignition Sources into Classified Hazardous Areas) is recognised as being potentially difficult to mitigate. Table 4 of the Hazard & Risk Analysis states: *“demolition contractors may not be well versed with the requirements for control of ignition sources at the site”*. The safeguard discussed in Table 4 recommends that *“hazard area classification be reviewed and updated, particularly in locations where demolition activities are to be undertaken in parallel with an operating terminal”*. FRNSW is concerned that the proposed safeguard is insufficient to satisfactorily minimise the likelihood of the identified hazard occurring. It is FRNSW experience that in instances where either insufficient safeguards/control measures are developed and implemented or where appropriate risk control measures are wilfully or unintentionally ignored significant fire events often occur, (see recommendation below).



## **Recommendation/s**

That the Director General consider including conditions of development consent which require:

1. That appropriate emergency procedures are developed by the proponent to address and mitigate, as far as reasonably practicable, the consequences of fire and hazmat incidents and the potential health risks to firefighters undertaking emergency operations in relation to foreseeable fire/hazmat scenarios.
2. That two copies of the emergency plan (detailed in recommendation 1 above) be stored in each 'Emergency Information Cabinet/s'. Emergency Information Cabinet/s' are to be located in positions directly adjacent to each entry point which provide vehicle access into the demolition zone.
3. That appropriate first aid fire fighting equipment be provided to all plant during the demolition works. In addition, that all operators of plant and other equipment be trained to undertake first aid fire fighting operations using the equipment provided.
4. That comprehensive and specific risk control measures be developed and implemented for Scenario No. 5 of Table 3 of Section 4 of the Hazard & Risk Analysis, i.e. Appendix 'B' of the SEE, (i.e. Scenario No. 5 being the "Introduction of Ignition Sources into Classified Hazardous Areas"). The control measures developed must incorporate comprehensive training of demolition contractors in regards to the requirements for the control of ignition sources at the site.

## **Conclusion**

The development of an effective emergency response plan, specifically developed for the demolition works, would be significantly enhanced by the site's operators engaging and liaising with FRNSW local command management. Such enhancement would be best facilitated by ensuring that FRNSW personnel were afforded the opportunity to undertake pre-incident planning of identified hazards and to familiarise themselves with the emergency procedures developed by the proponent. The relevant contact details of FRNSW local command management are:

Zone Office Metropolitan South 2  
Cnr Kensington and Gray Streets  
Kogarah NSW 2217  
Telephone: 02 9588 2833  
Business Hours: 8:00 am – 4:30 pm.



FRNSW thanks the DPE for the opportunity to comment upon the modification application. For further information please contact Station Officer Mark Castelli of the Fire Safety Assessment Unit, referencing FRNSW file number BFS14/3402 (7185). Please ensure that all correspondence in relation to this matter is submitted electronically to [bfs@fire.nsw.gov.au](mailto:bfs@fire.nsw.gov.au).

Yours sincerely



Station Officer Jon Black  
Team Leader  
Fire Safety Assessment Unit





9 December 2014

Mr Nick Hall  
A/Team Leader – Industry Projects  
Resource Assessments  
NSW Department of Planning & Environment  
GPO Box 39  
Sydney NSW 2001

Dear Mr Hall

**Re – SSD5544: Modification Application for the demolition of redundant  
Infrastructure at Kurnell Terminal**

I refer to the letter dated 26 November 2014 from Mr William Mile, Principal Environmental Planner URS Australia Pty Ltd to the South Eastern Sydney Local Health District, concerning the above matter. The sections of the Modification Application that are relevant to the South Eastern Sydney Local Health District were reviewed, and the following comments are provided:

1. Any ongoing monitoring of contaminants of potential concern shall comply with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (“ASC NEPM”) in the event that any contaminant exceeds investigation or screening levels specified in the ASC NEPM.
2. The Public Health Unit provided the opportunity to comment on the Demolition Environment Management Plan (the “DEMP”) and the Asbestos Management Plan (“the AMP”) prior to start of works.
3. To minimise disturbances of soil and the release of asbestos in to the air, the APM should be designed, and any work should be conducted in accordance with the *Worksafe National Code of Practice and Guidance on Asbestos and disposal* in accordance with the requirements of the relevant authorities and ASC NEPM Schedule B(9)
4. Air quality and odour should comply with the *Protection of the Environment Operations (Clean Air) Regulation 2010* and with the requirements of the *National Environment Protection (Air Toxics) Measure* and the *National Environment Protection (Ambient Air Quality) Measure*.
5. 10.6.1.4 When considering the increased risk to adjacent residential areas while excavating rights-of-way and road reserves, the report states that “majority of winds blow in a direction away from the north and north-west residential areas”.

**Public Health Unit**

South Eastern Sydney Local Health District  
ABN 70 442 041 439

Building 23 (Hut U), Easy Street, Prince of Wales Hospital Campus, Randwick  
Postal Address: Locked Bag 88 Randwick NSW 2031  
Tel (02) 9382 8333 Fax (02) 9382 8334

Excavation work carried out in rights-of-way, road reserves, CMZ-V and CMZ-M are immediately adjacent to residential areas and wind blowing in almost any direction will be blowing to an immediately adjacent residential area. This is also a consideration for other CMZs. The wind rose contained in Figure 14-1 indicates 20% of all wind blowing in a north or north-west direction toward residential areas. Appropriate shielding, dust curtains, wetting and other control mechanisms must be implemented to minimise dust to neighbouring properties.

Thank you for the opportunity to provide comment on this Development Consent. Should you require any further information, please do not hesitate to contact Bradley Pope, Environmental Health Officer or Santo Cannata, Senior Environmental Health Officer on 9382 8333 (Option 3), during office hours.

Yours sincerely



**Professor Mark Ferson** MPH MD FRACP FAFPHM FRSPH  
**Director & Medical Officer of Health**



Office of  
Environment  
& Heritage

Your reference: SSD 5544 MOD 1  
Our reference: DOC14/296435  
Contact: Richard Bonner, 9995 6917

Ms Pamela Morales  
Planning Officer, Industry Assessments  
NSW Department of Planning & Environment  
GPO Box 39  
SYDNEY NSW 2001

Dear Ms Morales

I refer to your letter received on 4 December 2014 by the Office of Environment and Heritage (OEH) seeking comments on a proposed modification to the consent for the Kurnell Refinery Conversion development (SSD-5544) to facilitate the demolition, dismantling and removal of redundant refinery units, tanks, pipelines, services and buildings.

OEH has reviewed the Statement of Environmental Effects (SEE) prepared for the proposed modification and provides the following advice in relation to the assessment of biodiversity impacts:

- The SEE states the proposed development will not involve the removal or modification of any remnant native vegetation and that there is a low likelihood of threatened biota and endangered ecological community (EEC) vegetation being present because the works are being undertaken in a highly modified and disturbed landscape largely devoid of native vegetation or fauna habitat.
- The proposed removal of the redundant Continental Carbon (CC) Pipeline, however, has the potential to impact on vegetation (albeit disturbed) which constitute Sydney Freshwater Wetlands (SFW) and Kurnell Dune Forest (KDF) EECs. The SEE does not acknowledge KDF EEC shown in *The Native Vegetation of the Sydney Metropolitan Area (OEH, 2013)* on land adjoining the CC Pipeline. In addition, no targeted surveys have been undertaken, despite recent reliable records, for a number of threatened species which are likely to have suitable habitat within these EECs (e.g. the vulnerable Wallum Froglet and the endangered Green and Golden Bell Frog [GGBF]). OEH also notes the endangered *Pterostylis* sp. Botany Bay (Botany Bay Bearded Greenhood) is not included in the list of threatened biota considered to have potential to occur within the development area. OEH recommends additional biodiversity assessment be undertaken of the land adjoining the CC Pipeline.
- OEH is of the view that if the direct and indirect impacts of the proposal are to be effectively managed through the proposed Biodiversity and Weed Management Plan (BWMP) then the biodiversity values of the area adjoining the CC Pipeline should be considered. This is of particular importance for SFW EEC, the GGBF and Botany Bay Bearded Greenhood (BBBG) which can be found in disturbed landscapes. It is also important for KDF EEC which may be indirectly impacted in the longer term because local hydrology changes associated with excavation,

stockpiling and other ground-disturbing activities. OEH recommends the potential direct and indirect biodiversity impacts in relation to the CC Pipeline component of the proposal be reassessed.

- OEH notes the mitigation and management measures to be included in the BWMP to address the potential biodiversity impacts of the development. However, in the absence of targeted surveys and a detailed description of the actual demolition works (e.g. machinery/equipment access, stockpile and decontamination areas) it is difficult to assess the efficacy of some measures. OEH therefore recommends a more proactive BWMP be adopted which avoids direct and indirect impacts on threatened biota likely to be present. This should include pre-work biodiversity surveys (in addition to the daily trench inspections for frogs proposed at K3) within and adjacent to relevant impact areas (e.g. the CC Pipeline). Appropriate actions should be incorporated in the BWMP to avoid and mitigate impacts if threatened biota is found. Any unavoidable impacts on EEC vegetation or threatened species habitat should be offset through compensatory works elsewhere on the Caltex site.

Please contact Richard Bonner, Conservation Planning Officer, on 9995 6917 should you wish to discuss this advice. Please note the postal address for OEH's Regional Operations Parramatta Office.

Yours sincerely

*S. Harrison 16/12/14*

**SUSAN HARRISON**  
**Senior Team Leader Planning**  
**Greater Sydney Region**  
**Regional Operations**

## Pamela Morales

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**From:** Ryan Bennett <[rbennett@portauthoritynsw.com.au](mailto:rbennett@portauthoritynsw.com.au)>  
**Sent:** Friday, 12 December 2014 12:11 PM  
**To:** Pamela Morales  
**Cc:** Richard Lorraine  
**Subject:** RE: Caltex Kurnell Refinery - Demolition and Removal of Redundant Infrastructure - Notice of Exhibition

Hi Pamela

The proposed works include the removal of an underground pipeline (cooling water outlet) to a point approximately 20m seaward from the low tide mark at Silver Beach. This would seem to be within the boundary of the 'special port' of Botany Bay as defined in the *Management of Waters and Waterside Lands Regulations-N.S.W.* Clause 67 of this Regulation requires that Harbour Master approval is obtained for any disturbance of the bed of a special port (see below). This is independent of any approvals that may be required from the 'owner' of the waterside lands.

### **67 Disturbance of bed of port**

A person shall not use drags, grapplings, or other apparatus for lifting any object or material from the bed of a special port, or otherwise disturb such bed in any way, except with the written permission of the harbour master and in accordance with the conditions attaching to such permission.

Please don't hesitate to contact me if you require any further information. Thank you for referring this to us and for following me up today.

Regards,  
Ryan

**Ryan Bennett** | Senior Planning and Sustainability Manager

### **Port Authority of New South Wales**

Level 4, 20 Windmill Street | Walsh Bay NSW 2000 Australia  
T: +61 2 9296 4674  
[www.portauthoritynsw.com.au](http://www.portauthoritynsw.com.au)

**N.B. Port Authority of New South Wales has changed email addresses - my email address is now [rbennett@portauthoritynsw.com.au](mailto:rbennett@portauthoritynsw.com.au). Please update your records as appropriate.**

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**From:** Pamela Morales [<mailto:pamela.morales@planning.nsw.gov.au>]  
**Sent:** Thursday, 27 November 2014 4:11 PM  
**To:** Ryan Bennett  
**Subject:** Caltex Kurnell Refinery - Demolition and Removal of Redundant Infrastructure - Notice of Exhibition

Hi Ryan,

Thanks for your time on the phone yesterday.

The Department has received a modification application and Statement of Environmental Effects (SEE) from Caltex Refineries (NSW) Pty Ltd in respect of its Kurnell Refinery, in the Sutherland Local Government Area.

The proposed modification involves the demolition and removal of redundant infrastructure at the Kurnell Refinery. The modification application has been made under section 96(2) of the *Environmental Planning and Assessment Act 1979* and it relates to a State Significant Development which was granted by the Minister in January 2014.

The Department would like to invite your comments on the modification application and SEE by **Friday 12 December 2014**.

A formal notice of exhibition is attached and a hard copy will follow in the post. Please follow the link below to download the SEE:

[http://majorprojects.planning.nsw.gov.au/index.pl?action=search&status\\_id=6&status\\_id=117&status\\_id=116&status\\_id=114](http://majorprojects.planning.nsw.gov.au/index.pl?action=search&status_id=6&status_id=117&status_id=116&status_id=114)

Please feel welcome to telephone me if you have any questions.

**Pamela Morales**

Planning Officer

Industry Assessments

Department of Planning & Environment

23-33 Bridge Street SYDNEY NSW 2000 | GPO Box 39 SYDNEY NSW 2001

T 02 9228 6386 | E [Pamela.Morales@planning.nsw.gov.au](mailto:Pamela.Morales@planning.nsw.gov.au)



Planning &  
Environment

All communications to be addressed to:

Headquarters  
15 Carter Street  
Lidcombe NSW 2141

Headquarters  
Locked Bag 17  
Granville NSW 2142

Telephone: 1300 NSW RFS  
e-mail: [csc@rfs.nsw.gov.au](mailto:csc@rfs.nsw.gov.au)

Facsimile: 8741 5433



Director General  
Department of Planning & Environment  
GPO Box 39  
Sydney NSW 2001

Your Ref: SSD-5544 MOD 1  
Our Ref: S14/0042  
DA14112894863 PE

**ATTENTION:** Pamela Morales

16 December 2014

Dear Sir/Madam

**Part 3A Development for Notice Of Exhibition - Kurnell Refinery Conversion - Demolition and Removal Of Redundant Infrastructure**

I refer to your letter dated 28 November 2014 seeking key issue and assessment requirements regarding bush fire protection for the above Part 3A Development in accordance with section 75F (4) of the 'Environmental Planning and Assessment Act 1979'.

The Service has reviewed the plans and documents received for the proposal and subsequently raise no concerns or issues in relation to bush fire.

For any queries regarding this correspondence please contact Peter Eccleston on 1300 NSW RFS.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Catherine Ryland'.

Catherine Ryland  
**Team Leader Development Assessment and Planning**

The RFS has made getting information easier. For general information on 'Planning for Bush Fire Protection, 2006', visit the RFS web page at [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au) and search under 'Planning for Bush Fire Protection, 2006'.

9 December 2014

Our Ref: SYD13/00332/03  
Your Ref: SSD5554 MOD 1

Team Leader - Industry Projects  
Resources Assessments  
Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001

Attention: Pamela Morales

Dear Sir/Madam,

**MODIFICATION APPLICATION FOR THE DEMOLITION OF REDUNDANT INFRASTRUCTURE  
AT THE KURNELL TERMINAL (SSD5554 MOD1)  
2 SOLANDER STREET, KURNELL**

Reference is made to the Department's correspondence dated 27 November 2014 regarding the abovementioned development application which was referred to Roads & Maritime Services (Roads and Maritime) for comment.

Roads and Maritime has reviewed the submitted information and raises no objection to the proposal.

Any inquiries in relation to this matter can be directed to Ravi Ravendra on 8849 2540.

Yours faithfully



Pahee Rathan  
**Senior Land Use Planner**  
**Network & Safety**

## Pamela Morales

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**From:** DAVID DEMER <DAVID.DEMER@sydneywater.com.au>  
**Sent:** Friday, 12 December 2014 10:41 AM  
**To:** Pamela Morales  
**Subject:** Kurnell Refinery Conversion

Hi Pamela,

Sydney Water does not have any detailed comments on the Kurnell Refinery Conversion. The demolition will not increase servicing requirements or impact on our infrastructure.

Many thanks,



David Demer Growth Planner

Growth Strategy | Sydney Water  
Level 7, 1 Smith St Parramatta NSW 2150  
PO Box 399 Parramatta NSW 2124  
T 02 8849 5241 | M 0419 422 346  
[david.demer@sydneywater.com.au](mailto:david.demer@sydneywater.com.au) | [sydneywater.com.au](http://sydneywater.com.au)

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Date: 17/12/2014

Our Ref: 10131 / 2009/002752-04

Mr Chris Ritchie  
Manager, Industry Assessments  
Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001  
ATT: Pamela Morales

**UNCLASSIFIED**

Dear Mr Ritchie

**Caltex Kurnell Refinery Conversion – Demolition and Removal of Redundant Infrastructure  
(SSD-5544 MOD 1) Notice of Exhibition**

**Operator:** Caltex Australia Petroleum Pty Ltd  
**Facility:** CT40 2 Solander Street  
KURNELL NSW 2231  
**Facility reference:** 10131

Thank you for your email and letter dated 20 November 2014 inviting comment and advice from WorkCover on recommended conditions of consent with respect to the above modification. We have reviewed the SEE and discussed the matters listed below at our quarterly meeting with Caltex and they confirmed that procedures are in place, or will be included to address the matters of concern.

- Need for continuous monitoring for toxic and/or flammable gases where the possibility exists – eg from dormant sludges in dead-legs – that flammable/explosive gases may be released during demolition activities, hot work in particular.
- Measures to monitor for accidentally released flammable vapours from the terminal activities entering the demolition work area.
- Possible discovery of asbestos in areas not listed in the asbestos register.

Therefore, should the Department determine to approve the modification, there are no WorkCover related issues that should preclude approval.

If you have any questions about this letter, please contact Sohan Fernando on (02) 8867 2747 or email [sohan.fernando@workcover.nsw.gov.au](mailto:sohan.fernando@workcover.nsw.gov.au).

Yours sincerely



Meagan McCool  
A/Manager  
Hazardous Chemicals Services Team  
**WorkCover Authority of NSW**

## Response to OEH Submission - Biosis

6 March 2015 (Final)

William Miles  
Principal Environmental Planner  
Manager NSW Planning and EIA  
URS Australia Pty Ltd  
Level 4, 407 Pacific Highway  
Artarmon NSW 2064

## **Flora and Fauna Assessment - Caltex Refineries (NSW) Pty Ltd - Kurnell Refinery Demolition: Response to OEH Submission**

**Our Ref: Matter 17867**

Following public exhibition of the Statement of Environmental Effects (SEE) for the Kurnell Refinery Demolition (the Project), the Office of Environment and Heritage (OEH) provided a submission dated 16 December 2014 to the Department of Planning and Environment (DPE). This submission was passed to Caltex and on 9 February 2015 a teleconference was held between DPE, OEH, Caltex, Biosis and URS to discuss its content. The following four issues were discussed:

- Issue 1 - Continental Carbon Pipeline
- Issue 2 - *Pterostylis* sp. Botany Bay
- Issue 3 – Biodiversity Values Adjacent to Continental Carbon Pipeline
- Issue 4 – Mitigation Measures

For the purposes of this formal response Issue 1 has been split into two issues. Therefore this memo provides a written response to each of these five issues.

### **Issue 1 - Continental Carbon Pipeline**

**OEH:** *The proposed removal of the redundant Continental Carbon (CC) Pipeline, however, has the potential to impact on vegetation (albeit disturbed) which constitute Sydney Freshwater Wetlands (SFW) and Kurnell Dune Forest (KDF) EECs. The SEE does not acknowledge KDF EEC shown in The Native Vegetation of the Sydney Metropolitan Area (OEH, 2013) on land adjoining the CC Pipeline.*

**Response:**

During the teleconference details regarding the type and condition of the vegetation present and adjoining the Continental Carbon Pipeline Right of Way was discussed. With regard to existing vegetation type and condition, a key issue is the artificial nature of the Continental Carbon Pipeline Right of Way (CCROW). The CCROW was constructed by shaping and modifying the local soil profile into a linear mound, raised up from the surrounding environment by an order of 0.5 to 1 meter in height. The vegetation in the CCROW is regularly maintained and the area is slightly raised the conditions are slightly dryer than in the surrounding habitat. The CCROW is also fenced. At present, as documented within the SEE, the CCROW largely consists of short mown, exotic grasses, weeds and groundcovers for its entire length from the bottom of the former refinery to the southern boundary of Caltex's land ownership. The CCROW is approximately 10 m wide for the majority of its length. Pictures of the CCROW are provided in Appendix 1. As discussed during the teleconference, the artificial structure of the CCROW, the on-going vegetation management within the CCROW and the associated fencing have all contributed to the poor condition and ecological value of the existing vegetation. Essentially the CCROW lacks vegetation communities consistent with NSW *Threatened Species Conservation Act 1995* (TSC Act) listed Endangered Ecological Communities (EEC) such as; *Sydney Freshwater Wetlands in the Sydney Basin Bioregion* (Freshwater Wetlands) and *Kurnell dune forest in the Sutherland Shire and the City of Rockdale*.

As discussed at the teleconference, the proposed works to remove the continental carbon pipeline and associated infrastructure would be limited to the CCROW and would not use the adjacent areas or impact the wetland/dune forest habitat. The continental carbon pipeline is located below the surface of the CCROW for its entire length. The pipeline would be removed in sections by a small backhoe. This work would involve:

- uncovering the pipeline with the backhoe;
- stockpiling the excavated soils by the side of the trench inside the CCROW;
- cutting the pipe and lifting it out of the trench;
- backfilling the trench with the excavated soils and virgin excavated natural material; and
- moving the removed section of pipe to the main refinery site for storage and disposal.

The works would be completed in sections to limit the amount of trenching and stockpiling required. The CCROW would be rehabilitated following removal of the continental carbon pipeline and the other surface infrastructure.

Given the nature of the CCROW, the vegetation present and the proposed works, it is unlikely that the EECs located adjacent to the CCROW would be adversely impacted. The exotic vegetation within the CCROW would be impacted but no EECs are located where the works are proposed.

However, the presence of Freshwater Wetlands in the areas adjoining the CCROW is noted in the Flora and Fauna Assessment (2014) (Appendix G1 of the SEE). To ensure that potential impacts on this community were understood, the precautionary principle was adopted and a NSW Assessment of Significance (AoS) for Freshwater Wetlands (Appendix 4 of the Flora and Fauna Assessment) was completed. This AoS concluded that there would be no significant impacts to Freshwater Wetlands as a result of the decommissioning of the Continental Carbon Pipeline.

Further as a result of the discussion, Caltex agreed that following removal of the continental carbon pipeline and other surface infrastructure that they would commit to developing and implementing a strategy of active management for the part of the CCROW to the south of the Site. The strategy would explain how this area would be managed to:

- remove fencing, reprofile and allow natural regeneration the southern part of the CCROW (beyond the southern boundary of the Site) to promote consistent and connected vegetative communities across the southern part of Caltex's ownership; and
- remove and keep out noxious and invasive weeds, especially during the regeneration phase.

The reprofiling of the CCROW could include creating gaps in the raised easement to allow for hydrological exchange and habitat regeneration.

This commitment to weed control and natural regeneration is likely to result in a number of ecological benefits.

## Issue 2 – Threatened Species

*In addition, no targeted surveys have been undertaken, despite recent reliable records, for a number of threatened species which are likely to have suitable habitat within these EECs (e.g. the vulnerable Wallum Froglet and the endangered Green and Golden Bell Frog [GGBF]).*

### Response:

Biosis undertook targeted surveys in 2014 for both the Green and Golden Bell Frog *Litoria aurea* (Vulnerable EPBC Act; Endangered TSC Act) (GGBF) and Wallum Froglet *Crinia tinnula* (Vulnerable TSC Act) within the study area, as defined in the SEE. Surveys included diurnal inspection of the entire CCROW for individual frogs and frog habitat. Biosis concluded that the CCROW does not provide suitable forage, shelter or breeding habitat for the Wallum Froglet or the GGBF and no individuals of either species were recorded during surveys. In addition, the Flora and Fauna Assessment states a 'low' potential for dispersal across Site and acknowledges presence in adjoining areas (Table 11; Appendix 3 of the Flora and Fauna Assessment). Given access restrictions, Biosis adopted the Precautionary Principle and assumed presence of GGBF and Wallum Froglet in the vegetated areas adjacent to the CCROW. Biosis prepared AoS and Commonwealth Significant Impact Criteria assessment for GGBF, as well as an AoS for Wallum Froglet as part of the Flora and Fauna Assessment.

Whilst the CCROW dissects probable habitat for both species the habitat is an artificial, long, linear, raised and maintained area that provides potential dispersal habitat but no foraging, shelter or breeding habitat. Direct impacts on either species are therefore unlikely provided appropriate mitigation measures are designed and implemented during excavation of the pipeline. As the Continental Carbon Pipeline is located approximately 0.5 metres below ground there will be a requirement to excavate a trench to remove the pipeline. During the teleconference, Caltex confirmed that the pipeline will be excavated in sections of approximately 50 metres in length, where each stage will be completed (including back-filling of trenches) prior to commencing the next stage of excavation. Caltex also confirmed that pre-clearing inspections and frog exclusion measures will be employed to ensure dispersing frogs are not captured and trapped in trenches during pipeline removal. The Flora and Fauna Assessment report recommended using backfilling or covering of trenches at the end of each day to exclude frogs. During the teleconference Caltex also proposed to erect exclusion fencing within the CCROW prior to commencement of pipeline removal to prevent frogs from dispersing across the areas where works are taking place. This measure would help reduce the likelihood of frogs becoming trapped in trenches.

As stated above, active management of the CCROW following completion of the works will also help improve habitat values for the GGBF and Wallum Froglet over time.

In addition to the Biosis assessment (2014), in 2012 UBM Ecological Consultants Pty Ltd prepared a report for Caltex, *Biodiversity Study: flora & fauna investigations for native bushland at the Caltex Oil Refineries, Captain Cook Drive, Kurnell*. This report outlines survey effort of total two days/nights of targeted surveys for amphibians including GGBF and Wallum Froglet. It is noted that EPBC guidelines (DEWHA 2010) for GGBF require a minimum 4 nights survey under ideal conditions (wet and warm weather), whilst DECC guidelines (DECC 2009) for Wallum Froglet requires a minimum 2 nights survey. It is likely that previous surveys undertaken by UBM (2012) therefore meet DECC survey guideline requirements for Wallum Froglet, but would not meet DECC or EPBC survey guidelines for the GGBF. UBM did not record either species as being present. Regardless, it is acknowledged that the GGBF and the Wallum Froglet have the potential to occur in areas of suitable habitat adjacent to the Continental Carbon Pipeline and therefore additional surveys for these species would not alter the assessment, nor the overall recommendations which focus on protecting amphibians from impacts during demolition works and protection of surrounding vegetation.

### **Issue 3 - *Pterostylis* sp. Botany Bay**

**OEH:** *OEH notes the endangered *Pterostylis* sp. Botany Bay (Botany Bay Bearded Greenhood) is not included in the list of threatened biota considered to have potential to occur within the development area. OEH recommends additional biodiversity assessment be undertaken of the land adjoining the CC Pipeline.*

#### **Response:**

Desktop research identified that there is one record for Botany Bay Bearded Greenhood *Pterostylis* sp. Botany Bay (Endangered EPBC Act and TSC Act) at Kurnell within Kamay Botany Bay National Park (OEH 2015b). Based on the nature and condition of the study area, it is unlikely that this species will occur within the CCROW or the wider Site. It is acknowledged that the species is cryptic but it is likely that its occurrence was actually recorded from the adjoining *Melaleuca* and *Baekea* dominated coastal heath lands that this species is typically associated with. However, it was agreed that due to the limited knowledge regarding this species (location and habitat needs), that all demolition workers should be notified of its appearance and be prepared to stop work in the CCROW in the instance that it be identified. As such, a Botany Bay Bearded Greenhood Fact Sheet has been provided in Appendix 2 for the purpose of educating and inducting workers completing demolition activities within the CCROW.

### **Issue 4 – Biodiversity Values Adjacent to Continental Carbon Pipeline**

**OEH:** *OEH is of the view that if the direct and indirect impacts of the proposal are to be effectively managed through the proposed Biodiversity and Weed Management Plan (BWMP) then the biodiversity values of the area adjoining the CC Pipeline should be considered. This is of particular importance for SFW EEC, the GGBF and Botany Bay Bearded Greenhood (BBBG) which can be found in disturbed landscapes. It is also important for KDF EEC which may be indirectly impacted in the longer term because local hydrology changes associated with excavation, stockpiling and other ground-disturbing activities. OEH recommends the potential direct and indirect biodiversity impacts in relation to the CC Pipeline component of the proposal be reassessed.*

**Response:**

As discussed, it is unlikely that the removal of the continental carbon pipeline would result in significant adverse impacts on threatened biota that may be present in the areas adjoining the CCROW. A suite of management and mitigation measures have been presented within the SEE to ensure that potential direct and indirect impacts on the ecological values of the surrounding area are avoided or mitigated. These measures are presented in Section 20 of the SEE (most notably measures K1, K2 and K4) and are augmented by the additional measures presented in this response. Relevant management and mitigation measures include:

- Clearly designating and fencing no-go zones for demolition works within vegetated areas;
- Measures to minimise frog dispersal (e.g. amphibian fencing) during the works and measures to avoid entrapment (by covering or backfilling trenches, only trenching in sections) and requirements to inspect trenches each morning prior to works taking place to find and relocate trapped species;
- Stop work measures for certain threatened biota to avoid potential impacts and to notify appropriate authorities;
- Measures to ensure that soil stockpiles are appropriately managed (e.g. with sediment fencing etc) to ensure soils do not move beyond designated areas.
- Measures to avoid the spread, manage and remove noxious weeds from the demolition works areas.

These measures demonstrate that the ecological values found in the areas either side of the CCROW have been considered and assessed. As discussed at the teleconference, it is unlikely that the works will result in significant hydrological changes given that the CCROW is slightly raised above the surrounding land and the works do not expect to encounter groundwater. As such, the hydrological connectivity between the two areas is unlikely to be affected.

As noted within the SEE and at the teleconference, ecologically focused management and mitigation measures for the demolition works will be documented within the Biodiversity and Weed Management Plan (BWMP). This plan will form a sub-plan of the Demolition Environment Management Plan (DEMP). The plan will be based on the previously approved BWMP for the Conversion Works (SSD 5544) at the Site. Amongst other information, the plan will include figures showing no-go/exclusion areas and will include threatened biota fact sheets for inducting and training demolition workers. Implementing the measures within the Demolition BWMP will ensure that potential ecological impacts are avoided and minimised.

As requested by OEH, a draft of the Demolition BWMP will be provided for review and comment prior to being finalised.

Equally, it was agreed at the teleconference that Caltex would develop a strategy of active management for the part of the CCROW to the south of the Site. This strategy would explain how this area would be managed to:

- remove fencing, reprofile and allow natural regeneration the southern part of the CCROW (beyond the southern boundary of the Site) to promote consistent and connected vegetative communities across the southern part of Caltex's ownership; and
- remove and keep out noxious and invasive weeds, especially during the regeneration phase.

It was agreed the requirement to complete this strategy would be a condition of consent and would be linked to the future operation of the Site and the Operational Environmental Management Plan (OEMP) as opposed to the DEMP and Demolition BWMP.

## Issue 5 – Mitigation Measures

**OEH:** *OEH notes the mitigation and management measures to be included in the BWMP to address the potential biodiversity impacts of the development. However, in the absence of targeted surveys and a detailed description of the actual demolition works (e.g. machinery/equipment access, stockpile and decontamination areas) it is difficult to assess the efficacy of some measures. OEH therefore recommends a more proactive BWMP be adopted which avoids direct and indirect impacts on threatened biota likely to be present. This should include pre-work biodiversity surveys (in addition to the daily trench inspections for frogs proposed at K3) within and adjacent to relevant impact areas (e.g. the CC Pipeline). Appropriate actions should be incorporated in the BWMP to avoid and mitigate impacts if threatened biota is found. Any unavoidable impacts on EEC vegetation or threatened species habitat should be offset through compensatory works elsewhere on the Caltex site.*

### Response:

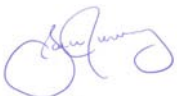
As per the Flora and Fauna Assessment (Biosis 2014) and discussed in the teleconference the recommended management and mitigation measures will avoid direct and indirect impacts on threatened biota that are likely to be present. It is unlikely that there will be any unavoidable impacts on threatened communities or threatened species habitat. Areas of native vegetation across the Site and Caltex's land ownership will be designated as no-go zones for demolition workers and their plant and equipment (Figure 4 of the Flora and Fauna Assessment). No-go zone areas are to be fenced off to restrict personnel and equipment and thus limit access or damage to these areas from construction equipment/vehicles. Frog exclusion measures will be established prior to demolition works and will include:

- Should threatened frogs, Green and Golden Bell Frog or Wallum Froglet be identified during demolition works, active searching should be undertaken by a qualified zoologist experienced in the identification and management of the Green and Golden Bell Frog and Wallum Froglet.
- When open trenching/digging/excavating, Caltex will ensure that exclusion fencing is erected prior to works commencing each morning. Exclusion fencing shall be maintained during all seasons of the year, given the active season for the Green and Golden Bell Frog extends from September to April and the Wallum Froglet peak activity period occurs during the colder months.
- Injured frogs that become trapped within trenches shall be assessed by a veterinarian or ecologist. Otherwise, trapped frogs shall be captured in appropriate vessel and released into the nearest suitable habitat to the south of the study area.

Recommendations for avoidance and mitigation of direct and indirect impacts on biodiversity values within and adjacent to pipelines will be incorporated in the BWMP for the demolition works as outlined above.

ooo000ooo

Yours sincerely



Jane Murray  
Sydney Resource Group Manager

## References

- OEH 2015a Statement of Environmental Effects (SEE) submission response from NSW Office of Environment and Heritage.
- OEH 2015b OEH BioNet Atlas of NSW Wildlife. Updated search: *Pterostylis* sp. Botany Bay records for the Kurnell area. Accessed February 2015.
- DEWHA 2010. *Survey guidelines for Australia's threatened frogs. Guidelines for detecting frogs listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999.* Commonwealth Department of the Environment, Water, Heritage and the Arts.
- DECC 2009. *Threatened species survey and assessment guidelines: field survey methods for Fauna – Amphibians.* NSW Department of Environment and Climate Change.
- UBM 2006 *Flora and Fauna Biodiversity Survey & Weed Management Plan for Caltex Refinery, Kurnell.*
- UBM 2012 *Biodiversity Study: flora & fauna investigations for native bushland at the Caltex Oil Refineries, Captain Cook Drive, Kurnell.*
- Biosis 2014 *Flora and Fauna Assessment - Caltex Refineries (NSW) Pty Ltd - Kurnell Refinery Demolition.* Report for URS Australia Pty Ltd. Authors: Jane Murray and Carl Corden, Biosis Pty. Ltd., Sydney.

## Appendix 1: Site photograph plates (Biosis 2014)

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**Plate 1: Continental Pipeline – central section looking north towards Kurnell Terminal**



**Plate 2: Continental Pipeline – northern section looking south from Kurnell Terminal**



**Plate 3: Continental Pipeline - southern section showing modified vegetation within pipeline easement**

## Appendix 2: Botany Bay Bearded Greenhood Fact Sheet

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## Botany Bay Bearded Orchid - *Pterostylis* sp. Botany Bay

The Botany Bay Bearded Orchid *Pterostylis* sp. Botany Bay is a nationally and state threatened species at Kurnell in the middle of Botany Bay (OEH 2015). Botany Bay Bearded Orchid is listed as endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and New South Wales *Threatened Species Conservation Act 1995*.



**Plate 1: *Pterostylis* sp. Botany Bay. Copyright © Alan Fairley**

### General Appearance

The Botany Bay Bearded Orchid is a terrestrial orchid with a slender stem 20 centimetres long. Up to 12 narrow oval shaped leaves grow at the base of the stem in a rosette formation, and ascend the stem slightly. The flower is a translucent green with dark green veins, refer to Plate 1 (OEH 2014).

### Habitat

The Botany Bay Bearded Orchid occupies moist level sites on sandy soils. It is associated with coastal heath dominated by *Melaleuca nodosa* and *Baeckea imbricata*. The species usually occurs in small localised populations within heath where filtered light reaches the ground (OEH 2014).

### What should you do if you find a Botany Bay Bearded Orchid?

Stop work and tell your environmental manager immediately who will provide advice on what to do next.

### References

OEH 2014. Botany Bay Bearded Orchid profile. NSW Office of Environment and Heritage.

## Appendix 3: OEH Submission Response (16.12.2014)

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Office of  
Environment  
& Heritage

Your reference: SSD 5544 MOD 1  
Our reference: DOC14/296435  
Contact: Richard Bonner, 9995 6917

Ms Pamela Morales  
Planning Officer, Industry Assessments  
NSW Department of Planning & Environment  
GPO Box 39  
SYDNEY NSW 2001

Dear Ms Morales

I refer to your letter received on 4 December 2014 by the Office of Environment and Heritage (OEH) seeking comments on a proposed modification to the consent for the Kurnell Refinery Conversion development (SSD-5544) to facilitate the demolition, dismantling and removal of redundant refinery units, tanks, pipelines, services and buildings.

OEH has reviewed the Statement of Environmental Effects (SEE) prepared for the proposed modification and provides the following advice in relation to the assessment of biodiversity impacts:

- The SEE states the proposed development will not involve the removal or modification of any remnant native vegetation and that there is a low likelihood of threatened biota and endangered ecological community (EEC) vegetation being present because the works are being undertaken in a highly modified and disturbed landscape largely devoid of native vegetation or fauna habitat.
- The proposed removal of the redundant Continental Carbon (CC) Pipeline, however, has the potential to impact on vegetation (albeit disturbed) which constitute Sydney Freshwater Wetlands (SFW) and Kurnell Dune Forest (KDF) EECs. The SEE does not acknowledge KDF EEC shown in *The Native Vegetation of the Sydney Metropolitan Area (OEH, 2013)* on land adjoining the CC Pipeline. In addition, no targeted surveys have been undertaken, despite recent reliable records, for a number of threatened species which are likely to have suitable habitat within these EECs (e.g. the vulnerable Wallum Froglet and the endangered Green and Golden Bell Frog [GGBF]). OEH also notes the endangered *Pterostylis* sp. Botany Bay (Botany Bay Bearded Greenhood) is not included in the list of threatened biota considered to have potential to occur within the development area. OEH recommends additional biodiversity assessment be undertaken of the land adjoining the CC Pipeline.
- OEH is of the view that if the direct and indirect impacts of the proposal are to be effectively managed through the proposed Biodiversity and Weed Management Plan (BWMP) then the biodiversity values of the area adjoining the CC Pipeline should be considered. This is of particular importance for SFW EEC, the GGBF and Botany Bay Bearded Greenhood (BBBG) which can be found in disturbed landscapes. It is also important for KDF EEC which may be indirectly impacted in the longer term because local hydrology changes associated with excavation,

stockpiling and other ground-disturbing activities. OEH recommends the potential direct and indirect biodiversity impacts in relation to the CC Pipeline component of the proposal be reassessed.

- OEH notes the mitigation and management measures to be included in the BWMP to address the potential biodiversity impacts of the development. However, in the absence of targeted surveys and a detailed description of the actual demolition works (e.g. machinery/equipment access, stockpile and decontamination areas) it is difficult to assess the efficacy of some measures. OEH therefore recommends a more proactive BWMP be adopted which avoids direct and indirect impacts on threatened biota likely to be present. This should include pre-work biodiversity surveys (in addition to the daily trench inspections for frogs proposed at K3) within and adjacent to relevant impact areas (e.g. the CC Pipeline). Appropriate actions should be incorporated in the BWMP to avoid and mitigate impacts if threatened biota is found. Any unavoidable impacts on EEC vegetation or threatened species habitat should be offset through compensatory works elsewhere on the Caltex site.

Please contact Richard Bonner, Conservation Planning Officer, on 9995 6917 should you wish to discuss this advice. Please note the postal address for OEH's Regional Operations Parramatta Office.

Yours sincerely

*S. Harrison 16/12/14*

**SUSAN HARRISON**  
**Senior Team Leader Planning**  
**Greater Sydney Region**  
**Regional Operations**

Conditions of Consent for SSD 5544  
- Comparison Table

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<b>Schedule A</b>	
Application No: SSD 5544	Yes, should be amended to include reference to SSD 5544- MOD 1.
Applicant: Caltex Refineries (NSW) Pty Ltd	
Consent Authority: Minister for Planning & Infrastructure	Yes, correct consent authority should be referred to.
Land: 2 Solander Street, Kurnell    Lot 79, DP 8135                      Lot D, DP 361103 Lot 56, DP 908                              Part Lot 122, DP 8135              Part Lot F, DP 361103 Lot 57, DP 908                              Part Lot 123, DP 8135              Lot G, DP 361103 Lot 62, DP 908                              Part Lot 124, DP 8135              Lot J, DP 362655 Part Lot 11, DP 7632                      Part Lot 125, DP 8135              Lot K, DP 362655 Part Lot 12, DP 7632                      Lot 48, DP 9564                      Lot H, DP 362655 Lot 189, DP 7632                          Lot 77, DP 9564                      Lot 570, DP 752064 Lot 190, DP 7632                          Lot 78, DP 9564                      Lot 24, DP 776328 Lot 43, DP 8135                            Lot 81, DP 9564                      Lot 1, DP 1044690 Lot 44, DP 8135                            Part Lot 1, DP 215818              Lot 25, DP 776328 Lot 45, DP 8135                            Part Lot 2, DP 215818              Lot 283, DP 752064 Lot 46, DP 8135                            Lot 1, DP 215819                      Lot 1, DP 132055 Part Lot 77, DP 8135                      Lot B, DP 33889 Lot 78, DP 8135	Yes, updates to lots and DPs in line with Section 2.1.2 or the SEE.
Development: Conversion of the existing Kurnell Refinery to a finished product import and distribution terminal.	
<b>Schedule B Administrative Conditions</b>	
B1. The Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction or operation of the development.	
B2. The Applicant shall carry out the Development generally in accordance with the : (a) EIS; (b) RTS; (c) site layout plans and drawings in the EIS (see Appendix A); and (d) conditions of this Consent.	Yes, this should also refer to the SEE and associated documentation.
B3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this Consent shall prevail to the extent of any	

<sup>1</sup> Where referenced, conditions should refer to the Secretary rather than the Director-General

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
inconsistency.	
B4 The Applicant shall comply with any reasonable requirement(s) of the Director-General arising from the Department's assessment of: <ul style="list-style-type: none"> <li>(a) any reports, plans or correspondence that are submitted in accordance with this consent; and</li> <li>(b) the implementation of any actions or measures contained within these reports, plans or correspondence.</li> </ul>	
B5. Subject to confidentiality, the Applicant shall make all documents required under this consent available for public inspection on request.	
B6. The Applicant shall not store in excess of 925 megalitres (ML) of refined product on the Site at any one time, unless otherwise agreed to in writing by the Director-General.	
B7. The construction works associated with the Development shall not extend beyond five (5) years from the date of approval.	Yes. This should also refer to the demolition works and the date of approval should refer to the Modification.
B8. This consent shall lapse five years from the date of this consent unless any part of the Project is physically commenced (within the meaning of section 95 of the EP&A Act) on or before that day, in accordance with any consent or development consent, on the Land to which the consent relates.	
B9. Within six (6) months of ceasing refining operations, or as otherwise agreed in writing by the Director-General, the Applicant shall surrender all existing development consents for the site listed in Appendix B in accordance with Clause 97 of the EP&A Regulation.	
B10. Within six (6) months of the issue of a Compliance Certificate or Occupation Certificate for the following development consents, or as otherwise agreed in writing by the Director-General, the Applicant shall surrender the following consents in accordance with Clause 97 of the EP&A Regulation. <ul style="list-style-type: none"> <li>(a) DA 13/0195 - Stormwater Drainage Upgrade; and</li> <li>(b) DA 12/0238 - Construction of a switch room.</li> </ul>	
B11. Nothing in this consent alters or modifies the following development consents : <ul style="list-style-type: none"> <li>(a) SSD 5353 - Port and Berthing Works ;</li> <li>(b) DA 13/0335 - Construction and operation of a Bio-Pile Pilot Trial to treat Hydrocarbon impacted soils ;</li> </ul>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<ul style="list-style-type: none"> <li>(c) DA 09/840 - Jet Fuel Remediation;</li> <li>(d) DA 11/1090 - Remediation of Limestone Pits; and,</li> <li>(e) MP 11/0004 - Caltex Jet Fuel Pipeline Upgrade Project.</li> </ul>	
<p>B12. The Applicant shall ensure that all licences, permits and approval/consents are obtained as required by law and maintained as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approval/consents.</p>	
<p>B13. Prior to the commencement of construction, the Applicant must apply to the EPA to vary the Environment Protection Licence (EPL) for the Kurnell Refinery (Licence No. 837) to permit the Development.</p>	
<p>B14. The Applicant shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures are constructed in accordance with the relevant requirements of the 8CA.</p> <p><i>Notes: Under Part 4A of the EP&amp;A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.</i></p>	
<p>B15 The Applicant shall ensure that all demolition work associated with the Development is carried out in accordance with <i>Australian Standard AS 2601:2001: The Demolition Of Structures</i>, or its latest version.</p>	
<p>B16 The Applicant shall ensure that all plant and equipment used for the Development is:</p> <ul style="list-style-type: none"> <li>(a) maintained in a proper and efficient condition; and</li> <li>(b) operated in a proper and efficient manner.</li> </ul>	
<p>B17 Prior to the commencement of construction, the Applicant shall:</p> <ul style="list-style-type: none"> <li>(c) prepare a dilapidation report of the public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and</li> <li>(d) submit a copy of this report to the Director-General and Council.</li> </ul>	
<p>B18 The Applicant shall:</p> <ul style="list-style-type: none"> <li>(e) repair, or pay the full costs associated with repairing, any public</li> </ul>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>(f) infrastructure that is damaged by the development; and relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.</p>	
<p>B19 With the approval of the Director-General, the Applicant may:</p> <p>(g) submit any strategy, plan or program required by this consent on a progressive basis; and/or</p> <p>(h) combine any strategy, plan or program required by this consent.</p> <p><i>Notes:</i></p> <p><i>If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program shall clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages and the trigger for updating the strategy, plan or program. There must be a clear relationship between the strategy, plan or program that are to be combined.</i></p>	
<p>B20. In the event that a dispute arises between the Applicant and Council or a public authority other than the Department, in relation to a specification or requirement applicable under this consent, the matter must be referred by either party to the Director-General, or if not resolved, to the Minister, whose determination of the dispute shall be final and binding to all parties. For the purpose of this condition, 'public authority' has the same meaning as provided under Section 4 of the Act.</p>	
<p>B21. The Applicant shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.</p>	
<p>B22. The Applicant shall be responsible for environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.</p>	
Schedule C Environmental Performance and Management	
<p>C1. The Applicant shall:</p> <p>(a) carry out the Development in accordance with the PHA;</p> <p>(b) implement all control measures proposed in the PHA;</p> <p>(c) implement all actions proposed by Caltex in response to the recommendations from the Buncefield incident investigation report (Kurnell Buncefield Review - Final, submitted to the Department May 2013).</p> <p>(d) implement all proposed actions listed in Caltex's response to the</p>	<p>Yes. Should be amended to include reference to the HAZDEM for SSD 5544- MOD 1.</p>

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?															
<p>Department's requests for additional information and clarifications (Caltex Response to D&amp;I Queries of Caltex Submitted QRA - August 2013).</p>																
<p>C2. The Applicant shall commission the Development in accordance with Table 1 below:</p> <p><i>Table 1: Development Commissioning</i></p> <table border="1" data-bbox="183 571 1173 815"> <thead> <tr> <th>System Description</th> <th>Estimated Commencement of Commissioning</th> <th>Estimated Commencement of Operation of System</th> </tr> </thead> <tbody> <tr> <td>Jet</td> <td>1 March 2014</td> <td>1 June 2014</td> </tr> <tr> <td>Diesel</td> <td>1 April 2014</td> <td>1 July 2014</td> </tr> <tr> <td>Gasoline</td> <td>1 May 2014</td> <td>1 August 2014</td> </tr> <tr> <td>Slop</td> <td>1 May 2014</td> <td>1 August 2014</td> </tr> </tbody> </table>	System Description	Estimated Commencement of Commissioning	Estimated Commencement of Operation of System	Jet	1 March 2014	1 June 2014	Diesel	1 April 2014	1 July 2014	Gasoline	1 May 2014	1 August 2014	Slop	1 May 2014	1 August 2014	
System Description	Estimated Commencement of Commissioning	Estimated Commencement of Operation of System														
Jet	1 March 2014	1 June 2014														
Diesel	1 April 2014	1 July 2014														
Gasoline	1 May 2014	1 August 2014														
Slop	1 May 2014	1 August 2014														
<p>C3. At least one month prior to the commencement of construction of the Development (except for construction of those preliminary works that are outside the scope of the hazard studies), or within such further period as the Director-General may agree, the Applicant shall prepare, in consultation with WorkCover NSW, and submit for the approval of the Director-General, the studies set out under subsections (a) to (d) (the pre-construction studies) of this Condition. Construction, other than for preliminary works, shall not commence until approval has been given by the Director-General and, with respect to the Fire Safety Study, approval has also been given by Fire and Rescue NSW.</p> <p>(a) <u>Construction Safety Study</u></p> <p>A Construction Safety Study, consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 7, 'Construction Safety'. For developments in which the construction period exceeds six (6) months, the commissioning portion of the Construction Safety Study may</p>	<p>Part (a) should be amended to refer to the demolition works. The rest should remain the same.</p>															

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>be submitted two months prior to the commencement of commissioning.</p> <p>(b) <u>Fire Safety Study</u></p> <p>A Fire Safety Study for the Development. This study shall cover the relevant aspects of the Department of Planning's Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines' and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The study shall also be submitted for approval to Fire and Rescue NSW.</p> <p>(c) <u>Hazard and Operability Study/s</u></p> <p>A Hazard and Operability Study/s for the Development, chaired by an independent qualified person. The study/s shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'. The study report/s must be accompanied by a program for the implementation of all recommendations made in the report. If the Applicant intends to defer the implementation of a recommendation, reasons must be documented.</p> <p>(d) <u>Final Hazard Analysis</u></p> <p>A Final Hazard Analysis of the Development, consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'.</p> <p>The FHA shall re-evaluate and confirm all relevant data and assumptions from the Preliminary Hazard Analysis.</p>	
<p>C4. The Applicant shall develop, in consultation with WorkCover NSW, and implement the plans and systems set out under subsections (a) to (b) of this Condition. No later than two months prior to the refinery process units shutting down, or within such further period as the Director-General may agree, the Applicant shall submit, for the approval of the Director-General, documentation</p>	<p>Part (b) should be amended to refer to the demolition works. The rest should remain the same.</p>

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>describing those plans and systems.</p> <p>(a) <u>Emergency Plan</u></p> <p>A comprehensive Emergency Plan and detailed emergency procedures for the Development. This plan shall include consideration of the safety of all people outside of the Development who may be at risk from the Development. The plan shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'.</p> <p>(b) <u>Safety Management System</u></p> <p>A document setting out a comprehensive Safety Management System, covering all on-site operations and associated transport activities involving hazardous material. The document shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. Records shall be kept on-site and shall be available for inspection by the Director-General upon request. The Safety Management System shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.</p> <p>An inspection, testing and preventive maintenance program should be developed, implemented and maintained to ensure the reliability and availability of the key safety critical equipment is, at a minimum, consistent with the data estimated in the PHA.</p>	
<p>C5. Prior to the commencement of commissioning the first asset within each system (see Condition C2), the Applicant shall submit a Pre-Commissioning Plan and Pre-Startup Safety Review Checklists to the Director- General.</p>	
<p>C6. <u>Pre-Startup Compliance Report</u></p> <p>One month prior to the commencement of operation of the first asset in each of the four systems (see Condition C2), the Applicant shall submit to the Director-General, a report detailing compliance with Conditions C3, C4 and C5 of this consent. The report shall be</p>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>prepared in consultation with WorkCover NSW, and shall include:</p> <ul style="list-style-type: none"> <li>(a) dates of study/plan/system submission, approval, commencement of construction and commissioning;</li> <li>(b) actions taken or proposed, to implement the recommendations and safety-related control measures in the studies/plans/systems; and</li> <li>(c) responses to each requirement imposed by the Director-General under Condition C7 of this consent.</li> </ul> <p><i>Note: Compliance with Condition C4 may not be achievable until after such time as the documentation describing the plans and systems required under that condition have been developed. A subsequent report may therefore be required to be prepared and submitted after the documentation required by Condition C4 has been developed.</i></p>	
<p>C7. <u>Post-Startup Compliance Report</u></p> <p>Three months after the refinery process units shut down, the Applicant shall submit to the Director-General, a report that has been prepared in consultation with WorkCover NSW verifying that:</p> <ul style="list-style-type: none"> <li>(a) the Emergency Plan required under Condition C4(a) is effectively in place and that at least one emergency exercise has been conducted; and</li> <li>(b) the Safety Management System required under Condition C4(b) has been fully implemented and that records required by the system are being kept.</li> </ul> <p>The report shall be prepared in consultation with WorkCover NSW.</p>	
<p>C8. <u>Hazard Audit</u></p> <p>Twelve months after all four systems being fully operational and every three years thereafter, or at such intervals as the Director-General may agree, the Applicant shall carry out a comprehensive Hazard Audit of the Development and within one month of each audit submit a report to the Director-General.</p>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>The audits shall be carried out at the Applicant's expense by a qualified person or team, independent of the Development, approved by the Director-General prior to commencement of each audit. Hazard Audits shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit Guidelines' (HIPAP No. 5).</p> <p>The audit reports shall, in addition to the requirements provided in HIPAP No 5:</p> <ul style="list-style-type: none"> <li>(a) verify implementation of all actions proposed by Caltex in response to the recommendations from the Buncefield incident investigation report (Kurnell Buncefield Review - Final, submitted to the Department May 2013).</li> <li>(b) verify implementation of all actions listed in Caltex's response to the Department's requests for additional information and clarifications (Caltex Response to DP&amp;/ Queries of Caltex Submitted QRA - August 2013).</li> <li>(c) confirm that the throughput and storage quantities of potentially hazardous materials are consistent with the PHA.</li> <li>(d) verify that an inspection, testing and preventative maintenance program has been developed, implemented and maintained to ensure the reliability and availability of the key safety critical equipment.</li> <li>(e) verify implementation of any measures arising from the reports submitted in respect of Conditions C2 to C5 of this consent.</li> </ul> <p>The audit report must be accompanied by a program for the implementation of all recommendations made in the audit report. If the Applicant intends to defer the implementation of a recommendation, reasons must be documented.</p>	
<p>C9. Further Requirements</p> <p>The Applicant shall comply with all reasonable requirements of the Director-General in respect of the implementation of any measures arising from the reports submitted in respect of Conditions C1 to C8 of this consent inclusive, within such time as the Director-General may agree.</p>	
<p>C10. The Development shall comply with section 120 of the Protection of the Environment Operations Act 1997, which prohibits the pollution of waters, except as expressly provided in an EPL.</p>	
<p>C 11. During the construction of the Development, the Applicant shall implement suitable erosion and sediment control measures on-site, in accordance with the relevant requirements in the latest version of the Managing Urban Stormwater: Soils and Construction Guideline and</p>	<p>Yes, this should also refer to the demolition works.</p>

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
the relevant Management and Mitigation measures contained within Appendix C of this consent.	
<p>C 12. The Applicant shall prepare and implement a Water Management Plan for construction works and site operations to the satisfaction of the Director-General. The plan(s) must:</p> <ul style="list-style-type: none"> <li>(a) be prepared in consultation with the EPA;</li> <li>(b) be approved by the Director-General (refer to Conditions D1 and D2 for timing) ;</li> <li>(c) In addition to the standard requirements for management plans (see Condition D3), this plan must include a Surface Water Management Plan, that: <ul style="list-style-type: none"> <li>• includes a description of the water management system on site, including the: <ul style="list-style-type: none"> <li>• stormwater system; and,</li> <li>• oily water wastewater system.</li> </ul> </li> <li>• includes plans for the above two components of the systems; and</li> <li>• demonstrates compliance with any requirements of the EPL and/or the EPA.</li> </ul> </li> </ul>	<p>This condition should be amended to make it clear that it only relates to the conversion works.</p> <p>Potentially a new condition may be required to address the need for a Soil and Water Management Plan for the demolition works (refer to <b>Table 4-2</b> of this report).</p>
<p>C 13. In the event that groundwater is intersected during construction the Applicant shall:</p> <ul style="list-style-type: none"> <li>(a) obtain the necessary water licences or approvals from NOW; develop a Groundwater Management Plan for the testing, dewatering, storage, movement and treatment of any groundwater in consultation with the NOW, to the satisfaction of the Director-General.</li> </ul>	<p>This condition should be amended to make it clear that it only relates to the conversion works.</p> <p>Potentially a new condition may be required to address the Soil and Water Management Plan for the demolition works (refer to <b>Table 4-2</b> of this report).</p>
<p>C14. If Acid Sulfate Soils (ASS) are encountered during construction, the Applicant shall take steps to prevent further oxidation of exposed ASS, and will cease all excavation work until an ASS Management Plan is prepared for the Development to the satisfaction of the Director-General. This Plan must:</p> <ul style="list-style-type: none"> <li>(a) be prepared in consultation with the EPA and Council by a suitably qualified and experienced expert;</li> <li>(b) be approved by the Director-General prior to the continuation of any excavation works;</li> <li>(c) outline the investigations that have be undertaken to test for the presence of ASS in accordance the NSW State Government's <i>Acid Sulphate Soils Manual</i> (ASSMAC 1998);</li> </ul>	<p>This condition should be amended to make it clear that it only relates to the conversion works.</p> <p>Potentially a new condition based on this condition may be required to address the need for an Acid Sulfate Soils Plan for the demolition works (refer to <b>Table 4-2</b> of this report).</p>

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<ul style="list-style-type: none"> <li>(d) detail the protocols to be put in place and followed;</li> <li>(e) detail how the ASS will be tested , handled and stockpiled;</li> <li>(f) detail measures to prevent erosion and sedimentation of ASS; and, if necessary outline how the ASS will be disposed of off-site (e.g. at a licensed facility).</li> </ul>	
<p>C15. The Applicant shall prepare and implement a Contamination Management Plan for the construction works.</p> <p>The Plan shall:</p> <ul style="list-style-type: none"> <li>(a) be prepared in consultation with the EPA and NSW Health;</li> <li>(b) be to the satisfaction of the Director-General (refer to Condition D1 for timing);</li> <li>(c) outline measures for managing potentially contaminated soil and groundwater, including soil testing, classification, handling, storing and disposal;</li> <li>(d) detail the measures that will be employed to prevent erosion and sedimentation of contaminated soil;</li> <li>(e) detail measures for periodically testing surface water run-off that may accumulate during excavation works for elevated levels of contamination, with any water that is found to have elevated levels of contaminants being disposed of via the on-site Wastewater Treatment Plant.</li> <li>(f) detail measures for managing asbestos encountered during works, including disturbances of soil and release of asbestos into the air;</li> <li>(g) outline how all contaminated soil and associated waste material would be managed in accordance with the <i>Protection of the Environment Operations Act 1997</i> and associated regulations and characterised in accordance with the EPA's <i>Waste Classification Guidelines</i>;</li> <li>(h) detail how the storage, disposal and transport of asbestos waste would be undertaken in accordance with the Protection of the Environment Operations (Waste) Regulations; and</li> <li>(i) assess any likely impact on existing remediation projects and, if any impacts are identified, provide details as to the measures that shall be taken to reduce or avoid that impact.</li> </ul>	<p>Yes, this should also refer to the demolition works.</p>

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?										
<p>C16. The Applicant shall ensure that the construction noise generated by the Development does not exceed the criteria defined in Table 2 below.</p> <p>Table 2: Construction Noise Criteria (dB(A))</p> <table border="1" data-bbox="452 450 1438 708"> <thead> <tr> <th>Location</th> <th>Day LAeq (15 min)</th> <th>Evening LAeq (15 min)</th> </tr> </thead> <tbody> <tr> <td>R2 - 300 Cook Street</td> <td>45</td> <td>40</td> </tr> <tr> <td>At any other residence or other noise sensitive receiver</td> <td>50</td> <td>45</td> </tr> </tbody> </table> <p>Notes:  <i>To identify a residential receiver location, refer to Appendix F of the EIS. Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions} of the NSW Industrial Noise Policy.</i></p>	Location	Day LAeq (15 min)	Evening LAeq (15 min)	R2 - 300 Cook Street	45	40	At any other residence or other noise sensitive receiver	50	45	<p>Yes, this should also refer to the demolition works.            SSD 5544 conditions of consent identify 45dBA incorrectly as the construction noise criterion for R2. This should be corrected to 46dBA if the modification is approved (refer to Appendix E Noise and Vibration Assessment of the SEE).</p>	
Location	Day LAeq (15 min)	Evening LAeq (15 min)									
R2 - 300 Cook Street	45	40									
At any other residence or other noise sensitive receiver	50	45									
<p>C17. The Applicant shall ensure that the operational noise generated by the Development does not exceed the Criteria for residential receivers are summarised in Table 3 below:</p> <p>Table 3: Operational Noise Limits dB(A)</p> <table border="1" data-bbox="452 1008 1290 1216"> <thead> <tr> <th>Location</th> <th>Day LAeq (15 min)</th> <th>Evening LAeq (15 min)</th> <th colspan="2">Night LAeq (15 min) and L<sub>Amax</sub></th> </tr> </thead> <tbody> <tr> <td>At any private</td> <td>60</td> <td>50</td> <td>50</td> <td>55</td> </tr> </tbody> </table> <p>Notes:  <i>To identify a residential receiver location, refer to Appendix F of the EIS. Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions</i></p>	Location	Day LAeq (15 min)	Evening LAeq (15 min)	Night LAeq (15 min) and L <sub>Amax</sub>		At any private	60	50	50	55	
Location	Day LAeq (15 min)	Evening LAeq (15 min)	Night LAeq (15 min) and L <sub>Amax</sub>								
At any private	60	50	50	55							

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?									
<p><i>(including certain meteorological conditions) of the NSW Industrial Noise Policy. These criteria have been developed for this specific Development, however it is recognised that the site is zoned for heavy industrial purposes and that ultimately the amenity of the area should be controlled by the criteria contained in Table 2.1 of the Industrial Noise Policy.</i></p>										
<p>C18. With the exception of works identified in conditions C18 and C19, the Applicant shall comply with the hours detailed in Table 4.</p> <p style="text-align: center;"><i>Table 4: Construction &amp; Operation Hours</i></p> <table border="1" data-bbox="450 644 1021 927"> <thead> <tr> <th>Activity</th> <th>Day</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>Construction</td> <td>Monday - Sunday</td> <td>7:00am to 10:00pm</td> </tr> <tr> <td>Operation</td> <td>Monday - Sunday</td> <td>24 hours</td> </tr> </tbody> </table>	Activity	Day	Time	Construction	Monday - Sunday	7:00am to 10:00pm	Operation	Monday - Sunday	24 hours	<p>Yes, the construction hours should also refer to the demolition works.</p>
Activity	Day	Time								
Construction	Monday - Sunday	7:00am to 10:00pm								
Operation	Monday - Sunday	24 hours								
<p>C19. High noise generating construction works shall be confined to less sensitive times of the day, and shall not be undertaken outside of the hours 7:00am and 6:00pm Monday to Saturday.</p>	<p>Yes, this should also refer to the demolition works.</p>									
<p>C20. Construction works outside of the work hours identified in condition C17 above may, with the exception of works identified in condition C18, be undertaken in the following circumstances:</p> <ul style="list-style-type: none"> <li>(a) works that are inaudible at nearest sensitive land receivers;</li> <li>(b) works that are consistent with Caltex's existing maintenance procedures and are in accordance with the existing EPL;</li> <li>(c) works agreed to in writing by the EPA or the Department;</li> <li>(d) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or</li> <li>(e) where it is required in an emergency to avoid the loss of lives,</li> </ul>	<p>Yes, this should also refer to the demolition works.</p>									

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
property and/or to prevent environmental harm.	
<p>C21. The Applicant shall:</p> <ul style="list-style-type: none"> <li>(a) implement all reasonable and feasible noise management and mitigation measures to prevent and minimise operational, low frequency and traffic noise generated by the proposal;</li> <li>(b) minimise the noise impacts of the development during adverse meteorological conditions when noise criteria do not apply;</li> <li>(c) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant that may generate offensive noise is not used operationally until fully repaired; and</li> <li>(d) regularly assess noise monitoring data and relocate, modify and/or stop operations to ensure compliance with the relevant conditions of this consent.</li> </ul>	
<p>C22. The Applicant shall prepare and implement a Noise Management Plan for construction works and site operations. The plan(s) shall:</p> <ul style="list-style-type: none"> <li>(a) be prepared and implemented by a suitably qualified and experienced person, in consultation with the EPA;</li> <li>(b) be approved by the Director-General (refer to Conditions D1 and D2 for timing) ;</li> <li>(c) describe the measures that will be implemented to minimise noise from the construction and operation of the development including: <ul style="list-style-type: none"> <li>• all reasonable and feasible measures being employed on site;</li> <li>• maintain equipment to ensure that it is in good order ;</li> <li>• traffic noise is effectively managed; and</li> <li>• the noise impacts of the development are minimised during any meteorological conditions when the noise criteria in this consent do not apply;</li> <li>• identification of high noise generating construction activities, including proposed times when these works</li> </ul> </li> </ul>	<p>This condition should be amended to make it clear that it only relates to the conversion works and operation of the terminal.</p> <p>Potentially a new condition may be required to address the need for a Noise and Vibration Management Plan (NVMP) for the demolition works (refer to <b>Table 4-2</b> of this report).</p>

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>will be carried out (including respite periods if required) and mitigation measures to minimise adverse impacts from these activities;</p> <ul style="list-style-type: none"> <li>• compliance with the relevant conditions of this consent.</li> </ul> <p>(d) includes a noise monitoring program that:</p> <ul style="list-style-type: none"> <li>• shall be carried out until otherwise agreed to in writing by the Director-General;</li> <li>• is capable of evaluating the performance of the Development; and,</li> <li>• includes a protocol for determining exceedances of the relevant conditions of this consent and responding to complaints.</li> </ul>	
<p>C23. The Applicant shall aim to achieve the following construction vibration goals:</p> <ul style="list-style-type: none"> <li>(a) for structural damage, the vibration limits set out in the <i>German Standard DIN 4150-3: Structural Vibration - effects of vibration on structures</i>; and</li> <li>(b) for human exposure, the acceptable vibration values set out in the <i>Environmental Noise Management Assessing Vibration: A Technical Guideline</i> (Department of Environment and Conservation, 2006).</li> </ul>	<p>Yes, this should also refer to the demolition works.</p>
<p>C24. The Applicant shall carry out all reasonable and feasible measures to minimise dust generated during construction works.</p>	<p>Yes, this should also refer to the demolition works.</p>
<p>C25. During Construction of the Development, the Applicant shall ensure that:</p> <ul style="list-style-type: none"> <li>(a) all trucks entering or leaving the site have their loads covered;</li> <li>(b) trucks associated with the Development do not track dirt onto the public road network; and</li> <li>(c) any dirt on public roads as a result of the development is promptly removed.</li> </ul>	<p>Yes, this should also refer to the demolition works.</p>
<p>C26. The Applicant shall not cause or permit the emission of offensive odours from the site, as defined under Section 129 of the POEO Act.</p>	
<p>C27. The Applicant shall :</p>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<ul style="list-style-type: none"> <li>(a) implement all reasonable and feasible dust and odour mitigation measures to prevent and minimise odour and dust emissions from operations ;</li> <li>(b) prevent and minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events;</li> <li>(c) minimise any visible off-site air pollution; and</li> <li>(d) minimise surface disturbance of the site, other than as permitted under this consent</li> </ul>	
<p>C28. The Applicant shall prepare and implement an Air Quality Management Plan for the proposed construction works. The plan shall:</p> <ul style="list-style-type: none"> <li>(a) be prepared and implemented by a suitably qualified and experienced expert in consultation with the EPA and NSW Health;</li> <li>(b) be approved by the Director-General prior (refer to Condition D1 for timing) ;</li> <li>(c) describe the measures that would be implemented on site to ensure:               <ul style="list-style-type: none"> <li>i. the control of air quality and odour impacts of the Development ;</li> <li>ii. that these controls remain effective over time;</li> <li>iii. that all reasonable and feasible air quality management practice is employed;</li> <li>iv. the air quality impacts are minimised during adverse meteorological conditions and extraordinary events; and</li> <li>v. compliance with the relevant conditions of this consent.</li> </ul> </li> <li>(d) describes the air quality &amp; odour management system;</li> <li>(e) includes an air quality monitoring program that:               <ul style="list-style-type: none"> <li>i. is capable of evaluating the performance of the proposal;</li> <li>ii. includes a protocol for determining any exceedances of the relevant conditions of consent and responding to complaints ;</li> <li>iii. adequately supports the air quality management system ; and</li> <li>iv. evaluates and reports on the effectiveness of the air quality management system .</li> </ul> </li> </ul>	<p>Yes, this should also refer to the demolition works.</p>
<p>C29. The Applicant shall carry out an air quality verification study for the development. The study shall:</p>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<ul style="list-style-type: none"> <li>(a) be prepared by a suitably qualified expert ;</li> <li>(b) be completed within 24 months of the commencement of operations, or as otherwise agreed to by the Director-General ;</li> <li>(c) be based on the average of emissions over a continuous 12 month period after commencement of operations, taking into account the throughput and type of fuel;</li> <li>(d) include a validation of the accuracy of the modelling predictions in the EIS;</li> <li>(e) verify that compliance with any limits or conditions in the EPL are achieved;</li> <li>(f) verify , using reasonable means, the effectiveness of any emission control measures that have been implemented to minimise air quality impacts; and</li> <li>(g) demonstrate compliance with the relevant regulatory criteria.</li> </ul>	
<p>C30. The Applicant shall commission an appropriately qualified heritage expert to undertake an archival photographic recording of the existing fabric and operation of the Kurnell Refinery while the plant is still operational and during the decommissioning process. The recording should include a range of media and shall be undertaken in accordance with the current Heritage Council Guidelines on Photographic Recording of Heritage Items Using Film or Digital Capture (2006).</p> <p>The archival recording shall be submitted to the Heritage Council of NSW, Sutherland Shire Library and the NSW State Library within 12 months of the closure of the refinery and prior to the removal or demolition of any existing elements.</p>	
<p>C31. The Applicant shall prepare and implement a Heritage Management Strategy for the Australian Oil Refinery site prior to shut-down of the refinery plant. The Strategy must:</p> <ul style="list-style-type: none"> <li>(a) be prepared by a suitably qualified person in consultation with Council and the Heritage Council of NSW;</li> <li>(b) be submitted to the Director-General for approval at least 2 months prior to the shut-down of the refinery plant;</li> <li>(c) review the heritage significance of the Australian Oil Refinery site; and</li> <li>(d) set out a framework to minimise or mitigate the loss of heritage value during the decommissioning process, and for the ongoing management of the Site's heritage during present and future works.</li> </ul>	
<p>C32. The Applicant shall, prior to shut-down of the refinery:</p> <ul style="list-style-type: none"> <li>(a) form an in-house team to manage documentation and interpretation</li> </ul>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>of the history of the refinery, including the production of a colour book;</p> <p>(b) liaise with the Mitchell Library to prepare a photographic record of the site and people associated with the refinery for inclusion in the library's archives; and</p> <p>(c) engage a professional photographer to prepare a photographic exhibition of the refinery. The location(s) and duration of the exhibition shall be to the satisfaction of Council and the NSW Heritage Council.</p>	
<p>C33. If during the course of construction the Applicant becomes aware of any previously unidentified heritage object(s), all work likely to affect the object(s) shall cease immediately and the Heritage Council of New South Wales shall be notified immediately in accordance with section 146 of the <i>Heritage Act 1977</i>. Relevant works shall not recommence until written authorisation from the Heritage Council of NSW is received by the Applicant.</p>	<p>Yes, this should also refer to the demolition works.</p>
<p>C34. If during the course of construction the Applicant becomes aware of any previously unidentified Aboriginal object(s), all work likely to affect the object(s) shall cease immediately and the OEHL informed in accordance with section 89A of the <i>National Parks and Wildlife Act 1974</i>. Relevant works shall not recommence until written authorisation from OEHL is received by the Applicant.</p>	<p>Yes, this should also refer to the demolition works.</p>
<p>C35. The Applicant shall implement all reasonable and feasible measures to minimise:</p> <p>(a) energy use; and</p> <p>(b) greenhouse gas emissions;</p> <p>during construction and operations, to the satisfaction of the Director-General.</p>	<p>Yes, this should also refer to the demolition works.</p>
<p>C36. The Applicant shall prepare and implement a Traffic Management Plan for construction and operations, to the satisfaction of the Director-General. The plan must:</p> <p>(a) be prepared in consultation with Council and implemented by a suitably qualified and experienced person;</p> <p>(b) be approved by the Director-General (Refer to Conditions D1 and D2 for timing);</p> <p>(c) detail the measures that would be implemented to ensure road safety and network efficiency during construction and operation including (but not limited to):</p> <ul style="list-style-type: none"> <li>• installation of signage and implementation of maximum speeds limits on</li> </ul>	<p>Yes, this should also refer to the demolition works.</p>

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>internal roads; and</p> <ul style="list-style-type: none"> <li>• final details of the proposed traffic control measures;</li> <li>• details for the rationalisation of the entry and exit to the Site, particularly if the weigh station is no longer required, to improve the management of traffic and parking for members of the general public in this area;</li> </ul> <p>(d) include a plan showing the route to be used by heavy vehicles during construction and operation ;</p> <p>(e) detail the access and parking arrangements for the site during construction and operation;</p> <p>(f) include a Driver Code of Conduct that details the traffic management measures to be implemented during construction and operation to:</p> <ul style="list-style-type: none"> <li>• minimise the impacts of the development on the local and regional road network;</li> <li>• minimise conflicts with other road users; and</li> <li>• ensure truck drivers use specified routes.</li> </ul> <p>(g) describe the measures that will be implemented to ensure:</p> <ul style="list-style-type: none"> <li>• the nominated heavy vehicle route is used;</li> <li>• drivers adhere to the code of conduct ; and</li> <li>• compliance with the relevant conditions of this consent.</li> </ul> <p>include a program to monitor the effectiveness of these measures; and if necessary , detail procedures for notifying residents and the community (including local schools) , of any potential disruptions to routes.</p>	
<p>C37. The Applicant shall provide sufficient parking facilities on-site for construction and operational personnel, and heavy vehicles, to ensure that construction and operational traffic associated with the Development do not utilise public and residential streets or public parking facilities for parking.</p>	<p>Yes, this should also refer to the demolition works.</p>
<p>C38. The Applicant shall</p> <ul style="list-style-type: none"> <li>(a) minimise the waste generated on site; and</li> <li>(b) ensure that the waste generated by the development is</li> </ul> <p>appropriately stored, handled and disposed of, to the satisfaction of</p>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
the Director-General.	
C39. The Applicant shall ensure that any waste generated on the site during construction is classified in accordance with the EPA's Waste Classification Guidelines and disposed of to a facility that may lawfully accept the waste.	Yes, this should also refer to the demolition works.
<p>C40. The Applicant shall prepare and implement a Waste Management Plan for the construction works and site operations to the satisfaction of the Director-General. This Plan shall:</p> <ul style="list-style-type: none"> <li>(a) be prepared in consultation with the EPA;</li> <li>(b) be approved by the Director-General (refer to timing in Conditions D1 and D2);</li> <li>(c) detail the type and quantity of waste to be generated by construction and operational phases of the development ;</li> <li>(d) detail the materials to be reused or recycled, either on or off site; and</li> </ul> <p>detail the procedures for handling, storage , collection of recycling and disposal of waste .</p>	<p>This condition should be amended to make it clear that it only relates to the conversion works and operation of the terminal.</p> <p>Potentially a new condition may be required to address the need for a Demolition Waste and Resource Management Plan for the demolition works (refer to <b>Table 4-2</b> of this report).</p>
C41. The Applicant shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the <i>Protection of the Environment Operations Act 1997</i> , if such a licence is required in relation to that waste.	
<p>C42. The Applicant shall prepare and implement a Biodiversity Management Plan for the development to the satisfaction of the Director-General. This plan must:</p> <ul style="list-style-type: none"> <li>(a) be prepared in consultation with the Council;</li> <li>(b) be approved by the Director-General (Refer to Conditions D1 and D2 for timing);</li> <li>(c) include measures to be taken to minimise impacts on flora and fauna;</li> <li>(d) include a program with timeframes for implementation of the relevant recommendations contained in the Ecology Impact Assessment in Appendix I of the EIS, and the Management and Mitigation Measures contained in Chapter 19 of the EIS to minimise impacts on flora and fauna and maintain the biodiversity value of the site and surrounding environment.</li> </ul>	<p>This condition should be amended to make it clear that it only relates to the conversion works and operation of the terminal. The title of the plan should also be a Biodiversity and Weed Management Plan.</p> <p>Potentially a new condition may be required to address the need for a Biodiversity and Weed Management Plan for the demolition works (refer to <b>Table 4-2</b> of this report).</p>
C43. The Applicant shall:	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<ul style="list-style-type: none"> <li>(a) implement suitable measures to manage pests, vermin and declared noxious weeds on site;</li> <li>(b) measures to be taken to prevent the spread of any identified noxious/exotic weeds off site; and</li> <li>(c) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in surrounding area.</li> </ul> <p><i>Note: For the purposes of this condition, noxious weeds are those species subject to an order declared under the Noxious Weed Act 1993.</i></p>	
<p>C44. To ensure that the measures implemented to protect Marton Park Wetland from sedimentation, erosion and possible contaminants related to the stormwater drainage upgrade works approved by Sutherland Shire Council (DA 13/0195), are successful, monitoring of Marton Park Wetland must be undertaken after completion of the stormwater upgrade works, until otherwise agreed with Council, to ensure there are no detrimental impacts on the wetland. Caltex is to prepare a monitoring plan and submit it to Council for approval prior to completion of stormwater drainage upgrade works.</p>	
<p>C45. The Applicant shall ensure that the lighting associated with the development:</p> <ul style="list-style-type: none"> <li>(a) complies with the latest version of AS 4282(/NT) - <i>Control of Obtrusive Effects of Outdoor Lighting</i>; and</li> <li>(b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.</li> </ul>	
<p>C46. The Applicant shall not install any advertising signs on site without the written Consent of the Director- General.</p>	
<p>C47. The Applicant shall ensure that:</p> <ul style="list-style-type: none"> <li>(a) site fencing and security gates are installed to the satisfaction of the</li> </ul>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p style="text-align: center;">Director-General; and the security gates on site are locked whenever the site is unattended.</p>	
<p><b>Schedule D Environmental Management, Reporting and Auditing.</b></p>	
<p>D1. The Applicant shall prepare and implement a Construction Environmental Management Plan for the Development to the satisfaction of the Director-General. The Plan must:</p> <ul style="list-style-type: none"> <li>(a) be prepared in consultation with Sutherland Shire Council and the EPA;</li> <li>(b) be submitted to the Director-General for approval no later than four (4) weeks prior to the commencement of construction or demolition , or within such period otherwise agreed by the Director- General;</li> <li>(c) identify the statutory Consents that apply to the Development;</li> <li>(d) consolidate all relevant management plans and monitoring programs required in the conditions of this Consent;</li> <li>(e) outline all environmental management practices and procedures to be followed during construction and demolition works associated with the Development;</li> <li>(f) describe all activities to be undertaken on the site during construction of the Development , including a clear indication of construction stages ;</li> <li>(g) incorporate all relevant management and mitigation measures contained in the EIS .and RTS;</li> <li>(h) detail how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts. In particular, the following environmental performance issues shall be addressed in the Plan: <ul style="list-style-type: none"> <li>(i) Human Health and Ecological Risk management - which shall be mitigated and managed in accordance with Section 6.2 of the "<i>Human Health and Ecological Qualitative Risk Assessment</i> ' report prepared by URS, dated 28 February 2013 and the relevant Management and Mitigation Measures contained in Appendix C of this consent;</li> <li>(ii) Biodiversity management (See Condition 42);</li> </ul> </li> </ul>	<p>This condition should be amended to make it clear that it only relates to the conversion works or amended to apply to both the conversion and demolition works.</p> <p>A new condition may be necessary to require Caltex to prepare a DEMP, as the CEMP and DEMP would need to operate concurrently.</p>

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<ul style="list-style-type: none"> <li>(iii) Pest, Vermin &amp; Noxious Weed management (See Condition C43);</li> <li>(iv) Soils and Erosion management (See Condition C11);</li> <li>(v) Contamination management (See Condition C15);</li> <li>(vi) Noise and Vibration management (See Condition C22);</li> <li>(vii) Air Quality management (See Condition C28);</li> <li>(viii) Stormwater and Wastewater management (See Condition C12);</li> <li>(ix) Traffic management (See Condition C36);</li> <li>(x) Heritage management (Aboriginal and non-Aboriginal) (See Condition 33 &amp; 34);</li> <li>(xi) Waste and Resource management (See Condition C40);</li> <li>(xii) Groundwater management, including measures which are consistent with the relevant Management and Mitigation Measures contained in Appendix C of this consent;</li> <li>(xiii) Acid Sulfate Soils management – if required (See Condition C14);</li> <li>(xiv) Emergency (including spill) management;</li> <li>(xv) means for assessing (and where identified) for managing interactions and cumulative impacts from the concurrent construction of other development works in the area should these coincide with the Development (e.g. the Caltex Ports and Berthing upgrade, remediation projects);</li> <li>(i) describe the roles and responsibilities for all relevant employees involved in construction and demolition works associated with the Development;</li> <li>U) include arrangements for community consultation, including consultation with the NSW Department of Education and local schools at key stages of the development that may affect school operations, to identify issues and mitigate impacts throughout the course of the Development.</li> <li>(k) Include a complaints handling procedure during construction and demolition and operation; and,</li> <li>(l) include appropriate procedures to allow the regular review of the requirements of each plan to ensure that they are effective and allow for adaptive management to address contingencies that may arise over the life of the development.</li> </ul>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>The approval of a Construction Environmental Management Plan does not relieve the Applicant of any requirement associated with this development consent. If there is an inconsistency with an approved Construction Environmental Management Plan and the conditions of this development consent, the requirements of this development consent prevail.</p> <p><i>Note: construction of the Development shall not commence until written Consent of this plan has been received from the Director-General/</i></p>	
<p>D2. The Applicant shall prepare and implement an Operational Environmental Management Plan for the project to the satisfaction of the Director-General. This Plan must:</p> <ul style="list-style-type: none"> <li>(a) be approved by the Director-General prior to the commencement of operations;</li> <li>(b) provide the strategic framework for environmental management of the Development;</li> <li>(c) identify the statutory approvals that apply to the Development;</li> <li>(d) include a copy of all relevant management plans and monitoring programs relevant under this consent, including: <ul style="list-style-type: none"> <li>(i) Water Management Plan (See Condition C12);</li> <li>(ii) Noise Management Plan (See Condition C22);</li> <li>(iii) Traffic Management Plan (See Condition C36);</li> <li>(iv) Waste Management Plan (See Condition C40);</li> <li>(v) Biodiversity Management Plan (See Condition 42); and,</li> <li>(vi) Pest, Vermin &amp; Noxious Weed Management (See Condition C43).</li> </ul> </li> <li>(e) outline all environmental management practices and procedures to be followed during operation;</li> <li>(f) describe all activities to be undertaken on the site during operation;</li> <li>(g) detail how the environmental performance of the operation of the project will be monitored, and what actions will be taken to address identified adverse environmental impacts;</li> <li>(h) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;</li> <li>(i) describe the procedures that will be implemented to: <ul style="list-style-type: none"> <li>• keep the local community and relevant agencies informed about the operation and environmental performance of the</li> </ul> </li> </ul>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<ul style="list-style-type: none"> <li>project;</li> <li>• receive, handle, respond to, and record complaints;</li> <li>• resolve any disputes that may arise during the course of the project;</li> <li>• respond to any non-compliance; and</li> <li>• respond to emergencies; and</li> <li>U) include:               <ul style="list-style-type: none"> <li>• copies of any strategies, plans and programs approved under the conditions of this consent; and</li> <li>• a clear plan depicting all the monitoring required to be carried out under the conditions of this consent.</li> </ul> </li> </ul>	
<p>D3. The Applicant shall ensure that the Management Plans required under this consent are prepared in accordance with any relevant guidelines, and include:</p> <ul style="list-style-type: none"> <li>(a) detailed baseline data;</li> <li>(b) a description of:           <ul style="list-style-type: none"> <li>• the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> <li>• any relevant limits or performance measures/criteria; and</li> <li>• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</li> </ul> </li> <li>(c) a description of the measures that will be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</li> <li>(d) a program to monitor and report on the:           <ul style="list-style-type: none"> <li>• impacts and environmental performance of the development; and</li> <li>• effectiveness of any management measures (see (c) above);</li> </ul> </li> <li>(e) a contingency plan to manage any unpredicted impacts and their consequences;</li> <li>(f) a program to investigate and implement ways to improve the environmental performance of the development over time;</li> <li>(g) a protocol for managing and reporting any:           <ul style="list-style-type: none"> <li>• incidents;</li> <li>• complaints;</li> </ul> </li> </ul>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<ul style="list-style-type: none"> <li>• non-compliances with statutory requirements; and</li> <li>• exceedances of the impact assessment criteria and/or performance criteria; and</li> </ul> <p>(h) a protocol for periodic review of the plan.</p> <p><i>Note: The Director-General may waive some of these requirements if they are unnecessary or unwarranted for particular management plans</i></p>	
<p>D4. By 31 December 2014 and annually thereafter, or as otherwise agreed in writing by the Director-General, the Applicant shall review the environmental performance of the Development to the satisfaction of the Director- General. This review must:</p> <ul style="list-style-type: none"> <li>(a) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;</li> <li>(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against: <ul style="list-style-type: none"> <li>• the relevant statutory requirements, limits or performance measures/criteria;</li> <li>• the monitoring results of previous years; and</li> <li>• the relevant predictions in the EIS;</li> </ul> </li> <li>(c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;</li> <li>(d) identify any trends in the monitoring data over the life of the Development;</li> <li>(e) identify any discrepancies between the predicted and actual impacts of the Development, and analyse the potential cause of any significant discrepancies; and</li> <li>(f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the Development.</li> </ul>	<p>Yes, should be amended to include reference to SSD 5544- MOD 1.</p>
<p>D5. Within 3 months of the submission of an:</p> <ul style="list-style-type: none"> <li>(a) annual review under Condition D4 of this schedule;</li> </ul>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>(b) incident report under Condition D6 of this schedule;            (c) audit report under Condition D8 of this schedule; and            (d) any modifications to this consent,            the Applicant shall review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Director-General.</p> <p><i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development</i></p>	
<p>D6. The Applicant shall notify the Director-General and any other relevant agencies of any incident or potential incident with actual or potential significant off-site impacts on people or the biophysical environment associated with the development as soon as practicable after the Applicant becomes aware of the incident. Within 7 days of the date of this incident, the Applicant shall provide the Director-General and any relevant agencies with a detailed report on the incident.</p>	
<p>D7. Within a year of the date of this consent, and every 3 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:</p> <ul style="list-style-type: none"> <li>(a) be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;</li> <li>(b) include consultation with the relevant agencies;</li> <li>(c) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent and any relevant EPL and/or Water License (including any assessment, plan or program required under these approvals);</li> <li>(d) review the adequacy of any approved strategy, plan or program required under these approvals; and</li> <li>(e) recommend measures or actions to improve the environmental performance of the development, and/or any</li> </ul>	

SSD 5544 Conditions <sup>1</sup>	Edits Required as a result of SSD 5544 - MOD 1?
<p>assessment, plan or program required under these approvals.  <i>Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Director- General.</i></p>	
<p>D8. Within 3 months of commissioning this audit, or as otherwise agreed by the Director-General, the Applicant shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.</p>	
<p>D9. The Applicant shall, to the satisfaction of the Director-General:</p> <p>(a) make the following information publicly available on its website:</p> <ul style="list-style-type: none"> <li>• the EIS;</li> <li>• current statutory approvals for the Development;</li> <li>• approved strategies, plans or programs;</li> <li>• a summary of the monitoring results of the Development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent;</li> <li>• a complaints register, updated on a quarterly basis;</li> <li>• copies of any annual reviews (over the last 5 years);</li> <li>• any independent environmental audit, and the Applicant's response to the recommendations in any audit; and</li> <li>• any other matter required by the Director-General; and</li> </ul> <p>(b) keep this information up-to-date,</p> <p><i>Note: This requirement does not require any confidential information to be made available to the public.</i></p>	<p>Yes, this should also refer to the demolition works and the SEE and associated documentation.</p>



# Atmospheric Dispersion Modelling of Crusher Emissions

4 March 2015

Jos Kusters  
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Project No. 43177915

## **Kurnell Refinery Demolition - Atmospheric Dispersion Modelling of Crusher Emissions**

### **1 BACKGROUND**

Caltex Refineries (NSW) Pty Ltd (Caltex) are seeking approval to demolish and remove redundant infrastructure (the demolition works) from the Kurnell Refinery site (the Site) as part of the conversion of the refinery into a finished product terminal (the Project). As part of the approval process, URS prepared a Statement of Environmental Effects (SEE), URS (2014) *Statement of Environmental Effects, Kurnell Refinery Demolition*. The SEE included a consideration of potential impacts on air quality, with the identification of relevant mitigation and management strategies.

Through a submission, NSW EPA has recommended that a quantitative assessment of crusher emissions be performed as its operation has been identified as having the potential to cause dust impacts to the commercial receivers to the south west of the Site. Specifically the submission states:

*“An air impact assessment of this operation should be undertaken in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants to demonstrate compliance with recognised air impact assessment criteria.”*

This letter report provides detail of the dispersion modelling and assessment that was undertaken to address this aspect of EPA’s submission.

### **2 EMISSION ESTIMATION**

The proposed crushing process involves the breaking up of coarse materials (e.g. plant footings) using a mechanical (primary) jaw crusher. These machines typically comprise a loading hopper and conveyer, a jaw assembly, and a conveyer to load the crushed material to a stockpile. NPI (2012) *National Pollutant Inventory Emission Estimation Technique Manual for Mining* provides emission factors for a range of mineral processing activities including primary crushing. The emission factor for primary crushing is 0.02 kg PM<sub>10</sub> / tonne of material processed. This factor includes all processes typically associated with primary crushing operations.

The demolition works would require a total of up to 2,000 m<sup>3</sup> of concrete, asphalt and aggregates to be processed/crushed within a 3-month period. The NPI (2012) primary crushing emission factor was applied in conjunction with an estimate of peak crusher throughput in order to estimate peak PM<sub>10</sub> emissions from crusher operation. A summary of this estimate is provided in **Table 1**.

**Table 1 – Estimate of PM<sub>10</sub> emissions from crusher operation**

Parameter	Value	Units
Total volume of material to be crushed	2000	m <sup>3</sup>
Crushing period	3	months
	71.5	working days
Average crusher throughput	28	m <sup>3</sup> /day
Crusher operating window	10	hr/day
Long-term capacity factor	0.5	-
Average crusher operation	5	hr/day
Short-term peak crusher throughput	56	m <sup>3</sup> /day
	5.6	m <sup>3</sup> /hr
	13.4*	t/hr
Primary crusher PM <sub>10</sub> emission factor (uncontrolled)	0.02	kg/t
Primary crusher peak PM <sub>10</sub> emission rate (uncontrolled)	0.27	kg/hr

\*Assuming a concrete density of 2.4 t/m<sup>3</sup>.

### 3 DISPERSION MODELLING

Dispersion modelling has been performed using the NSW EPA-approved Ausplume dispersion model, in conjunction with a site-specific meteorological dataset, as per the model configuration documented in URS (2013) *Air Quality Impact Assessment for Caltex Kurnell Refinery Conversion*. Crusher emissions have been modelled as a single volume source, as per the parameters shown in **Table 2**.

**Table 2 – Summary of emission source parameters**

Parameter	Value	Units
Type	Volume	m <sup>3</sup>
Location (MGA 94, Zone 56)	334 730	mE
	6233 985	mN
Height	1.5	m
Base elevation	8	m
Initial horizontal extent / (Initial $\sigma_y$ )	10 / (2.3)	m
Initial vertical extent / (Initial $\sigma_z$ )	3 / (1.4)	m
Operating (emission) hours	7am – 12pm & 1 pm – 6pm	-
Emission rate	0.27	kg/hr

The source height and extent has been configured to represent the physical extent of emissions from the crusher. As a conservative measure, the peak hourly emission rate has been modelled as occurring for 10 hours a day (7am – 12pm & 1 pm – 6pm) for all 366 days of the 2008 meteorological dataset. This allows the potential impact of crusher operations to be represented under all seasonal meteorological conditions.

**4 RESULTS**

Ausplume was configured to generate predictions across an 81 x 81 point receptor grid, and 11 discrete residential receptors, as per the model configuration described in **Section 5** of URS (2013). Predictions were output for the maximum 24 hour average PM<sub>10</sub> result, for which the NSW EPA impact assessment criterion is 50 µg/m<sup>3</sup>. The incremental results are shown as contour isopleths in **Figure 1** whilst **Table 3** provides model predictions at the 11 residential receptor locations considered in URS (2013). The locations of these 11 residential receptors are shown in **Figure 1**. In addition, a model list file is provided in **Attachment A**.

**Figure 1 –Incremental maximum 24 hour PM<sub>10</sub> predictions for crushing operations (µg/m<sup>3</sup>)**



**Table 3 – Incremental maximum 24 hour PM<sub>10</sub> predictions for crushing operations at residential receptors (µg/m<sup>3</sup>)**

Receptor	Prediction
R1	0.4
R2	0.2
R3	0.2
R4	0.1
R5	0.2
R6	0.2
R7	0.1
R8	0.1
R9	0.1
R10	0.1
R11	0.1
<b>Maximum R1 – R11</b>	<b>0.4</b>

## 5 CONCLUSIONS

As can be seen in **Figure 1**, elevated PM<sub>10</sub> concentrations are contained within the Site boundary, close to the location of the crushing operation. In addition, **Table 3** shows that predictions at residential receptors are small in scale relative to the impact assessment criterion of 50 µg/m<sup>3</sup>. Peak incremental impacts at commercial receptors to the west of the Site are also low, being in the vicinity of 1 µg/m<sup>3</sup> (relative to the same criterion of 50 µg/m<sup>3</sup>).

Whilst it is noted that the NSW PM<sub>10</sub> impact assessment criterion typically requires the consideration of the cumulative impact of site emissions and background PM<sub>10</sub> levels, based on the assumptions within this analysis it is considered unlikely that emissions from the crusher operation would make a meaningful contribution to either PM<sub>10</sub> levels or to exceedances of the impact assessment criterion at the residential or commercial receptors. It is also noted that the crushing operation is proposed to occur near to the completion of the demolition works, where it is anticipated that activities with dust generating potential would be minimal.

Noting this, and given the range of operations that would be occurring on the Site during the course of the demolition works, it is recommended that air quality monitoring and management measures be implemented via the proposed demolition works-specific Air Quality Management Plan.

Regards,  
**URS Australia Pty Ltd**



James Grieve  
 Air Quality Engineer

## 6 REFERENCES

- DEC 2005, *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW*, New South Wales Department of Environment and Conservation, August 2005
- NPI 2012, *National Pollutant Inventory Emission Estimation Technique Manual for Mining*, Version 3.1, January 2012
- URS 2013, *Air Quality Impact Assessment for Caltex Kurnell Refinery Conversion*, URS Australia Pty Ltd, February 2013
- URS 2014, *Statement of Environmental Effects, Kurnell Refinery Demolition*, URS Australia Pty Ltd, November 2014



**7 ATTACHMENT A: AUSPLUME MODEL LIST FILE**

1

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Kurnell Refinery Demolition (KRD) - Crusher Modelling R000

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Concentration or deposition	Concentration
Emission rate units	kg/hour
Concentration units	microgram/m3
Units conversion factor	2.78E+05
Constant background concentration	0.00E+00
Terrain effects	Egan method
Smooth stability class changes?	No
Other stability class adjustments ("urban modes")	None
Ignore building wake effects?	No
Decay coefficient (unless overridden by met. file)	0.000
Anemometer height	10 m
Roughness height at the wind vane site	0.300 m

DISPERSION CURVES

Horizontal dispersion curves for sources <100m high	Pasquill-Gifford
Vertical dispersion curves for sources <100m high	Pasquill-Gifford
Horizontal dispersion curves for sources >100m high	Briggs Rural
Vertical dispersion curves for sources >100m high	Briggs Rural
Enhance horizontal plume spreads for buoyancy?	Yes
Enhance vertical plume spreads for buoyancy?	Yes
Adjust horizontal P-G formulae for roughness height?	Yes
Adjust vertical P-G formulae for roughness height?	Yes
Roughness height	0.400m
Adjustment for wind directional shear	None

PLUME RISE OPTIONS

Gradual plume rise?	Yes
Stack-tip downwash included?	Yes
Building downwash algorithm:	PRIME method.
Entrainment coeff. for neutral & stable lapse rates	0.60,0.60
Partial penetration of elevated inversions?	No
Disregard temp. gradients in the hourly met. file?	No

and in the absence of boundary-layer potential temperature gradients given by the hourly met. file, a value from the following table (in K/m) is used:

Wind Speed Category	Stability Class					
	A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES

Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES

24 hours

1

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Kurnell Refinery Demolition (KRD) - Crusher Modelling R000

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SOURCE CHARACTERISTICS

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VOLUME SOURCE: CC

X(m)	Y(m)	Ground Elevation	Height	Hor. spread	Vert. spread
334871	6234017	10m	2m	2m	1m

Emission rates by hour of day in kg/hour:

1	0.00E+00	2	0.00E+00	3	0.00E+00	4	0.00E+00
5	0.00E+00	6	0.00E+00	7	0.00E+00	8	2.70E-01
9	2.70E-01	10	2.70E-01	11	2.70E-01	12	2.70E-01
13	0.00E+00	14	2.70E-01	15	2.70E-01	16	2.70E-01
17	2.70E-01	18	2.70E-01	19	0.00E+00	20	0.00E+00
21	0.00E+00	22	0.00E+00	23	0.00E+00	24	0.00E+00

No gravitational settling or scavenging.

1

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Kurnell Refinery Demolition (KRD) - Crusher Modelling R000

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RECEPTOR LOCATIONS

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The Cartesian receptor grid has the following x-values (or eastings):  
 333000.m 333050.m 333100.m 333150.m 333200.m 333250.m 333300.m  
 333350.m 333400.m 333450.m 333500.m 333550.m 333600.m 333650.m  
 333700.m 333750.m 333800.m 333850.m 333900.m 333950.m 334000.m

334050.m 334100.m 334150.m 334200.m 334250.m 334300.m 334350.m  
 334400.m 334450.m 334500.m 334550.m 334600.m 334650.m 334700.m  
 334750.m 334800.m 334850.m 334900.m 334950.m 335000.m 335050.m  
 335100.m 335150.m 335200.m 335250.m 335300.m 335350.m 335400.m  
 335450.m 335500.m 335550.m 335600.m 335650.m 335700.m 335750.m  
 335800.m 335850.m 335900.m 335950.m 336000.m 336050.m 336100.m  
 336150.m 336200.m 336250.m 336300.m 336350.m 336400.m 336450.m  
 336500.m 336550.m 336600.m 336650.m 336700.m 336750.m 336800.m  
 336850.m 336900.m 336950.m 337000.m

and these y-values (or northings):

6233000.m 6233050.m 6233100.m 6233150.m 6233200.m 6233250.m 6233300.m  
 6233350.m 6233400.m 6233450.m 6233500.m 6233550.m 6233600.m 6233650.m  
 6233700.m 6233750.m 6233800.m 6233850.m 6233900.m 6233950.m 6234000.m  
 6234050.m 6234100.m 6234150.m 6234200.m 6234250.m 6234300.m 6234350.m  
 6234400.m 6234450.m 6234500.m 6234550.m 6234600.m 6234650.m 6234700.m  
 6234750.m 6234800.m 6234850.m 6234900.m 6234950.m 6235000.m 6235050.m  
 6235100.m 6235150.m 6235200.m 6235250.m 6235300.m 6235350.m 6235400.m  
 6235450.m 6235500.m 6235550.m 6235600.m 6235650.m 6235700.m 6235750.m  
 6235800.m 6235850.m 6235900.m 6235950.m 6236000.m 6236050.m 6236100.m  
 6236150.m 6236200.m 6236250.m 6236300.m 6236350.m 6236400.m 6236450.m  
 6236500.m 6236550.m 6236600.m 6236650.m 6236700.m 6236750.m 6236800.m  
 6236850.m 6236900.m 6236950.m 6237000.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	334511	6234929	5.0	0.0	7	335434	6235171	4.9	0.0
2	334646	6235052	6.9	0.0	8	335489	6235264	5.6	0.0
3	334752	6235211	5.5	0.0	9	335570	6235347	5.9	0.0
4	334915	6235240	3.2	0.0	10	335692	6235271	8.0	0.0
5	335195	6235145	5.0	0.0	11	335830	6235186	13.4	0.0
6	335385	6235091	6.0	0.0					

METEOROLOGICAL DATA : AUSPLUME METFILE

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)  
 AVERAGING TIME = 24 HOURS

X (km):	333.000	333.050
Y (km)		
6237.000	6.17E-02 24,22/04/08	6.32E-02 24,22/04/08
6236.950	6.17E-02 24,22/04/08	6.33E-02 24,22/04/08
6236.900	6.15E-02 24,22/04/08	6.33E-02 24,22/04/08
6236.850	6.13E-02 24,22/04/08	6.32E-02 24,22/04/08

<<< [FILE TRUNCATED DUE TO LENGTH] >>>

6233.150	9.78E-02 24,29/06/08
6233.100	1.03E-01 24,29/06/08
6233.050	1.07E-01 24,29/06/08
6233.000	1.11E-01 24,29/06/08

At the discrete receptors:

1: 3.74E-01 @Hr24,11/05/08	7: 1.45E-01 @Hr24,07/06/08
2: 2.01E-01 @Hr24,23/05/08	8: 1.31E-01 @Hr24,07/06/08
3: 1.73E-01 @Hr24,14/01/08	9: 1.19E-01 @Hr24,07/06/08
4: 1.35E-01 @Hr24,28/03/08	10: 1.16E-01 @Hr24,17/04/08
5: 1.70E-01 @Hr24,05/08/08	11: 1.11E-01 @Hr24,17/04/08
6: 1.61E-01 @Hr24,07/06/08	

**URS**



**CALTEX**