

Environmental Assessment

Location:

**Mobil/Quix Lansvale (NJ3565)
Service Station Facility
161 Hume Highway
Lansvale, New South Wales**

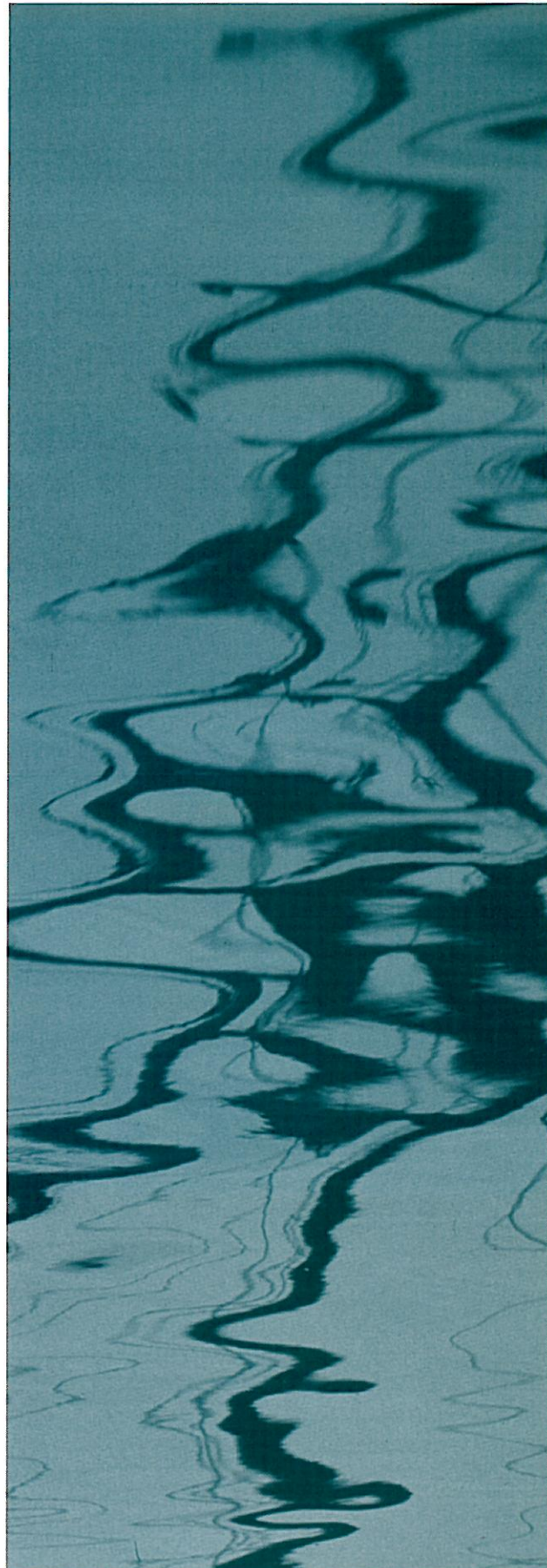
Prepared for:

**Mobil Oil Australia Pty Ltd
Pegasus Centre
PO Box 484
Altona Vic 3018**

Date Issued:

May 2006

OTeK Reference No: 5206035Report



Environmental Assessment

Mobil/Quix Service Station Facility,
161 Hume Highway,
Lansvale, New South Wales

Prepared for:

Mobil Oil Australia Pty Ltd

C/o Pegasus Centre
PO Box 484
Altona VIC 3018


Prepared by:

OTEK Australia Pty Ltd

Level 1, 222 St Kilda Road
ST KILDA VIC 3182
Tel: (03) 9525 5155, Fax: (03) 9593 8555


Report Issued:	Draft (on email):	16 th March 2006
	Revision #1 (on email):	24 th March 2006
	Revision #2 (on email):	27 th March 2006
	Revision #3 (on email):	28 th March 2006
	Draft Report:	31 st March 2006
	Final Report:	3 rd May 2006

Author:



Rochelle Bethune, BEng (Civil and Computing) (Hons)
Business Manager, Remediation

Reviewer:



Charlie Barber, BSc (Geol)
Director

DISTRIBUTION:

CLIENT:	2 Copies
DIPNR:	15 Hard Copies, 6 CD Rom, 1 PDF Email
OTEK:	2 Copies

DECLARATION:

I certify that I have prepared the contents of this Environmental Assessment and to the best of my knowledge:

- it is in accordance with the requirements of the Environmental Planning and Assessment Act and Regulations; and
- it contains all available information that is relevant to the environmental assessment of the development to which the statement relates; and the information contained in the statement is neither false nor misleading.

Signature:



Name:

Rochelle Bethune

Date:

8th May 2006

DISCLAIMER:

THIS REPORT HAS BEEN PREPARED SOLEY FOR THE ABOVE NAMED PARTY FOR THE SPECIFIC PURPOSE TO WHICH IT REFERS. NO RESPONSIBILITY IS ACCEPTED TO ANY THIRD PARTY, AND ANY THIRD PARTY MAY NOT USE OR RELY ON THE WHOLE OR ANY PART OF THE REPORT WITHOUT PRIOR WRITTEN AUTHORISATION OF THE ABOVE NAMED PARTY. INFORMATION CONTAINED IN THIS REPORT IS THE INTELLECTUAL PROPERTY OF OTEK AUSTRALIA PTY LTD AND IS EXCLUSIVELY LICENSED TO THE ABOVE NAMED PARTY. USE OF THIS REPORT IS SUBJECT TO THE LIMITATIONS REFERRED TO IN THE REPORT.

MOBIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



EXECUTIVE SUMMARY	2
1 INTRODUCTION	4
1.1...OVERVIEW.....	4
1.2...CONSULTATION.....	4
1.3...SITE LOCATION AND DESCRIPTION	5
1.3.1LOCATION AND ADJOINING LAND USES.....	5
1.3.2SITE DESCRIPTION AND LAND USES.....	5
1.3.3SITE HISTORY.....	6
1.3.4SITE GEOLOGY AND HYDROGEOLOGY.....	7
1.3.5CONTAMINATION SUMMARY	8
2 PROPOSED ACTIVITY – REMEDIATION SYSTEM.....	8
2.1...REMEDICATION STRATEGY	9
2.1.1INVESTIGATION AND DESIGN (PHASE 1).....	9
2.1.2CONSTRUCTION PHASE (PHASE 2 – REMEDIATION WORKS)	9
2.1.3OPERATION PHASE (PHASE 2 – REMEDIATION WORKS)	11
2.1.4POST REMEDIATION EVALUATION (PHASE 3)	13
2.1.5REPORTING	13
2.1.6STAGING.....	14
3 STATUTORY CONTEXT	14
3.1...PART 3A OF THE EP&A ACT 1979.....	14
3.2...FAIRFIELD LOCAL ENVIRONMENTAL PLAN 1994.....	14
4 EXISTING ENVIRONMENT	14
4.1...ENVIRONMENTAL SETTING	14
4.2...HERITAGE AND ARCHAEOLOGY	14
4.3...FLORA AND FAUNA.....	14
5 KEY ASSESSMENT REQUIREMENTS	14
5.1...VOLUNTARY REMEDIATION PROPOSAL.....	14
5.1.1PHASE 1 – INVESTIGATION AND DESIGN	14
5.1.2PHASE 2 – ACTIVE REMEDIATION.....	14
5.1.3PHASE 3 – POST REMEDIATION	14
5.2...REMEDICATION CRITERIA.....	14
5.3...GENERAL ENVIRONMENTAL RISK ANALYSIS	14
5.3.1 IMPACT ASSESSMENT.....	14
6 STATEMENT OF COMMITMENTS	14
6.1...GENERAL COMMITMENTS	14
6.2...SPECIFIC COMMITMENTS	14
7 REFERENCES.....	14
8 LIMITATIONS.....	14
9 GENERAL TERMS AND CONDITIONS	14

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



Tables

Table 1	Site Identification
Table 2	Surrounding Landuse
Table 3	Subsurface Soil Profile
Table 4	Reporting Requirements
Table 5	Environmental Risk Identification Matrix

Figures

Figure 1	Site Location
Figure 2	General Area Map
Figure 3	Areal Photograph, 1994
Figure 4	Site Layout
Figure 5	P&ID
Figure 6	Remediation System and Well Layout

Photographs

Site Photographs

Appendices

Appendix A	EPA Agreement to Voluntary Remediation Proposal
Appendix B	DIPNR's Input to Environmental Assessment Requirements
Appendix C	Remedial Action Plan and Addendum to Plan
Appendix D	EMP including General Environmental Risk Analysis
Appendix E	Interim Opinion Letter from Auditor
Appendix F	Auditor's Review of EMP

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



EXECUTIVE SUMMARY

Mobil Australia Pty Ltd (Mobil) provided a Voluntary Remediation Proposal (VRP) to the Department of Environment and Conservation (DEC) to remediate impacted groundwater associated with the Quix Service Station Site, located at 161 Hume Highway, Lansvale, New South Wales. On the basis of this VRP, Mobil has entered into a Voluntary Remediation Agreement No. 26081 (VRA) with the DEC in relation to remediation off the on-site impacted groundwater.

Accordingly, this Environmental Assessment report has been prepared to meet the general and key assessment requirements under Part 3A of the Environmental Planning and Assessment Act, 1979. The report summarises information provided within detailed investigations and plans completed on behalf of Mobil by URS Australia Pty Ltd (URS). In addition, the Environmental Assessment provides a description of the proposal (remediation system implementation) and the effects on completing the project.

The site has been used as a service station facility since 1961, and is zoned 4(c) Industrial Special. The site is leased by Mobil from the owners, Modern Motels. Several environmental investigations and remediation activities have been completed at the site over the years. Impacted soil and groundwater was detected during the investigations, with phase separated hydrocarbons (free product) identified, in the area of the underground storage tanks (USTs) at the site.

Mobil's VRP includes final remediation system design and the installation program for an in-situ system to address the identified groundwater impact. The main features of remediation with respect to the DEC and Department of Infrastructure Planning and Natural Resources (DIPNR) objectives are:

- The implementation of the various aspects of the VRP will be in accordance with the VRA and all applicable NSW legislation and relevant NSW guidelines;
- Monitoring, record keeping and reporting will be in accordance with the VRP/VRA;
- The groundwater remediation system shall meet the requirements of the VRA and the overall objectives of the project (removal of PSH and prevention of offsite migration of dissolved phase impact);
- Implementation will follow three main stages (or phases) as per the VRP/VRA, being: Investigation and Design; Remediation Works; and Post Remediation Groundwater Monitoring;

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**



Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area

-
- The system implementation shall minimise, as much as practical, on-surface obstructions during the construction phase to minimise impact to the site's operations and the local environment;
 - Mitigation measures have been developed and will be adopted during installation and operation of the system;
 - The type of groundwater remediation system adopted shall address the impact identified in a more efficient manner than alternative systems or methods of remediation.

The site is in a reasonably well developed industrial/commercial area, with no known (reported) heritage or archaeological significance. Flora at the site is primarily introduced species as part of the on-site landscaping. Fauna is expected to be limited due to limited available habitat. Flora and Fauna at the site and adjacent to the site will not be affected due to the nature of the system (primarily in-ground, with the exception of a few surface features located adjacent to existing buildings and structures on hardstand).

Any environmental effects that may be realised during the construction and installation phase (noise, dust, visual amenity, soil disposal, etc.) will be of short duration (installation will require less than two months) and will be appropriately managed under the Environmental Management Plan (EMP) developed for the site.

Negligible environmental effects are expected during the operation and maintenance stages of remediation estimated at approximately 2 years based on preliminary URS estimates. Again, any environmental effects associated with this phase of the remediation system will be managed under the EMP for the site.

In summary, the benefits to the environment (enhanced soil and groundwater quality) by implementing the VRP outweigh the minor effects realised during the installation, operation and decommissioning of the remediation system.

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



1 INTRODUCTION

1.1 OVERVIEW

Mobil Australia Pty Ltd (Mobil) provided a Voluntary Remediation Proposal (VRP) to the Department of Environment and Conservation (DEC) to remediate impacted groundwater associated with the Quix Service Station Site, located at 161 Hume Highway, Lansvale, New South Wales. On the basis of this VRP, Mobil has entered into Voluntary Remediation Agreement No. 26081 (VRA) with the DEC in relation to remediation of the on-site impacted groundwater. A copy of the VRA/VRP is provided as Appendix A.

Accordingly, this *Environmental Assessment* has been prepared to meet the requirements established by Part 3A of the *Environmental Planning and Assessment Act, 1979*. The Environmental Assessment relies on detailed investigations provided to OTEK Australia Pty Ltd (OTEK), which were completed by environmental consultants (URS Australia Pty Ltd) on behalf of Mobil.

Correspondence from the Department of Infrastructure Planning and Natural Resources (DIPNR) outlining the Environmental Assessment Report's requirements is provided as Appendix B, and includes General and Key Assessment requirements.

A detailed Remediation Action Plan (URS, 2003) and Addendum to the Remediation Action Plan (URS, 2005) (Appendix C for Addendum only) have been prepared for the site which detail the method of remediation and also establishes environmental impact management strategies. These documents have been superseded by the VRP, however, they provide the basis of the VRA and contain useful detail not included in the VRP. An Environmental Management Plan (Appendix D) is provided as a guide for implementation of management procedures to control affects to the environment. An auditor's opinion regarding the RAP, and review of the EMP are included in Appendices E and F, respectively. OTEK were engaged by Mobil to re-assess the remediation strategy, modify as appropriate and prepare this Environmental Assessment Report. This Environmental Assessment demonstrates and concludes that the VRP can be undertaken with minimal impact on the environment.

1.2 CONSULTATION

Key stakeholders including site owners Modern Motels, Fairfield City Council, the DEC and the DIPNR have been consulted during the preparation of the remedial works proposal.

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



1.3 SITE LOCATION AND DESCRIPTION¹

1.3.1 Location and Adjoining Land Uses

The subject site is in the suburb of Lansvale, New South Wales, approximately 35 kilometres west of Sydney CBD. The Hume Highway is located along the sites' south-eastern boundary, with Chadderton Street bounding the site to the northeast.

Figures 1 to 3 (See Appendix section), illustrate the site's location and surrounding areas. The surrounding area is predominately commercial/industrial.

The following illustrates the site identification details.

Table 1: Site Identification

Item	Description
SITE NAME	QUIX Service Station Lansvale
SITE NUMBER	NJ3565
SITE LOCATION	161 Hume Highway, Lansvale, NSW
REAL PROPERTY DESCRIPTION	Lot 204 in Deposited Plan 732440
SITE AREA	1 894 m ²
SITE ZONING	4(c) Industrial Special
CURRENT OWNERSHIP	Modern Motels Pty Ltd (leased by Mobil Oil Australia Pty Ltd.)
PROPOSED SITE USE	Ongoing commercial/industrial
LOCAL GOVERNMENT AREA	Fairfield City Council
CURRENT SITE USE	Service Station

¹ All site information has been reproduced from Mobil-supplied documents (URS reports).

MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



Site Description and Land Uses

The site is currently used as a retail service station facility. The main built features are the Sales Room (northeast of the site), underground storage tank (UST) farm (southern corner of the site) and fuel dispenser layout (central site location). An overhanging canopy adjoins the sales room, extending in a south-western direction towards the end of the UST farm. The majority of the site surface is paved with concrete/bitumen, with minor vegetation noted with small garden beds located on the northern and southern site boundaries and along the car parking bays.

Property use adjacent to the site, include industrial/commercial, which are summarised in the following table.

Table 2: Surrounding Landuse

Direction from Site	Landuse
North	A vacant lot bounds the site to the north. Commercial/light industrial properties (metal spinning, transport, body repairs and mechanic) are located beyond the vacant lot.
West	A vacant lot bounds the site to the west. The <i>Lansdown Motor Inn</i> is located beyond the vacant lot.
South	The Hume Highway bounds the site to the south. Commercial/light industrial properties (welder, storage facility and glass manufacturer) are located on the southern side of the Hume Highway.
East	The intersection of Chadderton Street and the Hume Highway bounds the site to the east. Commercial/light industrial properties (mechanic, car dealer and welder) are located beyond Chadderton Street. Approximately 200m east of the site is a caravan park.

The site's layout is included in Figure 4. Photographs of the site's layout are included after the Figures section of this report.

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



1.3.2 Site History

The site has been an operating service station since approximately 1961. In 1986 the site was refurbished. It is not known whether the USTs were replaced at this time. Prior to this an auto mechanics workshop may also have been present at the site. Prior to 1961, the site was vacant. The site consists of four USTs, located in the southern portion of the site, three fuel dispenser islands, located in the central portion of the site and a diesel dispenser, located in the western portion of the site and a sales room, located in the eastern portion of the site.

1.3.3 Site Geology and Hydrogeology

The general subsurface geological profile is summarised in the following table.

Table 3: Subsurface Soil Profile

Depth (m BGL)	Soil Description
0.0-1.0	FILL: sand with minor clay and silt, brown grey, loose, gravel, moist
0.2-7.1	CLAY: sandy, silty red brown firm plastic moist, natural
1.2-10.0	SAND: grey/brown loose, fine to medium grained, very damp, natural
7.0-9.0	CLAY: Yellow/grey, firm

Groundwater was encountered at 3.4 to 4.5 metres depth, identified during investigations as an unconfined aquifer within the sand and clay units. Due to a shallow gradient it has been difficult to determine the groundwater flow direction, however it is suggested the groundwater in the area of the site flows either to the east towards Prospect Creek (500m northeast of the site), or southeast towards Chipping Norton Lakes (600m south-southeast of the site). Groundwater flow rates have been estimated as ranging from 0.4m/year (clay) to 2.3m/year (sand).

A groundwater bore records search indicated fourteen registered groundwater bores located within a 1.5 kilometre radius of the site, with the closest bore identified as a monitoring bore. Four bores are listed for use as irrigation, and are located 400 m west of the site.

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



1.3.4 Contamination Summary

Soil impact (BTEX, TPH) was identified above the adopted investigation levels (ILS) at depths between 3.8 and 4.0 metres depth, mainly in the area of the USTs and the southern most dispenser island. Soil impact generally corresponds to the saturated zone, and is expected to be associated with the hydrocarbon impact identified in groundwater.

PSH was observed in the central portion of the site (monitoring wells LMW3, LMW4, LMW5, LMW6, LMW7 and LMW9). Migration of impact appears to be to the east and south. PSH has been identified through fingerprinting as leaded petrol with UST 3 suggested as the probable source.

Groundwater impact (BTEX, TPH, PAH, Metals) has been identified of the site. PAH and TPH impact above the ILs was detected adjacent to the tank farm and along the north-eastern boundary of the site.

The petrol-like dissolve phase impact (elevated TPH C₆-C₉ and BTEX) has been identified in the central and western portion of the site (monitoring wells LMW3, LMW4 and LMW9), whilst the diesel-like dissolved phase impact (elevated TPH C₁₀-C₃₆) has been identified in the eastern portion of the site, in one monitoring well (LMW13).

Copper and zinc above ILs were detected in several wells, potentially representing background groundwater quality. Mercury above ILs was detected in two wells located up gradient, again, likely representative of background conditions.

The contaminants of concern as identified in the VRA/VRP include: TPH, BTEX, PAH, Copper, Zinc and Mercury.

2 PROPOSED ACTIVITY – REMEDIATION SYSTEM

The proposed activities under the VRP are a series of stages (phases) which include the construction and installation of a remediation system, an operational phase of the remediation system, decommissioning and post remediation groundwater monitoring.

Detailed investigations previously undertaken at the site have identified elevated concentrations of hydrocarbons in both the soil and groundwater across the site. Based on the previous findings and in accordance with Section 60 of the *Contaminated Land Management Act 1997* (CLM Act), the Environment Protection Authority (now the Department of Environment and Conservation (DEC)) declared the site as posing a potential 'Significant Risk of Harm'. Consequently, DEC declared the site a 'Remediation Site' under Section 21 of the CLM Act. Consequently, under Section 26 of the Act, Mobil has entered into a VRA #26081 with the DEC in

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



November 2005, to remediate the identified contamination to remove the significant risk of harm from the site.

The VRA/VRP (Appendix A) is based on, but supersedes the more detailed RAP prepared by URS. The overall objective of the remedial works is to implement measures to prevent migration of contaminated groundwater offsite and remove PSH from the groundwater at the site. The RAP has been reviewed and approved by a NSW EPA accredited site auditor (Graham Nyland, from Environ) and forms part of the VRA. A copy of the interim opinion letter from the auditor is included in Appendix E.

An Environmental Management Plan (EMP) – attached as Appendix D – has been prepared for the site for the remediation system adopted (total fluids), to address environmental impacts and provide mitigation measures required in the installation and operation of the remediation system. The auditor's review of the EMP is included in Appendix F.

During and following the remediation the site will continue operating as a service station. The ultimate use of the site (long term) is unknown at this stage but is assumed to be in line with the current industrial zoning of the site. Irrespective of the future use of the site, the proposed remediation system has been designed to enhance the groundwater quality beneath the site and adjacent to the site.

2.1 REMEDIATION STRATEGY

2.1.1 Investigation and Design (Phase 1)

This phase involves the additional assessment of the aquifer conditions and subsequent design and installation of a remediation system including obtaining all relevant permits and approvals.

Phase 1 (as per the VRA) has essentially been completed resulting in the final design of the proposed system as illustrated within Figure 5 – P&ID. The Site Management Plan (SMP) is being prepared, with a detailed operation and maintenance manual for the system currently under review and close to finalisation. Discharge permits for the proposed treatment system are also in discussion with Sydney Water.

2.1.2 Construction Phase (Phase 2 – Remediation Works)

The proposed remediation system is a total fluids pump and treatment system designed to recover PSH (to the extent practicable) and provide control of dissolved phase hydrocarbon plume within the sand clay beneath the site in the vicinity of the USTs located in the southwest corner of the site.

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



The benefit of this approach is that it will provide hydraulic control of the plume, while also allowing effective recovery of both PSH and dissolved phase contaminants. Oxygen injection shall be adopted in wells to the east and north east edge of the site where a diesel-type dissolved phase groundwater contaminant plume exists in low permeable clays. This will enhance biodegradation of this impact as well as mitigate off-site migration of impact.

It is noted that all four recovery wells and injection points (as per the VRA) have already been installed.

System construction will include pipework installation to and from the existing four extraction bores (recovery wells), the installation of system infrastructure (pumps, tanks, oil/water separator, air stripper etc) and associated instrumentation, control panelling and fencing/bunding of the unit. A P&ID is included in Figure 5.

The following works are associated with the construction and installation of the remediation system as per the VRP. Note for all construction activities the working hours will be Monday to Friday, 7:00 am to 6:00 pm; and Saturday, 8:00 am to 1:00 pm.

Site Establishment

Site establishment will include construction of a temporary fence around proposed remediation system, site shed and office and connection of temporary electrical and water supplies. During site establishment the designated car parking areas, vehicle access and vehicle loading and unloading areas will be defined.

Earthworks

Earthworks will be minimal and will be performed for the sole purpose of the installation of subgrade piping for the remediation system. Earthworks will result in the removal of minor soil which will be disposed of off-site to a licensed facility and will be limited to the trench excavation works with removal of surface concrete/bitumen and fill material during system installation.

Pre-commissioning Safety and Integrity Testing

Prior to commissioning, a series of safety and integrity checks will be performed including:

- detailed checks of all installed equipment to ensure integrity (i.e. no leakage, no exposed wiring);
- hydraulic testing of all tanks, pipes, valves, pumps etc.;

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



- visual inspection of all critical equipment (instrumentation which activates a system shutdown) and signed off by a Mobil Representative;
- hydraulic/electrical testing of all switches, controls and alarm conditions; and operation of the emergency shutdown procedure.
- All solid and liquid waste removed from the site during construction will be transported and disposed of off-site by an independent waste disposal contractor.

Demobilisation and Fencing

De-mobilisation following commissioning of the system will involve removal of all temporary facilities from site and construction of a permanent perimeter fence (with an access gate) around the system.

2.1.3 Operation Phase (Phase 2 – Remediation Works)

Once the pre-commissioning testing has been successfully completed the system will be commissioned. Commissioning will involve running the treatment plant under partial and full loads making any necessary adjustments to the operating system.

System Monitoring and Maintenance

Discharge samples will be collected at regular intervals during the commissioning and operation of the system to monitor concentrations and treatment efficiencies. Maintenance of the system would include regular inspection and maintenance of the recovery well pumps, condition of hosing and connections, regular inspections of the oil/water separator and air stripper, inspection of the product collection tank, replacements of the bag filter, and replacement of the activated carbon drums (as required), and general cleaning and inspection of system equipment.

An operation and maintenance manual is being developed for the system to outline:

- Monitoring and maintenance requirements
- Frequency of monitoring
- Emergency and relevant contact numbers
- Shutdown procedures (onsite and remote), and
- Personal protective equipment requirements.

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



Remediation Progress Monitoring

The following monitoring requirements are noted as part of the VRP:

- Regular monitoring of the remediation system and PSH/groundwater level in monitoring wells across the site to monitor the progress of PSH recovery and to maintain system performance. Monitoring will be undertaken on a weekly basis for the first month and fortnightly or as required for the subsequent months.
- Quarterly VOC monitoring within utility pits at the site and adjacent to the site.
- Quarterly review of pumping data, separate phase petroleum hydrocarbon recovery and monitoring data to determine the need to adjust/modify the pumping scheme to maximise the recovery of separate phase hydrocarbon and minimise any migration of impacted groundwater off the source site. The review will also include a progressive critical assessment of the remediation system performance towards achieving remediation goals within capabilities of the system.
- Quarterly groundwater monitoring and sampling at the source site (including off-site monitoring wells to the east and north east of the source site) to assess/validate the site wide remediation activities. Data from this activity will be used to demonstrate that hydraulic control of the dissolved phase hydrocarbon plume is being achieved, and to evaluate the occurrence and/or the potential for natural attenuation of dissolved hydrocarbon contaminants in groundwater.
- Once it has been demonstrated that all recoverable PSH has been removed from the site (as discussed above) and no off-site migration of dissolved hydrocarbon impacts has occurred, an evaluation of post remediation goals for any remaining soil and groundwater impacts will be undertaken. At this stage, the need for any active groundwater and/or soil remediation will be determined.

Decommissioning

Once the remediation goals outlined in the VRA have been achieved (as agreed by the DEC and site auditor), the system will be decommissioned. Decommissioning will involve disconnection and cleaning of the oil/water separator, particulate filter, air stripper and knockout vessel and all system piping. Cleaning water will be directed towards the treatment facility sump where it will be pumped to holding tank. Residual liquids and PSH in the holding tanks and product collection tank will be removed, and the tanks cleaned in an appropriate manner. All system infrastructure (GAC drums,

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



air stripper, instrumentation, pumps etc) will also be removed. The fencing and bunding shall be dismantled and the surface reinstated as close as possible to its original (pre-remediation) condition.

2.1.4 Post Remediation Evaluation (Phase 3)

Once the remediation end points have been achieved, post remediation goals for any remaining soil and groundwater impacts will be evaluated to determine the need for any further active groundwater and/or soil remediation works, and an associated post-remediation groundwater sampling program. The proposed program shall be as per the VRP (Phase 3-Post Remediation Groundwater Monitoring).

2.1.5 Reporting

Reporting requirements, as detailed in the VRP, are listed in the following table. Mobil will endeavour to submit the following reports to the EPA by the nominated dates specified. Details of information to be included in the reports are listed in Section 3 of the VRP (See Appendix A).

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



Table 4: Reporting Requirements

Report Titles	Deadline
R1. Remediation System Design (including aquifer pumping test)	Completed
R2. Multiphase Extraction	Completed
R3. Remediation System Installation and Commissioning	Within 3 months after remediation system commissioning
R4. Site Wide Remediation System Performance and Groundwater Monitoring Reports	Combined monitoring reports – within 10 weeks of each sampling date
R5. Validation Report	Within 12 weeks of the works being completed
R6. Post Remediation Groundwater Monitoring Report	Compiled results of the testing and monitoring – within 10 weeks of each sampling date

2.1.6 Staging

The following implementation schedule is proposed:

- **System Installation** Pending Minister's approval but assumed for June 2006
- **Commissioning** from July 2006
- **Operation** July 2006 - July 2007
- **Rebound evaluation** likely July 2007
- **Decommissioning** determinate from above tasks

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



3 STATUTORY CONTEXT

3.1 PART 3A OF THE EP&A ACT 1979

This Environmental Assessment has been prepared to meet the statutory environmental assessment requirements under Part 3A of the *Environmental Planning and Assessment Act, 1979* (EP&A Act). Part 3A has recently been introduced to assist in the assessment process for developments deemed to be Major Projects (formerly State Significant Development). Part 3A removes developments of this type from Part 4 and Part 5 of the Act and introduces a new planning approval process which replaces Statements of Environmental Effects (SEE) and Environmental Impact Statements (EIS) with a *Project Approval* accompanied by an *Environmental Assessment*.

State Environmental Planning Policy (SEPP) – Major Projects, is the State policy which provides a State wide planning approach to development of Major Projects and development on key sites. Item 28 of Schedule 1 of the SEPP identifies that remediation of land declared as a remediation site under the Contaminated Land Management Act may be development to which Part 3A of the Act applies. Mobil has entered into a VRA (No. 26081) with the DEC and accordingly, Part 3A applies. Furthermore, the Minister for Planning has formed the opinion that the proposal is a “Major Project” under the SEPP.

Two of the fundamental elements of Environmental Assessment under Part 3A of the EP&A Act are:

1. To allow for integrated approval by removing the need for separate approvals under 9 Acts. This expedites the overall approval process and also ensures an integrated approach;
2. To promote a level of environmental assessment this is tailored to the level of significance.

The site has no heritage and archaeological elements which may be impacted as a result of the proposed activity (Fairfield Local Environmental Plan 1994, Schedule 4 Heritage Items). Therefore in relation to this Environmental Assessment, Section 75U of the EP&A Act and Division 8 of Part I of the *Heritage Act 1977* does not apply to prevent or interfere with the carrying out of an approved project.

Under Section 75F of the EP&A Act, the Director-General of Planning has provided the Environmental Assessment Requirements for this project. These Environmental Assessment Requirements are listed in Appendix B. The key assessment requirements identified by the Director-General are:

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



-
1. Voluntary Remediation Proposal;
 2. Remediation Criteria, and
 3. General Environmental Risks.

Accordingly, to meet the assessment objects of Part 3A, this Environmental Assessment focuses on these critical issues. Other environmental aspects have also been considered and assessed, however not to the same level of detail.

One of the key elements of an Environmental Assessment required under Part 3A, is that a *Statement of Commitments* is provided by the proponent. The proposed *Statement of Commitments* is in Section 6 of this Environmental Assessment.

3.2 FAIRFIELD LOCAL ENVIRONMENTAL PLAN 1994

The site is zoned Industrial under the provisions of the Fairfield Local Environmental Plan (LEP). Due to the fact that the proposed remediation is a Major Project under the provisions of the Major Projects SEPP, it is permissible with the consent of the Minister for Planning irrespective of land use controls established by the LEP.

Notwithstanding this, the proposed remediation of the site will not interfere with the visions of the LEP and the objectives of the current zoning.

4 EXISTING ENVIRONMENT

4.1 ENVIRONMENTAL SETTING

Due to the industrial nature of the site, there are no significant environmental features such as surface water bodies, endangered ecosystem or species on the site. In addition, the properties located to the north, south and east of the site are industrial or commercial properties and no significant environmental features within these areas have been identified that are relevant to the assessment of groundwater.

The closest environmental features are Prospect Creek and the Chipping Norton Lakes. Prospect Creek is a tributary of Georges River and is located approximately 500m to the north east of the site. Chipping Norton Lake is located approximately 600m south, southeast of the site and consists of 160 Ha of remediated sand and gravel pits that provide a water-based recreational area. The Georges River commences near Appin, about 60km southwest of Sydney. From here the river flows north towards Liverpool, through the Chipping Norton Lakes Scheme, and then east through Bankstown to Botany Bay.

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



Over 1.5 million people live within the 960km² of the Georges River catchment, making it one of the most populated catchments in Australia. The catchment also contains significant areas identified for future urban development.

The DIPNR website describes the Georges River as subject to heavy urban pollution inputs, i.e. sewage, sediment and nutrients.

4.2 HERITAGE AND ARCHAEOLOGY

The site is located in an industrial/commercial area. No heritage or archaeological significances have been identified through review of the Fairfield City Council LEP, 1994.

4.3 FLORA AND FAUNA

Local flora and fauna species have not been identified within the supplied documents. No parks or reserves have been identified in the vicinity of the site. The industrial nature of the site limits identification to landscaping garden beds and grassed areas. The works to be performed at the site under the VRP do not appear to include activities which will jeopardise either. The majority of the proposed trench excavation work will be within the existing concrete forecourt area. Any nearby garden beds and grassed areas located in the part of the site where trenching for the oxygen injection system, which may be disturbed shall be re-grassed.

The site is located in a reasonably well developed commercial/industrial area with introduced, as part of the on site landscaping, plant species dominating the site and the adjacent area. The vegetation found at the site comprises a tree near the east side of the sales building, 2 palm trees and various shrubs within garden beds along the Hume Highway boundary of the site and along the car parking bays, in the central north part of the site. An area of the grassed surface exists to the east and northeast of the sales building. The only on-site tree is located within this area.

Fairfield City Council operates under a Tree Preservation Order (TPO). The purpose of the TPO is to protect, conserve and improve the environment of the city by ensuring that no trees are willfully injured, removed or destroyed without the prior approval of Council.

The proposed remediation works at the site are not likely to have a significant effect on any vegetation at the site. One tree has been identified adjacent to the sales building which is the area where the remediation equipment compound is proposed to be located. Care will be taken during the excavation and installation phase of the project to not disturb the tree root system and the branches. If any trimming is required to the tree then Council will be approached for permission. All other works

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



will be within the concrete forecourt area and will not affect any of the on-site vegetation.

Fauna is expected to be limited at the site due to the lack of available habitat in the area.

5 KEY ASSESSMENT REQUIREMENTS

5.1 VOLUNTARY REMEDIATION PROPOSAL

In September 2005, Mobil had submitted, under s.26 of the Contaminated Land Management Act (CLM Act), a Voluntary Remediation Proposal (VRP) for the site, to the DEC.

DEC have reviewed the VRP and supporting documentation (RAP, Addendum to RAP and auditor's review comments) and have accepted the proposed remediation strategy by issuing a Voluntary Remediation Agreement (No 26081) in accordance with the CLM Act. A copy of the VRA is included in Appendix A.

In accordance with the VRP/VRA, the remediation is to be undertaken in three (3) phases (stages), which are described below.

5.1.1 Phase 1 – Investigation and Design

Phase (or stage) 1 Involves the additional assessment of the aquifer conditions and subsequent design of a remediation system including obtaining all relevant permits and approvals. Extraction of phase separated hydrocarbon (PSH) and groundwater using a mobile extraction truck (MPE) is also proposed during this phase as a temporary measure of the PSH removal. This activity will be terminated once an in-situ system has been installed and commissioned. This phase has been largely completed with a copy of the remediation system P&ID included in Figure 5.

MPE events were undertaken in June and November 2005 and again in January 2006. A GME was completed in January 2006, following the MPE events, Reports for these works are in preparation and will be submitted to the DEC and the auditor once finalised.

5.1.2 Phase 2 – Active Remediation

Phase 2 is the active remediation stage and involves implementing measures to prevent migration of contaminated groundwater off the site and remove separate PSH from the groundwater, and delineate soil and groundwater impact off the site (referred to as the source site). This is also the commissioning and operation of the system. This phase has been partially completed with the installation of recovery, injection and delineation wells, as indicated on Figure 6.

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



Based on the system design (P&ID), various system components are currently being purchased and factory-built/assembled and tested, in preparation for on-site installation and commissioning, once all the required approvals have been granted (included Minister's approval). System operation and monitoring will be as described in the VRP/VRA and Section 2.1.3 of this report.

5.1.3 Phase 3 – Post Remediation

Involves post remediation monitoring of groundwater after completion of the Phase 2 works.

This phase aims at developing a groundwater monitoring and sampling program to monitor groundwater quality and migration pattern after completion of the remediation phase. The program will be developed once the objectives and goals of Phase 2 have been achieved.

5.2 REMEDIATION CRITERIA

As indicated in the VRA, the ultimate goal of the proposed remediation system is to recover PSH (to the extent practicable) and prevent offsite migration of groundwater impact. The criteria for the achievement of this goal will be the recovery of PSH from the site to extent practicable (when recovery rates and PSH thickness in monitoring recovery wells have reached asymptotic levels) and the absence of groundwater impact in off-site monitoring wells (as identified via aquifer groundwater monitoring and sampling).

Once this goal has been achieved, the remediation goals/end points for the on-site soil and dissolved groundwater impact shall be determined based on a risk-based approach and in accordance with NEPM (1999). This approach has been present in the VRP and included in the VRA. The proposed risk-based approach has been discussed in more detail within the RAP (Appendix C).

5.3 GENERAL ENVIRONMENTAL RISK ANALYSIS

The following table identifies in general terms, activities, processes and facilities which require control strategies to ensure environmental protection and compliance with the VRA.

To identify risk, consideration has been given to circumstances which may trigger or exacerbate risks eg intense rain or storm events, prolonged above average rain, drought, flood and inundations, wind, earthquake, fire, equipment breakdown, human error and accidents.

MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT



Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area

Table 5 presents an Environmental Risk Identification Matrix (as included within the EMP – see Appendix D). The left side of the matrix lists all of the potential environmental impacts of the works while the top of the matrix provides a breakdown of work activities. Identified risks are marked with a Y.

Table 5: Environmental Risk Identification Matrix

Issue	Site Establishment	Earthworks	System Construction	Pre-commissioning Safety and Integrity checks	System Commissioning	Demobilisation and Fencing	System O&M	Final Decommissioning
Air Quality (dust, other)	N	Y	Y	Y	Y	Y	Y	Y
Erosion	N	Y	Y	N	N	Y	N	N
Surface Water Pollution	N	Y	Y	N	N	Y	Y	Y
Release of Contaminated Groundwater	N	N	N	Y	Y	N	Y	Y
Release of Contaminated Soil	N	Y	Y	N	N	N	N	N
Noise	Y	Y	Y	Y	Y	Y	Y	Y
Vibration	N	Y	Y	N	N	Y	Y	Y
Electrical Hazards	Y	Y	Y	Y	Y	Y	Y	Y
Hot Works	Y	Y	Y	Y	Y	Y	Y	Y
Visual Amenity	Y	Y	Y	Y	Y	Y	Y	Y
Fire	N	Y	Y	Y	Y	Y	Y	Y
Traffic	Y	Y	Y	N	N	Y	Y	Y

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



Further analysis is made in Section 6.2– Specific Commitments, in relation to potential environmental impacts identified with the project, and proposed mitigation measures. Further, proposed timing and type of monitoring of the environmental risks are detailed within Table 2 of the EMP – Environmental Control Measures, to ensure potentially significant residual environmental impacts are identified after application of proposed mitigation measures.

5.3.1 IMPACT ASSESSMENT

Appendix D (Environmental Management Plan) outlines the likely environmental impacts from the proposed activity and associated control measures proposed. The plan details the environmental, safety and materials management strategies proposed. The EMP also details the specific monitoring procedures for each aspect of the works.

6 STATEMENT OF COMMITMENTS

Mobil proposes *General* and *Specific* commitments. The *General Commitments* detail the commitment made to the community in relation to remediation of contaminated groundwater and compliance with the VRA. The *Specific Commitments* detail the environmental impact mitigation measures proposed to be implemented to ensure that *General Commitments* can be delivered with minimal environmental and social impacts.

6.1 GENERAL COMMITMENTS

Mobil makes a commitment to:

- Remediate the groundwater within the site area to the requirements of the VRA;
- Comply with all conditions imposed by the DIPNR for approvals applying to the site, and
- Ensure the impacts of remediation are appropriately managed via the implementation of mitigation measures.

6.2 SPECIFIC COMMITMENTS

The following has been based on the Environmental Management Plan (Appendix D), in relation to the key assessment requirements identified by the Director-General and General Environmental Risk Analysis:

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



Table 6: Specific Commitments

Environmental Aspect and Impact	Commitment /Control Measure(s)
Waste Management	
<p>Erosion</p> <ul style="list-style-type: none"> excavation 	<ul style="list-style-type: none"> area of excavation to be kept as small as possible. material will be temporarily stockpiled in dedicated areas and will be barricaded with hay bales and/or silt fences to prevent runoff. waste skips/drums will be used (where possible) to avoid soil stockpiles. erosion control measures will be installed in accordance with NSW Department of Housing's <i>Managing Urban Stormwater: Soils and Construction (1998)</i> guide. regular inspections and maintenance of erosion and sediment control measures, including immediately after rain events.
<p>Surface Water</p> <ul style="list-style-type: none"> spills erosion adjoining properties 	<ul style="list-style-type: none"> storm water drains will be sand bagged off to prevent any waste material from entering them during the construction phase of works. potential spills from improper pipe connection and commissioning activities will be minimised by the isolation of all pipes and equipment prior to work being commenced. provision of secondary containment for work areas where a potential for spills exists, including bunding, drain covers or stormwater cut off valves. provision of spill absorption material and spill kits coincident with size of potential spill. limiting quantities of chemicals and hazardous materials held on site (refer Hazardous Materials below). following construction of the remediation system, rainwater which falls within the treatment facility will be directed into the treatment facility sump. <p>Overflows/spills of PSH/groundwater from the remediation system will be contained by the treatment facility bunding.</p>
Groundwater	<ul style="list-style-type: none"> groundwater generated from the construction and commissioning of the remediation system will be treated by the system prior to disposal to sewer (where permitted).

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**



Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area

Environmental Aspect and Impact	Commitment /Control Measure(s)
Contaminated Soil <ul style="list-style-type: none"> excavation of contaminated soil stockpiles transport 	<ul style="list-style-type: none"> if contaminated soil is encountered during excavation work it shall be segregated and stockpiled in a dedicated area on site in preparation for offsite disposal in accordance with regulatory requirements. Waste skips/drums will be used (where possible) to avoid soil stockpiles.
	<ul style="list-style-type: none"> deodorants will be used to minimise odour if waste material is encountered to minimise short term nuisance odours. transportation of waste will be by appropriately-license contractors.
Waste <ul style="list-style-type: none"> Waste generated during excavation/construction works 	<ul style="list-style-type: none"> the purchase and use of products with minimal packaging waste and methodologies for waste minimisation on the site where possible. the removal of packaging waste from the site where appropriate. separation of waste materials into their respective waste stream skips at convenient locations on the site. receptacles to store all waste generated onsite will be provided. The receptacles will be emptied regularly. use of proprietary waste collection and storage systems and the use of appropriately licensed waste management companies for the removal and disposal of waste materials from the site. collection of waste materials by a licensed waste contractor for recycling as a first option, or disposal as a second option at a frequency which ensures that waste materials are not allowed to build up to an unacceptable level on the site.
Air Quality	
Air Quality <ul style="list-style-type: none"> venting of off gases pipe leaks excavation works vehicular traffic erosion (refer Erosion above)	<ul style="list-style-type: none"> application of odour and volatile suppressing agents to exposed surfaces/stockpiles, as required. all loads entering and leaving the site will be securely covered. off gas from the remediation system will be directed through the activated carbon bed prior to discharge to the atmosphere. off-gas emissions will be monitored on a regular basis using LEL installed before and after the carbon bed.
	<ul style="list-style-type: none"> water sprays may be used across the site to suppress dust if required.
	<ul style="list-style-type: none"> all stockpiles of materials left on the site for more than 24 hours will be covered. surface cover will be removed in stages to minimise exposed areas.

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**



Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area

Environmental Aspect and Impact	Commitment /Control Measure(s)
	<ul style="list-style-type: none"> bulk earthworks will be scheduled to avoid particularly dry or windy weather conditions. where dusty conditions occur at the site, site works will cease until the dust source is removed or weather conditions are more suitable. if complaints are received at the site, dust monitoring will be undertaken and the results and any additionally recommended mitigation measures required will be implemented. traffic associated with earthworks will be required to clean track/wheels to prevent tracking of mud and generation of dust as it is leaving the site. regular sweeping of haul routes to remove any accumulated materials. no material will be burnt on site.
<p>Noise</p> <ul style="list-style-type: none"> excavation compaction concreting traffic system operation 	<ul style="list-style-type: none"> works on the site will only be carried out between 7.00 am to 6.00 pm Monday and Friday and 8.00 am to 1.00 pm Saturday, or as otherwise approved by Council. No work is to be undertaken on Sundays or Public Holidays. all heavy vehicles working on site and visiting the site (compressors and other associated plant utilised as part of the construction work) will be fitted with appropriate silencing devices. activities that generate high noise levels will be scheduled to short term duration wherever possible and to times of the day which would be least intrusive. all remediation equipment which generates noise (i.e. air compressor, pumps, blowers) will be fitted with appropriate silencing devices or housed within noise abatement enclosures.
Flora and Fauna	
<ul style="list-style-type: none"> excavation traffic 	<ul style="list-style-type: none"> retention of existing trees on the site regardless of whether they are native or introduced species. Any grass areas disturbed during the excavation works will be reconstructed to their original condition as much as possible. No vehicular traffic will be allowed in the grassed areas.
Heritage Impact	
<ul style="list-style-type: none"> none identified 	<ul style="list-style-type: none"> none identified.
General Environmental Risks	

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



Environmental Aspect and Impact	Commitment /Control Measure(s)
Vibration <ul style="list-style-type: none"> Compaction 	<ul style="list-style-type: none"> activities that generate vibration will be scheduled to short term duration wherever possible and to times of the day which would be least intrusive.
Visual amenity <ul style="list-style-type: none"> Stray Light 	<ul style="list-style-type: none"> Lighting of the construction site will be directed so as not to cause nuisance to owners or occupiers of adjoining premises or motorists on adjoining or nearby roads.
Electrical Hazards (Hot works)	<ul style="list-style-type: none"> hot work permits will be obtained on a daily basis, as per Mobil Specifications. all electrical wiring installation works will be performed by an AIP trained licensed electrician. details of the work permit system, procedures and forms will be included in the Health and Safety Plan.
Fire	<ul style="list-style-type: none"> no fires will be permitted on the site. anti-flash screens will be used when welding. hot work areas are to be kept clear of flammable materials.
Traffic	<ul style="list-style-type: none"> no vehicles are to arrive at the site outside the site working hours. a traffic management plan will be prepared to minimise disruption to traffic associated with site operations. a designated on-site parking area will be provided on the site for the duration of the proposed works. all vehicles will enter and exit the site via nominated entry/exit points. all vehicles will be required to comply with all road traffic rules. all vehicles leaving the site will be inspected and cleaned (if required) to ensure that no material is on the vehicle exterior that could be deposited off-site.
Hazardous Substances	<ul style="list-style-type: none"> A register of all hazardous materials used and stored on site will be kept onsite. MSDS for all these materials will also be kept onsite.
	<ul style="list-style-type: none"> Handling of potentially contaminated groundwater, chemicals and hazardous materials will be undertaken as per Site Specific Health and Safety Plan. Handling and storage of chemicals and hazardous substances will also be carried out in accordance with the manufacturer's Material Safety Data Sheet.
	<ul style="list-style-type: none"> The plant will be secured by a locked security fence and will not be accessible to the public.

MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



7 REFERENCES

- Department of Environment and Conservation (NSW) (2005) *Input to Environmental Assessment Requirements, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. DEC December 2005.
- Department of Planning (2005) *Environmental Assessment Example Report*, November 2005.
- Department of Planning (2006) *Environmental Report Requirements, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. DoP February 2006.
- Environ (2005) *Interim Opinion Letter, Quix Service Station, Lansvale, NSW*. Environ March 2003.
- URS (2003) *PP2ESA Soil Boring Logs, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. URS July 2003.
- URS (2003) *Remediation Action Plan, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. URS July 2003.
- URS (2005) *Post Phase 2 Environmental Site Assessment, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. URS January 2005.
- URS (2005) *Quantitative Risk Assessment, Quix Service Station (NJ3565), 161 Liverpool Road, Lansvale, NSW*. URS January 2005.
- URS (2005) *Remediation Action Plan Addendum, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. URS March 2005.
- URS (2005) *Limited Phase 1 Environmental Site Assessment, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. URS April 2005.
- URS (2005) *Recovery Wells and Pumping Well Logs, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. URS May 2005.
- URS (2005) *Pumping Test Interpretation and Implications for System Design, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. URS August 2005.
- URS (2005) *Groundwater Monitoring Event August 2005, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. URS August 2005.
- URS (2005) *Environmental Management Plan, Quix Service Station (NJ3565), 161 Hume Highway, Lansvale, NSW*. URS December 2005.

Confidential Privileged Communication in Contemplation of Litigation

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



8 LIMITATIONS

The conclusions presented in this report are relevant to the conditions of the site and the state of legislation currently enacted as at the date of this report. We do not make any representation or warranty that the conclusions in this report will be applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

OTEK has used a degree of skill and care ordinarily exercised by reputable members of our profession practicing in the same or similar locality. Conclusions are based on representative samples or locations at the site, the intensity of those samples being in accordance with the usual levels of testing carried out for this type of investigation. Due to the inherent variability in natural soils we cannot warrant that the whole overall condition of the site is identical or substantially similar to the representative samples.

This report has been prepared for Mobil Oil Australia Pty Ltd ("Mobil") for the benefit of Mobil and a purchase from Mobil where a site is owned by Mobil and also for the benefit of Mobil and a third party owner or assignee from Mobil (as the case may be) where a site is/was leased by Mobil. Where this report is to be submitted to a public or regulatory authority pursuant to a requirement under applicable planning or environmental controls, OTEK also provides this Report for the benefit of that authority.

This report and the information contained in it is the intellectual property of OTEK. Mobil Oil Australia Pty Ltd is granted an exclusive licence for the use of the report for the purpose described in the report.

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**

Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area



9 GENERAL TERMS AND CONDITIONS

**OTEK AUSTRALIA PTY LTD
ACN 054 371 596**

PROFESSIONAL RESPONSIBILITY. OTEK shall perform services consistent with skill and care ordinarily exercised by other professional consultants under similar circumstances at the time service are performed, subject to any limitations established by MOBIL OIL AUSTRALIA PTY LTD as to degree of care, time or expense to be incurred or other limitations of this Agreement. No other representation, warranty or guarantee, express or implied is included in or intended by OTEK's services, proposals, agreements or reports.

RELATIONSHIP OF PARTIES. Nothing shall be construed or interpreted as requiring OTEK to assume the status of owner, operator, generator, person who arranges for disposal, transporter or storer, as those terms or any other similar terms are used in any federal state or local statute, regulation, ordinance or order governing the treatment, handling, storage or disposal of any toxic or hazardous substance or waste.

BILLING AND PAYMENT. Invoices will be submitted monthly and shall be due and payable on receipt. Interest at the rate of one and one-half percent (1.5%), but not exceeding the maximum rate allowable by law, shall be payable on any amounts that are due but unpaid within fourteen (14) days from receipt of invoice, payment to be applied first to accrued late payment charges and then to the principal unpaid amount. OTEK may, as its option withhold delivery of reports or any other data pending receipt of payment for services rendered.

LIMITATION OF LIABILITY. In consideration of potential liabilities which may be disproportionate to the fees to be earned by OTEK, MOBIL OIL AUSTRALIA PTY LTD agrees to limit the liability of OTEK, its officers, directors, shareholders, employees, agents, and representatives to BP Australia for all claims or legal proceedings of any type arising out of or relating to the performance of services under this Agreement (including but not limited to OTEK's breach of the Agreement, its professional negligence, errors and omissions and other acts) to the greater of \$100,000 or the amount of OTEK's fee. Failure of MOBIL OIL AUSTRALIA PTY LTD to give written notice to OTEK of any claim of negligent act, error or omission within one (1) year of performance shall constitute a waiver of such claim by MOBIL OIL AUSTRALIA PTY LTD. Neither party shall be liable for any indirect, special or consequential loss or damages arising from this Agreement.

INDEMNIFICATION. Subject to the limitation of liability above, each party agrees to indemnify, defend and hold harmless the other from any claim, suit, liability, damage, injury, cost or expense, including attorneys fees, (hereafter collectively called "Loss") arising out of a) breach of this Agreement or b) willful misconduct or negligence in connection with the performance of this Agreement.

In addition to and without limiting the generality of the forgoing, MOBIL OIL AUSTRALIA PTY LTD agrees to indemnify OTEK to the fullest extent permitted by law against any Loss (whether or not under any federal, state or local environmental regulation, order or ordinance) a) arising out of any actual or potential environmental contamination or pollution, including without limitation, any actual or threatened release of toxic or hazardous materials, unless the result of OTEK's willful misconduct or professional negligence, b) arising out of any acts taken or alleged failure to act with respect to matters covered in the section titled REPORTING AND DISPOSAL, or c) in excess of the liability limit set forth in the section titled LIMITATION OF LIABILITY above.

TIME OF PERFORMANCE. OTEK makes no warranties regarding the time of completion of services and shall not be in default of performance under this Agreement where such performance is prevented, suspended or delayed by any cause beyond OTEK's control. Neither party will hold the other responsible for damages for delays in performances caused by acts of God or other events beyond the control of the other party and which could not have been reasonably foreseen or prevented. Such delays will extend completion dates commensurately.

CHANGED CONDITIONS. If, during the course of the performance of Services, conditions or circumstances develop or are discovered which were not contemplated by OTEK and which materially affect OTEK's ability to perform or which would materially increase the costs to OTEK of performing, then OTEK will notify MOBIL OIL AUSTRALIA PTY LTD in writing, and OTEK and MOBIL OIL AUSTRALIA PTY LTD shall negotiate in good faith the terms of this Agreement within thirty (30) days. Alternatively, either party shall thereupon have the right to terminate the Agreement; provided, however, that upon any such termination, OTEK shall be compensated for services rendered to the date of termination.

HAZARDOUS OR UNSAFE CONDITIONS. MOBIL OIL AUSTRALIA PTY LTD has fully informed OTEK of, and shall immediately inform OTEK when it becomes aware of any new information regarding the type, quantity and location of any hazardous, toxic or dangerous materials or unsafe or unhealthy conditions known or suspected at all real property where services are to be performed ("the Project Site"). Fees shall be adjusted to compensate OTEK if conditions require OTEK to take emergency measures to protect the health and safety of the parties, the public or the environment.

SUBSURFACE OBSTRUCTIONS. MOBIL OIL AUSTRALIA PTY LTD shall supply to OTEK plans which designate the location of all subsurface structures at the Project Site, and shall be responsible for any damage and shall

**MOBIL OIL AUSTRALIA PTY LTD
ENVIRONMENTAL ASSESSMENT
FINAL REPORT**



Quix Service Station Site, 161 Hume Highway, Lansvale, Fairfield Local Government Area

indemnify OTEK for all Loss inadvertently caused by OTEK to any structure not so designated, or by MOBIL OIL AUSTRALIA PTY LTD's inaccurate identification of underground obstructions. MOBIL OIL AUSTRALIA PTY LTD warrants the accuracy of any and all information so supplied without independently verifying its accuracy.

RIGHT OF ENTRY. MOBIL OIL AUSTRALIA PTY LTD agrees to grant or arrange for right of entry at the Project Site whether or not owned by MOBIL OIL AUSTRALIA PTY LTD. The cost of repairing any reasonably unavoidable damages is not part of the services or fee contemplated by this Agreement and shall be borne by MOBIL OIL AUSTRALIA PTY LTD.

REPORTING AND DISPOSAL. MOBIL OIL AUSTRALIA PTY LTD shall be solely responsible for notifying all appropriate federal, state, local or other governmental agencies of the existence of any hazardous, toxic or dangerous materials on or in the Project Site or discovered during performance of this Agreement. If requested by MOBIL OIL AUSTRALIA PTY LTD, OTEK may, as its option, agree to notify such agencies on behalf of MOBIL OIL AUSTRALIA PTY LTD, as MOBIL OIL AUSTRALIA PTY LTD's agent. MOBIL OIL AUSTRALIA PTY LTD shall be solely responsible for arranging for and paying the costs to lawfully transport, store, treat, recycle, dispose of, or otherwise handle, hazardous or toxic substances or wastes and samples.

NO THIRD PARTY BENEFICIARIES. There are no third party beneficiaries of this Agreement entitled to rely on any work performed or reports prepared by OTEK hereunder for any purpose. MOBIL OIL AUSTRALIA PTY LTD shall indemnify and hold OTEK harmless against any liability for any Loss arising out of or relating to reliance by any third party on any work performed or reports issued hereunder.

DESIGNS AND DISCOVERIES; OWNERSHIP AND REUSE. All designs, ideas, discoveries, intentions or improvements utilized or developed by OTEK hereunder shall be deemed property of OTEK. MOBIL OIL AUSTRALIA PTY LTD is given no right in the form of ownership or license to such items. Any documents furnished by OTEK are not intended or represented as suitable for reuse by MOBIL OIL AUSTRALIA PTY LTD or others; any reuse without specific written approval and/or adaptation by OTEK for the specific purpose intended will be at the reuser's sole risk and without liability or exposure to OTEK. Any transfer of electronic data hereunder is solely for MOBIL OIL AUSTRALIA PTY LTD's convenience "as is" without warranty as to contents, and is not project deliverable unless specifically agreed to the contrary. OTEK disclaims all warranties express or implied with regard to any electronic data provided hereunder, including any warranties of merchantability or fitness for a particular purpose.

The prevailing party in any action to enforce or interpret provisions of this Agreement shall be entitled to recover all reasonable fees, costs and expenses, including staff time at current billing rates, court costs and other claim-related expenses. If OTEK is requested to respond to any mandatory orders for the production of documents or witnesses on MOBIL OIL AUSTRALIA PTY LTD's behalf regarding work performed by OTEK. MOBIL OIL AUSTRALIA PTY LTD agrees to pay all costs and expenses incurred by OTEK not reimbursed by others in responding to such order, including attorneys fees, staff time at current billing rates and reproduction expenses. Any provisions of this Agreement held in violation of any law shall be deemed stricken and all remaining provisions will remain binding on the parties. The obligations of the parties to indemnify and the limitations on liability set forth in this Agreement shall survive the expiration or termination of this Agreement. This Agreement, consisting of all documents attached hereto constitutes the entire agreement between the parties and supersedes any and all prior written or oral agreements with respect to the subject matter hereof. No amendment hereto will be binding unless reduced to writing and signed by authorized representatives of each party. This Agreement shall be subject to the laws of the state from which services of OTEK are procured.