

Kurnell Terminal Demolition Project Air Quality Management Plan

CALTEX AUSTRALIA PETROLEUM PTY LTD

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1		INTRODUCTION
	1.1	Legislative and Other Requirements6
2		OBJECTIVES8
3		PROJECT OVERVIEW9
	3.1	Potential Sources of Air Emissions9
	3.2	Works Program
4 AIR QUALITY MANAGEMENT PROCEDURE		AIR QUALITY MANAGEMENT PROCEDURES11
	4.1	Air Quality and Odour Management & Mitigation Measures11
	4.2	Monitoring13
	4.3	External Communication15
5		IMPLEMENTATION17
	5.1	Roles and Responsibilities17
	5.2	Induction18
	5.3	Training18
	5.4	Incident Management
	5.5	Complaints Management18
	5.6	Performance Indicators19
	5.7	Reporting19
	5.8	Corrective Actions

Revision History

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А	July 2015	Draft for consultation	-
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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 three 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, including Tank 101 (the demolition works).
- Construction, filling and closure of the asbestos containment cell (the ACS Management works).

This Air Quality Management Plan (AQMP) has been prepared in relation to the demolition works and ACS Management 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 and ACS Management works are being undertaken in accordance with Development Consent from the Department of Environment and Planning, Approval Number: SSD 5544 MOD1, SSD 5544 MOD2, SSD 5544 MOD3 and the consolidated Management and Mitigation Measures (MMM) (refer to Approval: SSD 5544 MOD3).

This AQMP has been prepared in response to Development Consent condition C28 and C28A outlined in Table 1.

Condition Requirement	Reference Section
C28. The Applicant shall prepare and implement an Air Quality Management Plan for the proposed construction works. The plan shall:	-
(a) be prepared and implemented by a suitably qualified and experienced expert in consultation with the EPA and NSW Health;	Section 1
(b) be approved by the Director-General prior (refer to Condition D1 for timing);	Section 1



Condition Requirement	Reference Section	
 (c) describe the measures that would be implemented on site to ensure: the control of air quality and odour impacts of the Development; that these controls remain effective over time; that all reasonable and feasible air quality management practice is employed; the air quality impacts are minimised during adverse meteorological conditions and extraordinary events; and v. compliance with the relevant conditions of this consent. 	Section 1, Section 4, Section 5.6	
(d) describes the air quality & odour management system;	Section 4.1, Section 4.2	
 (e) includes an air quality monitoring program that: i. is capable of evaluating the performance of the proposal; ii. includes a protocol for determining any exceedances of the relevant conditions of consent and responding to complaints; iii. adequately supports the air quality management system; and iv. evaluates and reports on the effectiveness of the air quality management system. 	Section 4.2	
C28A The Applicant shall update and implement the Air Quality Management Plan for the demolition works to the satisfaction of the Secretary. This plan is to update the plan approved under condition C28 and shall also:		
 (a) be approved by the Secretary (refer to conditions D1a and D2 for timing); 	Section 1	
(b) outline procedures for VOC, odour and dust deposition monitoring and suspression methods during excavation works and where potential hydrocarbon contamination is present; and	Section 4.2	
(c) include dust suppression measures and procedures for dust monitoring during operation of the concrete crusher.	Section 4.1 and 4.2	

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

- SSD 5544 conditions C24, C25, C26, C27
- MMM H1 H16, H18, H19, H21, H22, H24 H26

The Containment Cell Management Plan includes a number of air quality control measures specific to the ACS Management works. The controls included in this AQMP must be implemented in addition to those included in the Containment Cell Management Plan.

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). This EPL contains numerous operational conditions and Pollution Reduction Programs (PRPs). All work undertaken during demolition works will comply with the conditions within this EPL.



Condition L2 of the EPL specifies Load Limits for the Site. The actual load of an assessable pollutant discharged from the Site must not exceed the load limit specified for the assessable pollutant in Table 2.

Table 2 – Load Limits

Assessable Pollutant	Load Limit (kg)
Benzene (Air)	6000.00
Volatile organic compounds – Summer (Air)	-
Volatile organic compounds (Air)	300000.00

Condition L6.1 of the EPL notes that no condition of the EPL identifies a potentially offensive odour for the purposes of Section 129 of the *Protection of the Environment Operations Act 1997* (POEO Act). Condition O3.1 of the EPL stipulates that the Site must be maintained in a condition which minimises or prevents the emission of dust from the Site.

Condition M4 of the EPL notes that Division 3 of the *Protection of the Environment Operations (General) Regulation 2009* requires that monitoring of actual loads of assessable pollutants listed in Condition L2.2 must be carried out in accordance with the relevant load calculation protocol set out for the fee-based activity classification listed in the Administrative Conditions of the EPL.

Condition U1 – PRP U16: VOC Emissions from Petroleum Storages will be implemented in three parts. Part one and two will be carried out during the conversion Project. Part three will be carried out as part of the ongoing tank maintenance program at the Kurnell Terminal.

- Part 1 Pre-transition to Terminal 4 EFRTs will be upgraded Completion Date: 31 October 2014
- Part 2 Post-transition to Terminal 6 EFRTs will be upgraded Completion Date: 31 December 2017
- Part 3 Terminal Turnaround and Inspection 2 EFRTs will be upgraded Completion Date: 31 December 2020



2 OBJECTIVES

The objective of the AQMP is to ensure that the demolition works and ACS Management works do not result in decreased air quality or impacts to the surrounding environment as detailed in the SEEs. As an environmental outcome for the Site, Caltex shall not cause or permit the emission of offensive odours from the Site, as defined under Section 129 of the POEO Act.

Further, the conditions of consent for SSD 5544 MOD 1 specify that Caltex shall:

- Implement all reasonable and feasible dust and odour mitigation measures to prevent and minimise odour and dust emissions from operations;
- Prevent and minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events;
- Minimise any visible off-site air pollution;
- Minimise surface disturbance of the Site, other than as permitted under this consent;
- Minimise energy use; and
- Minimise greenhouse gas emissions.

To address these objectives, the Management Plan documents:

- The management measures, actions and associated performance indicators, that will be implemented throughout the demolition works;
- The proposed monitoring program that will be implemented; and
- Key project management roles and responsibilities and reporting requirements.



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 EMS should be used in conjunction with the DEMP and this sub-management plan.

The demolition works comprise of following potential VOCs/odour and dust generating activities:

- Demolition, dismantling or removal of redundant refinery process units, tanks, on-site pipes (in pipeways, above and underground pipes), buildings and services;
- Removal of redundant off-site pipelines (Continental Carbon Pipeline, redundant pipelines that run through the western and eastern Right of Ways (ROWs) and the cooling water intake pipelines;
- Returning the work areas to ground level; and
- A range of ancillary works (civil works, waste management including concrete crushing etc.).

The ACS Management works comprise of following potential VOCs/odour and dust generating activities:

- Pipeway excavations;
- Excavation of ACS from other parts of the Site; and
- Containment cell construction, filling and closure works.

3.1 Potential Sources of Air Emissions

The potential sources of impact to air quality during the demolition works are limited to:

- Dust generated from excavation, emplacement, backfilling, handling, transfer and stockpiling of soil;
- Dust from concrete/foundation cutting, breaking and crushing, handling and stockpiling;
- Vehicle generated dust especially when traversing in off-road areas;
- Wind-blown dust generated from temporary stockpiles;
- VOCs and/or odours from the operation of vehicles, movement/excavation of potentially contaminated soil and stockpiles, and hydrocarbon spills;
- Wastewater treatment plant operation including sludge handling;
- Fumes and fine particulates from cutting and grinding and concrete crushing; and
- Odour generated from the presence of biological matter in the cooling water inlet pipeline.

The potential sources of impact to air quality during the ACS Management works are limited to:

• Particulate matter and soil contaminant emissions (including asbestos) from the excavation, handling, transport of contaminated soils.



- Particulate matter emissions from the construction of the containment cell.
- Particulate matter from transport of ACS on internal roadways.
- Combustion emissions from mobile plant (e.g. trucks, excavators, dozers).

3.2 Works Program

Caltex commenced the demolition works during the second half of 2015. The ACS Management works will commence in early 2018.

A schedule for demolition works and the ACS Management works is shown in **Table 3** below.

Table 3 Proposed Works Schedule

Task	Indicative Date	
Demolition works		
Demolition of Refinery Process Units	Mid 2015 – Mid 2017	
Demolition of Tanks	Mid 2016 – Mid 2018	
Pipeline Removal	Start 2016 – Mid 2018	
Demolition of Buildings	Mid 2016 – End 2017	
Concrete Crushing	Q3 2017	
ACS Management works		
Containment Cell Construction	Late 2017 – Q1 2018	
Excavation of ACS from Pipeways and Filling of Containment Cell	Q2 2018 – Q4 2018	
Closure of Containment Cell	Q1 2019	

Demolition works associated with the Project will not extend beyond three years from the date of consent of SSD 5544 MOD 1 (i.e. 10 August 2018). The ACS Management works will be complete by 30 April 2019 in accordance with SSD 5544 MOD 2 condition B7B.



4 AIR QUALITY MANAGEMENT PROCEDURES

Specific control measures required to undertake the demolition works and ACS Management works including the Performance Objectives, Management Actions, Performance Indicators, Monitoring, Reporting and Corrective Actions 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 pollution.

All Caltex and Contractors personnel will implement reasonable and practicable measures to avoid or minimise impacts to the environment that may arise from the demolition works.

4.1 Air Quality and Odour Management & Mitigation Measures

The systems for management of potential air quality and odour impacts include:

Truck and Equipment Movements

- Vehicles will only travel on designated roads to the maximum extent possible. The speed will be limited to 10 km/hr in off-road areas 25 km/hr in all other areas.
- All soil loads entering or leaving the Site will be covered and all tailgates will be securely fastened. Vehicles will not be loaded higher than the sides and tailboard.
- Trucks associated with the demolition works do not track dirt onto the public road network.
- Dirt on public roads as a result of the development will be promptly removed.
- All plant will be maintained and operated in line with the manufacturer's specifications in order to minimise the emission of air pollutants and offensive odours. Plant and construction vehicles will be turned off when not in use.

Excavation/Demolition Activities

- Potentially dust generating demolition activities will be minimised during high wind events (i.e. > 8 m/s (or 28.8km/hr) hourly average or in severe wind gust conditions).
- In unfavourable weather conditions (e.g. > 8 m/s hourly average or in severe wind gust conditions) or where dust sources are present near sensitive receivers and work is required to proceed, water sprays will be used to dampen down soils prior to excavation, handling and/or loading/unloading materials. All exposed surfaces (from recent excavations) and stockpiles (of excavated material) will also be watered, sprayed or covered where required, to minimise nuisance dust and odours.
- Excavation will be staged to manage potential VOC and odour emissions. Excavations of contaminated soils will not commence prior to 8am nor after 4pm as weather conditions at these times are generally conducive to adverse odour air quality situations from fugitive emissions.
- Odourous stockpiles wil be covered, wetted down and/or odour suppressant applied where required.



- During unfavourable weather conditions (e.g. > 8 m/s hourly average) and extraordinary weather events (as defined by the Bureau of Meterology weather warnings) such where elevated background dust is present, additional mitigation measures will be employed and will include, but not be limited to, implementing the following:
 - Reducing working surface area;
 - Commencing excavation during favourable wind conditions;
 - Increase wetting agents for exposed surfaces; and
 - Increase covering of exposed surface areas.
- Where visible dust emissions are observed management actions will be implemented to prevent impact including:
 - reducing working surface area;
 - halting excavation until there are favourable wind conditions (i.e. when winds drop below 8m/s (hourly average) and/or when severe wind gusts have ceased and/or when visual monitoring has confirmed that there are no more visible dust emissions);
 - o increasing wetting agents for exposed surfaces; and
 - o covering of exposed surface areas.
- Soils or concrete with significant hydrocarbon staining or obvious hydrocarbon odours will be transported to designated area of the Site and stored and managed in line with the Blue Book (refer to the Soil and Water Management Plan). Stockpiles of contaminated soil stored on-site will be covered to prevent odorous VOC emissions and windblown particulate emissions.
- Surface disturbance will be minimised. Exposed ground will be rehabilitated as soon as practicable (refer to Soil and Water Management Plan)
- All concrete cutting and coring will be undertaken using "wet tools".
- During concrete crushing, dust suppression measures will be implemented, which may include watering of stockpiles, dust curtains and other measures as required.
- In the event of an odour complaint, investigations will be undertaken to confirm if the demolition works are the source of the odours. If the demolition works are confirmed as a potential ongoing odour source additional mitigation measures will be investigated and implemented which could include the use of water sprays to suppress odours and, if necessary, the use of odour suppressants. Off-site olfactory observations and VOC monitoring using equipment will also be undertaken if necessary. In the event of ongoing odour issues, excavation activities will be reviewed and if necessary the excavation stopped, covered or backfilled (refer also to the Soil and Water Management Plan). Further, if mitigation measures do not work, works will be stopped until suitable measures can be employed to manage this issue.
- In line with Caltex's existing procedure, following a complaint and its subsequent investigation, feedback regarding the source and nature of the complaint will be provided to the affected community members (refer also to Section 4.3).



Cooling Water Inlet Pipework

Prior to demolition/removal of three cooling water lines, Caltex will assess to determine the
presence of biological matter. Where biological matter is present, the pipework will be
demolished/removed as quickly as possible to help minimise the potential for odour issues
associated with the degradation and then exposure of the biological matter.

ACS Management works

The following specific control measures are proposed for the containment cell works area:

- Soil moisture content will be managed in order to minimise potential particulate matter and asbestos emissions to the maximum extent practicable.
- Directed water sprays will be used when required throughout ACS handling operations.
- ACS will be covered with a biodegradable spray after it is placed in the containment cell.
- Stockpiles will be maintained in a moist condition, and covered if not in use or left overnight.
- Completed areas of the works area will be revegetated with native grasses as soon as is practicable
- The Remedial Action Plan for the ACS Management works will be implemented during excavation of the pipeways and filling of the containment cell.
- The Containment Cell Management Plan will be implemented during the construction, filling and closure of the containment cell.
- ACS will be managed by a licensed asbestos contractor as per the Asbestos Removal Control Plan.

4.2 Monitoring

A number of monitoring menthods will be used during the demolition works including:

- Weather/dust/asbestos monitoring; and
- Odour and VOC monitoring.

Monitoring during the ACS Management works is discussed in the Containment Cell Management Plan and Remedial Action Plan.

<u>Dust</u>

Dust emissions will be monitored via the following methods:

- The on-site real time ambient air quality monitoring station will operate throughout the works for PM_{2.5}, PM₁₀, wind direction and speed, temperature and humidity and rainfall (refer to Figure 1 for location). Data from this air quality monitoring station is analysed on a monthly basis to demonstate compliance with the Australian Standards.
- During activities that have the potential to generate dust and/or during adverse weather conditions visual observations of downwind dust emissions to the community or local residents will be undertaken. Further, an anemometer may be used, at 2 m above ground level, to verify



when adverse weather conditions are occurring (i.e where there are severe wind gusts or an hourly average wind of over 8 m/s). A temporary halt to dust generating activities will occur during adverse weather conditions and/or where visual dust emissions are sighted and/or when sensitive receptors are likely to be affected by dust emissions. Appropriate measures will be taken to mitigate/manage the potential for adverse air quality impacts (refer to Section 4.1).

- During works with significant potential to generate dust beyond the site boundary and/or during adverse weather conditions, dust deposition monitoring (e.g. a dust deposition gauge as per the AS/NZS 3580) will be undertaken. Depending on prevailing conditions, locations may include:
 - 1 x dust deposition gauge in the Western ROW (as a representative location in the Kurnell Community);
 - 1 x dust deposition gauge in an upwind location to provide a representative background dust level; and
 - Up to 3 x dust deposition gauges nearfield and downwind of the excavation works.

These dust deposition gauges will be analysed on a weekly or monthly basis. Weekly checking will occur where a there has been significant (continuous) excavation works over a week long period. Monthly analysis will occur where these activities have been less intensive. 2 g/m^2 /month criteria will be used when baseline data on deposited dust levels exists, while the 4 g/m^2 /month criteria is used when no baseline data exists¹. The results from this monitoring will result in additional/different management and mitigation measures being implemented as per Section 4.1 and Section 5.8.

- Stockpiled material will be assessed for the potential to cause dust emissions. If air pollutants are likely, measures outlined in Section 4.1 will be implemented.
- Air monitoring will occur in accordance with the requirements detailed within Section 8.8 of the Model Work Health and Safety Regulations 2011 for asbestos during excavations and stockpiling. The disturbance area will be monitored continuously for asbestos using four monitors (one upwind and three downwind). The results of the air monitoring will be provided to the relevant internal stakeholders. Refer also to the Soil and Water Management Plan and the Asbestos Management Plan.

Odour and VOCs

Odour and VOC emissions will be monitored via the following methods:

 VOC and odour monitoring will be undertaken by demolition workers or ACS Management workers (i.e. visual and olfactory monitoring) and where required, using portable monitoring equipment (PID or similar) during excavation activities where potential hydrocarbon contaminated soil is present. If any significant odours of VOCs (observable odours at the site boundary) are identified during demolition, measures outlined in Section 4.1 will be implemented. Further, if mitigation measures do not work, works will be stopped until suitable measures can be employed to manage this issue.

¹ DEC (2005) 'Approved Methods & Guidance for the Modelling and Assessment of Air Pollutants in NSW



• Stockpiled material will be assessed for the potential for causing odours of VOCs using visual, olfactory or PID monitoring. If air pollutants and offensive odours are likely, measures outlined in Section 4.1 will be implemented.

Concrete Crushing

Real-time dust monitoring (e.g. DustTrak monitoring) will be undertaking during the operation of the concrete crusher. An alarm or message will be generated if an hourly average of 80 ug/m³ of dust particles is triggered². This will be altered based on the upwind monitoring results. Where potential dust impacts are identified during crushing, measures outlined in Section 4.1 will be implemented.

4.3 External Communication

One or more of the following communication methods, where appropriate, will be used to notify potentially affected persons, the EPA and the NSW Public Health Unit during the demolition works:

- Site meetings with the Community Representative(s);
- The Caltex website (http://www.caltex.com.au/CommunityAndEnvironment/Pages/KurnellSiteConversion.aspx);
- Community leaflets/newsletters;
- Meetings and correspondence with interested parties including the SSC and EPA;
- Discussions with adjoining land owners / neighbours and the community; and
- A summary of the air quality monitoring data for the demolition works will be provided to the community during Caltex's quarterly community meeting.

Where air monitoring results show that respirable asbestos fibre exceeds the level of 0.01 fibres/ml or more than 0.01 fibres/ml the following will be undertaken:

- The competent person will review review control measures, investigate the cause and implement control mechanisms to ensure dust doesn't leave the site to neighbouring properties; and
- A copy of the air monitoring results to be sent to the Public Health Unit.

² <u>http://www.epa.vic.gov.au/~/media/Publications/788%203.pdf</u>





Figure 1 – Caltex Air Quality Monitoring Station



5 IMPLEMENTATION

5.1 Roles and Responsibilities

Overall responsibility for the implementation of this Air Quality Management Plan rests with Caltex. All employees and the Contractor 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 the specific Contractor.

Key works personnel including the Demolition Project Lead (and their delegate), Caltex ER, Contractor Project Manager 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 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 and ACS Management works.
- Implementation of the Caltex Environmental Policy with respect to the demolition works and ACS Management 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 and ACS Management 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 and update if required.
- 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 and ACS Management works.

5.3 Training

All Project 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.

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.

Further, the *Protection of the Environment and Operations Act 1997* (POEO Act) requires that the holder of an EPL prepare a Pollution Incident Response Management Plan (PIRMP). Accordingly, Caltex has developed and implements a PIRMP for the Kurnell Terminal. 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.

5.5 Complaints Management

Caltex has a complaints management procedures for the investigation, response and reporting of complaints.

Caltex manages all 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 all 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 Terminal Manager, Demolition Project Lead (or delegate), Community Relations Manager and the Environmental Protection Superintendent, 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 and ACS Management works:

- No unacceptable air quality complaints (odour, dust) received in relation to the demolition works and ACS Management works; and
- No visible emissions of dust beyond the Terminal boundary in relation to the demolition works and ACS Management works.
- No exceedance of exposure or control limits for asbestos.

5.7 Reporting

The reporting requirements include:

- Notification of Caltex ER of any odour screening results where excessive odour is observed.
- The dates and outcomes of visual emissions monitoring will be reported by the Contractor to the Caltex ER fortnightly.
- Notification of Caltex ER of any community complaints;
- Notification of Caltex ER of any stop-work requirements triggered by meteorological conditions.



5.8 Corrective Actions

Where exceedances of the performance criteria occur, one or more of the following corrective actions will be implemented:

- Land based odour screening is undertaken down-wind and towards nearest residential receptors;
- Contractors, in collaboration with Caltex, will develop and implement appropriate management measures where anomalous odours are identified or significant dust generation is occurring (as outlined in Section 4.1). Further, if mitigation measures do not work, works will be stopped until suitable measures can be employed to manage this issue.
- Sources of dust emissions will be covered, or wet down; and
- Equipment observed to be creating excessive emissions will be replaced or serviced within 48 hours.