Caltex North Fremantle terminal extension

Caltex Oil (Australia) Pty Limited

Report and recommendations of the Environmental Protection Authority

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Summary and recommendations

Caltex Oil (Australia) Pty. Limited have entered into an agreement with Ampol Ltd to consolidate its existing North Fremantle terminal storage and transfer operations and those of Ampol into a single terminal.

The agreement is subject to Caltex obtaining the relevant Government Department approvals and includes extensions to the existing Caltex operation in Bracks Street North Fremantle into an area currently used for containerised product storage and the decommissioning and removal of oil industry facilities (ie. Ampol and the old Golden Fleece terminal currently used by Caltex) located between Port Beach Road and the ocean.

The Environmental Protection Authority received the referral for this proposal from Caltex in April 1990. A Public Environmental Review document was prepared by Caltex and released for public review from 12 November 1990 to 18 January 1991.

The Environmental Protection Authority's primary concerns for this proposed development were associated with risk and hazard issues. The proponent (Caltex) was required to complete a Preliminary Risk Analysis as part of the assessment process and provide the results of that analysis to the EPA for its consideration.

The Preliminary Risk Analysis shows that the proposed development would meet the Environmental Protection Authority's current risk criterion developed in 1987 and those recently proposed and currently being publicly reviewed (1990).

Major issues identified in the public submissions other than risk included inappropriate development, visual amenity and vapour emissions.

The EPA considers that the future planning and visual amenity issues are most appropriately managed by the Department of Planning and Urban Development and the City of Fremantle.

Accordingly, the Environmental Protection Authority considers that the proposed Caltex terminal extensions could proceed subject to the following recommendations.

Recommendation 1

The Environmental Protection Authority recommends that the proposed extensions to the Caltex terminal in North Fremantle could proceed subject to: the complete decommissioning and removal of the Ampol terminal and old Golden Fleece facility west of Port Beach Road; Caltex's proposal as outlined in its Public Environmental Review (October 1990); Caltex's list of environmental management commitments; and responses to issues raised in public submissions.

In relation to the vapour control issues raised in public submissions, the EPA is also concerned with the levels of hydrocarbon emissions from the storage of hydrocarbon products in the Perth metropolitan airshed. In response to these concerns, which relate to nuisance odours and potential photochemical smog formation, the EPA and the State Energy Commission of WA are currently developing a Perth airshed study.

An important component to this study and any strategy to control hydrocarbon emissions (which will provide a control mechanism for photochemical smog) is the development of hydrocarbon emission inventories from sites that may contribute to the hydrocarbon emission levels within the Perth metropolitan airshed. Results from these inventories will be used in the determination of appropriate licence conditions to be issued under Part V of the Environmental Protection Act. Accordingly, the EPA considers that the following recommendation is appropriate.

Recommendation 2

The Environmental Protection Authority recommends that prior to commissioning of the extended terminal, Caltex prepare an atmospheric emission inventory assessment programme to the satisfaction of the Environmental Protection Authority, and the results of the programme be submitted to the Environmental Protection Authority for consideration.

In relation to future planning developments along the beach front, the EPA is concerned to ensure that no further inappropriate developments are allowed between Port Beach Road and the ocean. This issue has been discussed with the Fremantle Port Authority and they have advised the EPA that :

"It is the (Fremantle Port) Authority's intention to utilise the area west of Port Beach Road re-alignment for:

direct access to the Port/Leighton Beach existing facilities;

future additional public amenities/parking; and

future additional beach related commercial facilities."

Accordingly, the Environmental Protection Authority considers that the Fremantle Port Authority intend to utilise this land for appropriate public beach related developments.

However, in relation to these developments and others within and surrounding the North Fremantle industrial area it is important that the Fremantle Port Authority, Department of Planning and Urban Development and the City of Fremantle take into account both individual and cumulative risks in all future planning decisions.

Further, the Authority considers that any approval for this proposal based on this assessment should be limited to 5 years. Accordingly, if the proposal has not been substantially commenced within five years of the date of this report, then such approval should lapse. After that time, further consideration of the proposal should occur only following a new referral to the Authority.

Finally, the Authority notes that during the detailed implementation of this proposal, it could be necessary or desirable to make minor and non-substantial changes to the designs and specifications which have been examined as part of the Authority's assessment. The Authority considers that subsequent statutory approvals for this proposal could make provision for such changes, where it can be shown that the changes are not likely have a significant effect on the environment.

1. Introduction

Caltex Oil (Australia) Pty. Limited (Caltex) currently operates a terminal for the blending, storage and distribution of refined petroleum products throughout Western Australia in Bracks Street North Fremantle.

In April 1989 Caltex referred a proposal to consolidate its current operations and those of Ampol Ltd into a single terminal complex.

The proposal would result in a centralised operation that would accommodate the principal product storage and transfer requirements for both Caltex and Ampol at an extended Bracks Street terminal and provide an opportunity to remove, restructure and/or alter some of the existing decentralised storage facilities currently in use in North and East Fremantle (Figure 1).

The proponent advises that this proposal will result in the Ampol operations and the Golden Fleece storage tanks, located between Port Beach Road and the ocean, being decommissioned and removed. This land would then be returned to the control of the Fremantle Port Authority.

The Authority considered that the principal environmental issue in this proposal related to the associated risks and hazards of the proposed development. The Authority determined that the proposal should be assessed at the Public Environmental Review (PER) level of assessment. This level of assessment is a formal level of assessment under the Environmental Protection Act, 1986 and provides for the Minister for the Environment to set legally binding environmental conditions.

The proponent's PER document was released on 12 November 1990 for an eight week public review period. This period was later extended (given that the Christmas period may have limited public response), with the submission period ending 18 January 1991.

The size and position of the proposed tanks, the associated risks and inappropriate development (as it relates to future planning options) have been raised as important factors in public submissions (Appendix 2) that will be discussed later in this Report.

2. The proposal

2.1 General description

Caltex propose to consolidate its operations into their existing Brack Street, North Fremantle terminal. Ampol Ltd has also agreed to rationalise its operations and participate in the new development. A joint venture agreement has been reached between Caltex and Ampol and its formalisation is dependent on approvals for the proposal from EPA and other government agencies (Westrail, Department of Planning and Urban Development, Department of Mines) and the City of Fremantle.

The consolidation will require Caltex to arrange a suitable lease agreement with Westrail for the land immediately north of the Caltex terminal. The extent of the lease will be substantially reduced from the 50 years originally identified in the PER, and is expected to be in the order of 20 years with options to continue the lease subject to future Port developments.

The consolidation will involve extensions to the Caltex terminal in order to accommodate:

- Ampol's terminal operations and product currently stored by Ampol along Port Beach Road;
- product currently stored by Caltex at the old Golden Fleece storage tanks along Port Beach Road; and
- product currently held by Caltex in tanks leased from the Commonwealth in Knutsford Street, East Fremantle.

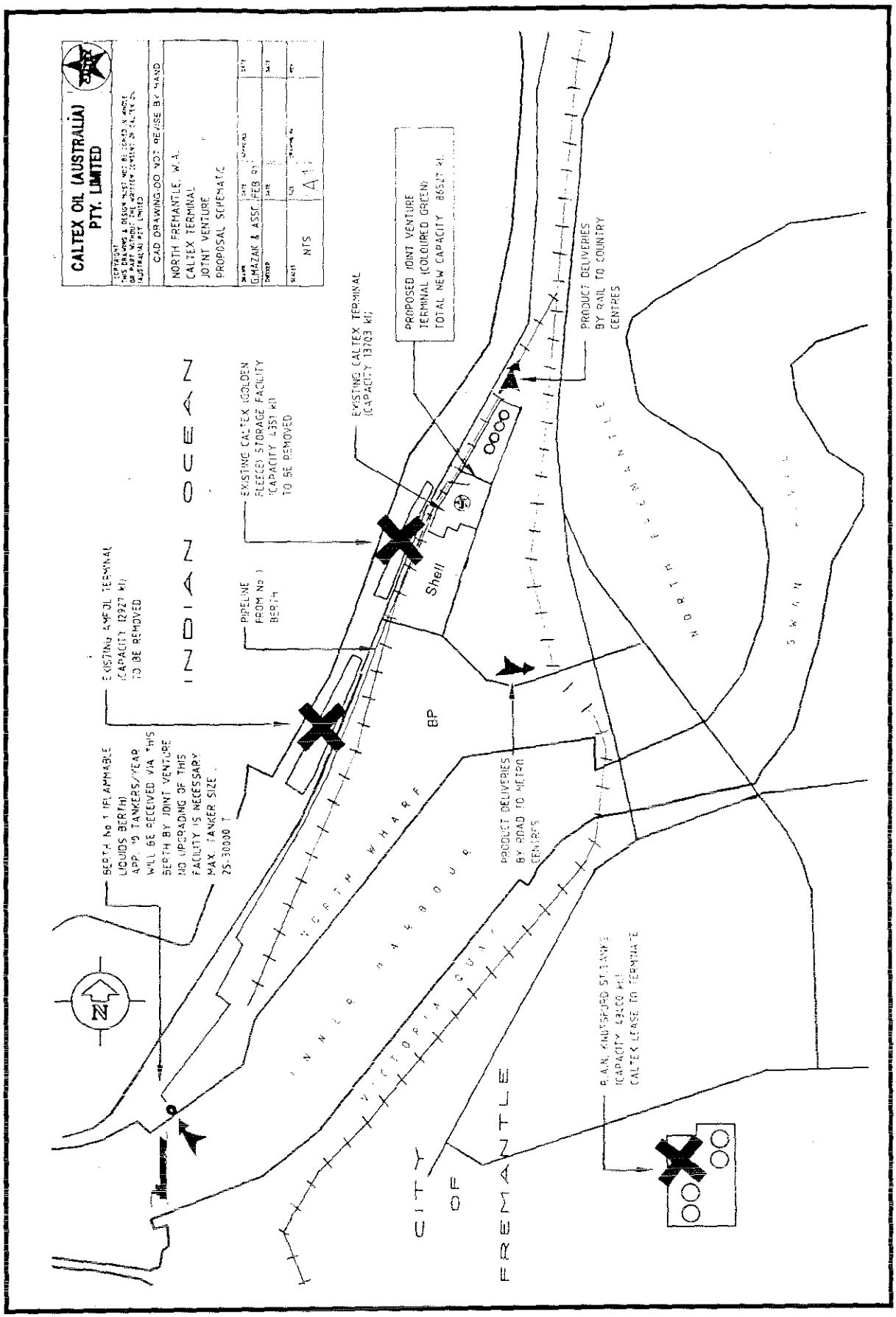


Figure 1. Location map of existing oil industry terminals/storage tanks. Courtesy of Caltex

These activities would subsequently result in the decommissioning and removal of:

- the Ampol terminal ; and
- the old Golden Fleece facility.

Both of these sites are located between Port Beach Road and the ocean. The lease agreements for the land would be terminated and the land would be returned to the control of the Fremantle Port Authority

Furthermore, given that the product currently stored at the Commonwealth facility in Knutsford Road is expected to be accommodated in the proposed extended terminal complex, an opportunity would become available to re-examine the need for the Commonwealth tank facility and its associated pipelines.

An obvious advantage to this proposal is the decommissioning and removal of the terminal operations and storage tanks along Port Beach Road. Caltex have indicated in the PER that they would then release the land back to the Fremantle Port Authority and that its future development would be for beach front and community development.

The Fremantle Port Authority has advised the Authority of its intention to utilise this land for community-related activities, and a copy of their advice is included in Appendix 4. This issue is discussed further in Section 4.4.

Of the existing 36 tanks present at the Knutsford Road, Port Beach Road and Brack Street facilities, 15 tanks will be removed from service (Appendix 2, Question 9). Caltex also note that although the overall consolidation will reduce the number of tanks, the overall volume of product stored would marginally increase.(ie. from approximately 79,000 kilolitres to 86,000 kilolitres).

The terminal extension will include various on-site relocations of buildings and other infrastructure but the most obvious difference to the existing terminal will be the inclusion of four large storage tanks (37 metres diameter by 15 metres high) on Westrail owned land. Two of the four tanks will be used for the storage of distillate, one for the storage of petrol and the other for of either distillate or petrol depending on demand.

2.2 Need for the proposal and consideration of alternative sites

Caltex have operated in North Fremantle for some 62 years and own their property freehold. This proposal represents a major consolidation of their operations in Fremantle and incorporates savings associated with a joint venture development between Caltex and Ampol.

It does not represent a major expansion to either Caltex's or Ampol's business but it will ultimately provide Caltex and Ampol with an opportunity to import more product through the Port of Fremantle.

In the PER, Caltex stated that "Alternative locations for a new facility were not considered because of the need to utilise the existing network of pipelines from BP Australia and the Fremantle Port and of the opportunity to consolidate the operations of three North Fremantle Oil Terminals."

Caltex have briefly expanded on its position regarding alternative sites and have presented information in the Response to Questions and Issues Raised in Public Submissions (Appendix 2, Question 10/11).

The Authority recognises that Caltex has not provided a detailed environmental assessment of alternative sites because of the economics associated with developing an alternative site when compared to utilising the existing infrastructure of its North Fremantle terminal

The Authority expects all proposals to consider alternative sites in their environmental reviews. However, it is also recognised that where an industry or industry group is already established then it would be unrealistic to expect it to relocate its operations to an alternative, environmentally preferred, site unless that industry, or group of industries was causing or likely to cause an unacceptable environmental impact in its existing location.

The Environmental Protection Authority has reviewed this proposal on the basis that it is an extension to an existing terminal in an industrial area. The implications of proposed or existing planning studies should, and can, be managed by the Department of Planning and Urban Development and the City of Fremantle (see Section 4.4).

The Authority considers that its assessment of this proposal should not be unduly influenced by future planning options for the North Fremantle Port area given that the Department of Planning and Urban Development and the City of Fremantle are still to make decisions on the acceptability or otherwise for the proposal, pending the Environmental Protection Authority's environmental assessment.

2.3 Site location and surrounding land uses

Caltex's terminal is located in Bracks Street, North Fremantle. The terminal extensions are proposed immediately north of the existing Caltex terminal on an area of land currently used as a containerised storage yard by Baguley Transport and zoned "Railways and Port Installation' under the City of Fremantle Town Planning Scheme No 3.

The site chosen for the extension was selected because of its proximity to existing infrastructure and facilities. The available infrastructure is associated with the operations of well established oil industry storage facilities ie. Caltex, Ampol, the old Golden Fleece tanks, BP and Shell (Figure 1).

The proposed development would be located immediately north of the existing Caltex terminal, as shown in Figure 1. Land surrounding the development includes Port Beach Road to the west, Westrail leased land to the north, the Shell terminal to the south and other Westrail leased land (storage sheds and offices) to the east. A number of residential houses are located further to the east between Stirling Highway/Queen Victoria Street and the public railway system. The Fremantle Council has proposed a Leighton Peninsular development plan, the southern boundary of which is opposite Pamment Street and located between Curtin Avenue and the public railway system.

In relation to future land uses in North Fremantle, the Authority understands that following the initial consideration of the Fremantle Port Long Term Options Study (Stage 1 Report), the Government decided to obtain a more detailed understanding of the capacity and constraints of the existing North Fremantle site. This work will be presented to Government in a Future Port Options Auxiliary Study. Currently, the technical aspects of the Auxiliary Study are available for public comment until June 21 1991. The Auxiliary Study will then be finalised and presented to Government for its consideration.

3. Public submissions

Thirty three submissions on this proposal were received by the EPA. A list of contributors is provided in Appendix 3.

3.1 Issues raised in submissions

The primary issues raised in submissions were related to risk and safety (fire, explosion and toxic fumes), visual amenity and the limitations that any approval for this proposal may impose on future planning options within the North Fremantle region.

Other issues raised in the submissions included:

transport effects;

alternative sites;

groundwater protection;

changes to port activities; and

social amenity.

3.2 Proponent's response to issues raised in submissions

Following the receipt of submissions the EPA formulated a set of questions to the proponent relating to the issues raised in submissions. These questions and the proponent's responses have been provided in Appendix 2.

4. Potential environmental impacts assessed by the Environmental Protection Authority

4.1 Risks and Hazards

As part of the environmental assessment process, the Environmental Protection Authority required Caltex to prepare a Preliminary Risk Analysis (PRA) for both the proposed development and its existing oil industry operations at North Fremantle.

Caltex contracted risk management consultants to perform this study and a summary of the results was included in the proponent's PER. In response to alterations made (during the public review period) to some of the technical details outlined in the PER, Caltex's risk consultants revised the risk analysis resulting in new risk contours for the proposed development. These risk contours were not appreciably different from those presented in the original assessment. Accordingly, the EPA decided that it was not necessary to extend the public review period beyond 18 January 1991.

As part of the work required to be completed by the proponent, the risk consultant was required to interpret the results of the PRA in relation to the Authority's current risk criterion and the Authority's recently proposed risk assessment criteria.

At this point it is appropriate to identify the components of the preliminary risk analysis and how they relate to the specific Caltex extension proposal.

Caltex's preliminary risk analysis was required to address:

1. Existing oil industry operations at North Fremantle, including that of Caltex, Ampol, the old Golden Fleece tanks leased by Caltex, BP and Shell operations;
2. A cumulative risk analysis of the North Fremantle oil industries operations; and
3. the individual and cumulative risks that would be expected if the proposal was approved.

The original risk analysis prepared for Caltex did not include the Shell terminal operations. However, a risk analysis of the Shell operation was subsequently completed by the same risk consultants, and incorporated into the cumulative risk analysis.

The Authority's existing risk guidelines relate to the identification of hazards and the quantification of risks outside the boundaries of a potentially hazardous development, and the assessment of that risk in terms of residential land use in the vicinity (EPA Bulletin 278).

In the proposed (December 1990) risk assessment criteria for which a public review period has recently closed, the criteria are more extensive and consider a number of broader issues that reflect the Authority's basic premise that "people should be safe from industrial risk". The following table is extracted from the Authority's "Review of the guidelines for risk assessment in Western Australia". (Figure 2)

Land Use	Current criteria	Suggested criteria
	(Individual risk of death per million per year)	
Hospitals, schools, child-care facilities, old-age housing	-	0.5
Residential	1	1
Residential, hotels, motels, tourist resorts	-	1
Commercial development, including retail centres, offices and entertainment centres	-	5
Sporting complexes and active open space	-	10
Other industrial areas	-	50

Figure 2. EPA proposed risk criteria

However, given that the Authority has not completed its consideration of these proposed criteria, and associated implementation requirements, it is using the proposed criteria only as a guide. The Caltex proposal meets the existing risk criterion and the central values of the proposed criteria, and complies with such additional measures as imposed by the Chief Inspector, Explosives and Dangerous Goods Division, for the maintenance of public safety. Therefore the Authority considers the levels of risk to be acceptable. Accordingly, given that the risk issue is the foremost issue of concern with this proposal, and that other issues can be managed (see rest of Section 4), the Environmental Protection Authority recommends that:

Recommendation 1

The Environmental Protection Authority recommends that the proposed extensions to the Caltex terminal in North Fremantle could proceed subject to: the complete decommissioning and removal of the Ampol terminal and old Golden Fleece facility west of Port Beach Road; Caltex's proposal as outlined in its Public Environmental Review (October 1990); Caltex's list of environmental management commitments; and responses to issues raised in public submissions.

In relation to the risk contours associated with the Commonwealth's facility in Knutsford Road (which exceed the EPA's current risk criterion) the Authority has written to the Royal Australian Navy (who are responsible for the facility) outlining its concerns. The EPA will act to resolve this risk issue after consultation with the City of Fremantle and Department of Mines.

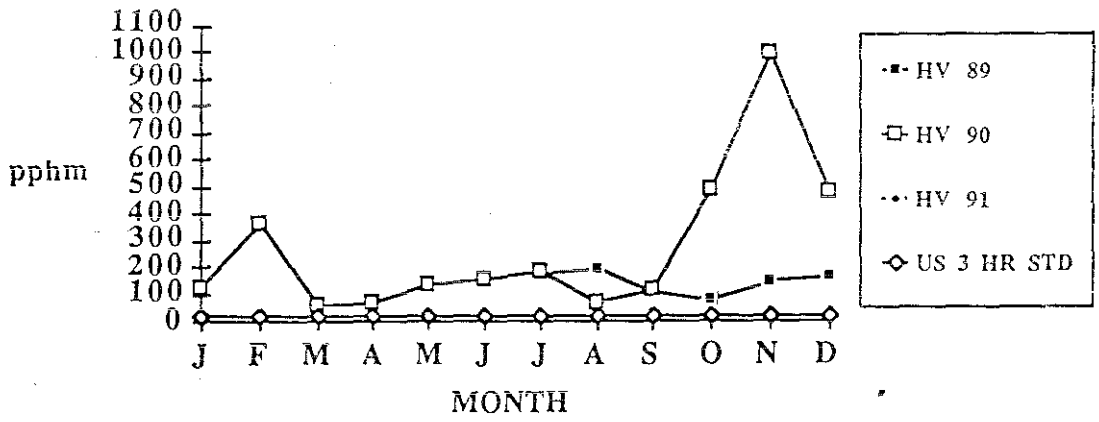
Insofar as the decommissioning and removal of the Ampol and Golden Fleece operations and their associated infrastructure (eg. pipelines and buildings), the Authority would expect the facilities to be completely removed (unless use can be made of buildings or other facilities by the public), and that an environmental inventory of the site is undertaken (for hydrocarbon contamination) and referred to the EPA to help establish the need or otherwise for any surface or sub-surface remedial works.

The Authority also considers that Caltex and Ampol should progress the development of the proposed terminal and decommissioning/removal of the Ampol and Golden Fleece facilities as closely as possible such that the Ampol and Golden fleece facilities are removed within 6 months of the extended terminal being commissioned.

4.2 Air quality issues (hydrocarbon emissions/odour)

The Environmental Protection Authority proposes to ensure adequate controls are available to manage hydrocarbon emissions from facilities in the Metropolitan area, including the Caltex extended terminal operation.

The EPA has been monitoring non-methane hydrocarbons (NMHC) at its air quality monitoring station at Hope Valley since July 1989. The data obtained from this station raise concerns regarding the quantity and composition of hydrocarbons in the Kwinana region. The concerns are evident when comparisons are made between Hope Valley's NMHC concentrations and the United States EPA's 3 hour maximum (not to be exceeded more than once per year) standard of 24 parts per hundred million (pphm) Figure 3.



Notes on above figure :- The figure does not show data for 1991 as the monitor has been off-line for maintanence, rebuilding then recalibration. As well as industrial NMHC the monitor has been able to detect atmospheric hydrocarbons released from local bush fires and/or CALM's prescribed burns in the south-west. The large excursions above 200 pphm NMHC are at this stage assumed to be this non-industrial source.

Figure 3. Non methane hydrocarbons maximum 3 hour ambient concentrations, Hope Valley 1989 - 1991

Unlike the Kwinana area, the EPA does not have data for North Fremantle. Nonetheless numerous complaints have been received by EPA about the North Fremantle area over an extended period of time, relating to hydrocarbon nuisance odours in the area.

Currently in Australia there are no national air quality guidelines for NMHCs. However, individual hydrocarbon components such as pentane, hexane, toluene, xylene, phenol and ethylbenzene, are listed in the Victorian EPA's State of the Air Environment Policy.

Currently, the EPA is assessing two proposals (BP's Feed Flexibility proposal and Caltex's Terminal Expansion proposal) that would change or expand current operational procedures and potentially result in a direct impact on the hydrocarbon inventory at both Kwinana and North Fremantle.

There are two issues of concern to the Authority in relation to NMHC emissions into Perth's metropolitan airshed:

1. nuisance odours to the public; and
2. photochemical smog.

Nuisance odours are reported to and managed by the Pollution Control Division of the Environmental Protection Authority. At present the Authority manages the odour issue by ensuring sufficient attention has been paid to this issue during the early design and commissioning stages of a facility, and later in response to complaints. Where the source of odours is identified the EPA has sufficient powers under the provisions of the Environmental Protection Act to manage the nuisance odour issue. However, nuisance odours associated with non-methane hydrocarbon emissions within North Fremantle can be difficult to pinpoint. Therefore, as a consequence of requiring more stringent non-methane hydrocarbon emission controls (in response to the photochemical smog issue) within the Perth metropolitan area, the Authority expects the nuisance odour issue to also be improved.

In relation to photochemical smog, both oxides of nitrogen and non-methane hydrocarbons are necessary precursors to the formation of photochemical smog. It is known that in the presence of sunlight these chemicals react to form various pollutant chemical species. The most important of these is ozone, which is used as an indicator of photochemical smog.

Perth's airshed has already experienced an abnormal number (eleven) of high ozone incidents during November 1990 to April 1991. An ozone incident is a reading at the EPA's Caversham air quality monitoring station which is greater than 160 micrograms ozone per cubic metre for 1 hour. Further, there has also been an increase in the long term exceedences (again 11 occasions during November 1990 to March 1991) which is a concentration above 100 micrograms per cubic metre for 8 hours.

a) Proposed EPA Strategy

In order to ensure photochemical smog does not become a frequent occurrence in the Perth metropolitan area a suitable control mechanism must be found. World-wide, the most effective mechanism is usually through the control of hydrocarbon emissions. Hydrocarbon emissions can most effectively be controlled at their source.

The EPA is presently designing a study in collaboration with the State Energy Commission of WA that will provide useful information in the determination of long term strategies to prevent photochemical smog formation in the Perth airshed.

An important component of any strategy to control hydrocarbon emissions will include the development of detailed atmospheric emission inventory programmes for any new and existing industries. These atmospheric emission inventory programmes would be required of any industry or process in the Perth metropolitan airshed that includes hydrocarbon storage tanks, hydrocarbon transfer activities (including railcar, road tanker or service station underground tank filling operations) and/or refining processes.

The EPA would expect the inventory programme to identify all potential point and diffuse sources of hydrocarbon emissions on a site, and from this information and knowledge of operational activities, assess emission levels (including an assessment of ambient atmospheric emission levels) and discuss the need or otherwise to take action to prevent and/or control unacceptable emissions. This programme would also need to address existing operational procedures (rail car filling operations and service station underground tank filling activities) and identify operations where vapour control/recovery equipment could be installed.

EPA response to the inventory programmes may require individual tanks or operations within facilities to be fitted with vapour control equipment which limits emissions to the atmospheric environment. Methods which may be appropriate include: emission control equipment on storage tanks, carbon adsorption units and/or vapour emission systems using back-venting

and/or flares. The Authority would expect these mechanisms or any others proposed by industry to limit hydrocarbon emissions to meet normally acceptable air quality guidelines.

In relation to the control of hydrocarbon emissions at service stations, the EPA is currently developing regulations that will require underground tank filling operations to be carried out in such a manner that no unnecessary vapours are vented to the atmosphere. This could most effectively be accomplished by the use of currently proven and available back venting technologies.

In order to ensure that the strategy identified above is effective and equitably applied to industry groups, the Environmental Protection Authority proposes to include such facilities or operations that could emit unacceptable levels of hydrocarbons to the Perth metropolitan airshed as prescribed premises under Part V of the Environmental Protection Act, 1986.

The Authority will define the industries to be affected by this strategy using four criteria:

1. The total storage capacity of a site;
2. The expected throughput of product at a site;
3. The type of operations occurring at a site; and
4. Site location in relation to the Perth metropolitan airshed.

Through this mechanism, site specific conditions would be developed to ensure that the environmental objectives can be achieved.

b) The extended Caltex terminal

Caltex's proposal includes a relocation of its existing rail transport (rail-tanker) loading operation to reduce the number of movements required to fill the rail-tankers, which will result in a decreased potential for product spills/releases. The EPA has been advised by Caltex that it is not aware of any existing rail-tanker loading system in Australia that incorporates vapour emission control equipment. Nonetheless, the railcar loading facility is a potentially significant source of NMHC emissions and should be investigated further. The details of this further investigation and any necessary actions may be implemented through works approval and licence conditions as provided for under Part V of the Environmental Protection Act.

Furthermore, road tanker filling operations are a major source of hydrocarbon emissions and so these should include vapour emission control equipment to prevent unnecessary hydrocarbon emissions to the atmosphere. The EPA would implement controls to this effect within the context of the study with SECWA and/or as provided under the provisions of Part V of the Environmental Protection Act.

In respect of the four new storage tanks, the Authority expects that the two tanks fitted with floating roofs and automatic vapour seals could provide an effective vapour emission mechanism. However, a final decision on whether this method would be effective on its own will depend on the result of the atmospheric emission inventory programme identified above. At the same time, the need or otherwise to include vapour emission control equipment to other storage tanks at the extended Caltex terminal would need to be determined. Accordingly, the Environmental Protection Authority recommends that, in order to assess the current situation, the likely effect of the proposed terminal extension and practicable hydrocarbon emission control requirements, Caltex should prepare an atmospheric emission inventory programme.

Recommendation 2

The Environmental Protection Authority recommends that prior to commissioning of the extended terminal, Caltex prepare an atmospheric emission inventory assessment programme to the satisfaction of the Environmental Protection Authority, and the results of the programme be submitted to the Environmental Protection Authority for consideration.

4.3 On-site drainage and other management controls

In relation to liquid discharges from the terminal, Caltex have indicted that they already employ an on-site drainage system that allows them to contain normal stormwater separately from areas that are more likely to suffer product spillages. This system will be extended to cater for the proposed development.

All stormwater will be collected and piped to a combined oil separator and silt trap. It will then be held in a lined holding basin (sampled and tested for oil contamination) and if acceptable discharged to an on-site soakage area. Any oily waste would be collected into storage tanks and disposed of by Health Department approved contractors.

The second pollution control system collects liquid from areas more likely to contain petroleum product eg. bunded areas around tanks, pump units and loading areas. It is then piped to an oil separation unit. Water from this unit is discharged into an on-site evaporative pond lined with bentonite clay to prevent seepage to groundwater.

The Authority has inspected the existing pollution control system at the Caltex terminal and considers that its extension into the proposed development and the inclusion of a new oil separation unit should be adequate to control potential waste discharges at the site.

In relation to management controls for emergency situations that could result from both on-site and transport incidents, Caltex is a part of a mutual aid system that allows them to call upon the assistance of other members in the form of both trained personnel and materials.

Given Caltex's undertaking to locate chemicals where they are protected from heating and heat radiation (such premises would be approved by the Department of Mines) and the level of emergency control systems provided by oil industry members, the Environmental Protection Authority considers that the extended Caltex terminal will provide a sufficiently high level of environmental protection.

Furthermore, in relation to the transport of flammable liquids, Caltex is responsible for ensuring that the vehicles are of a sufficiently high standard to maintain public safety, as required by regulations administered by the Department of Mines (Explosives and Dangerous Goods Division). In this respect, the standards applied by the Department of Mines offer a high level of environmental protection.

4.4 Visual amenity and planning issues

Earlier planning decisions have approved industrial development within North Fremantle and, in the absence of any Government decision to the contrary, it is understandable that industry should look to extend its operations as near as practicable to its existing facilities.

The visual amenity issue calls for a value judgement that the Authority considers it is not in a position to comment upon in this proposal. The North Fremantle Region has an already well developed industrial area and at this late stage in the planning and development of that area, the Authority considers that it does not have a significant role to play.

The Environmental Protection Authority considers that visual amenity and planning issues are properly managed by the Department of Planning and Urban Development and the Fremantle City Council for this proposal. Both of these bodies must provide approvals for the development to proceed.

Nonetheless, in respect of the beach front area, the EPA has discussed future planning development proposals with the Fremantle Port Authority. These discussions included reference to a possible realignment of Port Beach Road. In relation to any realignment proposal, the EPA considers that any significant realignment of the road should be limited to the area south of Tydeman Road.

The Fremantle Port Authority has indicated that it does not intend to utilise land west of any Port Beach Road re-alignment for future major industrial developments and that they are

currently discussing options for the use of the beach front land with the Leighton Peninsula Regional Park Study Group. The Study Group's objectives are to prepare a detailed proposal for the establishment of a regional park on the Leighton Peninsula.

In relation to other future planning and development options, the Environmental Protection Authority has taken steps (in requiring Caltex to provide a risk analysis for the proposed development) to ensure that potential land use planning conflicts involving industrial and residential boundaries can be resolved by the Department of Planning and Urban Development and City of Fremantle in full knowledge of the EPA's risk criteria.

In terms of a related issue, the EPA considers that it is important for the Fremantle Port Authority to ensure that it is in a position to advise the Department of Planning and Urban Development and City of Fremantle of any risk and hazard issues (associated with Port operations) that could impact upon future planning options within the North Fremantle Region.

Appendix 1

List of Caltex Oil (Australia) Pty. Ltd environmental management commitments

ENVIRONMENTAL MANAGEMENT COMMITMENTS

The following commitments are made by Caltex Oil (Australia) Pty. Ltd. to demonstrate how they propose to manage the terminal operations and accept responsibility for any unacceptable environmental impact arising out of the operations.

1. Caltex will protect by easement or relocate any public utility services that conflict with the terminal extensions to the satisfaction of the relevant Statutory Authority.

2. Caltex will design and construct a new road to connect Bracks Street to Port Beach Road and facilitate the closure of the section of Walter Place between Bracks Street and Port Beach Road, to the satisfaction of the City of Fremantle.

3. Caltex will design and construct a pedestrian accessway to connect the new Port Beach Railway Station to Port Beach Road.

4. Caltex will design and construct the terminal extensions in accordance with the relevant Australian Standards and Building Codes to the satisfaction of the Department of Mines, the City of Fremantle and the WA Fire Brigades Board.

5. Caltex will undertake site works in a manner, and at such times as to ensure that dust and noise emission levels outside the boundaries of the site do not adversely impact upon occupiers and users of adjacent land.

   Such works will be undertaken to the satisfaction of the City of Fremantle on advice from the Department of Occupational Health Safety and Welfare and the Environmental Protection Authority.

6. Caltex will de-commission its operations at the old Golden Fleece terminal, reinstate the site and return it to the Fremantle Port Authority once the extended terminal is commissioned to the satisfaction of the Fremantle Port Authority and the Environmental Protection Authority.

7. Caltex will terminate its use of the Commonwealth Fuel Storage tanks in Knutsford Street, Fremantle and the pipeline that connects the tanks to the Bracks Street terminal.

8. Ampol will de-commission its operations at Port Beach Road, re-instate the site and return it to the Fremantle Port Authority once the extended Caltex Terminal is commissioned to the satisfaction of the Fremantle Port Authority and the Environmental Protection Authority.

9. Caltex will landscape and plant vegetation around the perimeter of the development to reduce the overall perception of scale and to obscure ground level improvements, to the satisfaction of the City of Fremantle.

10. Caltex will treat the foremost tanks with colour tones or shadow lines to minimise their visual impact on the users of Stirling Highway to the satisfaction of the City of Fremantle.

11. Caltex will schedule its product movement to and from the terminal in a manner that will minimise the traffic impact on the local road network.

12. Caltex will trap all stormwater on site and direct it through a combined oil separator and silt trap before discharge to an on site soakage area to the satisfaction of the Environmental Protection Authority.

13. Caltex will install a collection drain system in all areas of potential spillage to the satisfaction of the Environmental Protection Authority.

14. Caltex will continue its comprehensive control system for the terminal operations to the satisfaction of Department of Occupational Health Safety and Welfare and the Department of Mines.

15. Caltex will locate all chemicals that evolve toxic fumes on heating or combustion in one area where they are protected from heat radiation or fire to the satisfaction of the Department of Mines and the Environmental Protection Authority.

16. Caltex will ensure that all personnel and emergency services are aware that breathing apparatus must be worn in cases of chemical fires.

17. Caltex will provide alcohol resistant foam in areas where large quantities of alcohols are stored on site.

18. Caltex will have readily available Material Safety Data Sheets for all substances on site.

19. Caltex will provide fire resistant barriers in buildings adjacent to public areas to the satisfaction of the WA Fire Brigade Board.

Appendix 2

Questions and issues raised in submissions and the proponent's responses

QUESTIONS AND ISSUES RAISED IN PUBLIC SUBMISSIONS FOR THE CALTEX TERMINAL EXPANSION PROPOSAL

Q1 *What guarantee does the public have that if Ampol and Caltex cannot agree on commercial terms for the consolidated site, that the site is not developed by Caltex alone or with another party, leaving the Ampol and Golden Fleece terminals in operation?*

A1 Caltex and Ampol have reached agreement on the joint venture. Documents have been prepared but formalisation is pending EPA and Council approval to the venture.

Ampol has agreed to remove its facilities as soon as it can occupy the joint venture site.

The Golden Fleece terminal facilities belong to Caltex and will definitely be removed, when the extensions are commissioned. Caltex has no proposal to proceed with the development other than with Ampol.

Q2 *The question that should be asked is not "Is the proposal environmentally acceptable", but "Where in Perth should refining, blending, storage and distribution of petroleum products be situated. Caltex has failed to address this issue. Can Caltex comment on this view?"*

A2 Determining the location for Petroleum industry in Perth Area is a regional issue and beyond the control of Caltex. Caltex has developed the proposal in accordance with the current state and local government planning framework.

Caltex considered a number of alternatives to extending its existing facility, these included:

(a) A new terminal in the Kwinana region.
(b) A new terminal in the Kewdale region.
(c) Relocation of either the storage or all activities to other land within the Port area at North Fremantle.

None of these alternatives were economically viable.

Caltex has studied the regional economics of receival and distribution of its products and believes that a major facility located near the Port of Fremantle is essential to its and Ampol's ongoing operations in Western Australia.

The Caltex proposal is to extend its existing facilities in Brack Street, North Fremantle.

A. BIOPHYSICAL ISSUES

Q3 *What are the environmental advantages of relocating Ampol's storage tanks from the western side of Port Beach Road to a site approximately 100 metres from Leighton Beach and the life saving club?*

A3 Caltex believes that the relocation of Ampol storage facilities from the western side of Port Beach Road to the proposed site, offers the following environmental advantages:

(a) A reduction in the total quantity of tanks in the North Fremantle area by 15.

(b) The new tanks will be further from the beach area and located behind the line of the frontal sand dune.

(c) Several hundred metres of beach front will be returned to the Port Authority.

Q4 *How many road tanker loads move from Caltex and Ampol per day at present?*

How many road tanker loads are expected to move from the consolidated site?

How many road tanker loads move from the Shell and BP sites per day?

A4 Up to 44 truck and tanker loads of motor spirit and distillate product per day move from Ampol and Caltex terminals at present. This may rise to up to 60 truck and tanker loads per day after consolidation, depending on demand and distribution requirements.

The number and frequency of transport movements from the Shell and BP sites is not known to Caltex. This question should more properly be directed to the Shell and BP organisations.

Q5 *The distribution figures provided in Section 3.2 of the PER are not specified for motor spirit. Do the figures represent a significant difference to traffic volumes/movements?*

A5 The expected throughput figures for product from the extended terminal are as follows:

- Motor spirit (per year) between 242,000 kilolitres and 447,000 kilolitres.
- Distillate (per year) between 194,600 kilolitres and 337,000 kilolitres.

This will be distributed in the following manner:

- Road tankers - 16 tankers carrying a total of up to 60 loads per day.
- Rail tankers - up to 14 rail tankers per day.
- Pipeline to Victoria Quay as required.
- Lubricating oils will be trucked into the terminal requiring up to 13 tanker loads a week. They will be distributed by up to 3 tanker loads per week and then packages and drums by truck as required.

Road transfers of fuel oil products will increase in line with Ampol's present distribution and all trips will originate at the Caltex terminal.

The break up will be approximately two third motor spirit and one third distillate.

There will be an increase in the total road traffic in the immediate vicinity of the extended Terminal, but the extent of this increase will depend on demand and distribution requirements.

The increase is not expected in the short term to be significant in terms of overall traffic movement for the North Fremantle area.

Future increases in traffic will occur in response to increases in commercial sales. The normal increase in commercial sales is currently 1% to 2% per annum.

Q6 *Can Caltex explain its reasoning for stating that it is an integral part of the Port. What are the services Caltex offers the Port and what percentage of its activities are represented by these services?*

A6 Caltex operates from the North Fremantle Terminal for the storage and distribution of refined petroleum products throughout Western Australia. These products are received from BP Refinery at Kwinana via pipeline and from Marine Tankers via the Fremantle Port. A portion of these products is then distributed by a pipeline to the port area for servicing of the shipping in the Port.

At present, on average three ships a year unload at the Port for Caltex and Ampol operations. After consolidation the number of ships for the joint venture may rise to 10 a year. Imports may rise from an average 60,000 tonnes per year to 200,000 tonnes per year. There will be no increase in the size of ships used for these imports.

After consolidation it is expected that up to 60% of the joint venture requirements could be imported through the Port and approximately 6% of the combined throughput would be directly used to service Port traffic.

The Fremantle Port Authority have advised Caltex that the development would enhance the activities of the Port as well as allowing for alternative utilisation of land currently occupied by beachfront facilities. They also advise that Caltex and Ampol are established Port users and have pipeline facilities from Victoria Quay and North Wharf for receipt of cargoes and servicing of vessels.

Q7 *The visual amenity of residents and tourists enroute to Fremantle from Perth will be impaired by the size of the tanks as identified in the photo montages provided by Caltex. Is disruption of the skyline the only factor Caltex has considered?*

A7 While the tanks are large, they are no higher than a four storey block of units. Caltex does not believe that they will create major visual impairment of the views of residents on the eastern side of Stirling Highway nor the travelling public.

Caltex considered the option of sinking the tanks into the ground but rejected it because of problems related to the ground water table, ventilation, leak detection and ongoing operational safety.

The company intends to colour tone the tanks and/or introduce shadow lines to minimise the visual impact.

Caltex believes that the majority of the concerns over visual impact can be addressed by careful landscaping. The aim would be to enhance the visual impact of the whole area which is after all an industrial area designated by the City of Fremantle for Port related activities or land set aside for railway use.

The project landscaping or treatment of the tanks would be undertaken with professional advice and in full consultation with the local community.

Q8 *Scale, in the built environment, is a key determinant of human perception, capable of inducing a range of emotional responses. In North Fremantle there is a general graduation in scale, large to small from SW to NE. The aesthetics and ambience of the Port will be disturbed by the placement of these large structures which are out of scale with the existing environment. Can Caltex comment on this view?*

A8 Caltex is confident that with professional assistance, the perceptions of scale and form can be significantly reduced. Certainly the tanks are large and initially may be seen by some as intruding on the landscape. However, they will be no higher than a four storey block of units and they do conform with existing planning requirements.

Caltex believes that they can quickly become an accepted part of what is after all an industrial landscape.

The Port area presents a rich diversity in landscapes and views that many find interesting and stimulating.

Q9 *Will the current proposal increase the maximum storage capacity of the expanded Caltex terminal over that already available in the Ampol, Knutsford Road and existing Caltex Terminal?*

A9 Distillate and motor spirit storage capacity in the extended terminal will replace the storage capacity of Ampol's existing terminal on Port Beach Road, Caltex's tanks in the old Golden Fleece terminal on Port Beach Road and Commonwealth Government's tanks on Knutsford Street Fremantle, which are currently leased by Caltex.

Current capacities:

	Knutsford St	Golden Fleece	Brack St	Ampol	**TOTAL**
Capacity	48,400 kl	4,351 kl	13,703 kl	12,927 kl	79,381 kl
No of Tanks	4	3	13	16	36
Product	Distillate	Petrol	4 Petrol 1 Distil 4 Oil 2 Kero 2 Other	2 Empty 6 Petrol 3 Distil 1 Kero 2 Other 2 Oil	2 Empty 13 Petrol 8 Distil 3 Kero 6 Oil 4 Other

Consolidated terminal:

BRACK STREET

Capacity	86,527 kilolitres
Tanks	21
Product	8 Petrol 4 Distillate 4 Oil 2 Kero 2 Other

ALTERNATIVE SITES

Q10 *What alternative sites have Caltex considered for this proposal?*

A10 Caltex considered a number of alternatives to extending its existing major facility at North Fremantle, these included:

(a) Relocation of storage or all activities to Kwinana.

(b) Relocation of storage or all activities to Kewdale.

(c) Relocation of either the storage or all activities to other land within the Port area including Rous Head.

The proposal is to extend an existing major facility. The cost of any alternative to the consolidation and extension of the North Fremantle facility is prohibitive and not economically viable. The Port Authority advised that the Rous Head area was not available for major petroleum storage facilities.

Q11 *Can Caltex provide a comparison that includes risk, environmental, social and planning issues of the North Fremantle site and sites at Kewdale and Kwinana?*

A11 Caltex has not compared risks and other issues of the North Fremantle site with those at sites in Kewdale and Kwinana. Caltex does not intend to develop at either location and was not required to undertake such a comparison during the assessment process of the proposed extension.

GROUNDWATER PROTECTION

Q12 *It appears that the bund capacity of the four storage tanks is designed to hold 100% of the volume of the largest tank plus 10% of the volume of other tanks contained in the same bund. Why can't the bund be designed to hold the total volume of all tanks and what would happen if two or more tanks were breached in the one event?*

A12 The tank installations, pumping units and loading areas will be bunded in accordance with the Australian Standard AS1940, "The Storage and Handling of Flammable and Combustible Liquids" and the requirements of the Department of Mines.

The Standard provides requirements for the planning, design and construction and safe operation of all installations in which flammable or combustible liquids are stored or handled. In separate sections it deals with minor storage, package storage and handling, storage in tanks, fuel dispensing, piping and tank auxiliaries, heating of liquids, operations and fire protection facilities. Appendices deal with tank venting and combustion characteristics.

Further, the bunded areas will be lined with an impervious material to prevent infiltration of any spillage into the groundwater.

The probability of tank failure and the associated risks have been taken into account in the Preliminary Risk Assessment and is reflected in the risk contours shown in the PER at figure 9.

Q13 *Will the bund surrounding the tanks be totally impervious, thus preventing groundwater pollution and will Caltex undertake to monitor groundwater at the site and report the results to the EPA?*

A13 The bund surrounding the tanks will be constructed of concrete and the floor of the bunded area will be lined with an impervious material.

A pollution control system will be installed in all operational areas where there is potential for spillage. A drainage system will collect the liquid and transfer it to an oil separation unit. Collected hydrocarbon slop will be contained on site in a slop tank and then removed by private contractors.

Any water collected will be discharged to an on site evaporation pond lined with clay to prevent seepage.

Caltex will monitor groundwater at the site and report results to the EPA, if so required by the appropriate authorities.

FUMES AND VAPOURS

Q14 *What standards or guidelines are applied in other developed countries to control vapour and fume emissions?*

A14 Standards and Guidelines applied in other countries are not necessarily applicable. Proposed development is in accordance with Australian Standards and State Regulations.

Caltex is aware that in New South Wales and Victoria specific regulations to control vapour fume emissions have been made under their Environmental Protection Acts.

In Victoria the Environment Protection (storage and transfer of volatile organic liquids) Regulations 1988 apply specifically to the Port Philip Air Quality Control Region. The Regulations require:

i) The storage of organic liquid in large stationary tanks be undertaken in a manner to prevent organic vapour or gas emission. This can be achieved by installation of floating roof tanks or an internal floating cover below a fixed roof or the installation of a vapour recovery and disposal system.

ii) The transfer of organic liquids into road tankers to include a collection system connected to a vapour recovery or disposal system. The system must be capable of collecting all organic vapours and gas displaced from tanks during loading operations.

Vapour recovery systems are not required for the transfer of organic liquids into rail tankers.

Caltex understands that these Regulations apply specifically to the Port Philip area because of the local phenomenon of photo-oxidant fog. The Regulations do not apply throughout the rest of the State.

Caltex has partially applied these Regulations in the case of storage of petroleum spirits as all tanks containing these materials will have a floating roof (vapour seal) design. It is not intended at present to install vapour recovery due to the fact that the terminal is a rather small installation. Caltex will conform to any future statutory requirements of this nature.

Q15 *What measures will be taken to ensure that fumes and vapours do not cause atmospheric pollution?*

A15 Caltex conforms to all existing legislation regarding vapour systems. Should legislation be enacted in the future with respect to organic vapours, then Caltex will conform as soon as practicable.

Caltex presently installs vapour seal systems to all tanks containing light (petroleum spirit) hydrocarbons. This ensures that petroleum vapours are not emitted from the storage tanks during product transfer or normal operations.

All road tankers are currently bottom loaded to prevent spillage and minimise vapour loss.

Caltex will install all equipment required by legislation regarding potential vapour release to the atmosphere.

Q16 *Is the body of knowledge available for the products to be stored adequate to ascertain, with confidence, that there will be no long term health or environmental effects from vapour or fume emissions?*

A16 No long term environmental effects from vapour emissions are anticipated. The University of Melbourne, Department of Community Medicine, on behalf of the Australian Petroleum Industry Health Surveillance Programme recently completed a study to monitor mortality and the occurrence of cancer within the Australian Petroleum Industry (Health Watch 8th Report 1990).

The study examined over 12,000 employees in the petroleum industry over a ten year period. The report indicated that:

- The standardised all-cause death rate of the male study population was 37% lower than that of the Australian national population.

- The standardised all-cause death rate of the female study population was 10% lower than that of the Australian national population.

- For all major causes of death in males, including cancer and ischaemic heart disease, the rate was below that of the Australian national population. In particular the mortality from respiratory disease, stroke and accidents and violence was substantially lower.

- No relationships were apparent between all-site cancer mortality and incidence in males and level of potential exposure to hydrocarbons.

Q17 *Page 33 of the PER notes that chemicals stored may, on heating or combustion, evolve toxic fumes. What chemicals are stored and what effect could these toxic fumes have? What emergency procedures are in place to manage an event that resulted in the release of toxic fumes?*

A17 Chemicals kept which can evolve toxic fumes on heating or combustion include petrol, distillate, lube oils, benzene, ethyl alcohol, ethyl benzene, xylene, n-hexane, methyl-ethyl-ketone, toluene, methanol.

In the event of a fire, Caltex's strict emergency response procedures would be implemented. This is outlined in the Caltex marketing and operations manual - Volume 3 - Fire Safety & Environmental Control.

As part of its operational and organisational controls, Caltex applies the highest design standards to, and the strictest control of ignition sources. As stated in the PER, there are no readily discernible sources of ignition.

Caltex has further committed to locate all chemicals that will involve toxic fumes on heating or combustion in one area where they are protected from heat radiation or fire to the satisfaction of the Department of Mines and the Environmental Protection Authority.

RISK

Q18 *How does the risk analysis undertaken by Caltex compare against the December 1990 Review of the Guidelines for Risk Assessment in Western Australia, especially in relation to the new railway station and access way, the beach, recreational areas, residents and road users?*

A18 The assessed level of risk presented by the proposed terminal appears to satisfy all EPA criterion applicable at the time of the study.

From the risk contours shown in the attached diagram 1, it can be seen that:

- All residential areas are outside of any contour on the diagram.
- The proposed railway station is outside of any contour on the diagram.
- The beach is outside of the 1×10^{-6} contour.
- The access way is outside of the 1×10^{-6} contour.
- No recreational area exists within the terminal area.

The risk contours indicate that the land uses would also meet EPA's proposed new risk criteria.

Q19 *Given that the cumulative risk assessment does not include the Shell Terminal, surely the results and conclusions concerning cumulative risk levels are invalid?*

A19 A study recently completed, incorporating the Shell terminal into the analysis of cumulative risk, found that the previously determined risk levels around the proposed Caltex extension were essentially unaffected by the presence of the Shell terminal. Results and conclusions concerning risk levels in this area are still valid.

Q20 *Given that the Knutsford Road tanks are owned by the Commonwealth, how can the community be sure that they will not be re-used for the same purpose by another operator?*

A20 Caltex leases the Knutsford Street tanks from the Commonwealth Government. Caltex has no control over the usage of the tanks once it has relinquished its current lease.

The risk contours developed by Caltex as part of this proposal could be used by the Local Authority and others to demonstrate the limitations on the future use of these tanks.

Caltex has pursued the future use of the tanks with the Commonwealth Department of Defence, The City of Fremantle and the Department of Mines.

To date no formal response has been received from the Commonwealth Government. Caltex understands that the City of Fremantle, Department of Mines and the EPA are also pursuing this issue.

Caltex can however, assure that the beachfront tanks will be removed as part of the joint venture consolidation. A number of the tanks will be recovered and used in the proposed terminal extension.

Q21 *How applicable is the meteorological data collected from Hope Valley for the risk assessment of the proposal located in North Fremantle which probably has higher wind speeds?*

A21 It was found that the meteorological data had little impact on the assessed levels of risk. Most of the hazard on the terminals are omni-directional (fires), acting equally in all directions regardless of wind speed or direction. Any inaccuracy which may exist in using Hope Valley meteorological data to represent the weather conditions in North Fremantle may be regarded as insignificant for the purposes of the risk assessment.

For each terminal, numerous potential hazardous incidents were included in the risk calculation to determine cumulative risk levels. The varying frequency, effect distance and location of each incident resulted in the irregular shape of the generated contours.

Q22 *Can Caltex more fully address the risk and hazards associated with road, rail and shipping tanker movements of this proposal?*

A22 The movement of product by road, rail and ship to and from the terminal will be conducted in accordance with the current statutes and regulations associated with the particular transport medium.

The road transport of these goods will be in accordance with the requirements of the Explosives and Dangerous Goods Act and Dangerous Goods (Road Transport) Regulations.

Rail transport will be regulated by Westrail under the Railways of Australia Code of Practice and Conditions for the Carriage of Dangerous Goods (Australian Dangerous Goods Code).

Shipping movements will be through the Fremantle Port Authority No. 1 berth only. This is designated hazardous cargo berth and is fully equipped to deal with hazardous cargo and is strictly controlled by the Fremantle Port Authority.

Caltex understands that a Port Safety Study is being discussed between the Fremantle Port Authority and the Department of Mines.

Caltex will schedule its road tanker movements so as to minimise peak period congestion on the local road network. Tankers and trucks will use Brack Street as their exit from the terminal to Tydeman Road and then proceed to various destinations via the main distributor road network.

Q23 *Given that Caltex proposes to increase its shipping requirements from approximately 3 to 10 ships per year (60,000 to 200,000 tonnes of fuel per year) why hasn't a risk assessment of this activity been undertaken?*

A23 Caltex has not undertaken a risk assessment associated with the importation of fuel products through the Port. These activities are adequately governed by the current Fremantle Port Authority regulations and safety procedures (Australian Port and Marine Authorities - Dangerous Substances Rules) and the requirements of the Explosives and Dangerous Goods Act and Regulations. Caltex will use only No. 1 Berth which is a designated Hazardous Cargo Berth, for the import of products. Vessel/ship sizes will not be increased from those which are currently being used.

Caltex understands that a Port Safety Study is being discussed between the Fremantle Port Authority and the Department of Mines.

Although shipping movements will increase from 3 ships to 10 ships per year, there will only be one ship berthed at any one time. The increase proposed represents only a minor amount of the annual use of this berth for hazardous purposes.

Q24 *In closing the Leighton and North Fremantle passenger terminals, a new station (Port Beach Railway) has been developed immediately east of the Caltex proposal (120 metres). Railway passenger access, residents and users of the pedestrian/bike path will all be disrupted by the proposal and the proposed access way is situated along the boundary of the expanded Caltex site which must present an unacceptable risk. Has Caltex considered this situation?*

A24 The railway relocation project was revealed to Caltex only after preliminary investigations and design work had been undertaken on the terminal consolidation. The company, once aware of the new railway station, revised its plans to accommodate the requirements of Westrail and the City of Fremantle by locating a new pedestrian access way at the northern extremity of the proposed extension.

The level of risk on this accessway is below 1 x 10^{-6}, which is the acceptable level for a residential area.

The location of the pedestrian access way was designated by other authorities and accepted by Caltex.

The attached plan indicates the proposed location of the pedestrian access way and the risk contours for the proposed terminal extension.

B. SOCIAL ISSUES

Q25 *Why hasn't Caltex undertaken a full Social Impact Assessment for this proposal?*

A25 Caltex prepared its Public Environmental Review in accordance with the requirements of the EPA and met individually with local interested groups to discuss the proposal.

Caltex has kept the local Community Groups fully informed of developments. Caltex also briefed the State Government Social Impact Unit about its meeting with the North Fremantle Community Association.

Caltex believes the proposal is in keeping with the existing land use of the area and is an extension of its existing rail and Port related activities.

Q26 *Has Caltex considered its corporate social responsibility in regards to this proposal, especially in relation to its integration into the established community?*

A26 Caltex provides a service to the State of Western Australia and the Metropolitan area by offering the community a choice in its fuel purchase. The company creates employment and income for many West Australian people.

The multiplier effect of the oil industry is shown in the following table.

INDUSTRY MULTIPLIERS - WESTERN AUSTRALIA

Multipliers	Basic Iron & Steel Industry	Non-Ferrous Metal Products Industry	Chemical & Petroleum Products Industry	Non-Metallic Mineral Products	Construct Industry
1 Output Multiplier	2.375	2.644	2.342	2.277	2.519
2 Income Multipliers					
* Type I	1.879	2.788	2.036	1.703	1.457
* Type II	2.798	4.151	3.031	2.536	2.169
3 Employment Multipliers					
* Type I	1.759	4.368	2.425	1.771	1.361
* Type II	2.934	8.913	4.495	3.121	2.128

1 Indicates the economy-wide multiplicative effects on output of a $1 change in output of the industry.

2 Indicates the economy-wide multiplicative effects on household income of $1 change in household payments of the industry.

3 Indicates the economy-wide multiplicative effects on employment of one employee change in the industry.

Source: Department Regional Development and the North West, Input/Output Tables 1982/83.

NOTE: Type I Multipliers measure both direct and indirect employment and income effects resulting from the operation of firms comprising the respective sectors. The direct effect relates to the workforce and their income. The indirect effect relates to the additional jobs and income created in the various industries that supply raw materials and services to these sectors.

Type II Multipliers take the Type I Multipliers' effect into account and also include the impact these jobs and incomes have on creating further employment and incomes in the consumer related industries throughout the economy.

The proposed facility is an extension of Caltex's existing operations which have been in place for 62 years and is integral with the existing surrounding land uses of rail, oil industry and port.

Caltex believes that over its period of occupancy that it has contributed substantially through its rates to the betterment of the City of Fremantle.

Caltex believes that it has acted in a responsible manner by responding to concerns from the community regarding storage of oil products at the Golden Fleece and Ampol terminals and at Knutsford Street, by consolidating these activities at the one location and making the land available for more appropriate public use. Although Caltex has no direct control over the continued operation of the Knutsford Street tanks, it has identified a hazard associated with their use.

C. PLANNING ISSUES

THE NORTH FREMANTLE REGION

Q27 *Is Caltex confident that Westrail will allow them a 50 year lease or is this lease period subject to negotiations?*

A27 Westrail has offered land to Caltex for its extended terminal facilities. In response to public concern, Caltex has agreed to negotiate a reduced leased period of approximately 21 years with further options of two ten year periods. The proposed extensions require a substantial capital investment of almost $10,000,000.00. To make such an investment, Caltex requires the security of a long lease to ensure the commercial viability of the operation.

Details of this lease are currently being discussed with the relevant authorities.

Q28 *The Caltex proposal is based on the economics of the situation and has paid little or no attention to the Communities or North Fremantle's long term planning needs. Can Caltex comment on this view?*

A28 The Caltex proposal is in accord with the existing planning framework for the area. It is an extension of an existing operation that has been established for 62 years.

Caltex believes that the terminal development programme and the lease structure is in line with the current publicly stated planning time frame for the Port.

This view is supported by a press statement from the Minister for Transport published in "The West Australian" on Saturday, December 22, 1990, "*State Cabinet has decided to focus on the option of expanding the existing North Fremantle Port site in preference to the possible development of a big new port further south in Cockburn Sound early next century.*" This has been reinforced by a similar article in "The West Australian", Tuesday, March 5, 1991, "*State Government has decided to look more closely at a proposal to expand facilities in the Port of Fremantle before going ahead with considering alternative sites for Port extensions.*"

Caltex is a commercial enterprise trying to conduct its normal business within the existing planning framework. Caltex believes regional planning is the responsibility of the Government.

Q29 *It is inappropriate for this proposal to be considered before the work of the Government's Port Option Study Group and the Leighton Peninsula Planning Study Group has been finished and made available for public comment.*

A29 Caltex can only plan within the current planning framework and land uses of North Fremantle. As discussed in Answer 28, Caltex believes that its planning is in line with the current publicly stated planning time frame for the Port.

Caltex was made aware of the Leighton Peninsular Planning Study Group's intention for North Fremantle during public consultation process but understands that it is only conceptual and has no formal status.

Further, the Caltex proposal does not encroach on the Leighton Peninsular proposed land use as shown in the attached diagram 2.

LAND IMMEDIATELY SURROUNDING CALTEX

Q30 *What consideration has Caltex given to alternative land uses or values within the North Fremantle area and surrounding sites and the implication they would have to the long term development of the area (Port and North Fremantle) against Caltex's short term commercial goals?*

A30 Caltex has given cognisance to proposals by the City of Fremantle for future residential development in the Leighton marshalling yard area. The risk contours presented in the PER Figure 9 and on the attached aerial photograph show that the area is not affected by the Caltex development.

Caltex has discussed the proposal with Fremantle Port Authority, Fremantle City Council and the Department of Planning and Urban Development and understands that the Port in its present form will operate for a considerable period of time.

Caltex considers it appropriate for its operation to be located close to the Port on land adjacent to the existing Caltex freehold facilities.

Q31 *What consideration did Caltex give to the Fremantle City Council's Policy document which recommends residential use of the Leighton marshalling yards if they were released from their railway purpose use?*

A31 The Caltex proposal does not extend into the area of Leighton marshalling yards recommended by the City of Fremantle for future residential development, as shown in the attached Diagram 2.

Further, the risk contours shown in the PER at Figure 9 show no adverse impact.

Westrail and the Fremantle Port Authority have indicated that they will require continued use of the majority of the Leighton marshalling yards whilst the Port of Fremantle remains in its present form.

Q32 *Does Caltex expect that its proposal, if approved, will set an undesirable precedent for the expansion or establishment of other Oil Companies within North Fremantle?*

A32 Caltex does not expect approval of its project to set any precedent at all.

Caltex would expect that any such proposal would be considered on its merits by the relevant approval authorities.

Scrutiny given to this project is evidence that the approval process allows adequate and informed comment by all parties.

THE PORT

Q33 *To what extent is Caltex currently Port related in its activities and to what extent is this likely to increase as a consequence of the proposal?*

A33 There is a two way flow of products between the Port and the Caltex terminal. Some of Caltex supplies of both distillate and motor spirit, currently about 60,000 tonnes per year, are imported through the Port of Fremantle and piped to the terminal through a pipeline from No. 1 berth on the North Wharf.

It is anticipated that up to a total of 200,000 tonnes a year of distillate and petrol could be imported through the Port of Fremantle for storage in the new facilities.

Pipelines to both North Wharf and Victoria Quay allow ships in the Port to receive product from the terminal. Approximately 6% of the consolidated terminal output may be used directly to service Port traffic.

Caltex does not intend to increase storage capacity beyond that proposed, but it is likely that importation through the Port will fluctuate according to demand.

Q34 *This proposal foreshadows a change in Caltex's and Ampol's commercial operations through a substantial increase in Port related product supply volumes and an associated decrease in the need for reliance on BP Kwinana piped supplies. Can Caltex comment on this view?*

A34 Caltex should be able to obtain its product from whatever sources are advantageous to its business, including maximising use of products produced at its own Australian refinery.

Any restrictions on Caltex's ability to obtain its product from such sources would be a restriction of trade.

In response to increased demand, a higher percentage of the joint venture product could be obtained through the Port. The joint venture will still rely heavily on product piped from BP Kwinana. The pipeline however, has a limiting capacity.

Caltex has been a substantial Freehold landowner in North Fremantle for over 62 years and wishes to consolidate the joint venture terminal activities around the existing holdings.

Caltex's tenure over the land for the extension would be by way of a lease with Westrail and subject to an agreed period of occupancy.

Caltex does not see the proposal as a further entrenchment of its position in North Fremantle but as a rationalisation of existing facilities and an improvement of the operating flexibility of the joint venture.

Q35 *Will the FPA need to change its operations to accommodate the increased volume of product coming through the Port. Will larger ships be used that require the Port to be dredged further. Will this mean that Berth 1 (dangerous goods) will need to be upgraded or that the loading/unloading operations will need to be undertaken at a different Berth in the Port?*

A35 Caltex does not believe there will be any change required in Port operations.

Ship sizes will not change from those currently being used. All will discharge at the No. 1 Berth. Only the frequency will change and Caltex believes that there would be only a minor increase to the annual use of this berth for hazardous purposes.

Caltex believes the existing Port facilities will not need to be modified or changed to accommodate this operation.

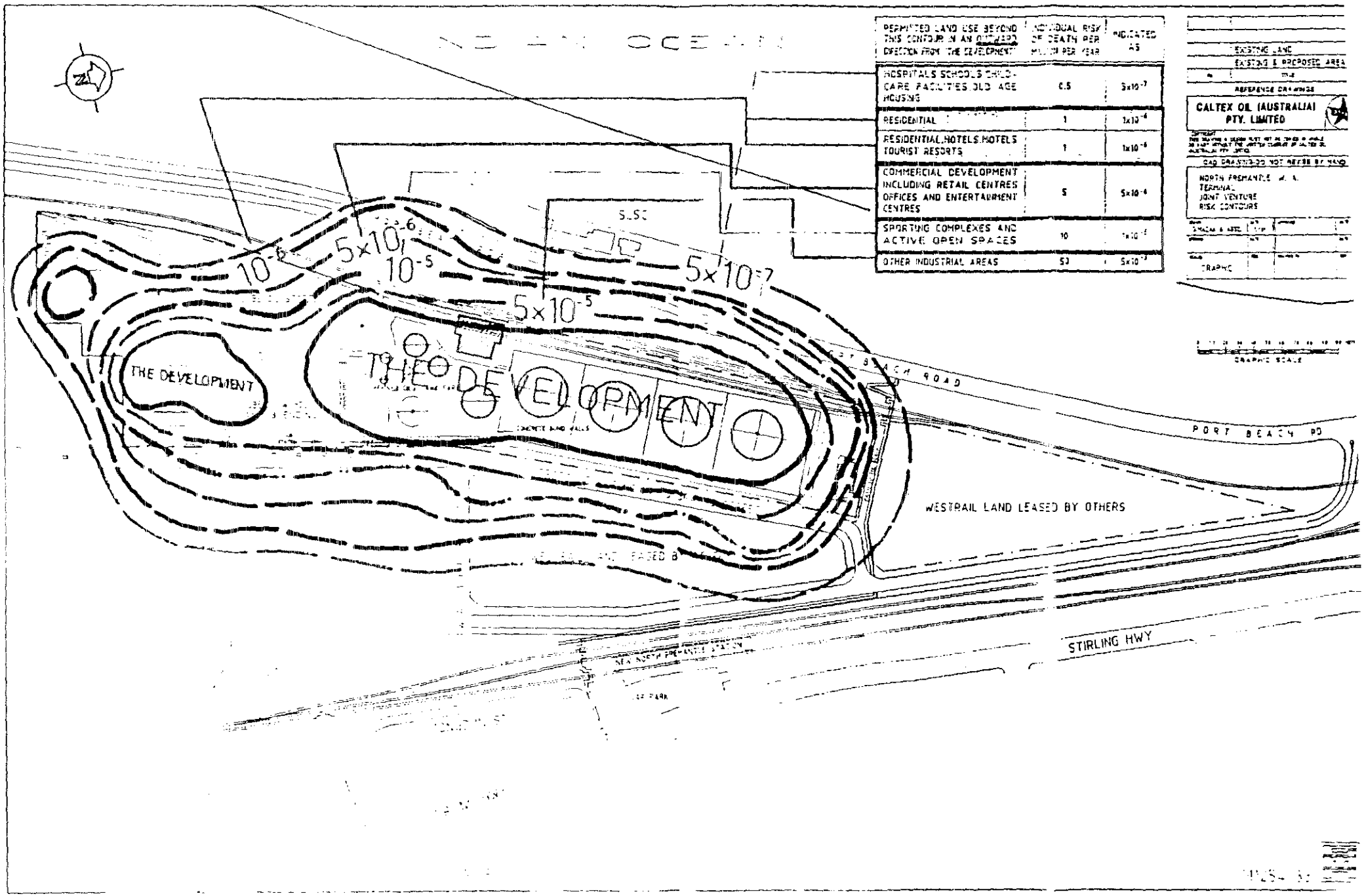
Q36 *A large amount of land is available in Rous Head. It would seem sensible to contain necessary hazardous industries and facilities in this area and put light industries north of this as a buffer, and open up the land around the new Railway Station for residential purposes. Can Caltex comment on this view?*

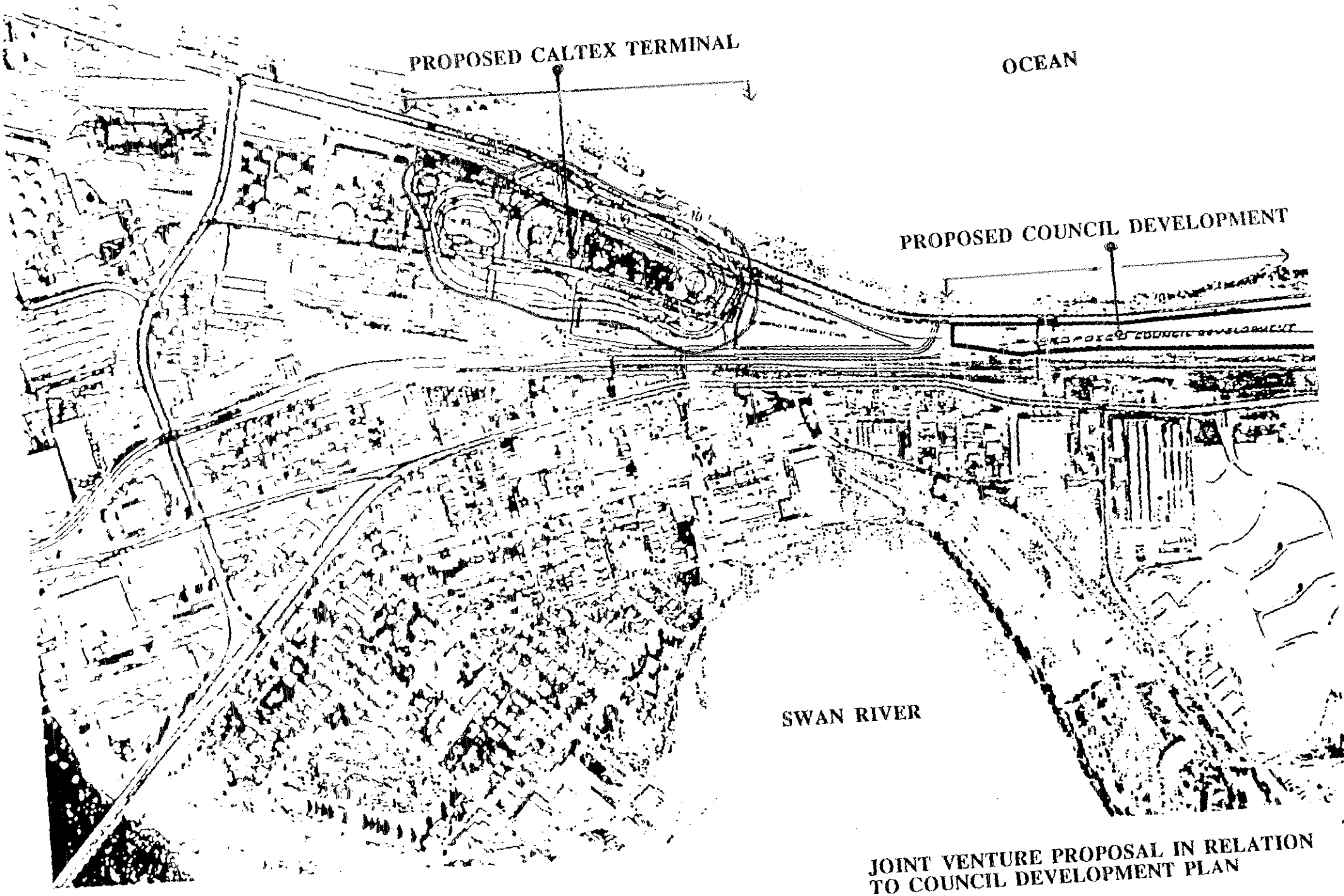
A36 It is up to the Fremantle Port Authority to determine its own Port requirements. Caltex's proposal is to consolidate its existing terminal operations near the Port, on land adjacent to its existing facilities.

The Fremantle Port Authority has told Caltex that land at Rous Head is not available for a major fuel storage and/or distribution facility.

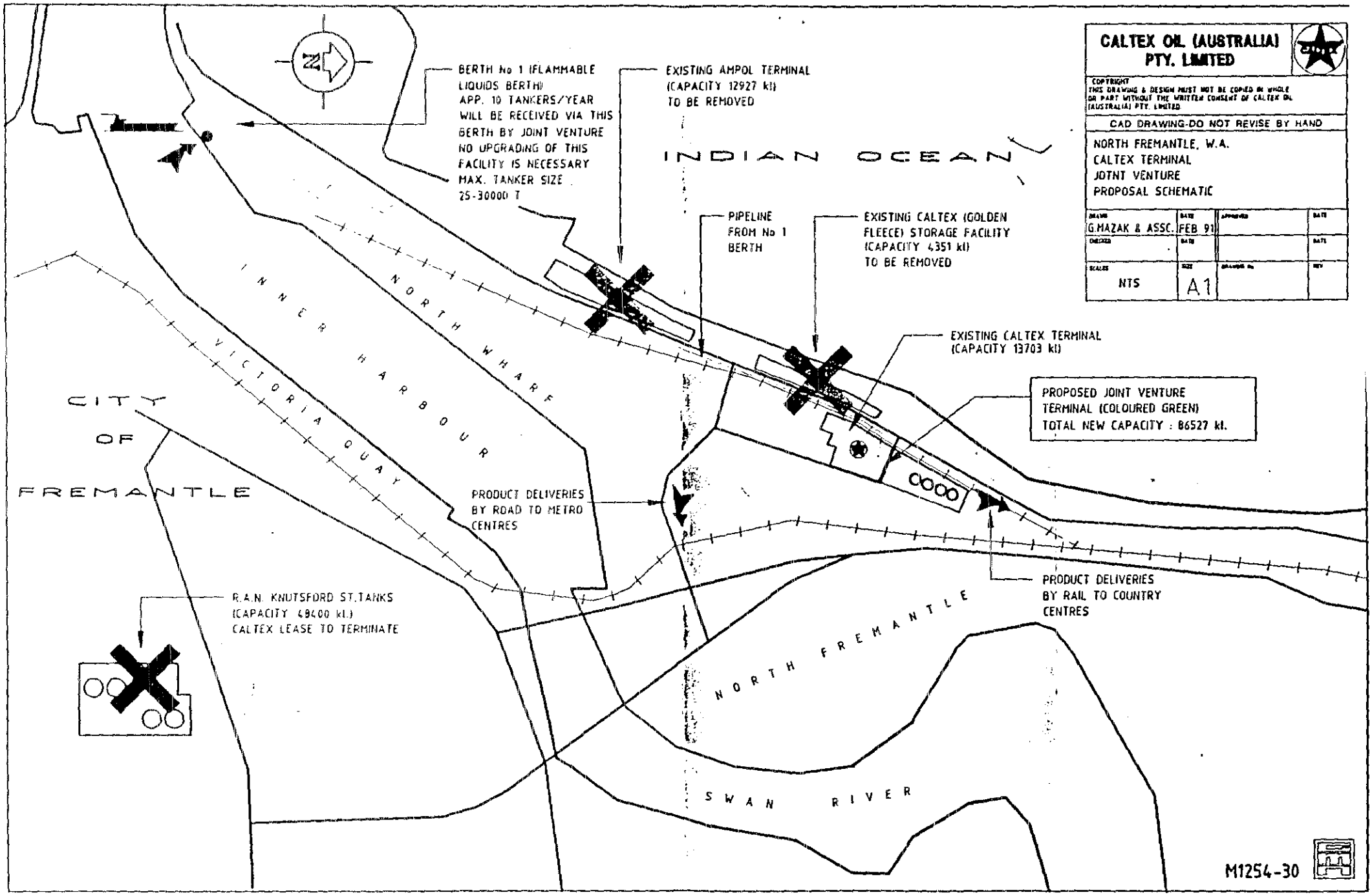
Q37 *Given that the State Government has indicated its intentions of consolidating Port operations for the next 20 years, the location of these tanks within the finite area of land available for the Port, may impede the Port's orderly development. Can Caltex comment on this view?*

A37 Caltex owns its existing terminal freehold and the land on which it stands and does not plan to relocate in the foreseeable future. Removal of the old Golden Fleece and Ampol operations from land currently leased from the Port will eliminate the current restrictions to the Fremantle Port Authority's planning for the area.


PERMITTED LAND USE BEYOND THIS CONTOUR IN AN OUTWARD DIRECTION FROM THE DEVELOPMENT
INDIVIDUAL RISK OF DEATH PER MILLION PER YEAR
INDICATED AS
HOSPITALS SCHOOLS CHILD-CARE FACILITIES OLD AGE HOUSING
0.5
5x10⁻⁷
RESIDENTIAL
1
1x10⁻⁶
RESIDENTIAL HOTELS MOTELS TOURIST RESORTS
1
1x10⁻⁶
COMMERCIAL DEVELOPMENT INCLUDING RETAIL CENTRES OFFICES AND ENTERTAINMENT CENTRES
5
5x10⁻⁶
SPORTING COMPLEXES AND ACTIVE OPEN SPACES
10
1x10⁻⁵
OTHER INDUSTRIAL AREAS
50
5x10⁻⁵
EXISTING LAND
EXISTING & PROPOSED AREA
REFERENCE DRAWINGS
CALTEX OIL (AUSTRALIA) PTY. LIMITED
CAD DRAWING-DO NOT REVISE BY HAND
NORTH FREMANTLE W. A.
TERMINAL
JOINT VENTURE
RISK CONTOURS
GRAPHIC SCALE
10⁻⁶
5x10⁻⁶
10⁻⁵
5x10⁻⁵
5x10⁻⁷
THE DEVELOPMENT
THE DEVELOPMENT
PORT BEACH ROAD
PORT BEACH RD
WESTRAIL LAND LEASED BY OTHERS
STIRLING HWY



JOINT VENTURE PROPOSAL IN RELATION
TO COUNCIL DEVELOPMENT PLAN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NORTH FREMANTLE, W.A.
CALTEX TERMINAL
JOINT VENTURE
PROPOSAL SCHEMATIC
G.MAZAK & ASSC.
FEB 91
NTS
A1
BERTH No 1 (FLAMMABLE LIQUIDS BERTH)
APP. 10 TANKERS/YEAR
WILL BE RECEIVED VIA THIS BERTH BY JOINT VENTURE
NO UPGRADING OF THIS FACILITY IS NECESSARY
MAX. TANKER SIZE
25-30000 T
EXISTING AMPOL TERMINAL
(CAPACITY 12927 kl)
TO BE REMOVED
INDIAN OCEAN
PIPELINE FROM No 1 BERTH
EXISTING CALTEX (GOLDEN FLEECE) STORAGE FACILITY
(CAPACITY 4351 kl)
TO BE REMOVED
EXISTING CALTEX TERMINAL
(CAPACITY 13703 kl)
PROPOSED JOINT VENTURE TERMINAL (COLOURED GREEN)
TOTAL NEW CAPACITY : 86527 kl.
INNER HARBOUR
NORTH WHARF
VICTORIA QUAY
CITY OF FREMANTLE
PRODUCT DELIVERIES BY ROAD TO METRO CENTRES
PRODUCT DELIVERIES BY RAIL TO COUNTRY CENTRES
R.A.N. KNUTSFORD ST. TANKS
(CAPACITY 49400 kl.)
CALTEX LEASE TO TERMINATE
NORTH FREMANTLE
SWAN RIVER
M1254-30

Appendix 3

List of organisations and individuals who made submissions

List of organisations and individuals who made submissions

DEPARTMENT OF PLANNING AND URBAN DEVELOPMENT
WESTRAIL
CITY OF FREMANTLE
FREMANTLE PORT AUTHORITY
DEPARTMENT OF MINES

Conservation Council of WA
Australian Conservation Foundation
North Fremantle Community Association
Pollution Action Network

Secretary's Corporation of Owners (Preston on Swan)
Councillor D Thompson
Dr S Halse
Tom Roberts Architect
The Fremantle Society Inc
Mr A Robinson
Homeswest Centre
North Fremantle P&C Association
A Robinson
Fremantle Surf Life Saving Club (Inc)
Mr R Chapman
Councillor D Cotton
Mr R Gate
Mr & Mrs Piggot
Mrs S Lewis
Mr J Kent
Mr M Tunncliffe
Mr/Mrs Gillingham
Mr S&E Tchan
Mr T Aitken
Mr R Hammond
Mrs R Roe
Mr M Patroni
Ms E Jansen

Appendix 4

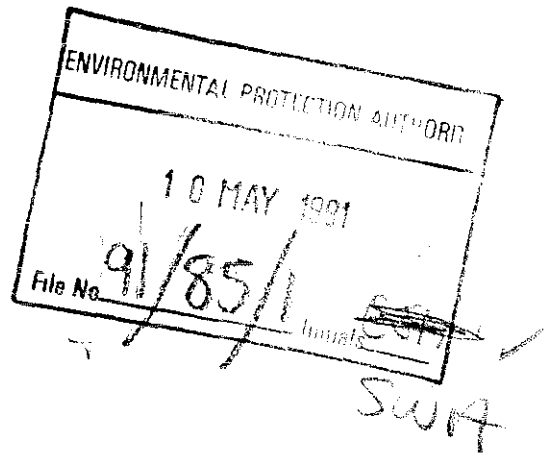
Fremantle Port Authority Proposed Land Allocation for Leighton Peninsula Park

5

FREMANTLE PORT AUTHORITY

Your Ref:
Our Ref:

RJB:LK
PRP 185



1 May, 1991

Mr B Carbon
Chairman
Environmental Protection Authority
1 Mount Street
Perth WA 6000

Dear Sir

AMPOL AND GOLDEN FLEECE STORAGE TANKS
PORT BEACH ROAD, NORTH FREMANTLE

In relation to the Ampol Petroleum and Golden Fleece land areas adjacent to Port and Leighton beaches we advise that the land east of the Port Beach Road re-alignment may be utilised for the following Port Purposes:

* *Upgrade of road access to North Quay and Rous Head Industrial Park development*

* *Upgrade of rail access to North Quay incorporating future intermodalism, Container Operations and Co-Operative Bulk Handling facilities*

* *Possible future requirements in relation to the outcome of the Port Auxillary Option Study*

It is the Authority's intention to utilise the area west of Port Beach Road re-alignment for: -

. *direct access to the Port/Leighton Beach existing facilities and;*

. *future additional public amenities/parking;*

. *future additional beach related commercial facilities.*

Discussions are also currently taking place with the Leighton Peninsula Regional Park Study Group. This group comprises of representatives from Departments of Land Administration, Conservation and Land Management, Planning and Urban Development, Environmental Protection Authority, Swan River Trust, Fremantle Port Authority, City of Fremantle and Town of Mosman Park.

46336

1 CLIFF STREET, FREMANTLE, WESTERN AUSTRALIA 6160 TELEPHONE: (09) 430 4911
P.O. BOX 95, FREMANTLE TELEGRAMS: "FREMPORT" FREMANTLE W.A TELEX: "FREPA" PERTH AA92951 FACSIMILE (09) 336 1391

FREMANTLE PORT AUTHORITY

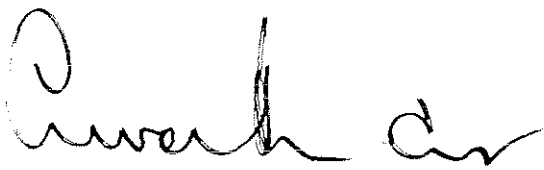
The steering group objectives are to prepare a detailed proposal for the establishment of a regional park on the Leighton Peninsula.

For your information, please find enclosed a copy of the proposed land allocation for the Leighton Peninsula Park.

The Fremantle Port Authority supports the park but does not want it to infringe on Port Operations or on proposals for Port Development within the Authority's Inner Harbour boundaries.

I trust the above information clarifies the Authority's position however, if I can be of any further assistance please do not hesitate to contact me.

Yours sincerely



A T POUSTIE
GENERAL MANAGER

[nfrem\caltex.10]

AREA HIGHLIGHTED INDICATES THE
BEACH / DUNE & ASSOCIATED FACILITIES
WHICH MAY BE INCLUDED IN THE PROPOSED PARK.