

Kurnell Terminal Demolition Project

Noise and Vibration Management Plan

CALTEX REFINERIES (NSW) PTY LTD

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Revision History

Revision No.	Date of Revision	Description of Revision	Section / Page No.
A	July 2015	Draft for consultation	-
B	September 2015	Final for Approval	-
C	September 2015	Approved	-

1 INTRODUCTION

Caltex is in the process of converting the petroleum refinery in Kurnell (the ‘Site’) to a finished fuel Terminal facility (the Project).

The Project is divided into two initial phases:

- Converting infrastructure to allow the Site to operate as a Terminal and shut down the refinery (the conversion works).
- Demolition and removal of redundant infrastructure (the demolition works).

The Noise and Vibration Management Plan (NVMP) has been prepared in relation to the demolition works.

The objective of the Project is to ensure that Caltex’s operations within Australia remain viable and can provide a safe, reliable and sustainable supply of petroleum fuels to NSW and the ACT.

As such the Project will allow the Site to continue to be utilised as a terminal where finished products can be received by ship, stored in tanks before leaving the Site by pipeline to other terminals.

The demolition works are being undertaken in accordance with Development Consent from the Department of Environment and Planning and the consolidated Management and Mitigation Measures (MMM) (refer to Approval: SSD 5544 MOD1).

This NVMP has been prepared in response to Development Consent conditions outlined in **Table 1** below.

Table 1 – Development Consent conditions addressed in this Management Plan

Condition Requirement	Reference Section
<p><i>C22 – The Applicant shall prepare and implement a Noise Management Plan for construction works and site operations. The plan(s) shall:</i></p> <ul style="list-style-type: none"> <i>(a) be prepared and implemented by a suitably qualified and experienced person, in consultation with the EPA;</i> <i>(b) be approved by the Secretary (refer to Conditions D1 and D2 for timing);</i> 	-
<ul style="list-style-type: none"> <i>(c) describe the measures that will be implemented to minimise noise from the construction and operation of the development including:</i> <ul style="list-style-type: none"> <i>• all reasonable and feasible measures being employed on site;</i> <i>• maintain equipment to ensure that it is in good order;</i> <i>• traffic noise is effectively managed;</i> <i>• the noise impacts of the development are minimised during any meteorological conditions when the noise criteria in this consent do not apply;</i> <i>• identification of high noise generating construction activities, including proposed times when these works will be carried out (including respite periods if required) and mitigation measures to minimise adverse impacts from these activities ;</i> <i>• compliance with the relevant conditions of this consent.</i> 	Section 4 and 5

Condition Requirement	Reference Section
<p>(d) includes a noise monitoring program that:</p> <ul style="list-style-type: none"> • shall be carried out until otherwise agreed to in writing by the Secretary; • is capable of evaluating the performance of the Development; and, • includes a protocol for determining exceedances of the relevant conditions of this consent and responding to complaints. 	<p>Section 4.3.1 and 5.7</p>
<p><i>C22A – The Applicant shall update and implement the Noise Management Plan for the demolition works to the satisfaction of the Secretary. This plan is to update the plan approved under condition C22 and shall also:</i></p> <p>(a) be approved by the Secretary (refer to conditions D1A and D2 for timing); and</p> <p>(b) outline the procedures for the notification of all potentially affected persons at least one week prior to during high noise generating works;</p> <p>(c) implement reasonable and feasible noise and vibration management and mitigation measures during the demolition activities within the Caltex Terminal;</p> <p>(d) implement reasonable and feasible noise and vibration monitoring management measures during removal of the pipelines from the Eastern and Western ROW to minimise noise and vibration impacts generated by the pipeline removal works; and</p> <p>(e) include strategies for monitoring vibration impacts on buildings with medium to high heritage significance proposed to be retained within the Caltex Terminal.</p>	<p>Section 4.3.1</p> <p>Section 4.3.1 and Section 4.3.2</p> <p>Section 4.3.1 and Section 4.3.2</p> <p>Section 4.3.2</p>

This NVMP has also been prepared in accordance with the following:

- SSD 5544 conditions – B1, B2, B16, B21, C16, C19, C18, C19, C20, C21,C23, and D3; and
- MMM – G1-G7, G9-13.

1.1 Legislative and Other Requirements

1.1.1 Environment Protection Licence

The Terminal currently operates in accordance with an Environment Protection Licence (EPL 837) issued by the NSW Environment Protection Authority (EPA). EPL 837 contains numerous operational conditions and Pollution Reduction Programs (PRPs).

The demolition works must be undertaken in within the noise limits set in SSD 5544 MOD 1 (and provided in **Section 4.3, Table 5**).

In addition the Site must operate in accordance with Condition L5 of EPL 837. Parts of the condition are remain relevant to the demolition works and are listed below.

- L5.2 Noise from the premises is to be measured or computed at any point within one metre of any affected residence to determine compliance with condition L5.1¹. 5dB(A) must be added if the noise is tonal or impulsive in character.
- L5.3 Where it can be demonstrated that direct measurement of noise from the premises is impractical, the EPA may accept alternative means of determining compliance. See Chapter 11 of the *NSW Industrial Noise Policy January 2000* for general guidance on determining compliance.
- L5.4 For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.
- L5.5 The noise emission limits identified in Condition L5.1² of the EPL, apply under meteorological conditions of:
- a) Wind speed up to 3 m/s at 10 metres above ground level; and
 - b) Temperature inversion conditions up to 3 degrees Celsius/100 metres and wind speed up to 2 m/s at 10 metres above the ground.

1.1.2 Australian Standards

Specifications and procedures outlined in Australia Standard (AS) 2436-2010: *Guide to noise and vibration control on construction, demolition and maintenance sites* will be implemented during demolition works.

¹ For the purpose of this management plan the text stating 'condition 5.1' should be replaced with 'the noise limits set in SSD 5544 MOD 1'.

² For the purpose of this management plan the text stating 'condition 5.1' should be replaced with 'the noise limits set in SSD 5544 MOD 1'.

2 OBJECTIVES

The objective of the NVMP is to ensure demolition works do not result in significant noise or vibration impacts to the surrounding environment.

To address this objective, this Management Plan documents:

- The framework for the responsible management of noise emissions and vibration associated with demolition works;
- Management measures, actions and associated performance indicators that will be implemented throughout noisy activities to manage community expectations concerning noise emissions;
- A proposed monitoring program to comply with EPL 837 noise limits; and
- Key project management roles and responsibilities to prevent adverse noise and vibration impacts on the amenity of local communities and environment.

3 PROJECT OVERVIEW

The Site has an ISO 14001 accredited Environmental Management System (EMS). This system includes comprehensive management plans and is used Site wide. The NVMP will be implemented in line with the EMS. The demolition works will broadly involve the following activities within the demolition works area:

- Demolition, dismantling or removal of:
 - refinery process units and associated infrastructure;
 - redundant tanks and associated infrastructure;
 - redundant pipeways and above and underground pipelines; and
 - redundant buildings and services.
- Associated civil works;
- Waste management activities including concrete crushing; and
- Returning the works areas to ground level.

Refer to the Demolition Environmental Management Plan (DEMP) for **Site Location** and **Site Layout and Demolition Works Area** figures.

It is expected that the demolition works would be carried out over a 30 month period.

3.1 Demolition Works Program

Caltex is planning to commence the demolition works during the second half of 2015. The demolition works are likely to be completed by the end of 2017.

Noise is likely to be generated during two separate stages of works, and will typically impact different receptors:

- the removal of the redundant pipelines from the Eastern and Western Right of Ways (ROWs), the road reserves, Silver Beach and Kurnell Wharf; and
- works within the main Site and the removal of the Continental Carbon Pipeline.

It should be noted that the works would not occur in both ROWs at once.

A schedule for demolition works is shown in **Table 2** below.

Table 2 – Proposed Demolition Schedule

Task	Indicative Date
Demolition of refinery process units	3Q 2015 – end 2017
Demolition of tanks	Mid 2016 – 3Q 2017
Pipeline removal	Start 2016 – End 2017
Demolition of buildings	Mid 2016 – End 2017
Concrete crushing	4Q 2017

Demolition works associated with the Project will not extend beyond five years from the date of consent of SSD 5544 MOD 1.

3.2 Noise Sensitive Receptors

The potentially noise sensitive receptors have been identified by considering the relative location of the demolition works to the surrounding area and to be consistent with the noise assessment for SSD 5544 and SSD 5544 MOD 1.

The following receptors have been assessed for potential noise impacts from the demolition works:

- **Receiver R1** – 44-64 Cook Street (Industrial Premises) Industrial premises adjacent to the Site to the west and sharing a common boundary.
- **Receiver R2** – 30D Cook Street (Residential) Residential property adjacent to the Site to the west and sharing a common boundary.
- **Receiver R3** – Reserve Road (Residential) Residential properties north of the Site.
- **Receiver R4** – Prince Charles Parade (Residential) Residential properties close to the Eastern ROW.
- **Receiver R5** – Corner of Captain Cook Drive and Silver Beach Road (Residential) Residential properties north of the Site.
- **Receiver R6** – Tasman Street (Residential) Residential property west of the Site.
- **Receiver R7** – 35 Cook Street (Residential) Residential property west of the Site.
- **Receiver R8** – End of Chisholm Road (Industrial Premises) Industrial premises adjacent to the Site to the west and sharing a common boundary.
- **Receiver R9** – Sir Joseph Banks Drive (Industrial Premises) Industrial premises on the other side of Sir Joseph Banks Drive to the west of the Site.

Figure 1 shows the locations of the above receptors. There are no residential receivers to the south of the Site that could be affected by the noise and vibration from the demolition works.

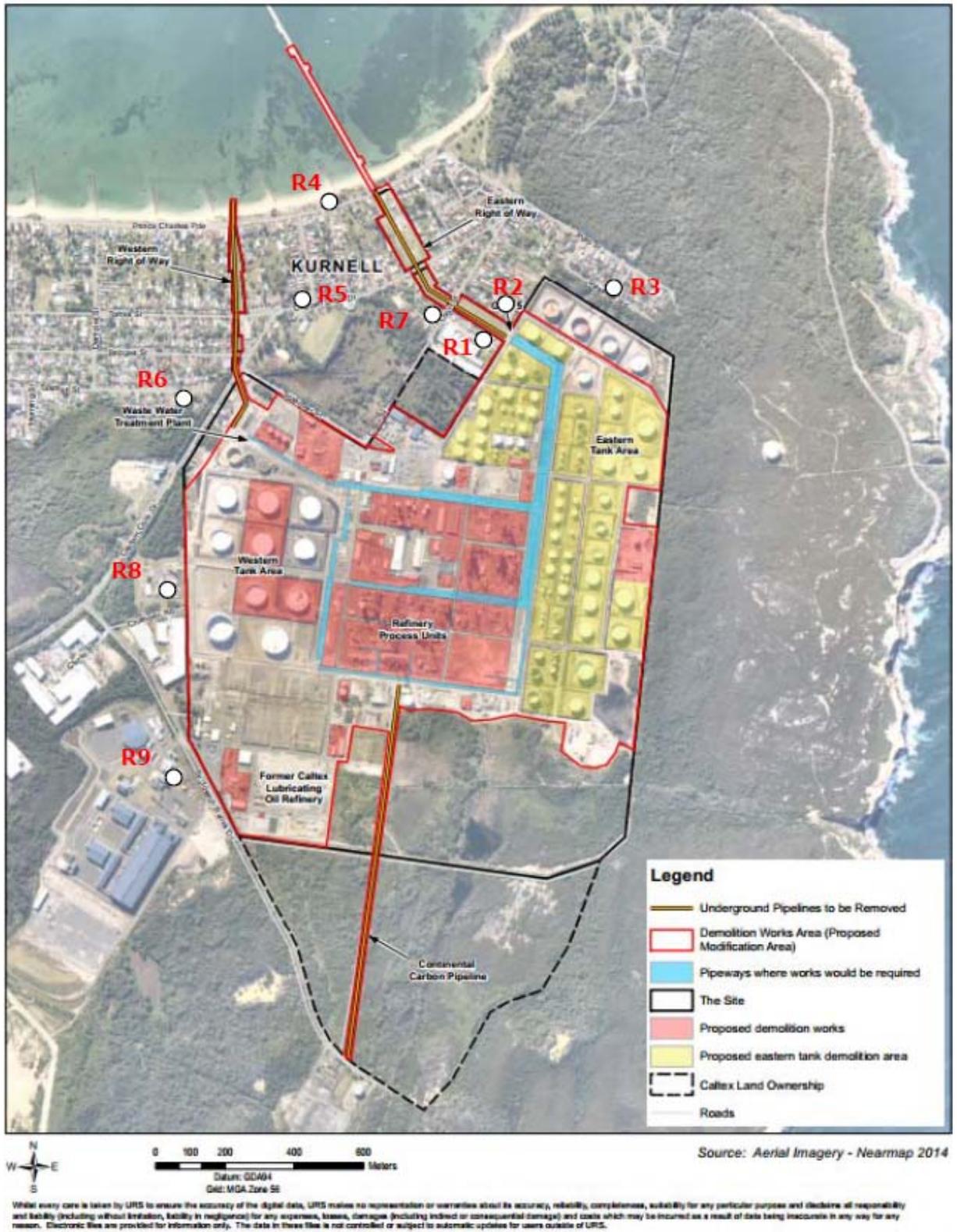


Figure 1 – Noise Sensitive Receptors

4 NOISE AND VIBRATION MANAGEMENT PROCEDURES

Specific control measures required to undertake the demolition works including the Performance Objectives, Management Actions, Performance Indicators, Monitoring, Reporting and Corrective Actions are set out in the following Sections.

Suitable equipment, facilities, training, work practices and other necessary precautions will be taken to minimise impacts to the environment and the risk of noise and vibration.

4.1 Existing Environment

The acoustic environment on the Kurnell Peninsula is characterised mainly by industrial sources, however other potential noise contributors include marine activities in Botany Bay and aircraft noise from the Sydney (Kingsford Smith) Airport. Other noise sources include local traffic, ocean waves and local fauna.

4.2 Potential Impacts

4.2.1 Main Terminal Site Works

In the SEE (URS, 2014) the likely acoustic impact of the demolition works was defined based on the type of plant that is anticipated to be used and the frequency with which the plant will be used during the demolition works. **Table 3** provides details of this proposed plant and its anticipated usage factor.

Table 3 – Demolition Plant Sound Levels

Item	Overall LA _{eq(15 minutes)} Sound Power Level (dB(A))	Usage Factor (%)
Plant and Equipment used on Site		
Large Shearer	105	10
Oxycutter	101	50
Mobile 130T Crane	104	16
Vacuum Truck or Trucks	93	20
Concrete Crusher	110	50
Concrete Saw	105	10
Large Excavator	105	20
Jackhammer	110	5
Pipeline Removal Plant and Equipment¹		
80T mobile cranes	93	20
Excavator 13 T-/ Backhoe	88	20
Vacuum Truck or Truck	93	20
Oxycutter	101	50

Item	Overall LA _{eq(15 minutes)} Sound Power Level (dB(A))	Usage Factor (%)
Road Repair Plant and Equipment¹		
Small Vibratory Roller	104	20
Trucks	93	20
Excavator 13 T-/ Backhoe	88	20
Kurnell Wharf Pipe Removal		
Boat and Barge	105	20
Barge Crane	104	16
Oxycutter	101	50
Vacuum Truck or Trucks	93	20
Pipe Removal from Silver Beach¹		
Excavator 13 T-/ Backhoe	88	20
Oxycutter	101	50
Trucks	93	20
80T mobile cranes	93	20

The SEE (URS, 2014) assumed a typical worst case scenario where all plant and equipment used on Site would operate concurrently, including:

- the refinery process units and associated pipework, foundations and services being demolished and removed;
- redundant tanks within the Eastern and Western Tank Areas being demolished;
- removal of the Continental Carbon pipeline;
- redundant buildings being demolished; and
- concrete crushing.

Based on the assessment within the SEE (URS, 2014) noise emissions from the Site during a typical worst case scenario will be below the daytime demolition noise criteria at all receivers except R2 where a minor exceedance of 4dbA is predicted. For out of hours work, which will be undertaken in accordance with SSD 5544, noise levels are predicted below evening and night noise criteria at all receivers except R2, where an exceedance of up to 10dbA has been predicted in the evening.

Reasonable and feasible mitigation measures to manage this potential exceedance are presented in Section 4.3.1 below.

4.2.2 Removal of Pipelines

For the removal of redundant pipelines within the Eastern and Western ROWs, the noise levels experienced by any receptor will be influenced by the distance from the activity and shielding between the activity and the receptor (e.g. fencing).

The predicted noise levels for the pipeline removal works at Kurnell Wharf and Silver Beach are also likely to exceed the demolition noise management levels at the closest residential receivers when the works are close to shore.

The works within the ROWs and along the wharf are linear works, i.e. they will move reasonably quickly along the ROWs and the wharf. The potential impact on an individual receptor will not be continuous and will be expected to occur for no more than approximately two weeks at any one time. As such, the noise exposure period at the nearest sensitive receptors will be temporary.

Section 4.3.1 outlines reasonable and feasible mitigation measures for managing this potential impact.

4.2.3 Demolition Traffic Impacts

During demolition works, vehicles will access the Site from Captain Cook Drive, which is the major access road to the Kurnell Peninsula on the southern shore of Botany Bay and connects the Site to the wider Sydney road network.

In addition to private vehicles movements, the demolition works are likely to result in approximately 2,675 additional heavy vehicle movements to and from the Site between the second quarter of 2015 and 2017. This equates to approximately 6 heavy vehicle movements a day on average with a peak of 30 additional movements on any one day.

The existing traffic noise levels along the Captain Cook Drive already exceed the noise criteria of 60 and 55 dB(A) for the day and night, respectively. Captain Cook Drive east of Gannons Road had an average annual daily traffic flow of 38,810 (two-way) vehicles per day in 2012. Given these traffic volumes, the additional noise contribution from traffic generated by the demolition works will be negligible at residences on Captain Cook Drive (that is, less than a 2dB increase).

4.2.4 Demolition Vibration Impacts

Several plant and equipment proposed to be used during demolition works have been identified as potential sources of ground vibration (refer to SEE (URS, 2014)). The nearest receivers are residences at Cook Street, which are located approximately 50 m from the closest point where demolition works will occur. The list of vibration intensive plant to be used and indicative vibration levels at these receivers are provided in **Table 4**.

Table 4 Plant Vibration Levels

Activity	Peak Particle Velocity Vibration Level (mm/s) at Distance		
	10m	20m	30m
Truck over smooth road surface	0.05	<0.01	-
Jackhammer	0.2	<0.1	-
Excavator (Earthmoving)	0.5-0.2	0.1	<0.1
Heavy Hydraulic Hammer	2.5	0.5	0.2

Based on **Table 4**, vibration levels would not likely exceed the criteria for human comfort at all the nearest receivers. Equally the typical vibration levels for the demolition works are unlikely to result in levels that cause damage to buildings as structural damage criteria are substantially higher than human exposure criteria.

In addition to the off-site receivers there are buildings which would be retained on-site with medium or high heritage significance which potentially could be affected by vibration. Therefore measures to manage this potential impact have been included in Section 4.3.2.

4.3 Mitigation Measures

4.3.1 Noise Mitigation Measures

The following noise mitigation measures will be implemented during the demolition works:

- Noise generation will be managed in accordance with regulatory and EPL requirements. Where an activity results in noise levels that exceed the limits, corrective actions will be implemented in accordance with SSD 5544 MOD1 and the MMM, to the satisfaction of the Caltex Environmental Representative (ER).
- Demolition works will be restricted to 07:00 to 22:00 (7am to 10pm) seven days per week. However high noise generating demolition works, including the pipeline removal works within the Eastern and Western ROWs, shall be confined to 07:00 to 18:00 (7am to 6pm Monday to Saturday). Demolition works may be undertaken outside of the work hours listed above, where:
 - works are inaudible at nearest sensitive land receivers;
 - works are consistent with Caltex's existing maintenance procedures and are in accordance with the existing EPL;
 - works are agreed to in writing by the EPA or the Department;
 - works are for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
 - it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.
- Where high noise generating works are likely and/or where exceedances of noise management criteria are expected (e.g. works in the Eastern and Western ROWs, at Silver Beach, on the Wharf etc.), a letter box drop to potentially affected residents will occur at least two weeks prior to an activity occurring. This letter will include the timing of the works and associated respite periods. Caltex will specifically consult with the residents of adjoining dwellings and other local community groups ahead of starting work.

- Caltex are in regular contact (at least quarterly) with the EPA and will also advise the EPA of key activities proposed to be occurring at the Site, including works in the ROWs. These key activities will also be discussed at the existing quarterly community meeting held at the Kurnell Terminal which is also regularly attended by a representative from the EPA.
- The selection of low-noise plant and equipment, where practicable, in order to minimise potential for noise and vibration.
- Maintain vehicles, plant and equipment in good working order to minimise noise. Regular maintenance of vehicles, plant and equipment will be scheduled and performed by the relevant Contractor to ensure that mufflers and other noise reduction equipment are working correctly. Turn machinery off when not in use.

Works will comply with the following Noise Criteria Management Levels dB(A) (LAeq(15min)).

Table 5 – Noise Criteria Management Levels, L_{Aeq}, 15minutes

ID	Receptor Location	Day Criteria (SSD 5544 C16)	Evening Limit (SSD 5544 C16)
R1	Cook Street (Industrial)	75	-
R2	30D Cook Street (Residential)	46	40
3	Reserve Road (Residential)	50	45
R4	Prince Charles Parade (Residential)	50	45
R5	Corner of Captain Cook Drive and Silver Beach Road (Residential)	50	45
R6	Tasman Street (Residential)	50	45
R7	Cook Street (Residential)	50	45
R8	End of Chisholm Road (Industrial)	75	-
R9	Sir Joseph Banks Drive (Industrial)	75	-

4.3.2 Vibration Mitigation Measures

The following vibration mitigation measures will be implemented during the demolition works:

- Vibration from demolition works will be managed in accordance with the EPA guideline *Assessing vibration: a technical guideline* (DEC, 2006) i.e. where an activity results in vibration that exceed limits for building occupants (human comfort) and building structure (structural damage), corrective actions will be implemented to the satisfaction of the Caltex ER.
- Vibration intensive plant likely to be used during demolition (including jackhammer, hydraulic hammer, vibratory rollers, excavators or heavy vehicles) will be confined to less sensitive times.
- Every effort will be made to avoid dropping demolition material.
- Where vibration occurs within 20 m of on Site buildings to be retained (identified as medium to high heritage significance in Appendix H Heritage Impact Assessment (provided in the SEE (URS, 2014)), vibration monitoring and management will be undertaken to protect the integrity of

the buildings. Where it is identified that a building is being affected by vibration, mitigation measures specific to the building will be developed in addition to this NVMP.

- For structural damage, the vibration limits are set out in the *German Standard DIN 4150-3: Structural Vibration - effects of vibration on structures* and reproduced in **Table 6**.

Table 6 – Structural Damage Vibration Criteria

Type of Structure	Park Component Particle Velocity, mm/s			
	Vibration at the foundation at a frequency of			Vibration of horizontal plane of highest floor at all frequencies
	1Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz*	
Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
Dwellings and buildings of similar design and / or use	5	5 to 15	15 to 20	15
Structures that, because of their sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

(Source: German Standard DIN 4150-3: Structural Vibration - effects of vibration on structures)

Vibration levels are not expected to exceed criteria for human comfort at identified sensitive receptors according to the impacts predicted by *Assessing Vibration: A Technical Guideline* (DEC 2006), which gives “preferred” (recommended for continuous vibration) and “maximum” vibration levels at buildings exposed to continuous and impulsive vibration.

5 IMPLEMENTATION

5.1 Responsibilities

Overall responsibility for the implementation of this NVMP rests with Caltex. Caltex employees and Contractors will meet the requirements of this Management Plan and associated procedures. Management actions set out in this Management Plan may be delegated in writing by Caltex to a specific Contractor.

Key demolition works personnel including the Demolition Project Lead (and their delegate), Caltex Environmental Representative, Contractor Project Managers and each Contractor's Environment / HSE Representative, will ensure that all management actions are undertaken to a satisfactory standard and that all personnel are aware of their responsibilities with respect to environmental matters. There will be dedicated staff to manage environmental issues (or integrated HSE matters) during the implementation and operational phase of the demolition works. A general outline of responsibilities in relation to environmental management is provided below:

Demolition Project Lead / Demolition Execution Superintendent / Demolition Support Services Superintendent

- Overall accountability for the environmental management of the demolition works.
- Implementation of the Caltex Environmental Policy with respect to the demolition works.
- Overall responsibility for development, implementation, maintenance and compliance with this Management Plan.

Caltex Environmental Representative (ER)

- Accountable for environmental matters on the demolition works.
- Provide support to Caltex personnel and the Contractor as required to ensure this Management Plan is implemented and complied with.
- Review effectiveness and implementation of this Management Plan following a regulatory non-compliance or incident, or at a minimum of every 12 months during the demolition works.
- Monitor the implementation of all required environmental management actions and compliance with legislation.
- Undertake environmental auditing as required.
- Implement *Protection of the Environment Operations Act 1997* (POEO Act) notification requirements in the event of a pollution incident (these requirements can be delegated to appropriate personnel by the ER).

All Personnel (Caltex and the Contractor)

- Comply with the requirements of this Management Plan.
- Report all environmental incidents as they occur.
- Attend environmental inductions or any other training as required.

5.2 Induction

Caltex has a Site induction program that all contractors and employees are required to complete prior to undertaking any work.

All Caltex employees and the Contractor are required to undertake the Caltex Project Induction before they can commence work on the demolition works.

5.3 Training

All demolition works personnel will have the experience and necessary training to carry out their required tasks, including in the use of equipment and the implementation of this Management Plan.

Noise awareness training will include:

- Performing work within approved hours;
- Locating noisy equipment away from sensitive receivers;
- Ensuring plant and equipment is well maintained and not making excessive noise;
- Minimising use of horn signals and maintaining a low volume; and
- Turning off machinery when not in use.

Caltex and the Contractor will each maintain a Training Register that records all environmental training completed by its personnel, including records of attendance at awareness training and toolbox talks, as well as competency assessments.

5.4 Incident Management

Caltex will continue to implement its existing incident management procedures, including for response to, investigation and reporting of incidents.

A comprehensive Emergency Management System is currently implemented at the Kurnell Terminal, with associated response and safety equipment held on site. Key personnel are trained to support the implementation of the system. Regular training exercises are carried out by Caltex.

In the event of an incident causing environmental harm occurs as a result of demolition works, the Kurnell Pollution Incident Response Management Plan (PIRMP) will be implemented. The PIRMP is designed to manage environmental incidents which may occur on site.

5.5 Complaints Management

Caltex has a complaint management procedures for the investigation, response and reporting of complaints. Caltex manages community complaints in accordance with the requirements of EPL 837, including:

- Reporting complaints in the Annual Return for EPL 837
- Keeping a legible record of complaints made to Caltex and its Contractors, including:
 - The date and time of the complaint
 - The method by which the complaint was made
 - Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect

- The nature of the complaint
- The action taken by Caltex in relation to the complaint, including any follow-up contact with the complainant
- If no action was taken by Caltex, the reasons why no action was taken

Caltex will continue to operate its 24-hour hotline number (**1800 802 385** toll free) to receive feedback and complaints associated with the Project. All feedback and complaints will be relayed to the ER and relayed to the Demolition Project Lead (or their delegate), Terminal Manager and the Senior Environmental Specialist (Licensing), as relevant depending on their nature.

Any feedback and complaint records will be logged in the Complaints Register, tracked and where relevant, responded to. Responses to complaints will be made, where reasonably possible, within 48 hours of receiving the complaint.

5.6 Performance Indicators

The following performance indicators will be implemented during the demolition works:

- No exceedances of the Noise Criteria Management Level of LAeq(15min) unless the reasonable and feasible noise mitigation strategies nominated in this NVMP have been implemented.
- No exceedances of the Structural Damage Vibration Criteria.
- No community complaints related to noise/vibration resulting from these demolition works received during demolition works. Any complaints to be managed in accordance with the requirements outlined in the DEMP.
- Demolition works and high noise generating demolition works are carried out within the required hours.
- No structural damage to Site buildings nominated for retention for heritage purposes.

5.7 Monitoring

Noise monitoring must be undertaken at the commencement of any demolition work that has the potential to generate noise that could exceed the Noise Criteria Management Levels at the nearest sensitive receptor(s) and the nearest sensitive down-wind receptor. In addition, Caltex may carry out proactive monitoring to demonstrate that demolition works are being carried out in accordance with the noise levels provided in **Table 5**.

The key monitoring requirements for demolition works include:

- At the beginning of undertaking high noise generating work (i.e. paint removal, demolition or metal fabrication) within 100 m of a specified receptor (R1-R8) noise monitoring will be conducted.
- If high noise generating works are shown to exceed the required noise limits, or if noise complaints are received related to the high noise work, additional mitigation will be implemented for these works (to ensure compliance with the required noise limits to the satisfaction of the Caltex ER), such as:
 - the substitution of equipment or change in the work procedure
 - acoustic screening

- implementation of periodic breaks in undertaking high noise generating works (e.g. working for 3 hours and stopping for 1 hour).

If additional noise and/or vibration mitigation measures are required these will be recorded in accordance with the Correction Actions process (Section 5.9).

- If noise complaints are received which are not associated with high noise generating work but do relate to demolition works then mitigation actions will be undertaken or noise monitoring undertaken.
- Noise monitoring, if required, will be undertaken at the nearest residential property to the source of noise and at the nearest residential property in Kurnell downwind from the source. Monitoring locations will vary dependent of any source of noise and the wind direction.
- Vibration monitoring will be conducted in the event that demolition is carried out within 20 m of any Site buildings to be retained.

5.8 Reporting

The reporting requirements for demolition works include:

- The Contractor will report the sound power level (SPL) to the Caltex ER as soon as practicable following commencement of high noise generating work for the purpose of assessing compliance with the Noise Criteria Management Levels.
- The dates and outcomes of noise monitoring for high noise generating work or in response to community complaints will be reported by the Contractor to the Caltex ER as soon as results are available.
- The contractor will report any monitoring results that exceed the Noise Criteria Management Levels to the Caltex ER as soon as possible.

5.9 Corrective Action

Where there are unpredicted noise impacts or monitoring results that exceed the noise limits then corrective actions must be developed that will prioritise compliance with the limits to the satisfaction of the Caltex ER. The effectiveness of corrective actions undertaken must be monitored to demonstrate compliance with the limits and the results provided to the Caltex ER.

The corrective actions for demolition works are:

- Substitution of equipment or change work practice and procedure.
- Implementation of periodic breaks when undertaking high noise generating works (e.g. working for 3 hours and stopping for 1 hour).
- Where noise monitoring demonstrates potential or actual exceedances of required noise levels, the Contractor will implement additional noise management controls, as listed in Section 4.3.1, in line with the *Interim Construction Noise Guideline* (DECC, 2009) and in consultation with Caltex.