Prepared for
Ampol Australia Petroleum Pty Ltd
ABN: 17 000 032 128

Kurnell Terminal SSD-5544 MOD-7

Appendix H - Conceptual Remedial Action Plan

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Kurnell Terminal SSD-5544 MOD-7

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Client: Ampol Australia Petroleum Pty Ltd

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Executive summary

Background

The Kurnell Terminal (the 'Site') is located at 2 Solander Street, Kurnell within the Sutherland Shire Local Government Area (LGA), approximately 17 kilometres (km) south of Sydney's Central Business District (CBD) (as presented on **Appendix A, Figure F1**).

In 2012, Ampol Refineries (NSW) Pty Ltd (Ampol) announced that the oil refinery and fuel terminal would be converted to a finished product terminal (the 'approved project'), ceasing refinery operations in 2014. Currently, the operational infrastructure is primarily located in the northern part of the Site (Zones 1 and 1A). Other parts of Ampol's landholdings at Kurnell include largely vacant areas of previously developed land (Zones 2 and 3) and areas of undeveloped land containing extensive native vegetation (Zones 4 and 5). Ampol intends to consolidate operational infrastructure, remove redundant assets, and undertake remediation and grading. Completion of these works (the 'proposed modification,' MOD-7) would continue the safe, viable, and reliable operation of the Kurnell Terminal whilst preparing the Site for future uses. The location within the Site that these works would occur is referred to as the 'Project Area.' The Site, Zones, and Project Area are presented on **Appendix A, Figure F2**.

This Conceptual Remedial Action Plan (Conceptual RAP) for the Project Area is integrated with a planning and approvals process (detailed in **Section 1.3** of this report). This Conceptual RAP has been produced to support the State Significant Development (SSD) Modification 7 (MOD-7) application under Part 4 of the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act) for the Project. This Conceptual RAP would be updated to one or more Detailed RAP(s) following further detailed investigations within the Project Area and receipt of relevant conditions of consent if the modification application is approved.

Remediation objectives

Ampol has developed the following objectives for the Project Area:

- Remediate the soil and manage groundwater within the parts of the Project Area that are relevant to the proposed modification, to enable the land in Zone 2 and 3 to be used for commercial/ industrial purposes (which may be more sensitive that the current terminal/vacant land usage) in the future and to support the ongoing safe, viable, and reliable use of the Terminal in Zone 1
- Ensure any approved remediation process that is implemented adheres to applicable regulatory requirements, minimising potential environmental and operational risks.

Site audit

An independent NSW EPA Accredited Site Auditor (Mr Andre Smit) (Site Auditor) has been engaged to prepare Site Audit Statements for areas where the proposed land use could change (herein referred to as the Audit Boundary, presented on **Appendix A, Figure F1**). The Audit Boundary excludes Zone 1 areas which would continue to operate as the Kurnell Terminal.

Site understanding

Significant soil and groundwater investigations have been conducted on the Site since the 1990s. An Environmental Site Assessment Data Gap Assessment was undertaken in 2018 to reduce data gaps within the former refinery process unit areas, pipeways, and redundant tank bunds. Additional investigations conducted between 2018 and 2023 have provided an understanding of the distribution of impacts which has facilitated the preparation of this Conceptual RAP. Primary contaminants of potential concern (COPCs) for the Site comprise the following:

- Asbestos
- Petroleum hydrocarbons (PHC) comprising:
    - Total recoverable hydrocarbons (TRH)
    - Benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEXN)
    - Polycyclic aromatic hydrocarbons (PAHs)

- per and poly-fluoroalkyl substances (PFAS).

A range of secondary COPC have also been identified onsite based on observations from historic investigations.

Areas of known impact are discussed in **Section 4.0** and presented on **Appendix A, Figure F3**. The primary source of asbestos is likely to be building and plant materials (in the form of gaskets, lagging, fibre boards, among others) with secondary sources from recycled building derived fill materials, and in the case of RPIP mountain, fill materials of unknown origin. The PHC soil and groundwater impact is likely to be associated with losses to ground that have occurred over the refinery's history, as opposed to one or more releases from a single localised source. The primary source of PFAS is related to the storage and historical use of fluorinated firefighting foam at the Site.

As part of this Conceptual RAP, a data gap assessment has been completed and identified key focus areas for data gaps (refer to **Section 6.4**). While the currently available historical information has been sufficient to complete this Conceptual RAP, further intrusive investigations would be required to address the identified data gaps and confirm and/or refine the proposed remedial approaches, estimated remediation volumes and remedial technologies to be adopted. It is anticipated that identified data gaps would be addressed in part by future intrusive investigations and used to inform preparation of the Detailed RAP(s).

Remediation overview

This Conceptual RAP has considered a wide range of treatment options. The outcome of this assessment has concluded that bioremediation of petroleum impacted soils (via biopiling) and capping would play a key role. It is also possible that stabilisation of PFAS impacted soils and in-situ treatment of PHC in groundwater treatment methodologies may play a role. Where it is not practicable to remediate non-petroleum contaminated soils which are not suitable for bioremediation or stabilisation, onsite management would be considered, noting that stakeholder support and post remediation management measures would need to be formalised under this approach.

Offsite disposal to landfill of untreated soils would also be considered and would typically be considered when soils are not suitable to be entrained within the bioremediation process for onsite reuse or where onsite management is not practicable. However, in certain circumstances, the cost benefit of disposal versus treatment (particularly if there are multiple COPCs to treat) would be considered.

The proposed remediation works are predominantly to address asbestos, PHC, and PFAS impacts (the primary COPC) although other secondary COPCs are also considered from a risk (and remediation/management) perspective in this Conceptual RAP.

The excavation for remedial purposes would predominantly be limited to less than 4 mbgl and would be generally focused on horizons within 1 mbgl, including soil impact, light non-aqueous phase liquid (LNAPL) (in limited areas), and likely soils/sludges in the drainage network and surrounds. In areas with LNAPL impacts, the overlying saturated soils would be attempted to be removed to the extent practicable to reduce the PHC concentrations. If free phase LNAPL is visually present on the excavation pit water, it would be skimmed off and transferred to dedicated containers for offsite disposal. The basis for determination of the extent of soil remediation required is based on existing historical data and is discussed in detail in **Section 6.0**.

Where residual concentrations remain in soils and groundwater above commercial/ industrial criteria[1], the area would be backfilled, sealed with either a marker layer or impermeable liner (depending on the contaminant) and capped with clean soil such that potential source-pathway linkages are eliminated. If an impermeable liner approach is adopted, its design would consider the requirements of the Contaminated Land Guidelines for the Assessment and Management of Hazardous Ground Gases (NSW EPA, 2020).

[1] Under the Amended National Environment Protection (Assessment of Site Contamination) Measure (2013)

At the completion of the Project, a Site Validation report would be prepared and works within the relevant Site Audit boundary would be reviewed and endorsed by the Site Auditor. Where required, one or more Environmental Management Plan(s) (EMPs) would also be prepared for implementation within the Site Audit boundary to appropriately manage residual soil and/or groundwater through restrictions on certain activities such as intrusive works. The EMP(s) would include one more Groundwater Monitoring Plan(s) (GMPs), where required, which would detail groundwater monitoring requirements within the Site Audit boundary to confirm that residual COPCs in groundwater are being appropriately managed.

Other additional ongoing monitoring, such as soil vapour monitoring and/or surface water monitoring, may be required depending on the remediation outcomes.

Conclusion

This Conceptual RAP has been prepared to meet the relevant requirements of the NSW EPA endorsed guidelines including the NSW EPA (2020) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* and provides a framework for regulatory compliance.

Key tasks for finalising the Detailed RAP(s):

- Data gap assessment to refine remediation scope
- Refine remediation extent and volumes
- Conduct remediation trials for selected technologies (as required for stabilisation)
- Finalise Supporting Management Plans and Work Procedures (**Section 1.6**).

The remedial strategy (and extents) discussed in this Conceptual RAP are subject to the findings of the data gap assessment works.

Upon successful implementation of the preferred remediation strategies described by this Conceptual RAP, and subsequent Detailed RAP(s), the Project Area would be suitable for the proposed commercial/ industrial land use.

1.0 Introduction

1.1 Background

The Kurnell Terminal (the 'Site') is located at 2 Solander Street, Kurnell within the Sutherland Shire Local Government Area (LGA), approximately 17 kilometres (km) south of Sydney's Central Business District (CBD) (as presented on **Appendix A, Figure F1**). In 2012, Ampol Refineries (NSW) Pty Ltd (Ampol) announced that the oil refinery and fuel terminal would be converted to a finished product terminal (the 'approved project'), ceasing refinery operations in 2014.

Development consent was received to complete the approved project under State Significant Development (SSD) application reference 5544 (SSD-5544). The objective of SSD-5544 was and remains 'to establish a viable, safe, reliable, and sustainable finished product import terminal at Kurnell.' Ampol has modified SSD-5544 six times to complete the conversion and demolition works.

Currently, the operational infrastructure is primarily located in the northern part of the Site (Zones 1 and 1A). Other parts of Ampol's landholdings at Kurnell include largely vacant areas of previously developed land (Zones 2 and 3) and areas of undeveloped land containing extensive native vegetation (Zones 4 and 5).

Ampol intends to consolidate operational infrastructure, remove redundant assets, and undertake remediation and grading. Completion of these works (the 'proposed modification', MOD-7) would continue the safe, viable, and reliable operation of the Kurnell Terminal, whilst preparing the land for future uses. The location within the Site that these works would occur is referred to as the 'Project Area.' The Site, Zones, and Project Area are presented on **Appendix A, Figure F2**.

To guide the proposed remedial works and to support the modification application, AECOM Australia Pty Ltd (AECOM) was engaged by Ampol to produce a Conceptual Remedial Action Plan (Conceptual RAP) which outlines proposed approaches to remediate the Site based on currently available information.

This Conceptual RAP would be updated into one or more Detailed RAP(s) following further detailed investigations within the Project Area and receipt of relevant conditions of consent if the modification application is approved. The differences between this Conceptual RAP and the future Detailed RAP(s) are presented in **Section 1.5** of this report.

This Conceptual RAP has been developed in general accordance with the applicable legislation, policy and guidelines, including:

- the Contaminated Land Management Act 1997 (CLM Act) (NSW)
- the Protection of the Environment Operations Act 1997 (POEO Act)
- the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act)
- State Environmental Planning Policy (Resilience and Hazards) 2021
- National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013 (NEPC 2013)
- PFAS National Environmental Management Plan, Version 2.0. (NEMP, 2020)
- Guidelines for the Assessment and Management of Groundwater (DEC, 2007)
- Guidelines for the NSW Site Auditor Scheme (3rd edition), (NSW EPA, 2017a)
- Contaminated Land Guidelines, Sampling Design (NSW EPA, 2022)
- Contaminated Land Guidelines, Assessment and Management of Hazardous Ground Gases (NSW EPA, 2020).

The structure of this Conceptual RAP is in accordance with relevant sections of the Contaminated Land Guidelines: Consultants Reporting on Contaminated Land (NSW EPA, 2020).

1.2 Objectives

Ampol has developed the following objectives for the Project Area:

- Remediate the soil and manage groundwater within the parts of the Project Area that are relevant to the proposed modification (which may be more sensitive that the current terminal/ vacant land usage), to support the ongoing safe, viable, and reliable use of the Kurnell Terminal, whilst preparing the land for future uses, and
- Ensure any approved remediation process that is implemented adheres to applicable regulatory requirements, minimising potential environmental and operational risks.

1.3 Planning context

The proposed modification would involve the 'use of land,' the 'carrying out of work' and the erection and/ or demolition of a building or work. On this basis, these works would be considered 'development' under Section 1.5 of the EP&A Act. Unless excluded by an Environmental Planning Instrument (EPI), the carrying out of development typically requires development consent under Part 4 of the EP&A Act. This is the case for the proposed modification. Ampol are proposing to secure development consent for the proposed works as a modification to SSD-5544 under section 4.55(2) of the EP&A Act. This section of the EP&A Act allows for modifications to development consents that involve "other modifications" given that the type and nature of some of the potential impacts may be different to those previously assessed.

A Modification Report has been prepared to support the application for the changes to SSD-5544 noted above. This Conceptual RAP is one of a number of technical documents that forms part of the Modification Report. In line with the requirements of Section 4.55 of the *Environmental Planning & Assessment Act 1979* (EP&A Act), the Modification Report provides the information required by Section 100 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation).

The environmental assessments within the Modification Report have been prepared in line with these guidelines, which state the requirement for a description of the proposed modification, as well as an assessment of the potential impacts of the proposed modification, including those potential impacts resulting from the remediation design within this Conceptual RAP. This Conceptual RAP has been appended to the Modification Report, and forms part of the SSD modification application. This Conceptual RAP has been signed off by Certified Environmental Practitioner Site Contamination Specialist Jonathan Ho (No. SC40062) from AECOM, and has been reviewed by Registered Environmental Assessment Practitioner, William Miles (No. R80018) from AECOM and independent NSW EPA Accredited Site Auditor, Mr Andre Smit (Site Auditor).

1.4 Site audit

An independent NSW EPA Accredited Site Auditor (Mr Andre Smit) (Site Auditor) has been engaged to prepare Site Audit Statements for the Zone 2 and Zone 3 areas where the proposed land use could change (herein referred to as the Audit Boundary, presented **on Appendix A, Figure F2**). The Audit Boundary excludes Zone 1 areas which would continue to operate as the Kurnell Terminal.

1.5 Conceptual RAP and Detailed RAP(s) scopes

This document has been produced in accordance with relevant sections of the *Contaminated Land Guidelines: Consultants Reporting on Contaminated Land* (NSW EPA, 2020). **Table** 1 below demonstrates which components have been included in this Conceptual RAP and which would be included in the Detailed RAP(s). Some sections within this document have deviated from the specific structure suggested in the guidance document (and these are identified accordingly).

Table 1 Conceptual RAP and Detailed RAP(s) scopes

Scope	Conceptual RAP	Detailed RAP(s)
Set **remediation goals** that ensure the land to be remediated would be suitable for the proposed use and would pose no unacceptable risk to human health or to the environment.	✓ Refer to **Section 1.2** and **Section 7.0**	✓
Identify the necessary **approvals and licences** required by regulatory authorities.	✓ Refer to **Section 1.3**.	✓
Provide information on the **nature and extent of impact** based on the available data.	✓ Refer to **Section 3.0** and **Section 4.0**.	✓
Remediation Options Assessment: Evaluate remedial techniques and/or management measures that are required to reduce risks to acceptable levels for the proposed land use of the Project Area, protecting human health and the environment. A decision on **remediation methods** has been provided to inform the modification application.	✓ Refer to **Section 7.0** and **Section 7.3**.	N/A
Identify remaining nature and extent of impact **data gaps**, where additional works are required (to facilitate the preparation of a detailed remediation design, contractor specification, and remediation execution).	✓ Refer to **Section 6.4**	N/A
Undertake a **Data Gap Assessment (DGA)** to address data gaps and confirm current in-situ remediation volume estimates.	X Refer to **Section 6.4**	✓
Nature and extent of impact following data gap investigation(s).	N/A	✓
Reappraised Remediation Options Assessment: **Finalise decision on role of shortlisted remediation techniques** (i.e. refinement of relative role of the techniques already shortlisted) and management measures that are required to be implemented to reduce risks to acceptable levels for the proposed land use of the Project Area, protecting human health and the environment.	X	✓
Finalised remediation plan and methodology (**Remedial Design**). Preparation of a detailed remediation design to inform contractor specification for the remediation.	X	✓
Preparation of a **Human Health and Ecological Risk Assessment (HHERA)** (including the DGA data) to derive risk-based **validation criteria** for the remedial works, (if required) to ensure the remediation has been executed to the appropriate standard to mitigate future risk to human health or the environment.	X	✓ (if required)
Contingency measures should these be required to meet remediation objectives. Contingency measures are included in the Conceptual RAP but would be revisited in the Detailed RAP(s) once the final design is confirmed.	✓ Refer to **Section 7.6**	✓
Establish **Management Plans** to complete the remediation in an acceptable manner including the remediation documents listed in **Section 1.6**.	X Refer to **Section 9.5.**	✓

1.6 Remediation documentation

Supporting Management Plans and Work Procedures that would be prepared prior to commencement of the remediation works are detailed in **Table 2**.

Table 2 Remediation documentation

Project plans	Prepared by:	Approved by:
Project Management Plan including a Community and Stakeholder Engagement Plan (CSEP)[2], Occupational Health and Safety Plan, Quality Management Plan and Emergency Response and Contingency Plan.	Validation consultant/ Contractor	Ampol
Detailed RAP(s)	Validation consultant	Ampol/ Auditor
MOD-7 Construction Environmental Management Plan (CEMP) including: • Soil and Water Management Plan (inclusive of Acid Sulphate Soils Management Plan [ASSMP]), if required • Groundwater Management Plan (GWMP) • Air Quality Management Plan • Waste and Resource Management Plan • Noise and Vibration Management Plan • Construction Traffic Management Plan (CTMP) • Biodiversity and Weed Management Plan.	Contractor	Ampol
Remedial Works Plan including Excavation Plans for the contractor, including a Validation Sampling and Analysis Quality Plan(s) (SAQP) and Material Tracking Plan.	Validation consultant	Ampol/ Auditor
Waste Classification and Imported Fill assessment letters	Validation consultant	Ampol/ Auditor
Environmental Management Plan(s) (EMPs) including restrictions on land use (such as intrusive works) and Groundwater Monitoring Plan(s) (GMPs) (if required).	Validation consultant	Ampol /Auditor

[1] Note an overarching Community and Stakeholder Plan (CSEP) has been prepared to ensure consistent communication and coordinate engagements across a number of projects at the Site. This plan should be requested from Ampol and referred to in development of any project specific consultation plans.

Relevant conditions of consent requirements resulting from the modification application process would be incorporated in the preparation of the above documentation.

2.0 Site condition and surrounding environment

2.1 Site identification

The location of the Site is shown on **Appendix A, Figure F1**. The Project Area is shown on **Appendix A, Figure F2**. The entire Site footprint is located within the Sutherland Shire Council and is zoned as E5 Heavy Industrial. The Project Area comprises portions of a number of existing allotments as shown in **Table 3**.

Table 3 Allotments within the Project Area

Zone	Lots/ DP
Zone 1 (Operational fuel terminal)	Lot 25 (DP 776328), Lots 56, 57, and 62 (DP 908), Lot 1 (DP 1044690), Lots 283 and 570 (DP 752064), Lot 1 (DP 132055)
Zone 1A (Eastern Right of Way)	Lots H, J, and K (DP 362655), Lot D, F, and G (DP 361103), Lots 43-46, 77-79, 122-125 (DP 8135), Lot B (DP 338897)
Zone 2 (Former refinery process areas and scrap yard)	Lot 25 (DP 776328), Lots 56, 57, and 62 (DP 908), Lot 283 (DP 752064)
Zone 3 (Former Caltex Lubrication Oli Refinery)	Lot 1 (DP 215819), Lots 1 and 2 (DP 126647), Lot 2 (DP 215818)

2.2 Current site condition

The Site consists of a largely developed and fenced area encompassing the Kurnell Terminal and the fenced Rights of Way that pass through the Kurnell Township. Ampol also owns land to the south of the Site and a part of Marton Park along the northern boundary (refer to **Appendix A, Figure F1**). The Site is typically accessed off Solander Street which connects to Captain Cook Drive. Access is also available from Sir Joseph Banks Drive, but this access point is typically closed for security reasons unless required.

Between 1956 and 2014, the Site was used as both an oil refinery and a fuel terminal. Since refining ceased in 2014, the Site has been primarily used as a finished fuel import and storage terminal. The former refinery uses at the Site means that an ongoing program of targeted remediation activities, in line with the NSW Environment Protection Authority (EPA) approved Kurnell Remediation Action Strategy (Ampol, 2019), are being completed.

2.2.1 The Project Area

The Project Area consists of the majority of Zones 1 and 1A and the entirety of Zones 2 and 3 in order to facilitate the proposed modification. The Project Area, and key Site features have been presented as **Appendix A, Figure F2**.

Zone 1 is the operational area of the Terminal. The Project Area portion of Zone 1 includes the northern tank farm, office buildings (including the Supply Operations Buildings (SOB), Central Operations Buildings (COB) and Terminal Operations Building (TOB) and extends along the northern boundary with Marton Park and Solander Street. The Zone 1 Project Area excludes the majority of the western and north-eastern tank farms as no modifications are proposed to these areas. Zone 1A is the Eastern Right of Way, which is used by the operational fuel terminal. Remediation is not required in Zone 1A and is not considered further in this report.

Zone 2 is the Former Caltex Oil Refinery area defined by Pipeway A to the north, Road 3 to the east, the Pipe Track C and the edge of the vegetation in Zone 4 to the south and Road 9 to the west. This Zone currently sits largely vacant, with some remaining facilities on the northwest quadrant such as the Main Workshop, Central Control Building (CCB), Storehouse and several electrical substations. The southeast and east quadrant is characterised by substantial level changes and retaining wall structures which form terraces leading up to the remaining fuel storage tanks along the eastern side of Road 3 (the Eastern Tank Farm within Zone 1). The southeast corner of Zone 2 is characterised by the former waste treatment area, former landfarm, asbestos contaminated soil (ACS) containment cell, and former limestone pits. The southern boundary of Zone 2 also includes the former fire training area (FFTA).

Zone 3, the Former CLOR area, is bounded by Sir Joseph Banks Drive to the west, Road Q and Pipe Track C to the north, Road 15 to the east and Road W to the south. This Zone is currently a large vacant area with access to Sir Joseph Banks Drive and with some short term leases currently operating in the northwest portion of the land. Zone 3 contains a former tank farm, land farm, and former process unit area. The southeast corner on Zone 3 is characterised by an asbestos impacted former landfill area known as Refining Process Improvement Project (RPIP) Mountain. Vegetation has established on the RPIP Mountain area in low and regenerating conditions.

The location of Project Area in the context of the Site is shown in **Appendix A, Figure F2**. Various Areas of Environmental Concern (AECs) have been identified based on the former features of the refineries and known or suspected contamination sources. These AECs are described in **Section 4.1**.

2.3 Surrounding land-use

The Site is bounded by Captain Cook Drive, Marton Park and the community of Kurnell to the north and Sir Joseph Banks Drive and existing and former industrial activities to the west. It is bounded to the south and east by Kamay Botany Bay National Park.

Surrounding land uses are detailed in **Table 4**. Surrounding land uses are displayed on **Appendix A, Figure F1**.

Table 4 Surrounding Land Uses

Zone	Direction from Zone	Description of Surrounding Land Use	Distance from Site
Zone 2	North	Zone 1 – Existing Ampol terminal followed by Marton Park	Immediately adjacent on northern boundary of Zone 2 and 300 m (Marton Park)
	East	Eastern Tankfarm and Kamay Botany Bay National Park beyond	Immediately adjacent on eastern boundary of Zone 2
	South	Zone 3 and 4 and onsite wetland and natural retention basin	Immediately adjacent on southern boundary of Zone 2
	West	Western Tankfarm followed by Captain Cook Drive and Ausgrid South Zone Substation	Immediately adjacent on western boundary of Zone 2 and 70 m west (Ausgrid)
Zone 3	North	Zone 2 and the Western Tankfarm	Immediately adjacent on northern boundary of Zone 3
	East	Onsite wetland and natural retention basin followed by Kamay Botany Bay National Park	Immediately adjacent on eastern boundary of Zone 3
	South	Vacant Land followed by Kamay Botany Bay National Park	Immediately adjacent on southern boundary of Zone 3

Zone	Direction from Zone	Description of Surrounding Land Use	Distance from Site
	West	Sir Joseph Banks Drive followed by Sydney Desalination Plant (SDP)	Immediately adjacent on western boundary of Zone 3 and 10 m (SDP)

2.4 Topography

The Site is situated on the Kurnell Peninsula, an elevated plateau of Hawkesbury Sandstone, approximately 18 km in length. The Kurnell landscape is described as gently undulating to rolling coastal dune-fields and relict dunes, with local relief to 15 m; slope gradients 1-10%. North-south oriented dunes with convex narrow crests, broad (1,000-2,000 m) gently inclined concave swales and isolated swamps, extensive heathland (NSW Government Environment and Heritage). Surface elevations across the Kurnell Township range from 0 meters Australia Height Datum (mAHD) within swamplands at Quibray Bay, to 55 mAHD within the Kamay Botany Bay National Park to the south east of the Site. Elevations within the Site range from 4 mAHD within Zone 1 and Zone 2 up to ~30 mAHD along the eastern site boundary of Zone 1 (close to the Kamay Botany Bay National Park). Zone 3 elevations are around 10 mAHD (Spatial Services, 2016). The local topography has been presented on **Appendix A, Figure F1**.

2.5 Geology

According to published geological information (Sydney 1:100,00 geological service sheet), the Site is underlain by Quaternary (Pleistocene) wind-blown medium to fine grained well-sorted marine quartz sand. The sandstone is described as medium to coarse-grained, composed predominantly of quartz with minor lithic fragments, feldspar, mica and clay pellets. The Site lies on the aeolian Kurnell landscape unit, composed of gently undulating to rolling coastal dune field and relict dunes (NSW Soil Conservation Service Soil Landscape Series, Wollongong – Port Hacking).

From historical investigations at the Site the bedrock surface elevation rises toward the east and south of the Site, with sandstone outcrops mapped at the northeast and southeast boundaries. Intrusive investigations have identified sandstone bedrock in Zone 3 to be generally shallower in the northern portion with depths ranging from 0.5 meters below ground level (mbgl) to 3.0 mbgl and deeper in the southern portion, generally from 5.5 mbgl to 10.50 mbgl. Bedrock depths in Zone 2 ranged from between 0.5mbgl to 4.0 mbgl in the south-east and increasing with depth towards the north-west up to 20.7 mbgl (WSP, 2023d).

2.6 Acid sulfate soils

Review of the NSW Acid Sulfate soil (ASS) risk mapping indicates that the Project Area across Zone 1, Zone 2 and the northern portion of Zone 3 is listed as disturbed terrain above 4 mAHD. The southern portion of Zone 3 is mapped as Low Probability above 3 m below ground surface, as shown in **Figure 1** (eSPADE, assessed on 16 May 2024).

A recent investigation within Zone 1 related to an upgrade of surface water infrastructure included an ASS assessment to support excavation and trenching works. Soil testing for ASS found no indicators of actual ASS, though potential ASS (PASS) materials, presenting grey staining and sulphurous odours were encountered within areas mapped as L2 low probability areas on the western boundary of the Site, (AECOM, 2024), outside the Project Area. Based on the reviewed risk mapping and disturbed nature of the Project Area, it is not expected that ASS would be encountered during these modification works. Observations of PASS would be managed via contingency plans as detailed in **Section 7.6**.

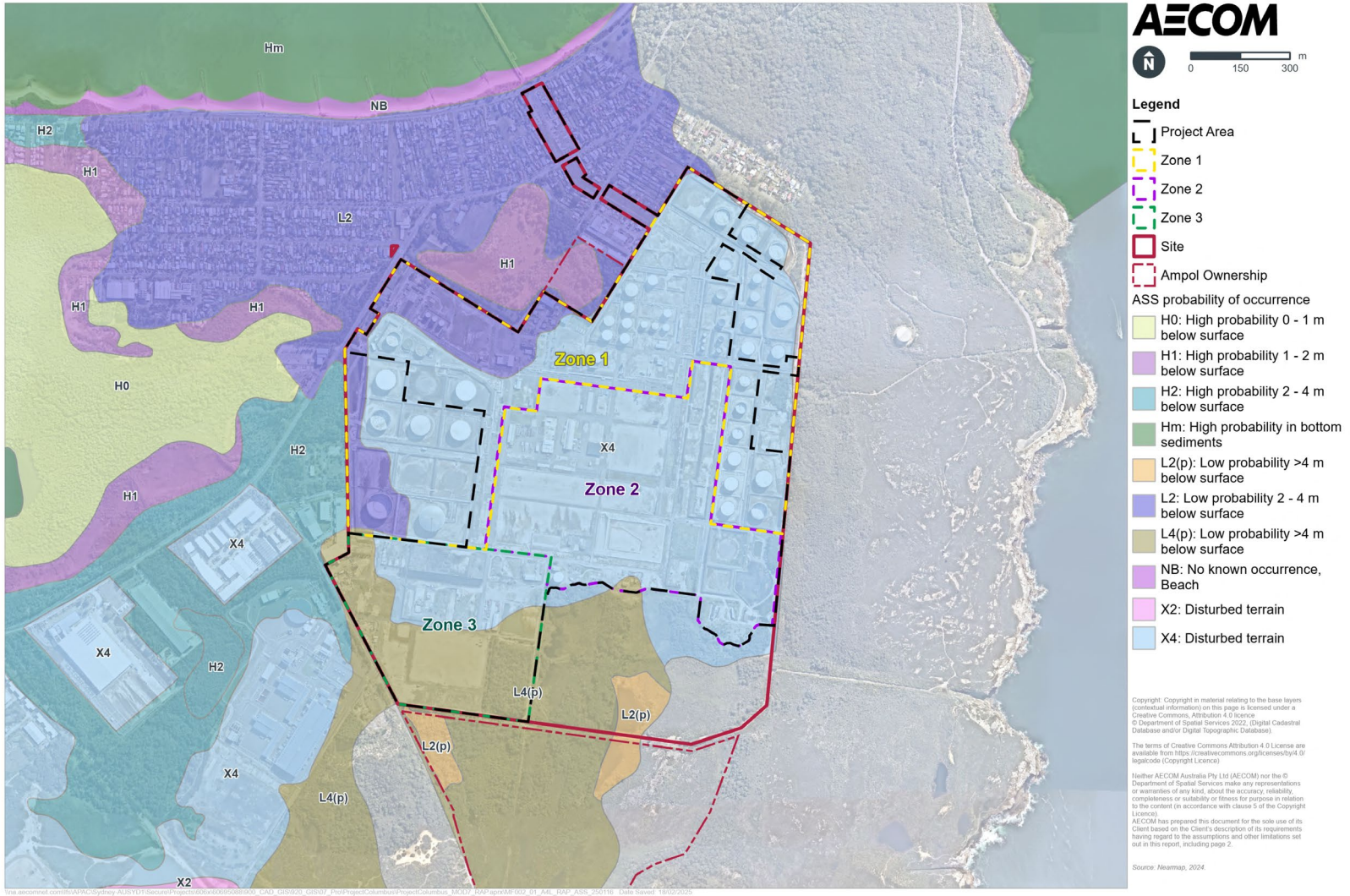


Figure 1 Acid sulfate soils

2.7 Hydrology

The Site is located on the Kurnell Peninsula. The land area of this peninsula, as well as the surrounding marine and estuarine waters, constitute the receiving environment for surface water discharges from the Site. The Kurnell Township's low lying topography and localised depressions can make it vulnerable to flooding dominated by runoff from rainfall. The flooding is characterised by slow moving floodwaters, which can be slow to recede (WMA Water, 2017).

Stormwater generated onsite is collected in the Site's stormwater system (SWS) and discharged to the following receiving environments:

- Quibray Bay
- Botany Bay
- Weeney Bay
- Marton Park Wetland.

The Site is located within the Botany Bay catchment, which extends across a land area of 1,165 km^2. The catchment is part of the Greater Sydney Local Land Services region. The Botany Bay Catchment her four main sub-catchments, based on the major river which drain to it. These are the:

- Georges River catchment
- Cooks River catchment
- Woronora catchment
- Botany Bay catchment.

A substantial part of the receiving catchment is highly developed, with almost 40% of its area being used for urban industrial, or commercial purposes (AECOM, 2023d).

The Site has a Waste Water Treatment Plant, to address water that is or may be impacted by petroleum products. Treated water effluent from the Site is discharged via outfall to the Tasman Sea at Yena Gap under the Environment Protection Licence 837.

2.8 Hydrogeology

Shallow groundwater at the Site is generally encountered at 2.0 m below ground surface (m bgs), with depths ranging between 0.4 m bgs (perched water, overlying shallow rock) and 8.9 m bgs. Within Zone 2 groundwater is at an average of 1.4 m bgs, and within Zone 3 groundwater is at an average of 1.7m bgs, within an unconfined aquifer in Quaternary sands (the Botany Sands Aquifer). No permanent perched groundwater has been identified, though temporary perched conditions could occur following rainfall events, until water has infiltrated into underlying units. Groundwater flow direction at the Site is influenced by an east-west groundwater divide that runs through the northern portion of Zone 3. To the north of the divide, groundwater flow direction is generally to the northwest. To the south of the divide, groundwater flow direction is generally to the south west.

The Quaternary aquifer properties (mainly literature values) have been reported as follows (Coffey, 1996):

- Aquifer permeability is ~25 m/day
- Advective velocity is ~133 m/year
- Aquifer porosity is assumed to be 0.4.

The thickness of the Quaternary aquifer is controlled by the underlying Hawksbury sandstone profile, which predominantly acts as imperial flow boundary (aquitard) at the base of the Quaternary sands (Ampol, 2019).

Surface water infiltration is the predominate source of groundwater recharge. As such, the majority of recharge within the Quaternary sands results from infiltration of direct rainfall, as well as increased runoff from areas where the less permeable Hawksbury sandstone outcrops. Groundwater discharge is understood to occur as a combination of:

- Surface water groundwater interaction; and
- Discharge to the Botany Bay (including Quibray Bay passing beneath Kurnell Village and the Towra Point Nature Reserve), the Marton Park Wetland area and the onsite wetland and natural retention basin south of the FFTA.

2.9 Meteorology

Kurnell, located in the southern Sydney, experiences a temperate climate characterised by mild, dry winters and warm, wet summers. This coastal suburb benefits from its proximity to the ocean, which moderates its temperatures throughout the year. The prevailing southeast winds influence the local climate significantly, bringing maritime air masses that contribute to the area's humidity and precipitation levels. Given its geographic position on the Botany Bay headland, Kurnell is exposed to both land and sea breezes which can vary the local weather conditions daily. From climate statistics taken from the nearest weather station (BOM, Sydney Airport AMO, weather station: 066037, 8.5 km north of the Site, data accessed May 2024) rainfall is highest between January and June (average 110.6 mm per month) before drying up from July through to December (average 71.9 mm per month). Average maximum temperatures are highest in January (26.7°C) and lowest in July (17.2°C).

3.0 Site history and previous investigations

3.1 Site history

Prior to the construction of the 'Australian Oil Refinery' between 1953 and 1956, the Kurnell peninsula was used for farming and timber in the 1800s, and for sand extraction in the early 1900s.

The Project Area has been subject to significant historical disturbances including construction of the Australian Oil Refinery in the 1950s, as well as its ongoing use over the past seven decades. These include:

- Construction of several vehicle tracks across the peninsula prior to 1943
- Near complete clearance of native vegetation within the Project Area prior to 1956, including clearing scrub and draining and filling swamps
- Commencement of the Australian Oil Refinery (the Kurnell Refinery) operations in 1956
- Bulk earthworks to excavate and shape the Site to install various refinery infrastructure in late 1950s
- Establishment of large bunds to separate the refinery from the surrounding landscape, with a significant portion of the sand for this sourced from dredging in Botany Bay
- Expanded over the following decades to include the Oil Lubrication Refinery in 1961
- Further vegetation clearance and installation of refinery infrastructure around 1970 resulting in the complete removal of existing vegetation across the Project Area
- Ongoing development of the Site, including construction of new and removal of refinery infrastructure from the 1970s to present.

Australian Oil Refinery (the Kurnell Refinery) was the largest oil refinery in NSW and the second largest of the seven oil refineries in Australia up to the 2000s, based on crude oil processing capacity. The Kurnell Refinery received and stored refined products and crude oil for refining into other petroleum products. The Site boundary includes the former operation areas of the Australian Oil Refinery and the Caltex Lubrication Oil Refinery.

The Kurnell Refinery was in operation from 1956 to 2014, when Ampol received development consent for the Kurnell Refinery Conversion Project in January 2014 (SSD-5544). Cessation of refining operations occurred in Q4 of 2014.

The Kurnell Terminal now has development consent to manage the following products:

- Gasoline – Unleaded Petrol (ULP), Premium Unleaded Petrol (PULP) and Super Premium Unleaded Petrol (SPULP)
- Diesel
- Jet Fuel.

For further information on the history of the Site, refer to the Heritage Management Strategy (Australian Museum Consulting, 2014) or Appendix H of the EIS for the Kurnell Refinery Conversion Project (SSD 5544) (URS, 2013).

The current operations at the terminal are managed under the Operational Environmental Management Plan (OEMP) Kurnell Terminal, Final Stage 2 (Ampol, 2021). This OEMP helps Ampol comply with its requirements under the development consent for the Kurnell Terminal (SSD 5544), Environment Protection Licence No. 837 (EPL 837) and the Major Hazard Facility licence for the terminal.

3.2 Historical aerial photo review

Historical aerial photographs of the Site from 1947 to 2024 were reviewed using the NSW Government's Historical imagery viewer database and Nearmap Ltd. A summary of the review is provided in **Table 5** below, and copies of the aerial figures have been included as **Appendix B**.

Table 5 Historical Aerial Photograph Review

Photograph Year	Description
1947	The Site is undeveloped and comprises scrubby vegetation. The surrounding area is similar, however to the west the suburb of Kurnell is visible.
1956	The Kurnell Refinery has commenced development and operation, tank farms are visible to the east and north within the Site, and building structures are present within the central portion of the Site, i.e. within Zone 2. The eastern tank farm has tanks present. To the west, the Site appears to still be in development, cleared land is present, however no structures appear to be present in Zone 3. In the surrounding area the township of Kurnell has further developed, with more pronounced roads and residential structures present.
1961	Further development of the Site is evident with a tank farm present to the west of the Site north of the CLOR area (Zone 3). Zone 3 appears to be undeveloped at this point in time, comprising cleared land and evidence of vegetation. The Eastern Tank farm on the boundary of Zone 2 shows more tanks present. The surrounding area in all directions except west remains undeveloped, the township of Kurnell is present to the west.
1979	Zone 2 appears largely the same as the previous decade. Zone 3 has now been developed with numerous tanks and structures present in this area. The CLOR tank farm is now evident. The area known as RPIP Mountain is evident, appears to be vegetated to the north and south, and cleared within the central portions. The surrounding area appears to be similar to last photo, although commercial developments are present to the south west.
1990	The Site appears similar to previous photo with the layout of tanks and structures roughly similar. The CLOR Process Unit Area is more evident, as this is the first colour photo so structures in this area are now discernible. The surrounding area shows further development with the area currently occupied by the Sydney Desalination Plant (SDP) appearing to have a development in place.
1998	No major changes are noted onsite with exception of the south east corner where it is apparent that storage in the landfarm area is occurring. The Former Fire Training Area now has structures on it, a large tank and shed are visible. The surrounding area also appears similar, with no major changes.
2002	No major changes are noted onsite, the structures appear the same as previous decade. The surrounding area also appears similar, however further developments are noted to the west of the Site.
2010	The Site appears similar to previous decade. The surrounding area shows the development of the current Sydney Desalination Plant (SDP) adjacent to the Site to the south west. Further commercial development is apparent to the west of the site.
2015	The Site appears to be undergoing change as some of the tanks are noted to be open, i.e. the tops have been removed. This is likely associated with the conversion works at the site. Major changes in Zone 3 (the CLOR area) are noticeable, all the infrastructure from the previous photo has been removed and the area looks to be cleared. Zone 2 appears similar to previous photo. The surrounding area appears similar to the previous decade.

Photograph Year	Description
2020	Significant changes to the Site are apparent, major fuel infrastructure and support buildings have been removed, particularly in the centre of the Site (Zone 2). Large, cleared areas are observed in Zone 2, adjacent to the eastern tank farm and south of the bunker building. Large tanks have also been removed in the eastern, northern and western tank farms. RPIP mountain looks to be fully vegetated. The surrounding area appears similar to the previous decade.
2024	Further changes to the Site are apparent with further removal of tanks in the tank farms and more areas look to be cleared such as the flare geobag area located west of the asbestos cell. In Zone 3 north of RPIP Mountain the CLOR landfarm area appears to be cleared which is evidence of remediation having occurred in this area. The surrounding area appears similar to the previous decade, however more development is apparent to the south west of the Site where Dicker Data is currently situated.

3.3 Previous investigations

While many environmental investigations have been completed across the Site over the years, the following previous investigations are considered pertinent to the objectives of this RAP. The selected investigations do not include every historical investigation completed at the Site to date. Where environmental data from these reports is available and pertinent to the remedial options assessment process (**Section 7.0**), these have been compiled and provided as **Appendix C**.

Environmental Site Assessment Data Gap Assessment, Caltex Kurnell Terminal (WSP, 2018)

The overall objective of the investigation was to close data gaps in relation to potential sources of contamination within the former refinery process unit areas, pipeways of the Site and redundant tank bunds. The areas investigated for this report of relevance to this RAP are in Zone 1 and Zone 2 only..

The report concluded that of the 12 sections that the investigation was broken up into (5 of which were located within Zone 2, and 2 of which were in Zone 1), WSP deemed that the information from this investigation coupled with previous investigations closed all known data gaps in the areas, with exception of 2 minor data gaps, one of which was related to Zone 2 (none in Zone 1) and noted to be in vicinity of the former support buildings for the power plant area. The data gap related to parts of this area being inaccessible at the time due to demolition works, and as a result, no soil or groundwater data was obtained from this area.

Soil and groundwater results from the areas relevant to Zone 2 (the Former Fuels Refinery Process Units) indicated exceedances of Health Screening Levels (HSL) Commercial / Industrial -D for total recoverable hydrocarbon (TRH) F1 criteria which may indicate vapour intrusion risk to enclosed spaces, but as the current use at the time was open space this was not deemed significant. Exceedances of fresh water ecological protection criteria were also noted in groundwater for benzene, xylene and naphthalene. In vicinity of the eastern tank farm, it was noted that solvent type odours were observed from several test pits despite only minor hydrocarbon detections in soil samples. The report indicated that potentially other volatile organic compounds (VOC), outside the total recoverable hydrocarbon (TRH) C6-C40 fractions that were tested for, may be present in this area and recommended further soil sampling for VOCs.

The information from this report was used as the basis for the Caltex Refinery Kurnell Special Condition E9: Data Gap investigation Plan, Caltex Kurnell Remediation Action Strategy (RAS) (Ampol, 2019) as discussed below.

Remediation Action Strategy Report (Ampol, 2019) and Update reports, November 2021 (Ampol, 2021b) and 2022 (Ampol, 2022)

The initial RAS report outlined the strategy for management and / or remediation of contamination identified at the Kurnell Terminal with the exception of per and poly-fluoroalkyl substances (PFAS) which was being addressed in a separate program of works. The management and / or remediation strategies presented in the RAS is based on the current land use as a Terminal site. The RAS broke up the Site into a number of areas of environmental concern (AECs) based on specific site uses and contaminants encountered. A number of the AECs are located within Zone 1, Zone 2 and Zone 3 and are listed in **Section 4.1**. This RAS was subsequently endorsed by the EPA.

The remediation strategy update reports detail the areas that have completed further works since the initial 2019 RAS was produced. These reports have provided information for several areas within Zones 1, 2 and 3. In particular, it was noted areas such as Geobag Flare area to the west of the ACS containment cell had remediation completed since 2019. The RAS 2022 update provides a description and summary of works completed. This report was not available for review in full at the time of drafting this Conceptual RAP.

Remediation Action Strategy Update Report, November 2023 (Ampol, 2023)

The 2023 RAS update indicated the following areas within Zone 1, Zone 2 and Zone 3 had further works completed in 2023. It is noted that the RAS update provides a description and summary of works. This report was not available for review in full at the time of drafting this Conceptual RAP.

Completed

- TK331 Geobags – Bedding gravel removed in 2023 and validation sampling completed. The report notes that the area is suitable for ongoing industrial use. This data has not been reviewed by AECOM and AECOM has not confirmed if its suitable for occupied Industrial land use.
- CLOR landfarm – Remediation works were considered complete in this area in December 2022 with exception of the requirement to revegetate this area.

In Progress

- Northern tank farm (within Project Area but outside audit boundary) – To provide supporting data of the effectiveness of the bioventing system which is installed along the western boundary to assess potential vapour intrusion risk to offsite residential areas, soil vapour monitoring is regularly conducted. The vapour monitoring rounds have all recorded concentrations of hydrocarbons at consistently low levels which are less than the respective HSL criteria.
- North Western tank farm (within Project Area but outside audit boundary) – The 2023 assessment confirmed there are disconnected areas of hydrocarbon impact located at former tank 155/165 bund area, former tank 126 bund area and former tank 136 bund. Fingerprint testing indicates the LNAPL was the result of historical release. Based on age and lack of current source it is considered that the LNAPL footprint is likely to be stable. Asbestos fragments were observed at the ground surface in the former Tank 1 area. A DSI is planned to inform whether remediation of additional areas is warranted. This DSI was not finished at the time of this report.
- The Eastern tank farm – Refinement of the Conceptual Site Model (CSM) through delineation of light non-aqueous phase liquid (LNAPL) impact. Five additional groundwater monitoring wells (PU94 to PU98) were installed. The report notes that detailed site investigations (DSIs) were completed in 2022 and 2023.
- CLOR tank farm – Removal of the hydrocarbon solid waste was undertaken in 2023. Approximately 7000 T was disposed of in 2023. Subsequent scraping from the base of the tank bund has resulted in an additional 3,500 T of waste which is planned to be removed in 2024 and then validation sampling was planned to be undertaken.

- CLOR Pipeway Area Y (also referred to as CLOR Pipeway B) – Following identification of asbestos fragments during hydrocarbon remediation works in 2021 and 2022, asbestos sampling was undertaken in March 2023. The results indicated the presence of asbestos with random distribution therefore it was concluded that the entirety of pipeway Area Y would be treated as asbestos contaminated. Further works to address the asbestos contamination are included for consent under this Modification.
- RPIP Mountain – An additional investigation was completed by AECOM in 2023 and is detailed below.

Caltex Kurnell ACS Modification Works – Pipeways Closure Report (AECOM, 2020)

AECOM was commissioned by Caltex to validate the removal of asbestos contaminated soils (ACS) from areas termed the pipeways at the Caltex Kurnell Terminal. The objective of the asbestos removal works was to remove the need for works to be completed under the Exemption Order by demonstrating that no asbestos hazard exists to workers undertaking routine work within the pipeways. This work was completed by removing the areas identified as containing asbestos to a depth of 0.2 m (and in selected locations, to 0.5 m). Validation samples were then taken to verify if asbestos was still present at the final excavation depth to inform the site asbestos register. At the 0.5 m excavation depth, a validation sample was taken before a marker layer was placed with a minimum of 0.2 m of clean fill on top of the marker layer.

Pipe Track C and the CLOR pipeway which are within Zone 2 and Zone 3 had the following conclusions from the validation report:

- Pipe Track C (referred to as Area W in validation report) – As there was no asbestos lagging used in Area W and the results returned negative for asbestos presence in 20 samples across 28 locations and with crushed concrete fill laid to a depth of 0.2 – 0.3 m above, it is considered that there is sufficient evidence to leave the soil in-situ, and to remove the exemption order.
- CLOR pipeway (referred to as Area Y east and west in validation report) – As there was no asbestos lagging used in Area Y west and the cladding and insulation used in Area Y East was well preserved, and the results returned negative for asbestos presence in 21 samples across 10 sample locations it is considered that there is sufficient evidence to leave the soil in-situ and to remove the exemption order.

It is noted that since the completion of these pipeway validation works, conditions of areas might have changed. Given these pipeways serve in the transport of surface water, there is potential that asbestos capping might have eroded. As such, asbestos may still exist in these areas and should be considered when undertaking works.

Quarterly Groundwater Monitoring reports – Q1 Q2 and Q4 2023 (WSP, 2023a) (WSP, 2023b) (WSP, 2024c)

The quarterly groundwater monitoring reports detail the current groundwater conditions across the Site and have been used to inform the groundwater status in the areas pertinent to the Project Area. PFAS is monitored under a different program. The report compares results against relevant investigation levels and also monitoring triggers which are the following: Tier 1 exceedance, Non-Aqueous Phase Liquid (NAPL) or NAPL indicator concentration recorded, NAPL thickness or contaminant concentration >10x since last Groundwater Monitoring Event (GME), Mann-Kendall analysis indicates an increasing trend, monitoring locations found to be damaged or lost, change in land use that may change the risk profile.

The information from the latest monitoring report, Q4 2023 indicates that wells located in Zones 1, 2 and 3 from the various areas as broken up in the program - Eastern tank farm, former CLOR, former fire training area, former fuels refinery, RPIP Mountain shows the following results:

- Northern tank farm (within Project Area but outside audit boundary) – Tier 1 exceedances for metals and TRH F1 and F2 concentrations and NAPL or NAPL indicator concentrations present in wells PMW25, PMW36, PU44, PU38, PU40. Activated triggers within this monitoring zone are generally localised to the interior of the zone and are unlikely to present a risk to downgradient receptors as the boundary wells along the northern and western boundaries are below active triggers.

- North Western tank farm (within Project Area but outside audit boundary) – LNAPL was present at PMW80, PMW81, PMW86, PMW96 and PMW97 however active monitoring triggers were generally contained in central monitoring locations. TRH concentrations in down gradient boundary wells during the current round were within historical ranges with exception of a tier 1 ecological exceedance of zinc in PMW46. The report noted the pattern of metals in groundwater appears to be unrelated to site activities.
- Eastern Tank farm (within Project Area but outside audit boundary) – wells have remained within historical ranges with a number of wells (including the newly installed PU94-PU98) having NAPL or concentrations that indicate NAPL.
- Former CLOR – Tier 1 exceedance for heavy metals, marginally above the screening criteria, and generally within historical concentration ranges. No clear association between the spatial distribution of heavy metals in this monitoring zone and former or current site activities.
- Former fuels refinery – NAPL or NAPL indicator concentrations exist in the central part of this area.
- RPIP Mountain – One monitoring well was assessed at this point in time(PMW64) and no triggers were noted.

Soil Vapour Monitoring Program – November 2023 (WSP, 2024a)

The soil vapour monitoring reports detailed the current soil vapour conditions across the Site and have been used to update the potential for vapour intrusion risk due to soil vapour concentrations in the areas pertinent to the Project Area. The locations relevant to the proposed modification indicated potential soil vapour intrusion risks in vicinity of SV05. SV05 is located within the central area of Zone 2 in the former storage and process areas. The report concluded for this location that as it was in outside open areas the vapour risk level was considered acceptable.

Location SV04 on the south boundary of Zone 1 and north boundary of Zone 2 had concentrations of benzene and TRH F1 exceeding HSL criteria for commercial land use in the November 2023 round and historically. Two additional wells SV203 and SV204 were installed in March 2022 to delineate the impact at SV04 and based on the 2023 soil vapour monitoring, concentrations have been below criteria indicating the area of high impact around SV04 may be limited in extent.

Soil Vapour Investigation at the former CLOR area (WSP, 2023c)

The soil vapour investigation in Zone 3 has been used to refine the assumptions regarding the potential vapour intrusion risk with the current vapour data indicating acceptably low risk for slab-on-grade Industrial land use.

Fire Training Area Concrete Slab Assessment Report (Enviropacific, 2022)

The report documents the findings from an assessment of concrete slab in the fire training area for PFAS. The results of the assessment indicated PFAS was below General Solid Waste (GSW) thresholds in the concrete slab and for disposal purposes could be disposed as GSW (with respect to PFAS).

Supplementary Asbestos in Soil Assessment – CLOR Pipeway Area (AECOM, 2023b)

AECOM completed an asbestos in soil investigation within the CLOR pipeway area which included completion of soil sampling though test pitting to provide an in-situ waste classification of soils in the area. The findings indicated that asbestos contamination was present to a depth of 0.4 mbgl (extent of investigation) within the investigation area. The preliminary findings indicated that the material would meet the classification of Special Waste - Restricted Solid Waste based on 36 asbestos samples and three primary chemical samples.

Asbestos in Soil Investigation – RPIP Mountain Area (AECOM, 2023c)

AECOM completed an asbestos in soil investigation at the RPIP area which included an ecological inspection, establishment of approved access paths through the area and completion of soil sampling though test pitting to provide an in-situ waste classification of soils in the area. The findings indicated that the extent of asbestos contamination within the area was more widespread than suggested in PB 2011 (doc ref: 2162552A LT_4632_RevA/MW/kt). The findings indicated that the material would meet the classification of restricted solid waste based on 12 sample locations, and 2 locations met the classification of hazardous solid waste primarily driven by lead concentrations.

Pre-lease Assessment Reports and Lease Assessment reports for the leased areas (WSP, 2020) (WSP, 2021a) (WSP, 2021b) (WSP, 2021c) (WSP, 2022)

The pre-lease assessment reports were prepared for the leased areas along the western boundary of Zone 3. The assessments included intrusive works facilitating broad sampling for asbestos in soils, and targeted sampling for chemical contaminants (related to former operations and process building footprints), and review of available groundwater monitoring data. The reports indicated that the areas to be leased were suitable for industrial land use at the time. AECOM completed a Site inspection of the leased areas in September 2023 to provide an indication as to whether potentially contaminating activities were occurring within the leased areas that may require further assessment and/or remediation following termination of lease. Observations from the Site inspection indicated that whilst there may be minor housekeeping issues to be addressed in some of the leased areas, overall the potential to cause gross contamination from the Site activities was low.

Ampol Kurnell Terminal PFAS SAQP 2022-2023 Investigation: Summary Report (WSP, 2024b), CLOR South PFAS Soils investigation (WSP, 2024d)

The PFAS Sampling Analysis and Quality Plan (SAQP) summary report overall objective was to assess the degree and extent of PFAS contamination in surface and groundwater at and in the vicinity of the Site based on results from sampling completed in 2022 and 2023. Ongoing PFAS monitoring and mangement works are being completed in accordance with the Site's EPL. Investigations of soils within the audit boundary were completed in the into the CLOR South area completed in May 2024 did not detect concentrations of PFAS within soils above the standard laboratory limit of reporting in this area from a total of 79 primary samples collected between surface and 2.0 mbgl (vertical extent of investigation) (note: only draft data tables and figures for the CLOR South PFAS Soils investigation, as the entire report was not available for review at the time of writing).

BESS Kurnell Terminal – Geotechnical Interpretative Report (WSP, 2023d)

This report consisted of desktop review of the Site, and site assessment of the Zone 2 and Zone 3 areas, to provide geotechnical advice relevant to design and construction of a proposed BESS and its auxiliary structures. The report provided discussion on the variable stratigraphy underlying the Site, the high groundwater table observed, the extensive and variable nature of fill soils within the Project Area, and the compressible / settlement prone nature of the loose sands at the Site.

4.0 Conceptual Site Model

A CSM is a qualitative description of the mechanisms by which potential and/or complete exposure pathways may exist between known or potential sources of contamination, and human or environmental receptors. For a human or ecological receptor to be exposed to a contaminant from a site, a complete exposure pathway must exist. An exposure pathway may include the following elements:

- A source and mechanism of chemical release
- A transport medium (or media where contaminants are transferred between media; i.e., air, dust, water, sediment)
- A point of potential human or ecological contact with the contaminated media
- An exposure route (e.g. ingestion, inhalation) at the point of exposure.

Where one or more of the above elements is missing, the exposure pathway is considered incomplete and therefore, there is considered to be no direct risk to the receptors. Where an incomplete exposure pathway is identified, further assessment is not warranted. Where a linkage may exist or has the potential to exist, the exposure pathway is considered further in terms of risk assessment.

Based on the results of the previous investigations and in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, amended 2013 (ASC NEPM) (National Environment Protection Council (NEPC), 2013) (herein referred to as the ASC NEPM), a preliminary CSM has been developed for the Project Area. The CSM includes a summary of potential contaminant sources in soil and groundwater, exposure pathways and human and/or ecological receptors. The CSM is outlined in the sub-sections below.

4.1 Historic focus areas

The following AECs identified in the 2019 RAS, subsequent RAS update reports and the PFAS SAQP 2022 - 2023 Investigation Summary Report are present within Zone 2 and Zone 3 currently, or present within Zone 1 in areas that would be affected by the proposed modification, are summarised in **Table 6**. Where contamination sources in Zone 1 have the potential to contaminate soils and groundwater within the Audit Boundary, they have also been included as relevant AECs. The location of the AECs are shown on **Appendix A, Figure F2**, and historic analytical results have been compiled as **Appendix C**.

Table 6 Areas of Environmental Concern

Zone	AEC Details
Zone 1	**Eastern Tank Farm** The eastern tank farm is located in the eastern portion of Zones 1 and 2. The area includes both active and former aboveground storage tanks. There is LNAPL present within this AEC which is the result of a historic spill of product within the tank farm in the early 1990s. The LNAPL plume was remediated through hydraulic removal, however residual LNAPL is still present within the area, which presents as an ongoing secondary source of dissolved phase groundwater impacts (WSP, 2018). Based on the age and lack of primary source for the LNAPL, the contamination is not considered to be expanding (Ampol, 2019). The eastern portion of this AEC is not within the audit boundary; however, it is located hydraulically up-gradient of Zone 2 and has the potential to impact within the audit boundary.
Zone 1	**Jet Fuel Remediation Area** The Jet Fuel Remediation Area is located within Zone 1, east of the Terminal Operations Building (TOB) within the Contractors Carpark area. There is ongoing groundwater remediation being undertaken at this AEC, which is being completed under SSC approval (DA: 09/80) (Ampol, 2019). Primary contaminants (TRH F2 fraction based on jet fuel source) in groundwater at the down hydraulic gradient, northern Site boundary monitoring wells (PMW22, PMW45) are below the relevant industrial screening criteria and remain within historical concentration ranges (WSP, 2024c). This AEC is within the Project Area but not within the audit boundary.

Zone	AEC Details
Zone 1	**North Western Tank Farm** The north western tank farm (and the adjacent Tank 124 area to the north) is located in the north of Zone 1. The north western tank farm contains a series of active aboveground storage tanks, whilst the Tank 124 area is the footprint of now decommissioned cooling water storage tanks and hydrocarbon storage tanks (WSP, 2018). Quarterly groundwater monitoring within this area has identified contamination consistent with the historic fuel storage activities, however concentration trends are stable and there are no exceedances of relevant screening criteria at boundary wells for petroleum hydrocarbons (PHCs) (WSP, 2024c). This AEC is within the Project Area but not within the audit boundary.
Zone 1	**Northern Tank Farm** The northern tank farm is in the northern most corner of the Site within Zone 1. The area contains residual LNAPL and dissolved phase hydrocarbon contamination. There is a bioventing remediation system installed on the down hydraulic gradient boundary of the northern tank farm, treating groundwater prior to offsite migration. The groundwater contamination within the AEC is subject to ongoing management. The sentinel monitoring wells in this area confirm that the remediation system is reducing PHC mass flux in groundwater to levels below relevant criteria (WSP, 2024c). This AEC is within the Project Area but not within the audit boundary.
Zone 1	**Former LPG Area** The Former LPG Area is located on the north western portion of the Site immediately west of the main entrance, within Zone 1. The Former LPG Area previously contained the LPG loading area, LPG storage, and a weighbridge, which were all removed during the terminal conversion. There are currently two active aboveground storage tanks containing petroleum products within this AEC. Whilst there are no PHC impacts of concern within this area (WSP, 2018), investigations into the presence of asbestos have identified impacts within surface soils which require management or remediation (AECOM, 2023a). This AEC is within the Project Area but not within the audit boundary.
Zone 2	**FFTA** The FFTA is located on the southern boundary of Zone 2. It consists of a bunded concrete slab with aboveground props which were historically set alight for firefighting exercises. The FFTA is no longer in use. Assessments into the FFTA concrete slab have been completed (Enviropacific, 2022, discussed in **Section 3.3**) and have confirmed the presence of PFAS within the concrete but below the General Solid Waste (GSW) classification (NSW EPA, 2014). Soil and groundwater investigations into the nature of PFAS in this area are ongoing.
Zone 3	**Tank 282, Tank 331, and Flare Compound Geobag Areas** The Site has been historically identified as having three geobag areas (each located within Zone 2), which were used for storage and processing of geobag containing tank sludge removed from bases of tanks during the decommissioning process. Geobags were removed from all three compounds between 2019 and 2023. Subsequent validation sampling has confirmed that the areas are suitable for ongoing industrial use (Ampol, 2023).
Zone 3	**CLOR Tank Farm** This area has been used to store hydrocarbon impacted soil waste temporarily Removal of this waste commenced in 2023 and is continuing into 2024. Following removal of the remaining soil waste, validation sampling would be undertaken to confirm the condition of soils in this area (Ampol, 2023).

Zone	AEC Details
Zone 3	**CLOR Landfarm** The former CLOR landfarm within the eastern portion of Zone 3 contained hydrocarbon and asbestos waste. This area was used for landfarming prior to construction of the landfarm in the south east corner of Zone 2. The CLOR landfarm was remediated as part of DA20/0104, commencing in 2021 (Ampol, 2023). As part of this work, all former landfarm waste was excavated and disposed offsite. This was followed by validation and backfilling of excavated areas with Virgin Excavated Natural Material (VENM). Two locations downgradient of the former CLOR landfarm have been assessed for PFAS in groundwater, OMW9 and OMW10, concentrations of PFAS from these locations have been recorded at 1.35 ug/L (OMW10 August 2023) and 0.93 ug/L (OMW9 August 2023).
Zone 3	**CLOR Process Unit Area** The CLOR process unit area was initially identified as requiring remediation due to the presence of LNAPL (Ampol, 2019). The area was remediated in 2021 through the excavation and offsite disposal of hydrocarbon contaminated soils, removal of a redundant stormwater basin, as well as two areas of asbestos impacted soils. A validation report was prepared and submitted to SSC and the NSW EPA in November 2021 (Ampol, 2021b). Subsequent groundwater monitoring at this AEC has found that LNAPL is no longer present and PHC contamination in groundwater did not exceed tier 1 screening criteria (WSP, 2024c).
Zone 3	**RPIP Mountain** Refining Process Improvement Project (RPIP) Mountain is an area in the south east of Zone 3 which has stored stockpiles of unknown origin containing asbestos and other contaminants. Over time, the stockpiles have been naturally revegetated in low to regenerating condition. Sampling completed by AECOM in 2022 identified asbestos impacts from surface to 2.0 mbgl. Other analytes test (PFAS, metals, PHC) where below human health criteria (commercial / industrial) (AECOM, 2023c).
Zone 2	**Former Limestone Pits** This area is located in the southeastern corner of Zone 2. The remedial works were completed in 2012, with remediation completed through containment onsite, and managed through an EMP. Groundwater management is ongoing through a phytoremediation system. It is noted in the Quarterly GME report (November 2023) that the Limestone pits area is monitored on a biannual basis. A 2018 review of groundwater data (GHD, 2018) found no exceedances of assessment criteria present. The Former Limestone Pits are within the Project Area but not included in the audit boundary, and based on the remediation being completed by containment and through a separate groundwater monitoring program this AEC is not considered further.

4.2 Sources and COPCs

The two types of sources of contamination across Zone 1, 2, and 3 which are considered include:

- **Primary Sources**, which include current/historic infrastructure, containers used for the bulk storage or transport of chemicals, and current/historic site activities (e.g. refuelling, or firefighting training)
- **Secondary Sources**, which include soil (including reworked fill and fill of unknown origin within RPIP mountain) and groundwater (including LNAPL) impacted by PHC, chemical solvents, and other chemicals.

The ongoing storage of PHC would continue at the Site within Zone 1 for the foreseeable future. Bulk storage of PHC, within above ground storage tanks, occurs in the north eastern, eastern and western portions of the Site. Finished fuels are supplied to the Kurnell Wharf on the south side of Botany Bay by tankers and piped through the eastern right of way to the terminal. These fuels are stored at the Kurnell Terminal until needed and then transferred through pipes back through the eastern right of way under Botany Bay and on to other terminals and Sydney Airport.

The fuel storage and transfer infrastructure at the Kurnell Terminal is managed through ongoing operation and maintenance activities. The historical petroleum storage and refinery activities at the Site within Zones 1, 2 and 3 served as primary sources for asbestos within soils, as it was present within building and plant materials (in the form of gaskets, lagging, fibre boards, among others). Asbestos secondary sources are related to RPIP Mountain where fill materials were stockpiled which contained asbestos, and from recycled building materials originating from the Site, potentially containing asbestos, was used as fill at the Site.

The primary source of PFAS is related to the storage and historical use of fluorinated firefighting foam at the Site. The locations include the FFTA where firefighting training was conducted, the foam deluge system associated with the former process areas and storage tanks across the Site and within the CLOR area on the western side of the former process units adjacent to Road 16 where a temporary foam storage trailer was stored. Secondary sources have been identified through prior environmental investigations of the Site, primarily focussed on redundant areas of the Site, the relevant areas in Zone 2 and Zone 3 include the former fire training area, former fuels refinery, and the former CLOR.

Based on the known sources, contamination identified at the Site includes PHC, PFAS in groundwater and soils, and asbestos in soils across Zone 1, 2 and 3. Therefore, the COPCs for the Project Area are detailed in **Table 7** below.

Table 7 COPC by Zone and Media

Zone	Media	COPC
Zone 1	Soil	• Asbestos • Total recoverable hydrocarbons (TRH) • Benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN) • Polycyclic aromatic hydrocarbons (PAHs) • PFAS • Heavy metals (arsenic (As), nickel (Ni), copper (Cu), zinc (Zn), lead (Pb), mercury (Hg), cadmium (Cd), chromium (Cr)) • Organochlorine and Organophosphorus Pesticides (OCP and OPP) • Phenols • Polychlorinated Biphenyls (PCBs) • Volatile Organic Contaminants (VOCs) • Semi Volatile Organic Contaminants (SVOCs).

Zone	Media	COPC
	Groundwater	• TRH • BTEXN • PAHs • PFAS • Heavy metals • OCP and OPP • Phenols • VOCs • SVOCs
Zone 2	Soil	• Asbestos • TRH • BTEXN • PAHs • PFAS • Heavy metals • OCP and OPP • Phenols • PCBs • VOCs • SVOCs
	Groundwater	• TRH • BTEXN • PAHs • PFAS • Heavy metals • OCP and OPP • Phenols • VOCs • SVOCs
Zone 3	Soil	• Asbestos • TRH • BTEXN • PAHs • PFAS • Heavy metals • OCP and OPP • Phenols • PCBs • VOCs • SVOCs
	Groundwater	• TRH • BTEXN • PAHs • PFAS • Heavy metals • OCP and OPP • Phenols • VOCs • SVOCs

Although not listed in the table above, other contaminants specific to process uses of the former refinery require further investigation to be determined whether they are present onsite as historic reports listed in **Section 3.3** have not considered them. This is considered a data gap and is noted as such in **Section 6.4.**

4.3 Receptors and exposure pathway linkages

Potential receptors include:

- Onsite workers (current and future occupants)
- Onsite intrusive maintenance workers
- Onsite ecological receptors (wetlands in south of Site)
- Offsite residents (north of the Site)
- Offsite commercial workers (north west and south west of the Site)
- Offsite intrusive maintenance workers
- Offsite ecological receptors (surrounding Site).

The following exposure pathways may apply for onsite human receptors:

i. Dermal contact and incidental ingestion of soil/groundwater/surface water

ii. Inhalation of soil derived dust or fibres in indoor and/or outdoor air

iii. Inhalation of soil vapours within a trench

iv. Inhalation of soil vapours within indoor air.

Based on the physical and chemical parameters of the COPC, identified exposure pathways that may be relevant to each COPC are presented in **Table 8**. It is noted that further investigation is required to confirm source-pathway-receptor (SPR) linkages for pathways listed as potentially complete. Additionally, it is noted that the Geobag Areas; Tank 282, Tank 331, and Flare Compound have been validated as suitable for the current Site use but further evaluation is required in the context of future development of the Site. Similarly, the former CLOR landfarm area is understood to have been remediated but not yet reported, hence further investigation and/or remediation has not been discounted at this time.

Table 8 Source-Pathway-Receptor linkages

Zone	AEC	Media	Contaminants	Receptors	Complete or potential complete pathway
1	Eastern Tankfarm and north western tankfarm	Soil	• Asbestos • TRH • BTEXN • PAHs • PFAS • Heavy metals • OCP and OPP • Phenols • PCBs • VOCs • SVOCs	• Onsite workers	• Potentially Complete
				• Onsite maintenance workers	• Potentially Complete
		Groundwater	• TRH • BTEXN • PAHs • PFAS • Heavy metals • OCP and OPP • Phenols • PCBs • VOCs • SVOCs	• Onsite workers	• Incomplete, managed by protocols
				• Onsite maintenance workers	• Incomplete, managed by protocols
				• Offsite residents (north of site)	• Incomplete
				• Offsite commercial workers	• Incomplete
				• Offsite intrusive maintenance workers	• Incomplete
				• Offsite ecological	• Potentially Complete*
2	FFTA	Soil	• Asbestos • TRH • BTEXN • PAHs • PFAS • Heavy metals • VOCs • SVOC	• Onsite workers	• Potentially Complete
				• Onsite maintenance workers	• Potentially Complete
				• Offsite ecological (wetlands to south of Zone 2 boundary)	• Potentially Complete*

Zone	AEC	Media	Contaminants	Receptors	Complete or potential complete pathway
		Groundwater	• TRH • BTEXN • PAHs • PFAS • Heavy metals • VOCs • SVOCs	• Onsite workers	• Incomplete, managed by protocols
				• Onsite maintenance workers	• Incomplete, managed by protocols
				• Offsite ecological (Wetlands to south of Zone 2 boundary)	• Potentially Complete*
	Tank 282, Tank 331, and Flare Compound Geobag Areas**	Soil	• Asbestos • TRH • BTEXN • PAHs • PFAS • Heavy metals • VOCs • SVOCs	• Onsite workers	• Potentially Complete
				• Onsite maintenance workers	• Potentially Complete
				• Offsite ecological (wetlands to south of Zone 2 boundary)	• Potentially Complete
		Groundwater	• TRH • BTEXN • PAHs • Heavy metals • VOCs • SVOCs	• Onsite workers	• Incomplete, managed by protocols
				• Onsite maintenance workers	• Incomplete, managed by protocols
				• Offsite ecological (wetlands to south of Zone 2 boundary)	• Potentially complete*
	Uncontrolled fill of uncertain quality	Soil	• Asbestos • TRH • BTEXN • PAHs • PFAS	• Onsite workers	• Potentially Complete

Zone	AEC	Media	Contaminants	Receptors	Complete or potential complete pathway
			• Heavy metals • OCP and OPP • Phenols • PCBs • VOCs • SVOCs	• Onsite maintenance workers	• Potentially Complete
		Groundwater	N/A	N/A	N/A
3	CLOR Tankfarm	Soil	• Asbestos • TRH • BTEXN • PAHs • PFAS • Heavy metals • VOCs • SVOCs	• Onsite workers	• Potentially Complete
				• Onsite maintenance workers	• Potentially Complete
		Groundwater	• TRH • BTEXN • PAHs • PFAS • Heavy metals • VOCs • SVOCS	• Onsite workers	• Incomplete, managed by protocols
				• Onsite maintenance workers	• Incomplete, managed by protocols
				• Offsite intrusive maintenance workers	• Potentially Complete*
				• Offsite commercial workers	• Potentially Complete*
				• Offsite ecological	• Potentially Complete*
	CLOR Landfarm***	Soil	• Asbestos • TRH • BTEXN	• Onsite workers	• Potentially Complete

Zone	AEC	Media	Contaminants	Receptors	Complete or potential complete pathway
			• PAHs • PFAS • Heavy metals • VOCs • SVOCs	• Onsite maintenance workers	• Potentially Complete
		Groundwater	• TRH • BTEXN • PAHs • PFAS • Heavy metals • VOCs • SVOCs	• Onsite workers	• Incomplete, managed by protocols
				• Onsite maintenance workers	• Incomplete, managed by protocols
				• Offsite intrusive maintenance workers	• Potentially Complete*
				• Offsite commercial workers	• Potentially Complete*
				• Offsite ecological	• Potentially Complete*
	CLOR Process Unit Area	Soil	• Asbestos • TRH • BTEXN • PAHs • PFAS • Heavy metals • VOCs • SVOCs	• Onsite workers	• Potentially Complete
				• Onsite maintenance workers	• Potentially Complete
		Groundwater	• TRH • BTEXN • PAHs • PFAS • Heavy metals • VOCs • SVOCs	• Onsite workers	• Incomplete, managed by protocols
				• Onsite maintenance workers	• Incomplete, managed by protocols
				• Offsite intrusive maintenance workers	• Potentially Complete*
				• Offsite commercial workers	• Potentially Complete*

Zone	AEC	Media	Contaminants	Receptors	Complete or potential complete pathway
				• Offsite ecological	• Potentially Complete*
	RPIP Mountain	Soil	• Asbestos • Heavy metals • PFAS	• Onsite workers	• Potentially Complete*
				• Onsite maintenance workers	• Potentially Complete*
		Groundwater	• Heavy metals • PFAS	• Onsite workers	• Incomplete, managed by protocols
				• Onsite maintenance workers	• Incomplete, managed by protocols
				• Offsite intrusive maintenance workers	• Potentially Complete*
				• Offsite commercial workers	• Potentially Complete*
				• Offsite ecological	• Potentially Complete*
	Uncontrolled fill of uncertain quality	Soil	• Asbestos • TRH • BTEXN • PAHs • PFAS • Heavy metals • OCP and OPP • Phenols • PCBs • VOCs • SVOCs	• Onsite workers	• Potentially Complete
				• Onsite maintenance workers	• Potentially Complete
		Groundwater	N/A	N/A	N/A

* Potentially complete pathway relates to PFAS contaminants which are present in groundwater at the nearest relevant down-hydraulic gradient Site boundary transect.

4.4 Initial LNAPL CSM

The NSW EPA *Information Technical note –Light non-aqueous phase liquids (LNAPL) Assessment and Remediation,* (2015) requires that when LNAPL is identified, a LNAPL Conceptual Site Model (LCSM) is developed that integrates site data and interpretations in order to identify and assess potential risks from LNAPL to receptors. Collection of groundwater, soil and vapour data has historically been conducted to assess petroleum hydrocarbon impacts and based on the available data, there is currently no complete pathway for the LNAPL to present a risk to human health at this the Site. The following sub-sections summarise the LCSM that was developed.

4.4.1 Source information

Given the current and historical use of the Site as a fuel terminal and refinery, primary sources of hydrocarbon contamination are associated with hydrocarbon fuel storage and distribution. Secondary sources of contamination include contaminated soil and groundwater. Historical LNAPL has been observed within the onsite monitoring well network in the following areas:

- Zone 1: Northern and Northwestern Tank Farm
- Zone 2: Eastern Tank Farm
- Zone 3: CLOR process unit area that was reportedly remediated in 2021. Subsequent groundwater monitoring at this AEC has found that LNAPL is no longer present and PHC contamination in groundwater did not exceed tier 1 screening criteria (WSP, 2024c)

It is understood that LNAPL is also present within Zone 1 in the vicinity of the Contractors Car Park. The area is referred to as the Jet Remediation Area and is under an agreed program of remediation outside of the 2019 RAS. There are proposed modifications to the FWS in this area and the existing remediation system and activities in this area would be considered during these works.

Fingerprint testing from wells exhibiting LNAPL within Zone 1 in the Northern and Northwestern Tank Farm indicated that the LNAPL was the result of historical release and based on age (greater than 10 years in the environment [Ampol, 2019]) and lack of a current source, it is considered in the 2023 RAS update that the LNAPL footprint in this area was likely to be stable.

Within Zone 2, monitoring wells W14, W15 and W16 contained LNAPL historically and during the Q1 2024 monitoring round. Therefore, the LNAPL plume appears to be confined to the northeastern portion of Zone 2, adjacent to the Eastern Tank Farm. Historical TRH F1 concentrations of 29,000 ug/L and 14,000 ug/L detected in wells W10 and W11 in the WSP Q1 2024 monitoring round and soil concentrations of TRH F1 ranging from 5000 to >10,000 mg/kg in locations TP06, TP08, TP12, TP13, TP35 based on the WSP 2018 data gap assessment support the notion of the LNAPL source derived from fuel infrastructure near the Eastern Tank Farm.

The depth to LNAPL within Zone 2 ranges from 3.151 to 3.665 m bgl. No further information is available on LNAPL characteristics (density, viscosity, transmissivity, etc); however, this information would be considered as part of the future data gap investigation.

4.4.2 Transport

Once the primary sources of contamination are released into the subsurface, various environmental media may be impacted via contaminant migration through various transport mechanisms. Historical releases during periods of drought and low water levels may have allowed LNAPL to migrate; then during periods of increased rainfall the water levels would rise and entrap the LNAPL in the saturated zone. It is understood that the LNAPL may have migrated preferentially through formation and/or along utility conduits; however based on the location of LNAPL identified at the Site and distance to the Site boundary, it is unlikely to have migrated offsite.

Flooding at the site could potentially affect the extent of LNAPL and increase the volume of contaminated water. However, this risk is mitigated by the site's stormwater management systems, including diversion channels and oily water management system, which would be maintained throughout the remediation process as discussed in **Section 7.5.2** and **Section 7.5.3.10**. Additionally, the Site would implement its surface water management plan to reduce the inflow of surface water into excavation areas during remediation as noted in **Section 7.5.3.9**.

4.4.3 Risks to receptors

The relevant potential receptors for exposure pathways from LNAPL are limited to onsite commercial/ industrial workers as the LNAPL plume appears to be delineated onsite and the distance to the downgradient boundary to the south is over 500m and the cross-gradient boundary to the east is over 350 m. Potential risks that LNAPL exposure pathways may present are as follows:

- If ground disturbance works are undertaken and penetrate the subsurface, groundwater could be encountered at approximately 3 mbgl and cause dermal contact to onsite construction workers.
- Risks to onsite intrusive maintenance workers from potential LNAPL in vadose zone soils are managed by the Site's health and safety control systems.
- Soil vapour intrusion risks may be present to receptors in future buildings if constructed above areas with identified LNAPL.
- Acceptably low risk to bore users as reticulated potable water is supplied, groundwater is not extracted onsite.

5.0 Tier 1 screening assessment

5.1 Introduction

Historical soil and groundwater data from the Project Area have been considered in the context of the current regulatory framework. At this stage, the soil and groundwater data set has been evaluated against current Tier 1 screening values. The objective of this screening exercise is to identify impact that may present a risk based on a specific end use (i.e. a future industrial end use for Zone 2 and 3 and on-going terminal operations in Zone 1). This Tier 1 screening assessment would assist in establishing where additional assessment may be beneficial to refine the risk profile through the close out of data gaps (refer to **Section 6.4**). Refining the risk profile would also inform the remedial design (which would feature in the Detailed RAP[s]). Ultimately, prior to finalising the remediation scope (post development consent), certain areas may require a more detailed risk assessment that considers both the specific soil and groundwater conditions/parameters as well as the proposed end use for the area.

In selecting the Tier 1 criteria the following assumptions were made:

- The contaminant profile of the Project Area is consistent with a typical mixture of petroleum contamination and the Health Screening Levels (HSLs) are appropriate for a screening assessment.
- Sample depth, while it is understood that the final finished level of Zones 2 and 3 may change, this assessment has considered the data based on current ground levels.
- It is assumed that all intrusive works at the Project Area would be undertaken utilising appropriate personal protective equipment (PPE) and following the relevant Environmental Management Plans.
- Groundwater is generally not shallower than 1 m below ground level (mbgl) across the Project Area and therefore direct contact with groundwater in a typical industrial use scenario is unlikely and would be managed by the controls defined by one or more EMP(s) including restriction on groundwater abstraction and health and safety protocols for intrusive maintenance works.
- The predominant soil type across the Project Area is sand.
- Groundwater in the Project Area would not be abstracted for any use other than environmental monitoring following the remediation.

The Tier 1 criteria for the identified COPCs (**Section 4.0**), for a commercial/ industrial end use are defined by the ASC NEPM).

The ASC NEPM does not contain criteria for PFAS. The overarching guidance document for PFAS screening criteria in Australia is the PFAS National Environmental Management Plan (NEMP), version 2.0 (January 2020) prepared by the Heads of Environmental Protection Agencies (EPAs) Australia and New Zealand (HEPA). PFAS assessment criteria in the NEMP are based on land and groundwater use and receiving environments. The NEMP document presents criteria for three PFAS compounds only: Perfluorooctane sulfonic acid (PFOS), Perfluorooctanoate acid (PFOA) and Perfluorohexane sulfonic acid (PFHxS). Both the Australian and NSW State position on the use of PFAS screening criteria continues to evolve and is subject to change.

The below sections define the current applicable Tier 1 criteria for:

- soil, groundwater and soil vapour for human health receptors in a commercial/ industrial land use scenario and intrusive maintenance workers.
- soil and groundwater criteria for ecological receptors for a commercial/ industrial land use scenario and offsite ecological receptors.

5.2 Soil assessment criteria

5.2.1 Human health

The adopted soil criteria for commercial/ industrial workers and intrusive maintenance workers are listed in **Table 9**.

Table 9 Human health – soil criteria

Compound	Exposure pathway	Relevant criteria
PHC		
TRH fractions, BTEX, and naphthalene 0-1 m depth, 1-2 m depth, 2-4 m depth and >4 m depth	Vapour inhalation – commercial/ industrial worker	Soil Health Screening Levels for Vapour Intrusion (HSL D) Sand. Source: Table 1A (3) ASC NEPM (NEPC, 2013).
TRH Fractions, BTEX, and naphthalene **Soil data from 0-0.5 m depth** (only) to be screened against the direct contact HSLs as commercial/ industrial workers are not considered to be exposed to soils >0.5 m depth.	Direct soil contact – commercial/ industrial worker	Health Screening Levels HSL D Direct Contact. Source: Table 4 Friebel, E & Nadebaum, P, Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) Technical Report no. 10 (CRC CARE, 2011).
TRH fractions, BTEX, and naphthalene All depths where trenching may occur. Noting that deep trenches are likely to require specific health and safety procedures.	Direct contact/ ingestion – intrusive maintenance worker[1]	Soil HSL Direct Contact (Int. Main. Worker) Sand. Source: CRC Care 2011, Technical Report 10, Part 2 - Table A4.
TRH Fractions, BTEX, and naphthalene 0-1 m depth, 1-2 m depth, 2-4 m depth, >4 m depth	Vapour inhalation - intrusive maintenance worker[1]	Soil HSL for Vapour Intrusion (Int. Main. Worker – Shallow Trench) Sand. Source: CRC Care 2011 Table B3.
Other COPC		
Metals, PAHs, Phenols, Organochlorine Pesticides, PCBs	Direct contact/ingestion – commercial/ industrial worker	Health Investigation Levels Commercial/ industrial (HIL D) Source: Table 1A(1) ASC NEPM (NEPC, 2013).
Asbestos	Inhalation - commercial/ industrial/ maintenance worker	Asbestos in soil screening levels Source: ASC NEPM (2013) Table 7 Comm / Ind D HSL for asbestos in soil and Table 3 Western Australia (WA) Department of Health (DoH) guidelines (2021)

Compound	Exposure pathway	Relevant criteria
VOCs and SVOCs (without criteria)	Inhalation/direct contact -commercial/ industrial worker	Where there are no criteria in ASC NEPM, the results are compared to the laboratory limit of reporting (LOR). Where the LOR is exceeded, the results are to be screened against the US EPA Regional Screening Levels (RSLs) for industrial soil. Source: US EPA, May 2024, Regional Screening Levels – Industrial Soil
PFAS – Sum of PFOS and PFHxS and PFOA	Direct contact - commercial/ industrial worker[2]	HIL D Source: Table 2, NEMP 2.0 (HEPA, 2020)

Notes:
1. For intrusive maintenance workers it is assumed that the activities being undertaken align with the exposure assumptions presented in CRC Care Technical Report 10 (including activities occurring for less than 1 year).
2. The industrial/ commercial criteria assume 8 hours is spent indoors and 1 hour spent outdoors at a location such as a shop, office, factory or industrial site. If the typical exposure for a site is predominantly outdoors with significant earthen areas, recalculation of a site-specific value is recommended. As future development of a site is not anticipated to likely comprise significant earthen areas and due inherent conservatisms built into the criteria (e.g. assuming 20 % of the tolerable daily intake), the Amended National Environment Protection (Assessment of Site Contamination) Measure (2013) (ASC NEPM) commercial/ industrial criteria are deemed appropriate for this Conceptual RAP.

5.2.2 Ecological receptors

Ecological Screening Levels (ESLs) and ecological investigation levels (EILs) for soil listed in **Table 10**. The ESLs and EILs would be applicable for future garden and landscaped areas within a commercial/ industrial land use scenario. The below apply to soil less than 2 metres in depth as root zone and habitation of many species typically within 0-2 m depth only.

Table 10 Ecological – soil criteria

Compound	Relevant criteria
TRH Fractions, BTEX and benzo(a)pyrene in Soil:	ESLs for Commercial/ Industrial, Coarse Soil Source: Table 1B (5) ASC NEPM (NEPC, 2013). Typically applicable to top 2 m of soil.
Lead, naphthalene, arsenic	Generic EILs for commercial/ industrial land use Source: Table 1B(4) and 1B(5) ASC NEPM (NEPC, 2013).
Chromium (III), copper, zinc, and nickel	Site specific EILs for commercial/ industrial land use (Added Contaminant Limit (ACL)+ Ambient Background Concentration (ABC) = EIL) Source: ACLs in Table 1B(1), Table 1B(2) and Table 1B(3) ASC NEPM (NEPC, 2013). ABCs for old suburb and high traffic in NSW (Olszowy et al. 1995) in ASC NEPM Schedule B5c.

Compound	Relevant criteria
PFAS – PFOS and PFOA	Ecological direct and indirect exposure values* Source: Table 3, NEMP 2.0 (HEPA, 2020) *It is acknowledged that the soil ecological criteria presented in the NEMP are interim values. The NEMP states that a less conservative criteria of 0.14 mg/kg for PFOS can be applied if the area of exposed soil is too small to have any material impact on food chain transfer to secondary consumers, for example if: • the site is intensively developed with greater than 80% of each hectare covered by hard surfaces (to be applied separately to each hectare). • secondary consumers are effectively absent from the site • the site is situated in an extensively built-up urban setting • the site is not in close proximity to waterways, drainage networks or groundwater As the site has not been demonstrated to meet the above, the more stringent criteria has been selected (0.01 mg/kg for PFOS) as a conservative screening measure.

5.2.3 Management limits

Beyond the screening assessment against human health and ecological criteria, other adverse effects of PHC contamination may be a consideration. The effects include:

- free phase formation
- fire and explosive hazards
- effects on buried infrastructure.

Management limits (MLs) have been derived to assess for these effects and are typically applied after consideration of the relevant HSL and ESL criteria. The ML criteria for coarse soil for a commercial/ industrial scenario have been adopted from Table 1B (7) ASC NEPM (NEPC, 2013).

5.2.4 Aesthetics

Any residual aesthetic issues identified would be considered in the appropriateness of the remediation or the suitability of a site in accordance with the NSW Auditor Guidelines 3rd Edition (2017) and the ASC NEPM. For example, highly malodours or discoloured soils or extracted groundwater or large deposits of refuse material requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity.

5.3 Groundwater assessment criteria

5.3.1 Human health

The adopted groundwater criteria for commercial/ industrial workers, intrusive maintenance workers and offsite recreational receptors are listed in **Table 11**.

Direct contact with groundwater may also occur if an excavation intercepts the water table. This pathway has not been considered in this section. These works usually require health and safety procedures to be followed. Excavation works proposed for remedial purposes are targeting shallow unsaturated soils and are not expected or designed to intercept groundwater, however should deeper excavations be required for utility removal or any purpose, potential risks are to be managed under health and safety protocols during the development.

Direct contact exposure with residual groundwater impacts would be managed by the controls defined by one or more EMP(s) including restriction on groundwater abstraction and health and safety protocols for intrusive maintenance works.

Table 11 Human health – groundwater criteria

Compound	Exposure pathway	Relevant criteria
TRH Fractions, BTEX, and naphthalene in groundwater. <2 m[1], 2-4m, 4-8 m, 8m+ depths	Vapour intrusion/ inhalation – commercial/ industrial land use scenario[2]	Groundwater HSL (HSL-D) (Sand) Source: Table 1A(4) ASC NEPM (NEPC, 2013).
TRH Fractions, BTEX, and naphthalene in groundwater: All depths where trenching may occur. Noting that deep trenches are likely to require specific health and safety procedures.	Vapour intrusion/inhalation – intrusive maintenance worker[3]	Groundwater HSL (Int. Main. Worker) Sand. Source: CRC Care 2011, Technical Report 10, Part 2 - Table A2.
PFAS All depths	Human Health – recreational users[4]	Recreational water quality guideline value Source: Table 1, NEMP 2.0 (HEPA, 2020), to be applied to monitoring wells at the down hydraulic gradient boundary of the site, protective of offsite recreational water users.
BTEX, metals, VOCs and SVOCs All depths	Human Health – recreational users[4]	To be applied to monitoring wells at the down hydraulic gradient boundary of the site, protective of offsite recreational water users. ADWG values multiplied by a factor of 10 Source: Australian Drinking Water Guidelines (ADWG), (National Health and Medical Research Council (NHMRC), 2011, updated September 2022) Where there is no guideline value is available, the laboratory LOR is applied as a screening value. Where the LOR is exceeded, the concentration is compared to the US EPA RSLs for drinking water (with 10 fold factor applied).
TRH Fractions, BTEX, and naphthalene in LNAPL	Vapour inhalation	Not assessed as HSLs are not applicable, and site specific risk assessment may be required. LNAPL needs to be remediated to such an extent that further removal or treatment of LNAPL no longer reduces the level of risk. In general, LNAPL clean-up should continue if the LNAPL (or associated dissolved phase) is still spreading, however this is not considered likely within the Project Area based on extensive remediation and monitoring completed at the Site to date as evidenced in the groundwater monitoring data and associated reports (refer to **Section 3.3**).

1. For shallow groundwater (<2 m), a site-specific risk assessment is recommended because of the sensitivity of the derived HSL to the depth of the groundwater. Small variations in water level (such as those related to rainfall or tidal influence) can change the HSL significantly, and can also affect the potential for direct contact with the contaminated groundwater (e.g. by utility trench workers).

Compound	Exposure pathway	Relevant criteria
2. The industrial/commercial HSL criteria assumes activities being undertaken align with the exposure assumptions presented in CRC Care Technical Report 10 including adult person working at premises for eight hours per day, five days per week for thirty years. 3. For intrusive maintenance workers it is assumed that the activities being undertaken align with the exposure assumptions presented in CRC Care Technical Report 10 including activities occurring for less than 1 year. 4. Recreational criteria for offsite receptors have been adopted as a conservative screening criteria. The recreational criteria are the NHMRC (2011, updated September 2022) ADWG with a factor of 10 applied. Drinking water criteria has not been adopted as groundwater is not used for potable water in the area.		

5.3.2 Ecological receptors

Groundwater results would also be screened against the appropriate ecological criteria which are listed in **Table 12**. The primary document in Australia for the consideration of ecological criteria is the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Australian and New Zealand and Australian State and Territory Governments (ANZG), August 2018). The ANZG 2018 presents criteria for both freshwater and marine systems for four levels of species protection (99%, 95%, 90% and 80%).

There are a range of aquatic environments surrounding the Site including Marton Park Wetland, mangroves in Quibray Bay and surrounding estuarine creeks including within Towra Point Nature Reserve which ultimately discharge into Botany Bay and the Tasman Sea. These environments range from slightly to moderately disturbed to highly disturbed. The ANZG 2018 guidelines recommend the most conservative criteria from fresh and marine criteria are adopted for estuarine environments as salinity levels vary.

The Water Quality Guidelines (ANZG, 2018) advise to apply 95% species protection default guideline values (DGVs), or 99% species protection for highly bioaccumulating toxicants in slightly to moderately disturbed systems. This approach is generally adopted for chemicals that bioaccumulate and biomagnify in wildlife.

Table 12 Ecological – groundwater criteria

Compound	Exposure pathway	Relevant criteria
BTEX, Metals, PAHs, Phenols, SVOCs, OCs, OPs, PCBs, pesticides in groundwater.	Groundwater migration to ecological receptors	Marine and freshwater ANZG criteria (most conservative value) with 95% species protection and 99% for bio-accumulative compounds. Source: ANZG, 2018
PFAS – PFOA and PFOS	Groundwater migration to ecological receptors	95% and 99% interim marine/freshwater for PFOS and PFOA* based on discharge points being the Sir Joseph Banks Drive channel (95%) and onsite wetland (99%) Source: Table 5, NEMP 2.0 (HEPA, 2020) *Although the 99% species protection criteria been selected as the assessment criteria, the standard laboratory LOR (0.01 ug/L) has been used for screening purposes.

5.4 Soil vapour assessment criteria

Soil vapour criteria is listed in **Table 13**.

Table 13 Human health – vapour criteria

Compound	Exposure pathway	Relevant criteria
TRH Fractions, BTEX, and naphthalene	Vapour inhalation	Soil vapour HSLs (HSL D) Sand. Source: Table 1A(5) ASC NEPM (NEPC, 2013).
VOCs	Vapour inhalation	Interim HILs for VOCs Source: Table 1A(2) ASC NEPM (NEPC, 2013).

6.0 Extent of remediation and management required

6.1 Overview

For the current operational use of the Site as a fuel terminal, the remediation objectives are met under the RAS and current site management controls. For future commercial/ industrial use, based on the CSM as described in **Section 4.0,** remediation is expected to be required in particular areas or focused on specific activities, such as::

- Addressing PHC and asbestos in shallow soils that are likely to pose a dermal contact and/or inhalation risk to future Site users and occupiers
- Removing LNAPL to the extent practicable if present, and subsequent groundwater monitoring to confirm that dissolve phase PHC in groundwater do not present an unacceptable level of risk to future site occupants and users.
- Addressing PFAS in shallow soils to reduce PFAS in groundwater if required to mitigate leaching and potential indirect ecological exposure risks
- Ensuring risks to the environment are removed or mitigated.

The removal of LNAPL to the extent practicable would depend on the potential vapour intrusion risk that the LNAPL presents, the depth and actual confirmed extent of LNAPL present, and would likely be based on the extent of saturated soils that can be practically removed with an excavator. This would be further defined as part of the data gap investigation and addressed in the subsequent Detailed RAP(s). Similarly, remediation of PFAS to the extent practicable would be based on an assessment of groundwater (and potentially surface water) concentrations at the Site boundary that may trigger remediation as an outcome of a future risk assessment.

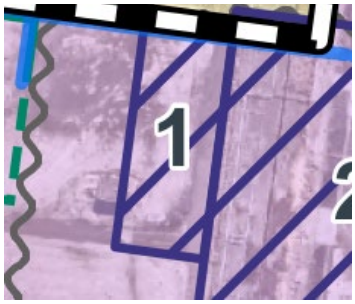
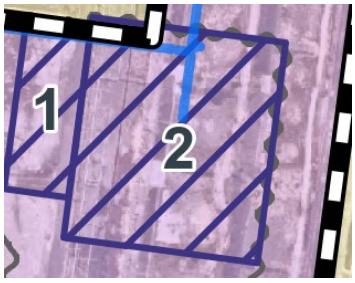
6.2 Soil/ Fill

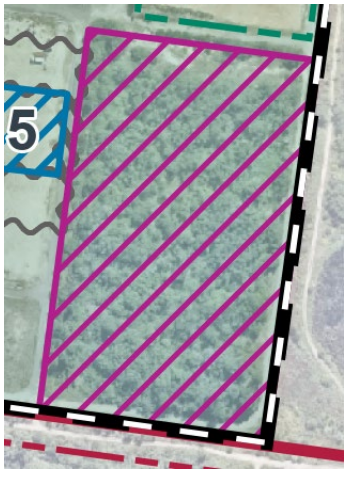
The remediation would predominantly be limited to less than 4 mbgl, and would be generally focused on horizons within 1 mbgl, including soil impact, LNAPL (in limited areas), and likely soils/sludges in the drainage network and surrounds. In areas with LNAPL impacts, the overlying unsaturated soils would be attempted to be removed to the extent practicable to reduce the mass of PHC contamination. If free phase LNAPL is visually present on the excavation pit water, it would be skimmed off and transferred to dedicated containers for offsite disposal.

Measurable LNAPL presence based on the WSP Q1 2024 groundwater monitoring was observed within eight wells. Three (W14, W15 and W16) of which were located within the eastern boundary of Zone 2 within proposed hotspot excavation 2. Depth to LNAPL in this location ranges from 3.151 to 3.665 m bgl. If feasible, excavation in this area would continue into the water table, removing up to one metre of the saturated zone to target source soil and LNAPL removal to the extent practicable. It is noted that excavation in terraced areas may not be feasible due to concerns with ground stability, this area has been included conservatively for future assessment and refinement of remedial methods. This area may be better suited to in-situ groundwater treatment, if required as a contingency. The remaining five wells are located within the north western tankfarm within Zone 1 at depths ranging from 1.95 to 2.84 m bgl. **Appendix A, Figure F5** displays the locations and depth of LNAPL across the Zones.

The basis for determination of the extent of soil remediation required is based on existing historical data as shown in **Table 14** below, with data locations discussed presented spatially on **Appendix A, Figure F3** and **Figure F4**.

Table 14 Summary of Soil Impact Areas requiring remediation

Remediation Approach and Location	Area / (depth)	Rationale	Data Locations
Zone 1			
Excavation and disposal or treatment (within Zone 2 and / or 3)	13,000 m^2 (1 m)	Approximate footprint of infrastructure construction works in Zone 1. Worst case assumption, the entire footprint assumed to be impacted with asbestos and PHC	Refer to **Appendix A, Figure F2** for locations of infrastructure relocations in Zone 1.
Zones 2 and 3			
Capping (asbestos)	535,000 m^2 (0.3 m)	Capping of the entire Zone 2 and 3 footprints, excluding areas identified to have been previously capped.	Capping areas are based on an assumption of presence of asbestos in areas that have not been previously remediated. Sampling data across all of Zone 2 and 3 is not yet available to support this assumption.
Contingency Capping (asbestos)	165,000 m^2 (0.3 m)	Contingency considerations for areas which have been previously capped, but which require verification. Worst case assumption, the entire footprint assumed to be impacted with asbestos, and contingency capping is required.	
Excavation and Capping 1 (PHC)	4,000 m^2 (up to 4 m)	TRH F1 and F2 concentrations in groundwater wells (PU29 and PP06) historically and detected in the Q4 2023 WSP groundwater monitoring program (WSP, 2024c). Soil concentrations from the WSP data gap assessment of TRH F1 > 10,000 mg/kg at location TP27B and as such soil remediation in this area is proposed and anticipated to improve groundwater quality.	
Excavation and Capping 2 (PHC)	15,550 m^2 (up to 4 m)	TRH F1 and F2 concentrations in groundwater wells historically and detected in the Q4 2023 WSP groundwater monitoring program (WSP, 2024c). Wells W14, W15 and W16 contained LNAPL historically and during the Q1 2024 monitoring round. TRH F1 concentrations of 29,000 ug/L and 14,000 ug/L detected in wells W10 and W11 in the WSP Q1 2024 monitoring round. Soil concentrations of TRH F1 ranging from 5000 to >10,000 mg/kg in locations TP06, TP08, TP12, TP13, TP35 based on the WSP 2018 data gap assessment. While excavation in terraced areas may not be feasible due to concerns with ground stability, these areas have been included conservatively for future assessment and refinement of remedial methods. This area may be better suited to in-situ	

Remediation Approach and Location	Area / (depth)	Rationale	Data Locations
		groundwater treatment, if required as a contingency.	
Excavation and Capping 3 (PHC)	2,450 m^2 (up to 4 m)	TRH F1 and F2 concentrations in groundwater wells historically and detected in the Q4 2023 WSP groundwater monitoring program. Wells identified with exceedances include PU59 and PU60. Soil vapour well SV05 in the November 2023 Soil Vapour monitoring program is also in vicinity of this location (WSP, 2024c). This well (the deep one at 1.1 m depth) has historically recorded concentrations of TRH F1 above the commercial land use criteria by a factor of 8.	
Excavation and Capping 4 (PFAS)	10,000 m^2 (up to 2 m)	Location of the FFTA, storage and usage of PFAS evident in this area. Well FTA-MW04 had concentrations of PFAS that exceeded PFAS NEMP 2.0 health drinking water as noted in the PFAS SAQP 2022 – 2023 Investigation Summary Report (WSP, 2024b).	
Excavation and capping 5 (PFAS)	2,550 m^2 (up to 1 m)	Monitoring well CMW12 had concentrations of PFAS that exceeded PFAS NEMP 2.0 health drinking water as noted in the PFAS SAQP 2022 - 2023 Investigation Summary Report (WSP, 2024b). Whilst preliminary results from the soil investigation have been received and PFAS results indicate that concentrations are at or near LOR, this remediation area has been maintained until the investigation into PFAS within CLOR has concluded.	
Asbestos Excavation and/ or capping (RPIP Zone 3)	23,650 m^2 (based on depth of fill)	Clusters of subsurface asbestos contamination, both friable and non-friable, found throughout the RPIP area from surface through to the maximum depth of investigation (1.8 mbgl), with a larger cluster of asbestos contamination found in samples 0.1 - 0.5 mbgl in the south east portion. Heavy metals concentrations (particularly lead) and PFAS were detected but below investigation levels in all samples, except one exceedance of indirect ecological criteria that was deemed low risk based on statistical analysis and sample depth (AECOM, 2023c).	

Remediation Approach and Location	Area / (depth)	Rationale	Data Locations
		These concentrations were not vertically delineated during this investigation. Multiple test pits were conducted as shown on the figure to the right.	

The ground level of the Project Area, in the areas providing flood storage (refer to Figure 4-3 of the Modification Report), would remain the same at the completion of the proposed modification. In addition to the soil excavation volumes discussed above, additional excavation (approximately 183,130 m^3 of excavated soil with 91,565 m^3 contingency) would be required in these areas to allow for the capping layer.

In areas where it may not be practical to remediate localised LNAPL impacts, i.e. due to the presence of large structures or where small volumes of LNAPL are present at depth, the requirement for remediation (and/or management measures) would be reviewed as part of a future data gap assessment which would be used to develop the Detailed RAPs.

Impacted fill materials classified as asbestos contaminated soils (ACS) have been identified in parts of the Project Area and is expected to be managed in accordance with *Managing Asbestos In or On Soil* (SafeWork NSW, 2014) and the *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in WA* (WA DoH, 2021) during soil remediation. Further details are provided in **Section 7.5**.

6.3 Groundwater

While active groundwater remediation is currently taking place within Zone 1 (Jet Fuel Remediation and Northern Tank Farm AECs), active groundwater remediation is considered unlikely to be necessary within Zone 2 and 3 as primary sources have been removed and remedial capping works would be used to manage any residual groundwater risk following soil remediation. Furthermore, the groundwater conditions are likely to improve further on the basis of the following:

- Primary sources: Primary sources (e.g. above ground storage tanks) in Zone 2 and 3 have been removed prior to the soil remediation commencing, with the majority of remnant subsurface infrastructure (such as below ground oily water sewer pipework) to be removed during the Project.
- Secondary sources: Shallow LNAPL impacts would be addressed as part of the soil remediation works by the excavation of LNAPL impacted soil to the extent practicable. As part of these works, impacted water may accumulate in these excavations; this would be removed via pumping. LNAPL impacted soil would be managed and treated through the remediation technologies outlined in **Section 7.5.3**, and waters/fluids would be sent to the Site's existing wastewater treatment plan (WWTP) for treatment.
- Ongoing monitoring: Following soil remediation, groundwater monitoring would continue to confirm that the works have not adversely affected the groundwater conditions in the short term. The soil remediation process itself is likely to significantly improve groundwater conditions over the long term, assisted by natural attenuation (this process involves allowing naturally occurring micro-organisms in the ground to biodegrade hydrocarbon contamination).

If there are residual concentrations remaining in soils and groundwater that may pose unacceptable risk to human health or ecological receptors, the area would be backfilled and capped with clean soil and an impermeable barrier, if required such that the oral and dermal contact pathways are minimised. Where the remediation is considered infeasible (i.e., terraced areas of former tank bunds at the eastern end of Zone 2) or sequencing of development activities requires all potential risks to be closed off prior to development (and integration of the vapour barrier/cap is part of the development), in-situ groundwater treatment would be considered as a contingency measure if primary sources are present and not accessible. However, at this stage, it is not anticipated that identified soil remediation areas would be inaccessible Following completion of the future data gaps assessment, the likelihood of contingency measures would be evaluated and if warranted, groundwater remediation would be further discussed as part of the Detailed RAP(s).

Following soil remediation, ongoing management of contaminated groundwater would continue to be undertaken. One or more Groundwater Monitoring Plans (GMPs) would be prepared, where required, to confirm residual COPCs in groundwater are being appropriately managed. Other additional ongoing monitoring, such as soil vapour monitoring and/or surface water monitoring, may be required depending on the findings of the data gap assessment and remediation outcomes.

6.4 Data gaps to be addressed prior to Detailed RAP(s)

Data gaps are recognised gaps in knowledge where further information is needed. A data gap assessment is used to focus upcoming data collection and site characterisation efforts. Focus areas for additional assessment are presented in **Table 15** below.

Table 15 Focus areas for additional assessment

#	Focus areas
1	**Former process areas with no documentation to confirm capping:** Within Zones 2 and 3 there are areas that were regraded (approximately in 2017 during the decommissioning and demolition works) by Ampol through the removal of surficial asbestos and capped with crushed concrete and sandstone. These areas (identified in **Appendix A, Figure F4** as areas shown with contingency capping) need further verification to confirm the extent and quality of capping which has been completed.
2	**Hydrocarbon data set:** At present, the sample set is not yet comprehensive in order to fully characterise the lateral and vertical extent of impact in all areas of Zone 2 and Zone 3 in relation to the proposed land-use. This includes potential soil vapour risks via the vapour intrusion pathway with limited data available. Further work would be completed in order to understand how groundwater impacts (particularly LNAPL) might be contributing to vapour generation in the subsurface. Currently building structures occupy the central portion of Zone 2, and detailed characterisation has not been conducted at these locations.
3	**PFAS data set:** Limited PFAS data in soil, concrete and groundwater is present for certain areas of Zones 2 and 3. The FFTA (Zone 2) and the CLOR area (temporary foam storage trailer in Zone 3) would be characterised further to inform remedial options.
4	**Other COPCs:** Further sampling for specific process chemicals that may have been used at the Site.
5	**RPIP:** Further geotechnical assessment, cut and fill modelling, and/or cost-benefit analysis would need to be considered to confirm remedial options in this area.
6	**Services removal and relocation condition:** As part of the MOD-7 works the removal and / or relocation of services such as the oil water sewer, firewater and electrical assets would be undertaken. The condition of materials and soils at these locations would be further investigated as historical targeted investigations are limited. This includes the areas within Zone 1 where some infrastructure would be relocated. This is of particular importance for oily water sewer (OWS), which presents as a source for PHC contamination to surrounding materials in the event of a break in containment. The fill surrounding the OWS pipes has also not been fully characterised and a pre-demolition hazardous material survey is required for substations and any other structures.

#	Focus areas
7	**Natural Source Zone Depletion (NSZD)/ Natural Attenuation:** Soil/groundwater impacts have been identified within Zone 1 which do not present a risk to current terminal receptors. In these scenarios, further opportunities to characterise the potential role of NSZD (in lieu of active remediation) may be undertaken to support the management of the existing operational area.
8	**Final land condition and end land uses:** The required extent and thickness of any potential future capping system would be dependent on residual contaminant concentrations following remediation and also potentially the final land use of each area.
9	**Soil – Historic characterisation:** The condition of soils across the Project Area have been historically investigated to varying extents. These soil conditions may have also be subject to change through ongoing site maintenance and management activities such as levelling, capping, natural attenuation processes, and/or remediation. Additionally, it is recognised that the fill in parts of the Site (RPIP) is generally of unknown origin, and these activities could further influence the character and heterogeneity of these materials. The relevance and reliability of historic results should consider these factors when being utilised.

While there is a significant amount of available historical information, which has been sufficient to complete this Conceptual RAP, further intrusive investigations are required to confirm and/or refine the proposed remedial approaches, estimated remediation volumes and remedial technologies to be adopted. It is anticipated that identified data gaps would be addressed in part by future intrusive investigations and used to inform preparation of the Detailed RAP(s).

7.0 Conceptual remediation action plan

7.1 Introduction

The land within Zones 2 and 3 was used as a fuel refinery and lubricants refinery, respectively. Ampol is proposing to prepare this land for future commercial/ industrial uses. In order to meet the remediation objectives outlined in **Section 1.2**, the identified soil and groundwater impacts would be reduced to the extent practicable, thereby reducing the risks to human health and the environment. Remediation targets in the form of Tier 1 screening assessment criteria have been presented in **Section 5.0**.

7.2 Hierarchy of remedial options

In accordance with the ASC NEPM (2013), the preferred hierarchy of options for site remediation and management of soil contamination is:

1. Onsite remediation of soil contamination, so that the risk associated with the contaminant is reduced to an acceptable level.
2. Offsite remediation of excavated soil, so that the risk associated with the contaminant is reduced to an acceptable level, after which it is returned to the site.

If it is not possible for either of the above options to be implemented, then other options for consideration can include:

1. Containment of the contamination onsite either in-situ with appropriate controls that reduce the risk to an acceptable level, or in an appropriately designed and managed containment facility.
2. Removal of contaminated soil to an approved site or facility, and replacement with clean fill where necessary.
3. Adoption of a less sensitive land use or controls onsite activities that would reduce the need for remedial works.

As part of the identification and selection of remediation options, consideration should be given to the hierarchy above so that remedial options are selected that provide a permanent solution without the need for ongoing control, where feasible.

7.3 Remedial options assessment

Remedial measures can be used to effectively remove or block exposure pathways to human health or the environment. The application of a single remediation technique for the Project Area is not appropriate or able to be scaled accordingly based on the volume requiring treatment. Remediation of the Project Area is likely to be complex based on the CSM which consists of a number of COPCs and the potential for a range of concentrations and source medium. Therefore, multiple remedial approaches would likely be warranted to achieve the remediation objectives.

The soil remedial options assessment consisting of the remedial method, description, merits, and disadvantages of each soil remediation technology applicable for the Project Area were assessed as shown in **Appendix D**. The shortlisted remediation options that were carried forward are:

- No remediation and site management plan only
- Excavation and onsite treatment via passive or mechanical biopiling
- In-situ bioremediation via biostimulation or bioaugmentation
- Excavation and offsite disposal to licenced landfill
- In-situ stabilisation/solidification
- Excavation and ex-situ stabilisation
- Onsite containment by capping
- Onsite treatment of asbestos impacted materials.

Some remediation technologies were excluded at this stage as they were:

- Unlikely to achieve the objectives within an acceptable timescale (e.g., passive remediation methods unlikely to be effective at meeting remedial validation criteria)
- Impractical to implement such as in-situ remedial technologies that have less certainty based on the uniformity of soil treatment such as homogenising the media and directly amending biodegradation parameters and/or adsorption rates. Ex-situ treatment is preferred given the soils would be excavated and managed aboveground
- Substantially high in cost that does not offer better implementability, operation and effectiveness.

A preferred remediation approach was selected based on the feasible remedial soil options identified (remedial option assessment included as **Appendix D**) and in the context of future development works likely to comprise extensive civil earthmoving works.

A groundwater remediation options assessment was not undertaken as this Conceptual RAP contemplates the consequential improvement in groundwater conditions expected as a result of the planned soil remediation and allows for a staged approach to groundwater remediation depending upon the outcomes of the groundwater monitoring conducted to demonstrate effectiveness of the soil works in achieving the stated groundwater remedial objectives. Where required, further groundwater investigation would be conducted as part of the data gap assessment. These works would further inform the need for direct remediation of groundwater.

7.4 Preferred remediation approach and rationale

A combination of remediation technologies for soils is preferred at the Project Area to achieve the remediation objectives. These are as follows:

- Source removal of PHC infrastructure, impacted fill and natural soils followed by either onsite treatment of impacted soils or offsite disposal to landfill (where onsite treatment is not feasible, e.g. asbestos contamination is present) which is consistent with the preferred soil remediation hierarchy:
  - Onsite treatment would comprise ex-situ treatment methods which include:
    - Onsite ex-situ bioremediation by passive or mechanical biopiling for the reduction of PHC constituents in soils
    - Onsite ex-situ stabilisation by stabilisation agents (e.g. powdered / granulated activated carbon or similar) to reduce the leaching potential of PFAS in soils. It can also be used to lower waste classification of highly contaminated soils prior to offsite disposal
  - Offsite disposal would be considered where contaminated soils cannot be treated and reused or managed in situ. The untreated and tested contaminated soils would be disposed offsite to an appropriately licenced facility by licenced contractors
  - Screening or sorting materials would be undertaken on excavated soils to remove bonded asbestos containing materials (i.e. non-friable asbestos) to the extent practicable allowing the soils to be treated onsite via biopiling
- On-site in-situ containment by capping would be carried out for soils that have residual COPC concentrations that pose a potential risk for direct contact, where appropriate, such that this no longer represents an unacceptable level of risk.

The soil remediation works within the Project Area would be complemented with management controls, where comprehensive remediation is not deemed as practicable. Management measures can also be useful where clean-up to the extent practicable has been achieved (e.g., post LNAPL removal during remediation, restriction on groundwater abstraction whilst natural attenuation continues to confirm the reduction of concentrations of dissolved phase hydrocarbons).

7.5 Conceptual remedial strategy and staging

To support the continued safe, viable, and reliable operation of the Site and to facilitate the future use of the Site, the proposed modification works involve:

- **Stage 1 – Preparation works**: Preparing the Project Area for proposed modification works.
- **Stage 2 – Removal, relocation and/or augmentation of infrastructure**, including:
  - Relocation and/ or augmentation of firewater systems (FWS) and oily water sewer (OWS) systems and construction of new operational facilities, including replacement warehouses
  - Decommissioning and removal of non-operational assets, redundant structures and electrical assets.
- **Stage 3 – Remediation**: Addressing legacy ground contamination, including asbestos-contaminated soil (ACS).
- **Stage 4 – Grading**: Landforming the Project Area following removal of infrastructure and ground remediation activities and preparing Zones 2 and 3 for future use.
- **Stage 5 – Demobilisation**: Demobilisation of construction and remediation equipment.

Depending on where different works are required across the Site these stages may be completed sequentially or concurrently.

The remedial strategy would be delivered under Stage 3 proposed modification.

7.5.1 Stage 1 – Preparation works

In order to prepare the relevant parts of the Site for the proposed modification, the following activities would be completed:

- Installation of fencing and signage to separate terminal activities and parts of the Site outside the Project Area from proposed modification works
- Establishment of temporary facilities (e.g. site offices) and parking for construction workers within the Site
- Removal of vegetation, where permitted and required
- Installation of temporary erosion and sediment controls for the proposed modification works
- Establishment of access to services/ utilities
- Service locating would be undertaken across the Project Area to confirm the location and type of active services.

These activities are discussed in the overarching Modification Report.

7.5.2 Stage 2 – Removal and/or relocation of infrastructure

Following preparation works, certain structures and infrastructure would either be permanently demolished and removed or reconstructed in Zones 1 and 1A, or augmented. The proposed infrastructure removal, relocation, and/or augmentation works are described in the sections below. Further details of these activities are discussed in Section 4 of the Modification Report.

7.5.2.1 Oily water sewer

The proposed modification works include the removal of the OWS (including all pits and pipework) from Zones 2 and 3 except for a connection to the ACS containment cell wastewater sump and a diversion line from west of the ACS Containment Cell and along the northern boundary of Zone 2 (presented on **Appendix A, Figure F3**). A diversion would be put in place that allows for potentially contaminated flows from these areas to be transferred to the remaining OWS system in the Eastern tank farm and along the northern boundary of Zone 2. Following remediation of the former landfarm, geobag area and the FFTA, these areas would be disconnected from the modified OWS, ultimately leaving only flows from the ACS containment cell to be diverted to the Site OWS. These works would be undertaken progressively to manage potentially impacted surface water flows from contaminated areas prior to remediation activities. As such, some sections of the OWS in Zones 2 and 3 would only be removed following certain remediation activities.

Prior to the removal of the relevant sections of the OWS from Zones 2 and 3, the surface water flows from areas serviced by this infrastructure would be managed in line with the contamination risks present. Where the relevant area is still likely to contaminate surface water, this water would either be:

- Intercepted or diverted to the remaining sections of the OWS for treatment at the WWTP, or
- Captured / contained and transported to the WWTP for treatment.

Intercepting or diverting contaminated stormwater flows could include modifying interception infrastructure (such as existing pits, manholes, storages) and the installation of temporary pipes, pits, and pump stations to direct flows towards existing OWS infrastructure.

Where the relevant area is unlikely to result in contaminated surface water (e.g. due to remediation activities being complete), these surface water flows would be redirected to the Site's existing SWS.

The removal of OWS infrastructure may require excavation work of up to 3 mbgl for removal of below ground pipework and pits. Where complete removal is not feasible due to proximity to existing infrastructure or other considerations (e.g. geotechnical), existing pipes and/or pits would be cleaned, infilled with stabilised sand, cement slurry, or equivalent, and left in-situ. Any underground infrastructure left in place would be documented in the future EMP(s).

The fill surrounding the OWS pipes has not been tested (due to the potential to damage the OWS piping during test pitting), however given the location and history of the Site, it is likely that this fill material may contain asbestos, PHC impacts, and/or other COPCs. Additionally, the OWS pipes contain liquids which have the potential to contaminate the fill surrounding the service during removal, requiring removal.

Excavated soil from below ground sections of firewater pipe and footings would be stockpiled based on visual and olfactory evidence, field screening, and laboratory data. Contaminated soils would be stockpiled separately depending on the type and concentrations of contamination present and the remediation technology required. Soils would be temporarily stockpiled in vicinity of the work zone whilst being characterised and either transferred to the waste management area for remediation, if required, or if suitable, reinstated within the Project Area. Once removed, redundant pipes and materials from the OWS would be sent offsite for recycling or disposal based on material type and waste classification.

7.5.2.2 Firewater systems

In order to calibrate the FWS for the terminal footprint, the FWS infrastructure in Zones 2 and 3 would be augmented, or removed and where necessary, replaced in Zone 1.

The FWS pipework through Zone 2 would be augmented or disconnected and removed. Excavations up to 1 mbgl may be required to augment or remove the pipework, footings, and foundations.

The fill surrounding the firewater pipes has not been tested (as this infrastructure is still currently in use and providing a critical safety control for the Site); however, given the location and history of the Site, it is likely that the fill material may contain asbestos, PHC impacts, and/or other COPCs.

Excavated soil from belowground sections of firewater pipes and footings would be managed in the same manner as described above for the OWS works.

Once removed, redundant pipes and materials from the FWS would be sent offsite for recycling or disposal based on material type and waste classification, where appropriate.

7.5.2.3 Electrical assets

During the closure of the Kurnell Refinery, high voltage electrical substations, power distribution rooms, and electrical infrastructure (such as buried cables) were redesigned to meet the requirements of the terminal. Following an electrical audit, existing substations / switchboard rooms in Zones 2 and 3 have been deemed to be no longer required and are therefore proposed for demolition.

All above-ground redundant electrical assets in Zones 2 and 3 would be decommissioned and removed. Below ground cables would be de-energized and either retained for potential future use or removed in accordance with AS/NZS 3000:2018 *Electrical installations*.

The fill beneath the electrical substations and surrounding cables has not been tested (as this infrastructure is still currently in use), however given the location and history of the Site, it is likely that the fill material may contain asbestos, PHC impacts and /or other COPCs.

Excavated soil from cable trenches and substation footings would be managed in the same manner as described above for the OWS works.

Prior to demolition a hazardous material survey would be completed for substations and any identified hazardous substances (such as asbestos, PCBs, lead paint) would be removed by a licenced contractor. Once removed, redundant electrical cables and materials from the electrical assets would be sent offsite for recycling or disposal based on material type and waste classification.

7.5.2.4 Structures

A number of buildings and other structures are located within Zones 2 and 3. These include small storage structures and larger buildings such as the storehouse, main warehouse, central control building, and the Oil Spill Room. Many of these buildings are no longer fit for purpose for the terminal and are relatively isolated from the terminal footprint. On this basis, and to facilitate the future use of Zones 2 and 3, Ampol are proposing to remove these structures as part of the proposed modification works. These structures are shown in **Appendix A, Figure F2**.

Prior to demolition a hazardous material survey would be completed for relevant structures and identified hazardous substances (such as asbestos, PCBs, lead paint) would be removed by a licenced contractor. Each structure proposed for demolition would be demolished to ground level and, where possible, their slab, foundations, and footings removed. The foundations of buildings and structures previously demolished as part of the approved project within Zones 2 and 3 would be also excavated and removed, where they haven't already been removed and where practicable. These activities would require excavation works up to 2 mbgl, depending on depth of footings (generally focused within 1 mbgl).

Excavated soil from building footings is expected to be minimal but would be managed in the same manner as described above for the OWS works.

Once removed, solid waste materials from the demolition would be either processed for onsite reuse as fill material (dependent on geotechnical properties) or sent offsite for recycling or disposal based on material type and waste classification, where appropriate.

7.5.3 Stage 3 – Remediation

7.5.3.1 Overview

Remediation and/ or management of ground contamination would be required across Zones 2 and 3, and parts of Zone 1, where soil and groundwater quality does not currently meet the commercial/ industrial land use standard, as defined by ASC NEPC (NEPC 2013).

As part of the proposed modification, where ground disturbance is proposed within Zone 1, contaminated material would be managed in accordance with the terminal's existing Operational Environmental Management Plan (OEMP) and Remediation Action Strategy (Ampol, 2019) which includes information on areas identified for remediation with the context of continued terminal use. Excavation works in Zone 1 would be limited to shallow excavations related to installation of footings and foundations. Excess soil or fill material generated during these works would be categorised and either disposed offsite to landfill (consistent with the OEMP) or potentially incorporated into Zone 2 and 3 remediation activities.

As discussed in **Section 7.3** to remediate identified areas of impacts within the Project Area, contaminated soils would either be:

- Excavated and treated onsite for reuse
- Excavated and disposed of offsite
- Managed in situ and capped.

Table 17 lists the relevant COPCs that would be remediated using the remediation approach outlined above.

7.5.3.2 Excavation

Based on the analytical data obtained from previous site investigations, the soil remediation works would be limited to less than 4 mbgl and would be generally focused within 1 mbgl.

For hydrocarbon (PHC), asbestos, and/or PFAS impacted soils, **Table 16** shows the approximate areas that would require excavation for either onsite treatment or disposal offsite. The volume of hydrocarbon, asbestos and/or PFAS impacted soil that would require excavation and either treatment or offsite disposal has been estimated at 83,000 m^3. The excavation areas below generally match areas where groundwater, soil vapour or PFAS concentrations that may pose a risk to human health for future industrial land uses (as discussed in **Section 3.0**). These excavations may require further chasing of contamination beyond the current proposed extents hence a contingency volume has also been calculated as 50% of base estimate volume, and further investigation may also result in adjustment of the excavation areas. An approximate contingency soil volume of 40,600 m^3 (50%) has also been included for assessment (i.e. a total of 123,600 m^3).

To prevent loss of existing flood storage and to avoid offsite flooding impacts, earthworks would be completed in a manner that does not significantly alter existing surface levels. For example, areas requiring up to 300 mm of capping would need to be initially excavated by 300 mm before the capping occurs. Areas requiring excavation prior to capping are shown on **Appendix A Figure F3**. Additional excavation (approximately 183,130 m^3 of excavated soil, with 91,565 m^3 contingency) would be required in these areas to allow for the capping layer.

The total estimated 266,130 m^3 (with contingency allowance for 132,165 m^3) is comprised of the following excavation areas, soil volume estimates and contingency volumes as described in **Table 16** below and excavation areas are shown on **Appendix A Figure F3**.

Table 16 Excavation Volume and Contingency Estimates

Excavation Area	Base Estimate Volumes[1]	Contingency Volumes[2]	Source
Zone 1 Infrastructure construction area	13,000 m^3	6,500 m^3	Bulk fuel storage and historical losses.
Zone 2 & 3 Oily Water Sewer removal	11,800 m^3	5,000 m^3	Oily water sewer
Excavation 1 (PHC)	4,000 m^3	2,000 m^3	Eastern Tank Farm and bulk fuel storage
Excavation 2 (PHC)	15,550 m^3	7,775 m^3	Eastern Tank Farm and bulk fuel storage.

Excavation Area	Base Estimate Volumes[1]	Contingency Volumes[2]	Source
Excavation 3 (PHC)	2,450 m^3	1,225 m^3	Former CLOR Process Unit Area and bulk fuel storage
Excavation 4 (PFAS)	10,000 m^3	5,000 m^3	FFTA (assumed source)
Excavation 5 (PFAS)	2,550 m^3	1,275 m^3	Former CLOR Process Unit Area (temporary foam storage trailer)
Asbestos Excavation (RPIP)	23,650 m^3	11,825 m^3	Uncontrolled filling
Capping Excavations	183,130.00 m^3	91,565.00 m^3	Excavation to install capping layer in flood storage areas
Total	**266,130 m^3**	**132,165 m^3**	

Excess soil excavated during infrastructure relocation works in Zone 1 requiring remediation would be remediated in line with the approach for contaminated soils in Zones 2 and 3, however, the location of the soil treatment and other remediation works would likely occur within Zones 2 or 3 for efficiency purposes. Once remediated, any material deemed suitable for reuse (meeting soil validation criteria for all COPCs and reuse guidelines presented in the NEMP 2.0 (HEPA, 2020) for PFAS) would be incorporated into the Zone 2 and 3 developments.

Where soil in the Project Area has been assessed as not requiring remediation, this is because the soil and groundwater quality either:

- Already meets the commercial/ industrial standard (refer to **Section 5.0**); or
- The remaining contamination impacts are unlikely to pose a risk to human health or the environment.

A separate remediation approach would not be required to address residual impacts in groundwater. Based on existing investigations, groundwater impacts would not pose an unacceptable risk to human health or ecological receptors if soil impacts in identified source areas are remediated. Exposure risks would be minimised by the installation of impermeable liner and capped with clean soil such that potential human risk (via oral and dermal contact) and migration pathways are minimised. Targeted onsite boundary investigations would be undertaken as part of the data gaps investigation to assess data gaps relevant to potential offsite risks.

The preferred soil remediation technologies that are to be utilised for identified contamination at the Project Area are described in **Section 7.3** and summarised in **Table 17** below.

Table 17 Remedial technology and contaminants matrix

Contaminant	Excavation and onsite biopiling	Excavation and onsite treatment stabilisation	Capping (in situ management)	Offsite disposal
Asbestos	N/A	N/A	Yes	Yes
Hydrocarbons	Yes	No	Yes	Yes
PFAS	N/A	Yes	Yes	Yes

Once contaminated soils are excavated, soil sampling and analytical testing would occur within the excavations to validate the remaining soil against a pre-determined validation criteria and in accordance with the specific Validation SAQP (**Section 7.6**).

Impacted soils to be treated ex-situ would be excavated and stockpiled based on visual and olfactory evidence, field screening, and laboratory data. Contaminated soils would be stockpiled separately depending on the type and concentrations of contamination present and the remediation technology required within the waste management area.

Where it is not feasible to remediate the soils with the technologies listed above, they would be disposed offsite untreated, and in accordance with the Waste Classification Guidelines (NSW EPA, 2014) to an appropriately licensed facility.

A description of the remediation technologies required to deliver the proposed modification, their indicative location within the Project Area and relevant environmental controls is provided below.

7.5.3.3 Asbestos Management

For areas of fill material underlying the Site which have been identified as asbestos contaminated, environmental, health and safety management requirements for the handling of all materials disturbed during ground disturbance and site remediation including excavation and movement of materials, and subsequent construction activities would be based on the requirements provided for asbestos-related works in Work Health and Safety Act 2011 and the NSW Work Health and Safety Regulation 2017. This would include preparation/update of a project specific asbestos register and associated asbestos removal control / management plan as outlined in NSW Work Health and Safety Regulation 2017.

Screening or sorting materials would be undertaken on excavated soils to remove non-friable asbestos materials to the extent practicable in adherence to *NSW's Guidance on Managing Soils in or on Soil (2014)*. This allows the impacted soils to be treated onsite through biopiling.

7.5.3.4 Biopiling

Following testing, soils requiring remediation due to hydrocarbon impacts, but not impacted by asbestos or PFAS, would be remediated by biopiling, where practicable. Under normal conditions, naturally occurring bacteria in the ground slowly degrade hydrocarbon contamination to compounds that do not pose a risk to human health or the environment. Biopiling promotes and facilitates this natural process (through the addition of nutrients etc.) expediting the remediation process. Based on ground investigations it is estimated that approximately 10,000 m^3 of hydrocarbon contaminated soil from the Project Area would be remediated by biopiling, however a contingency soil volume of 5,000 m^3 has also been included for this assessment (i.e. a total of 15,000 m^3).

Biopiles would be established within areas shown on **Appendix A, Figure F3**. Prior to setting out the biopiling areas, these areas would be remediated and/or managed (if required) prior to being prepared with a base clay or HDPE liner, where suitable concrete slabs are not present. A compacted sand base would be established over the liner to enable adequate air exchange into the biopile. The soils would be mixed with nutrients or other soil amendments and placed in the biopile area. The biopiles would be covered with an impermeable material to reduce stormwater ingress and dust creation. Measures to minimise the creation of dust and odour emissions during the construction of the biopiles would include:

- Covering surfaces
- Minimising exposed area
- Wetting down exposed soils
- Dust monitoring or observations.

The biopile would be maintained under negative pressure with blowers to mitigate fugitive gas emissions to the atmosphere. Off-gas from the process would be passed through air filters to remove volatile hydrocarbons and regular air monitoring of the air emissions would confirm when exchange of air filters is required. Moisture, temperature, nutrients, oxygen, and pH would be monitored regularly and controlled to enhance biodegradation.

The addition of nutrients/ amendments, compost, microbes, and moisture (as appropriate) to the biopile and the movement of air with a blower through the material would stimulate aerobic microbial activity within the soils and promote the biodegradation of hydrocarbons.

The biopiling base would be graded towards a collection point. Leachate from the biopiles would be sent to the WWTP (via the OWS system) for treatment prior to being discharged in line with the EPL 837.

Regular testing of the soil in the biopiles would occur to confirm when the soil has been remediated to an industrial/commercial standard in accordance with the remediation criteria outlined in **Section 5.0** and the NEMP 2.0 (HEPA, 2020) the soil is remediated to this standard, the biopiles would be deconstructed and the soil would be reused onsite as backfill or for capping. In accordance with the soil remediation hierarchy outlined in **Section 7.2** and provided that the contaminants include asbestos, PHC, and PFAS, the process would start with screening and sorting to remove non-friable asbestos. This would be followed by biopiling to reduce petroleum hydrocarbon levels. If required based on concentration, ex-situ immobilisation would be employed to address PFAS impacts, before the soil is either reused onsite or disposed offsite. The suitability for beneficial reuse of PFAS impacted soil would be based on leaching data, with criteria to be developed in the Detailed RAP(s), if required.

Biopiling would follow the guidelines set out in *NSW EPA's Best Practice Note: Landfarming (2014)*.

7.5.3.5 Stabilisation

Excavated soils from the FFTA and small quantities of soil impacted by PFAS from other areas would be disposed offsite, however, should larger volumes of contaminated soil be present in a specific location, or if the concentrations result in the soils being classified as Restricted Soil Waste (RSW) or higher, ex-situ stabilisation may be required. The decision to either dispose of the contaminated soils offsite or to use stabilisation would be based on a cost benefit analysis.

Stabilisation involves the use of a binding reagent (typically activated carbon) to encapsulate contaminants). To confirm the appropriate approach for soil stabilisation, bench scale trial testing would be undertaken to:

- Confirm the optimal treatment application (i.e. additive ratios)
- Demonstrate longer-term effectiveness of the treatment
- Demonstrate that the treated material has been appropriately stabilised and is suitable to be reinstated into excavations and/or accepted by an appropriately licenced landfill.

Bench scale trials would take approximately four months to complete. Once it is confirmed that stabilisation is appropriate, a site-specific immobilisation approval should be obtained to treat the material and lower its waste classification for offsite disposal before starting full-scale stabilisation works.

Once excavated, PFAS impacted soils would be stockpiled separately to non-contaminated soils and other contaminated soils in the waste management area. Stabilisation works would progress in a sequential manner with progressive validation testing conducted to confirm the remediation objectives have been achieved.

The stabilisation works would require setup of the stabilisation process (preparation and construction of treatment areas) and related environmental controls. This would take approximately one month.

Following set up, the stabilisation process would involve the thorough mixing of the selected additives into the soil. This would be undertaken in the biopiling and stabilisation area as shown in **Appendix A, Figure F3**. This may be achieved using either an excavator fitted with at grid bucket, or mixing plant/ trommel including a feed hopper, mixing apparatus and an additive hopper depending on the volume of soils to be treated and the associated scale of mixing operation required.

Once complete, the treated material would be validated for onsite reuse or where the treated material does not meet validation and/or re-use criteria it would be classified for offsite disposal.

7.5.3.6 Capping

Two types of capping would be used depending on the types of contamination present:

- Capping Type 1: This capping layer consists of a soil capping layer underlain by a geotextile marker layer or equivalent highly visible marker to separate contaminated and non-contaminated soils.

- Capping Type 2: This impermeable capping layer consists layers of structural fill, a geotextile separation marker and impermeable HDPE or low permeability layer.

The installation of Capping Type 1 would be the primary remediation strategy to address asbestos contamination in soils. This capping approach creates a physical barrier that would prevent exposure to asbestos. Where necessary an impermeable cap would be constructed in areas with residual PFAS and / or hydrocarbon impacts that present an unacceptable risk for industrial land use. Capping Type 2 would be both a vapour barrier to prevent migration of volatile vapours and also as an impermeable barrier to mitigate further migration of PFAS into groundwater. Alternative capping methods may be used (i.e., thicker capping layers in areas of services to accommodate future utilities and areas where vegetation/ tree planting may be planned) if they meet the remediation objectives and are discussed further below. Capping would be considered in the areas as shown on **Appendix A, Figure F4.** The requirement for capping in these areas would be based on confirmatory sampling to be conducted as part of the data gap assessment and Detailed RAP(s) planning.

Capping of soil would be conducted sequentially in a staged manner. Following remediation of one area, soils would be validated in accordance with a specific SAQP (further described below). During validation of one area, remediation of the next area would commence, with the first area being clearly marked to avoid potential cross-contamination from other parts of the Project Area. Capping of soil could occur concurrently in different spatial areas where cross-contamination is not a concern.

Capping Type 1 would be used to cap asbestos contamination in soils by creating a physical barrier that would prevent exposure to asbestos. Approximately 60 ha across Zones 2 and 3 would be capped with a Type 1 capping layer. The Type 1 capping layer would typically comprise of 300 mm clean fill cap underlain by a geotextile marker layer to delineate soils free from asbestos and soils / fill which may still contain asbestos. A schematic for the typical Capping Type 1 is shown in **Figure 2** below.

This figure shows the typical structure for the Type 1 capping layer. Capping thickness would meet the requirements of an industrial/ commercial land use and would be designed to meet the final landform grade refer to **Section 7.5.4**). It is expected that the minimum cap thickness would be 300 mm. The thickness of the Type 1 capping layer may vary as follows:

- Service corridors: minimum 150 mm cap below total depth of service to accommodate future utilities
- Road verges adjacent to primary and secondary roads: minimum 850 mm below engineered level to act as future service corridor
- Green spaces: minimum 500 mm for shallow planting and 1,500 mm for tree planting areas
- Other areas (including roads): 300 mm standard (typical) cap.

Modifications to the typical Capping Type 1 in a particular location would be agreed with the Site Auditor and detailed within the Detailed RAP(s) to ensure that remediation objectives are achieved.

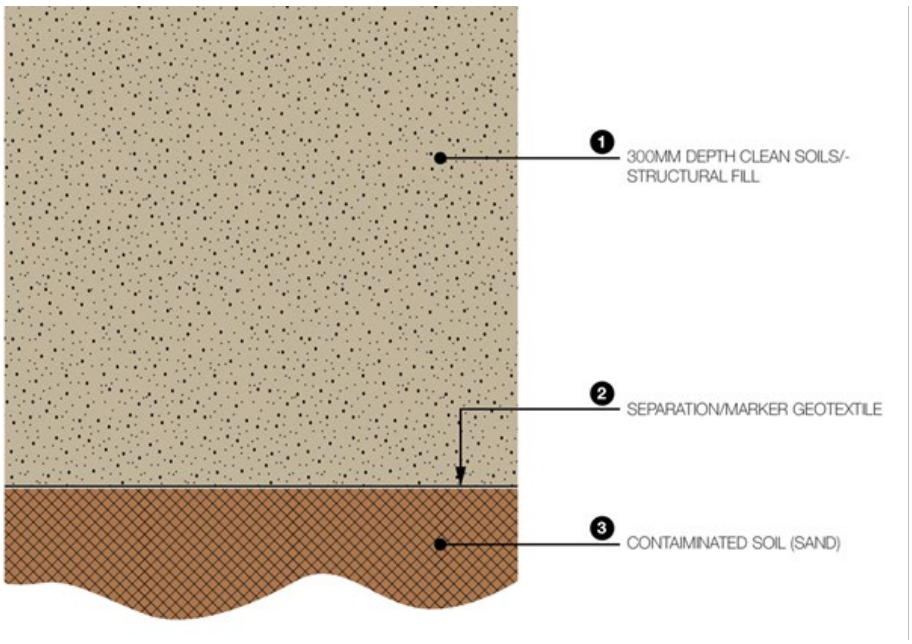


Figure 2 Schematic for Capping Type 1

If required, a Type 2 capping layer would be constructed in areas with residual PFAS and / or hydrocarbon impacts. The Type 2 capping layer has been designed both as a vapour barrier to prevent migration of volatile vapours and also as an impermeable barrier to mitigate further migration of PFAS into groundwater. The typical construction of the Type 2 capping layer would comprise 200 mm structural fill over a geotextile separation marker followed by 100 mm of clean soil / structural fill followed by protection geofabric and impermeable HDPE or low permeability layer. A schematic for typical Type 2 capping layer is shown in **Figure 3**.

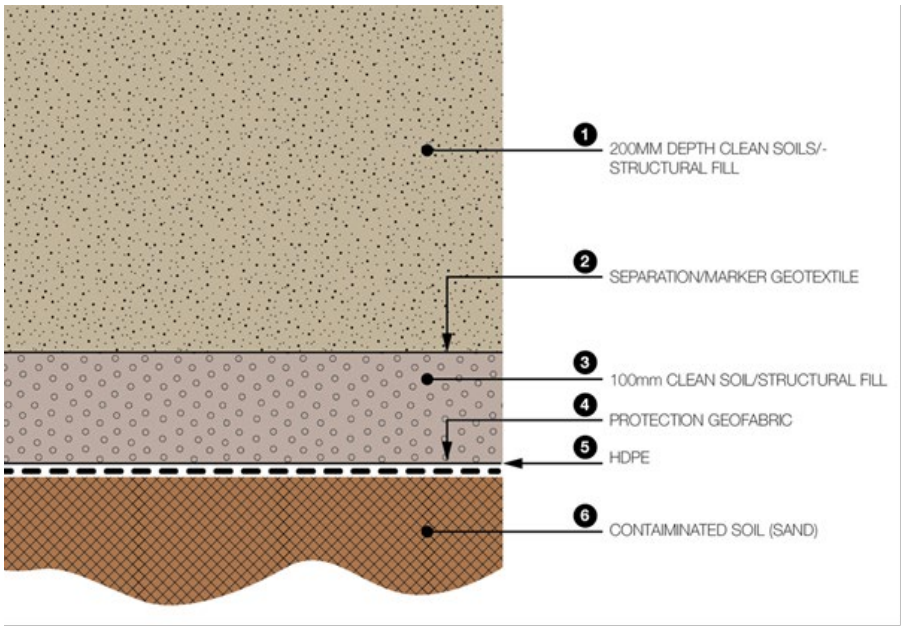


Figure 3 Schematic for Capping Type 2

7.5.3.7 Offsite disposal (untreated soils)

Where contaminated soils or sludges cannot be treated and reused or managed in situ, they would be disposed offsite to an appropriately licenced facility by licenced contractors. Up to 40,000 m^3 of contaminated soil, fill, or sludge material may require offsite disposal. This untreated material may be petroleum or non-petroleum impacted soils or sludges.

Soils to be disposed offsite would be excavated and transported to a dedicated section of the waste management area for temporary storage or containment (depending on their characteristics). Further testing and waste classification in accordance with the Waste Classification Guidelines (NSW EPA, 2014) would be undertaken prior to disposing of these materials offsite.

7.5.3.8 Import fill

Remediated soils and crushed clean concrete slabs from the works described above would be used as backfill where practicable. Crushed concrete would be validated prior to reuse. Given that some of the below ground infrastructure/drainage infrastructure would be removed and that potentially some soils would be disposed offsite, additional fill would be required to achieve the required levels. Imported fill would also be required for the capping layer. Additional fill, preferably engineered materials, that already meets a commercial/ industrial standard would be brought to the Project Area from offsite sources.

Where soils are brought from other sites, the material should be classified as virgin excavated natural material (VENM), excavated natural material (ENM) as defined by the ENM Order, 2014, or material covered under an NSW EPA specific Resource Recovery Order (RRO). The soils would be managed in line with this order as well as a specific Validation Plan (outlined in **Section 8.0**), which would outline acceptance criteria, and sampling and analytical requirements. Once material is validated (using the criteria outlined in the Validation Plan), the soil would be reused onsite under an NSW EPA approved Resource Recovery Exemption.

The imported fill would be stockpiled and tracked separately to the onsite materials and tested/validated to confirm they have been remediated for reuse on the Project Area.

7.5.3.9 Surface water management

Surface water flows and stormwater would be managed by segregating clean water from impacted water and preventing the inflow of surface water to excavation areas using surface bunds, silt fences and drainage diversions. The preferred hierarchy for management of water onsite is as follows:

- minimise volume of contaminated water during the works wherever possible by directing surface water away from excavations, depressions, pits and stockpiles by the construction of drainage systems such as bunds and diversion drains. These measures would minimise the flow of clean water into other areas of the Project Area that contain contaminated materials.
- recycling water where possible by using it onsite as dust suppression for other operations on the Project Area including wheel washing and truck washing.
- discharge to the onsite WWTP, with or without treatment, as per regulatory guidelines.

The generation of impacted surface water would be minimised by:

- covering the biopiles and unremediated stockpiles to reduce the amount of contaminated water produced during the works
- completing the remediation in a staged manner so as to minimise the extent of excavations at any one time that could collect water and require dewatering and processing at the WWTP.

Accumulated groundwater in excavated areas would be tested first for other COPCs to confirm that it can be appropriately treated in the WWTP. It is anticipated that the system including the WWTP would have sufficient capacity during remediation activities as the WWTP was originally designed to service the refinery which is no longer in operation. It is understood that on a flow and contaminant concentration basis the current loading is well below its design capacity.

7.5.3.10 Oily water management

The existing oily water management system would continue to operate during the early stages of the proposed modification. However, as the modification works progress, the OWS system would be progressively isolated, where works are occurring. Excavated areas would be bunded temporarily to minimise the impact on surface water from contact with contaminated soils. Stormwater would be diverted around the work areas using temporary drainage channels.

Further, the OWS itself may be contaminated and may require excavation. If required, during excavation, these channels would be isolated from the wider area system. Stormwater would be diverted away from the excavation (in a similar manner to the excavation pits). The channels would be filled with imported fill or remediated soils suitable for re-use after excavation of contaminated materials and validation.

Where practicable, parts of the OWS that are proposed for removal but are required for the proposed modification would either be retained in situ and removed at the end of the proposed works or a modified system for diversion of contaminated flows from that area would be designed and installed to connect with the existing OWS outside of the Project Area (i.e. in Zone 1).

In lieu of oily water drainage (where its removal is required due to contamination), the remediation areas including the treatment cells for biopiling and soil stabilisation would be bunded to contain incidental rainfall with a sump for dewatering as necessary. The collected runoff would be transferred to the WWTP or removed by pump and transferred to the residual OWS by temporary pipeline. In either case the oily water would be treated in the existing WWTP and discharged in line with the Site's EPL. The preferred system would be selected taking into account site specific characteristics, e.g. location, proximity to residual OWS, duration of works etc.

Leachate is likely to be generated during the onsite treatment works. The quantities are likely to be small and would also be sent to the WWTP via existing lines or by tanker for treatment and discharged in line with applicable regulatory guidelines.

7.5.3.11 RPIP remediation and grading

The RPIP Mountain area is located within the southeastern portion of Zone 3, covering an approximate area of 32,000 m^2. Historical disturbance, including extensive filling and tipping of soil materials, has occurred across this area and as such, the area is undulating and elevated by several metres above ground surface levels elsewhere at the Site. Previous assessments have identified asbestos as the primary contaminant of concern within the fill material with clusters of subsurface asbestos contamination, both friable and non-friable, located along the northern perimeter, central area and south-eastern corner of the area at up to 2 mbgl and at varying elevations. Screening level exceedances were also noted for heavy metals, in particular lead, apparently most prevalent in the northern portion at varying depths and elevations.

Removal of low and regenerating condition native vegetation would be required throughout RPIP Mountain. For large trees established within the area, the root system would also require removal to make the area geotechnically suitable for commercial/ industrial land uses. It is assumed that approximately the top 1.0 m (of organic root material likely contaminated with asbestos) would require removal and management. Options for management of the asbestos impacted root zone (and future development) would include either of the following or a combination of options:

a. Root zone removal, offsite disposal and capping involving:
    - Complete offsite disposal of the root zone (as special waste – asbestos) with excavation up to 1 mbgl across RPIP area.

b. Root zone removal, onsite containment (in one area) and capping involving:
    - Consolidation and relocation of root zone material to one portion of RPIP to be capped and used as a landscaped area. Remainder of RPIP to be graded and capped (with or without further ground improvement works) and developed for commercial/ industrial land use.

c. Root zone retained in-situ, ground stabilisation and capping involving:

   - Root zone to remain in-situ, graded/levelled and the entire area capped with a concrete slab with foundations piled to bedrock to address geotechnical concerns (if present) with root zone decay and developed for commercial/ industrial land use.

The selection of the most appropriate remediation and management approach would depend on further geotechnical assessment and a cost benefit analysis for each option. The preferred approach and detailed implementation plan would be provided in the Detailed RAP(s) for this area.

7.5.3.12 Approvals

The POEO Act, 1997 defines Contaminated Soil Treatment (incineration or storage of contaminated soil but excluding excavation for treatment at another site) as a Scheduled Activity (requiring an EPL) if more than 30,000 m^3 or 3 ha of soil onsite would be treated (otherwise than by incineration) and stored onsite. Whilst capping detailed above would not be considered treatment, remediation via biopiling and/or stabilisation is anticipated to be 46,800 m^3, plus 22,500 m^3 contingency and as such a licence variation to the Site's current EPL is expected to be required. This would likely form a condition of consent of the SSD Modification and would be managed with Ampol post-approval.

7.5.4 Stage 4 – Grading

Following remediation works, the Project Area would be graded to facilitate the ongoing management of the Kurnell Terminal and/ or future land uses in the western half of Zone 2 and northern part of Zone 3. The levels across the rest of the Project Area would remain the same as existing. Grading would allow stormwater flows across Zones 2 and 3 to be directed to the existing SWS at the Site and for flows in Zone 1 to be managed by either the SWS or the OWS, as required.

Surface treatments, such as grassing or temporary pavement, would be provided to help mitigate soil erosion and limit the amount of sediment discharged into the existing drainage network.

The grading works would consist of the following activities:

- Placement and compaction of fill to required levels over remediated surface
- Forming the finished design surface through grading
- If required, placement of an additional surface layer (typically topsoil) and surface treatment (grassing, spray grass or temporary pavement).

7.5.5 Stage 5 – Demobilisation

Demobilisation from the Project Area would include:

- Removal of plant and equipment
- Ensuring Zones 2 and 3 are secured
- Removal of temporary environmental controls and waste management areas
- Removal of offices, temporary structures etc. installed within the Project Area as part of Stage 1.

7.6 Contingency plan

7.6.1 Approach

The following unexpected events have been identified as having the potential to occur during the remediation works described in **Section 7.5.3**:

- Identification of greater amounts of source material than presently anticipated
- Identification of contaminated groundwater or saturated conditions at depths less than anticipated
- Drums or underground storage tanks with unknown contents (i.e. either contained or potentially leaked into the surrounding soils)
- Flooding of the Site
- Generation of unacceptable dust during excavation and reinstatement works

- Release of unacceptable fugitive emissions during the excavation works
- Generation of excessive and unexpected odours from the excavation works
- Spills and leaks of hazardous materials.
- Change in design levels which may affect the contamination risk profile

Contingency mitigation measures for these items are described in the following sections.

7.6.2 Management of unexpected conditions

7.6.2.1 Actions required

Table 18 below details the actions that would be followed if the prescribed remedial methods are not fully effective or if other matters arise. Contingency measures which may then be implemented are detailed in the section below. **Table 18** focuses on contaminant related changing conditions, other change variables (e.g., relating to health and safety, heritage, local stakeholders, etc.) would be considered under the relevant impact assessment in the Modification Report. The management of these issues would be detailed within a series of management plans that would be developed along with the Detailed RAP(s).

Table 18 Actions required for managing unexpected conditions

Scenario	Actions required
Impacted soils (beyond the concentrations, lateral extent/ depths, or volumes anticipated) or different contaminants not previously identified are encountered.	Work in the vicinity of the soils should be suspended until the environmental consultant can further assess the impacted soils/ materials and the associated risks. An increased volume of soil to be excavated has the potential to adversely impact on schedule and cost. Depending on the magnitude of the changes (extent and volumes of contamination/ excavation required), the final reinstatement levels may change during the project. This may require redesign of the final reinstated landform. Once the assessment is completed, a decision on changes to the remediation approach would be issued for review by the Site Auditor prior to implementation.
Large volumes of contaminated water (i.e. dissolved phase or LNAPL) is identified during the modification works (e.g. due to flooding and/or higher groundwater levels).	Surface water management including minimising the water inflow to excavation reducing contaminated water is outlined in **Section 7.5.3.9**. Once the assessment is completed, a decision on changes to the remediation approach (potentially inclusive of in-situ treatment) would be issued for review by the Site Auditor prior to implementation.
Acid sulfate soils (ASS) encountered during excavation works	Low probability of ASS is anticipated at 1 to 3 mbgl within the Project Area. Field pH testing would be carried out using a soil test kit as contingency during soil excavation. Soil samples would be tested for ASS parameters if screen test indicates it is potentially acid generating. ASS Management Plan would be prepared if soil results confirm ASS. A decision on changes to the remediation approach including the ASS management plan would be issued for review by the Site Auditor prior to implementation.

Scenario	Actions required
Excessive vapours emanating from excavated and stockpiled soil or excavation pits.	Should elevated levels of contamination or odour (i.e. levels above those expected or planned for in the relevant location) be present in the soils or excavations, work related to the excavation would be suspended until a suitably qualified environmental consultant can instruct on how best to proceed to manage contamination, or vapour, or odour risks to deliver the works and achieve work health and safety and environmental compliance requirements Other measures that would be considered include • the movement of contaminated materials (based on visual observations or elevated photo-ionisation detector (PID)/lower explosive limit (LEL) meter measurements) that are exposed to a more distant location from adjacent properties, • additional features to control emission from the treatment area. Once the assessment of the excessive vapours (i.e. ambient air PID > 100 ppm, LEL of > 5%, values which provide conservatism both for human health exposure to vapours, and of potential explosive atmospheres) is completed, a decision on changes to the remediation approach would be issued for review by the Site Auditor prior to implementation.
Soil proposed for offsite disposal fails to meet “General Solid Waste” soil classification criteria under the Waste Classification Guidelines, NSW EPA 2014.	Conduct toxicity characteristics leaching procedure (TCLP) of contaminants exceeding General and/or Restricted Solid Waste, and/or Hazardous Waste classification to assess the leachable concentration and classification of waste can be reduced. If waste soil is still classified as anything other than General Solid Waste, then onsite remediation (or onsite management) methods should be considered in the first instance.
Non-hydrocarbon impacted soils are not suitable for treatment using the technologies detailed in this Conceptual RAP.	If non-hydrocarbon impacted soils (i.e. non-hydrocarbon COPCs outlined in **Table 9**) are identified in the remediation area and do not present an unacceptable risk to human health and/or the environment, the material/ impacted area would either be managed onsite with the implementation of one or more EMP(s) or would be disposed offsite (if surplus to the need of the proposed modification).
Excessive dust generated during remediation works	Dust mitigation measures have been identified in the modification report and would be implemented during the modification works. Should excessive and unexpected levels of dust be detected during the remediation works, an investigation would be conducted to determine the source of the dust and evaluate the appropriate measures to be implemented. Use of temporary sheeting to cover exposed stockpiles, and additional dust suppression measures including water sprays would be used to minimise the mobilisation of dust and other airborne contaminants.

Scenario	Actions required
Spills and leaks of hazardous materials	A spill response plan would be developed and implemented as part the Emergency Response Plan (EPR) detailing procedures for responding to spills and leaks. Spill response materials equipment such as oil adsorbent pads, booms, and biodispersants would be allocated at accessible areas in the Project Area.
Noise and/or vibration levels detected during the remediation works	Noise and vibration mitigation measures have been identified in the modification report and would be implemented during the modification works. Should unacceptable noise and/or vibration levels be detected during the remediation works, specific works would be discussed with Ampol, the Site Auditor and an acoustic consultant to advise on the appropriate approach to complying with noise management levels and responding to potential complaints or comments.
Change in design levels which may affect the contamination risk profile	If final design levels decrease (i.e., drop to a lower level), the contamination risk would need to be reassessed and rescreened against adopted screening criteria to assess if the risk profile has changed and if additional remediation works may be necessary.

7.6.2.2 Contingency measures

Contingency measures are essential for remediation activities. This is particularly pertinent for contaminated soils with heavier end hydrocarbons and PFAS concentrations that may not be conducive to the initial options proposed or where discrete portions of undefined non hydrocarbon impact are encountered. As such the following measures would be considered in accordance with the hierarchy of remediation options in **Section 7.2**:

- Modification of biopiling setup: Should turning biopiles be ineffective, thermal enhancement (involving the injection of heat into the biopiles through the ventilation system) may be considered to enhance the remediation process.
- Onsite management of unexpected finds may be appropriate as long as administrative measures are put in place to ensure capping is not compromised during a later development. Onsite management is most useful where it is not practicable to remediate soils such as where soils are not suitable for bioremediation or stabilisation (such as areas of widespread asbestos impact in soils).
- Offsite disposal (untreated soils) of unexpected finds: Offsite disposal of untreated soils to landfill would typically be considered when soils are not suitable for the remediation techniques described above or where onsite management is not practicable or desirable.
- In-situ treatment of groundwater: If large volumes of impacted water (i.e. presence of LNAPL or COPC concentrations exceeding the groundwater assessment criteria outlined in **Table 9**) are observed during the modification works, or if the site requires further remediation prior to development (and installation of the final capping system), in-situ treatment with injection of chemical oxidants or colloidal carbon may be considered if warranted based on a risk assessment.

7.7 Waste management

Redundant infrastructure would be cleaned, processed and stored prior to reuse or removal from Site. Infrastructure and waste materials would be tracked in line with a Material Tracking Plan.

A waste management area would be established in an area shown on **Appendix A, Figure F3** for all surface and subsurface materials removed (e.g. concrete, metals/reinforcement bar, drainage lines). Once material is removed or excavated it would be sorted and stockpiled separately in this area prior to reuse or removal from Site. The waste management area would remain in place for the duration of the proposed modification works.

It is estimated that the proposed modification would involve the processing of approximately 40,000 m^3 of concrete predominantly from slabs and asphalt. Concrete would be crushed within the waste management area and where appropriate, used as backfill during Stages 3 and 4 to reduce the soil deficit and to improve the geotechnical stability of the land. Concrete waste that could not be used would be taken offsite for sale, recycling or disposal.

Contaminated soils encountered during Stage 2 would be managed in line with the processes outlined in **Section 7.5.3**. Where contaminated liquids could be encountered (for example potentially where pipework is being removed), appropriate containment/spill mitigation measures would be employed. LNAPL and/or impacted water would be directed to the WWTP or contained and disposed offsite by a licenced contractor as discussed below.

8.0 Validation plan

This section provides a summary of the validation works which would be conducted to confirm that the remediation works have achieved the remediation objectives and to confirm the suitability of soils for reuse in the Project Area in accordance with NSW EPA endorsed guidelines including the NEMP 2.0 (HEPA, 2020).

Further details on the proposed validation strategy would be included in the Detailed RAP(s).

8.1 Validation principles

The soil validation data obtained from the remediation works would be assessed in accordance with the ASC NEPM (NEPC, 2013). This would involve demonstrating that relevant validation criteria (established in **Section 5.0** or as amended in the future Detailed RAP(s)) have achieved the remediation objectives through the:

- Use of systematic sampling patterns
- Collection of an appropriate number of samples for estimation of the arithmetic average concentration of contaminant(s) within relevant environmental media and exposure areas
- Estimation of the 95% Upper Confidence Limit (UCL) of the arithmetic average concentration for soils.

Where applicable, the above statistical analysis would be applied to separate areas of the Project Area due to the nature of the staged remediation and validation works to be conducted. This would also apply if different strata (i.e. fill materials and natural soils) are excavated and are proposed to be reused onsite as part of the Project. Consequently, the analytical data obtained from the validation of materials to be reused onsite would be assessed separately as per the requirements of the ASC NEPM (NEPC, 2013) and the NEMP 2.0 (HEPA, 2020).

8.2 Soil characterisation / validation sampling and analysis

It is anticipated that specific Sampling Analytical and Quality Plan (SAQP)s would be prepared as part of the validation Data Quality Objectives (DQOs) program for each stage of remediation works by a suitably qualified environmental consultant and reviewed by the Site Auditor prior to commencement of the remedial works.

The validation SAQPs would be prepared based on the actual sequence of remediation works and preferred remediation option that is implemented for each remedial excavation. They would detail specific requirement for demonstrating that the remediation works have been undertaken in accordance with the requirements of this Conceptual RAP and the Detailed RAP(s).

The Validation SAQPs would include DQOs and Data Quality Indicators (DQIs) which would incorporate field quality control and laboratory analysis, methods and information on laboratory quality control data that would be used to validate the field and analytical data for the validation works. In general, the minimum requirements for validation of specific material types are outlined below.

8.2.1 Underlying existing / former buildings

Where data gaps still exist, additional sample locations shall be targeted by observations of the soils where appropriate. Additional analysis shall be undertaken where dissimilar materials are observed or where observations identify additional COPCs (such as phenols if oil / tarry conditions are identified in soil).

8.2.2 Fill materials / soils in accessible areas / capping

Fill materials used as capping or backfill shall generally be either imported (i.e. VENM, ENM, quarried, or sourced from a suitable POEO exemption source), or be material that has been generated from the Site and assessed as suitable for reuse. Import materials from VENM/ ENM or quarried sources typically do not require validation sampling upon receipt to the site, however as a contingency measure would be sampled. Validation sample density may vary depending on the source. This density is based upon the minimum validation density for mechanical screening of bonded ACM in soils as outlined in WA DoH, 2021. Samples shall be analysed for BTEXN, TRH, PAHs, heavy metals (including AS, Cd, Cr, Cu, Pb, Hg, Ni and Zn), soil pH and asbestos in combination with consideration of the source location and material inspection. A detailed and systematic inspection would be completed of the material to assess the potential presence of visible ACM prior to final placement. POEO exemption material, and Site generated fill materials would need to be appropriately validated.

8.2.3 Soils used as growing media

Site sourced fill material to be used as growing media would be sampled and analysed generally at a rate of at least one sample per 25 m^3 with a minimum of three samples per source / end location for pH and asbestos, but may vary depending on the source. This density is based upon the minimum validation density for mechanical screening of bonded ACM in soils as outlined in WA DoH, 2021. Samples shall be analysed at a minimum rate of 1 per 250 m^3 for TRH, BTEXN, PAH, heavy metals, and OCPs / PCBs as a verification check, if the material has been certified as VENM or ENM, or covered under an RRO.

Imported material to be used as growing media shall be assessed on a batch basis, with a minimum of 10 samples collected for each specific supplier's product. Samples shall be analysed for BTEXN, TRH, PAHs, heavy materials, OCPs, asbestos and soil pH. The materials shall be further inspected for aesthetic indicators of contamination.

Final asbestos clearance certificates would be issued following completion of the remediation.

8.2.4 Fill materials over remaining site

Fill materials shall be inspected by the field scientist / engineer. Material which is found to be aesthetically dissimilar to the fill materials exposed in general at the Site shall be assessed as per the protocols for unexpected finds. Malodorous materials shall be at least analysed for TRH and VOCs.

8.2.5 Waste classification

Materials sampled for waste classification in accordance with NSW EPA Waste Classification Guidelines (EPA, 2014) and shall be sampled at an approximate rate to characterise the materials in accordance with NSW EPA Sampling Design Part 1 – Application, Contaminated Land Guidelines. This shall be determined by the field scientist / engineer on the basis of the volume of materials and any potential heterogeneity occurring within the materials. Sampling of materials as per the excavated natural material (ENM) exemption (or similar) is required to be undertaken in accordance with the exemption.

8.3 Soil sampling methodology

Soil sampling methods appropriate for the relevant task would be determined by the appropriately trained and experienced field scientist / engineer at the time of sampling. It is anticipated that sampling methods may include:

- Test pits / grab samples using an excavator bucket for in-situ material characterisation and validation of deep excavations
- Boreholes completed by hand or using mobile plant
- Stockpile sampling using a shovel, trowel, or excavator bucket.

Reference would be made to the general requirements for sampling using various types of equipment as outlined in ASC NEPM (NEPC, 2013). In all instances care would be taken to minimise the disturbance of material during sampling such that volatile contaminants may not be lost during sampling. Stockpile samples are to be collected at a minimum depth of 0.5 m below the surface of the stockpile, in accordance with ASC NEPM (NEPC, 2013). Re-useable sampling equipment would be thoroughly decontaminated using phosphate and PFAS free detergent and distilled water between each sampling location.

During the collection of soil samples, features such as seepage, discolouration, staining, odours, and other indications of contamination shall be noted on field reporting sheets / borelogs.

Collected soil samples would be immediately transferred to sample containers of appropriate composition (glass / Teflon free jars). 500 ml sub-samples shall be additionally collected and placed in zip lock bags where asbestos analysis is required. Sample labels would record sample identification number and date and time of sampling. Sample containers shall be transferred to a chilled ice box for sample preservation prior to and during shipment to the testing laboratory. A chain-of custody (COC) form would be completed and forwarded with the samples to the testing laboratory, containing the following information:

- Sample identification
- Signature of sampler
- Date and time of collection
- Type of sample
- Number and type of containers submitted
- Inclusive dates of possession
- Signature of receiver.

National Authorities Testing Australia (NATA) accredited laboratories would be used for all analysis of samples. Appropriate methods and laboratory LORs are required for comparison to relevant criteria. Laboratory methods and laboratory LORs proposed to be adopted for analysis of soil samples collected during remediation / validation activities would be finalised in the Detailed RAP.

8.4 Validation inspections

Validation data is required to be collected to verify the effectiveness of the remedial works and document the final site condition as being suitable for the proposed future use. Given the range and extent of remediation works to be completed under this RAP, the validation sampling design is summarised below for a range of anticipated activities. Where validation programs are required to be designed for additional unexpected finds, consideration would be given to the validation sampling requirements identified below.

8.4.1 Treated soils

Following treatment, soils would be subject to validation testing against a pre-determined validation criteria and in accordance with a specific validation plan. Soils which have been validated to meet the commercial/ industrial standard (including any validated imported materials) would be stockpiled separately from soils requiring remediation.

Validated soils would be placed in excavations as soon as practicable following removal of contaminated soils and subsurface infrastructure. At the completion of the remediation works, areas used for stockpiling contaminated soils would be validated appropriately in accordance with the validation plan. Tracking documentation would be completed for each excavation and stockpile in accordance with the Materials Tracking Plan (outlined in **Section 9.3**).

8.4.2 Marker layer and capping

For areas which are capped as part of the remedial works, inspection would be undertaken to verify the installation of the marker geotextile layer at the appropriate depth below the final finished levels as nominated in this RAP. Photographic records would be retained from the inspections for inclusion in the validation report(s) in addition to provision by the remediation contractor for a survey showing the levels and lateral extents of the marker layers.

Where a vapour barrier is required, the design of the future mitigation system would depend on the future land use and building footprint and as such, the design and installation of the barrier would likely be a requirement of the EMP for the affected area. However, any vapour mitigation system design would be prepared by an appropriately qualified person in accordance with *NSW EPA's Assessment and management of hazardous ground gases (2020)*.

The design must:

- Be prepared in accordance with industry accepted methods
- Reduce indoor air concentrations at the site to acceptable levels
- Cover the entire slab footprint of any future building.

Installation of the vapour mitigation system must be undertaken in accordance with an appropriate construction quality assurance (CQA) and construction quality control (CQC) process; and the performance of the vapour mitigation system tested and validated, post construction. During construction, the installer would conduct CQC testing, while CQA is provided by an independent person. The design, CQA/CQC process and post installation performance of the vapour mitigation system would be overseen by a Site Auditor.

8.5 Quality assurance / quality control

The pre-determined Data Quality Indicators (DQIs) to be adopted for all material characterisation and validation works are discussed below in relation to precision, accuracy, representativeness, comparability and completeness (PARCC parameters) as follows:

- Precision – measures the reproducibility of measurements under a given set of conditions. The precision of the data and sampling techniques is assessed by calculating the relative percent difference (RPD) of duplicate samples.
- Accuracy – measures the bias in a measurement system. The accuracy of the laboratory data that is generated during this study is a measure of the closeness of the analytical results obtained by a method to the 'true' value. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes and analyses against reference standards.
- Representativeness – expresses the degree to which samples data accurately and precisely represents a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples on a representative basis across the site, and by using an adequate number of sample locations to characterise the site to the required accuracy.
- Comparability – expresses the confidence with which one data set can be compared with another. This is achieved through maintaining a level of consistency in techniques used to collect samples, ensuring analysing laboratories use consistent analysis techniques and reporting methods.
- Completeness – is defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is set at there being sufficient valid data generated during the study.

8.6 Validation criteria

8.6.1 Soils

Soils validation criteria to be applied in the validation of the Project Area as identified in the decision rules, based on the applicable human health and ecological investigation levels published in ASC NEPM (NEPC, 2013). Validation criteria for the remedial works have been presented in **Section 5.0**, and would be finalised in the Detailed RAP(s).

8.6.2 Imported materials

In accordance with the current EPA policy, only material that does not represent an environmental or health risk at the receiving site may be considered for resource recovery. Imported materials would only be accepted to the Site if they meet the definition of:

- Virgin excavated natural material (VENM) as defined in the Protection of the Environment Operations Act (1997) (POEO Act) Schedule 1.
- ENM as defined by the Resource Recovery Order under Part 9, Clause 93 of the POEO (Waste) Regulation 2014
- Any other suitable material granted an applicable exemption or order under the NSW EPA resource recovery framework.

All material imported onto the Site is to be accompanied by appropriate documentation that has been verified by the appointed environmental consultant.

8.6.3 Validation of soil placement areas

Soils which are to be moved to another area on the Site for reuse would be subject to the following data recording process for future reference purposes, and detailed in the Material Tracking Plan (MTP):

- A location plan of the placed materials with co-ordinates based on an agreed grid system
- The levels in m AHD of the base of the placement location(s) prior to the material placement
- The levels in m AHD of the placement locations once all materials have been placed
- The levels in m AHD of any defining layers, such as marker layers
- The total placed volume of materials.

8.7 Groundwater assessment methodology

Where further assessment of groundwater contaminant conditions is required there would be a program of ongoing monitoring (discussed in **Section 9.5**) to address residual impacts that might have potential to migrate out of the Project Area, or offsite. Requirements for decommissioning and reinstallation of groundwater monitoring wells destroyed during remedial activities would be included in the remedial planning documentation.

8.8 Reporting

Following the completion of the remediation works, a Validation Report would be prepared in accordance with the NSW EPA Contaminated Land Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA, 2020). Works within the relevant Site Audit boundary would be reviewed and endorsed by the Site Auditor, confirming that the Site Audit boundary is suitable for future commercial/ industrial land uses. The Validation Report may include progressive validation reports for separate portions of the Project Area to enable progressive validation of these areas.

The report would be prepared to include:

- An overview of the remediation works carried out for each validation area
- Update relevant portions of the site description and CSM as prepared in this RAP
- A summary of the site history and basis for the remediation approach for the validation areas

- Surveyed figures outlining the extent of the remediation works
- The location of validation and characterisation samples
- Descriptions of sampled materials (including visual and olfactory observations)
- Field equipment calibration certificates/records
- Photographic documentation of the validation works
- Details of imported material used at the Project Area
- Waste classification certificates and landfill waste disposal information
- Summary of the tracking and fate of materials including materials excavated for onsite treatment, reuse onsite or offsite disposal
- Landfill weighbridge dockets (if required)
- Summary tables for soil (and groundwater, if required) analytical results

Confirmation that the Project DQOs and DQIs have been appropriately met

- National Association of Testing Authorities registered laboratory analytical certificates
- Undertake assessment to the decision rules and identify environmental data which causes decision rules to be failed
- Conclusions as to the suitability of the Project Area specifically to enable the land to be used for commercial/ industrial purposes in the future
- Recommendations (if required) for further works
- Identify the requirements for any EMP(s) including inclusion of a survey clearly identifying the extent of impacted material and associated capping.

At the completion of the Project, one or more Site Audit Statements (SAS) and Site Audit Reports would be prepared by the Site Auditor in accordance with the Guidelines for the NSW Site Auditor Scheme (3rd edition). Multiple SASs and SARs may be required depending on the progress of remediation and validation activities and in the context of the development staging plan for r subdivisions within the Audit Boundary in Zone 2 and Zone 3.

9.0 Site management

9.1 Environmental management

9.1.1 Preparation of a remediation environmental management plan

Demolition, excavation and remediation works would occur as part of the proposed modification. A MOD-7 Construction Environment Management Plan (CEMP) would be prepared alongside the Detailed RAP(s). This CEMP would aim to:

- Ensure appropriate environmental management practices are followed during the modification works to mitigate and minimise adverse impacts on environmental receptors
- Achieve the projects overall environmental objectives
- Ensure legal and contractual compliance.

9.1.2 Required elements / procedures

The MOD-7 CEMP aims to address a number of Site management controls as required by the NSW EPA (2020) Contaminated Land Guidelines: Consultants Reporting on Contaminated Land, and include discussions regarding:

- Activities and procedures that are to be applied
- Set out management structure and responsibilities
- Waste management plan
- Soil and water management plan
- Noise and vibration management plan
- Air quality management plan (including controls for dust and odour).

Additional management plans and documents that would be produced as part of or alongside the MOD-7 CEMP and Detailed RAP(s) would include:

- Work health and safety plan
- Remediation schedule
- Hours of operation
- Contingency plans
- Communication engagement and notification plan
- Emergency response plan.

The precise names of these plans and documents may change depending as a result of discussions during the modification application process.

9.2 Health and safety

9.2.1 Work health and safety management plan

Prior to commencement of the remediation works, the Principal Contractor and / or Remediation Contractor would develop a Safety, Health and Environment Management Plan (SHEMP) that defines health, safety and emergency management processes and procedures such that a safe working environment is maintained during the works including:

- Responsibilities, controls, procedures and systems of work for the anticipated works that are, so far as is practicable, safe and minimise risks to health, environment and infrastructure
- Information and instructions to parties involved in the works as necessary to enable the works to be undertaken in a manner that is safe and with minimal risks to health and environment

- Procedures to manage health, and safety risk for activities that cannot be planned in detail prior to enabling works
- Health and safety procedures required for reporting a near miss, unforeseen events or incident situations (including Notifiable Incidents to the Regulator)
- Safe Work Method Statements (SWMS) to identify key tasks, the associated hazards and mitigation measures to control the hazards.

The Principal Contractor and / or Remediation Contractor undertaking the works at the Site is required, at a minimum, to complete the Ampol online induction course, general contractor inductions at the Site in addition to project specific requirements.

9.2.2 Decontamination and PPE

9.2.2.1 Asbestos

An Asbestos decontamination area would be established onsite for the use of the personnel conducting the remediation works when working with soils contaminated or potentially contaminated with asbestos. The asbestos decontamination area would comprise a segregated area where the contaminated work clothing and respirators are removed and discarded. This area would be connected to the wet decontamination unit and access to and from work area would be via this ‘Change Room’ area.

The Change Room is the area in which potentially contaminated PPE must be removed prior to leaving the Designated Work Area. It is to be located at the exit to the Designated Work Area. It must not be used for purposes other than decontamination. It must not be used as a materials storage area. All personnel leaving the Designated Work Area must use the Change Room prior to leaving. Personnel would remove disposable protective clothing prior and would be required to ensure that no asbestos soiled clothes or PPE leave the decontamination area to the ‘clean end’ of the area.

PPE is to be provided to all personnel working in the Designated Work Areas and would be available within the decontamination area. The PPE would be to the standards required for the asbestos removal work and for protection from other contaminants (e.g. VOCs).

Where personnel are working on the ground within the designated asbestos areas and are required to handle, or are likely to come into direct contact with asbestos material the following minimum PPE is required:

- High visibility vests
- Disposable coveralls with booties
- Safety boots with rubber soles
- Safety glasses
- Gloves
- Hard hats
- Respirators - half or full face P3 including organic vapour filter (where other contamination is identified in the soil).

The protective clothing would be required to be provided daily to employees at the commencement of their work shift at the Change Area. Protective clothing is only for use in the Designated Work Area and would not be used outside of this area.

Once workers are inside the Work Zones, they are not permitted outside of that area without proceeding through the appropriate decontamination procedures.

No employee is permitted to remove any disposable protective clothing from the Site. Contaminated overalls and PPE is to be disposed of with the asbestos contaminated waste materials in appropriately labelled waste bins or bags.

9.2.2.2 Other contaminants

Decontamination and PPE requirements for other chemical CoPC would be based on the particular CoPC being remediated. Generally, chemical decontamination of equipment will occur when equipment has come into contact with heavily contaminated soil or groundwater. Where feasible, the equipment would be washed-down with a suitable decontamination solution, in a dedicated wash-zone with suitable wastewater drainage. In the likely event that chemical decontamination is required for equipment that was also exposed to asbestos in soils, and assuming the chemical decontamination cannot occur within the area that the equipment was used, the asbestos decontamination and clearance process should be completed first, prior to delivering the equipment to the chemical decontamination area.

For chemical contaminants, personnel working on the ground that are required to handle, or are likely to come into direct contact with contaminated material, the following minimum PPE is required:

- High visibility vests
- Long sleeve shirt and pants
- Safety boots with rubber soles
- Safety glasses
- Gloves (nitrile and/or cut resistant)
- Hard hats

Based on the CoPC, personnel might also require the use of:

- Respirators - half or full face P3 with relevant applicable vapour filter (selected based on the contaminant identified present).

Personnel should consult with their activity specific Safe Work Method Statements or other relevant guidance.

9.3 Materials tracking plan (MTP)

All materials handled during the remediation works would be tracked in order to allow verification of the correct movement and handling. The MTP would track materials from cradle-to-grave and would provide detailed information on the location and quantity of all material movements, both for onsite treatment and offsite disposal, so that the material being handled can be identified and accounted for. The tracking system shall include accurate tracking of stockpiles throughout the entire material handling stage and would include confirmation of stockpile locations. This is to reduce the risk of cross-contamination between stockpiles.

A field manager would be assigned by the Principal Contractor and / or Remediation Contractor, who would be responsible for filling out the materials tracking forms, implementing the field procedures, and coordinating with field personnel who are collecting samples. As part of this process, accurate records would be kept ensuring that backfilling of excavations and reuse of material only occurs following the successful validation as described in the **Section 8.0**. A register of all analytical results for stockpiles and excavations would be maintained throughout the validation works.

9.4 Interim site management

It is anticipated that interim site management measures would be required to be maintained during activities within various remediation stages to minimise the migration of potentially contaminated material from one area to another as a result of infrastructure removal/relocation, completion of remediation, and site grading activities in a stepwise manner.

Implementation of remediation works across the Project Area as shown in the **Appendix A, Figure F3**.

The interim site management measures would require to be maintained until such time as the final physical separation is installed and the EMP(s) comes into force.

9.4.1 General site

Remediation works would comprise cut/fill activities within the Project Area to reach interim working levels reflective of final pavement sub-grade elevations. Dependent upon construction requirements, the final profile would comprise a marker layer, and then the separation layer being either, the constructed sub-grade and final pavements(s), or a minimal backfill layer would be placed as an interim measure until the final grading works are undertaken. This layer should be maintained and / or replaced following disturbance during all infrastructure works in each stage until such time as the final profile is constructed.

9.4.2 Site boundaries

Where the implementation of infrastructure and /or remediation works results in Site levels significantly above or significantly below the adjoining site levels, temporary battering would be installed to engineering specifications to be prepared by others to ensure the stability of the surface and surrounding areas.

Given that in some instances the batter could include retention of un-remediated areas adjoining the remediated areas, the following may be installed at either the lateral extent of either the remediated area, or the lateral extent of the current works stage, as appropriate:

- Geofabric across the exposed batter face to minimise the potential for migration of contaminated material from the batter onto the interim cap.
- 0.15 m capping profile overlying the batter to provide a working surface during infrastructure installation activities.
- Site fencing to restrict access to adjoining Project Areas so as to minimise the potential for vehicular/ plant transfer of contaminated material from the development sites onto the remediated areas.
- Sediment and dust control measures attached to / adjoining the fencing to minimise the transfer of potentially contaminated material from the remediation area via wind / sediment migration. It is anticipated that existing pavement / gravel / road base ground covers would be maintained within the Project Area prior to the commencement of remediation to further reduce the potential for migration of contaminated material from one area to another.

9.4.3 Interim validation documentation requirements

Where the remediation works are completed in a number of stages across the Project Area, validation works and associated reports may be prepared for specific stages/portions of the Project Area. The extent of the Project Area addressed by each report would be identified via survey with appropriate plans included in the relevant validation report(s).

9.5 Ongoing management

In addition to the requirements of the validation plan presented in **Section 8.0**, the proposed remediation for future commercial/ industrial land use comprising the Audit Boundary would require long term management following completion of the development works.

To this end, one or more (depending on project requirements at the time) environmental monitoring plans (EMPs) would be prepared to detail the ongoing management and monitoring requirements for the Project Area in accordance with the NSW EPA EMP Guidelines (2020) and NSW EPA Consultant Guidelines (2020). One or more EMP(s) would be prepared for implementation across the Audit Boundary to appropriately manage residual contaminated soil and/or groundwater impacts remaining which have been confirmed to not represent an unacceptable risk to human health and/or the environment. However, the precise nature and extent of the management requirements would not be known until remediation/ management works are conducted and the validation data obtained. The EMP(s) would be prepared for the various zones comprising the Project Area following the completion of the validation report for the relevant stage. As such, there is the potential that several EMPs may be prepared, applying to project zones and proposed future Lot boundaries.

Each EMP, at a minimum, would include restrictions on intrusive works in capped areas and a GMP may be required which would detail groundwater monitoring requirements for the land where it applies. It is anticipated that a number of existing groundwater wells around the Site would be lost during excavation works. The well network coverage would need to be re-assessed, and if not sufficient, the destroyed wells would be replaced following the completion of reinstatement works. Monitoring of other media, such as soil vapour and/or surface water, may also be required depending on the outcomes of data gap assessment and remediation measures.

Ongoing management requirements for various portions of the Project Area would be dependent upon the remediation measures (e.g. capping installed) and final end use. It is anticipated that the EMP(s) would be required to address future potential exposure by maintenance/ construction personnel whom in the future may complete site activities which could result in exposure to contaminated material. The EMP(s) would also include:

- A statement of the objectives of the EMP – i.e. to ensure continued suitability of the Project Area following remediation (subject to practical access limitations identified above).
- Identification of residual environmental contamination issues that require ongoing management / monitoring to meet the EMP objectives, including the type of contamination and location within the Site (including a survey plan prepared by a registered surveyor)
- Description of responsibilities for implementing various elements of the provisions contained in the EMP
- Timeframes for implementing the various control / monitoring, etc. elements outlined in the EMP
- Health and safety requirements for intrusive activities
- Appropriate monitoring locations and depth within and down-gradient of residual contamination
- Environmental monitoring and reporting requirements (if required) for the future management of environmental impact underlying the Site including:
    - The provisions in the EMP are feasible (i.e. able to be implemented) and able to be legally enforceable (i.e. a mechanism exists, such as registration of the EMP on title to give the plan a basis in law).
    - Corrective action procedures to be implemented where EMP assessment criteria are breached.
    - The relevant consent authority is satisfied that an inclusion of a development consent condition relating to the implementation of the EMP is acceptable
    - Documentation of environmental management measures which have been implemented to address the identified environmental issues at the Site.
    - Description of management controls to limit the exposure of site users to known areas of contamination to acceptable levels.

The EMP(s) would include provisions describing the mechanism for legal notification and enforceability and would be provided to the appointed Site Auditor for review and approval prior to preparation of the final site audit statement and accompanying site audit report for the Project Area.

10.0 Community and stakeholder engagement

A Community and Stakeholder Engagement Plan (CSEP) would be produced to notify stakeholders (including occupiers of neighbouring properties and other contractors performing works onsite) of the proposed modification. The CSEP would be integrated with existing community consultation/ communication planning, and provide an outline of the stakeholders, engagement risks and mitigation measures, tools and activities to implement to deliver an appropriate engagement approach.

11.0 Conclusions

This Conceptual RAP has been prepared to meet the relevant and requirements of the relevant NSW EPA endorsed guidelines including the NSW EPA (2020) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* and provides a framework for regulatory compliance.

Key tasks for finalising the Detailed RAP(s):

- Data gap assessment to refine remediation scope.
- Refine remediation extent and volumes.
- Conduct remediation trials for selected technologies (as required for stabilisation).
- Finalise Supporting Management Plans and Work Procedures (**Section 1.6**).

The remedial strategy (and extents) discussed in this Conceptual RAP are subject to the findings of the data gap assessment works.

Upon successful implementation of the preferred remediation strategies described by this Conceptual RAP, and subsequent Detailed RAP(s), the Project Area would be suitable for the proposed commercial/ industrial land use.

12.0 Limitations

This Report is provided strictly in accordance with and subject to the following limitations and recommendations:

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d. A site which appears to be unaffected by contamination at the time the Report was prepared may later, due to natural phenomena or human intervention, become contaminated.

e. Except as specifically stated above, AECOM makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.

f. Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. AECOM offers no opinion as to whether the current use has any or all approvals

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j. The ongoing use of the site and/or the use of the site for any different purpose may require the owner/user to manage and/or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this Report

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Appendix A

Figures



FIGURE F1: SITE LOCALITY

- Site
- Ampol Ownership
- Lime Stone Containment Pit
- Audit Boundary
- Project Area
- Lot Boundary
- Elevation Contour (m AHD)
- C1 - National Parks and Nature Reserves
- C2 - Environmental Conservation
- C4 - Environmental Living
- E1 - Local Centre
- E4 - General Industrial
- E5 - Heavy Industrial
- RE1 - Public Recreation
- SP2 - Infrastructure
- W1 - Natural Waterways
- UL - Unzoned Land
- DM - Deferred Matter

N

0 200 400 m

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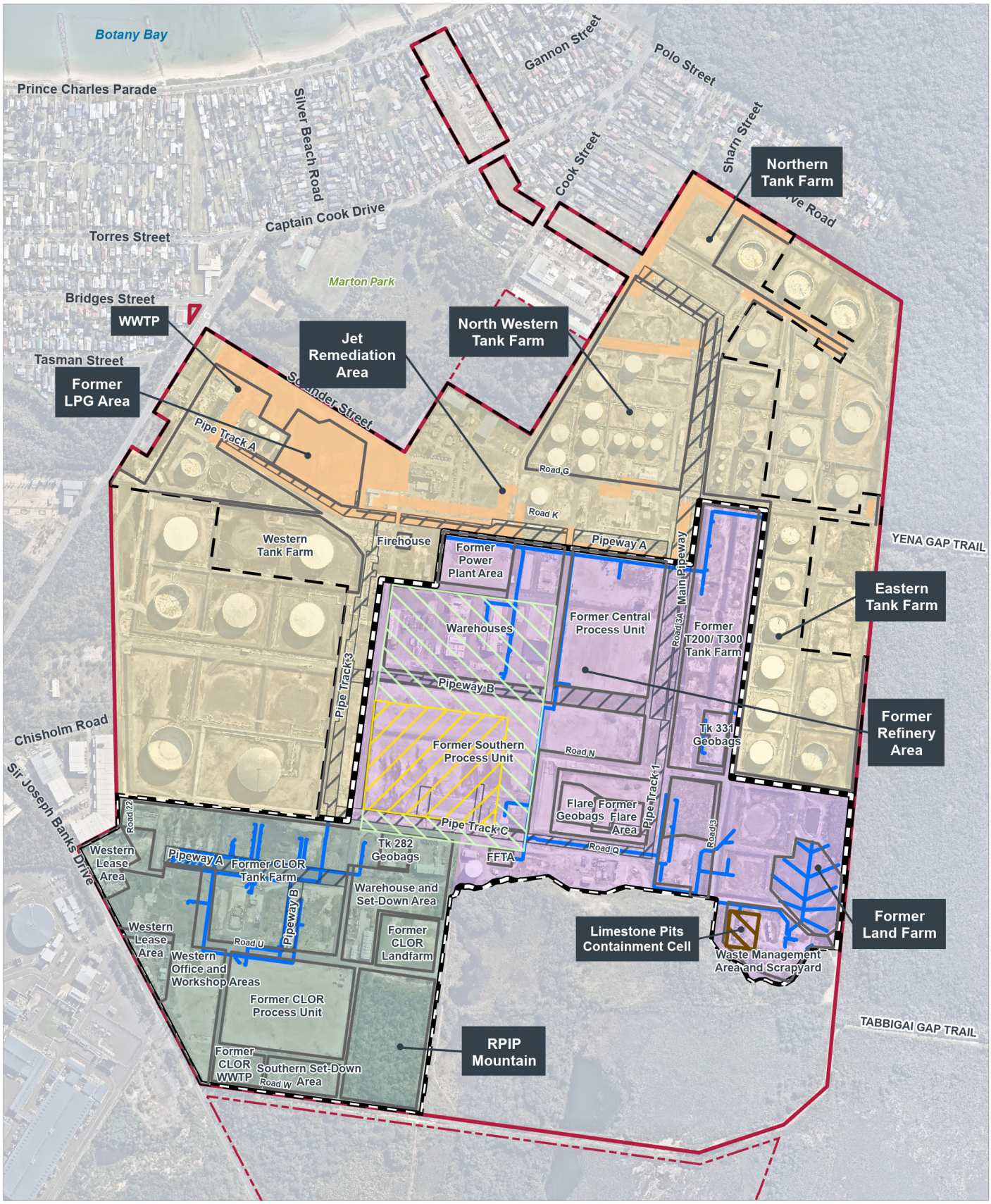


FIGURE F2: SITE FEATURES OVERVIEW

Legend

- Site
- Ampol Ownership
- Audit Boundary
- Project Area
- Pipetracks and Pipeways
- Feature Boundary
- Limestone Pits Containment Cell (Excluded from Audit)
- Oily Water Infrastructure
- Zone 1
- Zone 2
- Zone 3
- Indicative Infrastructure Relocation Area
- Firewater System

Kurnell BESS

- Stage 1
- Stage 2

N

0 150 300 m

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N

0 100 200 m

- Site
- Ampol Ownership
- Project Area
- Audit Boundary
- Zone 1
- Zone 2
- Zone 3
- Firewater System Relocation Area
- Limestone Pits Containment Cell (Excluded from Audit)
- ACS Containment Cell
- Asbestos Excavation
- PFAS Excavation
- PHC Hotspot Excavation
- Excavation Contingency
- Biopiling and Stabilisation Area
- Biopiling and Stabilisation Area (contingency)
- Waste Management Area
- Temporary Stockpiling Area
- Oily Water System

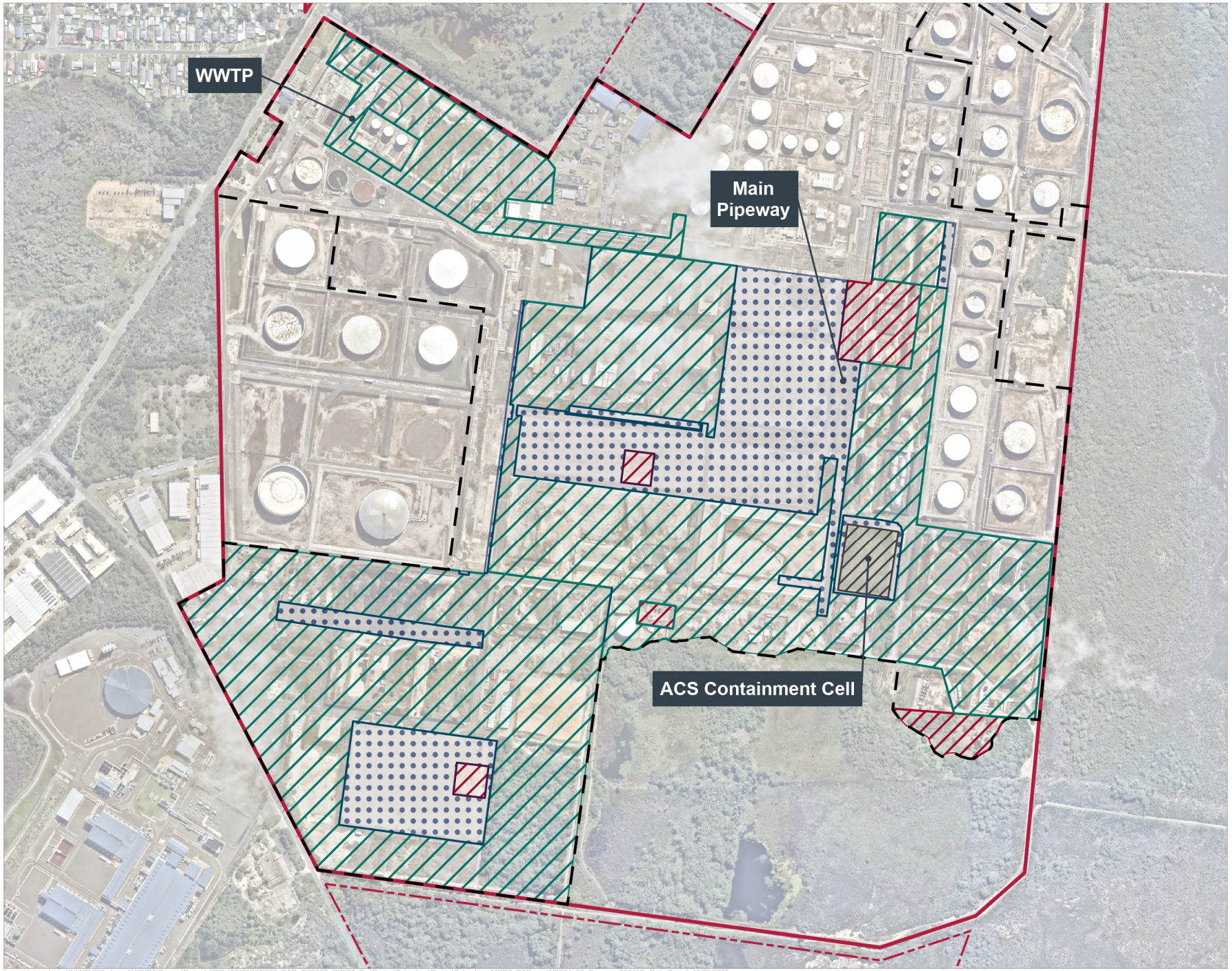
FIGURE F3 - REMEDIATION PLAN

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N

0 100 200 m

- Site
- Ampol Ownership
- Project Area
- ACS Containment Cell
- Type 1 Capping
- Type 1 Capping Contingency
- Type 2 Capping

FIGURE F4 - CAPPING DESIGN

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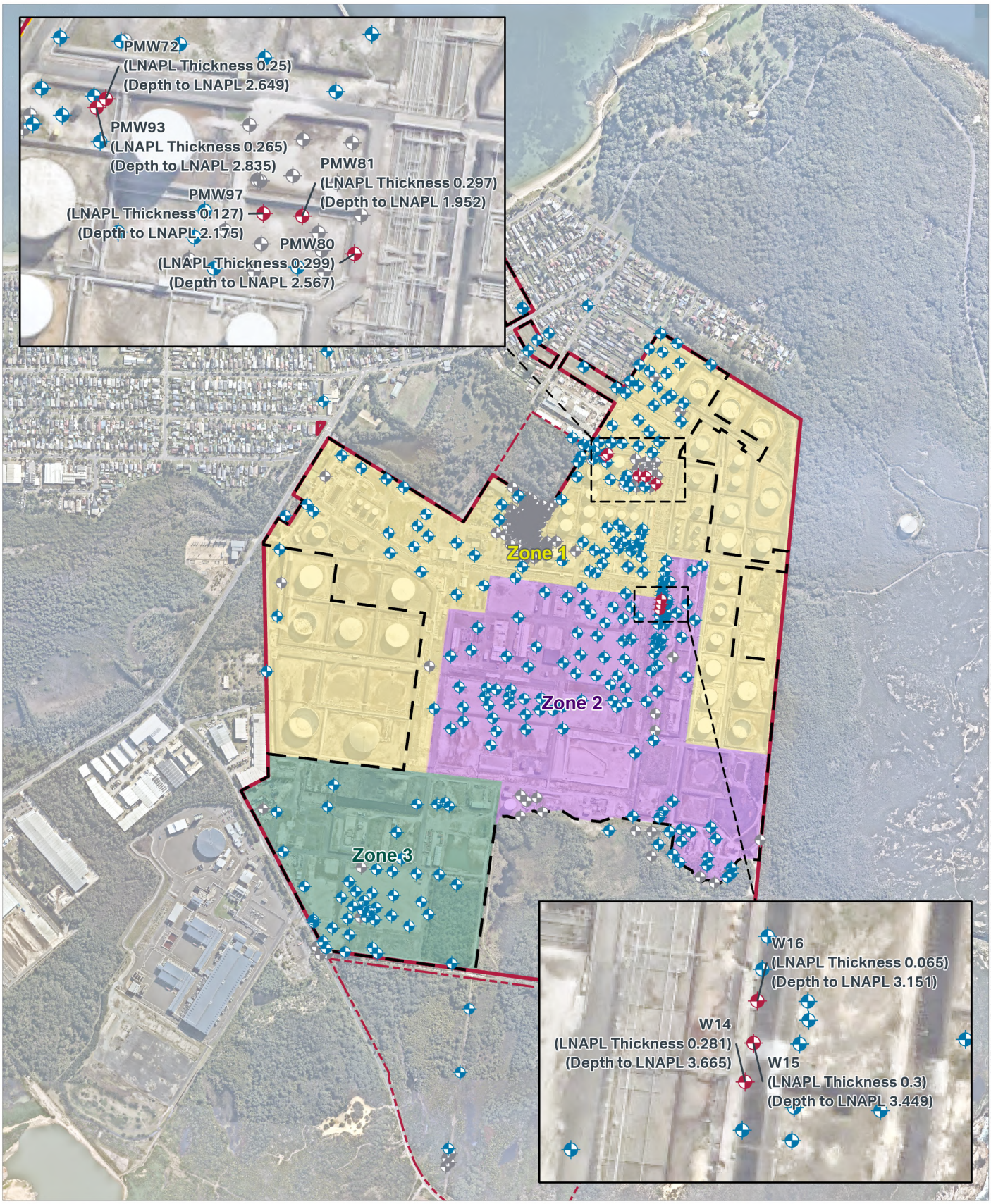


FIGURE 5 - LNAPL DETECTIONS AS PER Q1 2024 WSP QUARTERLY MONITORING EVENT

Legend

- Site
- Ampol Ownership
- Project Area
- Zone 1
- Zone 2
- Zone 3
- Groundwater Monitoring Well Location - Sampled
- Groundwater Monitoring Well Location - Not Sampled or Gauged
- Measurable in-well LNAPL locations

Source: Q1 February 2024 Quarterly Groundwater Monitoring, Ampol Kurnell Terminal, WSP, 2024

N

0 150 300 m

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Appendix B

Historic Aerial Figures



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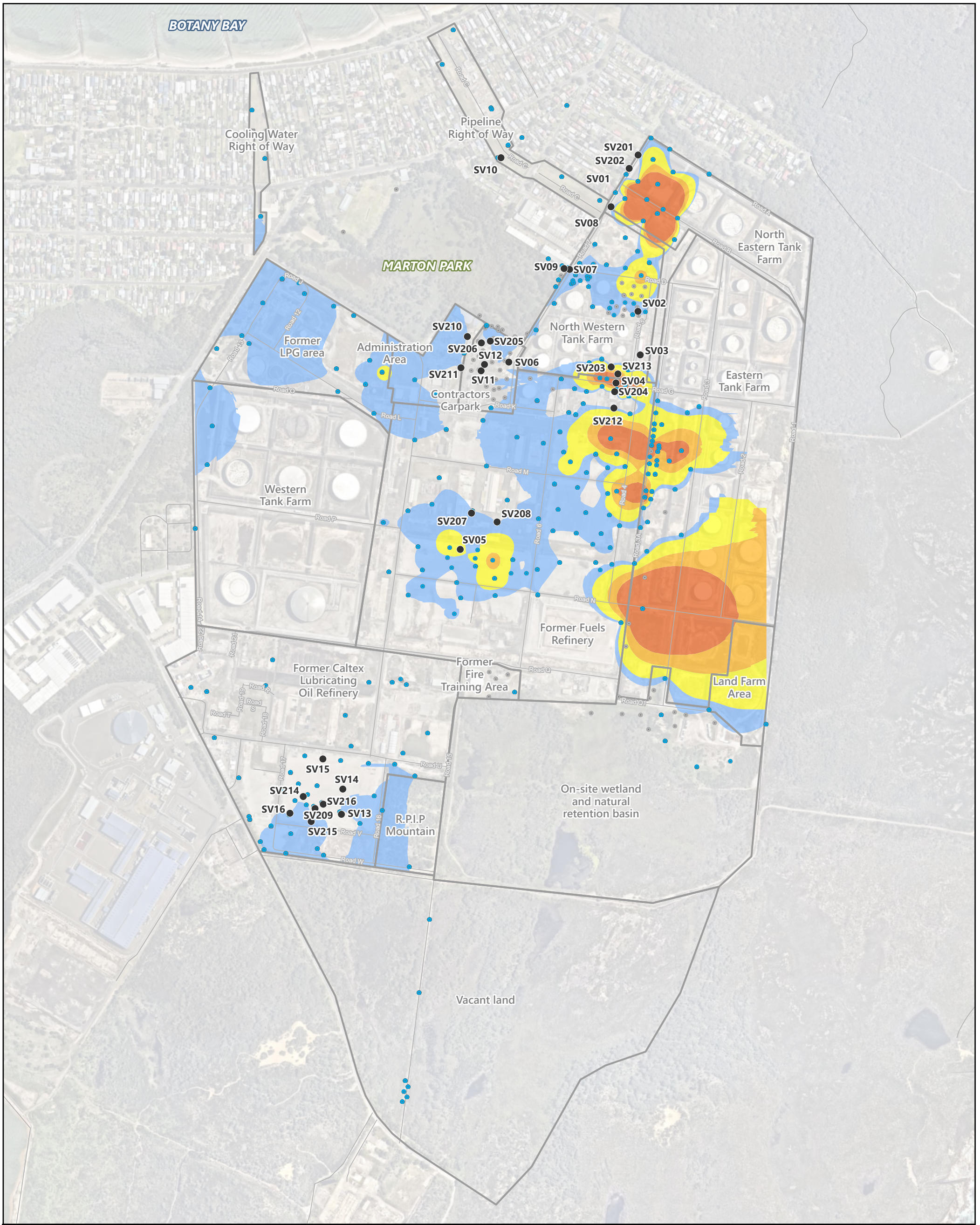
Appendix C

Historical Analytical Results

Appendix C - Historical analytical results

1.0 Report details

Report Title:	Soil Vapour Monitoring Program - November 2023
Author:	WSP
Report Date:	January 2024



AMPOL wsp

Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Figure 1
F1 TRH Concentration Contour Plan, Q4 2023

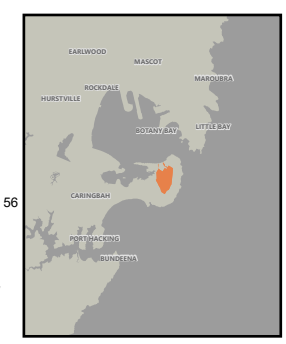
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- Soil vapour bore
- Monitoring well with C_6-C_{10} >20µg/L (Q4 2023)
- Monitoring well
- Roads
- Site areas

Groundwater F1 TRH concentrations (Q4 2023)
µg/L
- 20 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- 10,000 - 200,000

0 100 200
Meters
Scale: 1:8,000
Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A3
Author: AUJH504542 | QA:
Date: 30/01/2024

Data sources: Ampol, Nearmap, NSW Spatial Services



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Table A1. Soil vapour concentrations, November 2023
Ampol Kurnell Terminal

Analyte	Sample ID	PQL	SV01_0.8	SV01_1.3	SV04_0.55	SV04_0.55 Dup	SV05_0.65	SV5_1.1	SV6_0.6	SV6_0.6 Dup	SV6_1.5	SV7_1.0	SV07_1.5	SV07_1.5 Dup	SV08_1.0	SV08_1.3	SV10_1.0	SV11_1.0	SV11_1.5	SV201_1.0	SV202_1.0	SV203_Pin	SV204_Pin	SV205_Pin	SV206_Pin	SV207_1.0	SV208_1.0	SV210_1.0	SV211_1.0	SV212_0.8	SV213_Pin	Trip Blank	NEPM 2013 Res HSL D soil vapour, Sand [1] Commercial	NEPM 2013 Res HSL D soil vapour, Sand [1] Commercial	*NEPM 2013 Res HSL A soil vapour, Sand [1,3,5] Low Density Residential*	*NEPM 2013 Res HSL A soil vapour, Sand [1,3,5] Low Density Residential*	CRC Care 2011 Table B1 Intrusive Maintenance Worker, Sand
Units			µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m3	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³						
Depth (m)			0.8	1.3	0.55	0.55	0.65	1.1	0.6	0.6	1.5	1	1.5	1.5	1	1.3	1	1	1.5	1	1	Pin	Pin	Pin	Pin	1	1	1	1	0.8	Pin						
Date			13-11-2023	13-11-2023	14-11-2023	14-11-2023	13-11-2023	13-11-2023	15-11-2023	15-11-2023	15-11-2023	13-11-2023	13-11-2023	13-11-2023	13-11-2023	13-11-2023	13-11-2023	15-11-2023	15-11-2023	13-11-2023	13-11-2023	14-11-2023	14-11-2023	15-11-2023	15-11-2023	13-11-2023	13-11-2023	15-11-2023	14-11-2023	14-11-2023	14-11-2023		0 - < 1 m depth	1 - < 2 m depth	*0 - < 1 m depth*	*1 - < 2 m depth*	0 - < 2 m depth
Benzene		2	nd	nd	240,000	200,000	nd	<40	99	120	97	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	66	nd	nd	nd	1,500,000	nd	4,000	10,000	*1,000*	*3,000*	760,000
Toluene		2	18	6	150,000	120,000	7	9,200	170	100	92	7	9	6	10	9	3	<40	<40	10	12	6	10	17	6	6	18	5	6	10	1,500,000	nd	4,800,000	16,000,000	*1,300,000*	*3,800,000*	
Ethylbenzene		2	5	nd	1,200	980	2	1,200	270	210	120	2	3	2	3	3	nd	<40	<40	3	4	nd	3	5	nd	nd	6	nd	nd	3	23,000	nd	1,300,000	4,600,000	*330,000*	*1,100,000*	
m&p-Xylene		2	15	5	640,000	530,000	7	7,100	2,300	1,600	2,100	7	10	8	9	8	4	460	500	10	11	5	9	14	6	6	13	5	6	10	81,000	nd	840,000	3,200,000	*220,000*	*750,000*	
o-Xylene		2	5	nd	280,000	240,000	3	1,500	650	400	520	3	4	3	3	3	nd	<40	<40	3	4	2	4	5	2	nd	5	nd	2	3	20,000	nd					
1,2,4-Trimethylbenzene		2	16	7	60,000	48,000	11	250	160	100	120	9	11	9	12	12	7	<40	<40	15	15	12	14	12	10	7	15	7	10	13	1,500	nd					
1,3,5-Trimethylbenzene		2	4	nd	46,000	36,000	3	<40	<20	<20	<20	nd	2	nd	2	2	nd	<40	<40	3	3	3	3	3	2	nd	nd	nd	nd	3	760	nd					
Propylbenzene		2	nd	nd	<100	<100	nd	23,000	17,000	17,000	19,000	nd	nd	nd	nd	nd	nd	4,700	9,700	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	770	nd					
Isopropylbenzene		2	49	15	<100	<100	22	30,000	15,000	16,000	17,000	21	26	21	29	25	15	5,800	9,300	31	35	10	23	46	15	20	42	17	20	31	590	nd					
sec-Butylbenzene		2	nd	nd	<100	<100	nd	2,300	9,200	9,600	7,100	nd	nd	nd	nd	nd	nd	1,400	2,900	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
Styrene		2	19	7	6,200	6,300	9	450	170	110	53	8	10	9	11	10	6	<40	<40	13	13	5	11	15	6	7	11	7	10	14	890	nd					
p-Cymene		2	5	6	340	250	3	<40	<20	<20	<20	3	5	2	nd	4	3	<40	<40	3	5	3	3	3	nd	nd	8	5	5	12	<100	nd					
Naphthalene		2	6	6	<100	<100	7	<40	710	680	70	5	6	6	7	6	3	<40	<40	7	7	5	5	3	4	2	6	3	6	7	<100	nd	3,000	15,000	*800*	*3,000*	880,000
1-Methyl naphthalene		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
2-Methyl naphthalene		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
2-Methylbutane		2	nd	nd	4,400,000	4,600,000	64	200,000	6,300	7,000	6,500	nd	nd	nd	nd	nd	nd	1,700	1,700	nd	3	nd	7	nd	nd	nd	520	nd	nd	nd	9,700,000	nd					
3-Methylpentane		2	nd	nd	4,500,000	4,500,000	24	1,200,000	29,000	32,000	31,000	nd	nd	nd	nd	nd	nd	8,500	8,300	nd	nd	nd	nd	nd	nd	nd	100	nd	nd	nd	5,800,000	nd					
2,2,4-Trimethyl pentane		2	nd	nd	1,200,000	1,200,000	21	30,000	2,000	2,400	1,400	nd	nd	nd	nd	nd	nd	30,000	31,000	nd	nd	nd	nd	nd	nd	nd	610	nd	nd	nd	920,000	nd					
2,2-Dimethyl butane		2	nd	nd	660,000	690,000	120	120,000	2,000	2,200	2,200	nd	nd	nd	nd	nd	nd	6,400	6,000	nd	nd	nd	nd	nd	nd	nd	47	nd	nd	nd	900,000	nd					
2,4-Dimethylpentane		2	nd	nd	670,000	680,000	98	1,100,000	19,000	21,000	20,000	nd	nd	nd	nd	nd	nd	100,000	110,000	nd	nd	nd	2	nd	nd	nd	76	nd	nd	nd	700,000	nd					
Ethylcyclopentane		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
Cyclohexane		2	nd	nd	730,000	700,000	7	75,000	7,400	8,200	3,000	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	100	nd	nd	nd	1,300,000	nd					
Methylcyclohexane		2	nd	nd	670,000	590,000	35	4,300,000	27,000	30,000	2,400	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	83	nd	nd	nd	710,000	nd					
Ethylcyclohexane		2	nd	nd	32,000	23,000	nd	1,600,000	84,000	87,000	3,100	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	53	nd	nd	nd	11,000	nd					
Propyl cyclohexane		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
n-Pentane		2	nd	nd	3,000,000	3,100,000	3	2,700	42	47	50	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	200	nd	nd	nd	9,300,000	nd					
n-Hexane		2	nd	nd	2,300,000	2,200,000	nd	300	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	5	nd	nd	51	5	nd	nd	7,900,000	nd					
n-Heptane		2	nd	nd	410,000	360,000	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	8	nd	nd	nd	1,300,000	nd					
n-Octane		2	nd	nd	62,000	44,000	nd	<40	<20	55	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	87,000	nd					
n-Nonane		2	3	nd	16,000	12,000	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	3	nd	nd	nd	nd	nd	nd	4,900	nd					
n-Decane		2	15	4	3,100	2,600	7	<40	<20	<20	<20	10	8	6	9	8	5	<40	<40	10	12	5	8	12	5	7	14	6	7	10	<100	nd					
n-Undecane		2	70	23	890	810	39	<40	<20	<20	<20	32	34	28	38	36	26	<40	<40	61	59	26	42	48	25	28	69	26	40	57	<100	nd					
n-Dodecane		2	170	84	<100	<100	150	<40	69	110	200	92	110	100	130	110	83	170	<40	190	190	98	140	98	74	64	180	70	150	210	<100	nd					
n-Tridecane		2	60	42	<100	<100	76	<40	<20	<20	<20	39	45	50	70	52	30	<40	<40	76	80	49	65	35	36	24	86	26	66	99	<100	nd					
n-Tetradecane		2	6	5	<100	<100	9	<40	<20	<20	<20	5	5	6	10	6	2	<40	<40	8	8	5	7	3	4	3	11	3	6	10	<100	nd					
Chloromethane		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,2-Dichloroethane (EDC)		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,2-Dibromoethane (EDB)		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
Chloroform		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
Carbon tetrachloride		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,1-Dichloroethane		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	11	nd	nd	nd	<100	nd					
1,1,1-Trichloroethane		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd	230,000	230,000	*60,000*	*60,000*	
1,1,2-Trichloroethane		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,1,1,2-Tetrachloroethane		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,1,2,2-Tetrachloroethane		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
Vinyl Chloride		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	1,300	nd	nd	nd	<100	nd					
1,1-Dichloroethene		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,2-Dichloroethylene (cis)		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	43	nd	nd	nd	<100	nd					
1,2-Dichloroethylene (trans)		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	31	nd	nd	nd	<100	nd					
Trichloroethylene		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	9	nd	nd	nd	<100	nd	80	80	*20*	*20*	
Tetrachloroethylene		2	nd	2	<100	<100	11	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	7	nd	nd	nd	<100	nd	8,000	8,000	*2,000*	*2,000*	
1,2-Dichloropropane		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,3-Dichloropropane		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,1-Dichloropropene		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
Hexachlorobutadiene		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
2-Chloro-1,3-butadiene		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
Chlorobenzene		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,2-Dichlorobenzene		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,3-Dichlorobenzene		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
1,4-Dichlorobenzene		2	nd	nd	<100	<100	9	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<100	nd					
MEK		2	nd	nd	580	470	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	<40	<40	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	740						
Isopropyl alcohol		2	nd	nd	<100	<100	nd	<40	<20	<20	<20	nd	nd	nd	nd	nd	nd	1,700	<40	12	nd	nd	37	4	3	21	nd	nd	nd	nd	2,800						
C6-C10		4	1,743	780	17,311,200	15,090,980	3,419	21,019,000	7,803,489	7,802,430	6,202,929	929	1,126	890	1,124	1,222	1,108	6,400,460	7,200,500	1,726	1,930	893	1,625	2,240	1,214	993	22,108	1,000	1,714	2,226	16,124,000	nd					180,000,000
>C10-C14		4	2,306	1,106	110,000	86,000	2,607	76,000	1,100,710	1,100,680	600,070	1,605	2,006	1,906	2,307	1,806	1,303	200,000	480,000	2,507	2,607	1,705	2,505	2,903	2,104	1,502	24,006	1,603	2,206	3,007	2,300	nd					NL
TRH F1		4	1,700	770	16,000,000	14,000,000	3,400	21,000,000	7,800,000	7,800,000	6,200,000	910	1,100	870	1,100	1,200	1,100	6,400,000	7,200,000	1,700	1,900	880	1,600	2,200	1,200	980	22,000	990	1,700	2,200	13,000,000	nd	680,000	2,800,000	*180,000*	*640,000*	
TRH F2		4	2,300	1,100	110,000	86,000	2,600	76,000	1,100,000	1,100,000	600,000	1,600	2,000	1,900	2,300	1,800	1,300	200,000	480,000	2,500	2,600	1,700	2,500	2,900	2,100	1,500	24,000	1,600	2,200	3,000	2,300	nd	500,000	2,400,000	*130,000*	*560,000*	

Notes:

Concentration expressed in µg/m³ unless otherwise stated

[1] NEPM (2013) – Schedule B-1 Investigation Levels for Soil and Groundwater – Table 1A(5) Soil Vapour HSLs for vapour intrusion

[2] NEPM (2013) Schedule B-7 – Appendix A6 The Derivation of Interim HILs for Volatile Organice Chlorinated Compounds, 0-1m

[3] Only applicable for vapour bore locations SV01, SV08 and SV10, which are in the vicinity of residential receptors - shown as Italic

PQL - Practical Quantitation Limit

NL - non limiting

Interim soil vapour health investigation livels for volatile organic chlorinated compounds (Table 1A(2) of NEPM 2013 are not listed because chlorinated compounds were not detected

Table A2 Historical Soil Vapour Data Summary
Ampol Kurnell Terminal

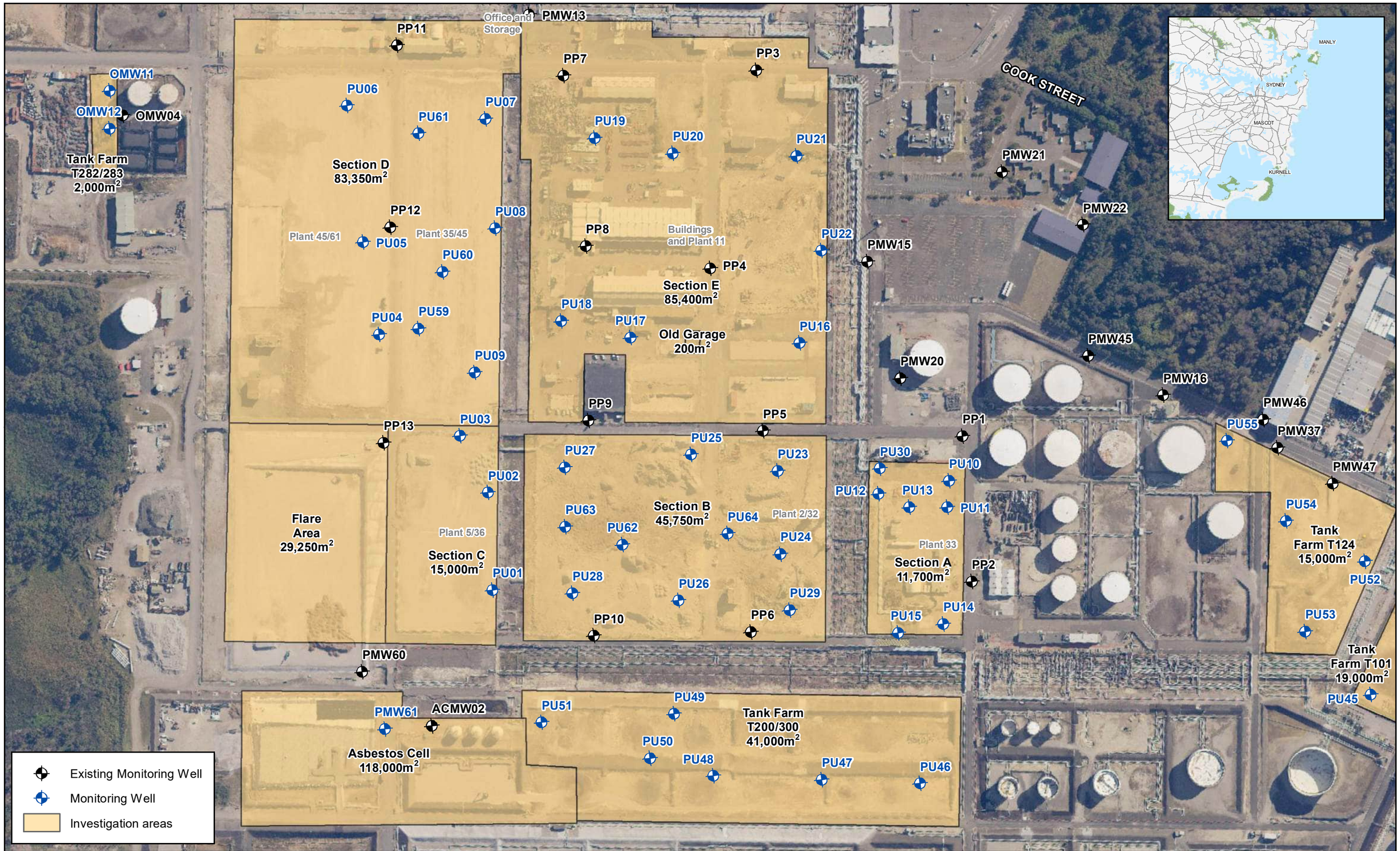
Historical Soil Vapour Data Summary - Ampol Kurnell Terminal

| Units | | |

Appendix C - Historical analytical results

2.0 Report details

Report Title:	Environmental Site Assessment, Data Gap Assessment, Caltex Kurnell Terminal (Caltex Site ID 535)
Author:	WSP
Report Date:	19 December 2018



Map: PS102160_GIS_F001_A2	Author: MO		0 30 60 m 1:3,000
Date: 20-Dec-18	Approved by: NGilmour		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3

Data source: © Department of Finance, Services & Innovation 2018

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Caltex Refinery Kurnell Data Gap Investigation

Figure 1
Caltex Terminal Kurnell Process Unit ESA



Map: PS102160_GIS_F002_A1	Author: MO		
Date: 20-Dec-18	Approved by: NGilmour		
Data source: -			

0 30 60 m

1:3,000

Coordinate system: GDA 1994 MGA Zone 56
Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 2
Caltex Terminal Kurnell Process Unit ESA

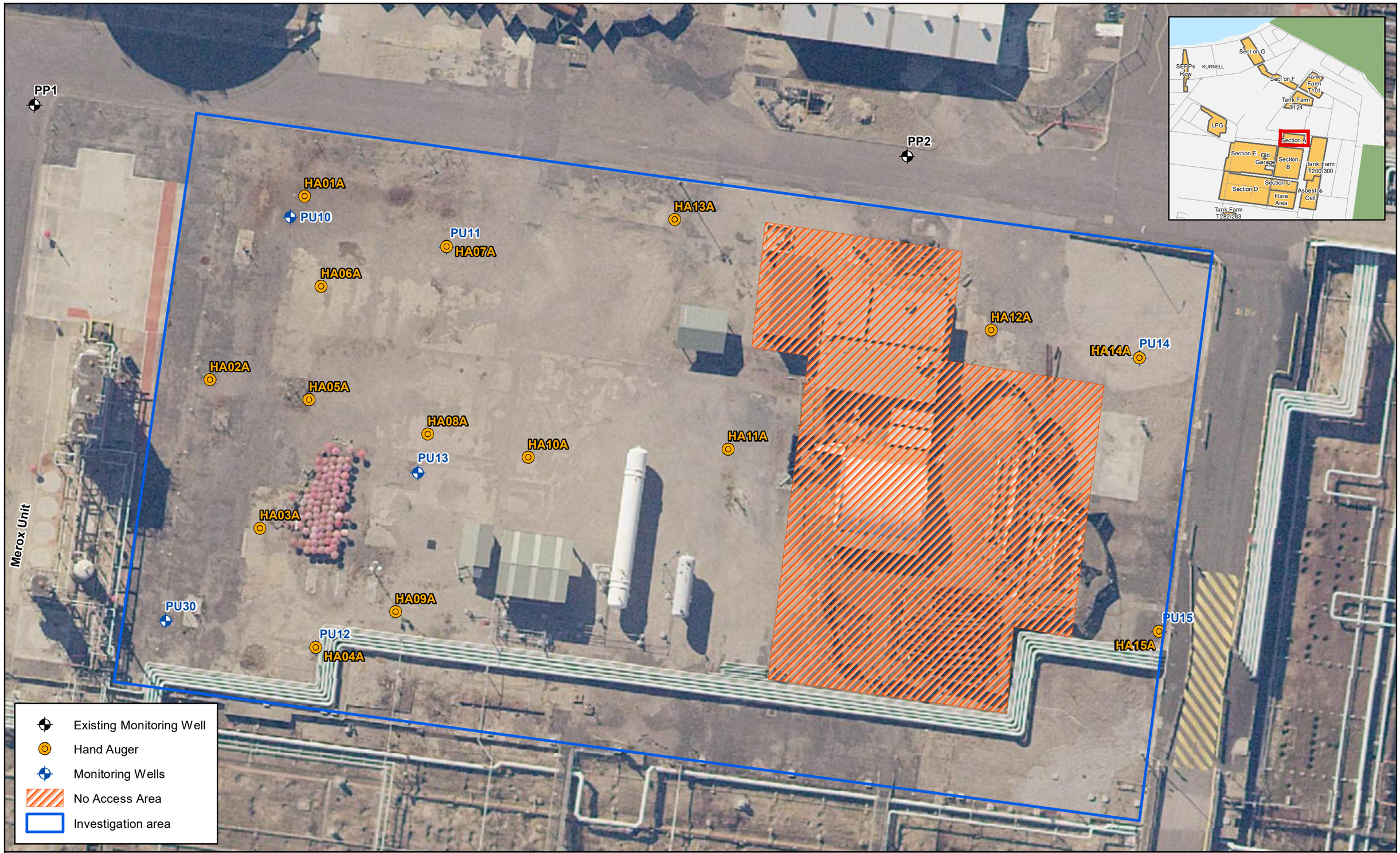


Map: PS102160_GIS_F060_A1	Author: MO		0 30 60 m 1:2,500
Date: 20-Dec-18	Approved by: NGilmour		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Data source: -			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 4
SEPPS ROW and LPG interchange



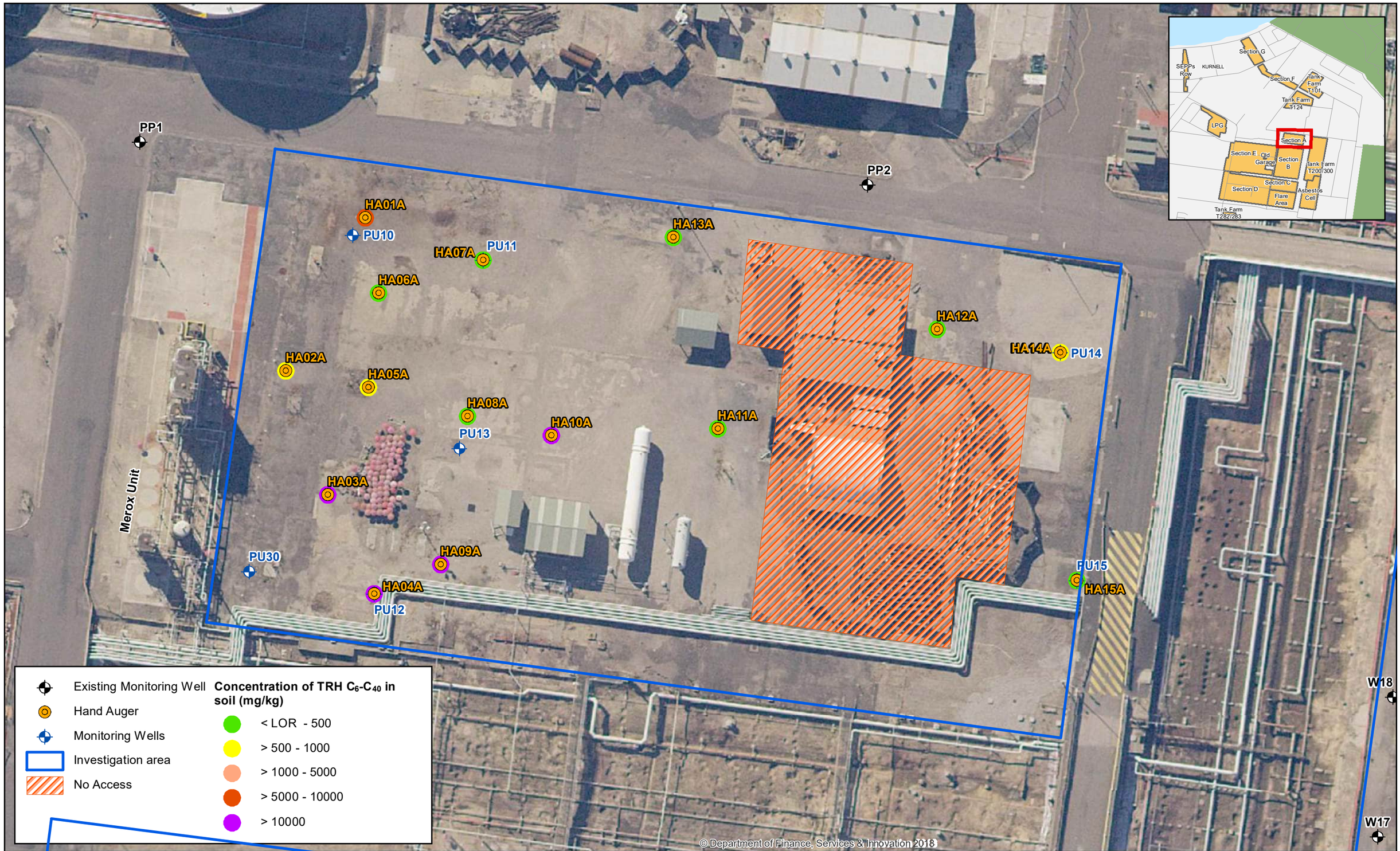
Map: PS102160_GIS_F003_A1	Author: MO		0 6.5 13 m 1:500 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		

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U:\Projects\PS102160_2268361C\10_GIS\Projects\Maps\20181116_Report ng\PS102160_GIS_F003_A1.mxd

Caltex Refinery Kurnell Data Gap Investigation

Figure 5
Sampling Locations (Section A)



Map: PS102160_GIS_F029_A3	Author: MO
Date: 20-Dec-18	Approved by: NGilmour

Data source: © Department of Finance, Services & Innovation 2018

0 7.5 15 m

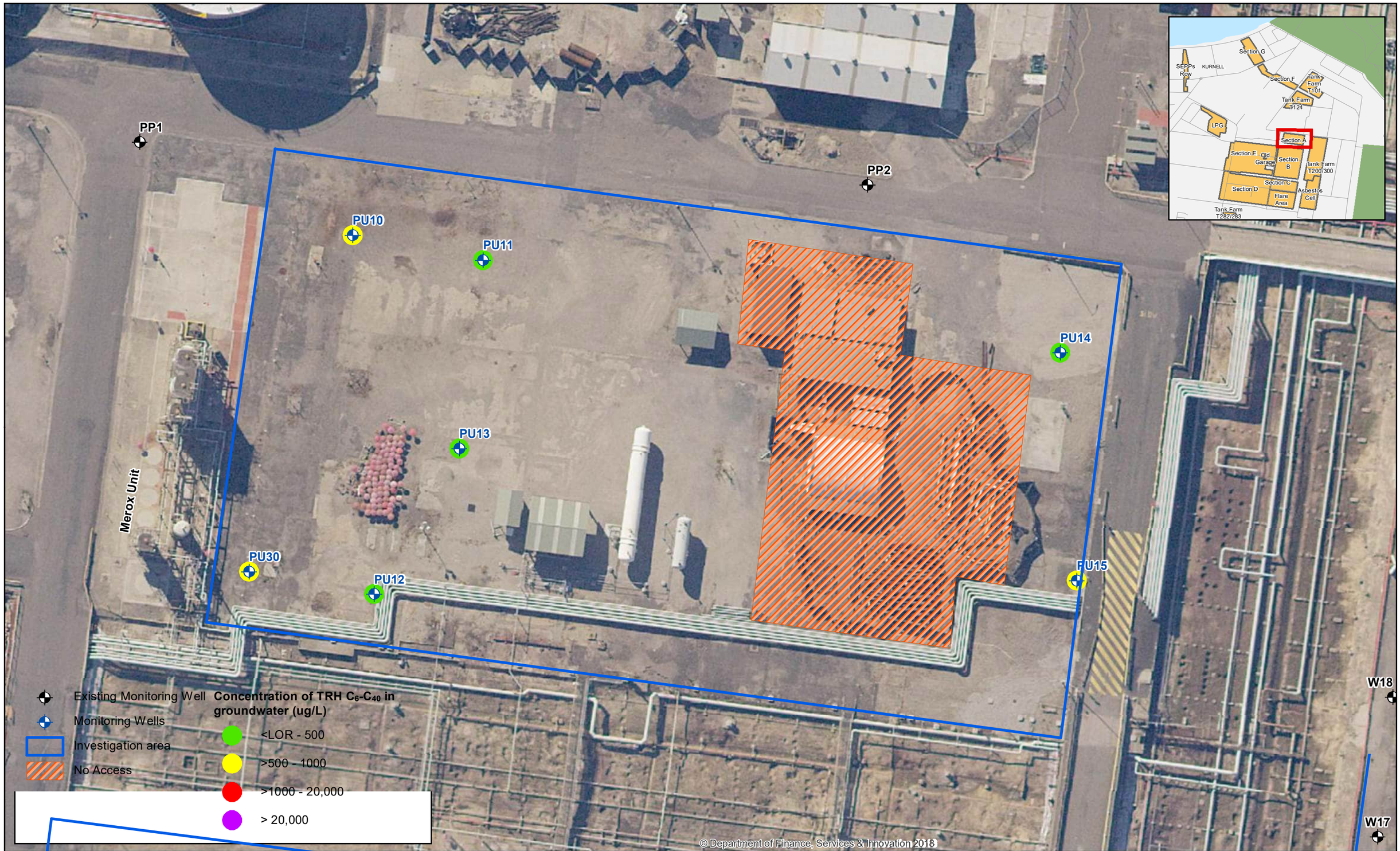
1:600

Coordinate system: GDA 1994 MGA Zone 56
Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 6
TRH C_6-C_{40} Soil Impact Plan (Section A)

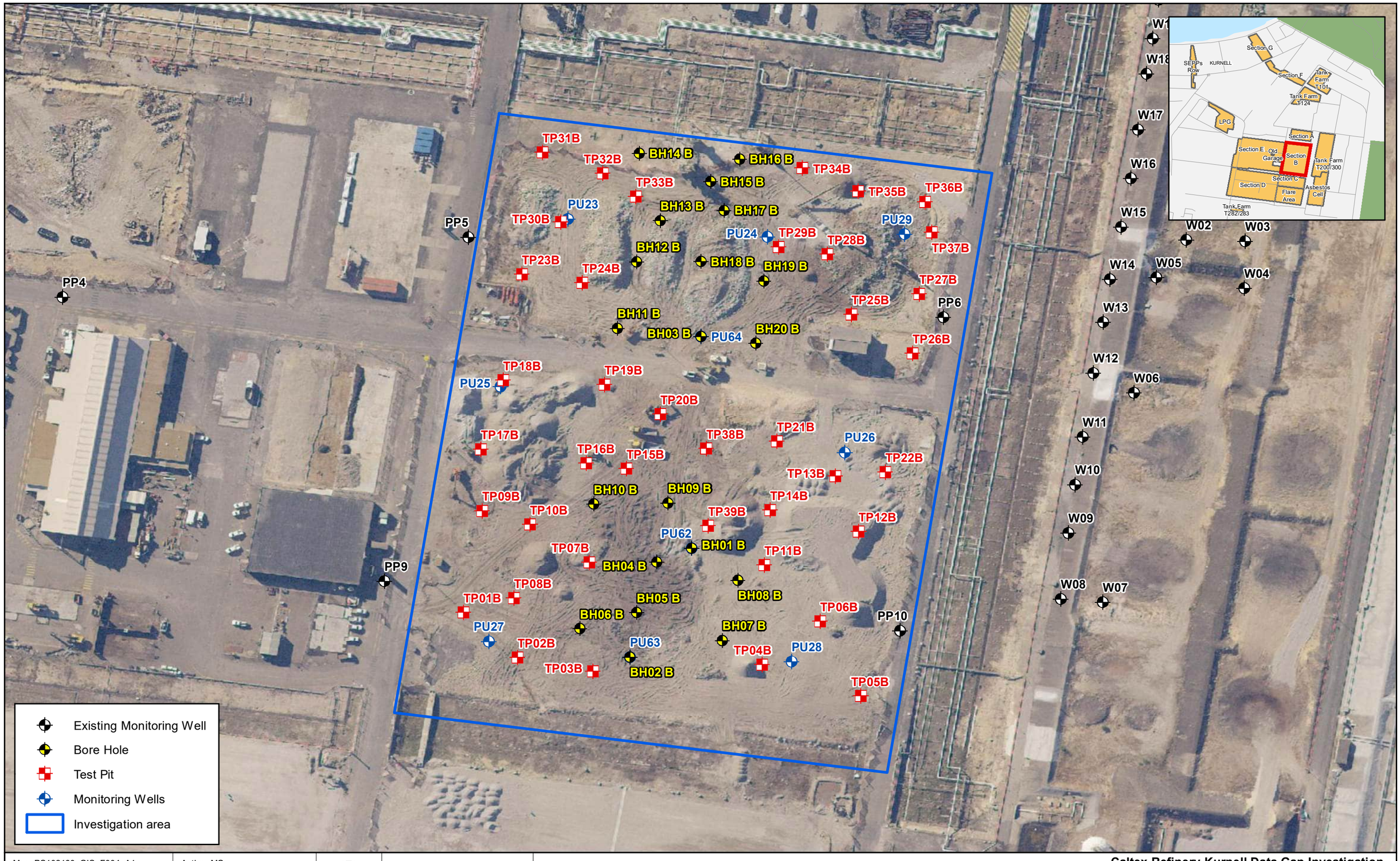


Map: PS102160_GIS_F045_A3	Author: MO		0 7.5 15 m 1:600 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		

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Caltex Refinery Kurnell Data Gap Investigation

Figure 7
TRH C_6-C_{40} Groundwater Impact Plan (Section A)

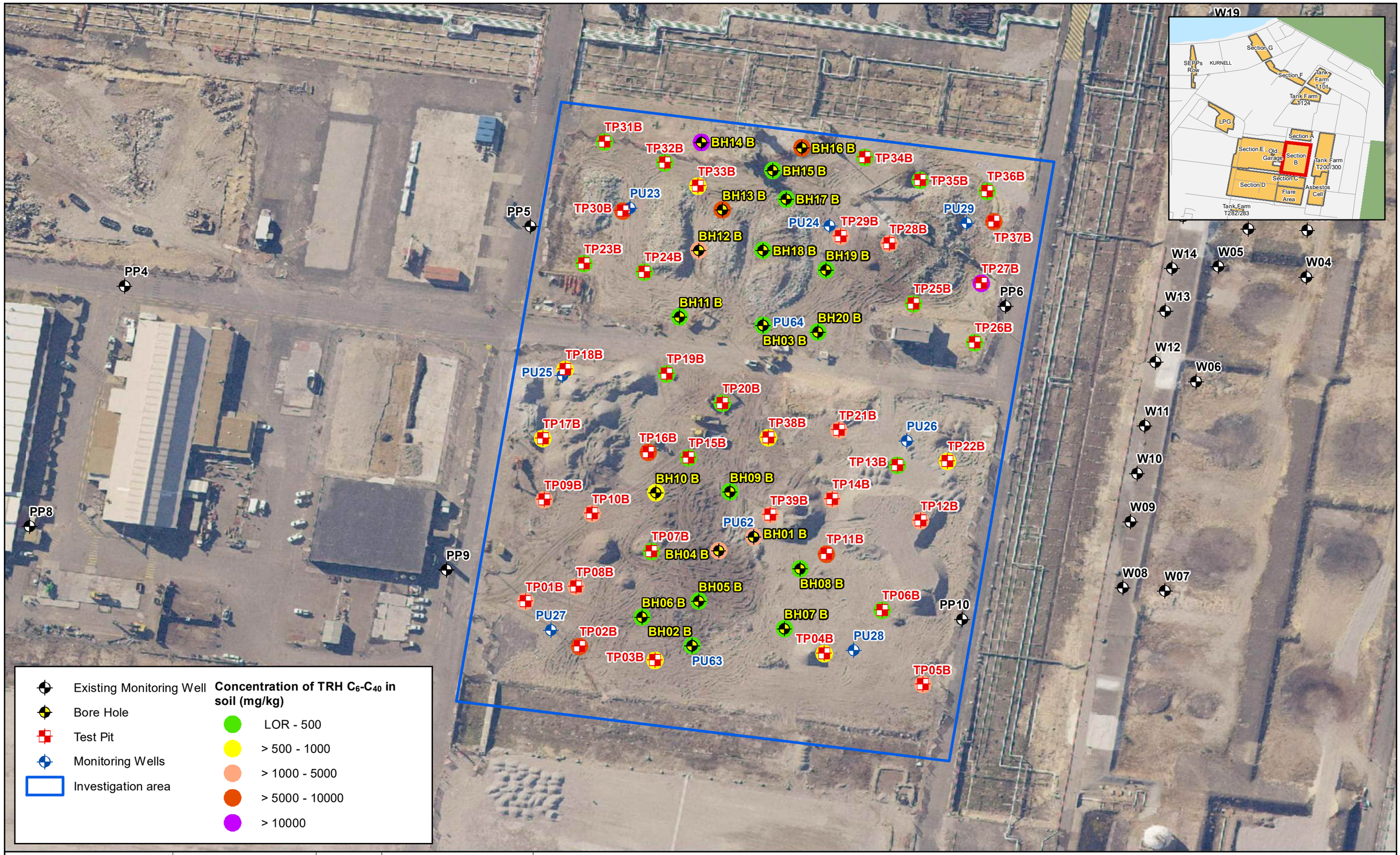


Map: PS102160_GIS_F004_A1	Author: MO		0 10 20 m 1:1,500 Coordinate system: GCS GDA 1994 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 8
Sampling Locations (Section B)



Map: PS102160_GIS_F030_A2	Author: MO		0 10 20 m 1:1,500 Coordinate system: GCS GDA 1994 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 9
TRH C_6-C_{40} Soil Impact Plan (Section B)



Map: PS102160_GIS_F046_A3	Author: MO		0 10 20 m 1:1,500 Coordinate system: GCS GDA 1994 Scale ratio correct when printed at A3
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Caltex Refinery Kurnell Data Gap Investigation

Figure 10
TRH C_6-C_{40} Groundwater Impact Plan (Section B)



Map: PS102160_GIS_F005_A1	Author: MO		
Date: 20-Dec-18	Approved by: NGilmour		

Data source: © Department of Finance, Services & Innovation 2018

0 7.5 15 m

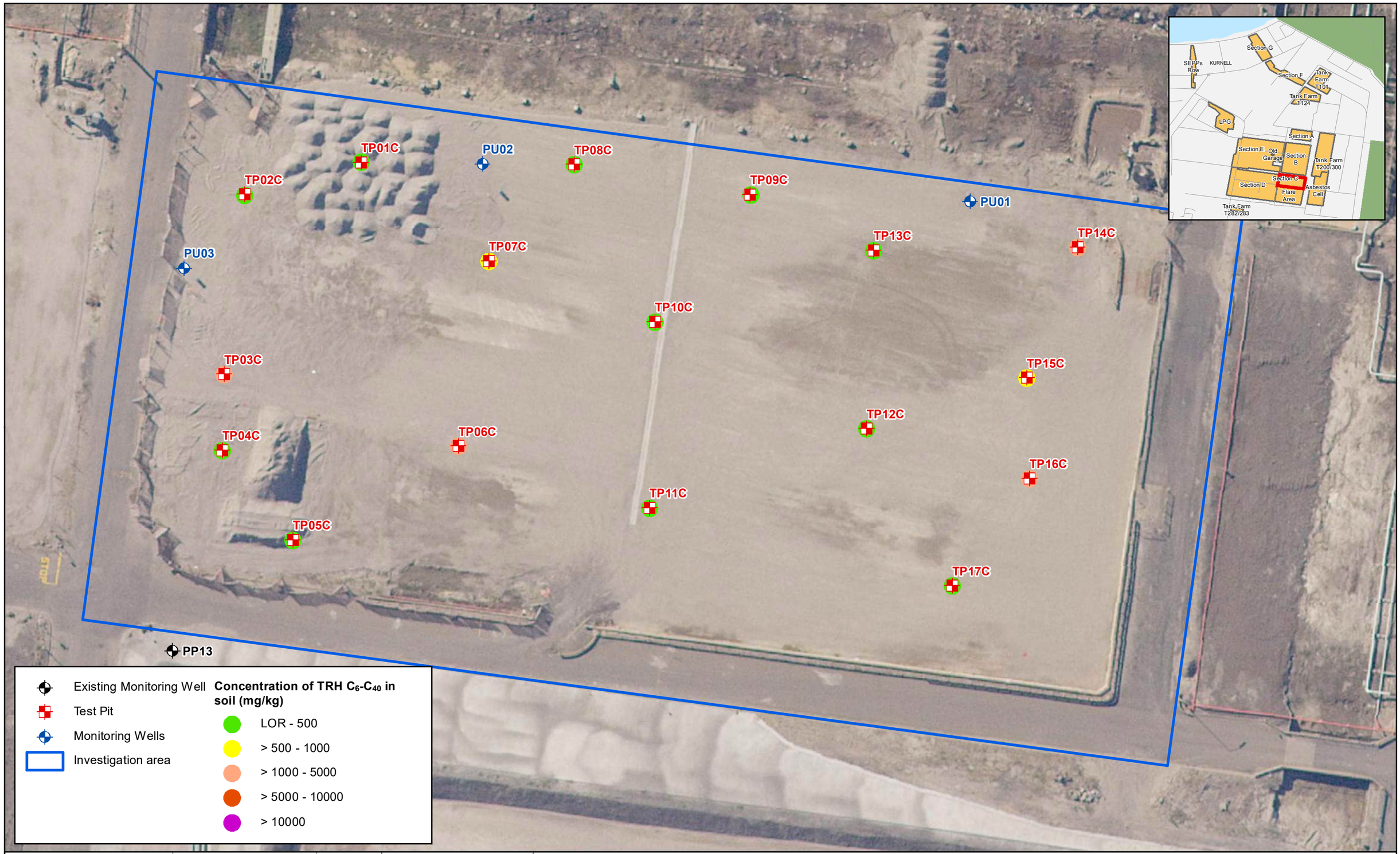
1:600

Coordinate system: GDA 1994 MGA Zone 56
Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 11
Sampling Locations (Section C)



Map: PS102160_GIS_F031_A3	Author: MO		0 7.5 15 m 1:600 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 12
TRH C_6-C_{40} Soil Impact Plan (Section C)



Map: PS102160_GIS_F047_A3	Author: MO		0 7.5 15 m 1:600 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 13
TRH C_6-C_{40} Groundwater Impact Plan (Section C)



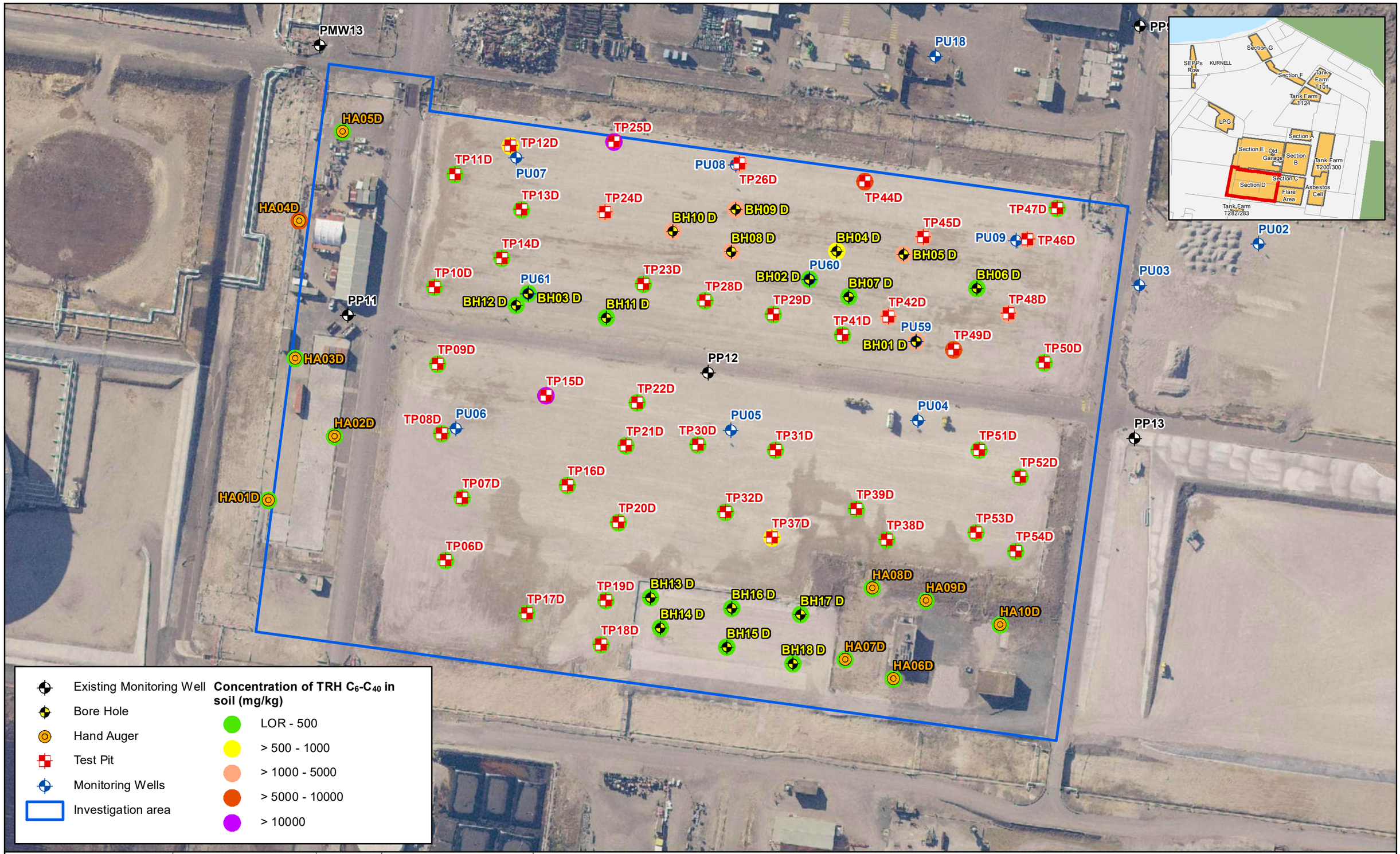
Map: PS102160_GIS_F006_A1	Author: MO		0 10 20 m 1:1,500
Date: 20-Dec-18	Approved by: NGilmour		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 14
Sampling Locations (Section D)



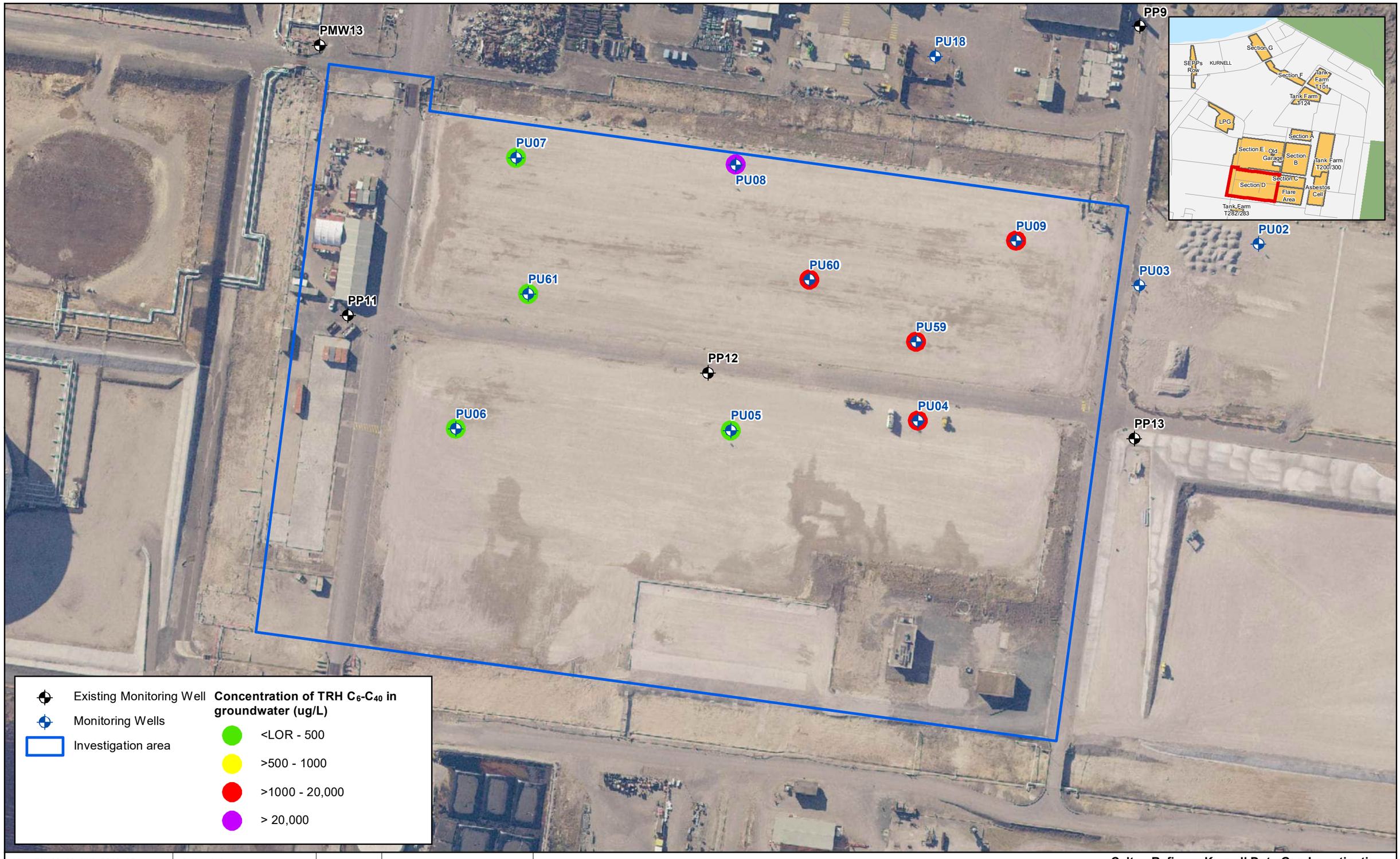
Map: PS102160_GIS_F032_A2	Author: MO		0 10 20 m 1:1,500
Date: 20-Dec-18	Approved by: NGilmour		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 15
TRH C_6-C_{40} Soil Impact Plan (Section D)



Map: PS102160_GIS_F048_A3	Author: MO		0 10 20 m 1:1,500 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
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Caltex Refinery Kurnell Data Gap Investigation

Figure 16
TRH C_6-C_{40} Groundwater Impact Plan (Section D)



Map: PS102160_GIS_F007_A2	Author: MO		0 10 20 m 1:1,500
Date: 20-Dec-18	Approved by: NGilmour		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 17
Sampling Locations (Section E)



Map: PS102160_GIS_F028_A1	Author: MO		
Date: 20-Dec-18	Approved by: NGilmour		

Data source: © Department of Finance, Services & Innovation 2018

0 7.5 15 m

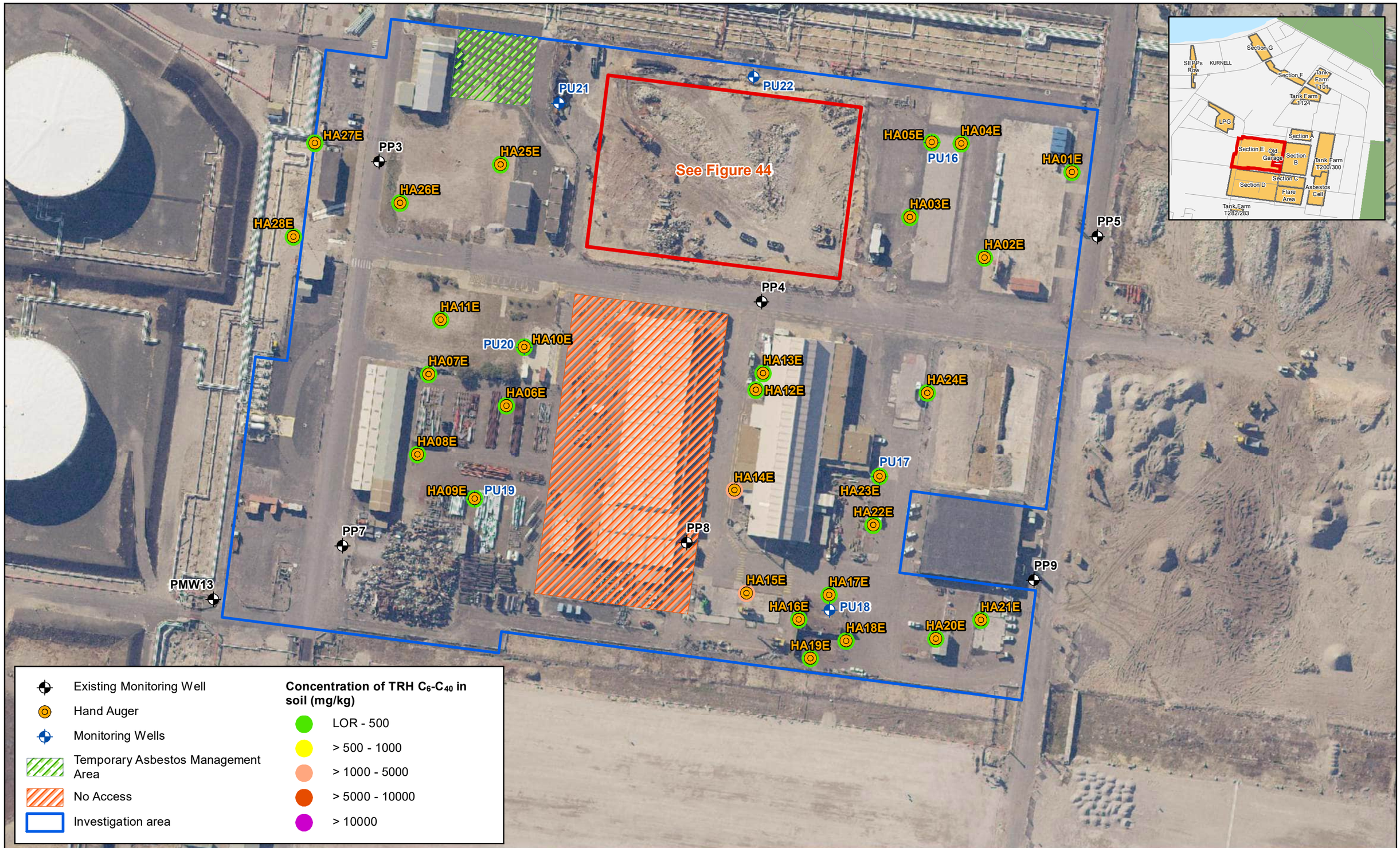
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Coordinate system: GDA 1994 MGA Zone 56
Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 18
Sampling Locations - Test Pits (Section E)



Map: PS102160_GIS_F033_A3	Author: MO		
Date: 20-Dec-18	Approved by: NGilmour		

Data source: © Department of Finance, Services & Innovation 2018

0 10 20 m

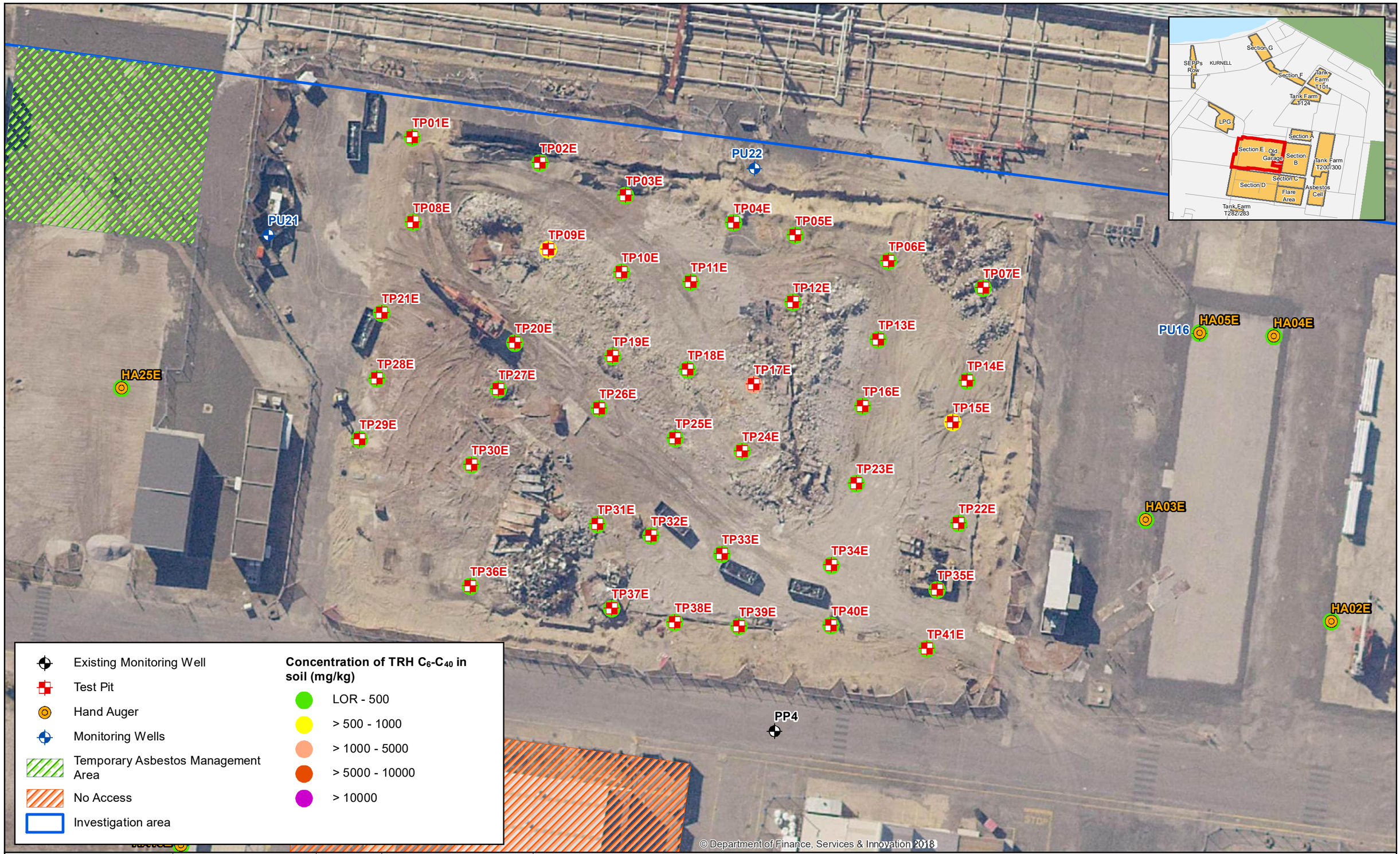
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Coordinate system: GDA 1994 MGA Zone 56
Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 19
TRH C_6-C_{40} Soil Impact Plan (Section E)

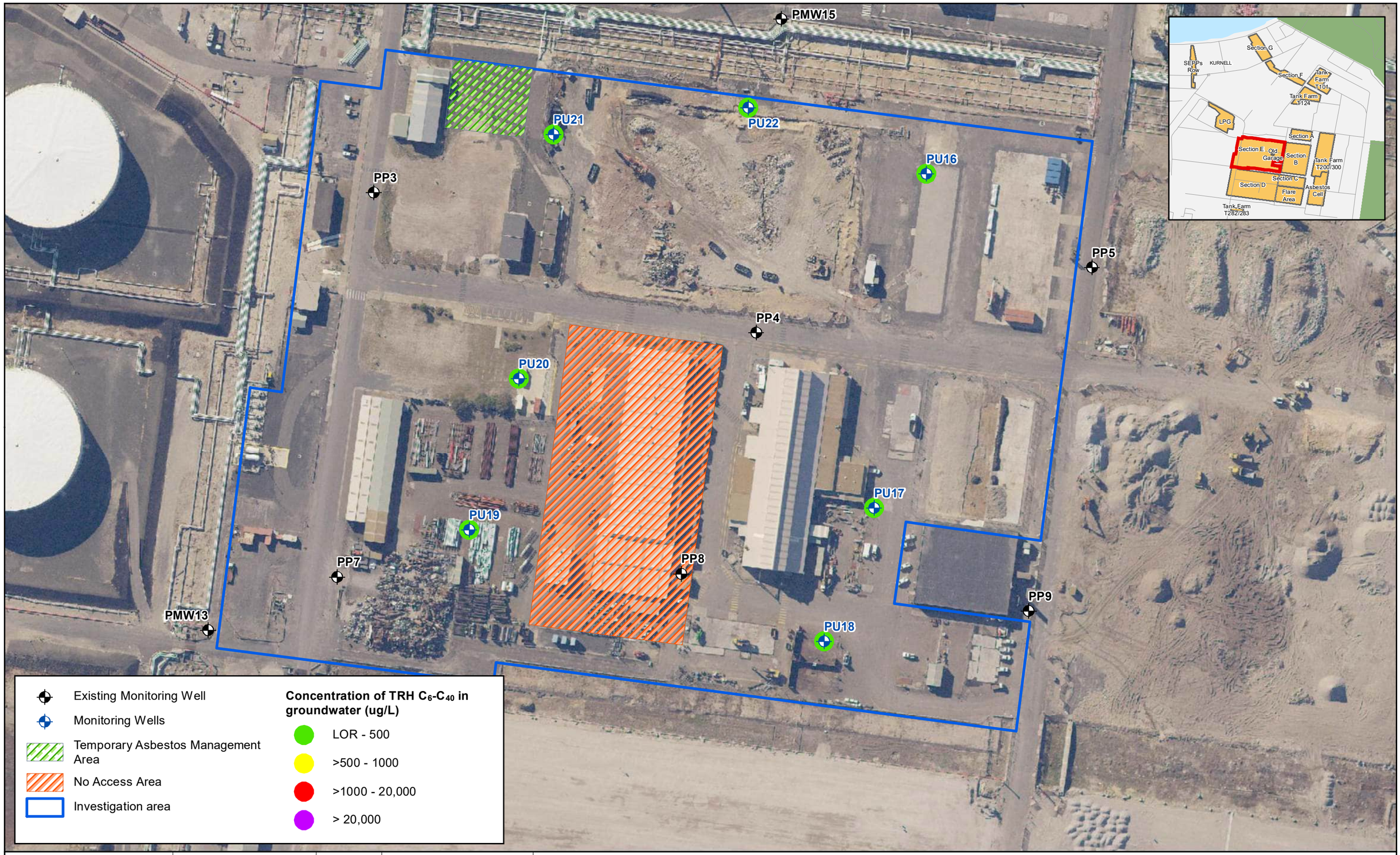


Map: PS102160_GIS_F044_A3	Author: MO		0 7.5 15 m 1:600
Date: 20-Dec-18	Approved by: NGilmour		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 20
TRH C_6-C_{40} Impact Plan (Section E - Power Plant - Test Pit Locations)



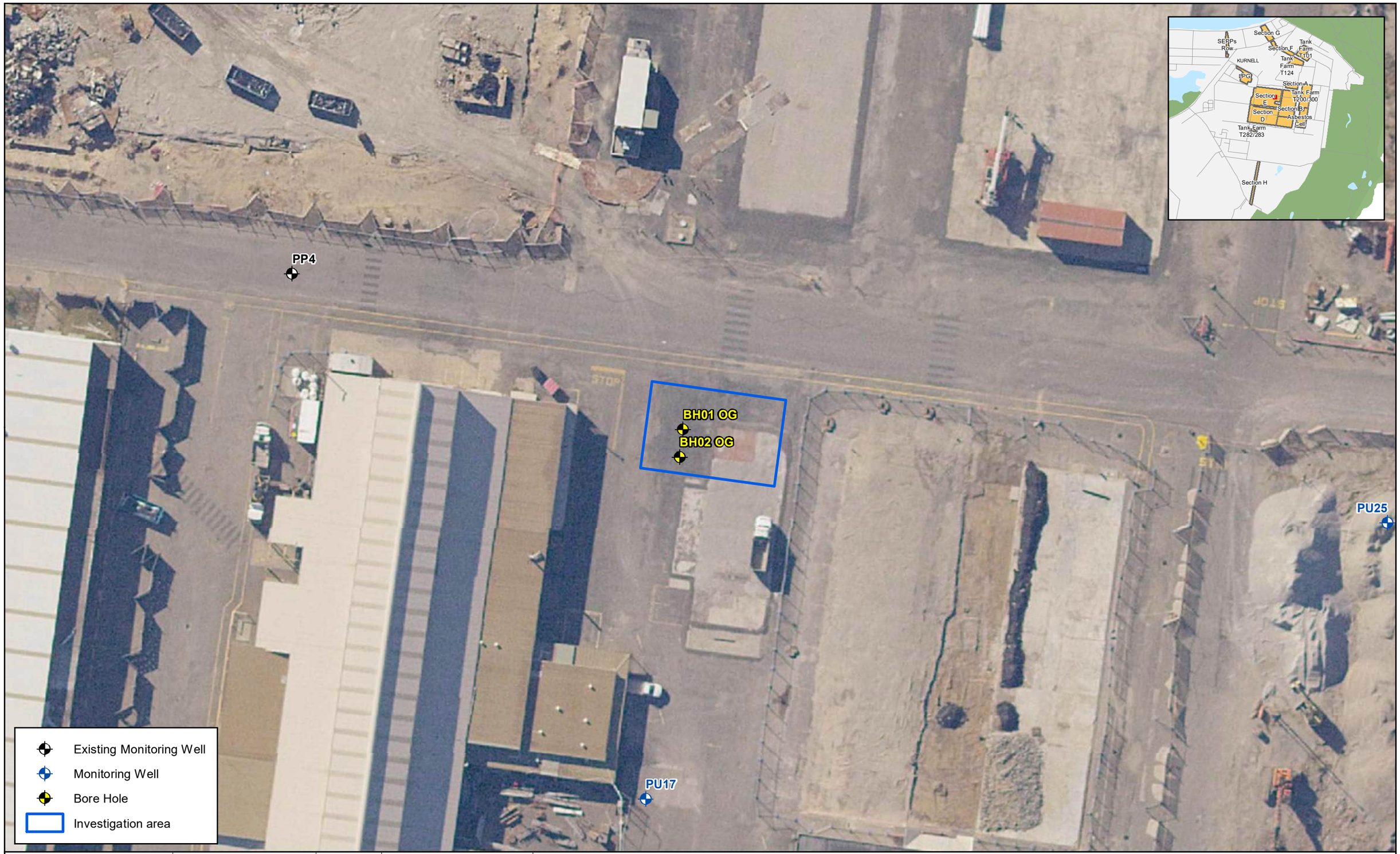
Map: PS102160_GIS_F049_A3	Author: MO		0 10 20 m 1:1,500
Date: 20-Dec-18	Approved by: NGilmour		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 21
TRH C_6-C_{40} Groundwater Impact Plan (Section E)



Map: PS102160_GIS_F021_A2	Author: MO		0 6.5 13 m 1:500 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 22
Old Garage Sampling Location Plan

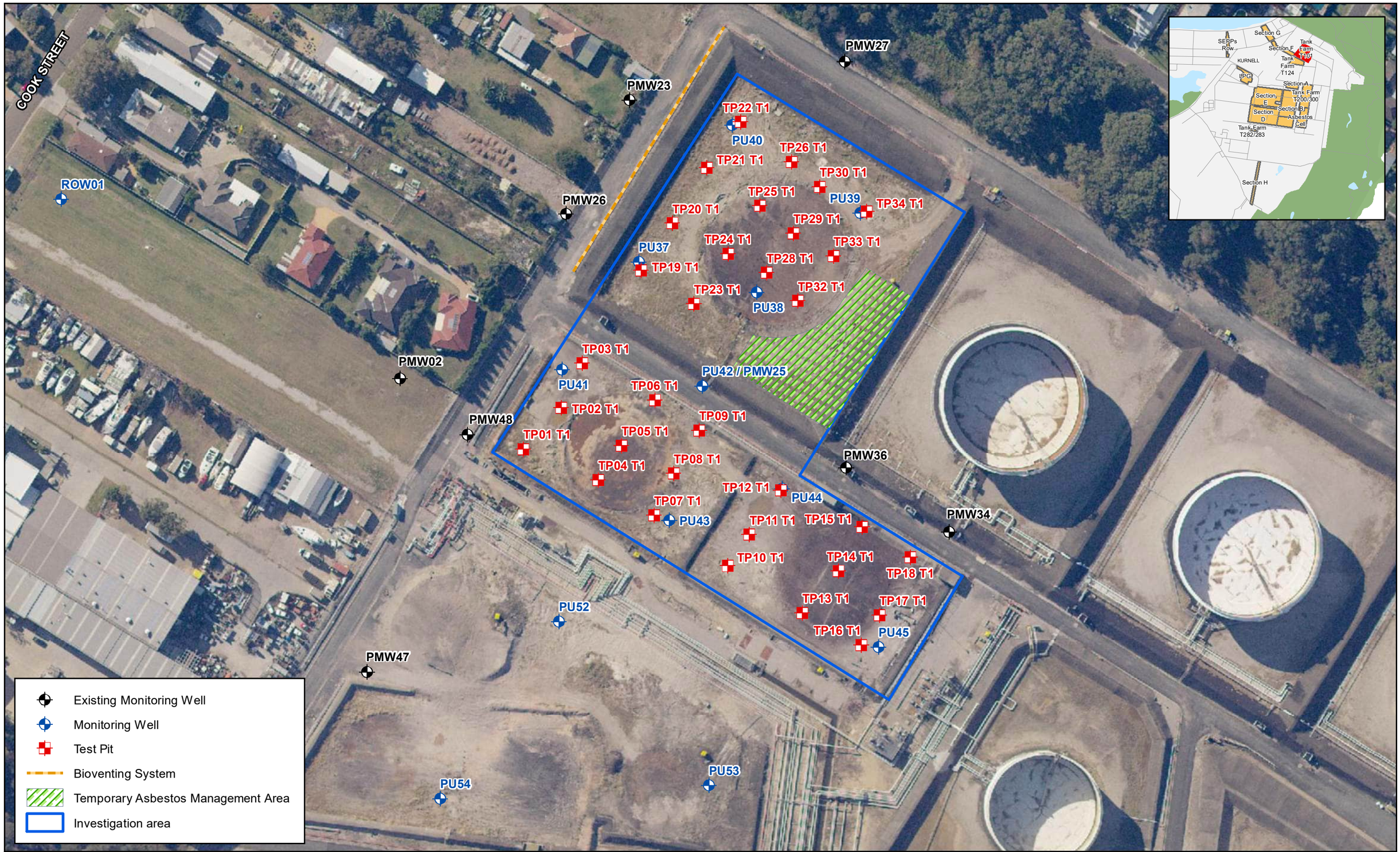


Map: PS102160_GIS_F041_A3	Author: MO		0 6.5 13 m 1:500 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
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Caltex Refinery Kurnell Data Gap Investigation

Figure 23
TRH C_6-C_{40} Soil Impact Plan Old Garage Area



Map: PS102160_GIS_F013_A3	Author: MO	0 10 20 m	**Caltex Refinery Kurnell Data Gap Investigation**
Date: 20-Dec-18	Approved by: NGilmour	1:1,250	**Figure 36**
Data source: © Department of Finance, Services & Innovation 2018		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3	Tank Farm Sampling Location Plan (T101 Area)

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COOK STREET

ROW01

PMW26

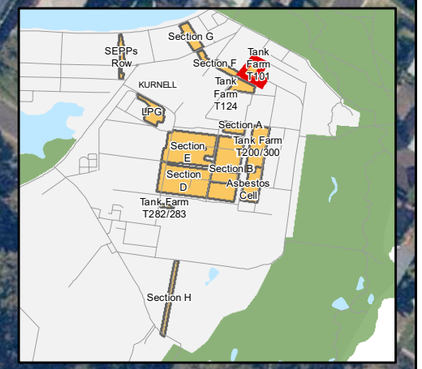
PMW02

PMW48

PMW36

PMW34

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PU37
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TP28 T1
TP23 T1
TP32 T1
PU38
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TP09 T1
TP01 T1
TP05 T1
TP08 T1
TP04 T1
TP12 T1
PU44
TP07 T1
PU43
TP11 T1
TP15 T1
TP10 T1
TP14 T1
TP18 T1
TP13 T1
TP17 T1
TP16 T1
PU45
PU52
PU53



Existing Monitoring Well
Monitoring Well
Test Pit
Bioventing
Temporary Asbestos Management Area
Investigation area

Concentration of TRH C_6-C_{40} in soil (mg/kg)

LOR - 500
> 500 - 1000
> 1000 - 5000
> 5000 - 10000
> 10000

Map: PS102160_GIS_F037_A2	Author: MO
Date: 20-Dec-18	Approved by: NGilmour

Data source: © Department of Finance, Services & Innovation 2018

0 10 20 m

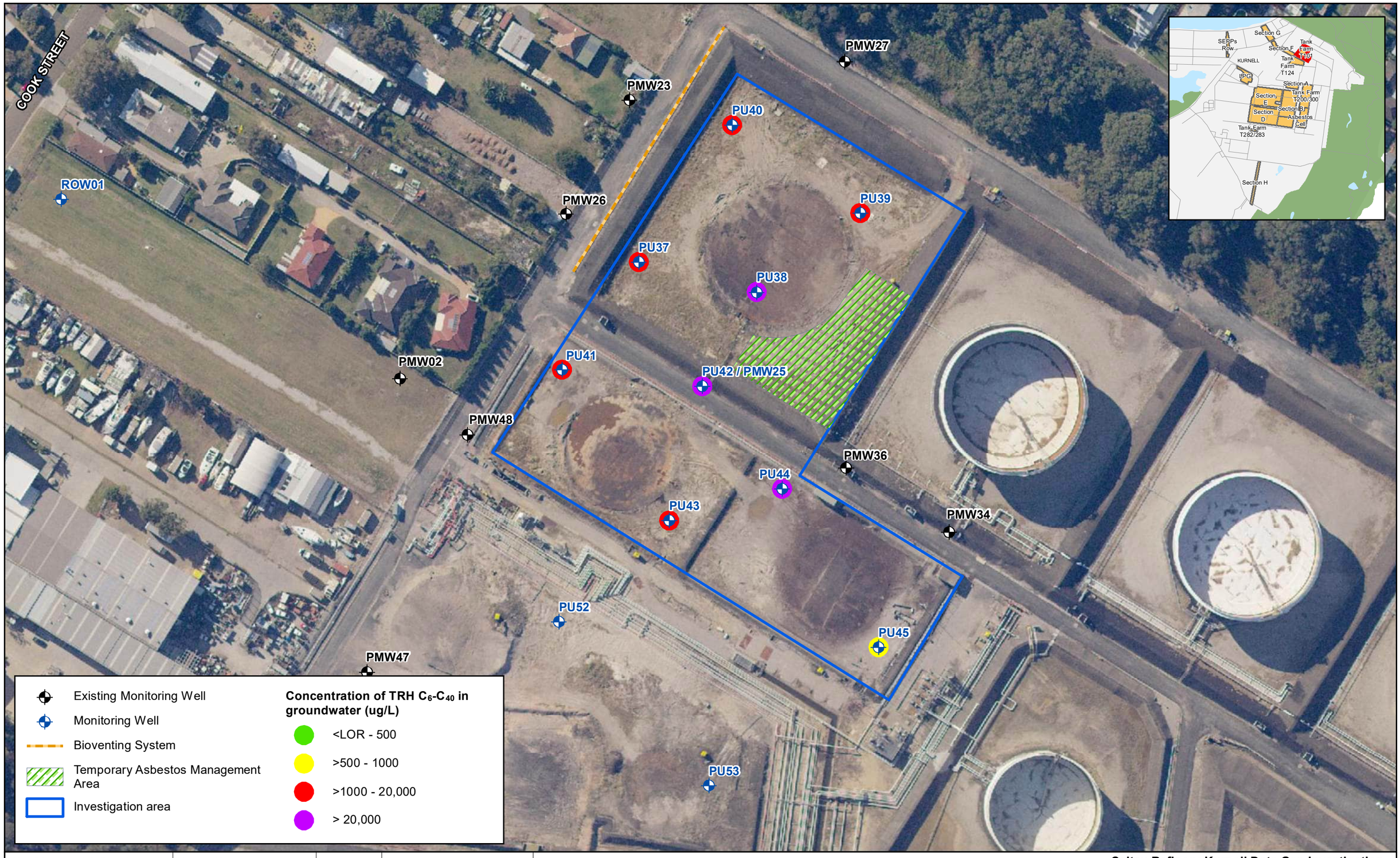
1:1,250

Coordinate system: GDA 1994 MGA Zone 56
Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 37
TRH C_6-C_{40} Soil Impact Plan Tank Farm (T101 Area)

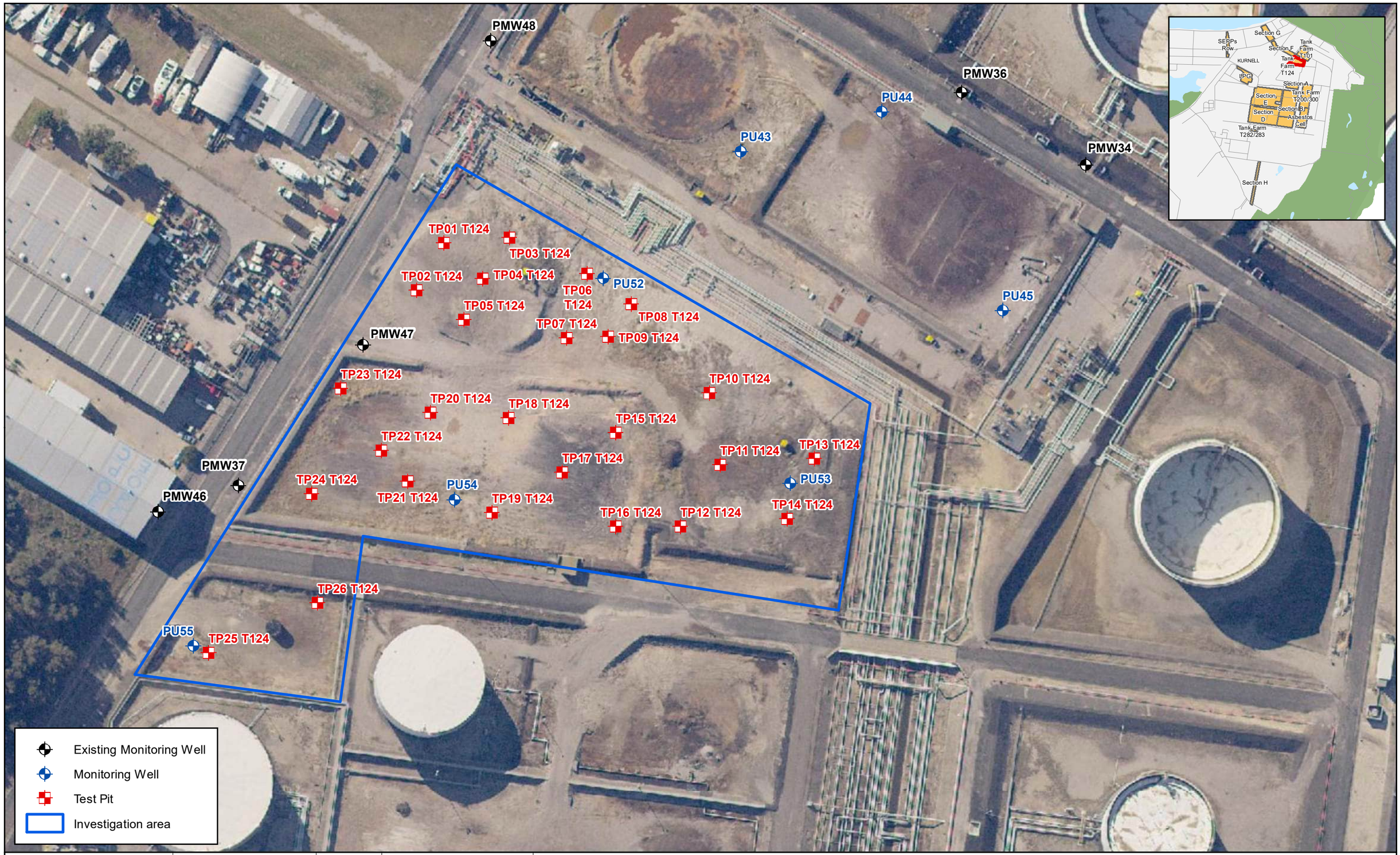


Map: PS102160_GIS_F052_A3	Author: MO		0 10 20 m 1:1,250 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 38
TRH C_6-C_{40} Groundwater Impact Plan Tank Farm (T101 Area)

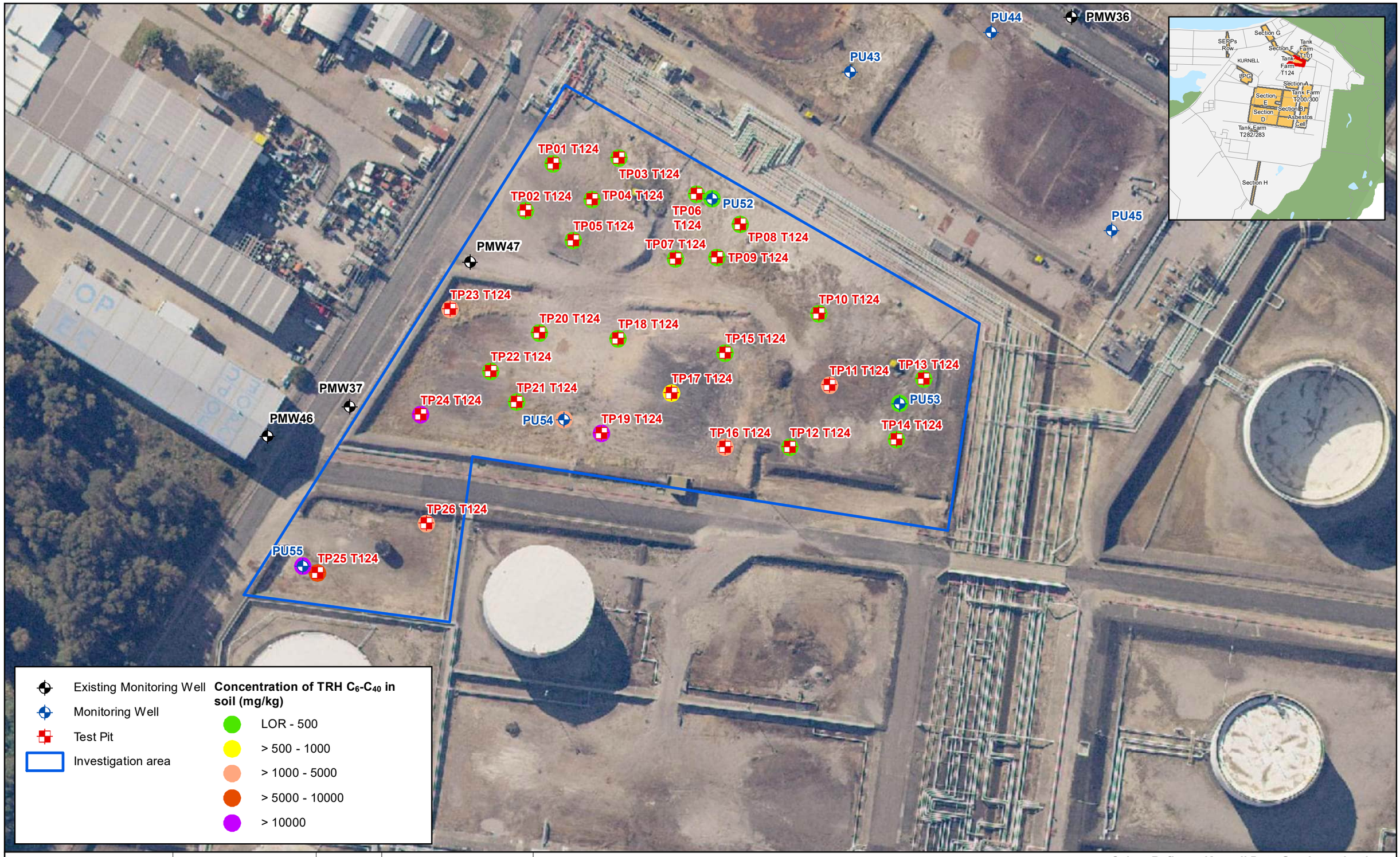


Map: PS102160_GIS_F015_A2	Author: MO		0 10 20 m 1:1,000 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 39
Tank Farm Sampling Location Plan (T124 Area)



Map: PS102160_GIS_F038_A2	Author: MO		0 10 20 m 1:1,000 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 40
TRH C_6-C_{40} Soil Impact Plan Tank Farm (T124 Area)



Map: PS102160_GIS_F053_A3	Author: MO		0 10 20 m 1:1,000 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 41
TRH C_6-C_{40} Groundwater Impact Plan Tank Farm (T124 Area)



Map: PS102160_GIS_F017_A2	Author: MO		
Date: 20-Dec-18	Approved by: NGilmour		

Data source: © Department of Finance, Services & Innovation 2018

0 25 50 m

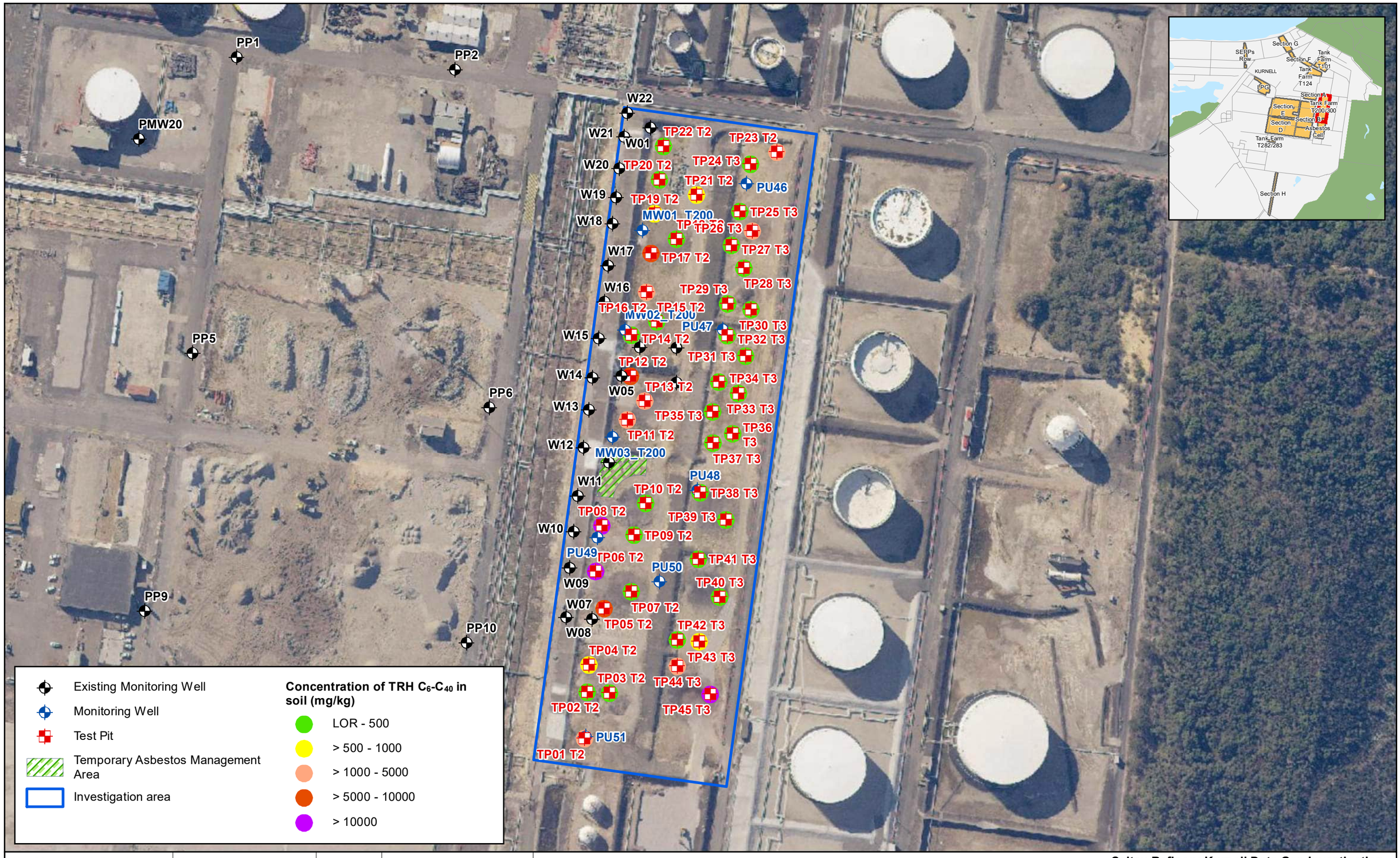
1:2,000

Coordinate system: GDA 1994 MGA Zone 56
Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 42
Tank Farm Sampling Location Plan (T200/300 Area)



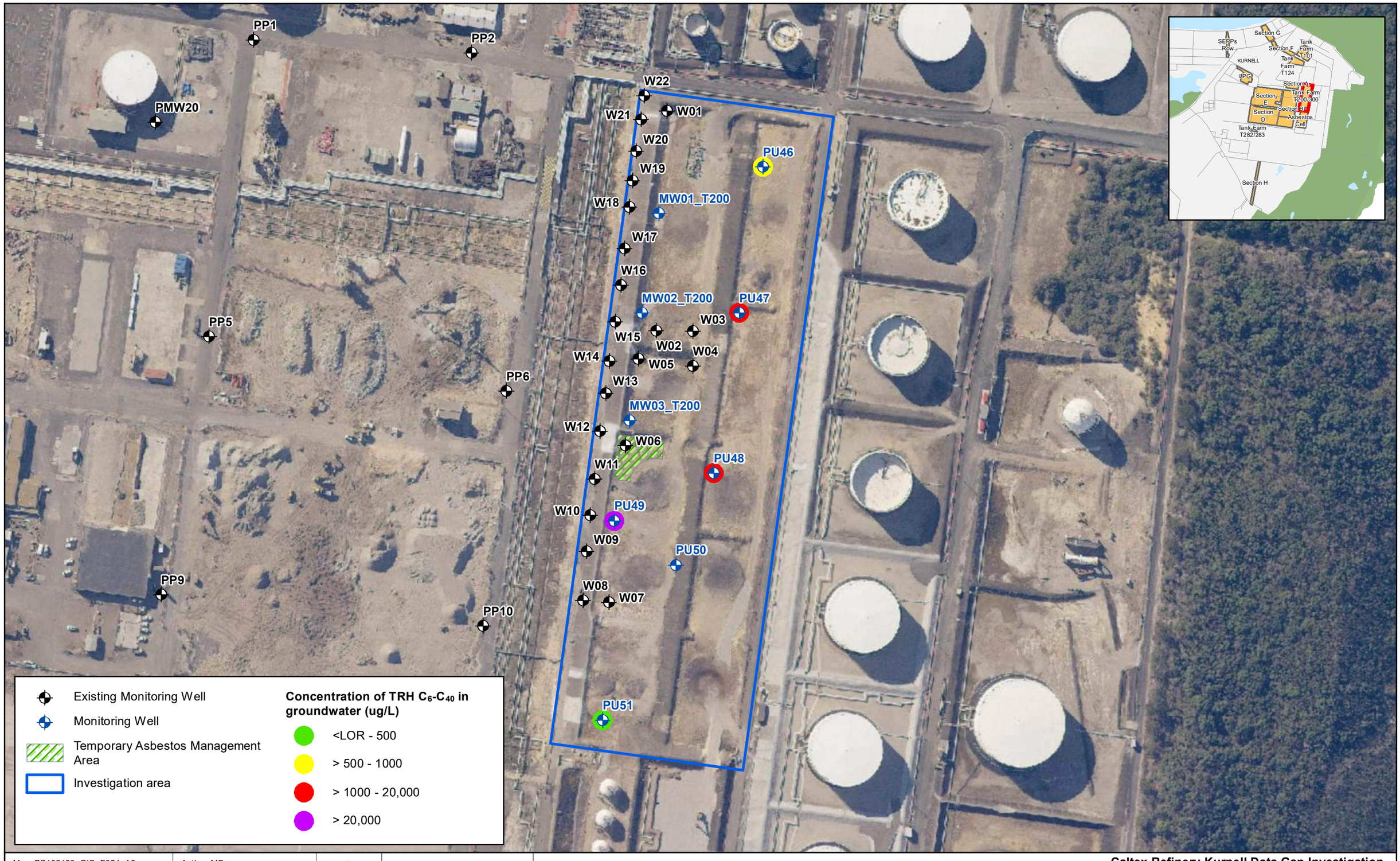
Map: PS102160_GIS_F039_A2	Author: MO		0 25 50 m 1:2,000 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
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Caltex Refinery Kurnell Data Gap Investigation

Figure 43

TRH C_6-C_{40} Soil Impact Plan Tank Farm (T200/300 Area)



Map: PS102160_GIS_F054_A2	Author: MO		0 25 50 m 1:2,000
Date: 20-Dec-18	Approved by: NGilmour		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

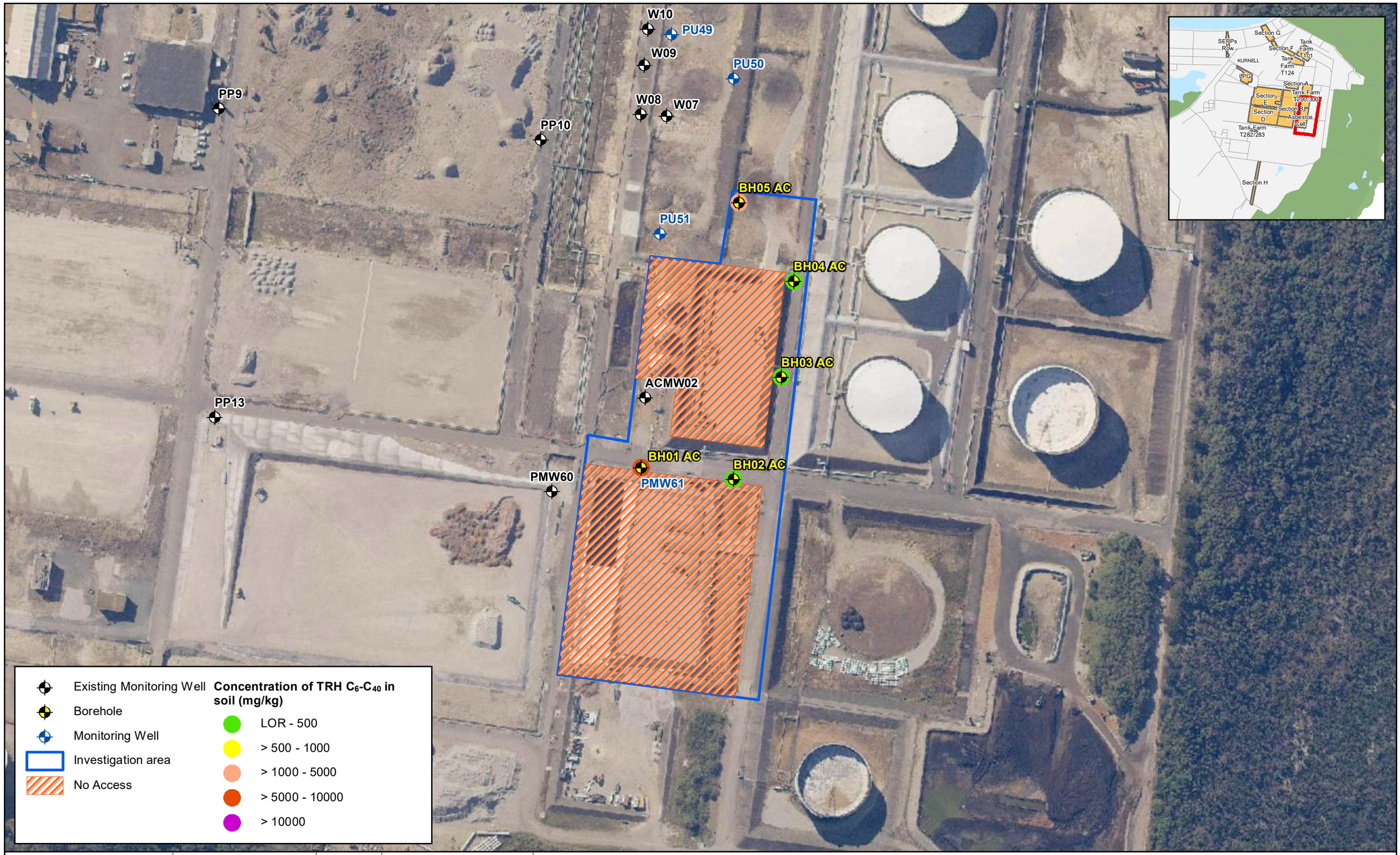
Figure 44
TRH C_6-C_{40} Groundwater Impact Plan Tank Farm (T200/300 Area)



Map: PS102160_GIS_F019_A3	Author: MO	0 25 50 m 1:2,000	**Caltex Refinery Kurnell Data Gap Investigation**
Date: 20-Dec-18	Approved by: NGilmour	Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3	**Figure 45** Asbestos Cell Sampling Location Plan

Data source: © Department of Finance, Services & Innovation 2018

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Map: PS102160_GIS_F040_A3	Author: MO
Date: 20-Dec-18	Approved by: NGilmour

Data source: © Department of Finance, Services & Innovation 2018

0 25 50 m

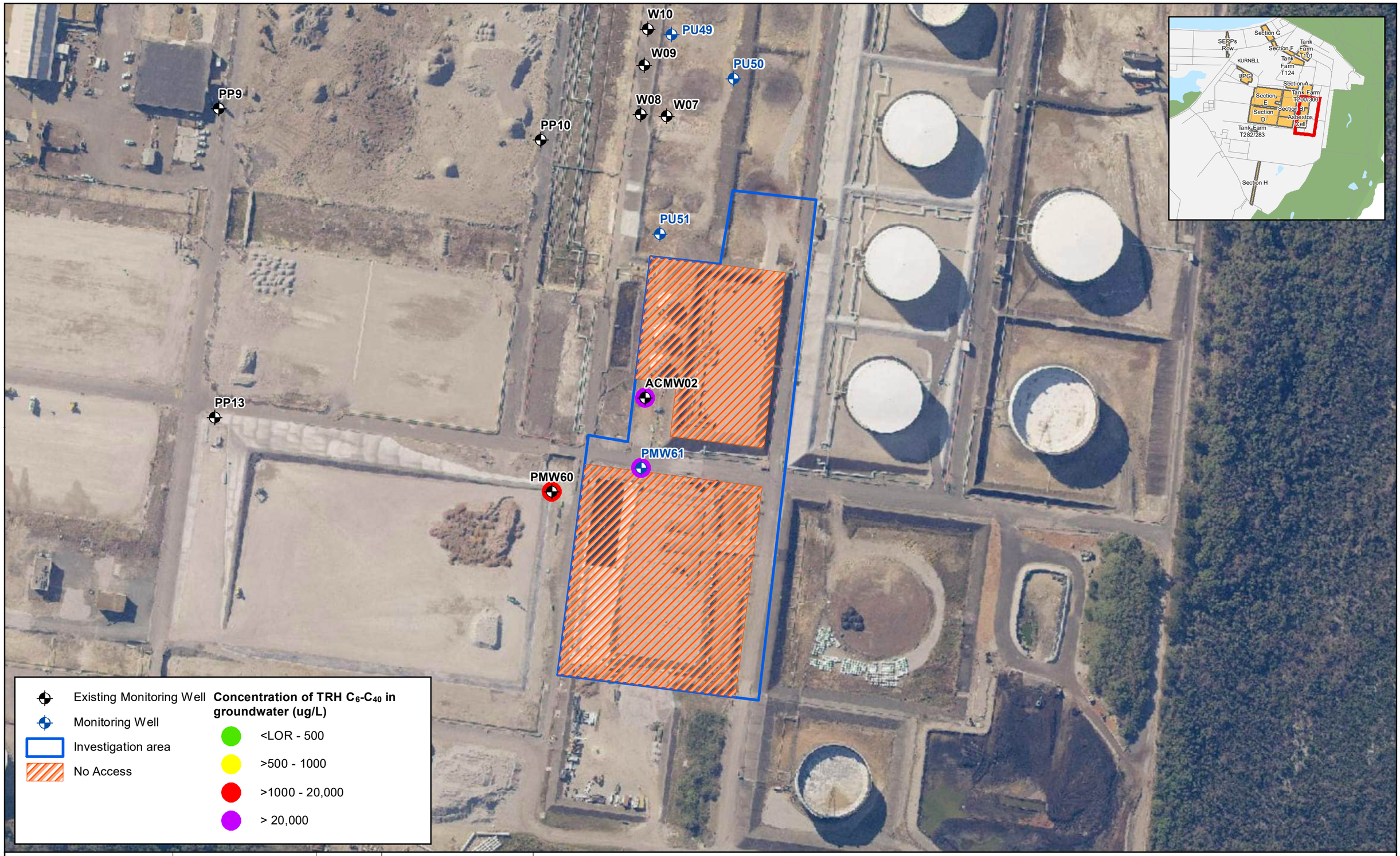
1:2,000

Coordinate system: GDA 1994 MGA Zone 56
Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 46
TRH C_6-C_{40} Soil Impact Plan Asbestos Cell Area



Map: PS102160_GIS_F055_A2	Author: MO		0 25 50 m 1:2,000
Date: 20-Dec-18	Approved by: NGilmour		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3

Data source: © Department of Finance, Services & Innovation 2018

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Caltex Refinery Kurnell Data Gap Investigation

Figure 47
TRH C_6-C_{40} Groundwater Impact Plan Asbestos Cell Area



Map: PS102160_GIS_F023_A3	Author: MO		0 3.5 7 m 1:300 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
Data source: © Department of Finance, Services & Innovation 2018			

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Caltex Refinery Kurnell Data Gap Investigation

Figure 48
Sampling Location Plan (T282/283)



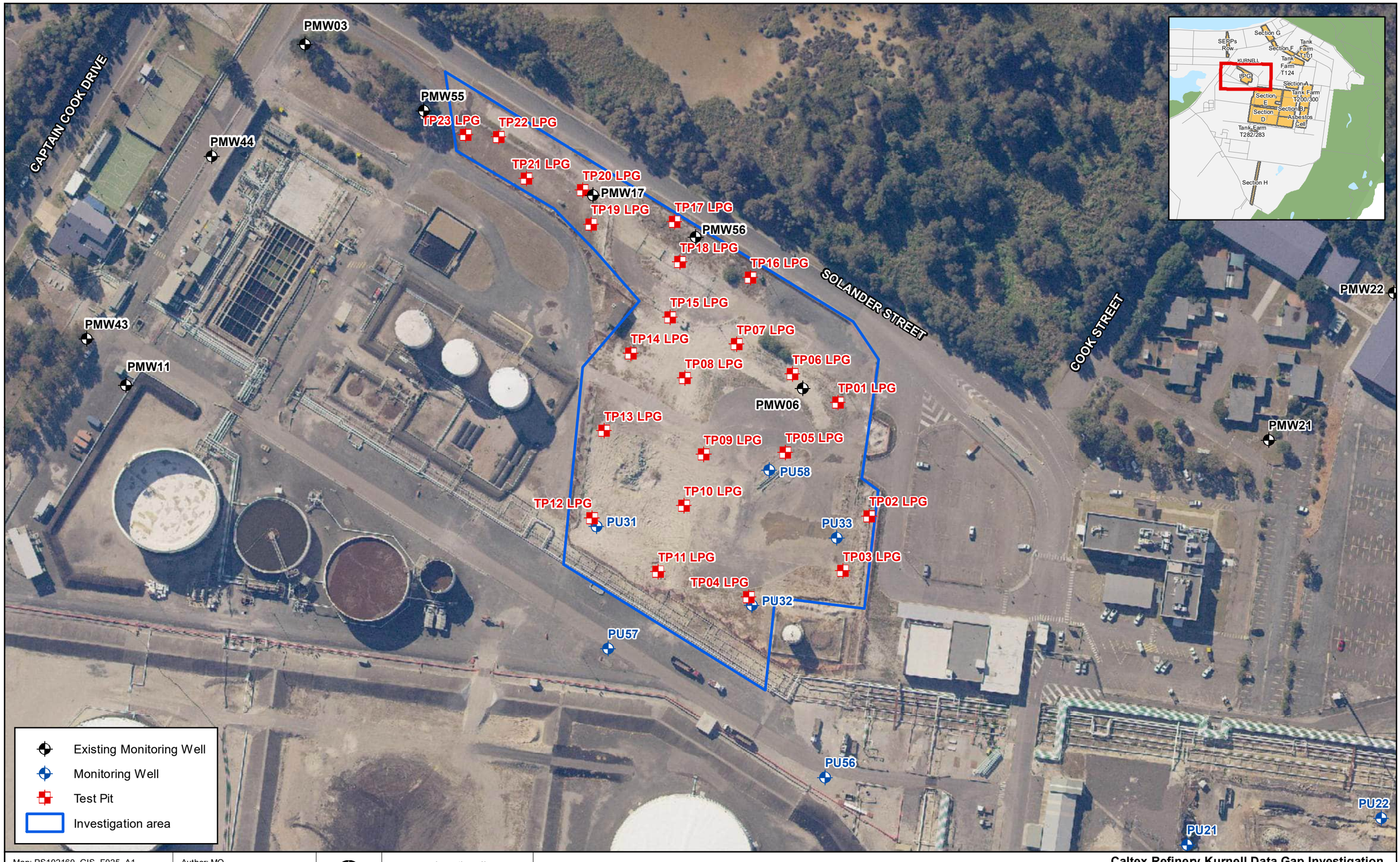
Map: PS102160_GIS_F058_A3	Author: MO		0 3.5 7 m 1:300
Date: 20-Dec-18	Approved by: NGilmour		Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3

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Caltex Refinery Kurnell Data Gap Investigation

Figure 49
TRH C_6-C_{40} Groundwater Impact Plan (T282/283)

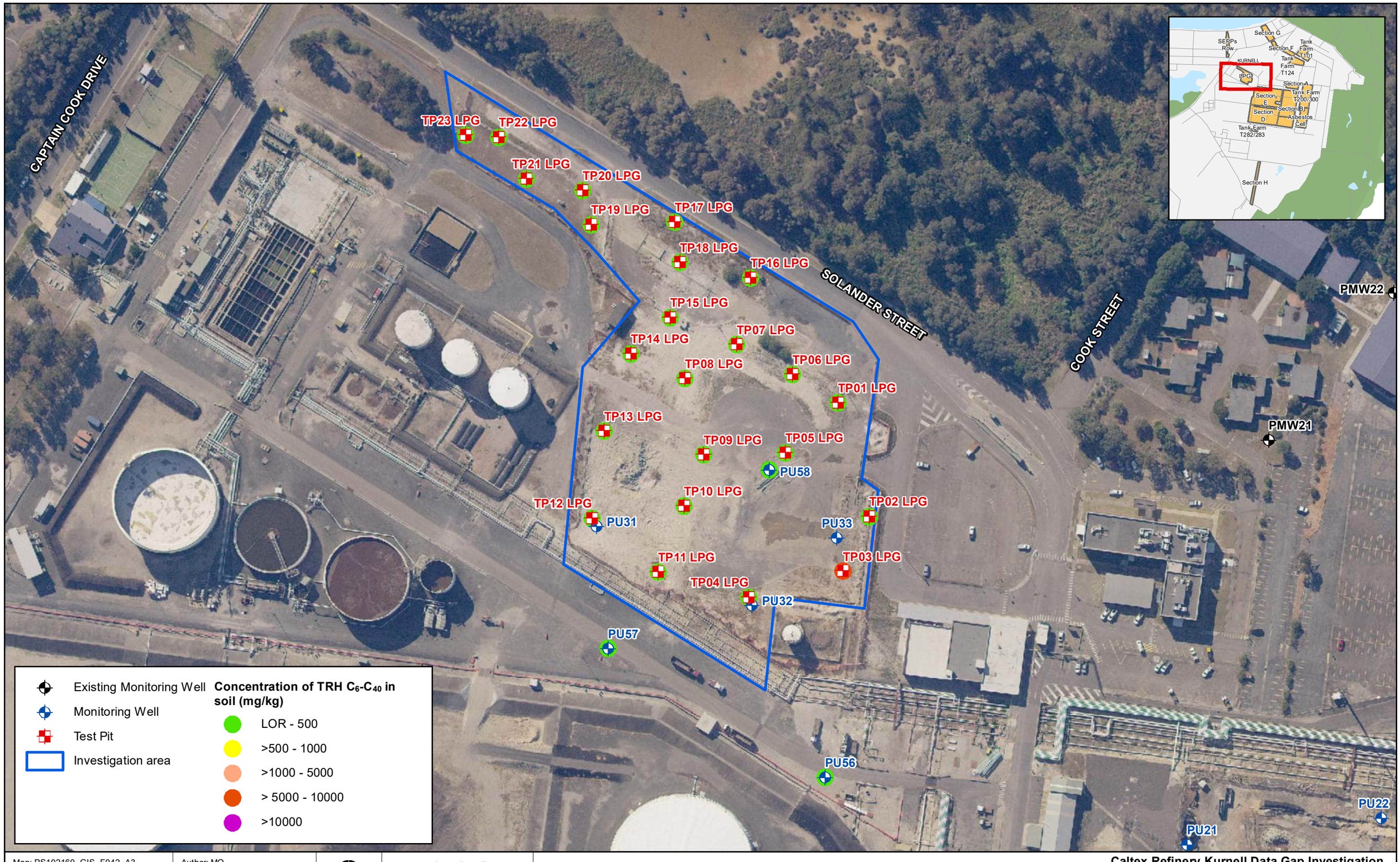


Map: PS102160_GIS_F025_A1	Author: MO		0 10 20 m 1:1,500 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
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Caltex Refinery Kurnell Data Gap Investigation

Figure 50
LPG Sampling Location Plan

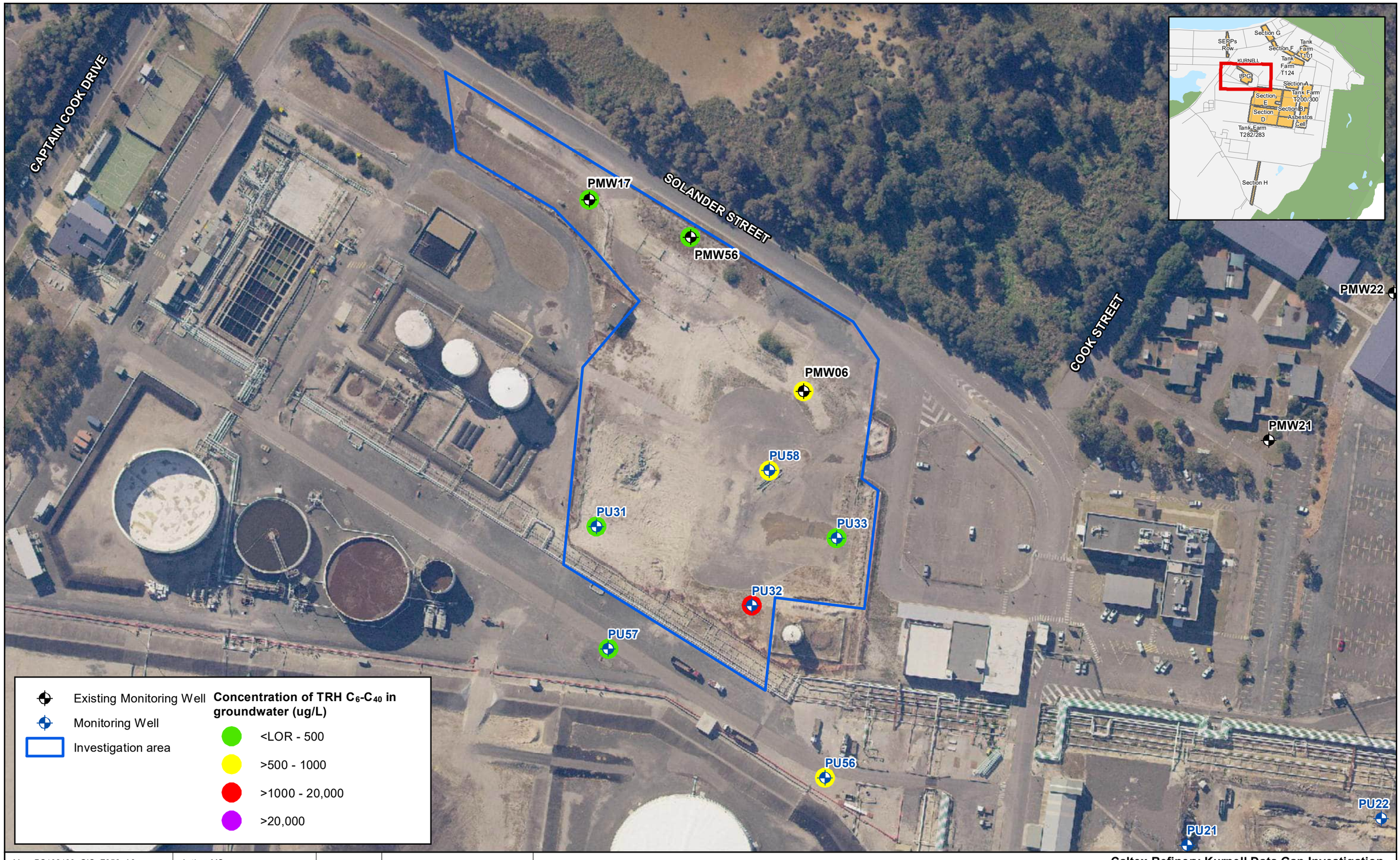


Map: PS102160_GIS_F042_A3	Author: MO		0 10 20 m 1:1,500 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
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Caltex Refinery Kurnell Data Gap Investigation

Figure 51
TRH C_6-C_{40} Soil Impact Plan (LPG Area)



Map: PS102160_GIS_F056_A3	Author: MO		0 10 20 m 1:1,500 Coordinate system: GDA 1994 MGA Zone 56 Scale ratio correct when printed at A3
Date: 20-Dec-18	Approved by: NGilmour		
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Caltex Refinery Kurnell Data Gap Investigation

Figure 52
TRH C_6-C_{40} Groundwater Impact Plan (LPG Area)

TABLE B11
T101 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		TRH							BTEXN							Phenols												
		TPH C6-C10	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene	Phenol	2-chlorophenol	2-methylphenol	3-&4-methylphenol	2-nitrophenol	2,4-dimethylphenol	2,4-dichlorophenol	2,6-dichlorophenol	4-chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-trichlorophenol	Pentachlorophenol
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
Investigation Specific Criteria - Asbestos																												
CRC CARE - Maintanence Workers - Direct Contact			82000		62000	85000	120000		1100	120000	85000			130000	29000													
CRC CARE Direct Contact			26000	20000		27000	38000		430	99000	27000			81000	11000													
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion,			NL		NL				77																			
NEPM 2013 Table HIL D																240000												660
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m		260		NL				3	NL	NL				NL													
	1-2m		370		NL				3	NL	NL				NL													
	2-4m		630		NL				3	NL	NL				NL													
	>4m		NL		NL				3	NL	NL				NL													
Field_ID	Sampled Date																											
TP01_0.1_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.5_T1	18/07/2018	21	<10	<50	<50	<100	<100	<50	0.5	3.1	1.2	2.6	4.3	6.9	1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_1.0_T1	18/07/2018	3670	2580	390	360	940	<100	1330	15.1	367	155	148	407	555	26	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP02_0.1_T1	18/07/2018	<10	<10	<50	<50	150	<100	150	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.5_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_1.2_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP03_0.1_T1	18/07/2018	<10	<10	<50	<50	230	130	360	<0.2	0.8	<0.5	<0.5	0.5	0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.5_T1	18/07/2018	<10	<10	<50	<50	150	<100	150	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP03_1.5_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	0.5	0.6	<0.5	<0.5	1.1	1.1	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP04_0.1_T1	18/07/2018	<10	<10	<50	<50	270	110	380	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_1.0_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP05_0.1_T1	18/07/2018	12	12	1220	1220	3190	550	4960	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	2	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP05_0.5_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.1_T1	18/07/2018	519	259	590	580	1680	520	2790	<1	40.6	15.3	56.2	148	204	9	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_1.0_T1	18/07/2018	8790	2190	<50	<50	170	<100	170	55.9	2840	408	720	2580	3300	38	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP07_0.1_T1	18/07/2018	<10	<10	50	50	2120	850	3020	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP07_0.5_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.1_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.5_T1	18/07/2018	30	22	220	220	13,200	4740	18,200	<0.2	2.9	<0.5	0.9	4.4	5.3	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_1.0_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	0.4	0.8	<0.5	0.7	3.6	4.3	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP09_0.1_T1	18/07/2018	<10	<10	<50	<50	440	260	700	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09_0.5_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09_1.0_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	0.3	0.6	<0.5	<0.5	1.1	1.1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1_T1	18/07/2018	<10	<10	<50	<50	1110	270	1380	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP10_0.5_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_1.2_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.1_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.5_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_1.0_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP12_0.1_T1	18/07/2018	1680	1180	1510	1490	1640	1010	4160	3.2	66.3	31.8	102	298	400	22	<0.5	<0.5	<0.5	<1	<0.5	1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP12_1.0_T1	18/07/2018	2870	2040	1310	1290	670	<100	1980	11.6	84.8	94.6	116	519	635	18	-	-	-	-	-	-	-	-	-	-	-	-	-
TP13_0.1_T1	18/07/2018	<10	<10	<50	<50	360	200	560	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP13_1.0_T1	18/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.2_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.5_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP15_0.2_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.5_T1	19/07/2018	<10	<10	90	90	1060	420	1570	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_1.0_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP16_0.2_T1	19/07/2018	<10	<10	<50	<50	150	<100	150	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP16_0.6_T1	19/07/2018	<10	<10	<50	<50	<100	250	250	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.2_T1	19/07/2018	<10	<10	80	80	1900	700	2680	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_1.0_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP18_0.1_T1	19/07/2018	<10	<10	60	60	2600	730	3390	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.5_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.9_T1	19/07/2018	<10	<10	670	670	850	<100	1520	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP19_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.5_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP19_1.6_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_1.5_T1	19/07/2018	29	28	90	90	<100	<100	90	<0.2	<0.5	<0.5	<0.5	1.3	1.3	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_0.5_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_1.3_T1	19/07/2018	291	291	160	150	<100	<100	160	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	7	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP22_0.1_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP22_1.3_T1	19/07/2018	1130	1130	2560	2560	<100	<100	2560	<0.2	<0.5	<0.5	<0.5	3.5	3.5	5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP23_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE B11
T101 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		PAHs																		Dissolved Metals								Asbestos Classification - Soil						
		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Zero)	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Naphthalene	Total PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5			0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos																												Yes						
CRC CARE - Maintanence Workers - Direct Contact																																		
CRC CARE Direct Contact																		11000											0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion,																																		
NEPM 2013 Table HIL D																				3000	900		240000	1500	730	6000	400000							
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m																	NL																
	1-2m																	NL																
	2-4m																	NL																
	>4m																	NL																
Field_ID	Sampled Date																																	
TP01_0.1_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.528	<0.001	-	-
TP01_0.5_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.64	<0.001	-	-
TP01_1.0_T1	18/07/2018	<0.5	<0.5	0.9	1.3	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	4.5	<5	<1	<2	<5	17	<0.1	<2	<5	-	-	-	-	-	-	-
TP02_0.1_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.547	<0.001	-	-
TP02_0.5_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_1.2_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP03_0.1_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.772	<0.001	-	-
TP03_0.5_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	14	20	32	<0.1	5	78	-	-	-	-	-	-	-
TP03_1.5_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP04_0.1_T1	18/07/2018	1.2	<0.5	<0.5	<0.5	1.1	1.2	6.7	1.7	2.4	0.7	2.4	3.4	4	0.9	<0.5	1.3	<0.5	23	-	-	-	-	-	-	-	-	-	-	<0.0004	0.734	<0.001	-	-
TP04_1.0_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP05_0.1_T1	18/07/2018	2.1	2	5.6	18	3.3	8.1	14.4	3.7	5.4	1.2	3.6	2.6	3.6	1.2	<0.5	1.6	1	73.8	<5	<1	14	48	9	<0.1	56	74	-	-	<0.0004	0.929	<0.001	-	-
TP05_0.5_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.1_T1	18/07/2018	2.2	1.4	3.6	15.6	3.2	7.4	13.5	3.8	5.1	1.3	3.7	3.3	4.4	1.2	<0.5	1.6	6.5	73.4	-	-	-	-	-	-	-	-	-	-	<0.0004	0.707	<0.001	-	-
TP06_1.0_T1	18/07/2018	<0.5	<0.5	0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP07_0.1_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	6	<1	17	59	54	0.3	6	305	-	-	<0.0004	0.612	<0.001	-	-
TP07_0.5_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.1_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.7	<0.001	-	-
TP08_0.5_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	<0.5	1	1	<0.5	<0.5	<0.5	<0.5	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_1.0_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP09_0.1_T1	18/07/2018	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.606	<0.001	-	-
TP09_0.5_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.807	<0.001	-	-
TP09_1.0_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.1	<5	<1	38	178	370	<0.1	14	1960	-	-	<0.0004	0.735	<0.001	-	-
TP10_0.5_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.732	<0.001	-	-
TP10_1.2_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.1_T1	18/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.796	<0.001	-	-
TP11_0.5_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_1.0_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP12_0.1_T1	18/07/2018	<0.5	0.8	2.2	5	0.6	1.5	2.7	0.9	1.2	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	54.8	70.5	<5	<1	23	89	112	<0.1	8	797	-	-	<0.0004	0.887	<0.001	-	-
TP12_1.0_T1	18/07/2018	<0.5	0.5	1.8	3.4	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	27.2	33.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP13_0.1_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	7	56	<5	<0.1	53	33	-	-	<0.0004	0.991	<0.001	-	-
TP13_1.0_T1	18/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.2_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.572	<0.001	-	-
TP14_0.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	9	-	-	-	-	-	-	-
TP15_0.2_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.697	<0.001	-	-
TP15_0.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_1.0_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP16_0.2_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	16	23	20	<0.1	10	56	-	-	<0.0004	0.854	<0.001	-	-
TP16_0.6_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.2_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.2	-	-	-	-	-	-	-	-	-	-	<0.0004	0.838	<0.001	-	-
TP17_1.0_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP18_0.1_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.591	<0.001	-	-
TP18_0.5_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.768	<0.001	-	-
TP18_0.9_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP19_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Yes	-	0.01	0.833	0.001	Yes	
TP19_0.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3	<5	<1	<2	<5	5	<0.1	<2	<5	-	-	-	-	-	-	-
TP19_1.6_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.648	<0.001	-	-
TP20_1.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.73	<0.001	-	-
TP21_0.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_1.3_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.4	5.4	<5	<1	4	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP22_0.1_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.737	<0.001	-	-
TP22_1.3_T1	19/07/2018	<0.5	<0.5	0.9	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	10.4	11.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP23_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.764	<0.001	-	-

TABLE B11
T101 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		TRH							BTEXN							Phenols												
		TPH C6-C10	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene	Phenol	2-chlorophenol	2-methylphenol	3-&4-methylphenol	2-nitrophenol	2,4-dimethylphenol	2,4-dichlorophenol	2,6-dichlorophenol	4-chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-trichlorophenol	Pentachlorophenol
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
Investigation Specific Criteria - Asbestos																												
CRC CARE - Maintanence Workers - Direct Contact			82000		62000	85000	120000		1100	120000	85000			130000	29000													
CRC CARE Direct Contact			26000	20000		27000	38000		430	99000	27000			81000	11000													
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion,			NL		NL				77																			
NEPM 2013 Table HIL D																240000												660
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m		260		NL				3	NL	NL				NL													
	1-2m		370		NL				3	NL	NL				NL													
	2-4m		630		NL				3	NL	NL				NL													
	>4m		NL		NL				3	NL	NL				NL													
Field_ID	Sampled Date																											
TP23_0.5_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP23_1.6_T1	19/07/2018	80	44	<50	<50	<100	<100	<50	<0.2	4.4	3	8.2	20.1	28.3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_0.2_T1	19/07/2018	29	29	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP24_1.4_T1	19/07/2018	40	40	50	50	<100	<100	50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP25_0.2_T1	19/07/2018	232	231	180	180	360	430	970	0.2	<0.5	<0.5	<0.5	0.8	0.8	4	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP25_0.5_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP25_1.3_T1	19/07/2018	18	18	50	50	<100	<100	50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP26_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP26_0.5_T1	19/07/2018	25	25	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP26_1.4_T1	19/07/2018	1070	1060	1540	1510	<100	<100	1540	<0.5	<0.5	4.4	<0.5	6.1	6.1	32	-	-	-	-	-	-	-	-	-	-	-	-	-
TP28_0.2_T1	19/07/2018	2030	1500	940	900	<100	<100	940	3.3	10.8	27.5	72.6	417	490	35	<0.5	<0.5	<0.5	<1	<0.5	3.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP28_0.5_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP28_1.5_T1	19/07/2018	3320	2200	1340	1300	<100	<100	1340	12.2	96.8	144	162	706	868	36	-	-	-	-	-	-	-	-	-	-	-	-	-
TP29_0.2_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP29_0.5_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP29_1.4_T1	19/07/2018	50	49	120	120	<100	<100	120	<0.2	<0.5	<0.5	<0.5	0.6	0.6	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP30_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP30_0.5_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP30_1.5_T1	19/07/2018	1890	1710	1350	1310	<100	<100	1350	0.5	<0.5	34.1	<0.5	144	144	37	-	-	-	-	-	-	-	-	-	-	-	-	-
TP32_0.2_T1	19/07/2018	545	457	840	820	<100	<100	840	<0.5	<0.5	<0.5	3.3	84.8	88.1	15	<0.5	<0.5	<0.5	<1	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP32_0.5_T1	19/07/2018	94	79	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	0.5	14.4	14.9	2	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP33_0.2_T1	19/07/2018	199	154	440	430	250	180	870	<0.2	<0.5	<0.5	2.8	42.7	45.5	7	<0.5	<0.5	<0.5	<1	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP33_0.5_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP33_1.3_T1	19/07/2018	3300	2740	<50	<50	<100	<100	<50	<2	<2	5.2	<2	557	557	16	-	-	-	-	-	-	-	-	-	-	-	-	-
TP34_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP34_0.5_T1	19/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP34_1.5_T1	19/07/2018	13	13	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_T101_2.8	15/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH02_T101_2.0	15/08/2018	12	12	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH03_T101_2.0	15/08/2018	4,790	4790	1,960	1,960	<100	<100	1,960	<0.5	<0.5	0.8	1.2	2	3.2	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH03_T101_2.5	15/08/2018	193	193	90	90	<100	<100	90	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_T101_1.8	16/08/2018	3,180	3160	950	920	<100	<100	950	0.7	0.9	4.2	2.4	15.5	17.9	23.7	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_T101_2.1	16/08/2018	259	215	200	200	<100	<100	200	<0.2	2.4	4.8	7.8	29.3	37.1	44.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH04_T101_2.4	16/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_T101_2.9	16/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH05_T101_2.1	17/08/2018	27	20	<50	<50	<100	<100	<50	<0.2	1.3	0.7	1.4	3.7	5.1	7.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_T101_2.5	17/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH05_T101_2.8	17/08/2018	<10	<10	<50	<50	290	220	510	<0.2	0.5	<0.5	<0.5	0.8	0.8	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_T101_3.5	17/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH01_T202_3.2	16/08/2018	<10	<10	<50	<50	290	110	400	2	<0.5	0.8	<0.5	<0.5	<0.5	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_T202_3.9	16/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH02_T202_1.8	16/08/2018	<10	<10	<50	<50	240	<100	240	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<2	<0.8	<2	<0.8
BH02_T202_2.3	16/08/2018	<10	<10	<50	<50	560	310	870	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_T202_3.3	16/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH01_T203_2.3	17/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH01_T203_2.5	17/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_T203_2.9	17/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH02_T203_2.1	17/08/2018	37	22	<50	<50	<100	<100	<50	<0.2	4.3	1.2	2.5	6.6	9.1	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_T203_2.5	17/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH02_T203_3.1	17/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	0.6	0.6	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_T203_3.8	17/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5

TABLE B11
T101 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		PAHs																		Dissolved Metals								Asbestos Classification - Soil						
		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Zero)	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Naphthalene	Total PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5			0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos																												Yes						
CRC CARE - Maintanence Workers - Direct Contact																																		
CRC CARE Direct Contact																		11000											0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion,																																		
NEPM 2013 Table HIL D																				3000	900		240000	1500	730	6000	400000							
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m																	NL																
	1-2m																	NL																
	2-4m																	NL																
	>4m																	NL																
Field_ID	Sampled Date																																	
TP23_0.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	<0.0004	0.852	<0.001	-	-
TP23_1.6_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_0.2_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	122	35	7	<0.1	112	69	-	-	<0.0004	0.734	<0.001	-	-
TP24_1.4_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP25_0.2_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.8	6.8	<5	<1	43	19	5	<0.1	56	42	-	-	<0.0004	0.808	<0.001	-	-
TP25_0.5_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.815	<0.001	-	-
TP25_1.3_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP26_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.851	<0.001	-	-
TP26_0.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	0.9	<5	<1	3	<5	15	<0.1	<2	<5	-	-	-	-	-	-	-
TP26_1.4_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	37.5	37.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP28_0.2_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	40.8	40.8	<5	<1	75	23	8	<0.1	70	43	-	-	<0.0004	0.912	<0.001	-	-
TP28_0.5_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.918	<0.001	-	-
TP28_1.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	46.2	46.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP29_0.2_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.822	<0.001	-	-
TP29_0.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP29_1.4_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	0.7	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP30_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.888	<0.001	-	-
TP30_0.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	2	<5	6	<0.1	<2	<5	-	-	-	-	-	-	-
TP30_1.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	39.6	39.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP32_0.2_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	24.1	24.1	<5	<1	65	28	20	<0.1	83	56	-	-	<0.0004	0.827	<0.001	-	-
TP32_0.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	5	<0.1	<2	<5	-	-	-	-	-	-	-
TP33_0.2_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	15	15	<5	<1	57	22	8	<0.1	69	45	-	-	<0.0004	0.957	<0.001	-	-
TP33_0.5_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.863	<0.001	-	-
TP33_1.3_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP34_0.1_T1	19/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.821	<0.001	-	-
TP34_0.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP34_1.5_T1	19/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_T101_2.8	15/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH02_T101_2.0	15/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH03_T101_2.0	15/08/2018	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	2.8	<5	<1	2	<5	13	<0.1	<2	5	-	-	-	-	-	-	-
BH03_T101_2.5	15/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_T101_1.8	16/08/2018	<0.5	<0.5	0.6	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	16.3	17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_T101_2.1	16/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3	4.5	19	<1	39	<5	25	<0.1	40	<5	-	-	-	-	-	-	-
BH04_T101_2.4	16/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_T101_2.9	16/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	5	<5	13	<0.1	<2	<5	-	-	-	-	-	-	-
BH05_T101_2.1	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_T101_2.5	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH05_T101_2.8	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_T101_3.5	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH01_T202_3.2	16/08/2018	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	2	3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_T202_3.9	16/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH02_T202_1.8	16/08/2018	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.5	<0.8	<0.8	<0.8	<0.8	<0.5	<5	<1	6	<5	24	<0.1	3	8	-	-	-	-	-	-	-
BH02_T202_2.3	16/08/2018	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.5	<0.8	<0.8	<0.8	<0.8	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_T202_3.3	16/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH01_T203_2.3	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH01_T203_2.5	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_T203_2.9	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH02_T203_2.1	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_T203_2.5	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH02_T203_3.1	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_T203_3.8	17/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-

TABLE B12
T124 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		TRH							BTEXN							Phenols											
		TPH C6-C10	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene	Phenol	2-chlorophenol	2-methylphenol	3-&4-methylphenol	2-nitrophenol	2,4-dimethylphenol	2,4-dichlorophenol	2,6-dichlorophenol	4-chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-trichlorophenol	Pentachlorophenol
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
Investigation Specific Criteria - Asbestos																											
CRC CARE - Maintanence Workers - Direct Contact			82000		62000	85000	120000		1100	120000	85000			130000	29000												
CRC CARE Direct Contact			26000	20000		27000	38000		430	99000	27000			81000	11000												
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion,			NL		NL				77																		
NEPM 2013 Table HIL D																240000											660
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m		260		NL				3	NL	NL				NL												
	1-2m		370		NL				3	NL	NL				NL												
	2-4m		630		NL				3	NL	NL				NL												
	>4m		NL		NL				3	NL	NL				NL												
Field_ID	Sampled Date																										
TP01_0.1_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_1.0_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP01_1.8_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.5_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP02_1.7_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP03_0.1_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP03_1.6_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP04_0.1_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_0.5_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP05_0.1_T124	29/08/2018	<10	<10	<50	<50	220	180	400	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP05_0.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_1.0_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.1_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP06_1.2_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP07_0.1_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.5_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP07_1.6_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP08_0.1_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_1.3_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP09_0.1_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP09_0.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09_1.7_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_1.6_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP11_0.1_T124	29/08/2018	<10	<10	330	330	1180	700	2210	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP11_0.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_1.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12_0.1_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP12_1.6_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP13_0.1_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP13_0.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.2_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP14_1.8_T124	29/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP15_0.5_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2

TABLE B12
T124 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		PAHs																		Dissolved metals								Asbestos Classification - Soil						
		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a)pyrene	Benzo(a)pyrene TEQ calc (zero)	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Naphthalene	Total PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5			0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos																											Yes							
CRC CARE - Maintanence Workers - Direct Contact																																		
CRC CARE Direct Contact																		11000										0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion,																																		
NEPM 2013 Table HIL D																				3000	900		240000	1500	730	6000	400000							
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m																	NL																
	1-2m																	NL																
	2-4m																	NL																
	>4m																	NL																
Field_ID	Sampled Date																																	
TP01_0.1_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.778	<0.001	-	-
TP01_0.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_1.0_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_1.8_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.5_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.816	<0.001	-	-
TP02_1.7_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP03_0.1_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.871	<0.001	-	-
TP03_1.6_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	4	5	-	-	-	-	-	-	-
TP04_0.1_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.931	<0.001	-	-
TP04_0.5_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP05_0.1_T124	29/08/2018	0.7	<0.5	<0.5	1.1	<0.5	1	2.7	0.9	1.3	<0.5	1.1	1.2	1.5	0.5	<0.5	0.9	<0.5	11.4	<5	<1	122	15	11	<0.1	47	92	-	-	-	-	-	-	-
TP05_0.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.773	<0.001	-	-
TP05_1.0_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.1_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.782	<0.001	-	-
TP06_1.2_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP07_0.1_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.677	<0.001	-	-
TP07_0.5_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_1.6_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7	<1	4	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP08_0.1_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.735	<0.001	-	-
TP08_1.3_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP09_0.1_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09_0.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.759	<0.001	-	-
TP09_1.7_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.765	<0.001	-	-
TP10_1.6_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	9	-	-	-	-	-	-	-
TP11_0.1_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	113	36	14	<0.1	78	150	-	-	-	-	-	-	-
TP11_0.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.736	<0.001	-	-
TP11_1.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12_0.1_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	33	185	185	<0.1	27	1940	-	-	<0.0004	0.732	<0.001	-	-
TP12_1.6_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP13_0.1_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	1	26	129	173	<0.1	62	1010	-	-	-	-	-	-	-
TP13_0.5_T124	29/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.838	<0.001	-	-
TP14_0.2_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	20	87	72	<0.1	41	547	Yes	-	0.0273	0.771	0.004	YES	-
TP14_1.8_T124	29/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP15_0.5_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	11	-	-	<0.0004	0.68	<0.001	-	-

TABLE B12
T124 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		TRH							BTEXN							Phenols												
		TPH C6-C10	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene	Phenol	2-chlorophenol	2-methylphenol	3-&4-methylphenol	2-nitrophenol	2,4-dimethylphenol	2,4-dichlorophenol	2,6-dichlorophenol	4-chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-trichlorophenol	Pentachlorophenol
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
Investigation Specific Criteria - Asbestos																												
CRC CARE - Maintanence Workers - Direct Contact			82000		62000	85000	120000		1100	120000	85000			130000	29000													
CRC CARE Direct Contact			26000	20000		27000	38000		430	99000	27000			81000	11000													
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion,			NL		NL				77																			
NEPM 2013 Table HIL D																240000												660
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m		260		NL				3	NL	NL				NL													
	1-2m		370		NL				3	NL	NL				NL													
	2-4m		630		NL				3	NL	NL				NL													
	>4m		NL		NL				3	NL	NL				NL													
Field_ID	Sampled Date																											
TP15_1.9_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_0.1_T124	28/08/2018	<10	<10	<50	<50	1860	730	2590	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP16_2.0_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.1_T124	28/08/2018	<10	<10	<50	<50	350	380	730	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.5_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_1.8_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP18_0.1_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.5_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.5_T124	28/08/2018	<10	<10	<50	<50	110	<100	110	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_1.8_T124	28/08/2018	109	109	6600	6590	4020	290	10,900	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	8	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP19_2.2_T124	28/08/2018	126	126	3310	3300	1710	<100	5020	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	11	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.5_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_0.5_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_1.8_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP22_0.1_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP22_0.5_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP23_0.1_T124	28/08/2018	<10	<10	<50	<50	1240	610	1850	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP23_0.5_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP23_1.0_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_0.1_T124	28/08/2018	<10	<10	<50	<50	230	150	380	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_1.0_T124	28/08/2018	<10	<10	2550	2540	8620	2210	13,400	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	8	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_1.6_T124	28/08/2018	75	75	16,900	16,600	19,000	2600	38,500	<1	<1	<1	<1	<1	<0.5	298	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP25_0.1_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP25_0.5_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP25_1.0_T124	28/08/2018	<10	<10	<50	<50	120	<100	120	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP25_1.8_T124	28/08/2018	<10	<10	3140	3140	2360	160	5660	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP26_0.5_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP26_1.0_T124	28/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP26_1.8_T124	28/08/2018	<10	<10	1350	1350	1720	150	3220	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
BH01_T124_2.5	30/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH02_T124_3.5	30/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_T124_6.0	30/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH03_T124_1.0	30/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_T124_2.0	30/08/2018	**17**	**17**	**1,000**	**1,000**	**730**	<100	**1,730**	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH03_T200_3.5	27/08/2018	**307**	**307**	**310**	**310**	**120**	**130**	**560**	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_T200_5.5	27/08/2018	**231**	**231**	**410**	**410**	**290**	**130**	**830**	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_T124_1.0	30/08/2018	**157**	**156**	**3,190**	**3,190**	**4,610**	<100	**7,800**	<0.2	<0.5	<0.5	**1.1**	<0.5	**1.1**	**1.1**	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_T124_2.0	30/08/2018	**65**	**63**	**22,100**	**21,900**	**10,300**	**1,080**	**33,500**	<1.0	<1.0	**2**	<1.0	<1.0	<0.5	**2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5

TABLE B12
T124 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		PAHs																		Dissolved metals								Asbestos Classification - Soil						
		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (zero)	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Naphthalene	Total PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5			0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos																												Yes						
CRC CARE - Maintanence Workers - Direct Contact																																		
CRC CARE Direct Contact																		11000											0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion,																																		
NEPM 2013 Table HIL D																				3000	900		240000	1500	730	6000	400000							
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m																	NL																
	1-2m																	NL																
	2-4m																	NL																
	>4m																	NL																
Field_ID	Sampled Date																																	
TP15_1.9_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_0.1_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	<0.5	1.2	<0.5	0.5	0.8	0.9	<0.5	<0.5	0.6	<0.5	4.9	<5	<1	20	82	145	0.1	28	735	-	-	<0.0004	0.613	<0.001	-	-
TP16_2.0_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.1_T124	28/08/2018	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.5_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.722	<0.001	-	-
TP17_1.8_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP18_0.1_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.641	<0.001	-	-
TP18_0.5_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.5_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	Yes	-	0.0004	0.658	<0.001	-	-
TP19_1.8_T124	28/08/2018	<0.5	<0.5	16.2	26.2	<0.5	1.2	1.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11.4	57.2	<5	<1	2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP19_2.2_T124	28/08/2018	<0.5	<0.5	7.3	11.8	<0.5	0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	15.3	35.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.61	<0.001	-	-
TP20_0.5_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_0.5_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.749	<0.001	-	-
TP21_1.8_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP22_0.1_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.619	<0.001	-	-
TP22_0.5_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP23_0.1_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.6	<0.5	<0.5	<0.5	<0.5	0.6	<5	<1	37	93	82	<0.1	17	605	-	-	-	-	-	-	-
TP23_0.5_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.628	<0.001	-	-
TP23_1.0_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_0.1_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.31	<0.001	-	-
TP24_1.0_T124	28/08/2018	<0.5	7.2	12.8	31.9	3.7	3.9	5.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	12.5	77.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_1.6_T124	28/08/2018	<0.5	36.7	75.8	184	24.4	18.2	30	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	450	819	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP25_0.1_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.756	<0.001	-	-
TP25_0.5_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP25_1.0_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP25_1.8_T124	28/08/2018	<0.5	2.8	3.7	6.7	<0.5	0.6	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	14.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP26_0.5_T124	28/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.708	<0.001	-	-
TP26_1.0_T124	28/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP26_1.8_T124	28/08/2018	<0.5	1.4	4	6.5	<0.5	0.6	1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	16	<5	<1	24	60	28	<0.1	4	181	-	-	-	-	-	-	-
BH01_T124_2.5	30/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH02_T124_3.5	30/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_T124_6.0	30/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH03_T124_1.0	30/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_T124_2.0	30/08/2018	<0.5	<0.5	**2.1**	**3.1**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.2**	**6.4**	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH03_T200_3.5	27/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_T200_5.5	27/08/2018	<0.5	<0.5	<0.5	**0.5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_T124_1.0	30/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_T124_2.0	30/08/2018	<0.5	<0.5	**98.7**	**112**	<0.5	**1.7**	**3.7**	**2.8**	**5.5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**3.3**	**181**	**427**	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-

TABLE B13
T200/T300 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		TRH							BTEXN							Phenols												
		TPH C6-C10	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene	Phenol	2-chlorophenol	2-methylphenol	3-&4-methylphenol	2-nitrophenol	2,4-dimethylphenol	2,4-dichlorophenol	2,6-dichlorophenol	4-chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-trichlorophenol	Pentachlorophenol
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
Investigation Specific Criteria - Asbestos																												
CRC CARE - Maintanence Workers - Direct Contact			82000		62000	85000	120000		1100	120000	85000			130000	29000													
CRC CARE - Direct Contact Commercial / Industrial Direct Contact			26000	20000		27000	38000		430	99000	27000			81000	11000													
NEPM 2013 Maintanence Workers - HSL for Vapour			NL		NL				77																			
NEPM 2013 Table HIL D																240000												660
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m		260		NL				3	NL	NL				NL													
	1-2m		370		NL				3	NL	NL				NL													
	2-4m		630		NL				3	NL	NL				NL													
	>4m		NL		NL				3	NL	NL				NL													
Field_ID	Sampled Date																											
TP01_0.1_T2	1/08/2018	<10	<10	<50	<50	2060	350	2410	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_1.0_T2	1/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP02_0.5_T2	1/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_1.5_T2	1/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.1_T2	1/08/2018	<10	<10	<50	<50	130	<100	130	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP04_0.1_T2	1/08/2018	<10	<10	<50	<50	240	<100	240	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_2.1_T2	1/08/2018	<10	<10	120	120	820	<100	940	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP05_0.1_T2	1/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.5_T2	1/08/2018	<10	<10	<50	<50	4610	2920	7530	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.4_T2	1/08/2018	<10	<10	16,700	16,700	113,000	20,800	150,000	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	9	<4	<4	<4	<8	<4	<4	<4	<4	<4	<4	<4	<4	<8
TP06_0.5_T2	1/08/2018	<10	<10	<50	<50	160	<100	160	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP07_0.1_T2	1/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.5_T2	1/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.1_T2	1/08/2018	251	248	<50	<50	2100	4000	6100	<0.2	<0.5	<0.5	<0.5	3.2	3.2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.5_T2	1/08/2018	265	248	<110	<110	6510	8290	14,800	1.6	1.5	2.2	1.4	10.1	11.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP09_0.1_T2	1/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09_0.5_T2	1/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1_T2	1/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP10_1.7_T2	1/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.1_T2	1/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.5_T2	1/08/2018	<10	<10	<50	<50	870	430	1300	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12_0.1_T2	1/08/2018	<10	<10	2500	2500	5150	350	8000	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12_0.5_T2	1/08/2018	58	58	2200	2200	4890	640	7730	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	2	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP12_1.5_T2	1/08/2018	60	60	330	330	1600	320	2250	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP12_2.5_T2	1/08/2018	43	42	880	880	900	<100	1780	<0.2	<0.5	0.7	<0.5	<0.5	<0.5	4	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP13_0.1_T2	2/08/2018	<10	<10	140	140	1200	800	2140	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP13_0.5_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP13_2.0_T2	2/08/2018	68	66	300	300	<100	<100	300	<0.2	<0.5	<0.5	<0.5	1.5	1.5	2	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.2_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.5_T2	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.1_T2	2/08/2018	<10	<10	<50	<50	130	<100	130	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_1.0_T2	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2

TABLE B13
T200/T300 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		PAHs																		Dissolved metals								Asbestos Classification - Soil						
		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Zero)	Indeno(1,2,3-c,d)pyrene	Dibenz(a,.h)anthracene	Benzo(g,h,i)perylene	Naphthalene	Total PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5			0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos																											Yes							
CRC CARE - Maintanence Workers - Direct Contact																																		
CRC CARE - Direct Contact Commercial / Industrial Direct Contact																		11000										0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour																																		
NEPM 2013 Table HIL D																				3000	900		240000	1500	730	6000	400000							
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m																	NL																
	1-2m																	NL																
	2-4m																	NL																
	>4m																	NL																
Field_ID	Sampled Date																																	
TP01_0.1_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.613	<0.001	-	-
TP01_1.0_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP02_0.5_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.803	<0.001	-	-
TP02_1.5_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.1_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	6	<5	16	<0.1	2	48	-	-	<0.0004	0.603	<0.001	-	-
TP04_0.1_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.77	<0.001	-	-
TP04_2.1_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	10	<5	<5	<0.1	<2	26	-	-	-	-	-	-	-
TP05_0.1_T2	1/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.608	<0.001	-	-
TP05_0.5_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.4_T2	1/08/2018	6.4	27.2	45.8	192	31.2	48.8	234	96.7	158	7.8	32.8	68.8	92.4	4.4	7.7	19.1	21.9	1000	<5	<1	4	11	7	<0.1	<2	59	-	-	-	-	-	-	-
TP06_0.5_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	62	-	-	-	-	-	-	-
TP07_0.1_T2	1/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.645	<0.001	-	-
TP07_0.5_T2	1/08/2018	<0.5	<0.5	<0.5	1.2	<0.5	0.6	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.1_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.704	<0.001	-	-
TP08_0.5_T2	1/08/2018	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.4	<5	<1	12	65	44	0.2	4	502	-	-	-	-	-	-	-
TP09_0.1_T2	1/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.744	<0.001	-	-
TP09_0.5_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.776	<0.001	-	-
TP10_0.1_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	3	<5	7	<0.1	<2	49	-	-	<0.0004	0.898	<0.001	-	-
TP10_1.7_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.1_T2	1/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.764	<0.001	-	-
TP11_0.5_T2	1/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12_0.1_T2	1/08/2018	<0.5	3	<0.5	<0.5	<0.5	2.7	9.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	15.3	-	-	-	-	-	-	-	-	-	-	<0.0004	0.644	<0.001	-	-
TP12_0.5_T2	1/08/2018	<0.5	3.2	2.4	8.7	2	1.4	5.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.6	26.7	<5	<1	2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP12_1.5_T2	1/08/2018	<0.5	<0.5	0.6	1.6	0.9	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	5	<5	<1	4	14	6	1.1	6	50	-	-	-	-	-	-	-
TP12_2.5_T2	1/08/2018	<0.5	0.6	1.1	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4.6	8.3	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP13_0.1_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	53	35	8	0.1	40	110	-	-	-	-	-	-	-
TP13_0.5_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.717	<0.001	-	-
TP13_2.0_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.6	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.2_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.771	<0.001	-	-
TP14_0.5_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.1_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.73	<0.001	-	-
TP15_1.0_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	2	29	-	-	-	-	-	-	-

TABLE B13
T200/T300 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		TRH							BTEXN							Phenols												
		TPH C6-C10	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene	Phenol	2-chlorophenol	2-methylphenol	3-&4-methylphenol	2-nitrophenol	2,4-dimethylphenol	2,4-dichlorophenol	2,6-dichlorophenol	4-chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-trichlorophenol	Pentachlorophenol
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
Investigation Specific Criteria - Asbestos																												
CRC CARE - Maintanence Workers - Direct Contact			82000		62000	85000	120000		1100	120000	85000			130000	29000													
CRC CARE - Direct Contact Commercial / Industrial Direct Contact			26000	20000		27000	38000		430	99000	27000			81000	11000													
NEPM 2013 Maintanence Workers - HSL for Vapour			NL		NL				77																			
NEPM 2013 Table HIL D																240000												660
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m		260		NL				3	NL	NL				NL													
	1-2m		370		NL				3	NL	NL				NL													
	2-4m		630		NL				3	NL	NL				NL													
	>4m		NL		NL				3	NL	NL				NL													
Field_ID	Sampled Date																											
TP16_0.5_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_1.0_T2	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_2.2_T2	2/08/2018	<10	<10	680	680	650	<100	1330	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP17_0.2_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_2.2_T2	2/08/2018	52	50	3650	3650	3630	<100	7280	<0.2	<0.5	<0.5	<0.5	1.6	1.6	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.1_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.5_T2	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP18_2.1_T2	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.1_T2	2/08/2018	11	11	<50	<50	390	100	490	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	4	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP19_0.5_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_2.1_T2	2/08/2018	<10	<10	<50	<50	610	<100	610	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP20_0.1_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.5_T2	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_1.0_T2	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP21_0.1_T2	2/08/2018	<10	<10	<50	<50	400	<100	400	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_0.5_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_2.0_T2	2/08/2018	<10	<10	50	50	920	<100	970	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP22_0.1_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP22_0.5_T2	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP22_2.1_T2	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP23_0.1_T3	2/08/2018	<10	<10	<50	<50	2520	910	3430	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP23_2.0_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_0.1_T3	2/08/2018	<10	<10	<50	<50	260	130	390	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_0.5_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_1.9_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP25_0.2_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP25_0.5_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP26_0.1_T3	2/08/2018	<10	<10	<50	<50	900	590	1490	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP26_1.0_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP27_0.1_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP27_2.0_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP28_0.5_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP29_0.2_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP29_0.5_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP30_0.1_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP30_0.5_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP30_2.0_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP31_0.5_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP31_2.2_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP32_0.2_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP32_0.5_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP32_1.0_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP33_0.2_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP33_0.5_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP33_1.9_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP34_0.1_T3	2/08/2018	<10	<10	<50	<50	110	130	240	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP34_2.4_T3	2/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2

TABLE B13
T200/T300 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		PAHs																		Dissolved metals								Asbestos Classification - Soil						
		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Zero)	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Naphthalene	Total PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5			0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos																												Yes						
CRC CARE - Maintanence Workers - Direct Contact																																		
CRC CARE - Direct Contact Commercial / Industrial Direct Contact																		11000											0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour																																		
NEPM 2013 Table HIL D																				3000	900		240000	1500	730	6000	400000							
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m																	NL																
	1-2m																	NL																
	2-4m																	NL																
	>4m																	NL																
Field_ID	Sampled Date																																	
TP16_0.5_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.7	<0.001	-	-
TP16_1.0_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_2.2_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	5	26	63	<0.1	<2	421	-	-	-	-	-	-	-
TP17_0.2_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.838	<0.001	-	-
TP17_2.2_T2	2/08/2018	<0.5	6	13.1	41.8	<0.5	3.2	4.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	68.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.1_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.715	<0.001	-	-
TP18_0.5_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP18_2.1_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.1_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	40	66	98	0.4	12	639	-	-	-	-	-	-	-
TP19_0.5_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.554	<0.001	-	-
TP19_2.1_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	20	-	-	-	-	-	-	-
TP20_0.1_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.855	<0.001	-	-
TP20_0.5_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_1.0_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP21_0.1_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_0.5_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.522	<0.001	-	-
TP21_2.0_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP22_0.1_T2	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.614	<0.001	-	-
TP22_0.5_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP22_2.1_T2	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP23_0.1_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	12	<1	48	705	440	0.1	27	2830	-	-	<0.0004	0.729	<0.001	-	-
TP23_2.0_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_0.1_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP24_0.5_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.839	<0.001	-	-
TP24_1.9_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	7	-	-	-	-	-	-	-
TP25_0.2_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.836	<0.001	-	-
TP25_0.5_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP26_0.1_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.872	<0.001	-	-
TP26_1.0_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	5	<5	<5	<0.1	4	6	-	-	-	-	-	-	-
TP27_0.1_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	<1	54	41	33	<0.1	6	328	-	-	<0.0004	0.759	<0.001	-	-
TP27_2.0_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP28_0.5_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.748	<0.001	-	-
TP29_0.2_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.781	<0.001	-	-
TP29_0.5_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	23	-	-	-	-	-	-	-
TP30_0.1_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.763	<0.001	-	-
TP30_0.5_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP30_2.0_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	5	<5	<5	<0.1	<2	18	-	-	-	-	-	-	-
TP31_0.5_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.698	<0.001	-	-
TP31_2.2_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP32_0.2_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.844	<0.001	-	-
TP32_0.5_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP32_1.0_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP33_0.2_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	7	10	13	<0.1	2	94	-	-	-	-	-	-	-
TP33_0.5_T3	2/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.715	<0.001	-	-
TP33_1.9_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP34_0.1_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.662	<0.001	-	-
TP34_2.4_T3	2/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-

TABLE B13
T200/T300 Area - Soil Analytical Results

		TRH							BTEXN							Phenols												
		TPH C6-C10	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene	Phenol	2-chlorophenol	2-methylphenol	3-&4-methylphenol	2-nitrophenol	2,4-dimethylphenol	2,4-dichlorophenol	2,6-dichlorophenol	4-chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-trichlorophenol	Pentachlorophenol
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
Investigation Specific Criteria - Asbestos																												
CRC CARE - Maintanence Workers - Direct Contact			82000		62000	85000	120000		1100	120000	85000			130000	29000													
CRC CARE - Direct Contact Commercial / Industrial Direct Contact			26000	20000		27000	38000		430	99000	27000			81000	11000													
NEPM 2013 Maintanence Workers - HSL for Vapour			NL		NL				77																			
NEPM 2013 Table HIL D																240000												660
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m		260		NL				3	NL	NL				NL													
	1-2m		370		NL				3	NL	NL				NL													
	2-4m		630		NL				3	NL	NL				NL													
	>4m		NL		NL				3	NL	NL				NL													
Field_ID	Sampled Date																											
TP35_0.2_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP35_1.0_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP36_0.2_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP36_0.5_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP36_1.8_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP37_0.2_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP37_0.5_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP37_2.1_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP38_0.5_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP39_0.2_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP39_0.5_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP39_1.8_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP40_0.2_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP40_0.5_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP40_1.7_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP41_0.2_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP41_1.0_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP42_0.2_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP42_0.5_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP43_0.2_T3	3/08/2018	<10	<10	<50	<50	520	210	730	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP43_2.3_T3	3/08/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP44_0.2_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP44_0.5_T3	3/08/2018	<10	<10	<50	<50	2020	510	2530	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP45_0.2_T3	3/08/2018	<10	<10	670	670	11,300	2670	14,600	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TP45_0.5_T3	3/08/2018	<10	<10	110	110	2890	450	3450	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP45_1.7_T3	3/08/2018	<10	<10	80	80	1440	350	1870	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE B13
T200/T300 Area - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		PAHs																		Dissolved metals								Asbestos Classification - Soil						
		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(k,)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Zero)	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Naphthalene	Total PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5			0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos																												Yes						
CRC CARE - Maintanence Workers - Direct Contact																																		
CRC CARE - Direct Contact Commercial / Industrial Direct Contact																		11000											0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour																																		
NEPM 2013 Table HIL D																				3000	900		240000	1500	730	6000	400000							
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m																	NL																
	1-2m																	NL																
	2-4m																	NL																
	>4m																	NL																
Field_ID	Sampled Date																																	
TP35_0.2_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.711	<0.001	-	-
TP35_1.0_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP36_0.2_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.682	<0.001	-	-
TP36_0.5_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP36_1.8_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP37_0.2_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	<1	42	108	231	<0.1	20	1570	-	-	-	-	-	-	-
TP37_0.5_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.803	<0.001	-	-
TP37_2.1_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP38_0.5_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP39_0.2_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP39_0.5_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.794	<0.001	-	-
TP39_1.8_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP40_0.2_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.88	<0.001	-	-
TP40_0.5_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	7	7	-	-	-	-	-	-	-
TP40_1.7_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP41_0.2_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.73	<0.001	-	-
TP41_1.0_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP42_0.2_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP42_0.5_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.608	<0.001	-	-
TP43_0.2_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.724	<0.001	-	-
TP43_2.3_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	4	11	20	<0.1	2	182	-	-	-	-	-	-	-
TP44_0.2_T3	3/08/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.704	<0.001	-	-
TP44_0.5_T3	3/08/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP45_0.2_T3	3/08/2018	<0.5	<0.5	<0.5	9.9	<0.5	4.9	2.7	0.6	3.3	<0.5	1.6	0.9	1.2	<0.5	<0.5	0.6	<0.5	24.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP45_0.5_T3	3/08/2018	<0.5	<0.5	<0.5	2.1	<0.5	0.8	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.5	<5	<1	3	<5	<5	<0.1	<2	11	-	-	<0.0004	0.831	<0.001	-	-
TP45_1.7_T3	3/08/2018	<0.5	<0.5	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE B14
Asbestos Cell - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		TRH							BTEXN							Phenols												
		TPH C6-C10	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene	Phenol	2-chlorophenol	2-methylphenol	3-&4-methylphenol	2-nitrophenol	2,4-dimethylphenol	2,4-dichlorophenol	2,6-dichlorophenol	4-chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-trichlorophenol	Pentachlorophenol
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
Investigation Specific Criteria - Asbestos																												
CRC CARE - Maintanence Workers - Direct Contact			82000		62000	85000	120000		1100	120000	85000			1E+05	29000													
CRC CARE - Direct Contact Commercial / Industrial Direct Contact			26000	20000		27000	38000		430	99000	27000			81000	11000													
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion, Sand, 0 to <2m			NL		NL				77																			
NEPM 2013 Table HIL D																240000												660
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m		260		NL				3	NL	NL				NL													
	1-2m		370		NL				3	NL	NL				NL													
	2-4m		630		NL				3	NL	NL				NL													
	>4m		NL		NL				3	NL	NL				NL													
Field_ID	Sampled Date																											
BH01_0.3_AC	30/05/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_1.0_AC	30/05/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_1.5_AC	30/05/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_2.0_AC	30/05/2018	5580	3870	<50	<50	<100	<100	<50	<1	208	211	313	982	1300	24	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
BH02_0.2_AC	30/05/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.3_AC	30/05/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.3_AC	30/05/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.5_AC	30/05/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_1.5_AC	30/05/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_2.0_AC	30/05/2018	<10	<10	340	340	3140	460	3940	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
BH05_3.0_AC	30/05/2018	<10	<10	70	70	1010	180	1260	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE B14
Asbestos Cell - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		PAHs																		Dissolved metals								Asbestos Classification - Soil						
		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Zero)	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Naphthalene	Total PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5			0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos																												Yes						
CRC CARE - Maintanence Workers - Direct Contact																																		
CRC CARE - Direct Contact Commercial / Industrial Direct Contact																		11000											0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion, Sand, 0 to <2m																																		
NEPM 2013 Table HIL D																				3000	900		240000	1500	730	6000	400000							
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m																	NL																
	1-2m																	NL																
	2-4m																	NL																
	>4m																	NL																
Field_ID	Sampled Date																																	
BH01_0.3_AC	30/05/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_1.0_AC	30/05/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_1.5_AC	30/05/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.723	<0.001	-	-
BH01_2.0_AC	30/05/2018	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.7	3.4	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH02_0.2_AC	30/05/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.3_AC	30/05/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.3_AC	30/05/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.5_AC	30/05/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_1.5_AC	30/05/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.769	<0.001	-	-
BH05_2.0_AC	30/05/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
BH05_3.0_AC	30/05/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE B15
T282/283 - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		Asbestos Classification - Soil						
		Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL				0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos		Yes						
CRC CARE - Maintanence Workers - Direct Contact								
CRC CARE - Direct Contact Commercial / Industrial Direct Contact			0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion, Sand, 0 to <2m								
NEPM 2013 Table HIL D								
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m							
	1-2m							
	2-4m							
	>4m							
Field_ID	Sampled Date							
SS01	15/06/2018	-	-	<0.0004	0.844	<0.001	-	-
SS02	15/06/2018	-	-	<0.0004	0.78	<0.001	-	-
SS03	15/06/2018	-	-	<0.0004	0.769	<0.001	-	-
SS04	15/06/2018	-	-	<0.0004	0.765	<0.001	-	-
SS05	15/06/2018	-	-	<0.0004	0.694	<0.001	-	-
SS06	15/06/2018	-	-	<0.0004	0.838	<0.001	-	-

TABLE B16
LPG Interchange - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		TRH							BTEXN							Phenols												
		TPH C6-C10	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene	Phenol	2-chlorophenol	2-methylphenol	3-&4-methylphenol	2-nitrophenol	2,4-dimethylphenol	2,4-dichlorophenol	2,6-dichlorophenol	4-chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-trichlorophenol	Pentachlorophenol
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
Investigation Specific Criteria - Asbestos																												
CRC CARE - Maintanence Workers - Direct Contact			82000		62000	85000	120000		1100	120000	85000			130000	29000													
CRC CARE - Direct Contact Commercial / Industrial Direct Contact			26000	20000		27000	38000		430	99000	27000			81000	11000													
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion, Sand, 0 to <2m			NL		NL				77																			
NEPM 2013 Table HIL D																240000												660
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m		260		NL				3	NL	NL				NL													
	1-2m		370		NL				3	NL	NL				NL													
	2-4m		630		NL				3	NL	NL				NL													
	>4m		NL		NL				3	NL	NL				NL													
Field_ID	Sampled Date																											
TP01_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.1_LPG	24/07/2018	<10	<10	<50	<50	260	<100	260	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP02_1.7_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP03_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP03_1.5_LPG	23/07/2018	<10	<10	1660	1660	5810	740	8210	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP04_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP04_1.5_LPG	23/07/2018	<10	<10	<50	<50	120	<100	120	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP05_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP05_0.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.5_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_1.8_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP07_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP07_0.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.1_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP08_1.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP09_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP09_0.5_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09_1.3_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP10_0.5_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_1.3_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.1_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP11_1.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP12_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP13_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP13_1.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.2_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2

TABLE B16
LPG Interchange - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		PAHs																		Dissolved metals								Asbestos Classification - Soil						
		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a) pyrene	Benzo(a)pyrene TEQ (zero)	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Naphthalene	Total PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5			0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos																												Yes						
CRC CARE - Maintanence Workers - Direct Contact																																		
CRC CARE - Direct Contact Commercial / Industrial Direct Contact																		11000											0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion, Sand, 0 to <2m																																		
NEPM 2013 Table HIL D																				3000	900		240000	1500	730	6000	400000							
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m																	NL																
	1-2m																	NL																
	2-4m																	NL																
	>4m																	NL																
Field_ID	Sampled Date																																	
TP01_0.1_LPG	23/07/2018	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.842	<0.001	-	-
TP01_0.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.1_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.718	<0.001	-	-
TP02_1.7_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP03_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.869	<0.001	-	-
TP03_0.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP03_1.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP04_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<1	-	-	-	-	-	-	-	-	<0.0004	0.741	<0.001	-	-
TP04_1.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP05_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	6	18	11	0.1	17	130	Yes	-	0.021	0.908	0.002	Yes	-
TP05_0.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.906	<0.001	-	-
TP06_0.5_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_1.8_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP07_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	4	9	18	<0.1	3	146	-	-	<0.0004	0.833	<0.001	-	-
TP07_0.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.1_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.795	<0.001	-	-
TP08_0.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_1.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP09_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.807	<0.001	-	-
TP09_0.5_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.656	<0.001	-	-
TP09_1.3_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	2	34	-	-	<0.0004	0.686	<0.001	-	-
TP10_0.5_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.68	<0.001	-	-
TP10_1.3_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.1_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.726	<0.001	-	-
TP11_0.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_1.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP12_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	40	252	336	0.7	10	2980	-	-	<0.0004	0.756	<0.001	-	-
TP13_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	23	100	128	3.4	37	1130	-	-	<0.0004	0.746	<0.001	-	-
TP13_1.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.2_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.864	<0.001	-	-
TP14_0.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-

TABLE B16
LPG Interchange - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		TRH							BTEXN							Phenols												
		TPH C6-C10	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene	Phenol	2-chlorophenol	2-methylphenol	3-&4-methylphenol	2-nitrophenol	2,4-dimethylphenol	2,4-dichlorophenol	2,6-dichlorophenol	4-chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-trichlorophenol	Pentachlorophenol
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
Investigation Specific Criteria - Asbestos																												
CRC CARE - Maintanence Workers - Direct Contact			82000		62000	85000	120000		1100	120000	85000			130000	29000													
CRC CARE - Direct Contact			26000	20000		27000	38000		430	99000	27000			81000	11000													
Commercial / Industrial Direct Contact																												
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion, Sand, 0 to <2m			NL		NL				77																			
NEPM 2013 Table HIL D																240000												660
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m		260		NL				3	NL	NL				NL													
	1-2m		370		NL				3	NL	NL				NL													
	2-4m		630		NL				3	NL	NL				NL													
	>4m		NL		NL				3	NL	NL				NL													
Field_ID	Sampled Date																											
TP15_0.1_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_1.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP16_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP16_0.5_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.1_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_1.8_LPG	23/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP18_0.1_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.5_LPG	24/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_1.6_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP19_0.1_LPG	24/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.5_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP19_1.6_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_1.8_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_0.1_LPG	24/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_0.5_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_1.7_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP22_0.1_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP22_1.8_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP23_0.1_LPG	24/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP23_0.5_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
TP23_1.8_LPG	24/07/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH0.1_0.5_LPG	31/10/2018	<10	<10	<50	<50	**110**	<100	**110**	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH0.2_0.5_LPG	31/10/2018	<10	<10	**60**	**60**	**120**	<100	**180**	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5
BH0.2_1.5_LPG	31/10/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH0.3_0.5_LPG	31/10/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH0.3_1.5_LPG	31/10/2018	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<2	<0.5

TABLE B16
LPG Interchange - Soil Analytical Results

Caltex Australia Petroleum
Caltex Terminal Kurnell

		PAHs																		Dissolved metals								Asbestos Classification - Soil						
		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Zero)	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Naphthalene	Total PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos Detection	ACM >7mm in field (w/w%)	Asbestos (Fines and Fibrous <7mm)	Soil Sample Weight	Asbestos (Fines and Fibrous FA+AF)	All forms in surface soil (<0.1m)	Trace Fibres
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Yes/No	% (w/w)	g	kg	% (w/w)	-	-
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5			0.0004	0.0001			5 Fibres
Investigation Specific Criteria - Asbestos																												Yes						
CRC CARE - Maintanence Workers - Direct Contact																																		
CRC CARE - Direct Contact Commercial / Industrial Direct Contact																		11000											0.05%			0.001%	Yes/No	
NEPM 2013 Maintanence Workers - HSL for Vapour Intrusion, Sand, 0 to <2m																																		
NEPM 2013 Table HIL D																				3000	900		240000	1500	730	6000	400000							
NEPM 2013 HSL D for Vapour Intrusion, Sand	0-1m																	NL																
	1-2m																	NL																
	2-4m																	NL																
	>4m																	NL																
Field_ID	Sampled Date																																	
TP15_0.1_LPG	23/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.965	<0.001	-	-
TP15_0.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_1.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP16_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	8	15	15	0.4	9	379	-	-	<0.0004	0.752	<0.001	-	-
TP16_0.5_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.1_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.757	<0.001	-	-
TP17_1.8_LPG	23/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP18_0.1_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.923	<0.001	-	-
TP18_0.5_LPG	24/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.851	<0.001	-	-
TP18_1.6_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP19_0.1_LPG	24/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.668	<0.001	-	-
TP19_0.5_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP19_1.6_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.806	<0.001	-	-
TP20_1.8_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_0.1_LPG	24/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.789	<0.001	-	-
TP21_0.5_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP21_1.7_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-
TP22_0.1_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	<0.0004	0.876	<0.001	-	-
TP22_1.8_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP23_0.1_LPG	24/07/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.555	<0.001	-	-
TP23_0.5_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	<0.0004	0.686	<0.001	-	-
TP23_1.8_LPG	24/07/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH0.1_0.5_LPG	31/10/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	**5**	<5	<5	<0.1	**2**	<5	-	-	<0.0004	0.692	<0.001	-	-
BH0.2_0.5_LPG	31/10/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	**17**	**15**	**36**	**0.4**	**6**	**25**	-	-	-	-	-	-	-
BH0.2_1.5_LPG	31/10/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.768	<0.001	-	-
BH0.3_0.5_LPG	31/10/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0004	0.622	<0.001	-	-
BH0.3_1.5_LPG	31/10/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-

Appendix C - Historical analytical results

3.0 Report details

Report Title:	Quarterly Groundwater Monitoring, Ampol Kurnell Terminal Q4 November 2023
Author:	WSP
Report Date:	4 March 2024

BOTANY BAY

Prince Charles Parade

Cape Solander Drive

Muru Trail

Gannon Street

Polo Street

Cook Street

Sharn Street

Reserve Road

Silver Beach Road

Dampier Street

Torres Street

Captain Cook Drive

Bridges Street

Solander Street

Tasman Street

Cooling Water Right of Way

Pipeline Right of Way

North Western Tank Farm

MARTON PARK

Contractors Carpark

Former LPG area

Administration Area

Western Tank Farm

Former Fuels Refinery

Eastern Tank Farm

Land Farm Area

Former Caltex Lubricating Oil Refinery

Former Fire Training Area

On-site wetland and natural retention basin

R.P.I.P Mountain

Vacant land

Chisholm Road

Clerke Place

Tabbigai Gap Trail

Cape Baily Track

Sir Joseph Banks Drive

Potter Point Road

PMW59 PMW58 PMW18 PMW19 PMW35 PMW29 PMW24 PMW01 PMW04 PMW27 PMW23 PMW40 PMW62 PMW26 PMW63 PMW02 PMW25 PMW36 PMW48 PMW34 PMW43 PMW47 PMW88 PMW75 PMW03 PMW98 PMW55 PMW44 PMW17 PMW56 PMW22 PMW45 PMW43 PMW05 PMW11 PMW06 PMW21 PMW54 PMW65 PMW66 PMW15 PMW20 PMW14 PMW07 PMW39 PMW61 PMW60 PMW08 PMW42 PMW53 PMW30 PMW51 PMW50 PMW57 PMW38 PMW10 PMW49 PMW64 PMW91 PMW92 PMW33 PMW32 PMW31

PU36 PU35 PU34 PU40 PU39 PU37 PU38 PU41 PU44 PU45 PU52 PU58 PU31 PU33 PU32 PU57 PU56 PU21 PU22 PU16 PU30 PU13 PU12 PU15 PU46 PU66 PU85 PU86 PU23 PU24 PU84 PU29 PU64 PU67 PU20 PU25 PU87 PU26 PU82 PU83 PU78 PU62 PU81 PU10 PU69 PU68 PU27 PU28 PU63 PU79 PU80 PU51 PU07 PU99 PU08 PU100 PU101 PU09 PU103 PU104 PU02 PU01 PU76 PU75 PU74 PU61 PU108 PU60 PU59 PU105 PU102 PU06 PU110 PU109 PU04 PU05 PU111 PU17 PU19 PU77 PU98 PU97 PU72 PU96 PU71 PU95 PU70 PU48 PU94 PU49 PU50 PU47 PU73 PU53 PU54 PU86 PU87 PU89 PU72 PU85 PU71 PU55 PU73 PU65 PU93 PU92 PU88 PU91 PU90 PU89 PU11 PU14

PP01 PP03 PP05 PP04 PP07 PP08 PP09 PP11 PP12 PP13 PP17 PP10 PP02

W22 W21 W20 W19 W18 W17 W16 W15 W14 W13 W12 W11 W10 W09

AMW11 AMW07 AMW08 AMW09 AMW10

OMW01 OMW02 OMW03 OMW04A OMW12 OMW11 OMW05 OMW08 OMW06 OMW07 OMW09 OMW10

CMW05 CMW07 CMW04 CMW06 CMW08 CMW09 CMW10 CMW11 CMW12 CMW03 CMW14 CMW15 CMW16 CLOR1 BP01

CMW22 CMW01 CMW19 CMW29 CMW30 CMW31 CMW02 CMW32

CPMW01 CPMW02 CPMW07 CPMW06 CPMW05 CPMW03 CPMW04

OB22 OB23

Monitoring location

Roads

Site areas

Terminal boundary

0 100 200

Meters

Scale: 1:8,500

Coordinate system: GDA2020 MGA Zone 56

Scale ratio correct when printed at A3

Author: J.Hockey | QA:

Date: 22/01/2024

Data sources: Ampol, Nearmap, NSW Spatial Services

EARLWOOD MASCOT MAROUBRA ROCKDALE HURSTVILLE BOTANY BAY LITTLE BAY CARINGBAH PORT HACKING BUNDEENA

AMPOL

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Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Figure 1

Sitewide Ampol Kurnell Terminal Location Plan, Q4 2023

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BOTANY BAY

MARTON PARK

Pipeline Right of Way

Cooling Water Right of Way

North Western Tank Farm

Contractors Carpark

Former LPG area

Administration Area

Former Caltex Lubricating Oil Refinery

Former Fire Training Area

Former Fuels Refinery

Western Tank Farm

Eastern Tank Farm

Land Farm Area

On-site wetland and natural retention basin

R.P.I.P Mountain

Vacant land

Prince Charles Parade

Torres Street

Bridges Street

Tasman Street

Captain Cook Drive

Solander Street

Silver Beach Road

Cook Street

Gannon Street

Polo Street

Cape Solander Drive

Muru Trail

Shorn Street

Dampier Street

Chisholm Road

Clerke Place

Tabbigai Gap Trail

Sir Joseph Banks Drive

Potter Point Road

Cape Baily Track

PMW59 PMW58 PMW18 PMW19 PMW35 PMW29 PMW24 PMW01 PMW04 PMW23 PU40 PMW27 PMW26 PU39 PMW62 PU37 PU38 PMW63 PMW02 PU41 PMW25 PMW36 PMW48 PU43 PMW34 PU44 PU52 PU45 PMW47 PMW88 PMW75 PMW22 PMW45 PMW03 PMW98 PMW55 PMW44 PMW17 PMW56 PMW43 PMW05 PMW11 PU58 PMW06 PU31 PU33 OB22 PMW21 OB23 PMW54 PU32 PU57 PMW65 PMW66 PMW15 PU56 PMW20 PP01 PU10 PU13 PU30 PU12 AMW11 PU15 W22 W21 PU46 PU66 PMW14 PU21 PU22 PP03 PU16 PU85 PU86 PP05 PU23 PU24 PU29 PU84 PP06 PU64 PU87 PU67 PMW07 PP04 PU20 PU25 PU26 PU82 PU83 PU17 PP07 PU19 PP08 PU78 PU62 PU81 PU18 PP09 PU27 PU28 PP10 PU69 W08 PU68 PU63 PU79 PU80 PU51 PU07 PU99 PU08 PU100 PU101 PU09 PU103 PU104 PU02 PU01 PU76 PU75 PU03 PP11 PU61 PU108 PU60 PU59 PU105 PU102 PU74 PU06 PU110 PP12 PU109 PU04 PP13 PU05 PU111 PMW61 PMW60 PMW39 2.5 3.5 4.5 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5 13.5 14.5 15.5

OMW01 OMW02 OMW03 OMW04A OMW11 OMW12 OMW05 OMW08 OMW06 OMW07 OMW09 OMW10 PMW40 PMW41 PMW42 PP17 PU77 PMW33 PMW32 PMW31 PMW08 PMW91 PMW92 CMW05 CMW07 CMW04 CMW06 CMW08 PMW53 CMW09 CMW10 CMW11 CMW12 PMW30 CMW14 CMW03 CMW15 PMW51 PMW50 PMW57 CMW16 PMW38 PMW10 CLOR1 PMW49 BP01 PMW64 CPMW01 CPMW02 CPMW07 CPMW06 CPMW05 CPMW03 CPMW04

PMW74 PMW46 PMW37 PMW86 PU54 PU53 PMW87 PMW71 PMW85 PMW89 PMW69 PMW95 PMW76 PMW72 PMW94 PMW93 PMW70 PU55 PMW73 PMW16 PMW78 PMW81 PMW68 PMW79 PMW97 PMW90 PMW67 PMW96 PMW77 PMW80

PU65 PU93 PU92 PU88 AMW09 AMW07 AMW08 PU91 PP02 AMW10 PU90 PU89 PU11 PU14

W20 PU73 W19 W18 W17 W16 PU98 W15 PU97 PU47 PU72 W14 PU96 PU71 W13 PU95 W12 PU70 W11 PU94 PU48 W10 PU49 W09 PU50

CMW22 CMW01 CMW19 CMW29 CMW30 CMW31 CMW02 CMW32

Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Figure 2
Sitewide Groundwater Contour Plan, Q4 2023

- Monitoring location
- Groundwater elevation contours (m AHD)
- Roads
- Site areas
- Terminal boundary

0 100 200
Meters
Scale: 1:8,500

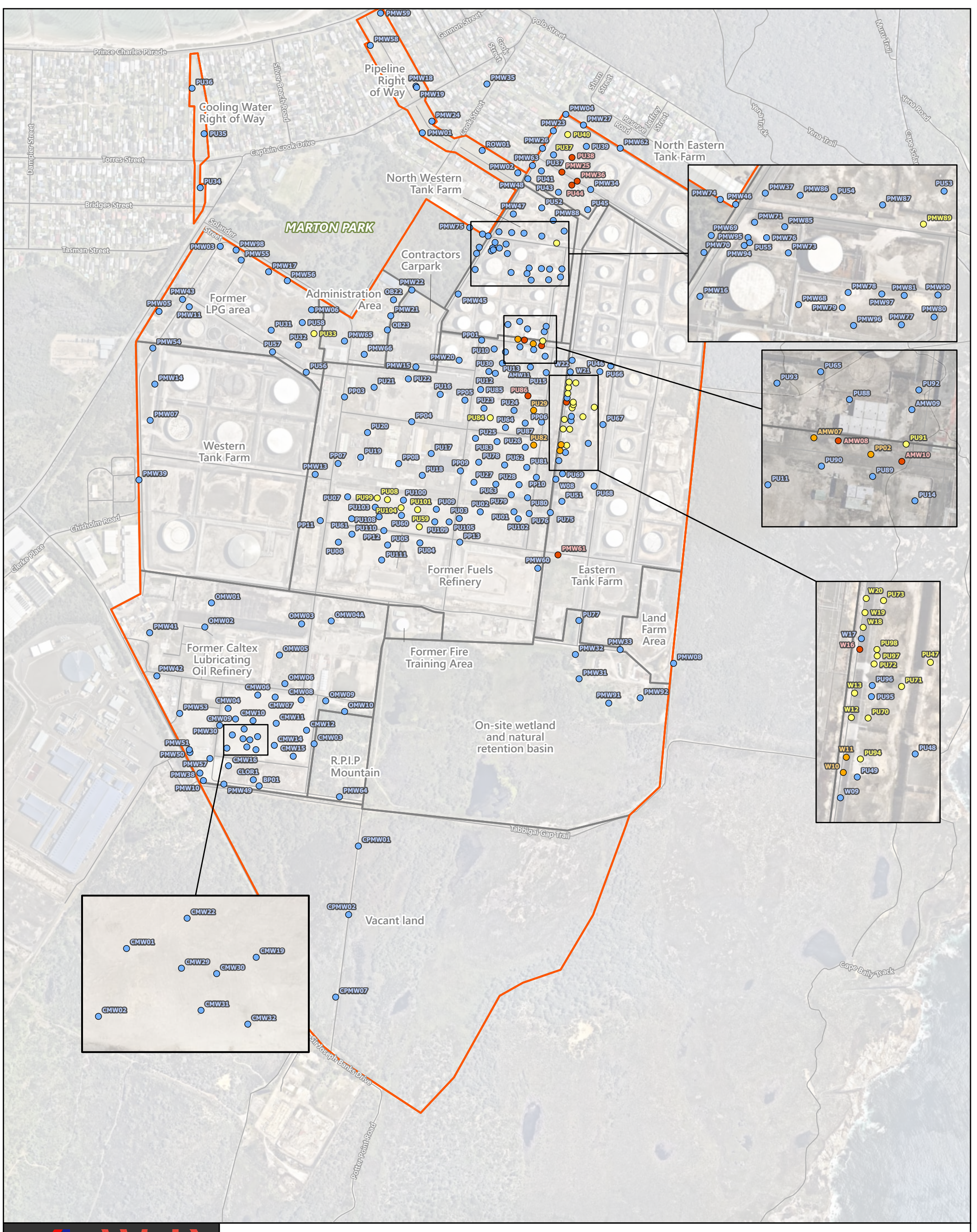
Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A3
Author: J.Hockey | QA:
Date: 18/01/2024

Data sources: Ampol, Nearmap, NSW Spatial Services

EARLWOOD MASCOT MARRICKVILLE ROCKDALE HURSTVILLE BOTANY BAY LITTLE BAY CARINGBAH PORT HACKING BUNDEENA

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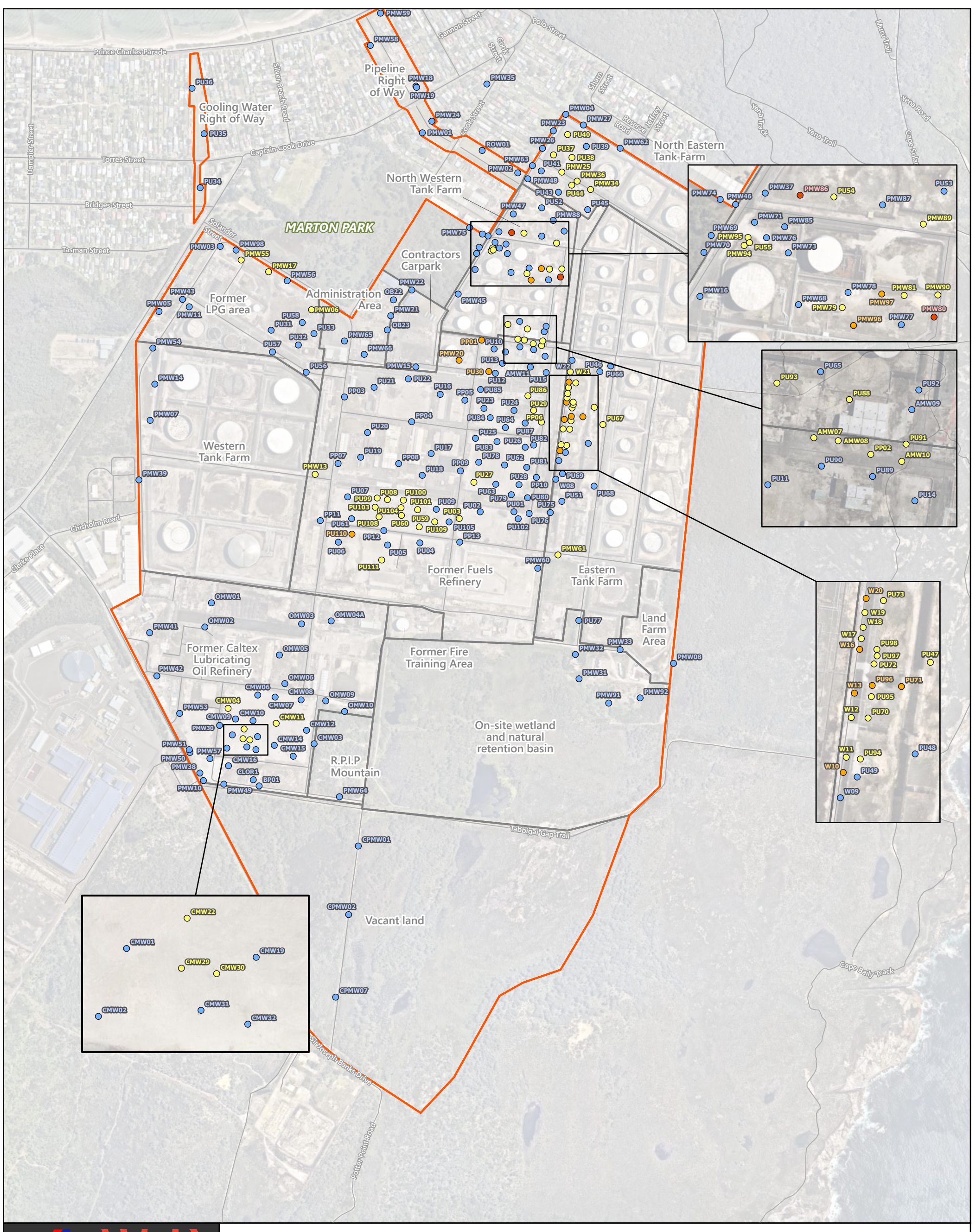


Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Figure 3
Sitewide F1 TRH Concentration, Q4 2023

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Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Figure 4
Sitewide F2 TRH Concentration, Q4 2023

TRH F2 C10 - C16 Fraction (µg/L)

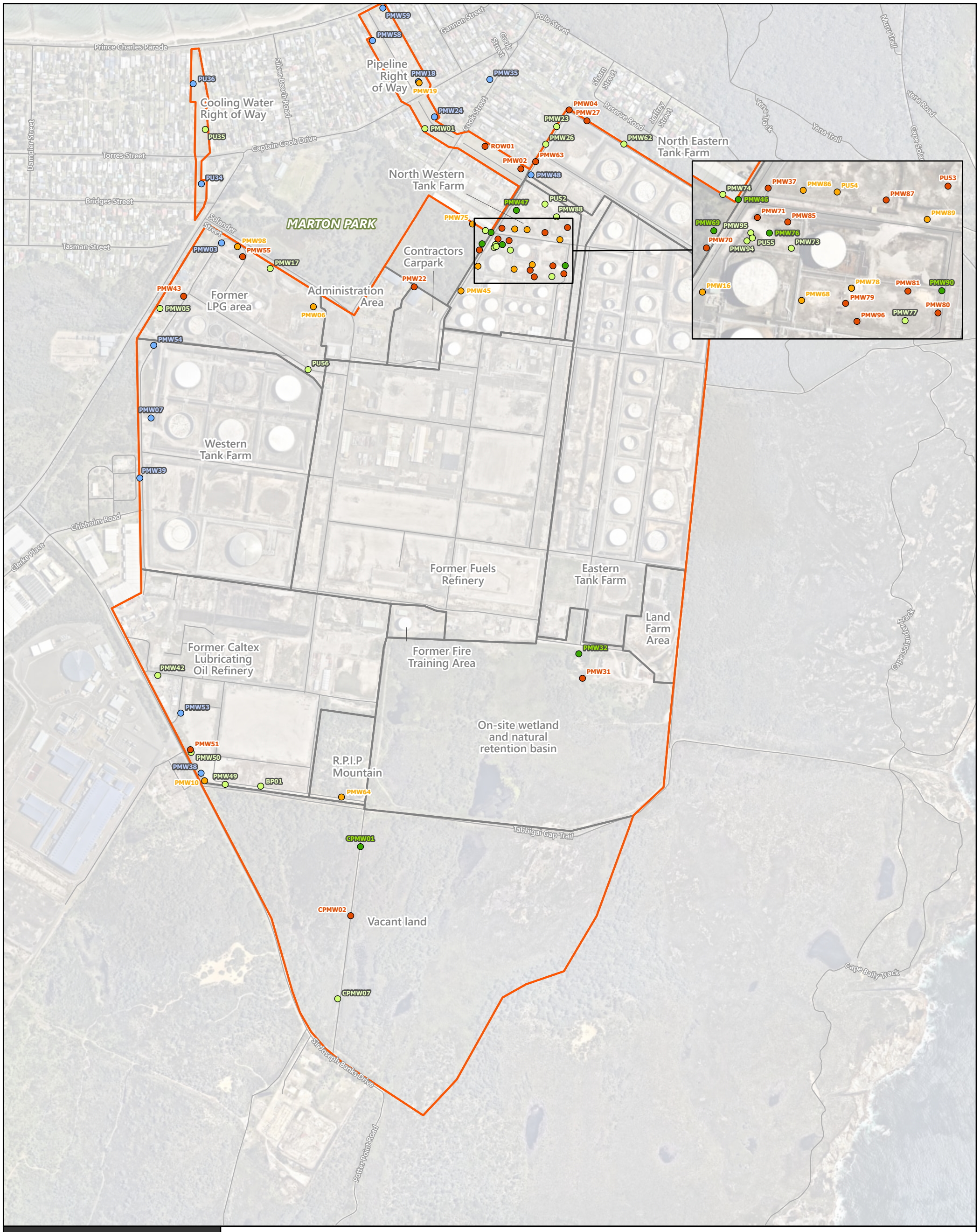
- 20 - 1000
- 1,000 - 5,000
- 5,000 -10,000
- 10,000 - 200,000

Roads
Site areas
Terminal boundary

0 100 200
Meters
Scale: 1:8,500
Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A3
Author: J.Hockey | QA:
Date: 22/01/2024

Data sources: Ampol, Nearmap, NSW Spatial Services

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Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Figure 5
Sitewide Ammonia Concentration, Q4 2023

Ammonia (µg/L)
- 10 - 140
- 141 - 500
- 501 - 900
- 901 - 1,600
- 1,601 - 100000

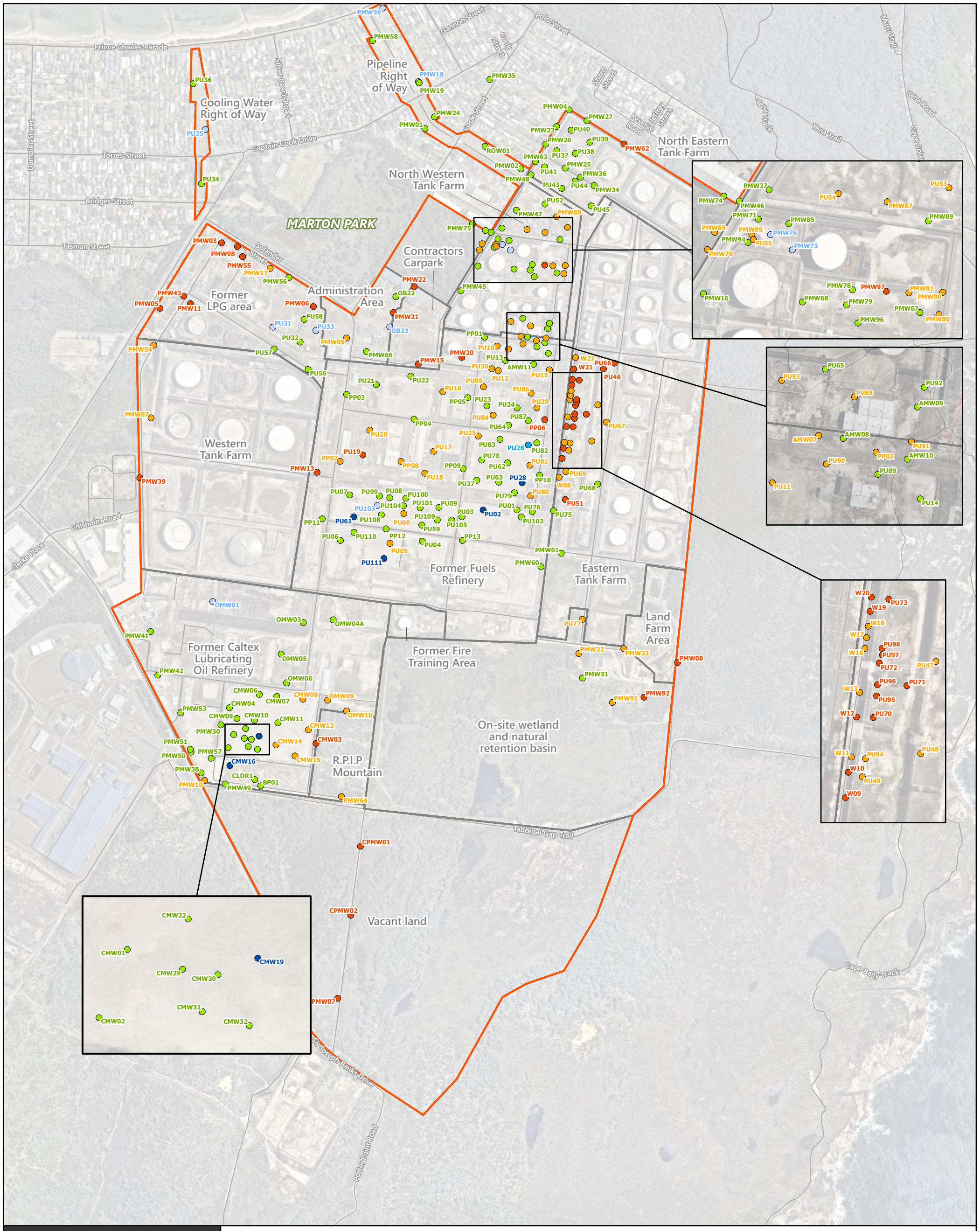
Roads
Site areas
Terminal boundary

0 100 200
Meters
Scale: 1:8,500
Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A3
Author: J.Hockey | QA:
Date: 22/01/2024

Data sources: Ampol, Nearmap, NSW Spatial Services

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Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Figure 6
Sitewide pH Concentration, Q4 2023

www.wsp.com

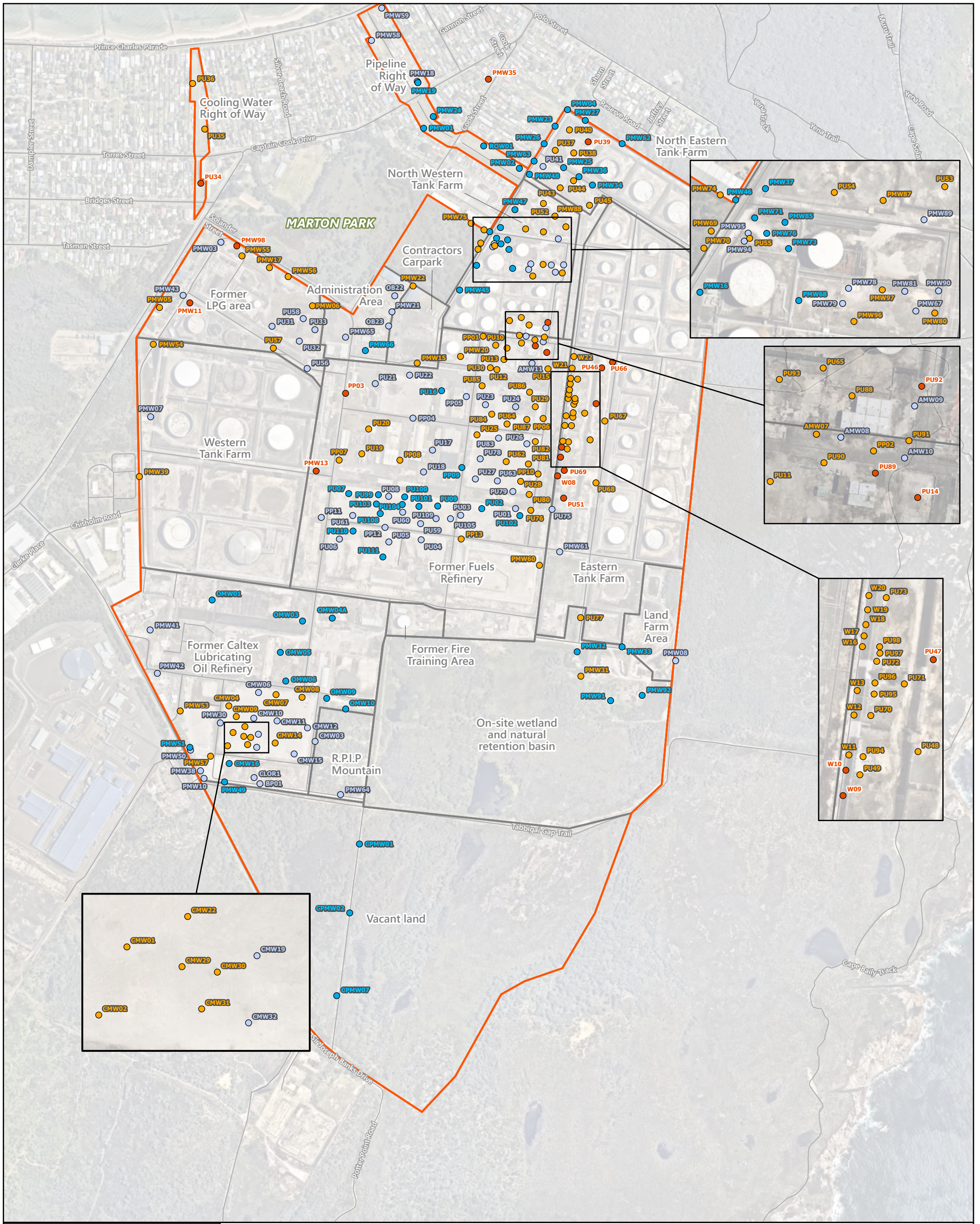
pH (pH units)
- 4.0 - 6.0
- 6.0 - 6.5
- 6.5 - 7.5
- 7.5 - 8.0
- 8.0 - 8.5
- 8.5 - 14.0

Roads
Site areas
Terminal boundary

0 100 200
Meters
Scale: 1:8,500
Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A3
Author: J.Hockey | QA:
Date: 22/01/2024

Data sources: Ampol, Nearmap, NSW Spatial Services

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Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Figure 7
Sitewide Redox Concentration, Q4 2023

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Redox (mv)
- -360 - -200
- -200 - -100
- -100 - 0
- 0 - 200

Roads
Site areas
Terminal boundary

0 100 200
Meters
Scale: 1:8,500
Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A3
Author: J.Hockey | QA:
Date: 22/01/2024

Data sources: Ampol, Nearmap, NSW Spatial Services

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Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Asbestos Cell Figure 1
Asbestos Cell Site Locations, Q4 2023

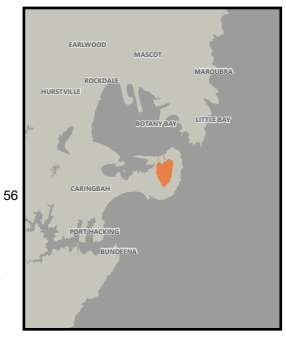
www.wsp.com

- Roads
- Asbestos cell
- Site areas
- Terminal boundary

0 100 200
Meters
Scale: 1:8,000

Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A3
Author: J.Hockey| QA: -
Date: 17/01/2024

Data sources: Ampol, Nearmap, NSW Spatial Services



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Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Asbestos Cell Figure 2

Asbestos Cell Monitoring Locations, Q4 2023

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- Sentinel Well
- Roads
- Other relevant site features
- Asbestos cell
- Site areas

0 10 20

Meters

Scale: 1:800

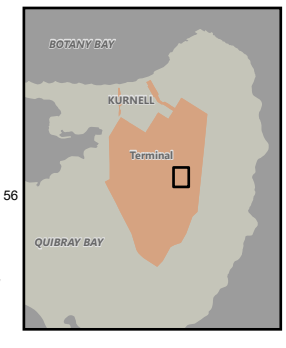
Coordinate system: GDA2020 MGA Zone 56

Scale ratio correct when printed at A3

Author: J.Hockey| QA: -

Date: 17/01/2024

Data sources: Ampol, Nearmap, NSW Spatial Services



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GMP Monitoring Zone	Well ID	Date	Well sampled	TOC (mAHD)	Depth to LNAPL (mBGL)	Depth to water (mBTOC)	Apparent LNAPL thickness (m)	Depth below TOC to water (m) (corrected for LNAPL (SG 0.79))	Corrected Water Elevation (mAHD)	Comment
Administration Area	OB22	15/11/2023	Yes	3.532		2.09	-	2.090	1.442	
Administration Area	OB23	15/11/2023	Yes	3.512		1.917	-	1.917	1.595	
Administration Area	PMW21	06/11/2023	Yes	4.477		2.952	-	2.952	1.525	
Administration Area	PMW22	06/11/2023	Yes	4.444		2.944	-	2.944	1.500	
Administration Area	PMW65	06/11/2023	Yes	3.514		1.862	-	1.862	1.652	
Administration Area	PMW66	06/11/2023	Yes	3.241		1.457	-	1.457	1.784	
Cooling Water ROW	PU34	13/11/2023	Yes	3.047		2.202	-	2.202	0.845	
Cooling Water ROW	PU35	13/11/2023	Yes	3.766		3.062	-	3.062	0.704	
Cooling Water ROW	PU36	13/11/2023	Yes	3.487		2.990	-	2.990	0.497	
Eastern Tank Farm	PMW61	09/11/2023	Yes	13.509		2.375	-	2.375	11.134	
Eastern Tank Farm	PU46	09/11/2023	Yes	13.195		9.481	-	9.481	3.714	
Eastern Tank Farm	PU47	09/11/2023	Yes	13.327		9.551	-	9.551	3.776	
Eastern Tank Farm	PU48	09/11/2023	Yes	13.503		9.751	-	9.751	3.752	
Eastern Tank Farm	PU49	09/11/2023	Yes	9.778		6.131	-	6.131	3.647	
Eastern Tank Farm	PU50	09/11/2023	No	9.894			-		-	dry
Eastern Tank Farm	PU51	09/11/2023	Yes	10.708		6.585	-	6.585	4.123	
Eastern Tank Farm	PU66	09/11/2023	Yes	13.676		9.859	-	9.859	3.817	
Eastern Tank Farm	PU67	09/11/2023	Yes	13.778		9.901	-	9.901	3.877	
Eastern Tank Farm	PU68	09/11/2023	Yes	14.566		1.685	-	1.685	12.881	
Eastern Tank Farm	PU69	09/11/2023	Yes	9.835		6.198	-	6.198	3.637	
Eastern Tank Farm	PU70	09/11/2023	Yes	8.962		5.292	-	5.292	3.670	
Eastern Tank Farm	PU71	09/11/2023	Yes	9.488		5.756	-	5.756	3.732	
Eastern Tank Farm	PU72	09/11/2023	Yes	9.037		5.371	-	5.371	3.666	
Eastern Tank Farm	PU73	09/11/2023	Yes	9.014		5.391	-	5.391	3.623	
Eastern Tank Farm	PU74	07/11/2023	No	12.744			-		-	
Eastern Tank Farm	PU75	07/11/2023	Yes	6.370		2.385	-	2.385	3.985	
Eastern Tank Farm	PU76	07/11/2023	Yes	5.292		1.650	-	1.650	3.642	
Eastern Tank Farm	PU77	09/11/2023	Yes	13.693		1.179	-	1.179	12.514	
Eastern Tank Farm	PU94	09/11/2023	Yes	10.127		6.482	-	6.482	3.645	
Eastern Tank Farm	PU95	09/11/2023	Yes	9.112		5.442	-	5.442	3.670	
Eastern Tank Farm	PU96	09/11/2023	Yes	9.110		5.435	-	5.435	3.675	
Eastern Tank Farm	PU97	09/11/2023	Yes	9.368		5.710	-	5.710	3.658	
Eastern Tank Farm	PU98	09/11/2023	Yes	9.099		5.441	-	5.441	3.658	
Eastern Tank Farm	W08	07/11/2023	Yes	7.212		3.571	-	3.571	3.641	
Eastern Tank Farm	W09	07/11/2023	Yes	7.436		3.798	-	3.798	3.638	
Eastern Tank Farm	W10	07/11/2023	Yes	6.797		3.158	-	3.158	3.639	
Eastern Tank Farm	W11	07/11/2023	Yes	7.451		3.812	-	3.812	3.639	
Eastern Tank Farm	W12	07/11/2023	Yes	7.396		3.765	-	3.765	3.631	
Eastern Tank Farm	W13	07/11/2023	Yes	6.998		3.333	-	3.333	3.665	
Eastern Tank Farm	W14	07/11/2023	No	7.365	3.725	3.940	0.215	3.770	3.595	Not sampled due to LNAPL
Eastern Tank Farm	W15	07/11/2023	No	7.176			-		-	
Eastern Tank Farm	W16	07/11/2023	Yes	6.869		3.216	-	3.216	3.653	
Eastern Tank Farm	W17	07/11/2023	Yes	7.335		3.708	-	3.708	3.627	
Eastern Tank Farm	W18	07/11/2023	Yes	6.994		3.333	-	3.333	3.661	
Eastern Tank Farm	W19	07/11/2023	Yes	6.950		3.305	-	3.305	3.645	
Eastern Tank Farm	W20	07/11/2023	Yes	7.275		3.650	-	3.650	3.625	
Eastern Tank Farm	W21	07/11/2023	Yes	6.827		3.250	-	3.250	3.577	
Eastern Tank Farm	W22	07/11/2023	Yes	6.777		3.280	-	3.280	3.497	
Former CLOR	BP01	13/11/2023	Yes	6.685		2.184	-	2.184	4.501	
Former CLOR	CLOR1	13/11/2023	Yes	6.568		3.900	-	3.900	2.668	
Former CLOR	CMW01	16/11/2023	Yes	7.003		2.621	-	2.621	4.382	
Former CLOR	CMW02	16/11/2023	Yes	6.709		2.409	-	2.409	4.300	
Former CLOR	CMW03	16/11/2023	Yes	6.816		1.930	-	1.930	4.886	
Former CLOR	CMW04	16/11/2023	Yes	6.765		2.390	-	2.390	4.375	
Former CLOR	CMW05	16/11/2023	No	6.835			-		-	Well damaged, unable to retrieve hydrasleeve from the well.
Former CLOR	CMW06	16/11/2023	Yes	7.014		2.294	-	2.294	4.720	
Former CLOR	CMW07	16/11/2023	Yes	6.831		2.017	-	2.017	4.814	
Former CLOR	CMW08	16/11/2023	Yes	6.979		1.903	-	1.903	5.076	
Former CLOR	CMW09	16/11/2023	Yes	7.027		2.557	-	2.557	4.470	
Former CLOR	CMW10	16/11/2023	Yes	7.679		3.070	-	3.070	4.609	
Former CLOR	CMW11	16/11/2023	Yes	7.673		2.900	-	2.900	4.773	
Former CLOR	CMW12	16/11/2023	Yes	7.043		2.130	-	2.130	4.913	
Former CLOR	CMW14	16/11/2023	Yes	7.203		2.519	-	2.519	4.684	
Former CLOR	CMW15	16/11/2023	Yes	6.782		0.996	-	0.996	5.786	
Former CLOR	CMW16	16/11/2023	Yes	6.422		2.099	-	2.099	4.323	
Former CLOR	CMW19	16/11/2023	Yes	6.336		1.721	-	1.721	4.615	
Former CLOR	CMW22	16/11/2023	Yes	7.555		2.982	-	2.982	4.573	
Former CLOR	CMW29	16/11/2023	Yes	7.168		2.735	-	2.735	4.433	
Former CLOR	CMW30	16/11/2023	Yes	7.209		2.669	-	2.669	4.540	
Former CLOR	CMW31	16/11/2023	Yes	7.174		2.690	-	2.690	4.484	
Former CLOR	CMW32	16/11/2023	Yes	6.855		2.323	-	2.323	4.532	
Former CLOR	OMW01	07/11/2023	Yes	9.238		1.555	-	1.555	7.683	
Former CLOR	OMW02	07/11/2023	Yes	7.876		1.895	-	1.895	5.981	
Former CLOR	OMW03	07/11/2023	Yes	9.423		1.512	-	1.512	7.911	
Former CLOR	OMW04A	07/11/2023	Yes	-		1.955	-	1.955	-	
Former CLOR	OMW05	07/11/2023	Yes	8.879		3.410	-	3.410	5.469	
Former CLOR	OMW06	07/11/2023	Yes	9.121		3.923	-	3.923	5.198	
Former CLOR	OMW07	07/11/2023	No	7.955			-		-	Destroyed.
Former CLOR	OMW08	07/11/2023	No	8.675			-		-	Destroyed.
Former CLOR	OMW09	07/11/2023	Yes	7.654		3.446	-	3.446	4.208	
Former CLOR	OMW10	07/11/2023	Yes	7.906		2.487	-	2.487	5.419	
Former CLOR	OMW11	07/11/2023	No	10.271		2.560	-	2.560	7.711	Not enough water to sample.
Former CLOR	OMW12	07/11/2023	No	9.879			-		-	Dry.
Former CLOR	PMW10	13/11/2023	Yes	6.343		2.617	-	2.617	3.726	
Former CLOR	PMW30	13/11/2023	Yes	5.660		1.423	-	1.423	4.237	
Former CLOR	PMW38	13/11/2023	Yes	6.358		2.626	-	2.626	3.732	
Former CLOR	PMW40	13/11/2023	No	5.681			-		-	Not sampled, well lost or destroyed.
Former CLOR	PMW41	13/11/2023	Yes	5.854		2.957	-	2.957	2.897	
Former CLOR	PMW42	13/11/2023	Yes	5.954		2.462	-	2.462	3.492	
Former CLOR	PMW49	13/11/2023	Yes	6.651		2.401	-	2.401	4.250	
Former CLOR	PMW50	13/11/2023	Yes	6.424		2.761	-	2.761	3.663	
Former CLOR	PMW51	13/11/2023	Yes	6.303		2.847	-	2.847	3.456	
Former CLOR	PMW53	13/11/2023	Yes	6.280		2.734	-	2.734	3.546	
Former CLOR	PMW57	13/11/2023	Yes	6.748		2.796	-	2.796	3.952	
Former Fire Training Area	PP17	06/11/2023	No	11.623		2.751	-	2.751	8.872	insufficient water to sample

Table C1 - Sitewide GME Gauging Data

GMP Monitoring Zone	Well ID	Date	Well sampled	TOC (mAHD)	Depth to LNAPL (mBGL)	Depth to water (mBTOC)	Apparent LNAPL thickness (m)	Depth below TOC to water (m) (corrected for LNAPL (SG 0.79))	Corrected Water Elevation (mAHD)	Comment
Former Fuel Refinery	AMW07	14/11/2023	Yes	-		1.242	-	1.242	-	
Former Fuel Refinery	AMW08	14/11/2023	Yes	-		0.542	-	0.542	-	
Former Fuel Refinery	AMW09	14/11/2023	Yes	-		1.217	-	1.217	-	
Former Fuel Refinery	AMW10	14/11/2023	Yes	-		1.351	-	1.351	-	
Former Fuel Refinery	AMW11	14/11/2023	Yes	-		1.028	-	1.028	-	
Former Fuel Refinery	PMW15	06/11/2023	Yes	4.310		2.219	-	2.219	2.091	
Former Fuel Refinery	PMW20	06/11/2023	Yes	5.163		2.359	-	2.359	2.804	
Former Fuel Refinery	PMW60	09/11/2023	Yes	12.298		0.273	-	0.273	12.025	
Former Fuel Refinery	PP01	13/11/2023	Yes	4.314		1.499	-	1.499	2.815	
Former Fuel Refinery	PP02	13/11/2023	Yes	4.273		0.850	-	0.850	3.423	
Former Fuel Refinery	PP03	07/11/2023	Yes	3.319		1.432	-	1.432	1.887	
Former Fuel Refinery	PP04	07/11/2023	Yes	3.777		1.551	-	1.551	2.226	
Former Fuel Refinery	PP05	07/11/2023	Yes	4.401		1.620	-	1.620	2.781	
Former Fuel Refinery	PP06	10/11/2023	Yes	4.537		1.124	-	1.124	3.413	
Former Fuel Refinery	PP07	07/11/2023	Yes	3.627		1.281	-	1.281	2.346	
Former Fuel Refinery	PP08	08/11/2023	Yes	3.932		1.374	-	1.374	2.558	
Former Fuel Refinery	PP09	07/11/2023	Yes	4.314		1.300	-	1.300	3.014	
Former Fuel Refinery	PP10	10/11/2023	Yes	4.596		1.037	-	1.037	3.559	
Former Fuel Refinery	PP11	06/11/2023	Yes	3.454		1.065	-	1.065	2.389	
Former Fuel Refinery	PP12	06/11/2023	Yes	3.939		1.263	-	1.263	2.676	
Former Fuel Refinery	PP13	06/11/2023	Yes	4.264		0.920	-	0.920	3.344	
Former Fuel Refinery	PU01	06/11/2023	Yes	5.231		1.760	-	1.760	3.471	
Former Fuel Refinery	PU02	06/11/2023	Yes	5.391		2.175	-	2.175	3.216	
Former Fuel Refinery	PU03	06/11/2023	Yes	5.362		2.230	-	2.230	3.132	
Former Fuel Refinery	PU04	06/11/2023	Yes	5.327		2.310	-	2.310	3.017	
Former Fuel Refinery	PU05	06/11/2023	Yes	5.262		2.535	-	2.535	2.727	
Former Fuel Refinery	PU06	06/11/2023	Yes	5.194		2.720	-	2.720	2.474	
Former Fuel Refinery	PU07	06/11/2023	Yes	5.268		2.915	-	2.915	2.353	
Former Fuel Refinery	PU08	06/11/2023	Yes	5.634		3.075	-	3.075	2.559	
Former Fuel Refinery	PU09	06/11/2023	Yes	5.845		2.821	-	2.821	3.024	
Former Fuel Refinery	PU10	13/11/2023	Yes	4.244		1.121	-	1.121	3.123	
Former Fuel Refinery	PU11	13/11/2023	Yes	5.223		2.061	-	2.061	3.162	
Former Fuel Refinery	PU12	13/11/2023	Yes	5.092		1.985	-	1.985	3.107	
Former Fuel Refinery	PU13	13/11/2023	Yes	4.193		1.090	-	1.090	3.103	
Former Fuel Refinery	PU14	13/11/2023	Yes	5.257		1.881	-	1.881	3.376	
Former Fuel Refinery	PU15	13/11/2023	Yes	5.484		2.063	-	2.063	3.421	
Former Fuel Refinery	PU16	10/11/2023	Yes	4.319		1.723	-	1.723	2.596	
Former Fuel Refinery	PU17	08/11/2023	Yes	3.919		1.300	-	1.300	2.619	
Former Fuel Refinery	PU18	08/11/2023	Yes	4.093		1.323	-	1.323	2.770	
Former Fuel Refinery	PU19	08/11/2023	Yes	3.605		1.315	-	1.315	2.290	
Former Fuel Refinery	PU20	08/11/2023	Yes	4.826		2.660	-	2.660	2.166	
Former Fuel Refinery	PU21	10/11/2023	Yes	4.927		2.957	-	2.957	1.970	
Former Fuel Refinery	PU22	10/11/2023	Yes	4.770		2.588	-	2.588	2.182	
Former Fuel Refinery	PU23	10/11/2023	Yes	5.658		2.600	-	2.600	3.058	
Former Fuel Refinery	PU24	10/11/2023	Yes	5.496		2.162	-	2.162	3.334	
Former Fuel Refinery	PU25	10/11/2023	Yes	5.487		2.455	-	2.455	3.032	
Former Fuel Refinery	PU26	10/11/2023	Yes	5.809		2.407	-	2.407	3.402	
Former Fuel Refinery	PU27	10/11/2023	Yes	5.520		2.304	-	2.304	3.216	
Former Fuel Refinery	PU28	10/11/2023	Yes	5.621		2.202	-	2.202	3.419	
Former Fuel Refinery	PU29	10/11/2023	Yes	5.692		2.308	-	2.308	3.384	
Former Fuel Refinery	PU30	13/11/2023	Yes	4.259		1.195	-	1.195	3.064	
Former Fuel Refinery	PU59	06/11/2023	Yes	5.427		2.450	-	2.450	2.977	
Former Fuel Refinery	PU60	06/11/2023	Yes	5.816		3.042	-	3.042	2.774	
Former Fuel Refinery	PU61	06/11/2023	Yes	5.046		2.567	-	2.567	2.479	
Former Fuel Refinery	PU62	10/11/2023	Yes	5.502		2.240	-	2.240	3.262	
Former Fuel Refinery	PU63	10/11/2023	Yes	5.414		2.147	-	2.147	3.267	
Former Fuel Refinery	PU64	10/11/2023	Yes	5.496		2.368	-	2.368	3.128	
Former Fuel Refinery	PU78	10/11/2023	Yes	5.737		2.621	-	2.621	3.116	
Former Fuel Refinery	PU79	10/11/2023	Yes	5.255		1.840	-	1.840	3.415	
Former Fuel Refinery	PU80	10/11/2023	Yes	5.310		1.768	-	1.768	3.542	
Former Fuel Refinery	PU81	10/11/2023	Yes	5.843		2.420	-	2.420	3.423	
Former Fuel Refinery	PU82	10/11/2023	Yes	5.741		2.285	-	2.285	3.456	
Former Fuel Refinery	PU83	10/11/2023	Yes	5.578		2.450	-	2.450	3.128	
Former Fuel Refinery	PU84	10/11/2023	Yes	5.593		2.547	-	2.547	3.046	
Former Fuel Refinery	PU85	10/11/2023	Yes	5.385		2.300	-	2.300	3.085	
Former Fuel Refinery	PU86	10/11/2023	Yes	5.364		1.983	-	1.983	3.381	
Former Fuel Refinery	PU87	10/11/2023	Yes	5.372		1.958	-	1.958	3.414	
Former Fuel Refinery	PU89	13/11/2023	Yes	4.378		1.082	-	1.082	3.296	
Former Fuel Refinery	PU90	13/11/2023	Yes	5.230		1.992	-	1.992	3.238	
Former Fuel Refinery	PU91	13/11/2023	Yes	4.515		1.234	-	1.234	3.281	
Former Fuel Refinery	PU99	14/11/2023	Yes	-		3.125	-	3.125	-	
Former Fuel Refinery	PU100	14/11/2023	Yes	-		2.978	-	2.978	-	
Former Fuel Refinery	PU101	14/11/2023	Yes	-		2.875	-	2.875	-	
Former Fuel Refinery	PU102	14/11/2023	Yes	-		1.698	-	1.698	-	
Former Fuel Refinery	PU103	14/11/2023	Yes	-		3.268	-	3.268	-	
Former Fuel Refinery	PU104	14/11/2023	Yes	-		3.023	-	3.023	-	
Former Fuel Refinery	PU105	14/11/2023	Yes	-		2.443	-	2.443	-	
Former Fuel Refinery	PU108	14/11/2023	Yes	-		3.001	-	3.001	-	
Former Fuel Refinery	PU109	14/11/2023	Yes	-		2.785	-	2.785	-	
Former Fuel Refinery	PU110	14/11/2023	Yes	-		2.418	-	2.418	-	
Former Fuel Refinery	PU111	14/11/2023	Yes	-		2.077	-	2.077	-	
Former LPG Area	PMW03	06/11/2023	Yes	3.609		2.403	-	2.403	1.206	
Former LPG Area	PMW05	06/11/2023	Yes	3.467		2.158	-	2.158	1.309	
Former LPG Area	PMW06	06/11/2023	Yes	4.407		2.885	-	2.885	1.522	
Former LPG Area	PMW11	06/11/2023	Yes	3.513		2.120	-	2.120	1.393	
Former LPG Area	PMW17	06/11/2023		3.434		2.102	-	2.102	1.332	
Former LPG Area	PMW43	06/11/2023	Yes	3.437		2.927	-	2.927	0.510	
Former LPG Area	PMW44	06/11/2023	No	2.540			-		-	Destroyed.
Former LPG Area	PMW55	06/11/2023	Yes	3.996		2.788	-	2.788	1.208	
Former LPG Area	PMW56	06/11/2023	Yes	4.251		2.830	-	2.830	1.421	
Former LPG Area	PMW98	06/11/2023	Yes	-		2.635	-	2.635	-	
Former LPG Area	PU31	06/11/2023	Yes	4.082		2.370	-	2.370	1.712	
Former LPG Area	PU32	06/11/2023	Yes	4.178		2.427	-	2.427	1.751	
Former LPG Area	PU33	06/11/2023	Yes	3.232		1.546	-	1.546	1.686	
Former LPG Area	PU56	06/11/2023	Yes	3.364		1.515	-	1.515	1.849	
Former LPG Area	PU57	06/11/2023	Yes	3.351		1.580	-	1.580	1.771	
Former LPG Area	PU58	06/11/2023	Yes	4.272		2.695	-	2.695	1.577	
Kurnell Residential Area	PMW29	09/11/2023	No	2.670			-		-	resident not home
Kurnell Residential Area	PMW35	09/11/2023	Yes	2.530		1.071	-	1.071	1.459	
Kurnell Residential Area	PMW74	10/11/2023	Yes	-		1.090	-	1.090	-	
Kurnell Residential Area	PMW75	10/11/2023	Yes	-		0.724	-	0.724	-	
Landfarm Area	PMW08	09/11/2023	Yes	19.034		4.697	-	4.697	14.337	
Landfarm Area	PMW33	09/11/2023	Yes	15.631		2.183	-	2.183	13.448	
North Eastern Tank Farm	PMW04	08/11/2023	Yes	5.352		2.721	-	2.721	2.631	
North Eastern Tank Farm	PMW23	08/11/2023	Yes	4.829		2.321	-	2.321	2.508	
North Eastern Tank Farm	PMW25	08/11/2023	Yes	4.231		1.371	-	1.371	2.860	
North Eastern Tank Farm	PMW26	08/11/2023	Yes	5.248		2.843	-	2.843	2.405	
North Eastern Tank Farm	PMW27	08/11/2023	Yes	5.013		2.075	-	2.075	2.938	
North Eastern Tank Farm	PMW34	08/11/2023	Yes	4.979		1.843	-	1.843	3.136	
North Eastern Tank Farm	PMW36	08/11/2023	Yes	5.101		2.136	-	2.136	2.965	
North Eastern Tank Farm	PMW48	08/11/2023	Yes	4.224		1.704	-	1.704	2.520	
North Eastern Tank Farm	PMW62	08/11/2023	Yes	5.624		2.228	-	2.228	3.396	
North Eastern Tank Farm	PMW63	08/11/2023	Yes	4.196		1.820	-	1.820	2.376	
North Eastern Tank Farm	PU37	08/11/2023	Yes	4.906		2.297	-	2.297	2.609	
North Eastern Tank Farm	PU38	08/11/2023	Yes	5.301		2.360	-	2.360	2.941	
North Eastern Tank Farm	PU39	08/11/2023	Yes	5.075		2.090	-	2.090	2.985	
North Eastern Tank Farm	PU40	08/11/2023	Yes	4.927		2.185	-	2.185	2.742	
North Eastern Tank Farm	PU41	08/11/2023	Yes	4.829		2.290	-	2.290	2.539	
North Eastern Tank Farm	PU43	08/11/2023	Yes	4.605		1.775	-	1.775	2.830	
North Eastern Tank Farm	PU44	08/11/2023	Yes	4.889		1.930	-	1.930	2.959	
North Eastern Tank Farm	PU45	08/11/2023	Yes	4.907		1.840	-	1.840	3.067	
North Eastern Tank Farm	PU88	13/11/2023	Yes	5.475		2.245	-	2.245	3.230	
North Eastern Tank Farm	PU92	13/11/2023	Yes	4.298		0.990	-	0.990	3.308	
North Eastern Tank Farm	PU93	13/11/2023	Yes	5.423		2.325	-	2.325	3.098	
North Western Tank Farm	PMW16	08/11/2023	Yes	5.125		2.824	-	2.824	2.301	
North Western Tank Farm	PMW37	08/11/2023	Yes	4.843		2.311	-	2.311	2.532	
North Western Tank Farm	PMW45	08/11/2023	Yes	3.976		1.579	-	1.579	2.397	
North Western Tank Farm	PMW46	08/11/2023	Yes	5.536		3.145	-	3.145	2.391	
North Western Tank Farm	PMW47	08/11/2023	Yes	4.630		2.063	-	2.063	2.567	
North Western Tank Farm	PMW67	10/11/2023	Yes	5.544		1.238	-	1.238	4.306	
North Western Tank Farm	PMW68	10/11/2023	Yes	5.218		2.186	-	2.186	3.032	
North Western Tank Farm	PMW69	10/11/2023	Yes	5.067		2.800	-	2.800	2.267	
North Western Tank Farm	PMW70	10/11/2023	Yes	4.962		2.720	-	2.720	2.242	
North Western Tank Farm	PMW71	08/11/2023	Yes	5.963		3.341	-	3.341	2.622	
North Western Tank Farm	PMW72	08/11/2023	No	5.363	2.677	2.822	0.145	2.707	2.656	
North Western Tank Farm	PMW73	08/11/2023	Yes	5.309		2.492	-	2.492	2.817	
North Western Tank Farm	PMW76	08/11/2023	Yes	5.562		2.847	-	2.847	2.715	
North Western Tank Farm	PMW77	10/11/2023	No	5.540			-		-	Not sampled, well destroyed during ramp construction.
North Western Tank Farm	PMW78	10/11/2023	Yes	5.367		1.933	-	1.933	3.434	
North Western Tank Farm	PMW79	10/11/2023	Yes	5.214		2.115	-	2.115	3.099	
North Western Tank Farm	PMW80	10/11/2023	Yes	5.850	2.587	2.602	0.015	2.590	3.260	
North Western Tank Farm	PMW81	10/11/2023	Yes	5.108	1.915	2.155	0.240	1.965	3.143	
North Western Tank Farm	PMW85	08/11/2023	Yes	5.483		2.797	-	2.797	2.686	
North Western Tank Farm	PMW86	08/11/2023	Yes	5.410	2.750	2.753	0.003	2.751	2.659	
North Western Tank Farm	PMW87	08/11/2023	Yes	5.427		2.510	-	2.510	2.917	
North Western Tank Farm	PMW88	08/11/2023	Yes	7.161		4.234	-	4.234	2.927	
North Western Tank Farm	PMW89	10/11/2023	Yes	5.469		2.391	-	2.391	3.078	
North Western Tank Farm	PMW90	10/11/2023	Yes	5.861		2.613	-	2.613	3.248	
North Western Tank Farm	PMW93	08/11/2023	No	5.631	2.867	3.090	0.223	2.914	2.717	
North Western Tank Farm	PMW94	08/11/2023	Yes	5.195		2.522	-	2.522	2.673	
North Western Tank Farm	PMW95	08/11/2023	Yes	5.273		2.657	-	2.657	2.616	
North Western Tank Farm	PMW96	10/11/2023	Yes	5.109	1.958	2.010	0.052	1.969	3.140	LNAPL present
North Western Tank Farm	PMW97	10/11/2023	Yes	5.270	2.118	2.277	0.159	2.151	3.119	LNAPL present in well.
North Western Tank Farm	PU52	08/11/2023	Yes	5.193		2.423	-	2.423	2.770	
North Western Tank Farm	PU53	08/11/2023	Yes	7.058		4.015	-	4.015	3.043	
North Western Tank Farm	PU54	08/11/2023	Yes	5.372		2.592	-	2.592	2.780	
North Western Tank Farm	PU55	08/11/2023	Yes	5.056		2.420	-	2.420	2.636	
North Western Tank Farm	PU65	13/11/2023	Yes	5.374		2.201	-	2.201	3.173	
Onsite Wetland	PMW91	07/11/2023	Yes	-		6.365	-	6.365	-	
Onsite Wetland	PMW92	07/11/2023	Yes	-		6.700	-	6.700	-	
Onsite Wetland	PMW31	09/11/2023	Yes	13.630		0.805	-	0.805	12.825	Overgrown
Onsite Wetland	PMW32	09/11/2023	Yes	14.615		1.947	-	1.947	12.668	
Pipeline ROW	PMW01	09/11/2023	Yes	3.179		2.073	-	2.073	1.106	
Pipeline ROW	PMW02	09/11/2023	Yes	4.882		2.683	-	2.683	2.199	
Pipeline ROW	PMW18	09/11/2023	Yes	3.707		2.932	-	2.932	0.775	
Pipeline ROW	PMW19	09/11/2023	Yes	3.744		2.872	-	2.872	0.872	
Pipeline ROW	PMW24	09/11/2023	Yes	3.494		2.378	-	2.378	1.116	
Pipeline ROW	PMW58	09/11/2023	Yes	3.485		2.854	-	2.854	0.631	
Pipeline ROW	PMW59	09/11/2023	Yes	3.668		3.243	-	3.243	0.425	
Pipeline ROW	ROW01	09/11/2023	Yes	3.514		1.822	-	1.822	1.692	
RPIP Mountain	PMW64	13/11/2023	Yes	6.832		1.845	-	1.845	4.987	
Vacant Land	CPMW01	07/11/2023	Yes	7.166		1.809	-	1.809	5.357	
Vacant Land	CPMW02	07/11/2023	Yes	7.321		1.871	-	1.871	5.450	
Vacant Land	CPMW03	07/11/2023	No	7.495			-		-	Destroyed during asbestos remediation works.
Vacant Land	CPMW04		No	7.614			-		-	Destroyed during asbestos remediation works.
Vacant Land	CPMW05	07/11/2023	No	7.689			-		-	Destroyed during asbestos remediation works.
Vacant Land	CPMW06	07/11/2023	No	7.669			-		-	Destroyed during asbestos remediation works.

Table C1 - Sitewide GME Gauging Data

GMP Monitoring Zone	Well ID	Date	Well sampled	TOC (mAHD)	Depth to LNAPL (mBGL)	Depth to water (mBTOC)	Apparent LNAPL thickness (m)	Depth below TOC to water (m) (corrected for LNAPL (SG 0.79))	Corrected Water Elevation (mAHD)	Comment
Vacant Land	CPMW07	07/11/2023	Yes	7.617		2.093	-	2.093	5.524	
Western Tank Farm	PMW07	06/11/2023	Yes	3.877		2.067	-	2.067	1.810	
Western Tank Farm	PMW14	06/11/2023	No	3.210			-		-	Not sampled, well destroyed.
Western Tank Farm	PMW39	06/11/2023	Yes	3.054		1.606	-	1.606	1.448	
Western Tank Farm	PMW54	06/11/2023	Yes	4.154		2.328	-	2.328	1.826	
Asbestos cell	LDP01	09/11/2023	Yes	-		3.367	-	3.367	-	
Asbestos cell	LDP02	09/11/2023	Yes	-		4.228	-	4.228	-	

Table C2 - Sitewide GME Field Parameters

GMP Monitoring Zone	Well ID	Date	Ec (uS/cm)	pH (Units)	ORP (mV)	DO (ppm)	Temp (°C)	Colour	Clarity	Odour	Comments
Administration Area	OB22	15/11/2023	1044	6.75	-110.4	0	19.7	Light yellow	Translucent	Slight hydrogen sulfide odour	
Administration Area	OB23	15/11/2023	497	7.82	-165.2	2.01	22.4	Colourless	Translucent	Slight hydrocarbon odour	
Administration Area	PMW21	6/11/2023	556	5.82	-180.4	0.68	20.4	Colourless	Translucent	Slight hydrogen sulfide odour	
Administration Area	PMW22	6/11/2023	560	4.72	-73.8	0	18	Light orange	Translucent	No odour	
Administration Area	PMW65	6/11/2023	359.7	6.35	-127.6	0	21.9	Light brown	Slightly cloudy	Slight hydrocarbon odour	
Administration Area	PMW66	6/11/2023	282.5	6.95	-224.1	0	22	Colourless	Translucent	Slight hydrogen sulfide odour	
Cooling Water ROW	PU34	13/11/2023	382	7.48	2.3	0.18	18.1	Light brown	Translucent	No odour	
Cooling Water ROW	PU35	13/11/2023	338	7.57	-51.1	0.07	18.3	Light brown	Cloudy	No odour	
Cooling Water ROW	PU36	13/11/2023	538	7.29	-11.2	0.07	18	Light brown	Slightly cloudy	No odour	
Eastern Tank Farm	PMW61	9/11/2023	1088	6.61	-115.3	1.5	22.1	Light brown	Slightly cloudy	Moderate hydrocarbon odour	
Eastern Tank Farm	PU46	9/11/2023	295	5.76	23.7	0.46	20.2	Light brown	Slightly cloudy	No odour	
Eastern Tank Farm	PU47	9/11/2023	234.5	6.05	14.5	0.44	21.1	Light brown	Slightly cloudy	Moderate hydrocarbon odour	
Eastern Tank Farm	PU48	9/11/2023	352.2	6.11	-12.5	0.9	21.5	Light brown	Cloudy	Moderate hydrocarbon odour	
Eastern Tank Farm	PU49	9/11/2023	227	6.3	-19.7	0.01	20.7	Light brown	Slightly cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	PU50	9/11/2023									dry
Eastern Tank Farm	PU51	9/11/2023	502	5.73	139.9	1.09	19	Light brown	Cloudy	No odour	
Eastern Tank Farm	PU66	9/11/2023	223.2	5.62	49.1	2.93	20	Light brown	Cloudy	No odour	
Eastern Tank Farm	PU67	9/11/2023	221	6.14	-8	0.12	21.2	Light brown	Cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	PU68	9/11/2023	325	6.67	-49.6	0.08	21.7	Colourless	Translucent	Moderate hydrocarbon odour	
Eastern Tank Farm	PU69	9/11/2023	279.5	6.13	127.3	0.2	19.3	Light brown	Slightly cloudy	No odour	
Eastern Tank Farm	PU70	9/11/2023	210	5.97	-57	0	20.8	Brown	Slightly cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	PU71	9/11/2023	219	5.66	-47.6	0.03	20.7	Light grey	Cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	PU72	9/11/2023	197	5.76	-63.9	0.05	20.3	Light grey	Slightly cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	PU73	9/11/2023	156	5.93	-39	0.03	20.1	Light brown	Slightly cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	PU74	7/11/2023									Not sampled, well dry.
Eastern Tank Farm	PU75	7/11/2023	436	6.6	-145	0.04	19.9	Light grey	Slightly cloudy	Moderate hydrocarbon odour	
Eastern Tank Farm	PU76	7/11/2023	634	6.75	-12.6	0.1	21.8	Light grey	Translucent	No odour	
Eastern Tank Farm	PU77	9/11/2023	596	6.44	-46	0.14	22.5	Light brown	Slightly cloudy	Slight hydrogen sulfide odour	
Eastern Tank Farm	PU94	9/11/2023	248.6	6.27	-8	0.06	20.7	Light brown	Slightly cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	PU95	9/11/2023	229.2	5.81	-43.2	0.03	20.8	Grey	Cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	PU96	9/11/2023	238	5.75	-66.5	0.11	20.1	Light grey	Cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	PU97	9/11/2023	129	5.59	-26.9	0.14	20.3	Light brown	Slightly cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	PU98	9/11/2023	152	5.66	-37.9	0.06	20.3	Light brown	Cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	W08	7/11/2023	417.9	6.24	54.3	0.03	20.8	Light brown	Slightly cloudy	No odour	
Eastern Tank Farm	W09	7/11/2023	153.6	5.95	53.6	0.34	21	Colourless	Translucent	Strong hydrocarbon odour	
Eastern Tank Farm	W10	7/11/2023	161	5.91	57	0.32	21.1	Light brown	Translucent	Strong hydrocarbon odour	
Eastern Tank Farm	W11	7/11/2023	234	6.29	-45.7	0.01	21.1	Light brown	Translucent	Strong hydrocarbon odour	
Eastern Tank Farm	W12	7/11/2023	221.6	5.85	-87.9	0.01	21.5	Colourless	Translucent	Strong hydrocarbon odour	
Eastern Tank Farm	W13	7/11/2023	388.3	6.01	-92.4	0.03	21.7	Light grey	Translucent	Strong hydrocarbon odour	
Eastern Tank Farm	W14	7/11/2023									Not sampled due to LNAPL
Eastern Tank Farm	W15	7/11/2023									Not sampled LNAPL present.
Eastern Tank Farm	W16	7/11/2023	453.9	6.02	-75.2	0.12	21.5	Light grey	Slightly cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	W17	7/11/2023	441.6	6.09	-88.5	0.14	21.4	Light grey	Translucent	Strong hydrocarbon odour	
Eastern Tank Farm	W18	7/11/2023	387	6.07	-79.6	0.09	21.3	Light grey	Translucent	Strong hydrocarbon odour	
Eastern Tank Farm	W19	7/11/2023	193	5.94	-74.5	0.08	21	Light brown	Slightly cloudy	Strong hydrocarbon odour	
Eastern Tank Farm	W20	7/11/2023	346.2	5.93	-78.5	0.09	21	Colourless	Translucent	Strong hydrocarbon odour	
Eastern Tank Farm	W21	7/11/2023	225	5.91	-54.5	0.09	21	Light grey	Translucent	Strong hydrocarbon odour	
Eastern Tank Farm	W22	7/11/2023	177.2	6.11	-22.3	0.11	20.5	Light orange	Slightly cloudy	Moderate hydrocarbon odour	
Former CLOR	BP01	13/11/2023	988	6.85	-124.6	2.15	19.7	Brown	Slightly cloudy	No odour	
Former CLOR	CLOR1	13/11/2023	962	6.59	-134	0.02	19.1	Brown	Cloudy	No odour	
Former CLOR	CMW01	16/11/2023	904	7	-85.3	0.2	20	Light brown	Slightly cloudy	No odour	
Former CLOR	CMW02	16/11/2023	748	6.77	-88.1	0.38	20	Light brown	Slightly cloudy	Slight hydrocarbon odour	
Former CLOR	CMW03	16/11/2023	615	5.97	-111.1	0.12	18	Light yellow	Translucent	No odour	
Former CLOR	CMW04	16/11/2023	1434	6.78	-79.6	0.1	20.5	Light brown	Slightly cloudy	Slight hydrogen sulfide odour	
Former CLOR	CMW05	16/11/2023									Well damaged, WQM parameters not obtained.
Former CLOR	CMW06	16/11/2023	743	6.81	-103.9	0.11	21.5	Light brown	Slightly cloudy	No odour	
Former CLOR	CMW07	16/11/2023	506.9	7.05	-89.7	0.77	21.6	Light brown	Cloudy	No odour	Well casing damaged.
Former CLOR	CMW08	16/11/2023	360.1	6.37	-89.9	0.1	20.7	Light yellow	Translucent	No odour	
Former CLOR	CMW09	16/11/2023	1112	7.17	-83	0.04	20.1	Brown	Cloudy	No odour	
Former CLOR	CMW10	16/11/2023	1467	7.2	-100.1	0.04	20.4	Light brown	Slightly cloudy	Slight hydrogen sulfide odour	
Former CLOR	CMW11	16/11/2023	1645	6.89	-103.9	0.03	20.5	Light brown	Slightly cloudy	No odour	
Former CLOR	CMW12	16/11/2023	645	6.17	-103.8	0.12	20.4	Light brown	Slightly cloudy	Moderate hydrogen sulfide odour	
Former CLOR	CMW14	16/11/2023	719	6.48	-88.1	0.03	19.7	Light brown	Slightly cloudy	No odour	
Former CLOR	CMW15	16/11/2023	518.7	6.31	-101.3	0.98	21.3	Light yellow	Translucent	Slight hydrogen sulfide odour	
Former CLOR	CMW16	16/11/2023	1037	11.16	-215	0	20.2	Light yellow	Slightly cloudy	No odour	Cement-like odour.
Former CLOR	CMW19	16/11/2023	1050	8.83	-108.3	1.77	20.7	Light brown	Slightly cloudy	No odour	
Former CLOR	CMW22	16/11/2023	1462	6.82	-91.6	0	19.8	Brown	Cloudy	Moderate hydrocarbon odour	
Former CLOR	CMW29	16/11/2023	1215	6.8	-96.7	0	20.2	Brown	Slightly cloudy	Moderate hydrocarbon odour	
Former CLOR	CMW30	16/11/2023	1321	6.78	-97.4	0.04	20.3	Light brown	Cloudy	Slight hydrocarbon odour	
Former CLOR	CMW31	16/11/2023	584	7.16	-87.9	0.15	20.1	Light brown	Slightly cloudy	No odour	
Former CLOR	CMW32	16/11/2023	794	6.71	-100.3	0.1	20.2	Light grey	Translucent	Slight hydrocarbon odour	
Former CLOR	OMW01	7/11/2023	228.1	7.52	-305.3	5.47	20.4	Colourless	Translucent	No odour	
Former CLOR	OMW02	7/11/2023						Light yellow	Translucent	No odour	Not enough water for parameters.
Former CLOR	OMW03	7/11/2023	402.8	7.03	-307.7	3.41	20.6	Orange	Slightly cloudy	No odour	
Former CLOR	OMW04A	7/11/2023	580	6.76	-356.7	0.64	19.3	Light orange	Slightly cloudy	No odour	
Former CLOR	OMW05	7/11/2023	463	6.76	-308.1	1.03	18.4	Light orange	Slightly cloudy	No odour	
Former CLOR	OMW06	7/11/2023	571	6.7	-311	0.44	19.2	Light brown	Slightly cloudy	No odour	
Former CLOR	OMW07	7/11/2023									Destroyed.
Former CLOR	OMW08	7/11/2023									Destroyed.
Former CLOR	OMW09	7/11/2023	655	6.39	-359	1.24	18.2	Light yellow	Translucent	Moderate hydrogen sulfide odour	
Former CLOR	OMW10	7/11/2023	874	6.06	-319.4	0.76	17.1	Light brown	Slightly cloudy	No odour	
Former CLOR	OMW11	7/11/2023									Not enough water to sample.
Former CLOR	OMW12	7/11/2023									Dry.
Former CLOR	PMW10	13/11/2023	644	6.4	-179	0.89	19.3	Light yellow	Translucent	Slight hydrogen sulfide odour	
Former CLOR	PMW30	13/11/2023	858	6.88	-106.3	0.04	21.5	Light yellow	Slightly cloudy	Slight hydrocarbon odour	
Former CLOR	PMW38	13/11/2023	376.5	6.79	-123.6	0.9	19.3	Light yellow	Translucent	Slight hydrogen sulfide odour	
Former CLOR	PMW40	13/11/2023									No parameters taken, well lost/destroyed.
Former CLOR	PMW41	13/11/2023	150.9	7.34	-133.9	1.14	18.4	Dark orange	Cloudy	No odour	
Former CLOR	PMW42	13/11/2023	289.3	6.73	-117.3	3.4	20.9	Light brown	Translucent	No odour	
Former CLOR	PMW49	13/11/2023	488.2	6.68	-208.8	2.4	19.7	Light brown	Cloudy	No odour	
Former CLOR	PMW50	13/11/2023	691	6.53	-148.7	1.35	19.7	Yellow	Slightly cloudy	Slight hydrogen sulfide odour	
Former CLOR	PMW51	13/11/2023	586	6.56	-204.3	0.07	19.8	Light yellow	Translucent	Slight hydrogen sulfide odour	
Former CLOR	PMW53	13/11/2023	316.8	6.91	-65.8	1.07	19.9	Light orange	Slightly cloudy	No odour	
Former CLOR	PMW57	13/11/2023	409.5	6.63	-86.5	0.07	19.7	Dark orange	Cloudy	No odour	

Table C2 - Sitewide GME Field Parameters

GMP Monitoring Zone	Well ID	Date	Ec (uS/cm)	pH (Units)	ORP (mV)	DO (ppm)	Temp (°C)	Colour	Clarity	Odour	Comments
Former Fuel Refinery	AMW07	14/11/2023	496.4	6.47	-86.6	1.35	21.1	Yellow	Translucent	Moderate hydrocarbon odour	
Former Fuel Refinery	AMW08	14/11/2023	317.5	6.92	-167	1.35	20.4	Brown	Cloudy	Strong hydrocarbon odour	
Former Fuel Refinery	AMW09	14/11/2023	788	7.2	-176.5	1.01	22.6	Brown	Cloudy	Slight hydrocarbon odour	
Former Fuel Refinery	AMW10	14/11/2023	624	6.64	-162.7	0.93	22.9	Brown	Cloudy	Strong hydrocarbon odour	
Former Fuel Refinery	AMW11	14/11/2023	4437.2	7.49	-162.1	1.19	22.5	Grey	Cloudy	Slight hydrocarbon odour	
Former Fuel Refinery	PMW15	6/11/2023	249.5	5.24	-12.4	0.87	19.8	Light brown	Slightly cloudy	Moderate hydrocarbon odour	
Former Fuel Refinery	PMW20	6/11/2023	594	4.75	-5.3	4.25	19.6	Light yellow	Translucent	Strong hydrocarbon odour	
Former Fuel Refinery	PMW60	9/11/2023	748	7.29	-64.4	1.68	21.5	Light yellow	Slightly cloudy	No odour	
Former Fuel Refinery	PP01	13/11/2023	1039	6.59	-32.6	0.27	22.5	Light yellow	Translucent	Slight hydrocarbon odour	
Former Fuel Refinery	PP02	13/11/2023	1152	6.38	-12.9	0.25	22.8	Light grey	Cloudy	Strong hydrocarbon odour	
Former Fuel Refinery	PP03	7/11/2023	446.4	6.69	7.1	0.27	22.6	Colourless	Slightly cloudy	No odour	
Former Fuel Refinery	PP04	7/11/2023	412.8	6.73	-133.6	0.02	23.2	Grey	Cloudy	No odour	
Former Fuel Refinery	PP05	7/11/2023	516.9	6.55	-114.2	0.09	21.9	Light yellow	Translucent	Strong hydrogen sulfide odour	
Former Fuel Refinery	PP06	10/11/2023	294.4	5.79	-17.5	0.09	22.5	Light brown	Cloudy	Moderate hydrocarbon odour	
Former Fuel Refinery	PP07	7/11/2023	278	6.43	-38.2	0.1	21.3	Colourless	Translucent	No odour	
Former Fuel Refinery	PP08	8/11/2023	532	6.08	-55.6	0.08	22.4	Light yellow	Translucent	Moderate hydrogen sulfide odour	
Former Fuel Refinery	PP09	7/11/2023	1587	6.73	-202	0.04	22.6	Light brown	Translucent	Slight hydrocarbon odour	
Former Fuel Refinery	PP10	10/11/2023	521.6	6.79	-31.8	0.09	22.4	Colourless	Translucent	No odour	
Former Fuel Refinery	PP11	6/11/2023	423.6	6.95	-129	1.04	22.4	Light grey	Slightly cloudy	No odour	
Former Fuel Refinery	PP12	6/11/2023	742	6.99	-165.7	0.2	23.1	Light grey	Slightly cloudy	Slight hydrogen sulfide odour	
Former Fuel Refinery	PP13	6/11/2023	579	6.59	-25.3	0.73	23.6	Light grey	Cloudy	No odour	
Former Fuel Refinery	PU01	6/11/2023	1345	6.53	-179.6	0.25	20.7	Dark orange	Slightly cloudy	Strong hydrogen sulfide odour	
Former Fuel Refinery	PU02	6/11/2023	1385	9.47	-227	0.07	20	Brown	Slightly cloudy	Slight hydrogen sulfide odour	
Former Fuel Refinery	PU03	6/11/2023	1020	6.81	-180.6	0.14	20.3	Light yellow	Translucent	Moderate hydrogen sulfide odour	Black suspended particles present.
Former Fuel Refinery	PU04	6/11/2023	1045	6.98	-188.4	0.11	19.9	Light yellow	Translucent	Slight hydrogen sulfide odour	
Former Fuel Refinery	PU05	6/11/2023	732	6.03	-159.9	0.78	19.8	Light yellow	Slightly cloudy	Moderate hydrogen sulfide odour	
Former Fuel Refinery	PU06	6/11/2023	777	7.03	-171.9	0.09	19.7	Light brown	Slightly cloudy	Slight hydrogen sulfide odour	
Former Fuel Refinery	PU07	6/11/2023	1574	6.52	-223.6	0.03	19.6	Dark brown	Cloudy	Moderate hydrogen sulfide odour	
Former Fuel Refinery	PU08	6/11/2023	2530	6.56	-174.6	0.02	19.9	Light brown	Translucent	Strong hydrocarbon odour	
Former Fuel Refinery	PU09	6/11/2023	1469	6.65	-240.9	0.02	19.8	Grey	Slightly cloudy	No odour	
Former Fuel Refinery	PU10	13/11/2023	458	6.15	-15.1	0.27	22.2	Light grey	Slightly cloudy	Slight hydrocarbon odour	
Former Fuel Refinery	PU11	13/11/2023	330.8	6.15	-43.6	0.21	20.6	Light brown	Slightly cloudy	No odour	
Former Fuel Refinery	PU12	13/11/2023	331	6.13	-56	0.15	21.6	Light grey	Translucent	Slight hydrocarbon odour	
Former Fuel Refinery	PU13	13/11/2023	367.3	6.62	-73.3	0.11	22	Light grey	Translucent	Slight hydrocarbon odour	
Former Fuel Refinery	PU14	13/11/2023	264	7.14	13.9	2.14	20.5	Light brown	Slightly cloudy	No odour	
Former Fuel Refinery	PU15	13/11/2023	275	6.15	-1.6	0.39	21.6	Light brown	Slightly cloudy	No odour	
Former Fuel Refinery	PU16	10/11/2023	504	6.43	-224.4	0	20.5	Dark yellow	Slightly cloudy	Strong hydrocarbon odour	
Former Fuel Refinery	PU17	8/11/2023	2900	6.45	-115.1	0.52	21.6	Light green	Slightly cloudy	Strong hydrogen sulfide odour	
Former Fuel Refinery	PU18	8/11/2023	736	6.2	-116.6	0.08	22.9	Light yellow	Slightly cloudy	Strong hydrogen sulfide odour	
Former Fuel Refinery	PU19	8/11/2023	426.8	5.89	-30.3	0.16	20	Light brown	Slightly cloudy	No odour	
Former Fuel Refinery	PU20	8/11/2023	490.4	6.05	-33.5	0.12	20.3	Light brown	Slightly cloudy	No odour	
Former Fuel Refinery	PU21	10/11/2023	1185	6.77	-173.7	0.12	21.9	Light brown	Slightly cloudy	Slight hydrocarbon odour	
Former Fuel Refinery	PU22	10/11/2023	276.5	7.28	-153.4	0.24	21.5	Light brown	Cloudy	No odour	
Former Fuel Refinery	PU23	10/11/2023	609	6.57	-103.2	0.17	20.9	Light yellow	Translucent	Strong hydrogen sulfide odour	
Former Fuel Refinery	PU24	10/11/2023	759	6.83	-105.8	0.13	21.6	Brown	Translucent	Strong hydrogen sulfide odour	
Former Fuel Refinery	PU25	10/11/2023	867	6.31	-58.3	0.04	20.5	Brown	Slightly cloudy	Moderate hydrocarbon odour	
Former Fuel Refinery	PU26	10/11/2023	771	8.42	-121.5	0.05	20	Light green	Translucent	Strong hydrocarbon odour	
Former Fuel Refinery	PU27	10/11/2023	1766	6.75	-106.4	0.16	20.8	Light yellow	Translucent	Strong hydrocarbon odour	
Former Fuel Refinery	PU28	10/11/2023	1162	9.96	-75	0.28	20.5	Light yellow	Translucent	Moderate hydrocarbon odour	
Former Fuel Refinery	PU29	10/11/2023	209.7	6.02	-56.1	0.13	20.9	Light brown	Translucent	Strong hydrogen sulfide odour	
Former Fuel Refinery	PU30	13/11/2023	444	6.42	-52	0.22	22.1	Light brown	Slightly cloudy	Moderate hydrocarbon odour	
Former Fuel Refinery	PU59	6/11/2023	1809	6.51	-163.2	0.15	20	Light grey	Translucent	Slight hydrocarbon odour	
Former Fuel Refinery	PU60	6/11/2023	1178	6.31	-195	0.27	19.7	Light yellow	Slightly cloudy	Moderate hydrocarbon odour	
Former Fuel Refinery	PU61	6/11/2023	539.5	9.13	-184.5	0.97	19.9	Light yellow	Translucent	Moderate hydrogen sulfide odour	
Former Fuel Refinery	PU62	10/11/2023	784	7.03	-93.5	0.08	20.4	Light yellow	Translucent	Moderate hydrocarbon odour	
Former Fuel Refinery	PU63	10/11/2023	1041	6.86	-106.2	0.11	20.6	Light yellow	Translucent	Moderate hydrocarbon odour	
Former Fuel Refinery	PU64	10/11/2023	216.3	6.69	-85.1	0.16	20.7	Light yellow	Translucent	Moderate hydrogen sulfide odour	
Former Fuel Refinery	PU78	10/11/2023	1381	6.9	-118.8	0.11	20.5	Yellow	Translucent	Strong hydrocarbon odour	
Former Fuel Refinery	PU79	10/11/2023	1159	6.72	-101.5	0.07	20.6	Light yellow	Translucent	Moderate hydrocarbon odour	
Former Fuel Refinery	PU80	10/11/2023	581	6.26	-74.6	0.07	21.6	Light yellow	Translucent	Moderate hydrogen sulfide odour	
Former Fuel Refinery	PU81	10/11/2023	384.4	6.19	-68.8	0.09	20.1	Light brown	Slightly cloudy	Strong hydrocarbon odour	
Former Fuel Refinery	PU82	10/11/2023	426.6	6.63	-80.3	0.18	20	Light brown	Translucent	Moderate hydrocarbon odour	
Former Fuel Refinery	PU83	10/11/2023	854	7.02	-151.5	0.01	20.1	Brown	Slightly cloudy	Strong hydrocarbon odour	
Former Fuel Refinery	PU84	10/11/2023	405.3	6.37	-80.7	0.12	20.4	Brown	Slightly cloudy	Strong hydrocarbon odour	
Former Fuel Refinery	PU85	10/11/2023	305	6.14	-91.3	0.11	21	Light brown	Translucent	Strong hydrocarbon odour	
Former Fuel Refinery	PU86	10/11/2023	296.2	6.03	-76.5	0.08	20.2	Light brown	Translucent	Strong hydrogen sulfide odour	
Former Fuel Refinery	PU87	10/11/2023	532.9	6.86	-38.4	0.12	21.4	Light grey	Slightly cloudy	Moderate hydrocarbon odour	
Former Fuel Refinery	PU89	13/11/2023	699	6.54	11.3	0.18	22.4	Dark brown	Cloudy	Slight hydrocarbon odour	
Former Fuel Refinery	PU90	13/11/2023	885	6.32	-12.5	0.08	21.2	Dark brown	Cloudy	No odour	
Former Fuel Refinery	PU91	13/11/2023	258	6.05	-1.2	0.09	22.3	Light brown	Slightly cloudy	No odour	
Former Fuel Refinery	PU99	14/11/2023	2110	6.97	-237.8	1.47	19.7	Yellow	Translucent	Moderate hydrocarbon odour	
Former Fuel Refinery	PU100	14/11/2023	1240	6.96	-232.5	0.95	19.9	Dark brown	Cloudy	Strong hydrogen sulfide odour	
Former Fuel Refinery	PU101	14/11/2023	988	6.52	-235.8	0.93	19.7	Dark brown	Cloudy	Moderate hydrocarbon odour	
Former Fuel Refinery	PU102	14/11/2023	2186	6.99	-227.1	0.88	20.7	Orange	Translucent		Sweet odour
Former Fuel Refinery	PU103	14/11/2023	1507	7.51	-253	1.08	19.7	Dark yellow	Slightly cloudy	Slight hydrogen sulfide odour	
Former Fuel Refinery	PU104	14/11/2023	1686	6.9	-206.1	1.08	19.6	Dark brown	Cloudy	Strong hydrocarbon odour	
Former Fuel Refinery	PU105	14/11/2023	967	6.88	-172.3	0.02	20.3	Brown	Cloudy	Moderate hydrogen sulfide odour	
Former Fuel Refinery	PU108	14/11/2023	908	7.32	-241	0	20	Brown	Cloudy	Moderate hydrogen sulfide odour	
Former Fuel Refinery	PU109	14/11/2023	1274	7.14	-194.4	0	20	Dark grey	Cloudy	Moderate hydrocarbon odour	
Former Fuel Refinery	PU110	14/11/2023	788	7.43	-236.5	0.16	19.4	Light brown	Slightly cloudy	Slight hydrogen sulfide odour	
Former Fuel Refinery	PU111	14/11/2023	2437	11.25	-287.5	0.48	19.8	Light yellow	Translucent	Slight hydrocarbon odour	
Former LPG Area	PMW03	6/11/2023	570	5.99	-162.4	0.31	19.1	Light brown	Slightly cloudy	Slight hydrocarbon odour	
Former LPG Area	PMW05	6/11/2023	499.5	5.36	-29.7	0.27	18.5	Orange	Translucent	No odour	
Former LPG Area	PMW06	6/11/2023	957	5.98	-50.7	0.16	20.4	Colourless	Translucent	Slight hydrogen sulfide odour	
Former LPG Area	PMW11	6/11/2023	689	5.73	0.841	0.52	21.3	Light grey	Translucent	Slight hydrocarbon odour	
Former LPG Area	PMW17	6/11/2023	271.9	6.03	-12.5	0.08	19.7	Colourless	Translucent	No odour	
Former LPG Area	PMW43	6/11/2023	723	5.75	-123.7	0.06	20.6	Colourless	Translucent	Slight hydrocarbon odour	
Former LPG Area	PMW44	6/11/2023									Destroyed.
Former LPG Area	PMW55	6/11/2023	927	5.15	-57	0.15	18.7	Light grey	Translucent	Moderate hydrocarbon odour	
Former LPG Area	PMW56	6/11/2023	208	6.87	-3.6	0.54	19.7	Light brown	Translucent	No odour	
Former LPG Area	PMW98	6/11/2023	687	5.75	49.8	0.3	19.8	Light orange	Translucent	No odour	
Former LPG Area	PU31	6/11/2023	311.9	7.75	-139.4	0.1	20.3	Light brown	Slightly cloudy	No odour	
Former LPG Area	PU32	6/11/2023	497.8	7.46	-133.6	0.15	19.9	Colourless	Translucent	No odour	
Former LPG Area	PU33	6/11/2023	338.6	7.78	-167	0.12	22.2	Colourless	Translucent	Strong hydrocarbon odour	
Former LPG Area	PU56	6/11/2023	685	7.13	-176.8	0.09	20.9	Light grey	Slightly cloudy	Slight hydrocarbon odour	
Former LPG Area	PU57	6/11/2023	772	7.13	-89.7	0.23	22.9	Colourless	Translucent	Slight hydrocarbon odour	
Former LPG Area	PU58	6/11/2023	1023	7.26	-107.7	0.17	19.7	Colourless	Translucent	No odour	
Kurnell Residential Area	PMW29	9/11/2023									resident not home
Kurnell Residential Area	PMW35	9/11/2023	654	6.53	47.5	0.14	18.8	Colourless	Translucent	No odour	
Kurnell Residential Area	PMW74	10/11/2023	661	6.73	-13.5	0.82	18.4	Brown	Cloudy	Moderate hydrocarbon odour	
Kurnell Residential Area	PMW75	10/11/2023	518.1	6.82	-4.3	0.47	18.3	Light brown	Slightly cloudy	Slight hydrocarbon odour	
Landfarm Area	PMW08	9/11/2023	237.2	5.23	-111.6	0.96	18.7	Light brown	Slightly cloudy	No odour	
Landfarm Area	PMW33	9/11/2023	446.7	6.44	-289.1	0	19	Colourless	Translucent	Moderate hydrogen sulfide odour	
North Eastern Tank Farm	PMW04	8/11/2023	337.6	6.57	-332.6	0.2	19.5	Light orange	Slightly cloudy	Slight hydrocarbon odour	
North Eastern Tank Farm	PMW23	8/11/2023	654	6.99	-314.4	0.16	20.7	Colourless	Translucent	Moderate hydrogen sulfide odour	
North Eastern Tank Farm	PMW25	8/11/2023	716	6.85	-234.4	1.15	21	Dark grey	Translucent	Strong hydrocarbon odour	
North Eastern Tank Farm	PMW26	8/11/2023	873	7.19	-249.5	1.66	20.5	Light orange	Slightly cloudy	No odour	
North Eastern Tank Farm	PMW27	8/11/2023	438.7	6.97	-327.6	0.1	21.5	Light orange	Slightly cloudy	Slight hydrogen sulfide odour	
North Eastern Tank Farm	PMW34	8/11/2023	375	6.64	-259.2	1.11	21.6	Light yellow	Translucent	Strong hydrocarbon odour	
North Eastern Tank Farm	PMW36	8/11/2023	652	6.66	-284.4	0.33	21.1	Light grey	Slightly cloudy	Strong hydrocarbon odour	
North Eastern Tank Farm	PMW48	8/11/2023	689	7.15	-246	1.5	21	Dark orange	Cloudy	No odour	
North Eastern Tank Farm	PMW62	8/11/2023	745	5.97	-281.7	0.21	20.1	Orange	Cloudy	No odour	
North Eastern Tank Farm	PMW63	8/11/2023	1230	6.83	-297.7	0.42	20.8	Light grey	Slightly cloudy	Slight hydrocarbon odour	
North Eastern Tank Farm	PU37	8/11/2023	1136	6.59	-19.9	0.13	20	Colourless	Translucent	Strong hydrocarbon odour	
North Eastern Tank Farm	PU38	8/11/2023	1089	6.61	-87.2	0.04	21.4	Colourless	Translucent	Strong hydrocarbon odour	
North Eastern Tank Farm	PU39	8/11/2023	398.1	6.64	7.4	0.28	21.2	Colourless	Translucent	Moderate hydrocarbon odour	
North Eastern Tank Farm	PU40	8/11/2023	758	6.87	-44.1	0.14	20.3	Colourless	Translucent	Strong hydrocarbon odour	
North Eastern Tank Farm	PU41	8/11/2023	875	6.94	-103.6	0.02	20.8	Colourless	Translucent	Moderate hydrocarbon odour	
North Eastern Tank Farm	PU43	8/11/2023	1311	6.53	-50.9	0.08	21.3	Colourless	Translucent	Moderate hydrocarbon odour	
North Eastern Tank Farm	PU44	8/11/2023	911	6.61	-69.8	0.09	21.1	Colourless	Translucent	Strong hydrocarbon odour	Black suspended particles present.
North Eastern Tank Farm	PU45	8/11/2023	487.3	7.06	-33.8	1.28	21.7	Light yellow	Translucent	Strong hydrocarbon odour	
North Eastern Tank Farm	PU88	13/11/2023	279	6.25	-40.3	0.07	21.6	Light brown	Slightly cloudy	Moderate hydrocarbon odour	
North Eastern Tank Farm	PU92	13/11/2023	707	7	16.6	0.31	23.8	Light brown	Cloudy	No odour	
North Eastern Tank Farm	PU93	13/11/2023	631	6.32	-52.3	0.06	20.7	Light brown	Slightly cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PMW16	8/11/2023	460.4	7.13	-281.7	0.68	20.3	Light yellow	Translucent	Slight hydrocarbon odour	
North Western Tank Farm	PMW37	8/11/2023	707	7.08	-288.1	0.34	20.9	Light brown	Slightly cloudy	No odour	
North Western Tank Farm	PMW45	8/11/2023	605	6.73	-296.3	0.5	20.3	Light orange	Slightly cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PMW46	8/11/2023	584	7.06	-288	0.37	20	Dark orange	Cloudy	Slight hydrogen sulfide odour	
North Western Tank Farm	PMW47	8/11/2023	264.5	7.07	-298.7	0.59	19.8	Light brown	Slightly cloudy	Slight hydrogen sulfide odour	
North Western Tank Farm	PMW67	10/11/2023	219.9	6.7	-130.5	3.19	22.3	Dark brown	Cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PMW68	10/11/2023	354.4	6.9	-201.6	0.81	21.5	Brown	Cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PMW69	10/11/2023	408.6	6.11	-52.3	0.15	18.8	Brown	Cloudy	No odour	
North Western Tank Farm	PMW70	10/11/2023	550	6.5	-41.3	0.41	19.4	Brown	Cloudy	No odour	
North Western Tank Farm	PMW71	8/11/2023	561	7.23	-272.3	0.3	20.4	Light brown	Slightly cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PMW72	8/11/2023									No parameters taken due to LNAPL present in well
North Western Tank Farm	PMW73	8/11/2023	487.3	7.51	-328.7	0.47	20.5	Light yellow	Translucent	Slight hydrocarbon odour	
North Western Tank Farm	PMW76	8/11/2023	416.7	7.57	-299.4	0.3	20.7	Light brown	Translucent	Slight hydrocarbon odour	
North Western Tank Farm	PMW77	10/11/2023									No parameters taken, well destroyed during ramp construction.
North Western Tank Farm	PMW78	10/11/2023	612	7.24	-167.7	0.36	21.6	Light brown	Slightly cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PMW79	10/11/2023	635	7.09	-179.3	0	21.2	Light brown	Slightly cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PMW80	10/11/2023	459.7	6.35	-87.5	0.34	22.6	Orange	Cloudy	Strong hydrocarbon odour	LNAPL present in well
North Western Tank Farm	PMW81	10/11/2023	424.9	6.26	-115.2	0.69	22.2	Orange	Cloudy	Strong hydrocarbon odour	LNAPL present
North Western Tank Farm	PMW85	8/11/2023	861	6.96	-289.6	0.2	21.2	Colourless	Translucent	Slight hydrocarbon odour	
North Western Tank Farm	PMW86	8/11/2023						Brown	Cloudy	Moderate hydrocarbon odour	WQM parameters not obtained due to LNAPL in the well. Sheen observed during sampling.
North Western Tank Farm	PMW87	8/11/2023	574	6.26	-7.6	0.18	20.9	Brown	Cloudy	Strong hydrocarbon odour	
North Western Tank Farm	PMW88	8/11/2023	309.7	6.36	-14.4	0.1	20.4	Dark brown	Cloudy	Moderate hydrocarbon odour	
North Western Tank Farm	PMW89	10/11/2023	316.8	6.66	-127.1	0.79	21.4	Light orange	Slightly cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PMW90	10/11/2023	339.4	6.28	-142.4	0.5	20.9	Light brown	Cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PMW93	8/11/2023									No parameters taken due to LNAPL present in well
North Western Tank Farm	PMW94	8/11/2023	360.9	7.36	-179.8	0.9	21.1	Yellow	Translucent	Strong hydrocarbon odour	Sheen observed on IP.
North Western Tank Farm	PMW95	8/11/2023	404.5	6.25	-143.3	0.09	19.6	Yellow	Translucent	Strong hydrocarbon odour	
North Western Tank Farm	PMW96	10/11/2023	574	6.93	-87.9	0.96	23.3	Light brown	Cloudy	Strong hydrocarbon odour	LNAPL present in well.
North Western Tank Farm	PMW97	10/11/2023	1094	5.75	-91.7	3.83	23.5	Light brown	Cloudy	Strong hydrocarbon odour	LNAPL present in well
North Western Tank Farm	PU52	8/11/2023	453	6.64	-63	0.25	20.4	Light brown	Slightly cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PU53	8/11/2023	311.8	6.02	-87	0.22	20.2	Colourless	Slightly cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PU54	8/11/2023	459	6.47	-31.3	0.17	20.4	Brown	Cloudy	Slight hydrocarbon odour	
North Western Tank Farm	PU55	8/11/2023	505.7	6.25	-78.3	0.06	21.2	Light yellow	Translucent	Strong hydrocarbon odour	
North Western Tank Farm	PU65	13/11/2023	505	6.86	-16.6	0.08	20.4	Light brown	Translucent	No odour	
Onsite Wetland	PMW91	7/11/2023	355.6	6.36	-357.6	0.68	17.7	Colourless	Translucent	Strong hydrogen sulfide odour	
Onsite Wetland	PMW92	7/11/2023	270.4	5.17	-357.7	1.28	18.3	Light yellow	Translucent	Moderate hydrogen sulfide odour	
Onsite Wetland	PMW31	9/11/2023	322.2	6.53	-46.2	0.04	17.8	Light yellow	Translucent	No odour	
Onsite Wetland	PMW32	9/11/2023	401.7	6.02	-213.6	1.16	18.7	Light yellow	Translucent	Slight hydrocarbon odour	
Pipeline ROW	PMW01	9/11/2023	412.6	6.91	-209.3	0	19	Light yellow	Translucent	Slight hydrogen sulfide odour	
Pipeline ROW	PMW02	9/11/2023	525	7.24	-230.4	0	18.5	Light yellow	Slightly cloudy	Slight hydrogen sulfide odour	
Pipeline ROW	PMW18	9/11/2023	428.2	7.75	-192.5	1.08	20	Light orange	Slightly cloudy	No odour	
Pipeline ROW	PMW19	9/11/2023	604	6.95	-228.8	0.15	19	Light yellow	Translucent	Slight hydrogen sulfide odour	
Pipeline ROW	PMW24	9/11/2023	721	7.25	-218.4	0	18.8	Light brown	Slightly cloudy	No odour	
Pipeline ROW	PMW58	9/11/2023	515	7.49	-192.4	1.4	20.2	Light brown	Slightly cloudy	No odour	
Pipeline ROW	PMW59	9/11/2023	455.6	7.69	-186.1	1.5	20	Colourless	Translucent	No odour	
Pipeline ROW	ROW01	9/11/2023	974	6.81	-239.8	0	18.3	Light orange	Translucent	Slight hydrogen sulfide odour	
RPIP Mountain	PMW64	13/11/2023	596	6.46	-191.5	1.54	16	Light brown	Slightly cloudy	Moderate hydrogen sulfide odour	
Vacant Land	CPMW01	7/11/2023	256.7	5.45	-264	1	16.7	Light yellow	Translucent	Moderate hydrogen sulfide odour	
Vacant Land	CPMW02	7/11/2023	307.2	5.35	-290.8	0.77	16.6	Light yellow	Translucent	Moderate hydrogen sulfide odour	
Vacant Land	CPMW03	7/11/2023									Destroyed during asbestos remediation works.
Vacant Land	CPMW04	7/11/2023									Destroyed during asbestos remediation works.
Vacant Land	CPMW05	7/11/2023									Destroyed during asbestos remediation works.
Vacant Land	CPMW06	7/11/2023									Destroyed during asbestos remediation works.
Vacant Land	CPMW07	7/11/2023	307.5	5.74	-318	0	15.5	Light yellow	Translucent	Slight hydrogen sulfide odour	pH is low
Western Tank Farm	PMW07	6/11/2023	339.9	6.47	-110.5	0.02	19.3	Light orange	Translucent	No odour	
Western Tank Farm	PMW14	6/11/2023									No parameters taken, well destroyed.
Western Tank Farm	PMW39	6/11/2023	457.6	5.71	-55.4	0.16	20.7	Colourless	Translucent	No odour	
Western Tank Farm	PMW54	6/11/2023	386.2	6.23	-70.3	3.69	20.9	Colourless	Translucent	No odour	
Asbestos cell	LDP01	9/11/2023	2770	7.72	-178.3	0.93	20.3	Colourless	Translucent	No odour	
Asbestos cell	LDP02	9/11/2023	2022	7.56	-161.3	0.91	19.9	Colourless	Translucent	No odour	
Asbestos cell	LCT01	9/11/2023	2630	7.98	136.6	3.95	22.2	Colourless	Translucent	No odour	

Table C3: Analytical Results

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Table C3: Analytical Results

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Table C3: Analytical Results

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Table C3: Analytical Results

			Phenolics												Phenolics-Halogenated									
			2,4-Dimethylphenol	2,4-Dinitrophenol	2-Methylphenol	2-Nitrophenol	3- & 4- Methylphenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexylphenol	4-Nitrophenol	Cresols (Sum of total)	Dinoseb	Nu-trX3.CV3	Non-Halogenated Phenols (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,6-Dichlorophenol	2-Chlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Tetrachlorophenols (Sum of total)	Halogenated Phenols (Sum of total)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EQL			1	30	1	1	2	30	100	30	10	100	1	100	1	1	1	1	1	1	2	30	10
Monitoring Zone	**Location Code**	**Date**																					
Administration Area	**PMW21**	**06 Nov 2023**																					
	PMW22	**06 Nov 2023**																					
	PMW6S	**06 Nov 2023**																					
	PMW66	**06 Nov 2023**																					
Asbestos Cell	**LCT01**	**09 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	LDP01	**09 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	LDP02	**09 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
Cooling Water ROW	**PU34**	**13 Nov 2023**																					
	PU35	**13 Nov 2023**																					
	PU36	**13 Nov 2023**																					
Eastern Tank Farm	**PMW61**	**09 Nov 2023**	37	<30	5	<10	17	<30	<100	<30	20	<100	5	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU46	**09 Nov 2023**																					
	PU47	**09 Nov 2023**																					
	PU48	**09 Nov 2023**																					
	PU49	**09 Nov 2023**																					
	PU51	**09 Nov 2023**																					
	PU66	**09 Nov 2023**																					
	PU67	**09 Nov 2023**																					
	PU68	**09 Nov 2023**																					
	PU69	**09 Nov 2023**																					
	PU70	**09 Nov 2023**																					
	PU71	**09 Nov 2023**																					
	PU72	**09 Nov 2023**																					
	PU73	**09 Nov 2023**																					
	PU75	**07 Nov 2023**																					
	PU76	**07 Nov 2023**																					
	PU77	**09 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU94	**09 Nov 2023**																					
	PU95	**09 Nov 2023**																					
	PU96	**09 Nov 2023**																					
	PU97	**09 Nov 2023**																					
	PU98	**09 Nov 2023**																					
	W08	**07 Nov 2023**																					
	W09	**07 Nov 2023**																					
	W10	**07 Nov 2023**																					
	W11	**07 Nov 2023**																					
	W12	**07 Nov 2023**																					
	W13	**07 Nov 2023**																					
	W16	**07 Nov 2023**																					
	W17	**07 Nov 2023**																					
	W18	**07 Nov 2023**																					
	W19	**07 Nov 2023**																					
	W20	**07 Nov 2023**																					
	W21	**07 Nov 2023**																					
	W22	**07 Nov 2023**																					
Former CLOR	**BP01**	**13 Nov 2023**																					
	CLOR1	**13 Nov 2023**																					
	CMW01	**16 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	CMW02	**16 Nov 2023**																					
	CMW03	**16 Nov 2023**																					
	CMW04	**16 Nov 2023**																					
	CMW05	**16 Nov 2023**																					
	CMW06	**16 Nov 2023**																					
	CMW07	**16 Nov 2023**																					
	CMW08	**16 Nov 2023**																					
	CMW09	**16 Nov 2023**																					
	CMW10	**16 Nov 2023**																					
	CMW11	**16 Nov 2023**																					
	CMW12	**16 Nov 2023**																					
	CMW14	**16 Nov 2023**																					
	CMW15	**16 Nov 2023**																					
	CMW16	**16 Nov 2023**																					
	CMW19	**16 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	CMW22	**16 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	CMW29	**16 Nov 2023**																					
	CMW30	**16 Nov 2023**																					
	CMW31	**16 Nov 2023**																					
	CMW32	**16 Nov 2023**																					
	OMW01	**07 Nov 2023**																					
	OMW02	**07 Nov 2023**																					
	OMW03	**07 Nov 2023**																					
	OMW04A	**07 Nov 2023**																					
	OMW05	**07 Nov 2023**																					
	OMW06	**07 Nov 2023**																					
	OMW09	**07 Nov 2023**																					
	OMW10	**07 Nov 2023**																					
	PMW10	**13 Nov 2023**																					
	PMW30	**13 Nov 2023**																					
	PMW38	**13 Nov 2023**																					
	PMW41	**13 Nov 2023**																					
	PMW42	**13 Nov 2023**																					
	PMW49	**13 Nov 2023**																					
	PMW50	**13 Nov 2023**																					
	PMW51	**13 Nov 2023**																					
	PMW53	**13 Nov 2023**																					
	PMW57	**13 Nov 2023**																					

Table C3: Analytical Results

			Phenolics												Phenolics-Halogenated									
			2,4-Dimethylphenol	2,4-Dinitrophenol	2-Methylphenol	2-Nitrophenol	3- & 4- Methylphenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexylphenol	4-Nitrophenol	Cresols (Sum of total)	Dinoseb	Nu-IRX3.CV3	Non-Halogenated Phenols (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,6-Dichlorophenol	2-Chlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Tetrachlorophenols (Sum of total)	Halogenated Phenols (Sum of total)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EQL			1	30	1	1	2	30	100	30	10	100	1	100	1	1	1	1	1	1	2	30	10
Monitoring Zone	**Location Code**	**Date**																					
Former Fuel Refinery	**AMW07**	**14 Nov 2023**	52	<30	<3	<10	6	<30	<100	<30	<10	<100	5	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	AMW08	**14 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	AMW09	**14 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	AMW10	**14 Nov 2023**	3	<30	<3	<10	14	<30	<100	<30	10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	AMW11	**14 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PMW13	**06 Nov 2023**																					
	PMW15	**06 Nov 2023**																					
	PMW20	**06 Nov 2023**																					
	PMW60	**09 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PP01	**13 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PP02	**13 Nov 2023**	310	<30	7	<10	<6	<30	<100	<30	<10	<100	30	400	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PP03	**07 Nov 2023**																					
	PP04	**07 Nov 2023**																					
	PP05	**07 Nov 2023**																					
	PP06	**10 Nov 2023**																					
	PP07	**07 Nov 2023**																					
	PP08	**08 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PP09	**07 Nov 2023**																					
	PP10	**10 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PP11	**06 Nov 2023**																					
	PP12	**06 Nov 2023**																					
	PP13	**06 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU01	**06 Nov 2023**																					
	PU02	**06 Nov 2023**																					
	PU03	**06 Nov 2023**																					
	PU04	**06 Nov 2023**																					
	PU05	**06 Nov 2023**																					
	PU06	**06 Nov 2023**																					
	PU07	**06 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU08	**06 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU09	**06 Nov 2023**																					
	PU10	**13 Nov 2023**																					
	PU11	**13 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU12	**13 Nov 2023**																					
	PU13	**13 Nov 2023**																					
	PU14	**13 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU15	**13 Nov 2023**																					
	PU16	**10 Nov 2023**																					
	PU17	**08 Nov 2023**																					
	PU18	**08 Nov 2023**																					
	PU19	**08 Nov 2023**																					
	PU20	**08 Nov 2023**																					
	PU21	**10 Nov 2023**																					
	PU22	**10 Nov 2023**																					
	PU23	**10 Nov 2023**																					
	PU24	**10 Nov 2023**																					
	PU25	**10 Nov 2023**																					
	PU26	**10 Nov 2023**																					
	PU27	**10 Nov 2023**																					
	PU28	**10 Nov 2023**	3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU29	**10 Nov 2023**																					
	PU30	**13 Nov 2023**																					
	PU59	**06 Nov 2023**																					
	PU60	**06 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU61	**06 Nov 2023**																					
	PU62	**10 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU63	**10 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU64	**10 Nov 2023**																					
	PU78	**10 Nov 2023**																					
	PU79	**10 Nov 2023**																					
	PU80	**10 Nov 2023**																					
	PU81	**10 Nov 2023**																					
	PU82	**10 Nov 2023**																					
	PU83	**10 Nov 2023**																					
	PU84	**10 Nov 2023**																					
	PU85	**10 Nov 2023**																					
	PU86	**10 Nov 2023**																					
	PU87	**10 Nov 2023**																					
	PU89	**13 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU90	**13 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU91	**13 Nov 2023**	4	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU99	**14 Nov 2023**																					
	PU100	**14 Nov 2023**																					
	PU101	**14 Nov 2023**																					
	PU102	**14 Nov 2023**																					
	PU103	**14 Nov 2023**																					
	PU104	**14 Nov 2023**																					
	PU105	**14 Nov 2023**																					
	PU108	**14 Nov 2023**																					
	PU109	**14 Nov 2023**																					
	PU110	**14 Nov 2023**																					
	PU111	**14 Nov 2023**																					

Table C3: Analytical Results

			Phenolics												Phenolics-Halogenated								
			2,4-Dimethylphenol	2,4-Dinitrophenol	2-Methylphenol	2-Nitrophenol	3- & 4- Methylphenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexylphenol	4-Nitrophenol	Cresols (Sum of total)	Dinoseb	Nu-trXS3.CV3	Non-Halogenated Phenols (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,6-Dichlorophenol	2-Chlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Tetrachlorophenols (Sum of total)	Halogenated Phenols (Sum of total)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EQL			1	30	1	1	2	30	100	30	10	100	1	100	1	1	1	1	1	1	2	30	10
Monitoring Zone	**Location Code**	**Date**																					
Former LPG Area	**PMW03**	**06 Nov 2023**																					
	PMW05	**06 Nov 2023**																					
	PMW06	**06 Nov 2023**																					
	PMW11	**06 Nov 2023**																					
	PMW17	**06 Nov 2023**																					
	PMW43	**06 Nov 2023**																					
	PMW55	**06 Nov 2023**																					
	PMW56	**06 Nov 2023**																					
	PMW98	**06 Nov 2023**																					
	PU31	**06 Nov 2023**																					
	PU32	**06 Nov 2023**																					
	PU33	**06 Nov 2023**																					
	PU56	**06 Nov 2023**																					
	PU57	**06 Nov 2023**																					
	PU58	**06 Nov 2023**																					
Kurnell Residential Area	**PMW35**	**09 Nov 2023**																					
	PMW74	**10 Nov 2023**																					
	PMW75	**10 Nov 2023**																					
Landfarm Area	**PMW08**	**09 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PMW33	**09 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
North Eastern Tank Farm	**PMW04**	**08 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PMW23	**08 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PMW25	**08 Nov 2023**	35	<30	5	<10	16	<30	<100	<30	20	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PMW26	**08 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PMW27	**08 Nov 2023**	<3	<30	<3	<10	15	<30	<100	<30	20	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PMW34	**08 Nov 2023**																					
	PMW36	**08 Nov 2023**																					
	PMW48	**08 Nov 2023**																					
	PMW62	**08 Nov 2023**																					
	PMW63	**08 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU37	**08 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU38	**08 Nov 2023**	110	<30	<3	<10	7	<30	<100	<30	<10	<100	7	100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU39	**08 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU40	**08 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU41	**08 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU43	**08 Nov 2023**																					
	PU44	**08 Nov 2023**	54	<30	110	<10	51	<30	<100	<30	160	<100	22	200	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU45	**08 Nov 2023**																					
North Western Tank Farm	**PMW16**	**08 Nov 2023**																					
	PMW37	**08 Nov 2023**																					
	PMW45	**08 Nov 2023**																					
	PMW46	**08 Nov 2023**																					
	PMW47	**08 Nov 2023**																					
	PMW67	**10 Nov 2023**																					
	PMW68	**10 Nov 2023**																					
	PMW69	**10 Nov 2023**																					
	PMW70	**10 Nov 2023**																					
	PMW71	**08 Nov 2023**																					
	PMW73	**08 Nov 2023**																					
	PMW76	**08 Nov 2023**																					
	PMW78	**10 Nov 2023**																					
	PMW79	**10 Nov 2023**																					
	PMW80	**10 Nov 2023**																					
	PMW81	**10 Nov 2023**																					
	PMW85	**08 Nov 2023**																					
	PMW86	**08 Nov 2023**																					
	PMW87	**08 Nov 2023**																					
	PMW88	**08 Nov 2023**																					
	PMW89	**10 Nov 2023**																					
	PMW90	**10 Nov 2023**																					
	PMW94	**08 Nov 2023**																					
	PMW95	**08 Nov 2023**																					
	PMW96	**10 Nov 2023**																					
	PMW97	**10 Nov 2023**																					
	PU52	**08 Nov 2023**																					
	PU53	**08 Nov 2023**																					
	PU54	**08 Nov 2023**																					
	PU55	**08 Nov 2023**																					
	PU65	**13 Nov 2023**																					
	PU88	**13 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PU92	**13 Nov 2023**																					
	PU93	**13 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
Onsite Wetland	**PMW31**	**09 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PMW32	**09 Nov 2023**	<3	<30	<3	<10	<6	<30	<100	<30	<10	<100	<3	<100	<10	<10	<3	<3	<3	<10	<10	<30	<10
	PMW91	**07 Nov 2023**																					
	PMW92	**07 Nov 2023**																					
Pipeline ROW	**PMW01**	**09 Nov 2023**																					
	PMW02	**09 Nov 2023**																					
	PMW18	**09 Nov 2023**																					
	PMW19	**09 Nov 2023**																					
	PMW24	**09 Nov 2023**																					
	PMW58	**09 Nov 2023**																					
	PMW59	**09 Nov 2023**																					
	ROW01	**09 Nov 2023**																					
RPIP Mountain	**PMW64**	**13 Nov 2023**																					
Vacant Land	**CPMW01**	**07 Nov 2023**																					
	CPMW02	**07 Nov 2023**																					
	CPMW07	**07 Nov 2023**																					
Western Tank Farm	**PMW07**	**06 Nov 2023**																					
	PMW14	**27 Oct 2023**																					
	PMW39	**06 Nov 2023**																					
	PMW54	**06 Nov 2023**																					

Table C3: Analytical Results

			Heavy Metals										Nutrients							
			pH (Lab)	Arsenic (filtered)	Cadmium (filtered)	Chromium (filtered)	Chromium (hexavalent)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Nitrate (as N)	Nitrite (as N)	Nitrate + Nitrite (as N)	Ammonia (as N)	Total Kjeldahl Nitrogen (as N)	Nitrogen (Total)	Total Phosphorus (as P)	Total Phosphorus (Organic Phosphate)
			pH_Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	µg/L	ug/L	ug/L	ug/L	ug/L	-
EQL			0.01	1	0.1	1	0.5	1	1	0.1	1	5	10	10	10	10	100	100	10	0.01
Monitoring Zone	**Location Code**	**Date**																		
Administration Area	**PMW21**	**06 Nov 2023**																		
	PMW22	**06 Nov 2023**	7.1	<1	<0.2	<1	1.3	<1	<1	<0.1	<1	<5	870	<10	870	3,500	2,600	3,500	<10	
	PMW65	**06 Nov 2023**																		
	PMW66	**06 Nov 2023**																		
Asbestos Cell	**LCT01**	**09 Nov 2023**	8.0	3	<0.2	<1	<0.5	21	<1	<0.1	5	15	130	<10	130	<20	<200	<200		0.13
	LDP01	**09 Nov 2023**	8.1	6	0.2	<1	<0.5	<1	<1	<0.1	7	<5	<10	<10	<10	90	<200	<200		0.13
	LDP02	**09 Nov 2023**	8.0	5	<0.2	<1	<0.5	<1	<1	<0.1	3	<5	<10	<10	<10	70	2,100	2,100		0.17
Cooling Water ROW	**PU34**	**13 Nov 2023**	8.2	3	<0.2	<1	3.6	<1	<1	<0.1	<1	<5	90	<10	90	70	400	500		0.18
	PU35	**13 Nov 2023**	8.2	2	<0.2	<1	2.1	<1	<1	<0.1	<1	<5	<10	<10	<10	250	600	600		0.22
	PU36	**13 Nov 2023**	8.2	3	<0.2	<1	0.6	<1	<1	<0.1	<1	<5	<10	<10	<10	140	<200	<200		0.23
Eastern Tank Farm	**PMW61**	**09 Nov 2023**	6.9	4	<0.2	3	<0.5	<1	<1	<0.1	<1	<5								
	PU46	**09 Nov 2023**																		
	PU47	**09 Nov 2023**																		
	PU48	**09 Nov 2023**																		
	PU49	**09 Nov 2023**																		
	PU51	**09 Nov 2023**																		
	PU66	**09 Nov 2023**																		
	PU67	**09 Nov 2023**																		
	PU68	**09 Nov 2023**																		
	PU69	**09 Nov 2023**																		
	PU70	**09 Nov 2023**																		
	PU71	**09 Nov 2023**																		
	PU72	**09 Nov 2023**																		
	PU73	**09 Nov 2023**																		
	PU75	**07 Nov 2023**																		
	PU76	**07 Nov 2023**																		
	PU77	**09 Nov 2023**																		
	PU94	**09 Nov 2023**																		
	PU95	**09 Nov 2023**																		
	PU96	**09 Nov 2023**																		
	PU97	**09 Nov 2023**																		
	PU98	**09 Nov 2023**																		
	W08	**07 Nov 2023**																		
	W09	**07 Nov 2023**																		
	W10	**07 Nov 2023**																		
	W11	**07 Nov 2023**																		
	W12	**07 Nov 2023**																		
	W13	**07 Nov 2023**																		
	W16	**07 Nov 2023**																		
	W17	**07 Nov 2023**																		
	W18	**07 Nov 2023**																		
	W19	**07 Nov 2023**																		
	W20	**07 Nov 2023**																		
	W21	**07 Nov 2023**																		
	W22	**07 Nov 2023**																		
Former CLOR	**BP01**	**13 Nov 2023**	7.6	11	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	50	<10	50	340	400	400		0.37
	CLOR1	**13 Nov 2023**																		
	CMW01	**16 Nov 2023**																		
	CMW02	**16 Nov 2023**																		
	CMW03	**16 Nov 2023**																		
	CMW04	**16 Nov 2023**																		
	CMW05	**16 Nov 2023**																		
	CMW06	**16 Nov 2023**																		
	CMW07	**16 Nov 2023**																		
	CMW08	**16 Nov 2023**																		
	CMW09	**16 Nov 2023**																		
	CMW10	**16 Nov 2023**																		
	CMW11	**16 Nov 2023**																		
	CMW12	**16 Nov 2023**																		
	CMW14	**16 Nov 2023**																		
	CMW15	**16 Nov 2023**																		
	CMW16	**16 Nov 2023**																		
	CMW19	**16 Nov 2023**																		
	CMW22	**16 Nov 2023**																		
	CMW29	**16 Nov 2023**																		
	CMW30	**16 Nov 2023**																		
	CMW31	**16 Nov 2023**																		
	CMW32	**16 Nov 2023**																		
	OMW01	**07 Nov 2023**																		
	OMW02	**07 Nov 2023**																		
	OMW03	**07 Nov 2023**																		
	OMW04A	**07 Nov 2023**																		
	OMW05	**07 Nov 2023**																		
	OMW06	**07 Nov 2023**																		
	OMW09	**07 Nov 2023**																		
	OMW10	**07 Nov 2023**																		
	PMW10	**13 Nov 2023**	7.1	<1	<0.2	2	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	1,100	1,300	1,300		0.11
	PMW30	**13 Nov 2023**																		
	PMW38	**13 Nov 2023**	7.3	<1	<0.2	2	<0.5	<1	<1	<0.1	<1	9	110	<10	110	80	900	1,000		0.10
	PMW41	**13 Nov 2023**																		
	PMW42	**13 Nov 2023**	7.6	<1	<0.2	<1	<0.5	1	<1	<0.1	<1	8	590	<10	590	400	600	1,200		0.11
	PMW49	**13 Nov 2023**	7.1	13	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	420	2,300	2,300		0.26
	PMW50	**13 Nov 2023**	7.3	2	<0.2	<1	0.8	<1	<1	<0.1	<1	<5	<10	<10	<10	300	1,400	1,400		0.14
	PMW51	**13 Nov 2023**	7.2	<1	<0.2	<1	<0.5	1	<1	<0.1	<1	<5	50	<10	50	2,800	3,000	3,000		0.08
	PMW53	**13 Nov 2023**	7.0	<1	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	1,700	<10	1,700	40	1,300	3,000		0.20
	PMW57	**13 Nov 2023**																		

Table C3: Analytical Results

			Heavy Metals										Nutrients							
			pH (Lab)	Arsenic (filtered)	Cadmium (filtered)	Chromium (filtered)	Chromium (hexavalent)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Nitrate (as N)	Nitrite (as N)	Nitrate + Nitrite (as N)	Ammonia (as N)	Total Kjeldahl Nitrogen (as N)	Nitrogen (Total)	Total Phosphorus (as P)	Total Phosphorus (Organic Phosphate)
			pH_Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	µg/L	ug/L	ug/L	ug/L	ug/L	-
EQL			0.01	1	0.1	1	0.5	1	1	0.1	1	5	10	10	10	10	100	100	10	0.01
Monitoring Zone	**Location Code**	**Date**																		
Former Fuel Refinery	AMW07	14 Nov 2023																		
	AMW08	14 Nov 2023																		
	AMW09	14 Nov 2023																		
	AMW10	14 Nov 2023																		
	AMW11	14 Nov 2023																		
	PMW13	06 Nov 2023																		
	PMW15	06 Nov 2023																		
	PMW20	06 Nov 2023																		
	PMW60	09 Nov 2023	7.3	2	<0.2	<1	0.9	28	<1	<0.1	1	<5								
	PP01	13 Nov 2023																		
	PP02	13 Nov 2023																		
	PP03	07 Nov 2023																		
	PP04	07 Nov 2023																		
	PP05	07 Nov 2023																		
	PP06	10 Nov 2023																		
	PP07	07 Nov 2023																		
	PP08	08 Nov 2023																		
	PP09	07 Nov 2023																		
	PP10	10 Nov 2023																		
	PP11	06 Nov 2023																		
	PP12	06 Nov 2023																		
	PP13	06 Nov 2023																		
	PU01	06 Nov 2023																		
	PU02	06 Nov 2023																		
	PU03	06 Nov 2023																		
	PU04	06 Nov 2023																		
	PU05	06 Nov 2023																		
	PU06	06 Nov 2023																		
	PU07	06 Nov 2023																		
	PU08	06 Nov 2023																		
	PU09	06 Nov 2023																		
	PU10	13 Nov 2023																		
	PU11	13 Nov 2023																		
	PU12	13 Nov 2023																		
	PU13	13 Nov 2023																		
	PU14	13 Nov 2023																		
	PU15	13 Nov 2023																		
	PU16	10 Nov 2023																		
	PU17	08 Nov 2023																		
	PU18	08 Nov 2023																		
	PU19	08 Nov 2023																		
	PU20	08 Nov 2023																		
	PU21	10 Nov 2023																		
	PU22	10 Nov 2023																		
	PU23	10 Nov 2023																		
	PU24	10 Nov 2023																		
	PU25	10 Nov 2023																		
	PU26	10 Nov 2023																		
	PU27	10 Nov 2023																		
	PU28	10 Nov 2023																		
	PU29	10 Nov 2023																		
	PU30	13 Nov 2023																		
	PU59	06 Nov 2023																		
	PU60	06 Nov 2023																		
	PU61	06 Nov 2023																		
	PU62	10 Nov 2023																		
	PU63	10 Nov 2023																		
	PU64	10 Nov 2023																		
	PU78	10 Nov 2023																		
	PU79	10 Nov 2023																		
	PU80	10 Nov 2023																		
	PU81	10 Nov 2023																		
	PU82	10 Nov 2023																		
	PU83	10 Nov 2023																		
	PU84	10 Nov 2023																		
	PU85	10 Nov 2023																		
	PU86	10 Nov 2023																		
	PU87	10 Nov 2023																		
	PU89	13 Nov 2023																		
	PU90	13 Nov 2023																		
	PU91	13 Nov 2023																		
	PU99	14 Nov 2023																		
	PU100	14 Nov 2023																		
	PU101	14 Nov 2023																		
	PU102	14 Nov 2023																		
	PU103	14 Nov 2023																		
	PU104	14 Nov 2023																		
	PU105	14 Nov 2023																		
	PU108	14 Nov 2023																		
	PU109	14 Nov 2023																		
	PU110	14 Nov 2023																		
	PU111	14 Nov 2023																		

Table C3: Analytical Results

			Heavy Metals										Nutrients							
			pH (Lab)	Arsenic (filtered)	Cadmium (filtered)	Chromium (filtered)	Chromium (hexavalent)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Nitrate (as N)	Nitrite (as N)	Nitrate + Nitrite (as N)	Ammonia (as N)	Total Kjeldahl Nitrogen (as N)	Nitrogen (Total)	Total Phosphorus (as P)	Total Phosphorus (Organic Phosphate)
			pH_Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	µg/L	ug/L	ug/L	ug/L	ug/L	-
EQL			0.01	1	0.1	1	0.5	1	1	0.1	1	5	10	10	10	10	100	100	10	0.01
Monitoring Zone	**Location Code**	**Date**																		
Former LPG Area	**PMW03**	**06 Nov 2023**	8.1	2	<0.2	<1	0.6	<1	<1	<0.1	<1	<5	30	<10	30	120	<200	<200	370	
	PMW05	**06 Nov 2023**	7.7	4	<0.2	<1	<0.5	4	<1	<0.1	<1	<5	<10	<10	<10	310	300	300	<10	
	PMW06	**06 Nov 2023**	8.1	3	<0.2	<1	1.2	1	<1	<0.1	<1	<5	30	<10	30	960	<200	200	40	
	PMW11	**06 Nov 2023**																		
	PMW17	**06 Nov 2023**	8.2	5	<0.2	<1	<0.5	3	<1	<0.1	<1	<5	40	<10	40	160	<200	<200	50	
	PMW43	**06 Nov 2023**	8.0	<1	<0.2	<1	<0.5	2	<1	<0.1	<1	<5	30	<10	30	1,700	1,800	1,800	180	
	PMW55	**06 Nov 2023**	7.7	4	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	30	<10	30	6,600	5,500	5,500	160	
	PMW56	**06 Nov 2023**																		
	PMW98	**06 Nov 2023**	8.0	4	<0.2	<1	<0.5	8	<1	<0.1	1	5	4,500	<10	4,500	1,600	1,800	6,300	60	
	PU31	**06 Nov 2023**																		
	PU32	**06 Nov 2023**																		
	PU33	**06 Nov 2023**																		
	PU56	**06 Nov 2023**	7.6	<1	<0.2	<1	<0.5	1	<1	<0.1	<1	<5	160	<10	160	200	200	400	110	
	PU57	**06 Nov 2023**																		
	PU58	**06 Nov 2023**																		
Kurnell Residential Area	**PMW35**	**09 Nov 2023**	7.4	6	<0.2	<1	<0.5	3	<1	<0.1	<1	32	1,200	<10	1,200	100	<200	1,200		0.49
	PMW74	**10 Nov 2023**	7.1	<1	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	10	<10	10	440	500	500		0.28
	PMW75	**10 Nov 2023**	7.0	2	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	1,500	1,500	1,500		0.14
Landfarm Area	**PMW08**	**09 Nov 2023**	5.7	1	<0.2	<1	1.1	4	<1	<0.1	<1	10								
	PMW33	**09 Nov 2023**	6.8	<1	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5								
North Eastern Tank Farm	**PMW04**	**08 Nov 2023**	7.4	<1	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	3,000	3,200	3,200		0.11
	PMW23	**08 Nov 2023**	7.8	8	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	390	400	400		0.15
	PMW25	**08 Nov 2023**																		
	PMW26	**08 Nov 2023**	7.8	5	<0.2	1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	250	500	500		0.42
	PMW27	**08 Nov 2023**	7.6	1	<0.2	1	<0.5	9	<1	<0.1	<1	10	<10	<10	<10	2,600	4,700	4,700		0.73
	PMW34	**08 Nov 2023**																		
	PMW36	**08 Nov 2023**																		
	PMW48	**08 Nov 2023**	7.6	<1	<0.2	<1	<0.5	1	<1	<0.1	<1	<5	190	<10	190	140	2,800	3,000		0.09
	PMW62	**08 Nov 2023**	6.9	8	<0.2	5	1.6	8	<1	<0.1	2	9	30	<10	30	220	<200	<200		0.10
	PMW63	**08 Nov 2023**	7.9	19	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	2,000	1,700	1,700		0.19
	PU37	**08 Nov 2023**																		
	PU38	**08 Nov 2023**																		
	PU39	**08 Nov 2023**																		
	PU40	**08 Nov 2023**																		
	PU41	**08 Nov 2023**																		
	PU43	**08 Nov 2023**																		
	PU44	**08 Nov 2023**																		
	PU45	**08 Nov 2023**																		
North Western Tank Farm	**PMW16**	**08 Nov 2023**	7.4	2	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	1,300	1,300	1,300		0.11
	PMW37	**08 Nov 2023**	7.5	7	<0.2	<1	<0.5	3	<1	<0.1	<1	<5	<10	<10	<10	2,000	2,200	2,200		1.4
	PMW45	**08 Nov 2023**		4	<0.2	<1		2	<1	<0.1	<1	8	<10	<10	<10	1,500	1,600	1,600		0.40
	PMW46	**08 Nov 2023**		2	<0.2	<1		<1	<1	<0.1	<1	15	70	<10	70	790	2,100	2,200		0.13
	PMW47	**08 Nov 2023**	7.5	<1	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	520	1,300	1,300		0.19
	PMW67	**10 Nov 2023**		<1	<0.2	1		1	<1	<0.1	<1	<5	3,400	<10	3,400	370	6,600	10,000		0.61
	PMW68	**10 Nov 2023**		3	<0.2	1		<1	<1	<0.1	<1	<5	<10	<10	<10	920	900	900		0.37
	PMW69	**10 Nov 2023**	6.7	8	<0.2	1	<0.5	<1	<1	<0.1	1	<5	<10	<10	<10	700	5,700	5,700		0.47
	PMW70	**10 Nov 2023**	6.9	<1	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	2,900	4,200	4,200		0.23
	PMW71	**08 Nov 2023**		12	<0.2	<1		<1	<1	<0.1	<1	<5	<10	<10	<10	2,600	3,600	3,600		0.12
	PMW73	**08 Nov 2023**		<1	<0.2	1		2	<1	<0.1	<1	<5	<10	<10	<10	480	600	600		0.10
	PMW76	**08 Nov 2023**		<1	<0.2	<1		3	<1	<0.1	<1	<5	<10	<10	<10	570	600	600		0.41
	PMW78	**10 Nov 2023**		<1	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	1,300	1,400	1,400		0.33
	PMW79	**10 Nov 2023**		3	<0.2	1		<1	<1	<0.1	<1	<5	<10	<10	<10	1,800	1,800	1,800		0.22
	PMW80	**10 Nov 2023**		52	<0.2	1		<1	<1	<0.1	<1	<5	<10	<10	<10	2,400	2,500	2,500		0.10
	PMW81	**10 Nov 2023**		8	<0.2	2		<1	<1	<0.1	<1	<5	<10	<10	<10	2,500	2,500	2,500		0.12
	PMW85	**08 Nov 2023**		7	<0.2	1		<1	<1	<0.1	<1	<5	<10	<10	<10	2,800	2,900	2,900		0.33
	PMW86	**08 Nov 2023**		5	<0.2	1		<1	<1	<0.1	<1	<5	10	<10	10	1,100	1,200	1,200		0.02
	PMW87	**08 Nov 2023**		8	<0.2	4	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	2,400	2,500	2,500		0.02
	PMW88	**08 Nov 2023**		11	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	200	<10	200	430	3,600	3,800		0.06
	PMW89	**10 Nov 2023**		2	<0.2	1	0.8	<1	<1	<0.1	<1	<5	<10	<10	<10	1,200	1,300	1,300		0.08
	PMW90	**10 Nov 2023**		12	<0.2	<1		<1	<1	<0.1	<1	<5	<10	<10	<10	790	800	800		0.29
	PMW94	**08 Nov 2023**		2	<0.2	<1		<1	<1	<0.1	3	11	<10	<10	<10	460	500	500		0.12
	PMW95	**08 Nov 2023**		7	<0.2	<1		<1	<1	<0.1	<1	<5	430	<10	430	150	<200	600		0.09
	PMW96	**10 Nov 2023**		4	<0.2	<1		<1	<1	<0.1	3	14	<10	<10	<10	4,300	4,400	4,400		0.15
	PMW97	**10 Nov 2023**		12	<0.2	2		<1	<1	<0.1	<1	<5								
	PU52	**08 Nov 2023**		3	<0.2	<1		<1	<1	<0.1	<1	<5	<10	<10	<10	340	400	400		0.05
	PU53	**08 Nov 2023**		2	<0.2	1		<1	<1	<0.1	<1	<5	<10	<10	<10	2,400	2,400	2,400		0.02
	PU54	**08 Nov 2023**		5	<0.2	1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	1,200	2,200	2,200		0.11
	PU55	**08 Nov 2023**		1	<0.2	<1		<1	<1	<0.1	<1	<5	10	<10	10	310	500	500		0.03
	PU65	**13 Nov 2023**																		
	PU88	**13 Nov 2023**																		
	PU92	**13 Nov 2023**																		
	PU93	**13 Nov 2023**																		
Onsite Wetland	**PMW31**	**09 Nov 2023**	7.3	1	<0.2	<1	0.9	7	<1	<0.1	1	<5	<10	<10	<10	2,900	2,900	2,900		5.6
	PMW32	**09 Nov 2023**	6.7	20	<0.2	1	<0.5	7	<1	<0.1	2	11	<10	<10	<10	540	500	500		14
	PMW91	**07 Nov 2023**	7.2	<1	<0.2	<1	<0.5	3	<1	<0.1	<1	7								
	PMW92	**07 Nov 2023**	6.5	<1	<0.2	1	<0.5	6	<1	<0.1	5	130								
Pipeline ROW	**PMW01**	**09 Nov 2023**	7.4	2	0.3	2	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	460	500	500		0.42
	PMW02	**09 Nov 2023**	7.6	1	0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	1,800	1,800	1,800		0.20
	PMW18	**09 Nov 2023**	7.8	6	0.2	<1	<0.5	<1	<1	<0.1	<1	<5	6,100	<10	6,100	90	<200	6,100		0.90
	PMW19	**09 Nov 2023**	7.2	<1	<0.2	2	<0.5	<1	<1	<0.1	<1	<5	30	<10	30	1,000	1,000	1,000		0.11
	PMW24	**09 Nov 2023**	7.8	16	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	420	<10	420	100	<200	500		0.99
	PMW58	**09 Nov 2023**	7.8	2	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	630	<10	630	70	1,900	2,500		1.1
	PMW59	**09 Nov 2023**	7.7	1	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	1,800	<10	1,800	130	200	2,000		1.00
	ROW01	**09 Nov 2023**	7.3	2	<0.2	1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	2,200	2,200	2,200		0.20
RPIP Mountain	**PMW64**	**13 Nov 2023**	6.9	<1	<0.2	<1	<0.5	<1	<1	<0.1	<1	<5	<10	<10	<10	1,100	3,900	3,900		1.8
Vacant Land	**CPMW01**	**07 Nov 2023**	6.1	3	<0.2	2	5.8	7	3	<0.1	1	<5	<10	<10	<10	690	1,100	1,100	10	
	CPMW02	**07 Nov 2023**	6.0	9	<0.2	2	18	<1	<1	<0.1	1	20	<10	<10	<10	1,900	4,200	4,200	70	
	CPMW07	**07 Nov 2023**	6.5	4	<0.2	1	<0.5	8	<1	<0.1	<1	8	<10	<10	<10	480	1,000	1,000	<10	
Western Tank Farm	**PMW07**	**06 Nov 2023**	8.2	4	<0.2	<1	<0.5	6	<1	<0.1	<1	<5	240	<10	240	130	1,100	1,300	100	
	PMW14	**27 Oct 2023**																		
	PMW39	**06 Nov 2023**	8.3	2	<0.2	<1	<0.5	5	<1	<0.1	<1	5	3,000	20	3,000	60	400	3,400	10	
	PMW54	**06 Nov 2023**	8.2	3	<0.2	<1	0.9	2	<1	<0.1	1	<5	410	<10	410	70	<200	400	80	

Table C3: Analytical Results

			PFAS																																					
			6:2 Fluorotelomer sulfonate	10:2 Fluorotelomer sulfonic acid	8:2 Fluorotelomer sulfonic acid	Perfluoroheptane sulfonic acid	Perfluoropentane sulfonic acid	N-Et-FOSA	N-Et-FOSE	N-Me-FOSA	N-Me-FOSE	Perfluorobutanoic acid (PFBA)	Perfluorononanesulfonic acid (PFNS)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	PFDoS	N-methyl-perfluorooctanesulfonamidoacetic acid	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	N-ethyl-perfluorooctanesulfonamidoacetic acid	Perfluorooctanesulfonamide (PFOSA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)3	6:2 Fluorotelomer Sulfonate (6:2 FtS)_2	Perfluorooctanoate (PFOA)	Sum of US EPA PFAS (PFOS + PFOA)	Sum of WA DER PFAS (n=10)	Sum of PFHxS and PFOS (lab reported)	Sum of PFAS (n=28)	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL			0.001	0.001	0.001	0.001	0.001	0.005	0.005	0.005	0.005	0.005	0.001	0.001	0.001	0.001	0.005	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.005	0.001	0.001	0.001	0.001	0.0001	0.005	0.001	0.001	0.005	0.001	0.005	0.001
Monitoring Zone	**Location Code**	**Date**																																						
Administration Area	**PMW21**	**06 Nov 2023**																																						
	PMW22	**06 Nov 2023**																																						
	PMW65	**06 Nov 2023**																																						
	PMW66	**06 Nov 2023**																																						
Asbestos Cell	**LCT01**	**09 Nov 2023**	0.10	0.003	<0.001	0.004	0.018	<0.005	<0.005	<0.005	<0.005	0.18	<0.001	0.49	<0.001	<0.001	<0.005	0.032	0.031	<0.001	0.75	0.43	0.12	<0.005	<0.005	<0.001	<0.001	0.023	0.12	0.073	0.033	0.54	0.613	2.748	0.193	2.947	0.733
	LDP01	**09 Nov 2023**	0.002	0.001	<0.001	<0.001	0.001	<0.005	<0.005	<0.005	<0.005	0.021	<0.001	0.032	<0.001	<0.001	<0.005	0.006	0.002	0.002	0.030	0.038	0.005	<0.005	<0.005	<0.001	<0.001	0.001	0.007	0.0074	<0.005	0.033	0.0404	0.1764	0.0144	0.1884	0.0474
	LDP02	**09 Nov 2023**	0.004	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	0.010	<0.001	0.008	<0.001	<0.001	<0.005	0.003	0.001	<0.001	0.012	0.012	0.004	<0.005	<0.005	<0.001	<0.001	<0.001	0.001	0.0037	<0.005	0.017	0.0207	0.0707	0.0047	0.0757	0.0217
Cooling Water ROW	**PU34**	**13 Nov 2023**																																						
	PU35	**13 Nov 2023**																																						
	PU36	**13 Nov 2023**																																						
Eastern Tank Farm	**PMW61**	**09 Nov 2023**	0.40	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.5	<0.1	0.18	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	0.54	0.20	0.11	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	0.40	0.4	1.72	<0.1	1.83	0.4
	PU46	**09 Nov 2023**																																						
	PU47	**09 Nov 2023**																																						
	PU48	**09 Nov 2023**																																						
	PU49	**09 Nov 2023**																																						
	PU51	**09 Nov 2023**																																						
	PU66	**09 Nov 2023**																																						
	PU67	**09 Nov 2023**																																						
	PU68	**09 Nov 2023**																																						
	PU69	**09 Nov 2023**																																						
	PU70	**09 Nov 2023**																																						
	PU71	**09 Nov 2023**																																						
	PU72	**09 Nov 2023**																																						
	PU73	**09 Nov 2023**																																						
	PU75	**07 Nov 2023**																																						
	PU76	**07 Nov 2023**																																						
	PU77	**09 Nov 2023**																																						
	PU94	**09 Nov 2023**																																						
	PU95	**09 Nov 2023**																																						
	PU96	**09 Nov 2023**																																						
	PU97	**09 Nov 2023**																																						
	PU98	**09 Nov 2023**																																						
	W08	**07 Nov 2023**																																						
	W09	**07 Nov 2023**																																						
	W10	**07 Nov 2023**																																						
	W11	**07 Nov 2023**																																						
	W12	**07 Nov 2023**																																						
	W13	**07 Nov 2023**																																						
	W16	**07 Nov 2023**																																						
	W17	**07 Nov 2023**																																						
	W18	**07 Nov 2023**																																						
	W19	**07 Nov 2023**																																						
	W20	**07 Nov 2023**																																						
	W21	**07 Nov 2023**																																						
	W22	**07 Nov 2023**																																						
Former CLOR	**BP01**	**13 Nov 2023**																																						
	CLOR1	**13 Nov 2023**																																						
	CMW01	**16 Nov 2023**																																						
	CMW02	**16 Nov 2023**																																						
	CMW03	**16 Nov 2023**																																						
	CMW04	**16 Nov 2023**																																						
	CMW06	**16 Nov 2023**																																						
	CMW07	**16 Nov 2023**																																						
	CMW08	**16 Nov 2023**																																						
	CMW09	**16 Nov 2023**																																						
	CMW10	**16 Nov 2023**																																						
	CMW11	**16 Nov 2023**																																						
	CMW12	**16 Nov 2023**																																						
	CMW14	**16 Nov 2023**																																						
	CMW15	**16 Nov 2023**																																						
	CMW16	**16 Nov 2023**																																						
	CMW19	**16 Nov 2023**																																						
	CMW22	**16 Nov 2023**																																						
	CMW29	**16 Nov 2023**																																						
	CMW30	**16 Nov 2023**																																						
	CMW31	**16 Nov 2023**																																						
	CMW32	**16 Nov 2023**																																						
	OMW01	**07 Nov 2023**																																						
	OMW02	**07 Nov 2023**																																						
	OMW03	**07 Nov 2023**																																						
	OMW04A	**07 Nov 2023**																																						
	OMW05	**07 Nov 2023**																																						
	OMW06	**07 Nov 2023**																																						
	OMW09	**07 Nov 2023**																																						
	OMW10	**07 Nov 2023**																																						
	PMW10	**13 Nov 2023**																																						
	PMW30	**13 Nov 2023**																																						
	PMW38	**13 Nov 2023**																																						
	PMW41	**13 Nov 2023**																																						
	PMW42	**13 Nov 2023**																																						
	PMW49	**13 Nov 2023**																																						
	PMW50	**13 Nov 2023**																																						
	PMW51	**13 Nov 2023**																																						
	PMW53	**13 Nov 2023**																																						
	PMW57	**13 Nov 2023**																																						

Table C3: Analytical Results

			PFAS																																					
			6:2 Fluorotelomer sulfonate	10:2 Fluorotelomer sulfonic acid	8:2 Fluorotelomer sulfonic acid	Perfluoroheptane sulfonic acid	Perfluoropentane sulfonic acid	N-Et-FOSA	N-Et-FOSE	N-Me-FOSA	N-Me-FOSE	Perfluorobutanoic acid (PFBA)	Perfluorononanesulfonic acid (PFNS)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	PFDoS	N-methyl-perfluorooctanesulfonamidoacetic acid	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	N-ethyl-perfluorooctanesulfonamidoacetic acid	Perfluorooctanesulfonamide (PFOSA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)3	6:2 Fluorotelomer Sulfonate (6:2 FtS)_2	Perfluorooctanoate (PFOA)	Sum of US EPA PFAS (PFOS + PFOA)	Sum of WA DER PFAS (n=10)	Sum of PFHxS and PFOS (lab reported)	Sum of PFAAs (n=28)	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL			0.001	0.001	0.001	0.001	0.001	0.005	0.005	0.005	0.005	0.005	0.001	0.001	0.001	0.001	0.005	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.005	0.001	0.001	0.001	0.001	0.0001	0.005	0.001	0.001	0.005	0.001	0.005	0.001
Monitoring Zone	**Location Code**	**Date**																																						
Former Fuel Refinery	**AMW07**	**14 Nov 2023**																																						
	AMW08	**14 Nov 2023**																																						
	AMW09	**14 Nov 2023**																																						
	AMW10	**14 Nov 2023**																																						
	AMW11	**14 Nov 2023**																																						
	PMW13	**06 Nov 2023**																																						
	PMW15	**06 Nov 2023**																																						
	PMW20	**06 Nov 2023**																																						
	PMW60	**09 Nov 2023**	<0.001	<0.001	<0.001	<0.001	0.002	<0.005	<0.005	<0.005	<0.005	0.029	<0.001	0.019	<0.001	<0.001	<0.005	0.007	0.002	<0.001	0.039	0.017	0.008	<0.005	<0.005	<0.001	<0.001	<0.001	0.012	0.031	<0.005	0.017	0.048	0.171	0.043	0.183	0.06
	PP01	**13 Nov 2023**																																						
	PP02	**13 Nov 2023**																																						
	PP03	**07 Nov 2023**																																						
	PP04	**07 Nov 2023**																																						
	PP05	**07 Nov 2023**																																						
	PP06	**10 Nov 2023**																																						
	PP07	**07 Nov 2023**																																						
	PP08	**08 Nov 2023**																																						
	PP09	**07 Nov 2023**																																						
	PP10	**10 Nov 2023**																																						
	PP11	**06 Nov 2023**																																						
	PP12	**06 Nov 2023**																																						
	PP13	**06 Nov 2023**																																						
	PU01	**06 Nov 2023**																																						
	PU02	**06 Nov 2023**																																						
	PU03	**06 Nov 2023**																																						
	PU04	**06 Nov 2023**																																						
	PU05	**06 Nov 2023**																																						
	PU06	**06 Nov 2023**																																						
	PU07	**06 Nov 2023**																																						
	PU08	**06 Nov 2023**																																						
	PU09	**06 Nov 2023**																																						
	PU10	**13 Nov 2023**																																						
	PU11	**13 Nov 2023**																																						
	PU12	**13 Nov 2023**																																						
	PU13	**13 Nov 2023**																																						
	PU14	**13 Nov 2023**																																						
	PU15	**13 Nov 2023**																																						
	PU16	**10 Nov 2023**																																						
	PU17	**08 Nov 2023**																																						
	PU18	**08 Nov 2023**																																						
	PU19	**08 Nov 2023**																																						
	PU20	**08 Nov 2023**																																						
	PU21	**10 Nov 2023**																																						
	PU22	**10 Nov 2023**																																						
	PU23	**10 Nov 2023**																																						
	PU24	**10 Nov 2023**																																						
	PU25	**10 Nov 2023**																																						
	PU26	**10 Nov 2023**																																						
	PU27	**10 Nov 2023**																																						
	PU28	**10 Nov 2023**																																						
	PU29	**10 Nov 2023**																																						
	PU30	**13 Nov 2023**																																						
	PU59	**06 Nov 2023**																																						
	PU60	**06 Nov 2023**																																						
	PU61	**06 Nov 2023**																																						
	PU62	**10 Nov 2023**																																						
	PU63	**10 Nov 2023**																																						
	PU64	**10 Nov 2023**																																						
	PU78	**10 Nov 2023**																																						
	PU79	**10 Nov 2023**																																						
	PU80	**10 Nov 2023**																																						
	PU81	**10 Nov 2023**																																						
	PU82	**10 Nov 2023**																																						
	PU83	**10 Nov 2023**																																						
	PU84	**10 Nov 2023**																																						
	PU85	**10 Nov 2023**																																						
	PU86	**10 Nov 2023**																																						
	PU87	**10 Nov 2023**																																						
	PU89	**13 Nov 2023**																																						
	PU90	**13 Nov 2023**																																						
	PU91	**13 Nov 2023**																																						
	PU99	**14 Nov 2023**																																						
	PU100	**14 Nov 2023**																																						
	PU101	**14 Nov 2023**																																						
	PU102	**14 Nov 2023**																																						
	PU103	**14 Nov 2023**																																						
	PU104	**14 Nov 2023**																																						
	PU105	**14 Nov 2023**																																						
	PU108	**14 Nov 2023**																																						
	PU109	**14 Nov 2023**																																						
	PU110	**14 Nov 2023**																																						
	PU111	**14 Nov 2023**																																						

Table C3: Analytical Results

			PFAS																																					
			6:2 Fluorotelomer sulfonate	10:2 Fluorotelomer sulfonic acid	8:2 Fluorotelomer sulfonic acid	Perfluoroheptane sulfonic acid	Perfluoropentane sulfonic acid	N-Et-FOSA	N-Et-FOSE	N-Me-FOSA	N-Me-FOSE	Perfluorobutanoic acid (PFBA)	Perfluorononanesulfonic acid (PFNS)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	PFDoS	N-ethyl-perfluorooctanesulfonamidoacetic acid	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	N-ethyl-perfluorooctanesulfonamidoacetic acid	Perfluorooctanesulfonamide (PFOSA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)3	6:2 Fluorotelomer Sulfonate (6:2 FtS)_2	Perfluorooctanoate (PFOA)	Sum of US EPA PFAS (PFOS + PFOA)	Sum of WA DER PFAS (n=10)	Sum of PFHxS and PFOS (lab reported)	Sum of PFASs (n=28)	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL			0.001	0.001	0.001	0.001	0.001	0.005	0.005	0.005	0.005	0.005	0.001	0.001	0.001	0.001	0.005	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.005	0.001	0.001	0.001	0.001	0.0001	0.005	0.001	0.001	0.005	0.001	0.005	0.001
Monitoring Zone	**Location Code**	**Date**																																						
Former LPG Area	**PMW03**	**06 Nov 2023**																																						
	PMW05	**06 Nov 2023**																																						
	PMW06	**06 Nov 2023**																																						
	PMW11	**06 Nov 2023**																																						
	PMW17	**06 Nov 2023**																																						
	PMW43	**06 Nov 2023**																																						
	PMW55	**06 Nov 2023**																																						
	PMW56	**06 Nov 2023**																																						
	PMW98	**06 Nov 2023**																																						
	PU31	**06 Nov 2023**																																						
	PU32	**06 Nov 2023**																																						
	PU33	**06 Nov 2023**																																						
	PU56	**06 Nov 2023**																																						
	PU57	**06 Nov 2023**																																						
	PU58	**06 Nov 2023**																																						
Kurnell Residential Area	**PMW35**	**09 Nov 2023**																																						
	PMW74	**10 Nov 2023**																																						
	PMW75	**10 Nov 2023**																																						
Landfarm Area	**PMW08**	**09 Nov 2023**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
	PMW33	**09 Nov 2023**	<0.02	<0.001	<0.001	0.003	0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	0.036	<0.001	<0.001	<0.005	0.002	<0.001	<0.001	0.028	0.036	0.006	<0.005	<0.005	<0.001	<0.001	<0.001	0.027	0.24	0.055	0.025	0.265	0.449	0.267	0.461	0.292
North Eastern Tank Farm	**PMW04**	**08 Nov 2023**																																						
	PMW23	**08 Nov 2023**																																						
	PMW25	**08 Nov 2023**																																						
	PMW26	**08 Nov 2023**																																						
	PMW27	**08 Nov 2023**																																						
	PMW34	**08 Nov 2023**																																						
	PMW36	**08 Nov 2023**																																						
	PMW48	**08 Nov 2023**																																						
	PMW62	**08 Nov 2023**																																						
	PMW63	**08 Nov 2023**																																						
	PU37	**08 Nov 2023**																																						
	PU38	**08 Nov 2023**																																						
	PU39	**08 Nov 2023**																																						
	PU40	**08 Nov 2023**																																						
	PU41	**08 Nov 2023**																																						
	PU43	**08 Nov 2023**																																						
	PU44	**08 Nov 2023**																																						
	PU45	**08 Nov 2023**																																						
North Western Tank Farm	**PMW16**	**08 Nov 2023**																																						
	PMW37	**08 Nov 2023**																																						
	PMW45	**08 Nov 2023**																																						
	PMW46	**08 Nov 2023**																																						
	PMW47	**08 Nov 2023**																																						
	PMW67	**10 Nov 2023**																																						
	PMW68	**10 Nov 2023**																																						
	PMW69	**10 Nov 2023**																																						
	PMW70	**10 Nov 2023**																																						
	PMW71	**08 Nov 2023**																																						
	PMW73	**08 Nov 2023**																																						
	PMW76	**08 Nov 2023**																																						
	PMW78	**10 Nov 2023**																																						
	PMW79	**10 Nov 2023**																																						
	PMW80	**10 Nov 2023**																																						
	PMW81	**10 Nov 2023**																																						
	PMW85	**08 Nov 2023**																																						
	PMW86	**08 Nov 2023**																																						
	PMW87	**08 Nov 2023**																																						
	PMW88	**08 Nov 2023**																																						
	PMW89	**10 Nov 2023**																																						
	PMW90	**10 Nov 2023**																																						
	PMW94	**08 Nov 2023**																																						
	PMW95	**08 Nov 2023**																																						
	PMW96	**10 Nov 2023**																																						
	PMW97	**10 Nov 2023**																																						
	PU52	**08 Nov 2023**																																						
	PU53	**08 Nov 2023**																																						
	PU54	**08 Nov 2023**																																						
	PU55	**08 Nov 2023**																																						
	PU65	**13 Nov 2023**																																						
	PU88	**13 Nov 2023**																																						
	PU92	**13 Nov 2023**																																						
	PU93	**13 Nov 2023**																																						
Onsite Wetland	**PMW31**	**09 Nov 2023**																																						
	PMW32	**09 Nov 2023**																																						
	PMW91	**07 Nov 2023**																																						
	PMW92	**07 Nov 2023**																																						
Pipeline ROW	**PMW01**	**09 Nov 2023**																																						
	PMW02	**09 Nov 2023**																																						
	PMW18	**09 Nov 2023**																																						
	PMW19	**09 Nov 2023**																																						
	PMW24	**09 Nov 2023**																																						
	PMW58	**09 Nov 2023**																																						
	PMW59	**09 Nov 2023**																																						
	ROW01	**09 Nov 2023**																																						
RPIP Mountain	**PMW64**	**13 Nov 2023**																																						
Vacant Land	**CPMW01**	**07 Nov 2023**																																						
	CPMW02	**07 Nov 2023**																																						
	CPMW07	**07 Nov 2023**																																						
Western Tank Farm	**PMW07**	**06 Nov 2023**																																						
	PMW14	**27 Oct 2023**																																						
	PMW39	**06 Nov 2023**																																						
	PMW54	**06 Nov 2023**																																						

			Lab Report Number	1041647			1041647	ES2338393		1041644			1041644	ES2338396	
			Field ID	PMW11	QC01		PMW11	QC01A		PU57	QC07		PU57	QC07A	
			Matrix Type	Water	Water		Water	Water		Water	Water		Water	Water	
			Date	06 Nov 2023	06 Nov 2023	RPD	06 Nov 2023	06 Nov 2023	RPD	06 Nov 2023	06 Nov 2023	RPD	06 Nov 2023	06 Nov 2023	RPD
	Unit	EQL													
BTEXN															
Naphthalene (VOC)	µg/L	5	<10	<10	0	<10	<5	0	<10	<10	0	<10	<5	0
Benzene	µg/L	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
Toluene	µg/L	1	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0
Ethylbenzene	µg/L	1	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0
Xylenes (m & p)	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Xylene (o)	µg/L	1	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0
TRH															
C6-C10 Fraction (F1)	µg/L	20	<20	<20	0	<20	<20	0	<20	30	40	<20	20	0
C10-C16 Fraction (F2)	µg/L	50	680	730	7	680	290	80	130	100	26	130	240	59
C16-C34 Fraction (F3)	µg/L	100	1,000	1,100	10	1,000	430	80	<100	<100	0	<100	260	89
C34-C40 Fraction (F4)	µg/L	100	<100	200	67	<100	<100	0	<100	<100	0	<100	<100	0
Heavy Metals															
Arsenic (filtered)	µg/L	1													
Cadmium (filtered)	µg/L	0.1													
Chromium (filtered)	µg/L	1													
Chromium (hexavalent)	µg/L	0.5													
Copper (filtered)	µg/L	1													
Lead (filtered)	µg/L	1													
Manganese (filtered)	µg/L	1													
Mercury (filtered)	µg/L	0.1													
Nickel (filtered)	µg/L	1													
Zinc (filtered)	µg/L	5													
Nutrients															
Nitrate (as N)	µg/L	10													
Nitrite (as N)	µg/L	10													
Ammonia (as N)	µg/L	10													
Nitrogen (Total)	µg/L	100													
Total Phosphorus (as P)	µg/L	10													
PAH															
Acenaphthene	µg/L	0.01													
Acenaphthylene	µg/L	0.01													
Anthracene	µg/L	0.01													
Benz(a)anthracene	µg/L	0.01													
Benzo(a)pyrene	µg/L	0.01													
Benzo(b)&(j)fluoranthene	µg/L	0.01													
Benzo(g,h,i)perylene	µg/L	0.01													
Benzo(k)fluoranthene	µg/L	0.01													
Chrysene	µg/L	0.01													
Dibenz(a,h)anthracene	µg/L	0.01													
Fluoranthene	µg/L	0.01													
Fluorene	µg/L	0.01													
Indeno(1,2,3-c,d)pyrene	µg/L	0.01													
Naphthalene	µg/L	0.01													
Phenanthrene	µg/L	0.01													
Perylene	µg/L	0.1													
Pyrene	µg/L	0.01													
Phenolics															
Dinoseb	µg/L	100													
2,4-Dimethylphenol	µg/L	1													
2,4-Dinitrophenol	µg/L	30													
2-Methylphenol	µg/L	1													
2-Nitrophenol	µg/L	1													
3- & 4- Methylphenol	µg/L	2													
4,6-Dinitro-2-methylphenol	µg/L	30													
4,6-Dinitro-o-cyclohexylphenol	µg/L	100													
4-Nitrophenol	µg/L	30													
Cresols (Sum of total)	µg/L	10													
Phenol	µg/L	1													
Non-Halogenated Phenols (Sum of total)	µg/L	100													
Phenolics-Halogenated															
2,4,5-Trichlorophenol	µg/L	1													
2,4,6-Trichlorophenol	µg/L	1													
2,4-Dichlorophenol	µg/L	1													
2,6-Dichlorophenol	µg/L	1													
2-Chlorophenol	µg/L	1													
4-Chloro-3-methylphenol	µg/L	1													
Pentachlorophenol	µg/L	2													
Tetrachlorophenols (Sum of total)	µg/L	30													
Halogenated Phenols (Sum of total)	µg/L	10													

**RPDs have only been considered where a concentration is greater than 1 times the EQL.
**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 200 (1 - 10 x EQL); 100 (10 - 30 x EQL); 100 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Lab Report Number			1041980			1041980	ES2338557		1041954			1041954	ES2338591		1042541			1042541	ES2338766	
Field ID			OMW09	QC02		OMW09	QC02A		W17	QC08		W17	QC08A		PMW63	QC03		PMW63	QC03A	
Matrix Type			Water	Water		Water	Water		Water	Water		Water	Water		Water	Water		Water	Water	
Date			07 Nov 2023	07 Nov 2023	RPD	07 Nov 2023	07 Nov 2023	RPD	07 Nov 2023	07 Nov 2023	RPD	07 Nov 2023	07 Nov 2023	RPD	08 Nov 2023	08 Nov 2023	RPD	08 Nov 2023	08 Nov 2023	RPD
	Unit	EQL																		
BTEXN																				
Naphthalene (VOC)	µg/L	5	<10	<10	0	<10	<5	0	1,600	1,700	6	1,600	1,340	18	<10	<10	0	<10	<5	0
Benzene	µg/L	1	<1	<1	0	<1	<1	0	230	250	8	230	239	4	<1	<1	0	<1	<1	0
Toluene	µg/L	1	<1	<1	0	<1	<2	0	72	<100	0	72	59	20	<1	<1	0	<1	<2	0
Ethylbenzene	µg/L	1	<1	<1	0	<1	<2	0	480	520	8	480	431	11	<1	<1	0	<1	<2	0
Xylenes (m & p)	µg/L	2	<2	<2	0	<2	<2	0	210	220	5	210	177	17	<2	<2	0	<2	<2	0
Xylene (o)	µg/L	1	<1	<1	0	<1	<2	0	62	<100	0	62	52	18	<1	<1	0	<1	<2	0
TRH																				
C6-C10 Fraction (F1)	µg/L	20	<20	<20	0	<20	<20	0	1,900	<2,000	0	1,900	4,530	82	100	<20	133	100	40	86
C10-C16 Fraction (F2)	µg/L	50	100	120	18	100	170	52	5,400	7,200	29	5,400	3,570	41	410	240	52	410	180	78
C16-C34 Fraction (F3)	µg/L	100	400	400	0	400	400	0	400	<100	120	400	120	108	200	<100	67	200	<100	67
C34-C40 Fraction (F4)	µg/L	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
Heavy Metals																				
Arsenic (filtered)	µg/L	1													19	18	5	19	16	17
Cadmium (filtered)	µg/L	0.1													<0.2	<0.2	0	<0.2	<0.1	0
Chromium (filtered)	µg/L	1													<1	<1	0	<1	<1	0
Chromium (hexavalent)	µg/L	0.5													<0.5	1.0	67	<0.5		
Copper (filtered)	µg/L	1													<1	<1	0	<1	<1	0
Lead (filtered)	µg/L	1													<1	<1	0	<1	<1	0
Manganese (filtered)	µg/L	1																		
Mercury (filtered)	µg/L	0.1													<0.1	<0.1	0	<0.1	<0.1	0
Nickel (filtered)	µg/L	1													<1	<1	0	<1	<1	0
Zinc (filtered)	µg/L	5													<5	<5	0	<5	<5	0
Nutrients																				
Nitrate (as N)	µg/L	10													<10	<10	0	<10		
Nitrite (as N)	µg/L	10													<10	<10	0	<10		
Ammonia (as N)	µg/L	10													2,000	2,000	0	2,000	1,250	46
Nitrogen (Total)	µg/L	100													1,700	2,300	30	1,700	5,100	100
Total Phosphorus (as P)	µg/L	10																	570	
PAH																				
Acenaphthene	µg/L	0.01							2	1	67	2	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Acenaphthylene	µg/L	0.01							<1	<1	0	<1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Anthracene	µg/L	0.01							1	<1	0	1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Benz(a)anthracene	µg/L	0.01							<1	<1	0	<1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Benzo(a)pyrene	µg/L	0.01							2	2	0	2	<4.8	0	<0.01	<0.01	0	<0.01	<0.05	0
Benzo(b)&(j)fluoranthene	µg/L	0.01							<1	<1	0	<1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Benzo(g,h,i)perylene	µg/L	0.01							<1	<1	0	<1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Benzo(k)fluoranthene	µg/L	0.01							<1	<1	0	<1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Chrysene	µg/L	0.01							<1	<1	0	<1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Dibenz(a,h)anthracene	µg/L	0.01							<1	<1	0	<1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Fluoranthene	µg/L	0.01							<1	<1	0	<1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Fluorene	µg/L	0.01							<1	<1	0	<1	<4.8	0	0.06	<0.01	143	0.06	<0.1	0
Indeno(1,2,3-c,d)pyrene	µg/L	0.01							<1	<1	0	<1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Naphthalene	µg/L	0.01							1,400	1,600	13	1,400	1,210	15	0.85	<0.01	195	0.85	<0.1	158
Phenanthrene	µg/L	0.01							1	1	0	1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Perylene	µg/L	0.1																	<0.1	
Pyrene	µg/L	0.01							<1	1	0	<1	<4.8	0	<0.01	<0.01	0	<0.01	<0.1	0
Phenolics																				
Dinoseb	µg/L	100													<100	<100	0	<100		
2,4-Dimethylphenol	µg/L	1													<3	<3	0	<3	<1.0	0
2,4-Dinitrophenol	µg/L	30													<30	<30	0	<30		
2-Methylphenol	µg/L	1													<3	<3	0	<3	<1.0	0
2-Nitrophenol	µg/L	1													<10	<10	0	<10	<1.0	0
3- & 4- Methylphenol	µg/L	2													<6	<6	0	<6	<2.0	0
4,6-Dinitro-2-methylphenol	µg/L	30													<30	<30	0	<30		
4,6-Dinitro-o-cyclohexylphenol	µg/L	100													<100	<100	0	<100		
4-Nitrophenol	µg/L	30													<30	<30	0	<30		
Cresols (Sum of total)	µg/L	10													<10	<10	0	<10		
Phenol	µg/L	1													<3	<3	0	<3	<1.0	0
Non-Halogenated Phenols (Sum of total)	µg/L	100													<100	<100	0	<100		
Phenolics-Halogenated																				
2,4,5-Trichlorophenol	µg/L	1													<10	<10	0	<10	<1.0	0
2,4,6-Trichlorophenol	µg/L	1													<10	<10	0	<10	<1.0	0
2,4-Dichlorophenol	µg/L	1													<3	<3	0	<3	<1.0	0
2,6-Dichlorophenol	µg/L	1													<3	<3	0	<3	<1.0	0
2-Chlorophenol	µg/L	1													<3	<3	0	<3	<1.0	0
4-Chloro-3-methylphenol	µg/L	1													<10	<10	0	<10	<1.0	0
Pentachlorophenol	µg/L	2													<10	<10	0	<10	<2.0	0
Tetrachlorophenols (Sum of total)	µg/L	30													<30	<30	0	<30		
Halogenated Phenols (Sum of total)	µg/L	10													<10	<10	0	<10		

*RPDs have only been considered where a concentration is greater than 1 times th
**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs fo
***Interlab Duplicates are matched on a per compound basis as methods vary be

Lab Report Number			1042563			1042563	ES2338765		1042874			1042874	ES2339026		1042844			1042844	ES2339027	
Field ID			PMW88	QC09		PMW88	QC09A		PMW19	QC04		PMW19	QC04A		PU77	QC10		PU77	QC10A	
Matrix Type			Water	Water		Water	Water		Water	Water		Water	Water		Water	Water		Water	Water	
Date			08 Nov 2023	08 Nov 2023	RPD	08 Nov 2023	08 Nov 2023	RPD	09 Nov 2023	09 Nov 2023	RPD	09 Nov 2023	09 Nov 2023	RPD	09 Nov 2023	09 Nov 2023	RPD	09 Nov 2023	09 Nov 2023	RPD
	Unit	EQL																		
BTEXN																				
Naphthalene (VOC)	µg/L	5	50	<10	133	50	45	11	<10	<10	0	<10	<5	0	<10	<10	0	<10	<5	0
Benzene	µg/L	1	1	<1	0	1	1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
Toluene	µg/L	1	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0
Ethylbenzene	µg/L	1	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0	2	1	67	2	<2	0
Xylenes (m & p)	µg/L	2	4	<2	67	4	6	40	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Xylene (o)	µg/L	1	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0
TRH																				
C6-C10 Fraction (F1)	µg/L	20	130	<20	147	130	330	87	<20	<20	0	<20	<20	0	140	90	43	140	250	56
C10-C16 Fraction (F2)	µg/L	50	<50	150	100	<50	<100	0	<50	50	0	<50	<100	0	160	170	6	160	<100	46
C16-C34 Fraction (F3)	µg/L	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	200	200	0	200	<100	67
C34-C40 Fraction (F4)	µg/L	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
Heavy Metals																				
Arsenic (filtered)	µg/L	1	11	12	9	11			<1	<1	0	<1	<1	0						
Cadmium (filtered)	µg/L	0.1	<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2	<0.1	0						
Chromium (filtered)	µg/L	1	<1	<1	0	<1			2	<1	67	2	<1	67						
Chromium (hexavalent)	µg/L	0.5	<0.5	<0.5	0	<0.5			<0.5	0.6	18	<0.5	<1	0						
Copper (filtered)	µg/L	1	<1	<1	0	<1			<1	<1	0	<1	<1	0						
Lead (filtered)	µg/L	1	<1	<1	0	<1			<1	<1	0	<1	<1	0						
Manganese (filtered)	µg/L	1	24	24	0	24														
Mercury (filtered)	µg/L	0.1	<0.1	<0.1	0	<0.1			<0.1	<0.1	0	<0.1	<0.1	0						
Nickel (filtered)	µg/L	1	<1	<1	0	<1			<1	<1	0	<1	<1	0						
Zinc (filtered)	µg/L	5	<5	<5	0	<5			<5	<5	0	<5	<5	0						
Nutrients																				
Nitrate (as N)	µg/L	10	200			200			30	40	29	30	60	67						
Nitrite (as N)	µg/L	10	<10			<10			<10	<10	0	<10	<10	0						
Ammonia (as N)	µg/L	10	430			430			1,000	1,300	26	1,000	820	20						
Nitrogen (Total)	µg/L	100	3,800			3,800			1,000	1,300	26	1,000	1,900	62						
Total Phosphorus (as P)	µg/L	10											90							
PAH																				
Acenaphthene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Acenaphthylene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Anthracene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Benz(a)anthracene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Benzo(a)pyrene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.05	0	<1	<1	0	<1	<0.5	0
Benzo(b)&(j)fluoranthene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Benzo(g,h,i)perylene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Benzo(k)fluoranthene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Chrysene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Dibenz(a,h)anthracene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Fluoranthene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Fluorene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Indeno(1,2,3-c,d)pyrene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Naphthalene	µg/L	0.01							<0.03	<0.03	0	<0.03	<0.1	0	4	4	0	4	2.6	42
Phenanthrene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Perylene	µg/L	0.1											<0.1							
Pyrene	µg/L	0.01							<0.02	<0.02	0	<0.02	<0.1	0	<1	<1	0	<1	<1.0	0
Phenolics																				
Dinoseb	µg/L	100													<100	<100	0	<100		
2,4-Dimethylphenol	µg/L	1													<3	<3	0	<3	<1.0	0
2,4-Dinitrophenol	µg/L	30													<30	<30	0	<30		
2-Methylphenol	µg/L	1													<3	<3	0	<3	<1.0	0
2-Nitrophenol	µg/L	1													<10	<10	0	<10	<1.0	0
3- & 4- Methylphenol	µg/L	2													<6	<6	0	<6	<2.0	0
4,6-Dinitro-2-methylphenol	µg/L	30													<30	<30	0	<30		
4,6-Dinitro-o-cyclohexylphenol	µg/L	100													<100	<100	0	<100		
4-Nitrophenol	µg/L	30													<30	<30	0	<30		
Cresols (Sum of total)	µg/L	10													<10	<10	0	<10		
Phenol	µg/L	1													<3	<3	0	<3	<1.0	0
Non-Halogenated Phenols (Sum of total)	µg/L	100													<100	<100	0	<100		
Phenolics-Halogenated																				
2,4,5-Trichlorophenol	µg/L	1													<10	<10	0	<10	<1.0	0
2,4,6-Trichlorophenol	µg/L	1													<10	<10	0	<10	<1.0	0
2,4-Dichlorophenol	µg/L	1													<3	<3	0	<3	<1.0	0
2,6-Dichlorophenol	µg/L	1													<3	<3	0	<3	<1.0	0
2-Chlorophenol	µg/L	1													<3	<3	0	<3	<1.0	0
4-Chloro-3-methylphenol	µg/L	1													<10	<10	0	<10	<1.0	0
Pentachlorophenol	µg/L	2													<10	<10	0	<10	<2.0	0
Tetrachlorophenols (Sum of total)	µg/L	30													<30	<30	0	<30		
Halogenated Phenols (Sum of total)	µg/L	10													<10	<10	0	<10		

*RPDs have only been considered where a concentration is greater than 1 times th
**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs fo
***Interlab Duplicates are matched on a per compound basis as methods vary be

Lab Report Number			1043242			1043242	ES2339163		1043208			1043208	ES2339162		1043687			1043687	ES2339339	
Field ID			PMW78	QC05		PMW78	QC05A		PU86	QC11		PU86	QC11A		PMW50	QC06		PMW50	QC06A	
Matrix Type			Water	Water		Water	Water		Water	Water		Water	Water		Water	Water		Water	Water	
Date			10 Nov 2023	10 Nov 2023	RPD	10 Nov 2023	10 Nov 2023	RPD	10 Nov 2023	10 Nov 2023	RPD	10 Nov 2023	10 Nov 2023	RPD	13 Nov 2023	13 Nov 2023	RPD	13 Nov 2023	13 Nov 2023	RPD
	Unit	EQL																		
BTEXN																				
Naphthalene (VOC)	µg/L	5	<10	<10	0	<10	<5	0	<1,000	<1,000	0	<1,000	686	0	<10	<10	0	<10	<5	0
Benzene	µg/L	1	<1	<1	0	<1	<1	0	<100	<100	0	<100	15	0	<1	<1	0	<1	<1	0
Toluene	µg/L	1	<1	<1	0	<1	<2	0	<100	<100	0	<100	40	0	<1	<1	0	<1	<2	0
Ethylbenzene	µg/L	1	<1	<1	0	<1	<2	0	<100	<100	0	<100	66	0	<1	<1	0	<1	<2	0
Xylenes (m & p)	µg/L	2	<2	<2	0	<2	<2	0	1,300	1,400	7	1,300	1,270	2	<2	<2	0	<2	<2	0
Xylene (o)	µg/L	1	<1	<1	0	<1	<2	0	<100	<100	0	<100	28	0	<1	<1	0	<1	<2	0
TRH																				
C6-C10 Fraction (F1)	µg/L	20	<20	20	0	<20	20	0	22,000	21,000	5	22,000	3,610	144	<20	<20	0	<20	<20	0
C10-C16 Fraction (F2)	µg/L	50	210	450	73	210	430	69	1,700	1,900	11	1,700	2,020	17	<50	<50	0	<50	<100	0
C16-C34 Fraction (F3)	µg/L	100	300	600	67	300	320	6	300	400	29	300	160	61	<100	<100	0	<100	<100	0
C34-C40 Fraction (F4)	µg/L	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
Heavy Metals																				
Arsenic (filtered)	µg/L	1	<1			<1	2	67							2	2	0	2	2	0
Cadmium (filtered)	µg/L	0.1	<0.2			<0.2	<0.1	0							<0.2	<0.2	0	<0.2	<0.1	0
Chromium (filtered)	µg/L	1	<1			<1	<1	0							<1	<1	0	<1	<1	0
Chromium (hexavalent)	µg/L	0.5	<0.5	<0.5	0	<0.5									0.8	<0.5	46	0.8	<1	0
Copper (filtered)	µg/L	1	<1			<1	<1	0							<1	<1	0	<1	<1	0
Lead (filtered)	µg/L	1	<1			<1	<1	0							<1	<1	0	<1	<1	0
Manganese (filtered)	µg/L	1	85	84	1	85	85	0												
Mercury (filtered)	µg/L	0.1	<0.1			<0.1	<0.1	0							<0.1	<0.1	0	<0.1	<0.1	0
Nickel (filtered)	µg/L	1	<1			<1	<1	0							<1	<1	0	<1	<1	0
Zinc (filtered)	µg/L	5	<5			<5	<5	0							<5	<5	0	<5	<5	0
Nutrients																				
Nitrate (as N)	µg/L	10	<10	<10	0	<10	20	67							<10	<10	0	<10	40	120
Nitrite (as N)	µg/L	10	<10	<10	0	<10	<10	0							<10	<10	0	<10	<10	0
Ammonia (as N)	µg/L	10	1,300	1,400	7	1,300	720	57							300	310	3	300	190	45
Nitrogen (Total)	µg/L	100	1,400	1,500	7	1,400	4,300	102							1,400	800	55	1,400	2,200	44
Total Phosphorus (as P)	µg/L	10					570												240	
PAH																				
Acenaphthene	µg/L	0.01																		
Acenaphthylene	µg/L	0.01																		
Anthracene	µg/L	0.01																		
Benz(a)anthracene	µg/L	0.01																		
Benzo(a)pyrene	µg/L	0.01																		
Benzo(b)&(j)fluoranthene	µg/L	0.01																		
Benzo(g,h,i)perylene	µg/L	0.01																		
Benzo(k)fluoranthene	µg/L	0.01																		
Chrysene	µg/L	0.01																		
Dibenz(a,h)anthracene	µg/L	0.01																		
Fluoranthene	µg/L	0.01																		
Fluorene	µg/L	0.01																		
Indeno(1,2,3-c,d)pyrene	µg/L	0.01																		
Naphthalene	µg/L	0.01																		
Phenanthrene	µg/L	0.01																		
Perylene	µg/L	0.1																		
Pyrene	µg/L	0.01																		
Phenolics																				
Dinoseb	µg/L	100																		
2,4-Dimethylphenol	µg/L	1																		
2,4-Dinitrophenol	µg/L	30																		
2-Methylphenol	µg/L	1																		
2-Nitrophenol	µg/L	1																		
3- & 4- Methylphenol	µg/L	2																		
4,6-Dinitro-2-methylphenol	µg/L	30																		
4,6-Dinitro-o-cyclohexylphenol	µg/L	100																		
4-Nitrophenol	µg/L	30																		
Cresols (Sum of total)	µg/L	10																		
Phenol	µg/L	1																		
Non-Halogenated Phenols (Sum of total)	µg/L	100																		
Phenolics-Halogenated																				
2,4,5-Trichlorophenol	µg/L	1																		
2,4,6-Trichlorophenol	µg/L	1																		
2,4-Dichlorophenol	µg/L	1																		
2,6-Dichlorophenol	µg/L	1																		
2-Chlorophenol	µg/L	1																		
4-Chloro-3-methylphenol	µg/L	1																		
Pentachlorophenol	µg/L	2																		
Tetrachlorophenols (Sum of total)	µg/L	30																		
Halogenated Phenols (Sum of total)	µg/L	10																		

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**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs fo
***Interlab Duplicates are matched on a per compound basis as methods vary be

			Lab Report Number	1043699			1043699	ES2339340		1044062			1044062	ES2340405		1044976			1044976	ES2339896	
			Field ID	PU90	QC12		PU90	QC12A		AMW11	QC15		AMW11	QC15A		CMW07	QC13		CMW07	QC13A	
			Matrix Type	Water	Water		Water	Water		Water	Water		Water	Water		Water	Water		Water	Water	
			Date	13 Nov 2023	13 Nov 2023	RPD	13 Nov 2023	13 Nov 2023	RPD	14 Nov 2023	14 Nov 2023	RPD	14 Nov 2023	19 Nov 2023	RPD	16 Nov 2023	16 Nov 2023	RPD	16 Nov 2023	16 Nov 2023	RPD
	Unit	EQL																			
BTEXN																					
Naphthalene (VOC)	µg/L	5		60	60	0	60	53	12	<10	<10	0	<10	<5	0	<10	<10	0	<10	<5	0
Benzene	µg/L	1		<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
Toluene	µg/L	1		<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0
Ethylbenzene	µg/L	1		<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0
Xylenes (m & p)	µg/L	2		<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Xylene (o)	µg/L	1		<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0	<1	<1	0	<1	<2	0
TRH																					
C6-C10 Fraction (F1)	µg/L	20		260	370	35	260	300	14	<20	40	67	<20	<20	0	<20	<20	0	<20	<20	0
C10-C16 Fraction (F2)	µg/L	50		460	380	19	460	170	92	<500	390	0	<500	130	0	90	140	43	90	<100	0
C16-C34 Fraction (F3)	µg/L	100		200	300	40	200	<100	67	<1,000	400	0	<1,000	<100	0	<100	1,900	180	<100	260	89
C34-C40 Fraction (F4)	µg/L	100		<100	<100	0	<100	<100	0	<1,000	<100	0	<1,000	<100	0	<100	100	0	<100	<100	0
Heavy Metals																					
Arsenic (filtered)	µg/L	1																			
Cadmium (filtered)	µg/L	0.1																			
Chromium (filtered)	µg/L	1																			
Chromium (hexavalent)	µg/L	0.5																			
Copper (filtered)	µg/L	1																			
Lead (filtered)	µg/L	1																			
Manganese (filtered)	µg/L	1																			
Mercury (filtered)	µg/L	0.1																			
Nickel (filtered)	µg/L	1																			
Zinc (filtered)	µg/L	5																			
Nutrients																					
Nitrate (as N)	µg/L	10																			
Nitrite (as N)	µg/L	10																			
Ammonia (as N)	µg/L	10																			
Nitrogen (Total)	µg/L	100																			
Total Phosphorus (as P)	µg/L	10																			
PAH																					
Acenaphthene	µg/L	0.01		<1	<1	0	<1	<1.0	0	3	3	0	3	1.2	86						
Acenaphthylene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Anthracene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Benz(a)anthracene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Benzo(a)pyrene	µg/L	0.01		<1	<1	0	<1	<0.5	0	<1	<1	0	<1	<0.5	0						
Benzo(b)&(j)fluoranthene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Benzo(g,h,i)perylene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Benzo(k)fluoranthene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Chrysene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Dibenz(a,h)anthracene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Fluoranthene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Fluorene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Indeno(1,2,3-c,d)pyrene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Naphthalene	µg/L	0.01		55	54	2	55	32.0	53	2	2	0	2	<1.0	67						
Phenanthrene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Perylene	µg/L	0.1																			
Pyrene	µg/L	0.01		<1	<1	0	<1	<1.0	0	<1	<1	0	<1	<1.0	0						
Phenolics																					
Dinoseb	µg/L	100		<100	<100	0	<100			<100	<100	0	<100								
2,4-Dimethylphenol	µg/L	1		<3	<3	0	<3	<1.0	0	<3	<3	0	<3	<1.0	0						
2,4-Dinitrophenol	µg/L	30		<30	<30	0	<30			<30	<30	0	<30								
2-Methylphenol	µg/L	1		<3	<3	0	<3	<1.0	0	<3	<3	0	<3	<1.0	0						
2-Nitrophenol	µg/L	1		<10	<10	0	<10	<1.0	0	<10	<10	0	<10	<1.0	0						
3- & 4- Methylphenol	µg/L	2		<6	<6	0	<6	<2.0	0	<6	<6	0	<6	<2.0	0						
4,6-Dinitro-2-methylphenol	µg/L	30		<30	<30	0	<30			<30	<30	0	<30								
4,6-Dinitro-o-cyclohexylphenol	µg/L	100		<100	<100	0	<100			<100	<100	0	<100								
4-Nitrophenol	µg/L	30		<30	<30	0	<30			<30	<30	0	<30								
Cresols (Sum of total)	µg/L	10		<10	<10	0	<10			<10	<10	0	<10								
Phenol	µg/L	1		<3	<3	0	<3	<1.0	0	<3	<3	0	<3	<1.0	0						
Non-Halogenated Phenols (Sum of total)	µg/L	100		<100	<100	0	<100			<100	<100	0	<100								
Phenolics-Halogenated																					
2,4,5-Trichlorophenol	µg/L	1		<10	<10	0	<10	<1.0	0	<10	<10	0	<10	<1.0	0						
2,4,6-Trichlorophenol	µg/L	1		<10	<10	0	<10	<1.0	0	<10	<10	0	<10	<1.0	0						
2,4-Dichlorophenol	µg/L	1		<3	<3	0	<3	<1.0	0	<3	<3	0	<3	<1.0	0						
2,6-Dichlorophenol	µg/L	1		<3	<3	0	<3	<1.0	0	<3	<3	0	<3	<1.0	0						
2-Chlorophenol	µg/L	1		<3	<3	0	<3	<1.0	0	<3	<3	0	<3	<1.0	0						
4-Chloro-3-methylphenol	µg/L	1		<10	<10	0	<10	<1.0	0	<10	<10	0	<10	<1.0	0						
Pentachlorophenol	µg/L	2		<10	<10	0	<10	<2.0	0	<10	<10	0	<10	<2.0	0						
Tetrachlorophenols (Sum of total)	µg/L	30		<30	<30	0	<30			<30	<30	0	<30								
Halogenated Phenols (Sum of total)	µg/L	10		<10	<10	0	<10			<10	<10	0	<10								

*RPDs have only been considered where a concentration is greater than 1 times th
**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs fo
***Interlab Duplicates are matched on a per compound basis as methods vary bet

			Lab Report Number	1044976		1044976	ES2339896	
			Field ID	CMW09	QC14	CMW09	QC14A	
			Matrix Type	Water	Water	Water	Water	
			Date	16 Nov 2023	16 Nov 2023	RPD	16 Nov 2023	16 Nov 2023	RPD
	Unit	EQL						
BTEXN								
Naphthalene (VOC)	µg/L	5	<10	<10	0	<10	<5	0
Benzene	µg/L	1	<1	<1	0	<1	<1	0
Toluene	µg/L	1	<1	<1	0	<1	<2	0
Ethylbenzene	µg/L	1	<1	<1	0	<1	<2	0
Xylenes (m & p)	µg/L	2	<2	<2	0	<2	<2	0
Xylene (o)	µg/L	1	<1	<1	0	<1	<2	0
TRH								
C6-C10 Fraction (F1)	µg/L	20	<20	<20	0	<20	<20	0
C10-C16 Fraction (F2)	µg/L	50	520	<50	165	520	<100	135
C16-C34 Fraction (F3)	µg/L	100	1,100	400	93	1,100	<100	167
C34-C40 Fraction (F4)	µg/L	100	<100	<100	0	<100	<100	0
Heavy Metals								
Arsenic (filtered)	µg/L	1						
Cadmium (filtered)	µg/L	0.1						
Chromium (filtered)	µg/L	1						
Chromium (hexavalent)	µg/L	0.5						
Copper (filtered)	µg/L	1						
Lead (filtered)	µg/L	1						
Manganese (filtered)	µg/L	1						
Mercury (filtered)	µg/L	0.1						
Nickel (filtered)	µg/L	1						
Zinc (filtered)	µg/L	5						
Nutrients								
Nitrate (as N)	µg/L	10						
Nitrite (as N)	µg/L	10						
Ammonia (as N)	µg/L	10						
Nitrogen (Total)	µg/L	100						
Total Phosphorus (as P)	µg/L	10						
PAH								
Acenaphthene	µg/L	0.01						
Acenaphthylene	µg/L	0.01						
Anthracene	µg/L	0.01						
Benz(a)anthracene	µg/L	0.01						
Benzo(a)pyrene	µg/L	0.01						
Benzo(b)&(j)fluoranthene	µg/L	0.01						
Benzo(g,h,i)perylene	µg/L	0.01						
Benzo(k)fluoranthene	µg/L	0.01						
Chrysene	µg/L	0.01						
Dibenz(a,h)anthracene	µg/L	0.01						
Fluoranthene	µg/L	0.01						
Fluorene	µg/L	0.01						
Indeno(1,2,3-c,d)pyrene	µg/L	0.01						
Naphthalene	µg/L	0.01						
Phenanthrene	µg/L	0.01						
Perylene	µg/L	0.1						
Pyrene	µg/L	0.01						
Phenolics								
Dinoseb	µg/L	100						
2,4-Dimethylphenol	µg/L	1						
2,4-Dinitrophenol	µg/L	30						
2-Methylphenol	µg/L	1						
2-Nitrophenol	µg/L	1						
3- & 4- Methylphenol	µg/L	2						
4,6-Dinitro-2-methylphenol	µg/L	30						
4,6-Dinitro-o-cyclohexylphenol	µg/L	100						
4-Nitrophenol	µg/L	30						
Cresols (Sum of total)	µg/L	10						
Phenol	µg/L	1						
Non-Halogenated Phenols (Sum of total)	µg/L	100						
Phenolics-Halogenated								
2,4,5-Trichlorophenol	µg/L	1						
2,4,6-Trichlorophenol	µg/L	1						
2,4-Dichlorophenol	µg/L	1						
2,6-Dichlorophenol	µg/L	1						
2-Chlorophenol	µg/L	1						
4-Chloro-3-methylphenol	µg/L	1						
Pentachlorophenol	µg/L	2						
Tetrachlorophenols (Sum of total)	µg/L	30						
Halogenated Phenols (Sum of total)	µg/L	10						

**RPDs have only been considered where a concentration is greater than 1 times th
**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs fo
***Interlab Duplicates are matched on a per compound basis as methods vary be

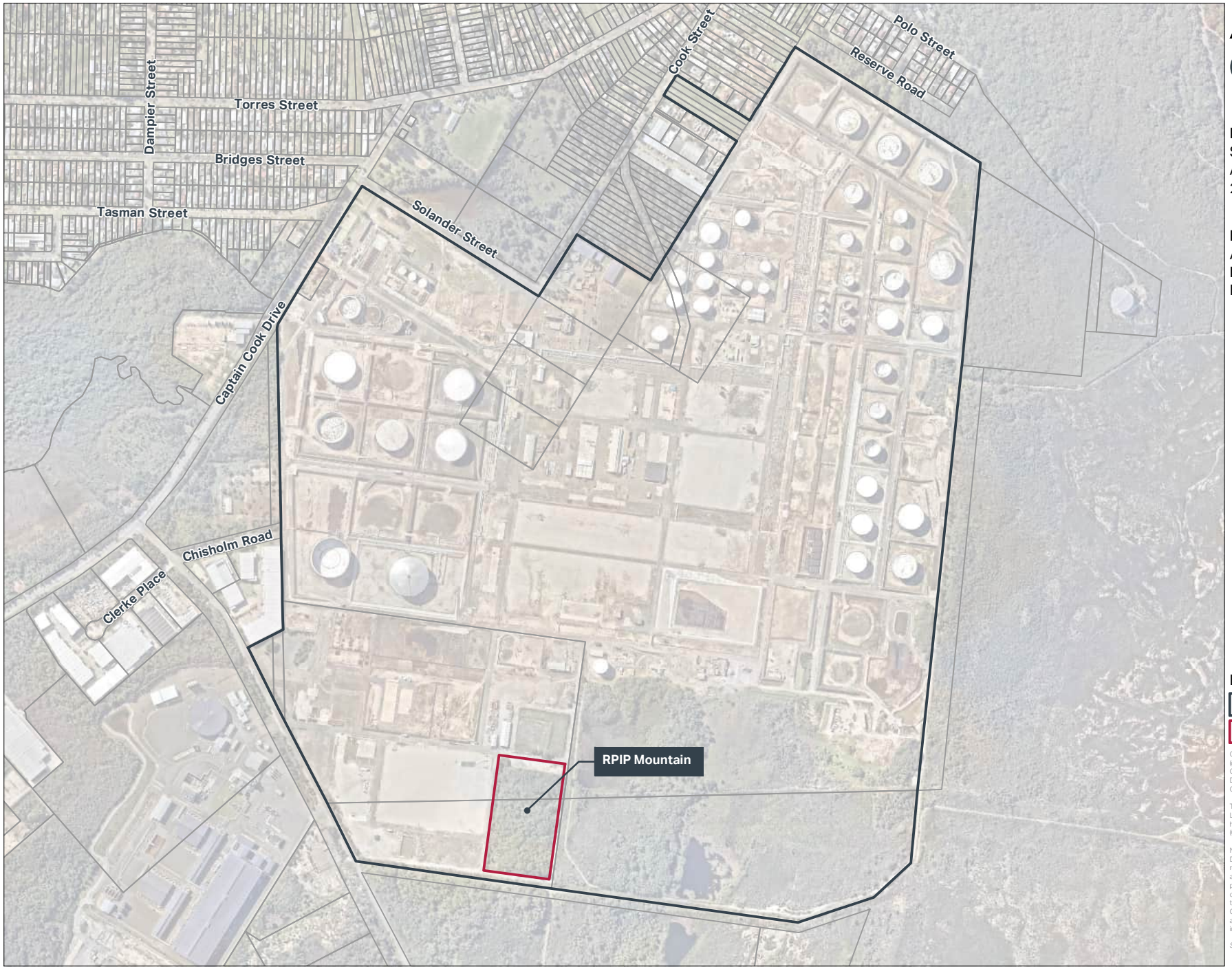
Table C5: Trip Blanks and Spikes

			BTEX					
			Benzene	Toluene	Ethylbenzene	Xylenes (m & p)	Xylene (o)	Xylenes (Sum of total) (Lab Reported)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EQL			1	1	1	2	1	3
Field ID	**Date**	**Lab Report Number**						
TB01	**06 Nov 2023**	**1041647**	<1	1	<1	<2	<1	<3
TB02	**07 Nov 2023**	**1041980**	<1	<1	<1	<2	<1	<3
TB03	**08 Nov 2023**	**1042541**	<1	<1	<1	<2	<1	<3
TB04	**09 Nov 2023**	**1042874**	<1	<1	<1	<2	<1	<3
TB05	**10 Nov 2023**	**1043242**	<1	<1	<1	<2	<1	<3
TB06	**13 Nov 2023**	**1043687**	<1	<1	<1	<2	<1	<3
TB07	**06 Nov 2023**	**1041644**	<1	<1	<1	<2	<1	<3
TB08	**07 Nov 2023**	**1041954**	<1	<1	<1	<2	<1	<3
TB09	**08 Nov 2023**	**1042563**	<1	<1	<1	<2	<1	<3
TB10	**09 Nov 2023**	**1042844**	<1	<1	<1	<2	<1	<3
TB11	**10 Nov 2023**	**1043208**	<1	<1	<1	<2	<1	<3
TB12	**13 Nov 2023**	**1043699**	<1	<1	<1	<2	<1	<3
TB13	**16 Nov 2023**	**1044976**	<1	<1	<1	<2	<1	<3
TB14	**14 Nov 2023**	**1044062**	<1	<1	<1	<2	<1	<3
			% Recovery					
TS01	**06 Nov 2023**	**1041647**	120	120	110	110	110	110
TS02	**07 Nov 2023**	**1041980**	110	130	120	120	120	120
TS03	**08 Nov 2023**	**1042541**	96	110	96	100	98	100
TS04	**09 Nov 2023**	**1042874**	130	120	110	110	100	110
TS05	**10 Nov 2023**	**1043242**	95	110	93	100	92	95
TS06	**13 Nov 2023**	**1043687**	95	110	94	100	94	97
TS07	**06 Nov 2023**	**1041644**	100	120	110	120	110	110
TS08	**07 Nov 2023**	**1041954**	110	130	110	120	110	120
TS09	**08 Nov 2023**	**1042563**	100	110	97	100	96	98
TS10	**09 Nov 2023**	**1042844**	110	120	100	110	100	100
TS11	**10 Nov 2023**	**1043208**	94	99	87	95	90	92
TS12	**13 Nov 2023**	**1043699**	93	100	88	95	90	92
TS13	**16 Nov 2023**	**1044976**	100	110	93	100	92	96
TS14	**14 Nov 2023**	**1044062**	100	96	94	97	110	100

Appendix C - Historical analytical results

4.0 Report details

Report Title:	Asbestos in Soil Investigation, Ampol Kurnell Terminal, 2 Solander Street, Kurnell NSW, RPIP Investigation
Author:	AECOM
Report Date:	31 July 2023



AECOM

N

0 100 200 m

FIGURE 1:
Site Overview
Ampol Kurnell Terminal,
2 Solander Street, Kurnell 2231

Investigation Area: RPIP Mountain Area
Project: RPIP Mountain Investigation

Legend

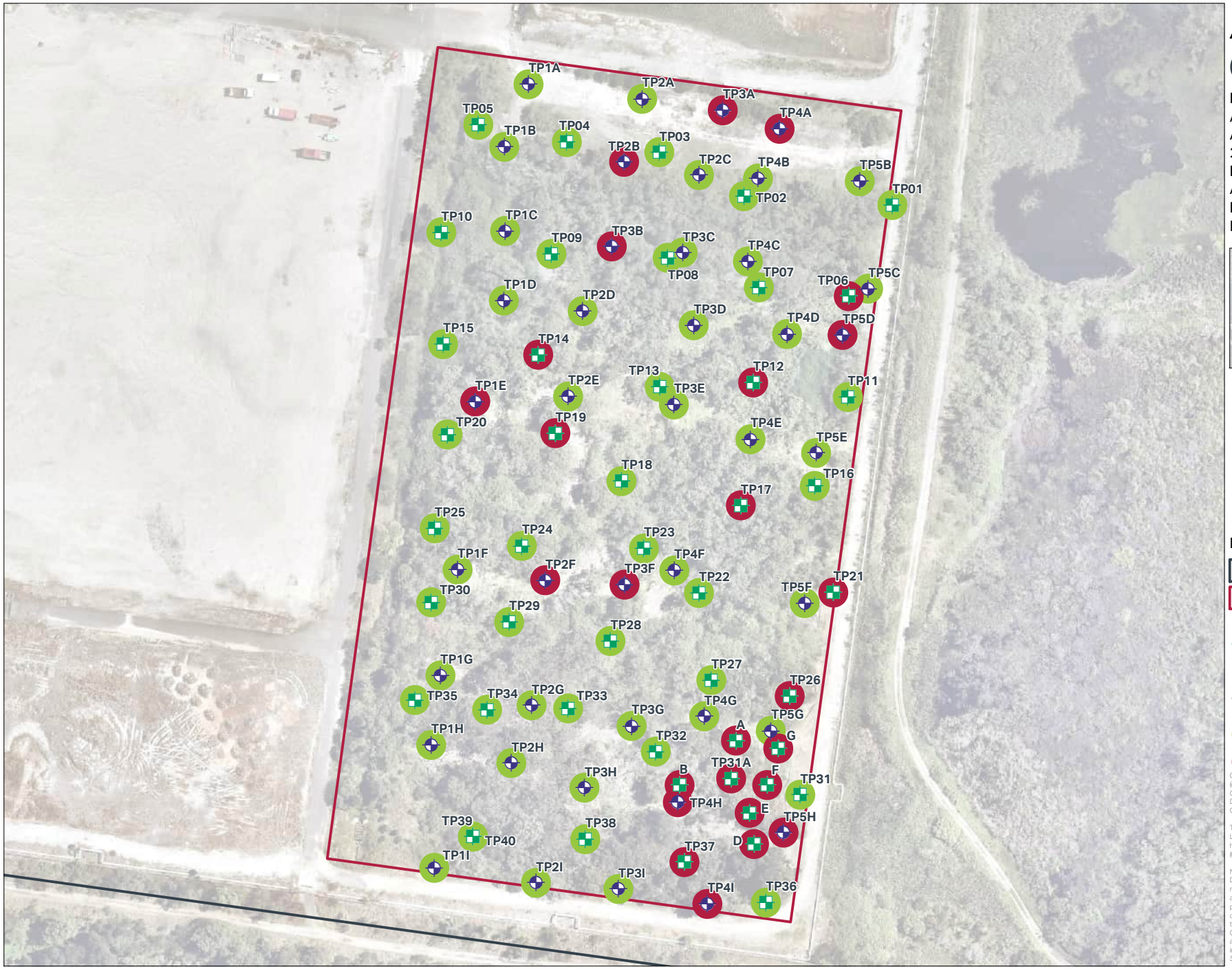
- Site Boundary
- Sampling Area

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Source: Imagery , Nearmap 2020.



AECOM

N

0 15 30 m

FIGURE 2:
Asbestos Impacts
Ampol Kurnell Terminal,
2 Solander Street, Kurnell NSW
Investigation Area: RPIP Mountain Area
Project: RPIP Mountain Investigation



Legend

- Site Boundary
- Sampling Area
- Sample Locations (Parsons Brinckerhoff, 2011)
- Sample Locations (AECOM, 2022)
- No Asbestos detected
- Asbestos detected

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Source: Imagery , Nearmap 2020.



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N

0 15 30 m

FIGURE 3:
Surficial Asbestos
Ampol Kurnell Terminal,
2 Solander Street, Kurnell NSW
Investigation Area: RPIP Mountain Area
Project: RPIP Mountain Investigation



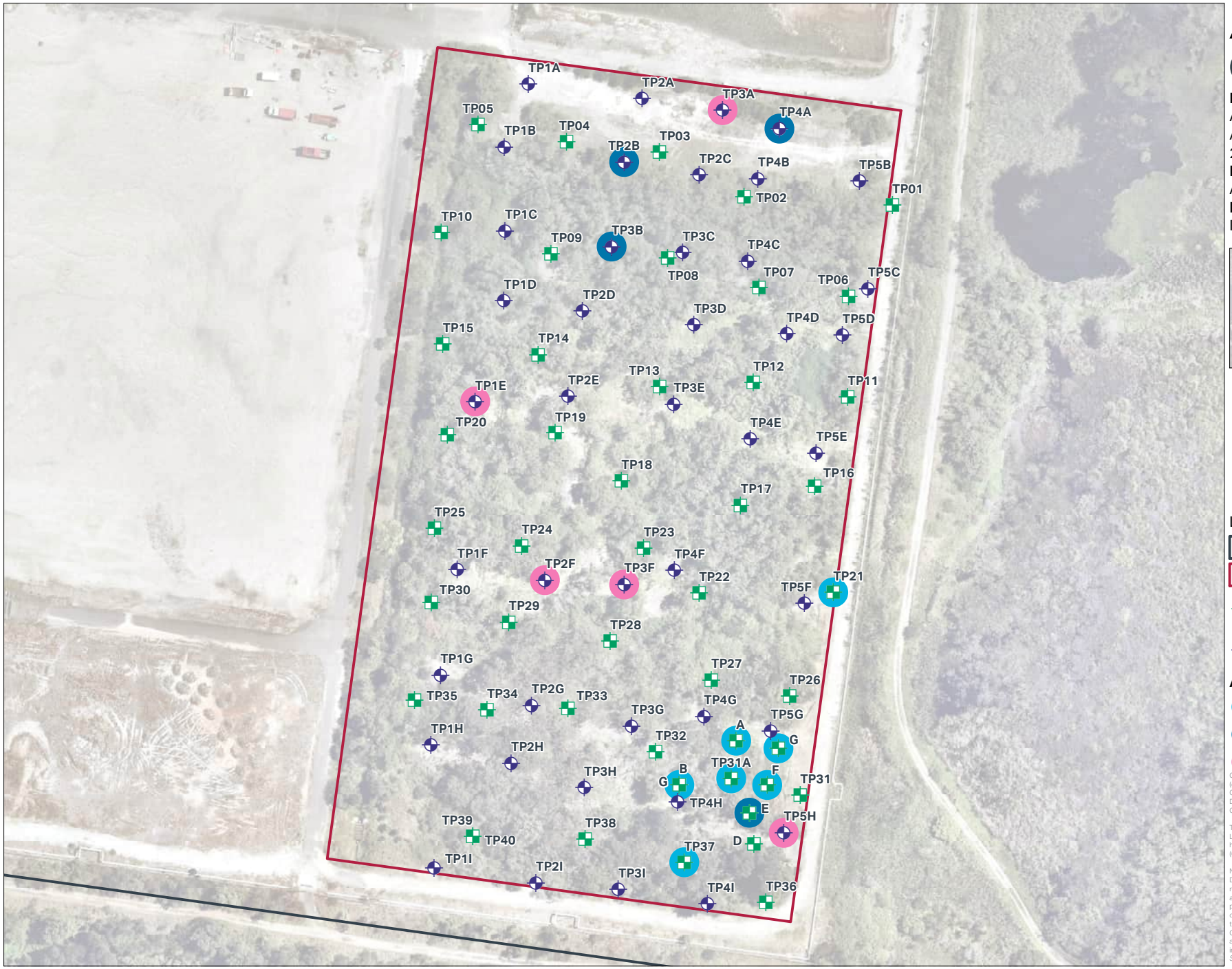
Legend

- Site Boundary
- Sampling Area
- Sample Locations (Parsons Brinckerhoff, 2011)
- Sample Locations (AECOM, 2022)
- Surficial Asbestos

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Source: Imagery , Nearmap 2020.



AECOM

N

0 15 30 m

FIGURE 4:
Asbestos at Depth
Ampol Kurnell Terminal,
2 Solander Street, Kurnell NSW
Investigation Area: RPIP Mountain Area
Project: RPIP Mountain Investigation



Legend

- Site Boundary
- Sampling Area
- Sample Locations (Parsons Brinckerhoff, 2011)
- Sample Locations (AECOM, 2022)

Asbestos Depth Ranges (m)

- 0.1 - 0.5
- 0.5 - 1
- 1 - 2

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AECOM

N

0 15 30 m

FIGURE 5:
Relative Elevation Above Ground
Ampol Kurnell Terminal,
2 Solander Street, Kurnell NSW
Investigation Area: RPIP Mountain Area
Project: RPIP Mountain Investigation



Legend

- Site Boundary
- Sampling Area
- Cadastre Boundary
- Sample Locations (AECOM, 2022)

Relative Elevation Above Ground Level (m)

- 0 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 3
- 3 - 4

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Source: Imagery , Nearmap 2020.

Client - Ampol Petroleum Australia Pty Ltd
Kurnell Terminal - RPIP Mountain
Project: Asbestos in Soils Investigation

T1 - Asbestos in Soil Analytical Results

AECOM

							Asbestos															
							Asbestos Detected	Asbestos in soil (>7mm friable and non-friable)	Asbestos in soil (>7mm bonded ACM) [Field] [#1]		Asbestos (Fines and Fibrous <7mm)	Asbestos (friable asbestos >7mm) [Field]	Friable Asbestos (FA & AF) (<7mm)	Friable Asbestos (>7mm) [Field]	Friable Asbestos (FA & AF) Total [#2, #4]	Asbestos (Trace)	Asbestos Type	Weight Used for % Calculation of Friable Asbestos (FA & AF) (<7mm) [Lab]	Organic Fibre	Synthetic Mineral Fibre
							-	g	g	% (w/w)	g	g	% (w/w)	% (w/w)	% (w/w)	Fibres	-	kg	g/kg	g/kg
LOR							0.1	0.0004			0.0004		0.001			5		0.0001	0.1	0.1
NEPM 2013 Table 7 Comm/Ind D HSL for Asbestos in Soil										0.05					0.001					
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**	**Matrix Type**														
TP1A	**TP1A_0.1_220901**	**0.1**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.644	No	No
	TP1A_0.5_220901	**0.5**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.695	No	No
	TP1A_1.7_220901	**1.7**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.801	No	No
TP1B	**TP1B_0.1_220901**	**0.1**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.655	No	No
	TP1B_0.7_220901	**0.7**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.672	No	No
	TP1B_2.0_220901	**2**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.921	No	No
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.626	No	No
	TP1C_1.0_220905	**1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.716	No	No
	TP1C_1.8_220905	**1.8**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.698	No	No
TP1D	**TP1D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.804	No	No
	TP1D_1.0_220905	**1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.816	No	No
	TP1D_1.9_220905	**1.9**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.855	No	No
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.723	No	No
	TP1E_1.0_220906	**1**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.687	No	No
	TP1E_1.8_220906	**1.8**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	11.9	0.011	<0.0004	-	<0.001	-	-	No	-	0.658	No	No
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.697	No	No
	TP1F_1.0_220907	**1**	**7/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.626	No	No
	TP1F_1.8_220907	**1.8**	**7/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.683	No	No
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.626	No	No
	TP1G_1.0_220908	**1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.738	No	No
	TP1G_1.8_220908	**1.8**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.691	No	No
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.65	No	No
	TP1H_1.0_220908	**1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.763	No	No
	TP1H_1.8_220908	**1.8**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.722	No	No
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.524	No	No
	TP1I_1.0_220909	**1**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.574	No	No
	TP1I_1.8_220909	**1.8**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.702	No	No
TP2A	**TP2A_0.1_220901**	**0.1**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.652	No	No
	TP2A_0.5_220901	**0.5**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.728	No	No
	TP2A_1.7_220901	**1.7**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.674	No	No
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.731	No	No
	TP2B_1.0_220901	**1**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	16.8	0.015	<0.0004	-	<0.001	-	-	No	-	0.723	No	No
	TP2B_1.7_220901	**1.7**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.729	Yes	No
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.548	No	No
	TP2C_1.0_220905	**1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.671	No	No
	TP2C_2.0_220905	**2**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.677	No	No
TP2D	**TP2D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.631	No	No
	TP2D_1.2_220905	**1.2**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.711	No	No
	TP2D_1.8_220905	**1.8**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.702	No	No
TP2E	**TP2E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.698	No	No
	TP2E_1.2_220906	**1.2**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.72	No	No
	TP2E_2.0_220906	**2**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.682	No	No
TP2F	**TP2F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.684	No	No
	TP2F_1.0_220907	**1**	**7/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.613	No	No
	TP2F_1.8_220907	**1.8**	**7/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	20.1	<0.001	0.049	0.049	No	-	0.625	No	No
TP2G	**TP2G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.65	No	No
	TP2G_0.6_220908	**0.6**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.772	No	No
	TP2G_1.8_220908	**1.8**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.704	No	No
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.68	No	No
	TP2H_1.0_220908	**1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.751	No	No
	TP2H_1.8_220908	**1.8**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.709	No	No
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.715	No	No
	TP2I_1.0_220909	**1**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.773	No	No
	TP2I_1.8_220909	**1.8**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.669	No	No
TP3A	**TP3A_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.712	No	No
	TP3A_0.4_220901	**0.4**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.675	No	No
	TP3A_1.4_220901	**1.4**	**1/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	5.77	0.005	<0.0004	-	<0.001	-	-	No	-	0.824	No	No
TP3B	**TP3B_0.0_220902**	**0**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No*	<0.0004	-	-	0.0052	-	<0.001	-	-	No	-	0.764	No	No
	TP3B_0.2_220902	**0.2**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.69	No	No
	TP3B_0.7_220902	**0.7**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No*	<0.0004	-	-	0.0004	-	<0.001	-	-	No	-	0.626	No	No
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.512	No	No
	TP3C_1.2_220905	**1.2**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.742	No	No
	TP3C_1.5_220905	**1.5**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.726	No	No
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.62	No	No
	TP3D_1.0_220905	**1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.672	No	No
	TP3D_1.8_220905	**1.8**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.666	No	No
TP3E	**TP3E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.658	No	No
	TP3E_1.0_220906	**1**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.574	No	No
	TP3E_2.0_220906	**2**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.641	No	No
TP3F	**TP3F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.448	No	No
	TP3F_1.0_220907	**1**	**7/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.571	No	No
	TP3F_1.8_220907	**1.8**	**7/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	12.4	0.011	<0.0004	-	<0.001	-	-	No	-	0.48	No	No
TP3G	**TP3G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.772	No	No
	TP3G_0.4_220908	**0.4**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.687	No	No
	TP3G_1.8_220908	**1.8**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.709	No	No
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.602	No	No
	TP3H_1.0_220908	**1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.686	No	No

T1 - Asbestos in Soil Analytical Results

AECOM

							Asbestos													
							Asbestos Detected	Asbestos in soil (>7mm friable and non-friable)	Asbestos in soil (>7mm bonded ACM) [Field] #1		Asbestos (Fines and Fibrous <7mm)	Asbestos (friable asbestos >7mm) [Field]	Friable Asbestos (FA & AF) (<7mm)	Friable Asbestos (>7mm) [Field]	Friable Asbestos (FA & AF) Total #2, #4	Asbestos (Trace)	Asbestos Type	Weight Used for % Calculation of Friable Asbestos (FA & AF) (<7mm) [Lab]	Organic Fibre	Synthetic Mineral Fibre
							-	g	g	% (w/w)	g	g	% (w/w)	% (w/w)	% (w/w)	Fibres	-	kg	g/kg	g/kg
LOR							0.1	0.0004			0.0004		0.001			5		0.0001	0.1	0.1
NEPM 2013 Table 7 Comm/Ind D HSL for Asbestos in Soil										0.05					0.001					
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**	**Matrix Type**														
	TP3H_1.8_220908	**1.8**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.746	No	No
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.701	No	No
	TP3I_1.0_220909	**1**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.771	No	No
	TP3I_1.8_220909	**1.8**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.763	No	No
TP4A	**TP4A_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.657	No	No
	TP4A_0.8_220902	**0.8**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	21.5	<0.001	0.052	0.052	No	-	0.746	No	No
	TP4A_1.3_220902	**1.3**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.685	No	No
TP4B	**TP4B_0.1_220902**	**0.1**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.612	No	No
	TP4B_0.8_220902	**0.8**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.705	No	No
	TP4B_1.2_220902	**1.2**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.718	No	No
TP4C	**TP4C_0.1_220902**	**0.1**	**7/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.801	No	No
	TP4C_1.3_220902	**1.3**	**7/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.661	No	No
	TP4C_1.5_220902	**1.5**	**7/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.753	No	No
TP4D	**TP4D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.726	No	No
	TP4D_1.0_220905	**1**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.596	No	No
	TP4D_1.9_220905	**1.9**	**5/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.435	No	No
TP4E	**TP4E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.63	No	No
	TP4E_0.4_220906	**0.4**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.652	No	No
	TP4E_1.8_220906	**1.8**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.658	No	No
TP4F	**TP4F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.583	No	No
	TP4F_1.0_220907	**1**	**7/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.625	No	No
	TP4F_1.8_220907	**1.8**	**7/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.61	No	No
TP4G	**TP4G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.734	No	No
	TP4G_0.5_220908	**0.5**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.775	No	No
	TP4G_1.8_220908	**1.8**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.827	No	No
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	Yes	5.25	310	0.282	33.5	411.75 #3	6.06	2.189 #3	8.249	Yes	Am	0.64	No	No
	TP4H_1.0_220909	**1**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	Yes	<0.0004	-	-	6.98	-	0.985	-	0.985	No	Am	0.709	No	No
	TP4H_1.8_220909	**1.8**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.806	No	No
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	50.9	0.046	<0.0004	-	<0.001	-	-	No	-	0.775	No	No
	TP4I_1.6_220908	**1.6**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.707	No	No
	TP4I_1.8_220908	**1.8**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.653	No	No
TP5B	**TP5B_0.1_220902**	**0.1**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.688	No	No
	TP5B_0.7_220902	**0.7**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.652	No	No
	TP5B_1.5_220902	**1.5**	**2/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.742	No	No
TP5C	**TP5C_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.663	No	No
	TP5C_0.8_220906	**0.8**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.621	No	No
	TP5C_1.5_220906	**1.5**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.742	No	No
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	17.4	<0.001	0.095	0.095	No	-	0.493	No	No
	TP5D_1.1_220906	**1.1**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.743	No	No
	TP5D_1.5_220906	**1.5**	**6/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.694	No	No
TP5E	**TP5E_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.649	No	No
	TP5E_1.0_220907	**1**	**7/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.646	No	No
	TP5E_1.6_220907	**1.6**	**7/09/2022**	**Normal**	**EN2208983**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.716	No	No
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.756	No	No
	TP5F_1.0_220908	**1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.784	No	No
	TP5F_1.8_220908	**1.8**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.776	No	No
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.729	No	No
	TP5G_0.9_220908	**0.9**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.733	No	No
	TP5G_1.8_220908	**1.8**	**8/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.747	No	No
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	Yes	<0.0004	3.03	0.003	1.03	-	0.183	-	0.183	No	Am	0.563	No	No
	TP5H_1.0_220909	**1**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	-	-	<0.0004	-	<0.001	-	-	No	-	0.637	No	No
	TP5H_1.8_220909	**1.8**	**9/09/2022**	**Normal**	**EN2208954**	**Soil**	No	<0.0004	22.3	0.020	<0.0004	-	<0.001	-	-	No	-	0.684	No	No

Notes
LOR: Limit of Reporting
mbgl: meters below ground level
Asbestos Trace: Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
Am' = Amosite (Brown Asbestos)
No** = No asbestos found at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
#1 Bonded ACM collected during field sieving.
#2 Refer to Table T3 for soil asbestos content calculations.
#3 Refer to Table T3.3 for calculation of total AF/FA for sample TP4H_0.1.
#4 Total friable asbestos calculated as sum of laboratory reported % w/w for AF/FA <7mm and AECOM calculated % w/w for AF/FA >7mm collected during field sieving.

T2 - Bulk Asbestos Analytical Results

						Asbestos detected	Asbestos Type	Organic Fibre	Synthetic Mineral Fibre
						g/kg	-	g/kg	g/kg
LOR						0.1		0.1	0.1
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Lab Report Number**	**Material**				
TP2B	**AS001_TP2B_1.0**	**1**	**1/09/2022**	**EN2208954**	**Cement sheet**	Yes	Ch	No	No
TP3A	**AS002_TP3A_1.4**	**1.4**	**1/09/2022**	**EN2208954**	**Cement sheet**	Yes	Ch + Am	No	No
TP4A	**AS003_TP4A_0.8**	**0.8**	**2/09/2022**	**EN2208954**	**Fibre board**	Yes	Ch + Am + Cr	No	No
TP5D	**AS004_TP5D_0.1**	**0.1**	**6/09/2022**	**EN2208954**	**Gasket**	Yes	Ch	No	No
TP1E	**AS005_TP1E_1.8**	**1.8**	**6/09/2022**	**EN2208954**	**Cement sheet**	Yes	Ch + Am	No	No
TP2F	**AS006_TP2F_1.8**	**1.8**	**7/09/2022**	**EN2208954**	**Fibre board**	Yes	Ch + Am	No	No
TP3F	**AS007_TP3F_1.8**	**1.8**	**7/09/2022**	**EN2208954**	**Cement sheet**	Yes	Ch + Am + Cr	No	No
TP4H	**AS008_TP4H_0.1**	**0.1**	**9/09/2022**	**EN2208954**	**Gasket**	Yes	Ch	No	No
TP4H	**AS009_TP4H_0.1**	**0.1**	**9/09/2022**	**EN2208954**	**Cement pipe**	Yes	Ch + Am + Cr	No	No
TP4H	**AS010_TP4H_0.1**	**0.1**	**9/09/2022**	**EN2208954**	**Lagging**	Yes	Am	No	No
TP4H	**AS011_TP4H_0.1**	**0.1**	**9/09/2022**	**EN2208954**	**Rope**	Yes	Ch	No	No
TP5H	**AS012_TP5H_0.1**	**0.1**	**9/09/2022**	**EN2208954**	**Cement sheet**	Yes	Ch	No	No
TP5H	**AS013_TP5H_1.8**	**1.8**	**9/09/2022**	**EN2208954**	**Cement sheet**	Yes	Ch	No	No
TP4I	**AS014_TP4I_0.1**	**0.1**	**8/09/2022**	**EN2208954**	**Cement sheet**	Yes	Ch	No	No

Notes
LOR: Limit of Reporting
mbgl: meters below ground level
Am' = Amosite (Brown Asbestos)
Ch' = Chrysotile (White Asbestos)
Cr' = Crocidolite (Blue Asbestos)

T3 - Asbestos in Soil Calculations

AECOM

T3.1 Bonded ACM

Sample ID	ACM weight (kg)	Asbestos Content (% w/w) [#1]	Bonded Soil Asbestos (%) [#2]	Material description
AS001_TP2B_1.0	0.0168	15%	0.015	Two pieces of asbestos cement sheeting approximately 50x50x5mm.
AS002_TP3A_1.4	0.00577	15%	0.005	A collection of asbestos cement sheeting debris approximately 10x10x5mm.
AS005_TP1E_1.8	0.0119	15%	0.011	Three pieces of asbestos cement sheeting approximately 25x25x5mm.
AS007_TP3F_1.8	0.0124	15%	0.011	Two pieces of asbestos cement sheeting approximately 30x30x5mm.
AS009_TP4H_0.1	0.31	15%	0.282	Several pieces of asbestos cement pipe debris approximately 100x100x5mm.
AS012_TP5H_0.1	0.00303	15%	0.003	Two pieces of asbestos cement sheeting approximately 15x15x5mm.
AS013_TP5H_1.8	0.0223	15%	0.020	Two pieces of asbestos cement sheeting approximately 50x50x5mm.
AS014_TP4I_0.1	0.0509	15%	0.046	Three pieces of asbestos cement sheeting approximately 70x60x5mm.

T3.2 Asbestos Fines/Fibrous Asbestos (AF/FA)

Sample ID	AF/FA weight (kg)	Asbestos Content (% w/w) [#1]	Soil Asbestos (%) [#2]	Material description
AS003_TP4A_0.8	0.0215	40%	0.052	A collection of asbestos fibre board approximately 100x100x5mm.
AS004_TP5D_0.1	0.0174	90%	0.095	Two pieces of asbestos gasket-like material approximately 30x30x2mm.
AS006_TP2F_1.8	0.0201	40%	0.049	A collection of asbestos fibre board debris approximately 50x50x5mm.
AS008_TP4H_0.1	0.129	90%	0.704	Several pieces of asbestos gasket-like material approximately 100x50x2mm.
AS010_TP4H_0.1	0.246	85%	1.267	A collection of asbestos lagging-like material.
AS011_TP4H_0.1	0.0315	100%	0.191	One piece of asbestos rope-like material.
TP4H_0.1_220909	0.00525	85%	0.027	Asbestos lagging debris (>7mm)

T3.3 Total Asbestos Fines/Fibrous Asbestos (AF/FA) at TP4H_0.1

Sample ID	AF/FA weight (kg)	Asbestos Content (% w/w) [#1]	Soil Asbestos (%) [#2]
AS008_TP4H_0.1	0.129	90%	0.704
AS010_TP4H_0.1	0.246	85%	1.267
AS011_TP4H_0.1	0.0315	100%	0.191
TP4H_0.1_220909	0.00525	85%	0.027
TOTAL	**0.41175**	-	**2.189**

Notes

[#1] Material asbestos content is an approximation derived from 'Surveying and Sampling Stategies for Asbestos in Buildings', British Occupational Hydiene Society, 2016.

[#2] % w/w determined by gravimetric approach as per WA DoH (2021), Appendix Two.

T3 - Soil Analytical Results

AECOM

						Metals								NA											
						Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Naphthalene (value used in F2 calc)	Perfluorooctanoic acid (PFOA)		Perfluorooctane sulfonic acid (PFOS)		Perfluorohexane sulfonic acid (PFHxS)		Sum (PFHxS + PFOS)		4:2 Fluorotelomer sulfonic acid (4:2 FTS)		6:2 Fluorotelomer sulfonic acid (6:2
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg
LOR						2	0.4	2	5	5	0.1	2	5		0.0002	0.01	0.0002	0.01	0.0002	0.01	0.0002	0.01	0.0005	0.05	0.0005
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																									
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil						3,000	900		240,000	1,500	730	6,000	400,000												
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																									
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind						160																			
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																									
NSW 2014 General Solid Waste CT1 (No Leaching)						100	20			100	4	40													
NSW 2014 General Solid Waste SCC1 (with leached)						500	100			1,500	50	1,050			18						1.8				
NSW 2014 General Solid Waste TCLP1 (leached)																500						50			
NSW 2014 Restricted Solid Waste CT2 (No Leaching)						400	80			400	16	160													
NSW 2014 Restricted Solid Waste SCC2 (with leached)						2,000	400			6,000	200	4,200			72						7.2				
NSW 2014 Restricted Solid Waste TCLP2 (leached)																2,000						200			
PFAS NEMP 2020 Ecological direct exposure															10		1								
PFAS NEMP 2020 Ecological indirect exposure																	0.01								
PFAS NEMP 2020 Industrial/ commercial (HIL D)															50						20				
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																				
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<5	<1	10	45	50	<0.1	15	81	<1	0.0005	0.02	0.0021	0.09	0.0003	<0.01	0.0024	0.09	<0.0005	<0.05	<0.0005
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	<5	<1	3	<5	<5	<0.1	<2	6	<1	0.001	0.04	0.0026	0.06	0.0006	<0.01	0.0032	0.06	<0.0005	<0.05	<0.0005
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<5	<1	11	49	54	0.2	11	352	<1	<0.0002	<0.01	0.0005	<0.01	<0.0002	<0.01	0.0005	<0.01	<0.0005	<0.05	<0.0005
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<5	<1	21	346	316	0.2	17	1,780	<1	0.0004	<0.01	0.0132	0.08	0.0004	<0.01	0.0136	0.08	<0.0005	<0.05	<0.0005
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	6	<1	18	93	255	0.1	16	418	<1	<0.0002	<0.01	0.0003	<0.01	<0.0002	<0.01	0.0003	<0.01	<0.0005	<0.05	<0.0005
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	<5	<1	13	54	56	0.3	18	303	<1	<0.0002	<0.01	0.0003	<0.01	<0.0002	<0.01	0.0003	<0.01	<0.0005	<0.05	<0.0005
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	5	<1	3	<5	<5	<0.1	<2	<5	<1	<0.0002	<0.01	0.0002	<0.01	<0.0002	<0.01	0.0002	<0.01	<0.0005	<0.05	<0.0005
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	7	<1	4	<5	<5	<0.1	2	5	<1	<0.0002	<0.01	0.0002	<0.01	<0.0002	<0.01	0.0002	<0.01	<0.0005	<0.05	<0.0005
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<5	<1	3	9	<5	<0.1	8	12	<1	<0.0002	<0.01	0.001	0.01	<0.0002	<0.01	0.001	0.01	<0.0005	<0.05	<0.0005
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<5	<1	14	115	132	0.4	11	974	<1	0.0002	<0.01	0.0005	<0.01	<0.0002	<0.01	0.0005	<0.01	<0.0005	<0.05	<0.0005
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	<5	<1	17	112	169	0.1	11	1,010	<1	<0.0002	<0.01	0.0004	<0.01	<0.0002	<0.01	0.0004	<0.01	<0.0005	<0.05	<0.0005
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<5	<1	11	55	60	<0.1	7	484	<1	<0.0002	<0.01	0.0002	<0.01	<0.0002	<0.01	0.0002	<0.01	<0.0005	<0.05	<0.0005
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	<5	<1	11	120	143	<0.1	6	1,480	<1	0.0002	<0.01	<0.0002	<0.01	<0.0002	<0.01	<0.0002	<0.01	<0.0005	<0.05	<0.0005
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	6	<1	15	35	49	0.1	17	316	<1	<0.0002	<0.01	0.0004	<0.01	<0.0002	<0.01	0.0004	<0.01	<0.0005	<0.05	<0.0005
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<5	<1	14	45	42	0.1	27	223	<1	<0.0002	<0.01	0.0017	<0.01	0.0004	<0.01	0.0021	<0.01	<0.0005	<0.05	<0.0005
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	<5	<1	3	6	6	<0.1	3	31	<1	<0.0002	<0.01	0.0003	<0.01	<0.0002	<0.01	0.0003	<0.01	<0.0005	<0.05	<0.0005
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<5	<1	<2	<5	<5	<0.1	<2	8	<1	<0.0002	<0.01	0.0003	<0.01	<0.0002	<0.01	0.0003	<0.01	<0.0005	<0.05	<0.0005
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<5	<1	<2	<5	<5	<0.1	<2	<5	<1	<0.0002	<0.01	0.0006	0.03	<0.0002	<0.01	0.0006	0.03	<0.0005	<0.05	<0.0005
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	9	<1	44	229	207	0.5	17	1,290	<1	0.0002	<0.01	0.0012	0.03	0.0004	<0.01	0.0016	0.03	<0.0005	<0.05	<0.0005
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	<5	<1	29	173	178	0.3	24	1,500	<1	<0.0002	<0.01	0.0004	0.01	<0.0002	<0.01	0.0004	0.01	<0.0005	<0.05	<0.0005
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	7	<1	40	439	403	0.7	23	2,550	<1	<0.0002	<0.01	0.0026	0.02	<0.0002	<0.01	0.0026	0.02	<0.0005	<0.05	<0.0005
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	7	<1	48	332	285	0.4	26	2,550	<1	0.0004	0.01	0.001	<0.01	<0.0002	<0.01	0.001	<0.01	<0.0005	<0.05	<0.0005
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	<5	<1	18	140	113	0.2	19	764	<1	<0.0002	<0.01	0.0007	<0.01	<0.0002	<0.01	0.0007	<0.01	<0.0005	<0.05	<0.0005
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<5	<1	13	58	60	0.1	13	403	<1	0.0002	0.01	0.0008	0.02	0.0002	<0.01	0.001	0.02	<0.0005	<0.05	<0.0005
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	<5	<1	13	29	15	0.2	35	71	<1	<0.0002	<0.01	0.0005	<0.01	<0.0002	<0.01	0.0005	<0.01	<0.0005	<0.05	<0.0005
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	5	<1	10	37	79	<0.1	14	212	<1	<0.0002	<0.01	0.002	0.02	<0.0002	<0.01	0.002	0.02	<0.0005	<0.05	<0.0005
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<5	<1	<2	<5	<5	<0.1	<2	<5	<1	<0.0002	<0.01	0.0028	0.05	<0.0002	<0.01	0.0028	0.05	<0.0005	<0.05	<0.0005
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	<5	<1	39	24	22	0.1	6	107	<1	<0.0002	<0.01	0.0009	0.03	<0.0002	<0.01	0.0009	0.03	<0.0005	<0.05	<0.0005
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	<5	1	59	552	852	0.2	44	6,700	<1	<0.0002	<0.01	0.0017	0.02	<0.0002	<0.01	0.0017	0.02	<0.0005	<0.05	<0.0005
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	<5	<1	3	8	7	<0.1	3	54	<1	<0.0002	<0.01	0.0002	<0.01	<0.0002	<0.01	0.0002	<0.01	<0.0005	<0.05	<0.0005
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	5	<1	39	296	298	0.2	20	2,010	<1	0.0007	0.02	0.0006	<0.01	<0.0002	<0.01	0.0006	<0.01	<0.0005	<0.05	<0.0005
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	<5	<1	14	31	47	<0.1	7	303	<1	<0.0002	<0.01	0.0003	<0.01	<0.0002	<0.01	0.0003	<0.01	<0.0005	<0.05	<0.0005
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	7	<1	20	117	82	0.1	16	574	<1	<0.0002	<0.01	0.0005	<0.01	<0.0002	<0.01	0.0005	<0.01	<0.0005	<0.05	<0.0005
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	7	<1	24	25	44	<0.1	16	202	<1	<0.0002	<0.01	0.0008	<0.01	<0.0002	<0.01	0.0008	<0.01	<0.0005	<0.05	<0.0005
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	6	4	68	71	287	<0.1	36	694	<1	<0.0002	<0.01	0.0005	0.01	<0.0002	<0.01	0.0005	0.01	<0.0005	<0.05	<0.0005
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<5	<1	<2	<5	<5	<0.1	<2	<5	<1	<0.0002	<0.01	0.0003	0.01	<0.0002	<0.01	0.0003	0.01	<0.0005	<0.05	<0.0005
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	<5	<1	10	36	44	<0.1	10	225	<1	<0.0002	<0.01	0.004	0.04	<0.0002	<0.01	0.004	0.04	<0.0005	<0.05	<0.0005
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	<5	<1	4	6	6	<0.1	4	61	<1	0.0004	0.01	0.0074	0.23	0.0003	<0.01	0.0077	0.23	<0.0005	<0.05	<0.0005
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<5	<1	21	61	89	0.2	11	849	<1	0.0004	0.02	0.0012	<0.01	<0.0002	<0.01	0.0012	<0.01	<0.0005	<0.05	<0.0005
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<5	<1	5	25	20	<0.1	11	72	<1	<0.0002	<0.01	0.0003	<0.01	<0.0002	<0.01	0.0003	<0.01	<0.0005	<0.05	<0.0005
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<5	<1	14	63	48	<0.1	12	329	<1	0.0004	0.02	0.0005	0.04	<0.0002	<0.01	0.0005	0.04	<0.0005	<0.05	<0.0005
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	5	<1	18	108	90	0.2	25	473	<1	<0.0002	<0.01	0.0002	<0.01	<0.0002	<0.01	0.0002	<0.01	<0.0005	<0.05	<0.0005
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	5	<1	22	23	226	<0.1	7	149	<1	0.0004	0.02	0.0069	0.24	0.0003	<0.01	0.0072	0.24	<0.0005	<0.05	<0.0005

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T3 - Soil Analytical Results

AECOM

																					Per- and Poly-fluo	
						FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)		10:2 Fluorotelomer sulfonic acid (10:2 FTS)		Perfluorobutane sulfonic acid (PFBS)		Perfluorobutanoic acid (PFBA)		Perfluorodecane sulfonic acid (PFDS)		Perfluorodecanoic acid (PFDA)		Perfluorododecanoic acid (PFDoDA)		Perfluoroheptane sulfonic acid (PFHpS)		Perfluoroheptanoic acid (PFHpA)		
						µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg
LOR						0.05	0.0005	0.05	0.0005	0.05	0.0002	0.02	0.001	0.1	0.0002	0.02	0.0002	0.02	0.0002	0.02	0.0002	0.02	0.0002	0.02	0.0002
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																									
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																									
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																									
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																									
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																									
NSW 2014 General Solid Waste CT1 (No Leaching)																									
NSW 2014 General Solid Waste SCC1 (with leached)																									
NSW 2014 General Solid Waste TCLP1 (leached)																									
NSW 2014 Restricted Solid Waste CT2 (No Leaching)																									
NSW 2014 Restricted Solid Waste SCC2 (with leached)																									
NSW 2014 Restricted Solid Waste TCLP2 (leached)																									
PFAS NEMP 2020 Ecological direct exposure																									
PFAS NEMP 2020 Ecological indirect exposure																									
PFAS NEMP 2020 Industrial/ commercial (HIL D)																									
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																				
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	0.0004	0.02	0.0003
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	0.0006	0.03	<0.0002
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	0.0096	<0.05	0.0271	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	0.0004	<0.02	<0.0002
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	0.0002	<0.02	<0.0002
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	0.0005	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	0.0003	<0.02	<0.0002
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	0.0003	<0.02	<0.0002
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	0.0002	<0.02	<0.0002
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	0.0002	<0.02	<0.0002
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	0.0004	<0.02	<0.0002
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	0.0003	<0.02	<0.0002
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	0.0002	<0.02	<0.0002
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	0.0004	<0.02	0.0002
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	0.0003	<0.02	0.0002	<0.02	<0.0002	<0.02	0.0004	<0.02	<0.0002
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.05	<0.0005	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.001	<0.1	-	-	-	-	-	-	-	-	<0.0002	<0.02	<0.0002

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T3 - Soil Analytical Results

AECOM

								oalkyl Substances														
								Perfluorononanoic acid (PFNA)		Perfluorooctane sulfonamide (FOSA)		Perfluoropentane sulfonic acid (PFPeS)		Perfluoropentanoic acid (PFPeA)		Perfluorotetradecanoic acid (PFTeDA)		Perfluorotridecanoic acid (PFTrDA)		Perfluoroundecanoic acid (PFUnDA)		N-Ethyl perfluorooctane sulfonamide (EtFOSA)		N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)		N-Ethyl perfluorooctane
								µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg
LOR								0.02	0.0002	0.02	0.0002	0.02	0.0002	0.02	0.0002	0.02	0.0005	0.05	0.0002	0.02	0.0002	0.02	0.0005	0.05	0.0002	0.02	0.0005
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																											
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																											
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																											
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																											
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																											
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																											
NSW 2014 General Solid Waste CT1 (No Leaching)																											
NSW 2014 General Solid Waste SCC1 (with leached)																											
NSW 2014 General Solid Waste TCLP1 (leached)																											
NSW 2014 Restricted Solid Waste CT2 (No Leaching)																											
NSW 2014 Restricted Solid Waste SCC2 (with leached)																											
NSW 2014 Restricted Solid Waste TCLP2 (leached)																											
PFAS NEMP 2020 Ecological direct exposure																											
PFAS NEMP 2020 Ecological indirect exposure																											
PFAS NEMP 2020 Industrial/ commercial (HIL D)																											
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																						
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	0.0003	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	0.0004	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	<0.02	0.0003	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	0.0004	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	0.0003	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	<0.02	0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.02	0.0003	0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	0.0003	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	0.0004	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	<0.02	0.0003	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.02	0.0003	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	<0.02	0.0011	0.05	<0.0002	<0.02	<0.0002	<0.02	0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.02	0.0012	0.04	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	0.0008	<0.02	0.0007	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.02	0.0005	0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.02	0.0003	<0.02	<0.0002	<0.02	<0.0002	<0.02	0.0003	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0002	<0.02	<0.0005	<0.05	<0.0002	<0.02	<0.0005
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.02	-	-	-	-	-	-	<0.0002	<0.02	-	-	-	-	-	-	-	-	-	-	-	-

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

Client - Ampol Petroleum Australia Pty Ltd
Kurnell Terminal - RPIP Mountain
Project: Asbestos in Soils Investigation

T3 - Soil Analytical Results

AECOM

													Total Petroleum Hydrocarbons					Total Recoverable Hydr			
				sulfonamidoethanol (EtFOSE)		N-Methyl perfluorooctane sulfonamide (MeFOSA)		N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)		N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)		Sum of PFAS		Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	Sum of US EPA PFAS (PFOS + PFOA)	C6-C9 fraction	C10-C14 fraction	C15-C28 fraction	C29-C36 fraction	C10-C36 fraction (sum)	C6-C10 fraction	C6-C10 fraction (minus BTEX)(F1)	>C10-C16 (minus Naphthalene)(F2)	>C10-C16 fraction
				µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	UG/KG	UG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR				0.05	0.0005	0.05	0.0002	0.02	0.0005	0.05	0.0002	0.01		5	5	10	20	50	50	50	10	10	50	50
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																								
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																						82,000	62,000	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																								
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																						260		
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																								
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																					700			1,000
NSW 2014 General Solid Waste CT1 (No Leaching)																650				10,000				
NSW 2014 General Solid Waste SCC1 (with leached)																650				10,000				
NSW 2014 General Solid Waste TCLP1 (leached)																								
NSW 2014 Restricted Solid Waste CT2 (No Leaching)																2,600				40,000				
NSW 2014 Restricted Solid Waste SCC2 (with leached)																2,600				40,000				
NSW 2014 Restricted Solid Waste TCLP2 (leached)																								
PFAS NEMP 2020 Ecological direct exposure																								
PFAS NEMP 2020 Ecological indirect exposure																								
PFAS NEMP 2020 Industrial/ commercial (HIL D)																								
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																			
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0005	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0007	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0002	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0002	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	210	330	540	<10	<10	<50	<50
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0011	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0024	<0.01	-	-	<10	<50	110	<100	110	<10	<10	<50	<50
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0003	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0003	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0009	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.002	0.05	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0005	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.002	0.02	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	140	130	270	<10	<10	<50	<50
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0009	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.001	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0008	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0005	0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.01	0.29	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0052	0.06	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0008	0.02	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0015	0.06	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.0005	<0.05	<0.0002	<0.02	<0.0005	<0.05	0.0002	<0.01	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	<10	<10	<50	<50

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T3 - Soil Analytical Results

AECOM

						pcarbons			Monocyclic Aromatic Hydrocarbons																	
						>C16-C34 fraction	>C34-C40 fraction	>C10-C40 fraction (sum)	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	Styrene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	tert-butylbenzene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Total MAH	Total BTEX
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						100	100	50	0.1	0.1	0.1	0.2	0.1	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)									77																	
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)						85,000	120,000		1,100	120,000	85,000			130,000												
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																										
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)									3					230												
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																										
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil						3,500	10,000																			
NSW 2014 General Solid Waste CT1 (No Leaching)									10	288	600			1,000	60											
NSW 2014 General Solid Waste SCC1 (with leached)									18	518	1,080			1,800	108											
NSW 2014 General Solid Waste TCLP1 (leached)																										
NSW 2014 Restricted Solid Waste CT2 (No Leaching)									40	1,152	2,400			4,000	240											
NSW 2014 Restricted Solid Waste SCC2 (with leached)									72	2,073	4,320			7,200	432											
NSW 2014 Restricted Solid Waste TCLP2 (leached)																										
PFAS NEMP 2020 Ecological direct exposure																										
PFAS NEMP 2020 Ecological indirect exposure																										
PFAS NEMP 2020 Industrial/ commercial (HIL D)																										
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																					
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	450	220	670	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	180	<100	180	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	150	<100	150	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	220	110	330	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.2

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T3 - Soil Analytical Results

AECOM

						Naphthalene	Polynuclear Aromatic Hydrocarbons																	
						Naphthalene (VOC)	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ calc (Zero)	Benzo(a)pyrene TEQ calc(PQL)	Naphthalene	Acenaphthylene	Acenaphthene	Anthracene	Fluorene	Phenanthrene	Fluoranthene	Benz(a)anthracene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a)pyrene	Chrysene	Pyrene	Benzo[g,h,i]perylene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																								
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)						29,000																		
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil							40	40	40															
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																								
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind										370														
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																								
NSW 2014 General Solid Waste CT1 (No Leaching)																			0.8					
NSW 2014 General Solid Waste SCC1 (with leached)																			10					
NSW 2014 General Solid Waste TCLP1 (leached)																								
NSW 2014 Restricted Solid Waste CT2 (No Leaching)																			3.2					
NSW 2014 Restricted Solid Waste SCC2 (with leached)																			23					
NSW 2014 Restricted Solid Waste TCLP2 (leached)																								
PFAS NEMP 2020 Ecological direct exposure																								
PFAS NEMP 2020 Ecological indirect exposure																								
PFAS NEMP 2020 Industrial/ commercial (HIL D)																								
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																			
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T3 - Soil Analytical Results

AECOM

								Phenolic Compounds														
								Sum of PAHs	3/4-Methylphenol (m/p-cresol)	Phenol	2-Chlorophenol	2-Methylphenol (o-Cresol)	3&4-Methylphenol (m&p-Cresol)	Total Cresols	2-Nitrophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	4,6-Dinitro-2-methylphenol	Pentachlorophenol	2,4-Dinitrophenol	2-Cyclohexyl-4,6-dinitrophenol	4-Nitrophenol	Dinoseb
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR								0.5	1	0.5	0.5	0.2	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	5	20	5	20
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																											
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																											
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil								4,000		240,000				25,000									660				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																											
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																											
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																											
NSW 2014 General Solid Waste CT1 (No Leaching)								200				4,000		4,000						40	8,000						
NSW 2014 General Solid Waste SCC1 (with leached)								200		518		7,200		7,200						72	14,400						
NSW 2014 General Solid Waste TCLP1 (leached)																											
NSW 2014 Restricted Solid Waste CT2 (No Leaching)								800				16,000		16,000						160	32,000						
NSW 2014 Restricted Solid Waste SCC2 (with leached)								800		2,073		28,800		28,800						288	57,600						
NSW 2014 Restricted Solid Waste TCLP2 (leached)																											
PFAS NEMP 2020 Ecological direct exposure																											
PFAS NEMP 2020 Ecological indirect exposure																											
PFAS NEMP 2020 Industrial/ commercial (HIL D)																											
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																						
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.5	<1	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<2	-	-	-	-

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T3 - Soil Analytical Results

AECOM

										Fumigants					Halogenated Aromatic Compounds											
						Tetrachlorophenols	Sum of Phenols (halogenated)	Sum of Phenols (non-halogenated)	1,2-Dibromoethane (EDB)	1,2-Dichloropropane	2,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Bromobenzene	Chlorobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	Bromochloromethane	Allyl chloride	Dichlorodifluoromethane (Freon 12)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						10	1	20	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																									
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																									
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																									
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																									
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																									
NSW 2014 General Solid Waste CT1 (No Leaching)								288							2,000			86		150					
NSW 2014 General Solid Waste SCC1 (with leached)															3,600			155		270					
NSW 2014 General Solid Waste TCLP1 (leached)																									
NSW 2014 Restricted Solid Waste CT2 (No Leaching)								1,152							8,000			344		600					
NSW 2014 Restricted Solid Waste SCC2 (with leached)															14,400			620		1,080					
NSW 2014 Restricted Solid Waste TCLP2 (leached)																									
PFAS NEMP 2020 Ecological direct exposure																									
PFAS NEMP 2020 Ecological indirect exposure																									
PFAS NEMP 2020 Industrial/ commercial (HIL D)																									
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																				
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<5

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T3 - Soil Analytical Results

AECOM

						Halogenated Aliphatic Compounds																
						Chloromethane	Vinyl chloride	Bromomethane	Chloroethane	Trichlorofluoromethane (Freon 11)	1,1-Dichloroethene	Iodomethane	1,1-Dichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon Tetrachloride	1,2-Dichloroethane	Trichloroethene	Dibromomethane	1,1,2-Trichloroethane	1,3-Dichloropropane	Tetrachloroethene	1,1,1,2-Tetrachloroethane
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																									
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																									
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																									
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																									
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																									
NSW 2014 General Solid Waste CT1 (No Leaching)							4				14					600		10	10	10		24		14	200
NSW 2014 General Solid Waste SCC1 (with leached)							7.2				25					1,080		18	18	18		43.2		25.2	360
NSW 2014 General Solid Waste TCLP1 (leached)																									
NSW 2014 Restricted Solid Waste CT2 (No Leaching)							16				56					2,400		40	40	40		96		56	800
NSW 2014 Restricted Solid Waste SCC2 (with leached)							28.8				100					4,320		72	72	72		172.8		100.8	1,440
NSW 2014 Restricted Solid Waste TCLP2 (leached)																									
PFAS NEMP 2020 Ecological direct exposure																									
PFAS NEMP 2020 Ecological indirect exposure																									
PFAS NEMP 2020 Industrial/ commercial (HIL D)																									
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																				
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

Client - Ampol Petroleum Australia Pty Ltd
Kurnell Terminal - RPIP Mountain
Project: Asbestos in Soils Investigation

T3 - Soil Analytical Results

AECOM

										Trihalomethanes				Physico-Chemical Parameters		Polychlorinated Biphenyls					
						trans-1,4-Dichloro-2-butene	cis-1,4-Dichloro-2-butene	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	Dichloromethane	Pentachloroethane	1,2-Dibromo-3-chloropropane	Hexachlorobutadiene	Bromodichloromethane	Bromoform	Chloroform	Dibromochloromethane	Moisture Content (dried @ 103°C)	Moisture Content	Polychlorinated Biphenyls	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	0.1	0.1	0.1	0.1	0.1	0.1
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																									
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																				7					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																									
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																									
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																									
NSW 2014 General Solid Waste CT1 (No Leaching)								26		172						120				50					
NSW 2014 General Solid Waste SCC1 (with leached)								46.8		310						126				50					
NSW 2014 General Solid Waste TCLP1 (leached)																									
NSW 2014 Restricted Solid Waste CT2 (No Leaching)								104		688						480				50					
NSW 2014 Restricted Solid Waste SCC2 (with leached)								187.2		1,240						864				50					
NSW 2014 Restricted Solid Waste TCLP2 (leached)																									
PFAS NEMP 2020 Ecological direct exposure																									
PFAS NEMP 2020 Ecological indirect exposure																									
PFAS NEMP 2020 Industrial/ commercial (HIL D)																									
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																				
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	13.9	<0.1	-	-	-	-	-
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	31.3	<0.1	-	-	-	-	-
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	11.7	<0.1	-	-	-	-	-
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	5.9	<0.1	-	-	-	-	-
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	12.5	<0.1	-	-	-	-	-
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	11.4	<0.1	-	-	-	-	-
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	7.3	<0.1	-	-	-	-	-
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	9.8	<0.1	-	-	-	-	-
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	12.9	<0.1	-	-	-	-	-
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	18.2	<0.1	-	-	-	-	-
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	25.6	<0.1	-	-	-	-	-
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	12.5	<0.1	-	-	-	-	-
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	5.1	<0.1	-	-	-	-	-
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	22.5	<0.1	-	-	-	-	-
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	19.8	<0.1	-	-	-	-	-
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	13.8	<0.1	-	-	-	-	-
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	9.1	<0.1	-	-	-	-	-
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	10.5	<0.1	-	-	-	-	-
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	9.7	<0.1	-	-	-	-	-
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	17.3	<0.1	-	-	-	-	-
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	13	<0.1	-	-	-	-	-
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	9.6	<0.1	-	-	-	-	-
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	11	<0.1	-	-	-	-	-
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	6.5	<0.1	-	-	-	-	-
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	15.5	<0.1	-	-	-	-	-
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	12	<0.1	-	-	-	-	-
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	24.8	<0.1	-	-	-	-	-
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	13.6	<0.1	-	-	-	-	-
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	14.7	<0.1	-	-	-	-	-
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	22.8	<0.1	-	-	-	-	-
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	8.2	<0.1	-	-	-	-	-
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	10.2	<0.1	-	-	-	-	-
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	15.2	<0.1	-	-	-	-	-
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	19.1	<0.1	-	-	-	-	-
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	16.7	0.4	-	-	-	-	-
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	7.6	<0.1	-	-	-	-	-
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	18.9	<0.1	-	-	-	-	-
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	16.4	<0.1	-	-	-	-	-
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	21.8	<0.1	-	-	-	-	-
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	9.6	<0.1	-	-	-	-	-
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	16.4	<0.1	-	-	-	-	-
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	9.4	<0.1	-	-	-	-	-
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	20.1	<0.1	-	-	-	-	-

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

Client - Ampol Petroleum Australia Pty Ltd
Kurnell Terminal - RPIP Mountain
Project: Asbestos in Soils Investigation

T3 - Soil Analytical Results

AECOM

						Oxygenated Compounds							Sulfonated Compounds	Chlorinated Hydrocarbons												
						Arochlor 1254	Arochlor 1260	2-Propanone (Acetone)	Vinyl acetate	2-Butanone (MEK)	2-hexanone (MBK)	4-Methyl-2-pentanone (MIBK)	Carbon disulfide	Chlorinated hydrocarbons (sum)	Other chlorinated hydrocarbons (sum)	Bolstar (Sulprofos)	Mevinphos (Phosdrin)	Omethoate	Pirimiphos-methyl	Pyrazophos	Azinphos Methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						0.1	0.1	0.5	5	0.5	5	0.5	0.5	0.5	0.5	0.2	0.2	2	0.2	0.2	0.05	0.05	0.05	0.05	0.05
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																									
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																									2,000
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																									
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																									
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																									
NSW 2014 General Solid Waste CT1 (No Leaching)										4,000															4
NSW 2014 General Solid Waste SCC1 (with leached)										7,200															7.5
NSW 2014 General Solid Waste TCLP1 (leached)																									
NSW 2014 Restricted Solid Waste CT2 (No Leaching)										16,000															16
NSW 2014 Restricted Solid Waste SCC2 (with leached)										28,800															30
NSW 2014 Restricted Solid Waste TCLP2 (leached)																									
PFAS NEMP 2020 Ecological direct exposure																									
PFAS NEMP 2020 Ecological indirect exposure																									
PFAS NEMP 2020 Industrial/ commercial (HIL D)																									
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																				
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	-	-	-	<5	<5	<5	<5	<0.5	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T3 - Soil Analytical Results

AECOM

							Organophosphorus Pesticides (OP)															
							Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	EPN	Ethion	Ethoprop	Fenamiphos	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Monocrotophos	Naled (Dibrom)
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR							0.05	2	0.2	0.2	0.05	0.05	0.05	0.05	0.2	0.2	0.05	0.2	0.05	0.2	0.2	0.05	0.05	0.2	0.2	0.2
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																										
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																										
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																										
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																										
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																										
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																										
NSW 2014 General Solid Waste CT1 (No Leaching)																										
NSW 2014 General Solid Waste SCC1 (with leached)																										
NSW 2014 General Solid Waste TCLP1 (leached)																										
NSW 2014 Restricted Solid Waste CT2 (No Leaching)																										
NSW 2014 Restricted Solid Waste SCC2 (with leached)																										
NSW 2014 Restricted Solid Waste TCLP2 (leached)																										
PFAS NEMP 2020 Ecological direct exposure																										
PFAS NEMP 2020 Ecological indirect exposure																										
PFAS NEMP 2020 Industrial/ commercial (HIL D)																										
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																					
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**		<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	<0.05	<0.05	-	<0.2	-

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

Client - Ampol Petroleum Australia Pty Ltd
Kurnell Terminal - RPIP Mountain
Project: Asbestos in Soils Investigation

T3 - Soil Analytical Results

AECOM

						Parathion	Parathion-methyl	Phorate	Pirimphos-ethyl	Prothiofos	Ronnel	Trichloronate	Terbufos	Tetrachlorvinphos	Tokuthion	Aldrin	Dieldrin	Aldrin + Dieldrin	a-BHC	b-BHC	d-BHC	g-BHC (Lindane)	cis-Chlordane	trans-Chlordane	Chlordane
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						0.2	0.2	0.2	0.05	0.05	0.2	0.2	0.2	0.2	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																									
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																		45							530
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																									
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																									
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																									
NSW 2014 General Solid Waste CT1 (No Leaching)																									
NSW 2014 General Solid Waste SCC1 (with leached)																									
NSW 2014 General Solid Waste TCLP1 (leached)																									
NSW 2014 Restricted Solid Waste CT2 (No Leaching)																									
NSW 2014 Restricted Solid Waste SCC2 (with leached)																									
NSW 2014 Restricted Solid Waste TCLP2 (leached)																									
PFAS NEMP 2020 Ecological direct exposure																									
PFAS NEMP 2020 Ecological indirect exposure																									
PFAS NEMP 2020 Industrial/ commercial (HIL D)																									
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																				
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T3 - Soil Analytical Results

AECOM

						Organochlorine Pesticides (OC)																		Inorganics	
						DDD	DDE	DDT	DDT+DDE+DDD	Endosulfan	Endosulfan 1	Endosulfan 2	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor epoxide	Hexachlorobenzene (HCB)	Methoxychlor	Toxaphene	Organochlorine pesticides (sum)	Other organochlorine pesticides (sum)	pH (Final)	pH (Initial)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units	pH Units
LOR						0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5	0.1	0.1	0.1	0.1
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)																									
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)																									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil									3,600	2,000				100			50		80	2,500	160				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)																									
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind								640																	
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																									
NSW 2014 General Solid Waste CT1 (No Leaching)										60															
NSW 2014 General Solid Waste SCC1 (with leached)										108															
NSW 2014 General Solid Waste TCLP1 (leached)																									
NSW 2014 Restricted Solid Waste CT2 (No Leaching)										240															
NSW 2014 Restricted Solid Waste SCC2 (with leached)										432															
NSW 2014 Restricted Solid Waste TCLP2 (leached)																									
PFAS NEMP 2020 Ecological direct exposure																									
PFAS NEMP 2020 Ecological indirect exposure																									
PFAS NEMP 2020 Industrial/ commercial (HIL D)																									
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**																				
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	8.4
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	7.8
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	8.5
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	9.6
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	7.7
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.8	8.6
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.8	6.1
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.8	6.5
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	6.2
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5.2	9.2
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	7.2
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	9.5
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	9.6
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5.1	8.7
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	8.5
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.8	6.3
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.8	5.6
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	5.9
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	8.5
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	8.1
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	8.8
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	9
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	8.1
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5.1	8.6
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	8.3
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.8	6
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	6.3
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	7.6
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5.1	8.8
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	7.8
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	8.9
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5.3	8.8
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	8.6
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5.7	8.7
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5.2	8.2
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.8	6.2
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	8.3
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	8.3
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	7.1
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	8.8
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	4.9	8.2
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5.2	8.8
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-	5	7.1

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T3 - Soil Analytical Results

AECOM

						pH (after HCL)	Un-assigned TCLP Fluid
						pH Units	-
LOR						0.1	
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand (>=0m, <2m)							
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)							
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil							
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand (>=0m, <1m)							
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind							
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil							
NSW 2014 General Solid Waste CT1 (No Leaching)							
NSW 2014 General Solid Waste SCC1 (with leached)							
NSW 2014 General Solid Waste TCLP1 (leached)							
NSW 2014 Restricted Solid Waste CT2 (No Leaching)							
NSW 2014 Restricted Solid Waste SCC2 (with leached)							
NSW 2014 Restricted Solid Waste TCLP2 (leached)							
PFAS NEMP 2020 Ecological direct exposure							
PFAS NEMP 2020 Ecological indirect exposure							
PFAS NEMP 2020 Industrial/ commercial (HIL D)							
Location Code	**Field ID**	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**		
TP1A	**TP1A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	1.6	1
TP1B	**TP1B_0.7_220901**	**0.7**	**1/09/2022**	**Normal**	**ES2231911**	1.6	1
TP1C	**TP1C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	1.8	1
TP1D	**TP1D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	1.8	1
TP1E	**TP1E_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	1.7	1
TP1F	**TP1F_0.1_220907**	**0.1**	**7/09/2022**	**Normal**	**ES2232474**	1.7	1
TP1G	**TP1G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	1.6	1
TP1H	**TP1H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	1.6	1
TP1I	**TP1I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	1.8	1
TP2A	**TP2A_0.5_220901**	**0.5**	**1/09/2022**	**Normal**	**ES2231911**	1.7	1
TP2B	**TP2B_0.2_220901**	**0.2**	**1/09/2022**	**Normal**	**ES2231911**	1.6	1
TP2C	**TP2C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	1.8	1
TP2D	**TP2D_1.8_220905**	**1.8**	**5/09/2022**	**Normal**	**ES2231911**	1.8	1
TP2E	**TP2E_2.0_220906**	**2**	**6/09/2022**	**Normal**	**ES2232474**	1.7	1
TP2F	**TP2F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	1.7	1
TP2G	**TP2G_0.6_220908**	**0.6**	**8/09/2022**	**Normal**	**ES2232474**	1.6	1
TP2H	**TP2H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	1.6	1
TP2I	**TP2I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	1.7	1
TP3A	**TP3A_0.4_220901**	**0.4**	**1/09/2022**	**Normal**	**ES2231911**	1.6	1
TP3B	**TP3B_0.2_220902**	**0.2**	**2/09/2022**	**Normal**	**ES2231911**	1.6	1
TP3C	**TP3C_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	1.8	1
TP3D	**TP3D_0.1_220905**	**0.1**	**5/09/2022**	**Normal**	**ES2231911**	1.9	1
TP3E	**TP3E_1.0_220906**	**1**	**6/09/2022**	**Normal**	**ES2232474**	1.7	1
TP3F	**TP3F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	1.8	1
TP3G	**TP3G_0.4_220908**	**0.4**	**8/09/2022**	**Normal**	**ES2232474**	1.7	1
TP3H	**TP3H_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	1.7	1
TP3I	**TP3I_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	1.7	1
TP4A	**TP4A_0.8_220902**	**0.8**	**2/09/2022**	**Normal**	**ES2231911**	1.6	1
TP4B	**TP4B_1.2_220902**	**1.2**	**2/09/2022**	**Normal**	**ES2231911**	1.6	1
TP4C	**TP4C_1.3_220902**	**1.3**	**2/09/2022**	**Normal**	**ES2231911**	1.6	1
TP4D	**TP4D_1.9_220905**	**1.9**	**5/09/2022**	**Normal**	**ES2231911**	1.8	1
TP4E	**TP4E_0.4_220906**	**0.4**	**6/09/2022**	**Normal**	**ES2232474**	1.8	1
TP4F	**TP4F_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	1.9	1
TP4G	**TP4G_0.5_220908**	**0.5**	**8/09/2022**	**Normal**	**ES2232474**	2.2	1
TP4H	**TP4H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	1.8	1
TP4I	**TP4I_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	1.7	1
TP5B	**TP5B_0.7_220902**	**0.7**	**2/09/2022**	**Normal**	**ES2231911**	1.6	1
TP5C	**TP5C_0.8_220906**	**0.8**	**6/09/2022**	**Normal**	**ES2232474**	1.7	1
TP5D	**TP5D_0.1_220906**	**0.1**	**6/09/2022**	**Normal**	**ES2232474**	1.6	1
TP5E	**TP5E_1.0_220907**	**1**	**7/09/2022**	**Normal**	**ES2232474**	1.8	1
TP5F	**TP5F_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	1.7	1
TP5G	**TP5G_0.1_220908**	**0.1**	**8/09/2022**	**Normal**	**ES2232474**	2	1
TP5H	**TP5H_0.1_220909**	**0.1**	**9/09/2022**	**Normal**	**ES2232658**	1.8	1

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T5 - Parsons Brinckerhoff - Historic Soil Analytical Results

AECOM

						Metals								Total Petroleum Hydrocarbons					Monocyclic Aromatic Hydrocarbons							
						Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	C6-C9 fraction	C10-C14 fraction	C15-C28 fraction	C29-C36 fraction	C10-C36 fraction (sum)	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	Naphthalene	Acenaphthylene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						4	0.5	1	1	1	0.1	1	1	25	50	100	100	100	0.2	0.5	1	2	1	1	0.1	0.1
NSW 2014 General Solid Waste CT1 (No Leaching)						100	20			100	4	40		650				10,000	10	288	600			1,000		
NSW 2014 General Solid Waste SCC1 (with leached)						500	100			1,500	50	1,050														
NSW 2014 General Solid Waste TCLP1 (leached)																										
NSW 2014 Restricted Solid Waste CT2 (No Leaching)						400	80			400	16	160		2,600				40,000	40	1,152	2,400			4,000		
NSW 2014 Restricted Solid Waste SCC2 (with leached)						2,000	400			6,000	200	4,200														
NSW 2014 Restricted Solid Waste TCLP2 (leached)																										
Location Code	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**	**Matrix Type**																					
TP1	**1**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	14	130	70	0	11	390	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP2	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	9	24	21	0	11	260	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP3	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	4	<0.5	36	230	180	1	16	1300	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP4	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	13	1	96	1200	670	<0.1	28	4200	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP5	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	22	130	95	<0.1	44	680	<25	<50	130	<100	130	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP6	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	11	68	54	0	13	470	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP7	**1**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	4	19	12	<0.1	8	110	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP8	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	6	44	12	0	12	78	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP9	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	11	48	36	0	8	280	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP10	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	14	56	76	<0.1	6	600	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP11	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	16	100	100	0	15	720	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP12	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	4	<0.5	14	76	52	0	13	370	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP13	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	5	22	19	<0.1	4	130	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP14	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	16	98	80	0	26	510	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP15	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	4	<0.5	4	6	4	0	4	25	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP16	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	5	25	23	<0.1	4	220	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP17	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	12	74	57	0	12	360	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP18	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	11	67	43	<0.1	9	370	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP19	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	12	78	43	<0.1	10	270	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP20	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	5	<0.5	18	330	110	0	11	710	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP21	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	11	66	42	<0.1	15	290	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP22	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	7	51	38	<0.1	8	220	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP23	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	7	20	19	<0.1	5	130	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP24	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	27	<0.5	80	3900	1200	<0.1	31	7200	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP25	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	14	95	120	0	11	730	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP26	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	26	170	190	1	22	1200	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP27	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	14	65	51	1	21	330	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP28	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	5	<0.5	18	60	57	0	11	440	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP29	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	15	79	56	<0.1	10	390	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP30	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	6	<0.5	12	39	23	<0.1	20	110	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP31	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	11	9	16	<0.1	7	58	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP31	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	3	4	200	<0.1	2	46	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP32	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	4	<0.5	45	250	310	<0.1	20	2500	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP33	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	12	40	42	0	5	200	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP34	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	6	<0.5	3	2	5	0	2	10	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP35	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	8	<0.5	4	<1	1	<0.1	1	2	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP36	**0.2**	**28/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	11	29	38	0	13	130	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP37	**0.5**	**28/07/2011**	**Normal**	**59098**	**Soil**	5	1	18	47	110	<0.1	16	320	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP38	**0.5**	**28/07/2011**	**Normal**	**59098**	**Soil**	70	<0.5	7	2	7	<0.1	2	18	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP39	**0.5**	**28/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	<1	<1	2	<0.1	<1	8	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
TP40	**0.5**	**28/07/2011**	**Normal**	**59098**	**Soil**	<4	<0.5	<1	<1	1	<0.1	<1	<1	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
QA1 (dup TP08)	**-**	**25/07/2011**	**Intra-laboratory duplicate**	**59098**	**Soil**	<4	<0.5	5	42	14	<0.1	8	110	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
QA2 (dup TP19)	**-**	**26/07/2011**	**Intra-laboratory duplicate**	**59098**	**Soil**	<4	<0.5	13	32	15	<0.1	16	76	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
QA2A (trip TP19)	**-**	**26/07/2011**	**Inter-laboratory duplicate**	**1116240**	**Soil**	<5	<1	10	61	45	<0.1	13	113	<10	<50	<100	<100	nd	<0.2	<0.5	<0.5	<0.5	<0.5	nd	<0.5	<0.5
QA3 (dup TP29)	**-**	**27/07/2011**	**Intra-laboratory duplicate**	**59098**	**Soil**	<4	<0.5	15	100	72	<0.1	11	550	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
QA4 (dup TP37)	**-**	**28/07/2011**	**Intra-laboratory duplicate**	**59098**	**Soil**	6	<0.5	13	12	71	<0.1	9	210	<25	<50	<100	<100	nd	<0.2	<0.5	<1	<2	<1	nd	<0.1	<0.1
QA4A (trip TP37)	**-**	**28/07/2011**	**Inter-laboratory duplicate**	**1116240**	**Soil**	6	<1	23	19	76	<0.1	13	354	<10	<50	<100	<100	nd	<0.2	<0.5	<0.5	<0.5	<0.5	nd	<0.5	<0.5

Notes
LOR: Limit of Reporting
mbgl: meters below ground level

T5 - Parsons Brinckerhoff - Historic Soil Analytical Results

AECOM

						Polycyclic Aromatic Hydrocarbons													
						Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b&k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Sum of PAHs
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.05	0.1	0.1	0.1	0.1
NSW 2014 General Solid Waste CT1 (No Leaching)															0.8				200
NSW 2014 General Solid Waste SCC1 (with leached)																			
NSW 2014 General Solid Waste TCLP1 (leached)																			
NSW 2014 Restricted Solid Waste CT2 (No Leaching)															3.2				800
NSW 2014 Restricted Solid Waste SCC2 (with leached)																			
NSW 2014 Restricted Solid Waste TCLP2 (leached)																			
Location Code	**Depth (mbgl)**	**Date**	**Sample Type**	**Lab Report Number**	**Matrix Type**														
TP1	**1**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP2	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP3	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP4	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP5	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP6	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP7	**1**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP8	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP9	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.2	0.09	<0.1	<0.1	<0.1	0.19
TP10	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP11	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP12	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	0.2	<0.1	0.5	0.5	0.3	0.3	0.5	0.28	0.2	<0.1	0.2	2.98
TP13	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP14	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP15	**0.5**	**25/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP16	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP17	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	0.1	0.5	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	0.6
TP18	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.1	0.1	<0.2	0.08	<0.1	<0.1	<0.1	0.68
TP19	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	0.2
TP20	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	0.1	<0.1	0.2	0.2	<0.1	<0.1	<0.2	0.06	<0.1	<0.1	<0.1	0.56
TP21	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP22	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP23	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP24	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP25	**0.5**	**26/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP26	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	0.2	<0.1	0.7	0.7	0.3	0.3	0.4	0.24	0.2	<0.1	0.1	3.14
TP27	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP28	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP29	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	0.2	0.2	<0.1	0.1	<0.2	0.09	<0.1	<0.1	<0.1	0.59
TP30	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP31	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	0.07	<0.1	<0.1	<0.1	0.07
TP31	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP32	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP33	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP34	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP35	**0.5**	**27/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP36	**0.2**	**28/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	0.3	0.3	0.2	0.2	0.3	0.13	0.1	<0.1	<0.1	1.53
TP37	**0.5**	**28/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	0.05	<0.1	<0.1	<0.1	0.05
TP38	**0.5**	**28/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP39	**0.5**	**28/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
TP40	**0.5**	**28/07/2011**	**Normal**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
QA1 (dup TP08)	**-**	**25/07/2011**	**Intra-laboratory duplicate**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
QA2 (dup TP19)	**-**	**26/07/2011**	**Intra-laboratory duplicate**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
QA2A (trip TP19)	**-**	**26/07/2011**	**Inter-laboratory duplicate**	**1116240**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	nd
QA3 (dup TP29)	**-**	**27/07/2011**	**Intra-laboratory duplicate**	**59098**	**Soil**	<0.1	<0.1	0.2	<0.1	0.3	0.4	0.2	0.2	0.4	0.32	0.2	<0.1	0.2	2.42
QA4 (dup TP37)	**-**	**28/07/2011**	**Intra-laboratory duplicate**	**59098**	**Soil**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	nd
QA4A (trip TP37)	**-**	**28/07/2011**	**Inter-laboratory duplicate**	**1116240**	**Soil**	<0.5	<0.5	0.6	<0.5	2.4	2.5	1.2	1.1	1.9	1.2	0.5	<0.5	0.7	12.1

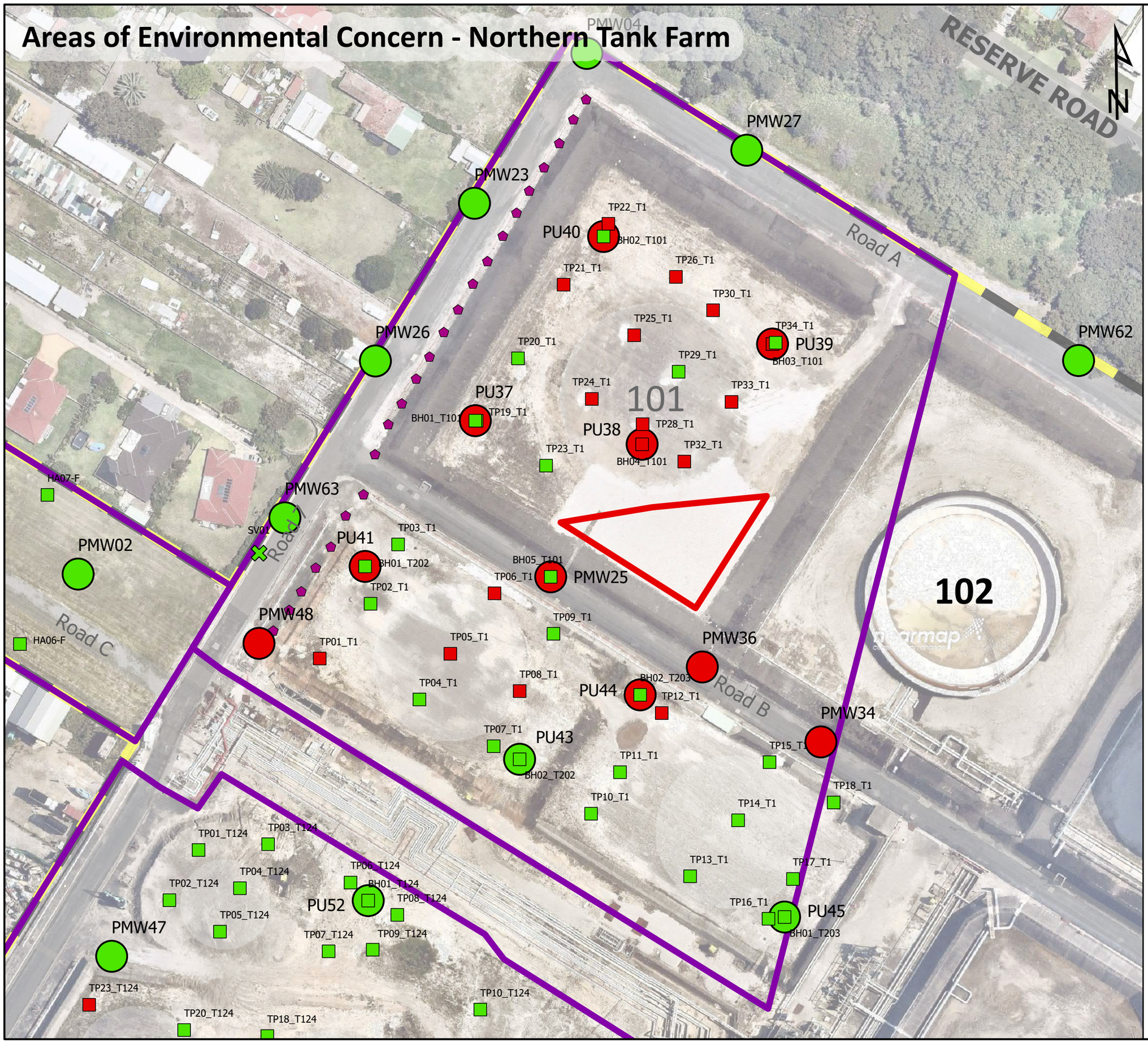
Notes
LOR: Limit of Reporting
mbgl: meters below ground level

Appendix C - Historical analytical results

5.0 Report details

Report Title:	Caltex Kurnell Remediation Action Strategy
Author:	Ampol
Report Date:	18 December 2019

Areas of Environmental Concern - Northern Tank Farm





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

AECs

- Asbestos Contamination
- Land Contamination

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Tk101_Bioventing_System

- Tk101_Bioventing_System

0 10 20 30 40 50

metres

FIGURE A2

CALTEX

Conceptual Site Model

Northern Tank Farm

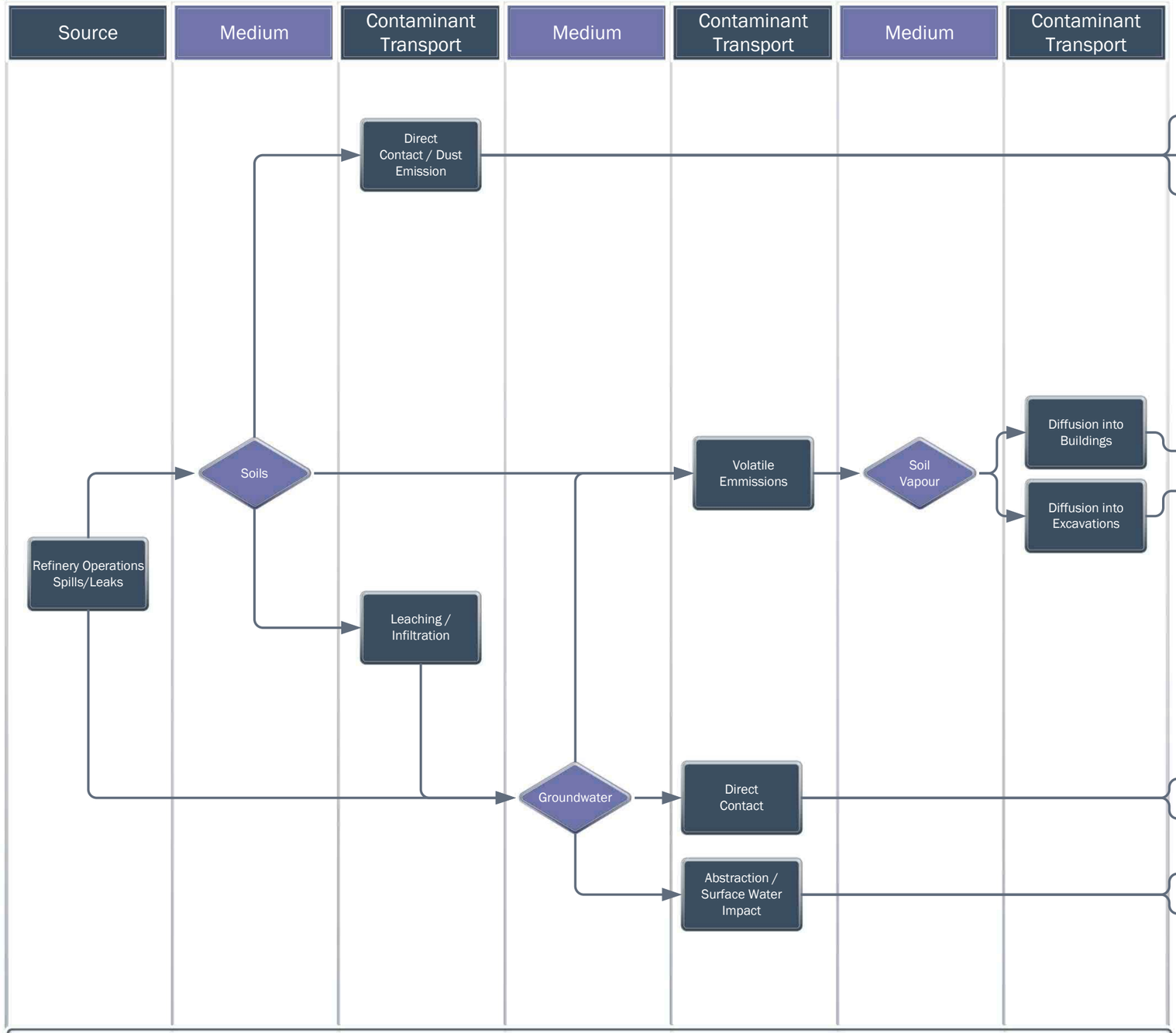
Contaminants of Concern Evaluated:

Soil
TRH C6-C34
Benzene, Xylene
Nickel
Asbestos

Groundwater
LNAPL
TRH C6-C16
Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene
Lead, Cadmium

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable

Contaminant Source / Pathway



Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Contaminant Receptor

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	○	–	✗
Dermal	✗	○	–	–
Inhalation (Asbestos)	✗	○	✗	–

Notes:
Impacted soils are within former tank bunds or beneath a roadway limiting potential for exposure of site workers. Asbestos impacted soils are beneath a temporary cover mitigating potential exposure.

Inhalation	✗	–	✗	–
Inhalation	–	○	✗	–

Notes:
Exceedances of vapour intrusion criteria have been measured throughout the area. Additionally low levels of TRH and benzene were measured at the site boundary well PMW63. Given the proximity to residential buildings, soil vapour sampling was undertaken – this confirmed there was no vapour risk for the off-site property.

Ingestion /plant uptake	✗	○	✗	✗
Dermal	✗	○	✗	–
Ingestion /plant uptake	✗	○	✗	✗
Dermal	✗	○	✗	✗

Notes:
The operation of a bioventing system is preventing exceedances at the site boundary. Provided continued operation of the bioventing system, off-site risk is mitigated.
Ammonia and metals exceedances in the northern corner of the site are considered indicative of natural conditions in the swampy environment. Minor exceedances of metals considered to be indicative of naturally occurring concentrations measured at the site boundary.
Significantly elevated lead concentration appears isolated to one location in groundwater and does not extend to the site boundary.

Table A3. Soil Sample Results - Northern Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP01_T1	18/07/18	0.1	No													
TP01_T1	18/07/18	0.5	No	21	<50	<100	<100	<50	<10	<50	0.5	3.1	1.2	2.6	4.3	6.9
TP01_T1	18/07/18	1	No	3670	390	940	<100	1330	2580	360	15.1	367	155	148	407	555
TP02_T1	18/07/18	0.1	No	<10	<50	150	<100	150	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP02_T1	18/07/18	1.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03_T1	18/07/18	0.1	No	<10	<50	230	130	360	<10	<50	<0.2	0.8	<0.5	<0.5	0.5	0.5
TP03_T1	18/07/18	0.5	No	<10	<50	150	<100	150	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03_T1	18/07/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	0.5	0.6	<0.5	<0.5	1.1	1.1
TP04_T1	18/07/18	0.1	No	<10	<50	270	110	380	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP04_T1	18/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05_T1	18/07/18	0.1	No	12	1220	3190	550	4960	12	1220	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05_T1	18/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06_T1	18/07/18	0.1	No	519	590	1680	520	2790	259	580	<1	40.6	15.3	56.2	148	204
TP06_T1	18/07/18	1	No	8790	<50	170	<100	170	2190	<50	55.9	2840	408	720	2580	3300
TP07_T1	18/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07_T1	18/07/18	0.1	No	<10	50	2120	850	3020	<10	50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08_T1	18/07/18	0.1	No													
TP08_T1	18/07/18	0.5	No	30	220	13200	4740	18200	22	220	<0.2	2.9	<0.5	0.9	4.4	5.3
TP08_T1	18/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	0.4	0.8	<0.5	0.7	3.6	4.3
TP09_T1	18/07/18	0.1	No	<10	<50	440	260	700	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP09_T1	18/07/18	0.5	No													
TP09_T1	18/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	0.3	0.6	<0.5	<0.5	1.1	1.1
TP10_T1	18/07/18	0.1	No	<10	<50	1110	270	1380	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10_T1	18/07/18	0.5	No													
TP10_T1	18/07/18	1.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11_T1	18/07/18	0.1	No													
TP11_T1	18/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11_T1	18/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP12_T1	18/07/18	0.1	No	1680	1510	1640	1010	4160	1180	1490	3.2	66.3	31.8	102	298	400
TP12_T1	18/07/18	1	No	2870	1310	670	<100	1980	2040	1290	11.6	84.8	94.6	116	519	635
TP19_T1	19/07/18	0.1	No													
TP19_T1	19/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP19_T1	19/07/18	1.6	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP20_T1	19/07/18	0.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP20_T1	19/07/18	1.5	Yes	29	90	<100	<100	90	28	90	<0.2	<0.5	<0.5	<0.5	1.3	1.3
TP21_T1	19/07/18	0.1	Yes													
TP21_T1	19/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP21_T1	19/07/18	1.3	Yes	291	160	<100	<100	160	291	150	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP22_T1	19/07/18	0.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP22_T1	19/07/18	1.3	Yes	1130	2560	<100	<100	2560	1130	2560	<0.2	<0.5	<0.5	<0.5	3.5	3.5
TP23_T1	19/07/18	0.1	No													
TP23_T1	19/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP23_T1	19/07/18	1.6	No	80	<50	<100	<100	<50	44	<50	<0.2	4.4	3	8.2	20.1	28.3
TP24_T1	19/07/18	0.2	Yes	29	<50	<100	<100	<50	29	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP24_T1	19/07/18	1.4	Yes	40	50	<100	<100	50	40	50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP25_T1	19/07/18	0.2	Yes	232	180	360	430	970	231	180	0.2	<0.5	<0.5	<0.5	0.8	0.8
TP25_T1	19/07/18	0.5	Yes													
TP25_T1	19/07/18	1.3	Yes	18	50	<100	<100	50	18	50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP26_T1	19/07/18	0.1	Yes													
TP26_T1	19/07/18	0.5	Yes	25	<50	<100	<100	<50	25	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP26_T1	19/07/18	1.4	Yes	1070	1540	<100	<100	1540	1060	1510	<0.5	<0.5	4.4	<0.5	6.1	6.1
TP28_T1	19/07/18	0.2	Yes	2030	940	<100	<100	940	1500	900	3.3	10.8	27.5	72.6	417	490
TP28_T1	19/07/18	0.5	Yes													
TP28_T1	19/07/18	1.5	Yes	3320	1340	<100	<100	1340	2200	1300	12.2	96.8	144	162	706	868

Table A3. Soil Sample Results - Northern Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP29_T1	19/07/18	0.2	Yes													
TP29_T1	19/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP29_T1	19/07/18	1.4	Yes	50	120	<100	<100	120	49	120	<0.2	<0.5	<0.5	<0.5	0.6	0.6
TP30_T1	19/07/18	0.1	Yes													
TP30_T1	19/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP30_T1	19/07/18	1.5	Yes	1890	1350	<100	<100	1350	1710	1310	0.5	<0.5	34.1	<0.5	144	144
TP32_T1	19/07/18	0.2	Yes	545	840	<100	<100	840	457	820	<0.5	<0.5	<0.5	3.3	84.8	88.1
TP32_T1	19/07/18	0.5	Yes	94	<50	<100	<100	<50	79	<50	<0.2	<0.5	<0.5	0.5	14.4	14.9
TP33_T1	19/07/18	0.2	Yes	199	440	250	180	870	154	430	<0.2	<0.5	<0.5	2.8	42.7	45.5
TP33_T1	19/07/18	0.5	Yes													
TP33_T1	19/07/18	1.3	Yes	3300	<50	<100	<100	<50	2740	<50	<2	<2	5.2	<2	557	557
TP34_T1	19/07/18	0.1	Yes													
TP34_T1	19/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP34_T1	19/07/18	1.5	Yes	13	<50	<100	<100	<50	13	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A3. Soil Sample Results - Northern Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP01_T1	18/07/18	0.1	No												<0.001
TP01_T1	18/07/18	0.5	No	<0.5	<0.5	<0.5									<0.001
TP01_T1	18/07/18	1	No	1.8	<0.5	4.5	<5	<1	<2	<5	17	<0.1	<2	<5	
TP02_T1	18/07/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP02_T1	18/07/18	1.2	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP03_T1	18/07/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP03_T1	18/07/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	14	20	32	<0.1	5	78	
TP03_T1	18/07/18	1.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP04_T1	18/07/18	0.1	No	<0.5	4	23									<0.001
TP04_T1	18/07/18	1	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP05_T1	18/07/18	0.1	No	1	3.6	73.8	<5	<1	14	48	9	<0.1	56	74	<0.001
TP05_T1	18/07/18	0.5	No	<0.5	<0.5	<0.5									
TP06_T1	18/07/18	0.1	No	6.5	4.4	73.4									<0.001
TP06_T1	18/07/18	1	No	<0.5	<0.5	1.3	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP07_T1	18/07/18	0.5	No	<0.5	<0.5	<0.5									
TP07_T1	18/07/18	0.1	No	<0.5	<0.5	1.4	6	<1	17	59	54	0.3	6	305	<0.001
TP08_T1	18/07/18	0.1	No												<0.001
TP08_T1	18/07/18	0.5	No	<0.5	1	2.7									
TP08_T1	18/07/18	1	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP09_T1	18/07/18	0.1	No	<0.5	<0.5	1.5									<0.001
TP09_T1	18/07/18	0.5	No												<0.001
TP09_T1	18/07/18	1	No	<0.5	<0.5	<0.5									
TP09_T1	18/07/18	0.5	No												<0.001
TP09_T1	18/07/18	1	No	<0.5	<0.5	<0.5									
TP10_T1	18/07/18	0.1	No	<0.5	<0.5	2.1	<5	<1	38	178	370	<0.1	14	1960	<0.001
TP10_T1	18/07/18	0.5	No												<0.001
TP10_T1	18/07/18	1.2	No	<0.5	<0.5	<0.5									
TP11_T1	18/07/18	0.1	No												<0.001
TP11_T1	18/07/18	0.5	No	<0.5	<0.5	<0.5									
TP11_T1	18/07/18	1	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP12_T1	18/07/18	0.1	No	54.8	<0.5	70.5	<5	<1	23	89	112	<0.1	8	797	<0.001
TP12_T1	18/07/18	1	No	27.2	<0.5	33.5									
TP19_T1	19/07/18	0.1	No												0.001
TP19_T1	19/07/18	0.5	No	<0.5	<0.5	3	<5	<1	<2	<5	5	<0.1	<2	<5	
TP19_T1	19/07/18	1.6	No	<0.5	<0.5	<0.5									
TP20_T1	19/07/18	0.1	Yes	<0.5	<0.5	<0.5									<0.001
TP20_T1	19/07/18	1.5	Yes	<0.5	<0.5	<0.5									
TP21_T1	19/07/18	0.1	Yes												<0.001
TP21_T1	19/07/18	0.5	Yes	<0.5	<0.5	<0.5									
TP21_T1	19/07/18	1.3	Yes	5.4	<0.5	5.4	<5	<1	4	<5	<5	<0.1	<2	<5	
TP22_T1	19/07/18	0.1	Yes	<0.5	<0.5	<0.5									<0.001
TP22_T1	19/07/18	1.3	Yes	10.4	<0.5	11.9									
TP23_T1	19/07/18	0.1	No												<0.001
TP23_T1	19/07/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	<0.001
TP23_T1	19/07/18	1.6	No	0.9	<0.5	0.9									
TP24_T1	19/07/18	0.2	Yes	<0.5	<0.5	<0.5	<5	<1	122	35	7	<0.1	112	69	<0.001
TP24_T1	19/07/18	1.4	Yes	<0.5	<0.5	<0.5									
TP25_T1	19/07/18	0.2	Yes	6.8	<0.5	6.8	<5	<1	43	19	5	<0.1	56	42	<0.001
TP25_T1	19/07/18	0.5	Yes												<0.001
TP25_T1	19/07/18	1.3	Yes	<0.5	<0.5	<0.5									
TP26_T1	19/07/18	0.1	Yes												<0.001
TP26_T1	19/07/18	0.5	Yes	0.9	<0.5	0.9	<5	<1	3	<5	15	<0.1	<2	<5	
TP26_T1	19/07/18	1.4	Yes	37.5	<0.5	37.5									
TP28_T1	19/07/18	0.2	Yes	40.8	<0.5	40.8	<5	<1	75	23	8	<0.1	70	43	<0.001
TP28_T1	19/07/18	0.5	Yes												<0.001
TP28_T1	19/07/18	1.5	Yes	46.2	<0.5	46.2									

Table A3. Soil Sample Results - Northern Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP29_T1	19/07/18	0.2	Yes												<0.001
TP29_T1	19/07/18	0.5	Yes	<0.5	<0.5	<0.5									
TP29_T1	19/07/18	1.4	Yes	0.7	<0.5	0.7	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP30_T1	19/07/18	0.1	Yes												<0.001
TP30_T1	19/07/18	0.5	Yes	<0.5	<0.5	<0.5	<5	<1	2	<5	6	<0.1	<2	<5	
TP30_T1	19/07/18	1.5	Yes	39.6	<0.5	39.6									
TP32_T1	19/07/18	0.2	Yes	24.1	<0.5	24.1	<5	<1	65	28	20	<0.1	83	56	<0.001
TP32_T1	19/07/18	0.5	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	5	<0.1	<2	<5	
TP33_T1	19/07/18	0.2	Yes	15	<0.5	15	<5	<1	57	22	8	<0.1	69	45	<0.001
TP33_T1	19/07/18	0.5	Yes												<0.001
TP33_T1	19/07/18	1.3	Yes	<0.5	<0.5	<0.5									
TP34_T1	19/07/18	0.1	Yes												<0.001
TP34_T1	19/07/18	0.5	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP34_T1	19/07/18	1.5	Yes	<0.5	<0.5	<0.5									

Table A4. GW Monitoring Results - Northern Tank Farm

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	LNAPL	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion					1000	1000			800	NL	NL			NL
LNAPL Indicator							30000	Detection	3000					
Fresh / Marine									500	180	80	350	75	
Recreational									10	8000	3000			6000

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	LNAPL	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
PMW04	05/11/18	Yes	20	<100	<100	<100	20	<100	20		<1	<2	<2	<2	<2	<2
PMW04	05/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW04	08/05/19	Yes	20	120	<100	<100	20	120	140		<1	<1	<1	<1	<2	<3
PMW23	05/11/18	Yes	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW23	05/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW23	08/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW25	05/11/18	No	209000	1840	170	<100	91000	1520	210840		4780	76300	5300	9190	22400	31600
PMW25	07/02/19	No	140000	3500	400	<100	40000	3160	143500		2700	68000	4600	8000	17000	25000
PMW25	08/05/19	No	270000	3300	700	<100	110000	3300	273300		5600	110000	5200	10000	30000	40000
PMW26	05/11/18	No	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW26	05/02/19	No	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW26	08/05/19	No	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW27	05/11/18	Yes	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW27	05/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW27	08/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW36	06/02/19	No								Detected						
PMW36	02/05/19	No								Detected						
PMW36	08/05/19	No								Detected						
PMW48	02/11/18	No	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW48	05/02/19	No	430	<50	500	100	210	<50	430		220	<10	<10	<10	<20	<30
PMW48	08/05/19	No	1600	1000	800	<100	550	1000	2600		840	<10	72	61	77	140
PMW63	05/02/19	No	150	1000	<100	<100	140	960	1150		3	<1	<1	<1	4	4
PMW63	08/05/19	No	140	930	800	<100	140	850	1070		<1	<1	<1	1	<2	<3
PU37	14/11/18	No	1850	1300	260	<100	860	900	3150		807	<5	<5	<5	184	184
PU37	12/02/19	No	830	2100	400	<100	490	2100	2930		320	<5	<5	<5	19	19
PU37	08/05/19	No	170	990	300	<100	120	990	1160		50	<1	<1	<1	<2	<3
PU38	14/11/18	Yes	33400	5640	380	<100	13700	4950	39040		2320	2980	1900	1890	10600	12500
PU38	12/02/19	Yes	39000	8600	1000	100	20000	7500	47600		1700	2400	1300	3000	11000	14000
PU38	08/05/19	Yes								Detected						
PU39	14/11/18	Yes	700	780	<100	<100	700	760	1480		4	<2	<2	<2	<2	<2
PU39	12/02/19	Yes	430	960	<100	<100	420	890	1390		2	2	<1	<1	3	<3
PU39	08/05/19	Yes	660	920	<100	<100	660	860	1580		1	1	<1	<1	<2	<3
PU40	14/11/18	Yes	5740	2680	150	<100	4340	2100	8420		57	8	154	<5	1180	1180
PU40	12/02/19	Yes	4100	2500	100	<100	2600	1750	6600		55	12	150	<10	1300	1300
PU40	08/05/19	Yes	2500	3800	300	<100	2100	3800	6300		<10	<10	<10	<10	390	390
PU41	14/11/18	No	12600	720	220	<100	8250	270	13320		613	<10	485	455	2800	3260
PU41	12/02/19	No	540	1500	1300	<100	370	1410	2040		18	<1	3	2	150	150
PU41	09/05/19	No	190	1500	1400	<100	180	1400	1690		<1	<1	3	<1	4	4
PU43	14/11/18	No	530	650	300	<100	530	510	1180		<1	<2	<2	<2	3	3
PU43	12/02/19	No	290	1400	700	<100	290	1400	1690		1	<1	<1	2	<2	<3
PU43	09/05/19	No	160	560	700	<100	150	450	720		3	2	<1	2	5	6
PU44	14/11/18	No	181000	2380	<100	<100	55900	1860	183380		13800	83100	4200	6020	18000	24000
PU44	12/02/19	No	140000	2800	400	<100	56000	2800	142800		10000	55000	2600	4000	12000	16000
PU44	09/05/19	No	160000	1200	200	<100	83000	<5000	161200		8200	55000	1900	2600	8900	11000

Table A4. GW Monitoring Results - Northern Tank Farm

All results in µg/L (unless otherwise stated)

Screening Level	BTEX_Sum	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
Vapour Intrusion		NL											
LNAPL Indicator	20000												
Fresh / Marine		16			24	0.2	27.4	1.3	2.2	0.1	7	8	910
Recreational					50	5	50		100	1	100		500

Well_ID	Sample_date	Eco_Receptor	BTEX_Sum	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
PMW04	05/11/18	Yes	<6	<1			<1	<0.1	<1	2	<1			<5	4710
PMW04	05/02/19	Yes	<6	<10											
PMW04	08/05/19	Yes	<6	<10											
PMW23	05/11/18	Yes	<6	<1			17	<0.1	<1	2	<1			6	400
PMW23	05/02/19	Yes	<6	<10											
PMW23	08/05/19	Yes	<6	<10											
PMW25	05/11/18	No	117970	130			9	<0.1	1	<1	1840			<5	520
PMW25	07/02/19	No	100300	340											
PMW25	08/05/19	No	160800	3700											
PMW26	05/11/18	No	<6	<1			3	<0.1	<1	1	<1			<5	80
PMW26	05/02/19	No	<6	<10											
PMW26	08/05/19	No	<6	<10											
PMW27	05/11/18	Yes	<6	<1			<1	<0.1	2	<1	<1			6	410
PMW27	05/02/19	Yes	<6	<10											
PMW27	08/05/19	Yes	<6	<10											
PMW36	06/02/19	No													
PMW36	02/05/19	No													
PMW36	08/05/19	No													
PMW48	02/11/18	No	<6	<1			3	<0.1	<1	3	<1			<5	330
PMW48	05/02/19	No	220	<10											
PMW48	08/05/19	No	1050	<100											
PMW63	05/02/19	No	7	40											
PMW63	08/05/19	No	1	80											
PU37	14/11/18	No	991	236			3	<0.1	2	<1	<1	<0.1	<1	<5	
PU37	12/02/19	No	339	<10	<1	180									
PU37	08/05/19	No	50	<1	<1	<1	1	<0.2	2	5	<1	<0.1	2	<5	
PU38	14/11/18	Yes	19690	451			26	<0.1	4	<1	2	<0.1	<1	<5	
PU38	12/02/19	Yes	19400	570	<1	573									
PU38	08/05/19	Yes													
PU39	14/11/18	Yes	4	18.8			10	<0.1	<1	<1	<1	<0.1	<1	<5	
PU39	12/02/19	Yes	7	39	<1	39									
PU39	08/05/19	Yes	2	60	<1	73	6	0.3	3	<1	4	<0.1	2	370	
PU40	14/11/18	Yes	1399	351			6	<0.1	2	<1	1	<0.1	<1	<5	
PU40	12/02/19	Yes	1517	300	<1	300									
PU40	08/05/19	Yes	390	540	<1	540	3	<0.2	5	1	6	<0.1	2	7	
PU41	14/11/18	No	4353	196			8	<0.1	<1	<1	<1	<0.1	<1	<5	
PU41	12/02/19	No	173	90	<1	172									
PU41	09/05/19	No	7	100	<1	102	17	<0.2	<1	<1	<1	<0.1	<1	<5	
PU43	14/11/18	No	3	67.8			4	<0.1	<1	<1	<1	<0.1	<1	<5	
PU43	12/02/19	No	3	<10	<1	200									
PU43	09/05/19	No	12	110	<1	<1	10	<0.2	<1	<1	<1	<0.1	<1	<5	
PU44	14/11/18	No	125120	254			22	<0.1	1	<1	1	0.2	<1	<5	
PU44	12/02/19	No	83600	260	<1	260									
PU44	09/05/19	No	76600	410	<1	411	4	<0.2	2	1	5	<0.1	<1	<5	

Areas of Environmental Concern - North Western Tank Farm



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

AECs

- Asbestos Contamination
- Land Contamination

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 20 40 60 80 100

metres

FIGURE A3

CALTEX

Conceptual Site Model

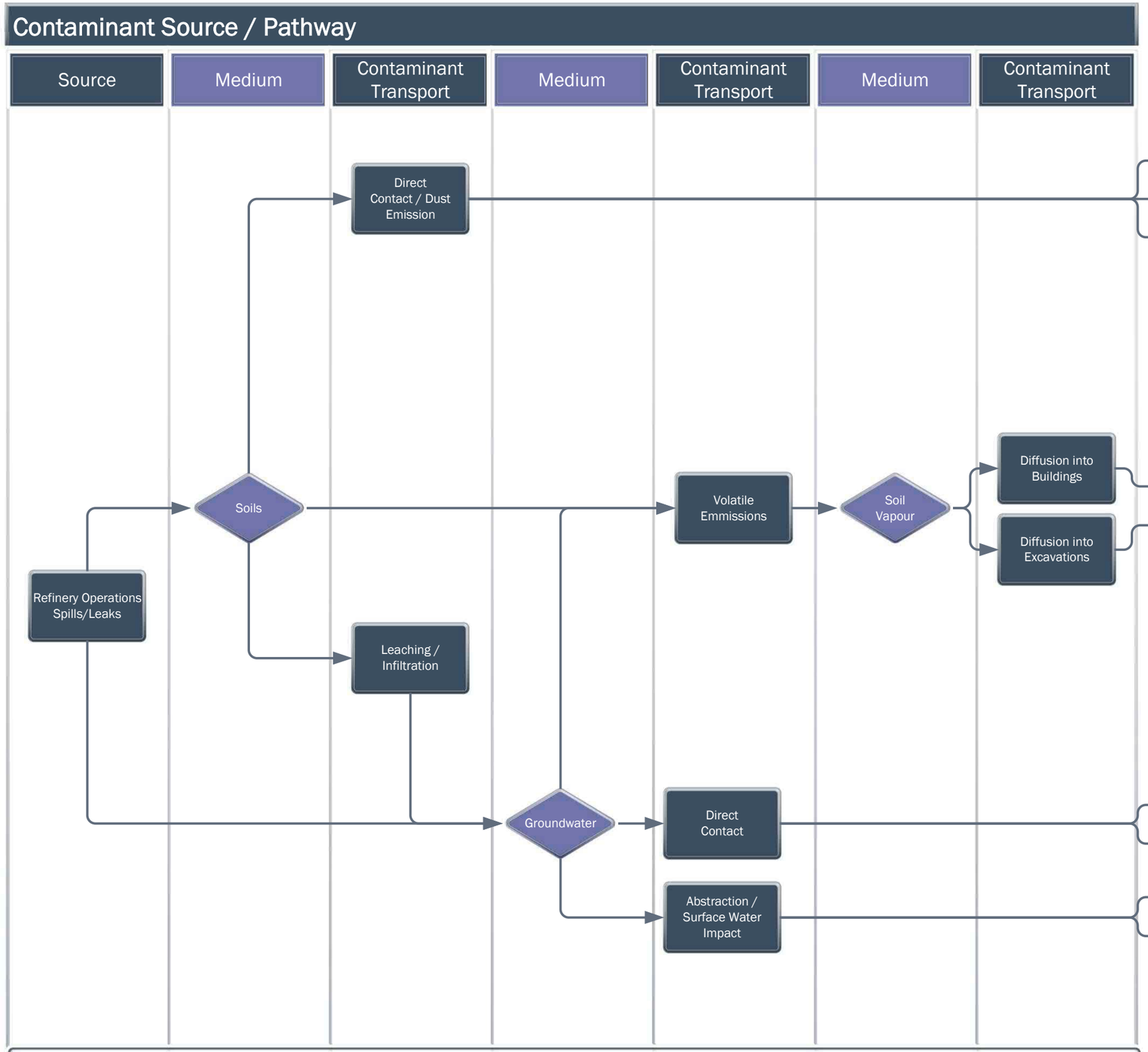
North Western Tank Farm

Contaminants of Concern Evaluated:

Soil
TRH C10-C34
Naphthalene
Zinc
Asbestos

Groundwater
LNAPL
TRH C6-C16
Naphthalene

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable



Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Contaminant Receptor

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	○	–	✗
Dermal	✗	○	–	–
Inhalation (Asbestos)	✗	○	✗	–

Notes:
Impacted soils are within former tank bunds or beneath roadways limiting exposure to site workers. Asbestos was detected at one location and will need to be removed or managed to mitigate potential exposure.

Inhalation	✗	–	○	–
Inhalation	–	○	○	–

Notes:
Exceedances of vapour intrusion criteria have been measured throughout the area, including TRH at the site boundary. Given the proximity to the adjacent warehouse, soil vapour sampling will need to be undertaken to further assess the vapour intrusion pathway.

LNAPL impacts are the result of historical spills and have been delineated on-site. LNAPL may present an exposure pathway if disturbed through intrusive works.

Ingestion /plant uptake	✗	○	✗	✗
Dermal	✗	○	✗	–
Ingestion /plant uptake	✗	○	✗	○
Dermal	✗	○	✗	✗

Notes:
Potentially complete exposure pathways for off-site properties and ecological receptors were identified in relation to an exceedance of TRH and naphthalene concentrations at the site boundary. Further assessment is required to confirm the nature and extent of exceedance.

LNAPL impacts are the result of historical spills and have been delineated on-site. LNAPL may present an exposure pathway if disturbed through intrusive works.

Table A5. Soil Sample Results - North Western Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
HA01_T126	03/04/19	0.8	No	26	2100	1400	280	3780	26	2100	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
HA02_T126	03/04/19	0.8	No	410	22000	20000	260	42260	360	21890	<2	<2	6.1	5.4	38	43
HA03_T126	03/04/19	0.2	No	<100	7600	12000	560	20160	<100	7600	<0.5	<0.5	<0.5	<0.5	1.6	1.6
HA03_T126	03/04/19	0.9	No	600	10000	14000	500	24500	480	9976	1.1	<0.5	31	<0.5	87	87
HA04_T126	03/04/19	0.4	No													
HA05_T126	03/04/19	0.2	No													
HA05_T126	03/04/19	1	No	<20	11000	9900	130	21030	<20	11000	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
HA06_T126	03/04/19	1	No	<200	12000	10000	120	22120	<200	11966	<1	<1	<1	<1	<2	<3
HA07_T126	03/04/19	0.2	No	<40	500	2400	150	3050	<40	500	<0.2	<0.2	<0.2	<0.2	<0.4	<0.6
HA07_T126	03/04/19	0.8	No	440	3700	780	150	4630	440	3700	<1	<1	<1	<1	<2	<3
HA08_T126	04/04/19	0.2	No													
HA08_T126	04/04/19	1	No	<20	<50	390	160	550	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
HA09_T126	03/04/19	0.9	No	<400	3900	5500	600	10000	<400	3867	<2	<2	<2	<2	<4	<6
HA10_T126	03/04/19	0.5	No	160	2200	7900	3200	13300	160	2197.4	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
HA11_T126	03/04/19	0.5	No	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
HA11_T126	03/04/19	0.8	No	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
HA12_T126	03/04/19	0.2	No	<20	<50	380	110	490	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
HA12_T126	03/04/19	0.5	No													
HA12_T126	03/04/19	0.8	No													
HA13_T126	04/04/19	0.2	No													
HA13_T126	04/04/19	1	No	<1000	15000	13000	150	28150	<1000	14962	<5	<5	<5	<5	<10	<15
HA14_T126	04/04/19	0.2	No	<20	140	1000	190	1330	<20	140	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
HA15_T126	04/04/19	1.2	No	540	18000	15000	<100	33000	470	17905	<1	<1	10	19	38	57
HA16_T126	03/04/19	1.2	No	<20	1000	3000	170	4170	<20	1000	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
HA17_T126	04/04/19	0.9	No	<20	200	910	620	1730	<20	200	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
HA19_T126	04/04/19	0.9	No	<100	2300	3200	1300	6800	<100	2265	<0.5	<0.5	<0.5	<0.5	<1	<1.5
HA20_T126	04/04/19	1.2	No	230	16000	14000	330	30330	230	15957	<0.5	<0.5	<0.5	<0.5	<1	<1.5
TP01_T124	29/08/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP01_T124	29/08/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP02_T124	29/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP02_T124	29/08/18	1.7	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03_T124	29/08/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03_T124	29/08/18	1.6	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP04_T124	29/08/18	0.1	No													
TP04_T124	29/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05_T124	29/08/18	0.1	No	<10	<50	220	180	400	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05_T124	29/08/18	0.5	No													
TP05_T124	29/08/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06_T124	29/08/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06_T124	29/08/18	1.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07_T124	29/08/18	0.1	No													
TP07_T124	29/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07_T124	29/08/18	1.6	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08_T124	29/08/18	0.1	No													
TP08_T124	29/08/18	1.3	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP09_T124	29/08/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP09_T124	29/08/18	0.5	No													
TP09_T124	29/08/18	1.7	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10_T124	29/08/18	0.1	No													
TP10_T124	29/08/18	1.6	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11_T124	29/08/18	0.1	No	<10	330	1180	700	2210	<10	330	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11_T124	29/08/18	0.5	No													
TP12_T124	29/08/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP12_T124	29/08/18	1.6	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A5. Soil Sample Results - North Western Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP13_T124	29/08/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP13_T124	29/08/18	0.5	No													
TP14_T124	29/08/18	0.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP14_T124	29/08/18	1.8	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15_T124	28/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15_T124	28/08/18	1.9	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16_T124	28/08/18	0.1	No	<10	<50	1860	730	2590	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16_T124	28/08/18	2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP17_T124	28/08/18	0.1	No	<10	<50	350	380	730	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP17_T124	28/08/18	0.5	No													
TP17_T124	28/08/18	1.8	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP18_T124	28/08/18	0.1	No													
TP18_T124	28/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP19_T124	28/08/18	0.5	No	<10	<50	110	<100	110	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP19_T124	28/08/18	1.8	No	109	6600	4020	290	10900	109	6590	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP19_T124	28/08/18	2.2	No	126	3310	1710	<100	5020	126	3300	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP20_T124	28/08/18	0.1	Yes													
TP20_T124	28/08/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP21_T124	28/08/18	0.5	Yes													
TP21_T124	28/08/18	1.8	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP22_T124	28/08/18	0.1	Yes													
TP22_T124	28/08/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP22_T124	28/08/18	0.1	Yes													
TP22_T124	28/08/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP23_T124	28/08/18	0.1	Yes	<10	<50	1240	610	1850	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP23_T124	28/08/18	0.5	Yes													
TP23_T124	28/08/18	1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP24_T124	28/08/18	0.1	Yes	<10	<50	230	150	380	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP24_T124	28/08/18	1	Yes	<10	2550	8620	2210	13400	<10	2540	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP24_T124	28/08/18	1.6	Yes	75	16900	19000	2600	38500	75	16600	<1	<1	<1	<1	<1	<0.5
TP25_T124	28/08/18	0.1	Yes													
TP25_T124	28/08/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP25_T124	28/08/18	1	Yes	<10	<50	120	<100	120	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP25_T124	28/08/18	1.8	Yes	<10	3140	2360	160	5660	<10	3140	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP26_T124	28/08/18	0.5	Yes													
TP26_T124	28/08/18	1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP26_T124	28/08/18	1.8	Yes	<10	1350	1720	150	3220	<10	1350	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A5. Soil Sample Results - North Western Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
HA01_T126	03/04/19	0.8	No	<0.5											
HA02_T126	03/04/19	0.8	No	110											
HA03_T126	03/04/19	0.2	No	<1.2	<2	28.5	5.2	<0.4	24	97	75	0.5	27	370	
HA03_T126	03/04/19	0.9	No	24	<2	80.8	5.8	<0.4	13	64	52	0.5	25	220	
HA04_T126	03/04/19	0.4	No												0.0001
HA05_T126	03/04/19	0.2	No												<0.001
HA05_T126	03/04/19	1	No	<0.5											
HA06_T126	03/04/19	1	No	34											
HA07_T126	03/04/19	0.2	No	<1	<2	<2	2.9	<0.4	38	110	86	0.2	30	450	
HA07_T126	03/04/19	0.8	No	<5											
HA08_T126	04/04/19	0.2	No												<0.001
HA08_T126	04/04/19	1	No	<0.5											
HA09_T126	03/04/19	0.9	No	33											
HA10_T126	03/04/19	0.5	No	2.6											
HA11_T126	03/04/19	0.5	No	<0.5	<0.5	<0.5	<2	<0.4	9.2	14	8.2	<0.1	7.4	53	
HA11_T126	03/04/19	0.8	No	<0.5											
HA12_T126	03/04/19	0.2	No	<0.5											
HA12_T126	03/04/19	0.5	No												<0.001
HA12_T126	03/04/19	0.8	No												<0.001
HA13_T126	04/04/19	0.2	No												<0.001
HA13_T126	04/04/19	1	No	38											
HA14_T126	04/04/19	0.2	No	<0.5	<0.5	<0.5	5.8	2.1	69	370	770	0.3	58	4600	
HA15_T126	04/04/19	1.2	No	95											
HA16_T126	03/04/19	1.2	No	<0.5											
HA17_T126	04/04/19	0.9	No	<0.5											
HA19_T126	04/04/19	0.9	No	35											
HA20_T126	04/04/19	1.2	No	43											
TP01_T124	29/08/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP01_T124	29/08/18	1	No	<0.5	<0.5	<0.5									
TP02_T124	29/08/18	0.5	No	<0.5	<0.5	<0.5									<0.001
TP02_T124	29/08/18	1.7	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP03_T124	29/08/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP03_T124	29/08/18	1.6	No	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	4	5	
TP04_T124	29/08/18	0.1	No												<0.001
TP04_T124	29/08/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP05_T124	29/08/18	0.1	No	<0.5	1.5	11.4	<5	<1	122	15	11	<0.1	47	92	
TP05_T124	29/08/18	0.5	No												<0.001
TP05_T124	29/08/18	1	No	<0.5	<0.5	<0.5									
TP06_T124	29/08/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP06_T124	29/08/18	1.2	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP07_T124	29/08/18	0.1	No												<0.001
TP07_T124	29/08/18	0.5	No	<0.5	<0.5	<0.5									
TP07_T124	29/08/18	1.6	No	<0.5	<0.5	<0.5	7	<1	4	<5	<5	<0.1	<2	<5	
TP08_T124	29/08/18	0.1	No												<0.001
TP08_T124	29/08/18	1.3	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP09_T124	29/08/18	0.1	No	<0.5	<0.5	<0.5									
TP09_T124	29/08/18	0.5	No												<0.001
TP09_T124	29/08/18	1.7	No	<0.5	<0.5	<0.5									
TP10_T124	29/08/18	0.1	No												<0.001
TP10_T124	29/08/18	1.6	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	9	
TP11_T124	29/08/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	113	36	14	<0.1	78	150	
TP11_T124	29/08/18	0.5	No												<0.001
TP12_T124	29/08/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	33	185	185	<0.1	27	1940	<0.001
TP12_T124	29/08/18	1.6	No	<0.5	<0.5	<0.5									

Table A5. Soil Sample Results - North Western Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP13_T124	29/08/18	0.1	No	<0.5	<0.5	<0.5	<5	1	26	129	173	<0.1	62	1010	
TP13_T124	29/08/18	0.5	No												<0.001
TP14_T124	29/08/18	0.2	No	<0.5	<0.5	<0.5	<5	<1	20	87	72	<0.1	41	547	0.004
TP14_T124	29/08/18	1.8	No	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	
TP15_T124	28/08/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	11	<0.001
TP15_T124	28/08/18	1.9	No	<0.5	<0.5	<0.5									
TP16_T124	28/08/18	0.1	No	<0.5	0.9	4.9	<5	<1	20	82	145	0.1	28	735	<0.001
TP16_T124	28/08/18	2	No	<0.5	<0.5	<0.5									
TP17_T124	28/08/18	0.1	No	<0.5	<0.5	1.7									
TP17_T124	28/08/18	0.5	No												<0.001
TP17_T124	28/08/18	1.8	No	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	
TP18_T124	28/08/18	0.1	No												<0.001
TP18_T124	28/08/18	0.5	No	<0.5	<0.5	<0.5									
TP19_T124	28/08/18	0.5	No	<0.5	<0.5	<0.5									<0.001
TP19_T124	28/08/18	1.8	No	11.4	<0.5	57.2	<5	<1	2	<5	<5	<0.1	<2	<5	
TP19_T124	28/08/18	2.2	No	15.3	<0.5	35.5									
TP20_T124	28/08/18	0.1	Yes												<0.001
TP20_T124	28/08/18	0.5	Yes	<0.5	<0.5	<0.5									
TP21_T124	28/08/18	0.5	Yes												<0.001
TP21_T124	28/08/18	1.8	Yes	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	
TP22_T124	28/08/18	0.1	Yes												<0.001
TP22_T124	28/08/18	0.5	Yes	<0.5	<0.5	<0.5									
TP22_T124	28/08/18	0.1	Yes												<0.001
TP22_T124	28/08/18	0.5	Yes	<0.5	<0.5	<0.5									
TP23_T124	28/08/18	0.1	Yes	<0.5	0.6	0.6	<5	<1	37	93	82	<0.1	17	605	
TP23_T124	28/08/18	0.5	Yes												<0.001
TP23_T124	28/08/18	1	Yes	<0.5	<0.5	<0.5									
TP24_T124	28/08/18	0.1	Yes	<0.5	<0.5	<0.5									<0.001
TP24_T124	28/08/18	1	Yes	12.5	<0.5	77.6									
TP24_T124	28/08/18	1.6	Yes	450	<0.5	819	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP25_T124	28/08/18	0.1	Yes												<0.001
TP25_T124	28/08/18	0.5	Yes	<0.5	<0.5	<0.5									
TP25_T124	28/08/18	1	Yes	<0.5	<0.5	<0.5									
TP25_T124	28/08/18	1.8	Yes	<0.5	<0.5	14.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP26_T124	28/08/18	0.5	Yes												<0.001
TP26_T124	28/08/18	1	Yes	<0.5	<0.5	<0.5									
TP26_T124	28/08/18	1.8	Yes	1.7	<0.5	16	<5	<1	24	60	28	<0.1	4	181	

Table A6. GW Monitoring Results - North Western Tank Farm

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	LNAPL	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion					1000	1000			800	NL	NL			NL
LNAPL Indicator							30000	Detection	3000					
Fresh / Marine									500	180	80	350	75	
Recreational									10	8000	3000			6000

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	LNAPL	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
BW01	18/03/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
BW01	06/05/19	Yes	<20	440	100	<100	<20	440	440		<1	<1	<1	<1	<2	<3
BW02	18/03/19	Yes	<20	60	200	100	<20	60	60		<1	<1	<1	<1	<2	<3
PMW16	05/11/18	Yes	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW16	05/02/19	Yes	<20	150	200	<100	<20	150	150		<1	<1	<1	<1	<2	<3
PMW16	08/05/19	Yes	<20	220	<100	<100	<20	220	220		<1	<1	<1	<1	<2	<3
PMW37	02/11/18	Yes	<20	250	250	<100	<20	240	250		<1	<2	<2	<2	<2	<2
PMW37	05/02/19	Yes	<20	1600	4600	200	<20	1580	1600		<1	<1	<1	<1	<2	<3
PMW37	08/05/19	Yes	<20	2100	3500	<100	<20	2070	2100		<1	<1	<1	<1	<2	<3
PMW45	05/11/18	Yes	100	240	<100	<100	100	230	340		<1	<2	<2	<2	<2	<2
PMW45	05/02/19	Yes	30	1400	1200	<100	30	1370	1430		<1	<1	<1	<1	<2	<3
PMW45	08/05/19	Yes	60	1800	1100	<100	60	1800	1860		<1	<1	<1	<1	<2	<3
PMW46	02/11/18	Yes	<20	520	110	<100	<20	480	520		<1	<2	<2	<2	<2	<2
PMW46	05/02/19	Yes	<20	1500	3000	200	<20	1450	1500		<1	<1	<1	<1	<2	<3
PMW46	08/05/19	Yes	40	1500	1500	<100	40	1420	1540		<1	<1	<1	<1	<2	<3
PMW47	02/11/18	Yes	20	<100	<100	<100	20	<100	20		<1	<2	<2	<2	<2	<2
PMW47	05/02/19	Yes	<20	170	900	100	<20	170	170		<1	<1	<1	<1	<2	<3
PMW47	08/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW67	04/02/19	No								Detected						
PMW67	02/05/19	No								Detected						
PMW67	08/05/19	No								Detected						
PMW68	07/02/19	Yes	60	4300	1200	<100	60	4150	4360		<1	<1	<1	<1	<2	<3
PMW68	08/05/19	Yes	<20	2400	500	<100	<20	2380	2400		<1	<1	<1	<1	<2	<3
PMW69	08/05/19	No	<20	760	500	<100	<20	760	760		<1	<1	<1	<1	<2	<3
PMW70	08/05/19	Yes	<20	300	<100	<100	<20	300	300		<1	<1	<1	<1	<2	<3
PU52	14/11/18	No	140	<100	<100	<100	130	<100	140		<1	<2	<2	<2	7	7
PU52	12/02/19	No	40	240	<100	<100	40	220	280		<1	<1	<1	<1	<2	<3
PU52	09/05/19	No	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PU53	14/11/18	No	2240	1920	250	<100	1680	1650	4160		9	30	68	41	416	457
PU53	12/02/19	No	1300	1800	400	<100	990	1300	3100		<5	10	36	27	240	270
PU53	09/05/19	No	960	3600	1400	<100	900	3150	4560		<1	9	11	3	40	42
PU54	14/11/18	Yes	110	1470	1550	<100	110	1390	1580		<1	<2	<2	<2	<2	<2
PU54	12/02/19	Yes	30	3400	5400	<100	30	3290	3430		<1	<1	<1	<1	<2	<3
PU54	09/05/19	Yes	<20	1400	2600	<100	<20	1340	1400		<1	<1	<1	<1	<2	<3
PU55	14/11/18	Yes	120	2940	1100	<100	70	2740	3060		4	17	6	7	12	19
PU55	12/02/19	Yes	180	3700	2000	<100	160	3330	3880		2	2	3	6	7	13
PU55	02/05/19	Yes								Detected						
PU55	08/05/19	Yes								Detected						
PU65	08/05/19	No	<20	110	200	<100	<20	110	110		<1	<1	<1	<1	<2	<3

Table A6. GW Monitoring Results - North Western Tank Farm

All results in µg/L (unless otherwise stated)

Screening Level	BTEX_Sum	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
Vapour Intrusion		NL											
LNAPL Indicator	20000												
Fresh / Marine		16			24	0.2	27.4	1.3	2.2	0.1	7	8	910
Recreational					50	5	50		100	1	100		500

Well_ID	Sample_date	Eco_Receptor	BTEX_Sum	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
BW01	18/03/19	Yes	<6	<1	<1	<1									
BW01	06/05/19	Yes	<6	1	<1	1									
BW02	18/03/19	Yes	<6	<1	<1	<1									
PMW16	05/11/18	Yes	<6	<1			<1	<0.1	<1	<1	<1			<5	1090
PMW16	05/02/19	Yes	<6	<10											
PMW16	08/05/19	Yes	<6	<10											
PMW37	02/11/18	Yes	<6	8.6			4	<0.1	<1	<1	<1			<5	3620
PMW37	05/02/19	Yes	<6	20											
PMW37	08/05/19	Yes	<6	30											
PMW45	05/11/18	Yes	<6	8.9			<1	<0.1	<1	<1	<1			<5	1500
PMW45	05/02/19	Yes	<6	30											
PMW45	08/05/19	Yes	<6	<10											
PMW46	02/11/18	Yes	<6	1.7			<1	<0.1	<1	<1	<1			<5	1220
PMW46	05/02/19	Yes	<6	50											
PMW46	08/05/19	Yes	<6	80											
PMW47	02/11/18	Yes	<6	<1			<1	<0.1	<1	1	<1			<5	1250
PMW47	05/02/19	Yes	<6	<10											
PMW47	08/05/19	Yes	<6	<10											
PMW67	04/02/19	No													
PMW67	02/05/19	No													
PMW67	08/05/19	No													
PMW68	07/02/19	Yes	<6	150											
PMW68	08/05/19	Yes	<6	20											
PMW69	08/05/19	No	<6	<10											
PMW70	08/05/19	Yes	<6	<10											
PU52	14/11/18	No	7	13.1			3	<0.1	<1	<1	<1	<0.1	<1	<5	
PU52	12/02/19	No	<6	7	<1	7									
PU52	09/05/19	No	<6	<1	<1	<1	3	<0.2	2	<1	<1	<0.1	<1	<5	
PU53	14/11/18	No	564	143			5	<0.1	1	<1	<1	<0.1	<1	<5	
PU53	12/02/19	No	313	200	<1	200									
PU53	09/05/19	No	63	310	<1	310	7	<0.2	2	<1	<1	<0.1	<1	<5	
PU54	14/11/18	Yes	<6	41.4			8	<0.1	1	<1	<1	<0.1	<1	<5	
PU54	12/02/19	Yes	<6	59	<1	65									
PU54	09/05/19	Yes	<6	60	<1	11	7	<0.2	1	<1	<1	<0.1	<1	<5	
PU55	14/11/18	Yes	46	97.6			1	<0.1	<1	<1	<1	<0.1	<1	<5	
PU55	12/02/19	Yes	20	110	<1	149									
PU55	02/05/19	Yes													
PU55	08/05/19	Yes													
PU65	08/05/19	No	<6	<1	<1	<1	2	<0.2	<1	<1	2	<0.1	<1	<5	

Areas of Environmental Concern - LPG Area





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

AECs

- Asbestos Contamination
- Land Contamination

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 10 20 30 40 50
metres

FIGURE A4

CALTEX

Conceptual Site Model

LPG Area

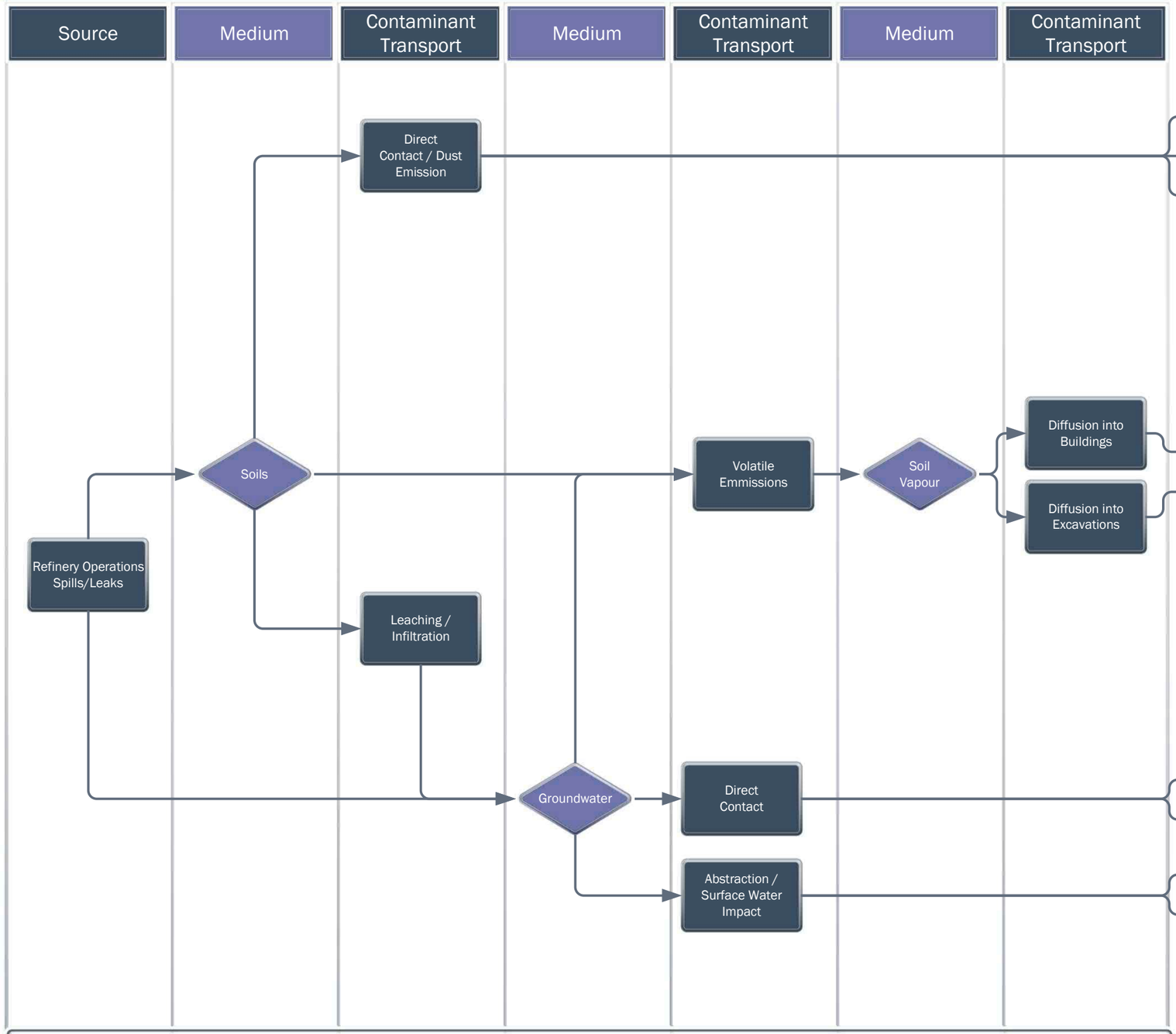
Contaminants of Concern Evaluated:

Soil
Asbestos

Groundwater
TRH C10-C16

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable

Contaminant Source / Pathway



Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Contaminant Receptor

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	✗	–	✗
Dermal	✗	✗	–	–
Inhalation (Asbestos)	✓	○	✗	–

Notes:
Asbestos exceeding criteria was identified at one sample point. The asbestos was a fragment of ACM which was subsequently removed. Further testing/verification required to confirm no remaining impacts in this area.

Inhalation	✗	–	✗	–
Inhalation	–	✗	✗	–

Notes:
Exceedances of vapour intrusion criteria occurred in several location during previous monitoring, however, no exceedances occurred during initial monitoring round or the most recent monitoring round. It is considered that the hydrocarbon vapour intrusion exceedance was transient and unlikely to persist.

Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	–
Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	✗

Notes:

Table A7. Soil Sample Results - LPG Area

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP01_LPG	23/07/18	0.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP01_LPG	23/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP02_LPG	24/07/18	0.1	Yes	<10	<50	260	<100	260	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP02_LPG	24/07/18	1.7	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03_LPG	23/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03_LPG	23/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03_LPG	23/07/18	1.5	No	<10	1660	5810	740	8210	<10	1660	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP04_LPG	23/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP04_LPG	23/07/18	1.5	No	<10	<50	120	<100	120	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05_LPG	23/07/18	0.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05_LPG	23/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06_LPG	23/07/18	0.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06_LPG	23/07/18	1.8	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07_LPG	23/07/18	0.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07_LPG	23/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08_LPG	23/07/18	0.1	Yes													
TP08_LPG	23/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08_LPG	23/07/18	1.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP09_LPG	23/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP09_LPG	23/07/18	0.5	No													
TP09_LPG	23/07/18	1.3	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10_LPG	23/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10_LPG	23/07/18	0.5	No													
TP10_LPG	23/07/18	1.3	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11_LPG	23/07/18	0.1	No													
TP11_LPG	23/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11_LPG	23/07/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP12_LPG	23/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP13_LPG	23/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP13_LPG	23/07/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP14_LPG	23/07/18	0.2	Yes													
TP14_LPG	23/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15_LPG	23/07/18	0.1	Yes													
TP15_LPG	23/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15_LPG	23/07/18	1.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16_LPG	23/07/18	0.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16_LPG	23/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP17_LPG	23/07/18	0.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP17_LPG	23/07/18	1.8	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP18_LPG	24/07/18	0.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP18_LPG	24/07/18	0.5	Yes													
TP18_LPG	24/07/18	1.6	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP19_LPG	24/07/18	0.1	Yes													
TP19_LPG	24/07/18	0.5	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP19_LPG	24/07/18	1.6	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP20_LPG	24/07/18	0.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP20_LPG	24/07/18	1.8	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A7. Soil Sample Results - LPG Area

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP01_LPG	23/07/18	0.1	Yes	<0.5	<0.5	<0.5									<0.001
TP01_LPG	23/07/18	0.5	Yes	<0.5	<0.5	<0.5									
TP02_LPG	24/07/18	0.1	Yes	<0.5	<0.5	<0.5									<0.001
TP02_LPG	24/07/18	1.7	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP03_LPG	23/07/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP03_LPG	23/07/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP03_LPG	23/07/18	1.5	No	<0.5	<0.5	1.8	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP04_LPG	23/07/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP04_LPG	23/07/18	1.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP05_LPG	23/07/18	0.1	Yes	<0.5	<0.5	<0.5	<5	<1	6	18	11	0.1	17	130	0.002
TP05_LPG	23/07/18	0.5	Yes	<0.5	<0.5	<0.5									
TP06_LPG	23/07/18	0.1	Yes	<0.5	<0.5	<0.5									<0.001
TP06_LPG	23/07/18	1.8	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP07_LPG	23/07/18	0.1	Yes	<0.5	<0.5	<0.5	<5	<1	4	9	18	<0.1	3	146	<0.001
TP07_LPG	23/07/18	0.5	Yes	<0.5	<0.5	<0.5									
TP08_LPG	23/07/18	0.1	Yes												<0.001
TP08_LPG	23/07/18	0.5	Yes	<0.5	<0.5	<0.5									
TP08_LPG	23/07/18	1.5	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP09_LPG	23/07/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP09_LPG	23/07/18	0.5	No												<0.001
TP09_LPG	23/07/18	1.3	No	<0.5	<0.5	<0.5									
TP10_LPG	23/07/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	2	34	<0.001
TP10_LPG	23/07/18	0.5	No												<0.001
TP10_LPG	23/07/18	1.3	No	<0.5	<0.5	<0.5									
TP11_LPG	23/07/18	0.1	No												<0.001
TP11_LPG	23/07/18	0.5	No	<0.5	<0.5	<0.5									
TP11_LPG	23/07/18	1.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP12_LPG	23/07/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	40	252	336	0.7	10	2980	<0.001
TP13_LPG	23/07/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	23	100	128	3.4	37	1130	<0.001
TP13_LPG	23/07/18	1.5	No	<0.5	<0.5	<0.5									
TP14_LPG	23/07/18	0.2	Yes												<0.001
TP14_LPG	23/07/18	0.5	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP15_LPG	23/07/18	0.1	Yes												<0.001
TP15_LPG	23/07/18	0.5	Yes	<0.5	<0.5	<0.5									
TP15_LPG	23/07/18	1.5	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP16_LPG	23/07/18	0.1	Yes	<0.5	<0.5	<0.5	<5	<1	8	15	15	0.4	9	379	<0.001
TP16_LPG	23/07/18	0.5	Yes	<0.5	<0.5	<0.5									
TP17_LPG	23/07/18	0.1	Yes	<0.5	<0.5	<0.5									<0.001
TP17_LPG	23/07/18	1.8	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP18_LPG	24/07/18	0.1	Yes	<0.5	<0.5	<0.5									<0.001
TP18_LPG	24/07/18	0.5	Yes												<0.001
TP18_LPG	24/07/18	1.6	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP19_LPG	24/07/18	0.1	Yes												<0.001
TP19_LPG	24/07/18	0.5	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP19_LPG	24/07/18	1.6	Yes	<0.5	<0.5	<0.5									
TP20_LPG	24/07/18	0.1	Yes	<0.5	<0.5	<0.5									<0.001
TP20_LPG	24/07/18	1.8	Yes	<0.5	<0.5	<0.5									

Table A8. GW Monitoring Results - LPG

Area

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
Vapour Intrusion					1000	1000		800	NL	NL			NL	
LNAPL Indicator							30000	3000						20000
Fresh / Marine								500	180	80	350	75		
Recreational								10	8000	3000			6000	

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
PMW06	01/11/18	Yes	120	<100	<100	<100	120	<100	120	<1	<2	<2	<2	<2	<2	<6
PMW06	04/02/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PMW06	06/05/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PMW17	01/11/18	Yes	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PMW17	04/02/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PMW17	06/05/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PMW56	01/11/18	Yes	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PMW56	04/02/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PMW56	06/05/19	Yes	<20	130	200	<100	<20	130	130	<1	<1	<1	<1	<2	<3	<6
PU31	13/11/18	No	<20	<100	190	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PU31	11/02/19	No	<20	130	700	<100	<20	130	130	<1	<1	<1	<1	<2	<3	<6
PU31	07/05/19	No	<20	360	300	<100	<20	360	360	<1	<1	<1	<1	<2	<3	<6
PU32	13/11/18	No	50	500	530	<100	50	500	550	<1	<2	<2	<2	<2	<2	<6
PU32	11/02/19	No	30	2200	2300	<100	30	2200	2230	<1	<1	<1	<1	<2	<3	<6
PU32	07/05/19	No	<20	220	300	<100	<20	220	220	<1	<1	<1	<1	<2	<3	<6
PU33	13/11/18	No	240	<100	180	<100	240	<100	240	<1	<2	<2	<2	<2	<2	<6
PU33	11/02/19	No	120	1100	1300	<100	120	1100	1220	<1	<1	<1	<1	<2	<3	<6
PU33	07/05/19	No	160	<50	200	<100	160	<50	160	<1	<1	<1	<1	<2	<3	<6
PU58	13/11/18	Yes	20	340	240	<100	20	340	360	<1	<2	<2	<2	<2	<2	<6
PU58	11/02/19	Yes	20	2200	2700	<100	20	2200	2220	<1	<1	<1	<1	<2	<3	<6
PU58	07/05/19	Yes	<20	640	600	<100	<20	640	640	<1	<1	<1	<1	<2	<3	<6

Table A8. GW Monitoring Results - LPG Area

All results in µg/L (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
Vapour Intrusion	NL											
LNAPL Indicator												
Fresh / Marine	16			24	0.2	27.4	1.3	2.2	0.1	7	8	910
Recreational				50	5	50		100	1	100		500

Well_ID	Sample_date	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
PMW06	01/11/18	Yes	<1			1	<0.1	<1	<1	<1			<5	770
PMW06	04/02/19	Yes	<10											
PMW06	06/05/19	Yes	<10											
PMW17	01/11/18	Yes	<1			<1	<0.1	<1	<1	<1			8	100
PMW17	04/02/19	Yes	<10											
PMW17	06/05/19	Yes	<10											
PMW56	01/11/18	Yes	<1			<1	<0.1	<1	<1	<1			<5	150
PMW56	04/02/19	Yes	<10											
PMW56	06/05/19	Yes	<10											
PU31	13/11/18	No	<1			2	<0.1	<1	<1	<1	<0.1	<1	7	
PU31	11/02/19	No	<1	<1	<1									
PU31	07/05/19	No	<1	<1	<1	2	<0.2	<1	<1	<1	<0.1	<1	<5	
PU32	13/11/18	No	<1			6	<0.1	<1	<1	<1	<0.1	<1	<5	
PU32	11/02/19	No	1	<1	8									
PU32	07/05/19	No	<1	<1	<1	3	<0.2	<1	<1	<1	<0.1	<1	<5	
PU33	13/11/18	No	1.8			<1	<0.1	<1	<1	<1	<0.1	<1	<5	
PU33	11/02/19	No	<1	<1	<1									
PU33	07/05/19	No	<1	<1	<1	2	<0.2	<1	<1	<1	<0.1	<1	<5	
PU58	13/11/18	Yes	<1			1	<0.1	<1	<1	<1	<0.1	<1	<5	
PU58	11/02/19	Yes	4	<1	5									
PU58	07/05/19	Yes	<1	<1	<1	4	<0.2	<1	<1	<1	<0.1	<1	<5	

Areas of Environmental Concern - Northern Process Unit Area

PP02

Road G

Road 4

HA13A

HA12A

HA14A

PU14

HA11A

HA15A

PU15

N



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

AECs

Land Contamination

Groundwater Exceedance Locations

Below Tier 1 Criteria

Exceeds Tier 1 Criteria

Soil Exceedance Locations

Below Tier 1 Criteria

Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

Below Tier 1 Criteria

Exceeds Tier 1 Criteria

0 6 12 18 24 30

metres

FIGURE A5

CALTEX

Conceptual Site Model

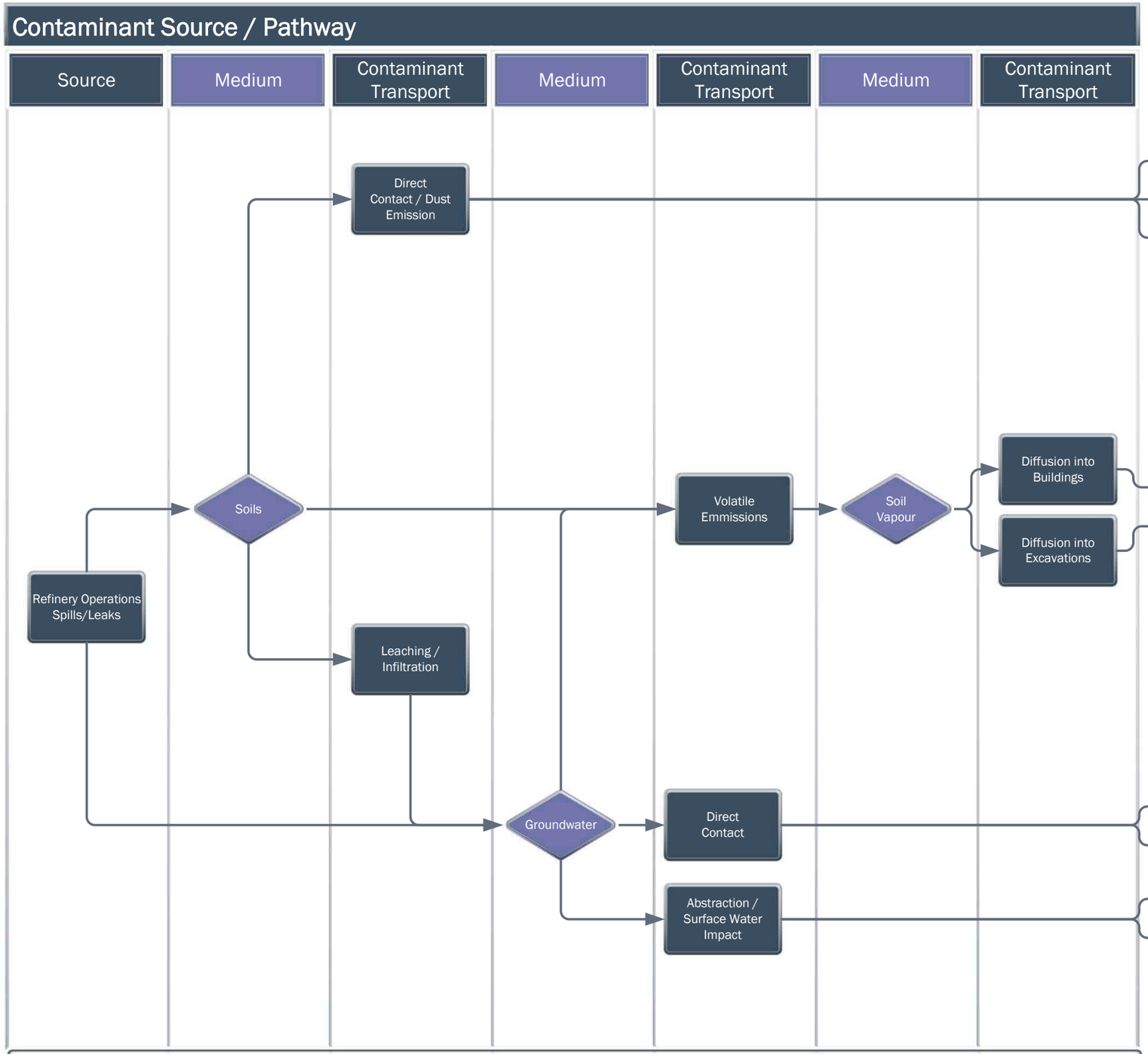
Northern Process Unit Area

Contaminants of Concern Evaluated:

Soil
No exceedances

Groundwater
LNAPL (historical)
TRH C6-C16
Benzene, Toluene, Xylene

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable



Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Contaminant Receptor

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	○	–	✗
Dermal	✗	○	–	–
Inhalation (Asbestos)	✗	✗	✗	–

Notes:
No soil exceedances measured. However, field observations and presence of LNAPL at well PP02 suggests potential for localised soil contamination and exposure during intrusive works.

Inhalation	✓	–	✗	–
Inhalation	–	○	✗	–

Notes:
Exceedances of vapour intrusion criteria have been measured at one location PP02 which is adjacent a dangerous good (DG) store. As the DG store is well ventilated through the use of whirly birds on the roof, the likelihood of build-up of significant vapurs is unlikely. Soil vapour testing will be undertaken to verify potential vapour risk.

LNAPL impacts are the result of historical spills and have been delineated on-site. LNAPL may present an exposure pathway if disturbed through intrusive works.

Ingestion /plant uptake	✗	○	✗	✗
Dermal	✗	○	✗	–
Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	✗

Notes:
Metals exceedances were identified in groundwater in the south eastern corner of this area which present potential exposure for excavation workers.
No groundwater extraction or surface water receptors.

Table A9. Soil Sample Results - Northern Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
HA11A	31/05/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
HA12A	31/05/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
HA12A	31/05/18	1	No													
HA12A	31/05/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
HA14A	31/05/18	0.2	No	<10	<50	580	190	770	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
HA15A	31/05/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A9. Soil Sample Results - Northern Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
HA11A	31/05/18	1	No	<1	<0.5	<0.5									
HA12A	31/05/18	0.5	No	<1	<0.5	<0.5									
HA12A	31/05/18	1	No												<0.001
HA12A	31/05/18	1.5	No	<1	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
HA14A	31/05/18	0.2	No	<1	<0.5	<0.5									
HA15A	31/05/18	1	No	<1	<0.5	<0.5									<0.001

Table A10. GW Monitoring Results - Northern Process Unit Area

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
Vapour Intrusion					1000	1000		800	NL	NL			NL	
LNAPL Indicator							30000	3000						20000
Fresh / Marine								500	180	80	350	75		
Recreational								10	8000	3000			6000	

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
PP02	07/11/18	No	79000	1400	400	<100	28000	1000	80400	20000	13000	1500	4200	12000	16000	50700
PP02	08/02/19	No	24000	1400	<100	<100	8100	1400	25400	4300	2300	870	1700	6700	8300	15870
PP02	09/05/19	No	57000	1300	<100	<100	14000	930	58300	12000	5100	980	6500	18000	24000	42580
PU14	13/11/18	No	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PU14	11/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU14	08/05/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU15	13/11/18	No	510	350	<100	<100	400	180	860	<1	3	12	<2	100	100	115
PU15	11/02/19	No	20	<50	<100	<100	<20	<50	20	<1	<1	<1	<1	3	3	3
PU15	08/05/19	No	560	780	<100	<100	450	550	1340	2	3	9	1	97	99	112

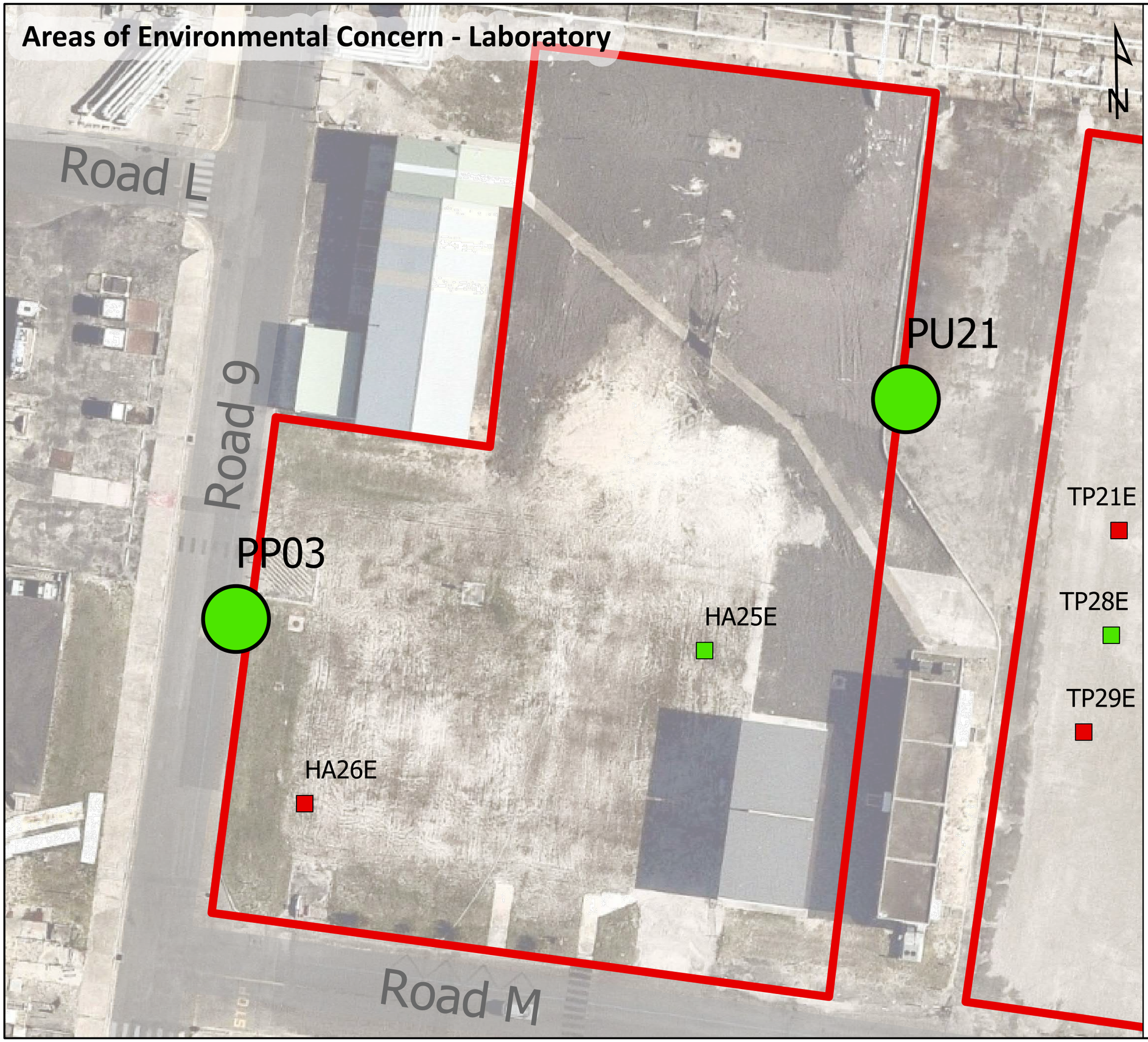
Table A10. GW Monitoring Results - Northern Process Unit Area

All results in µg/L (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
Vapour Intrusion	NL										
LNAPL Indicator											
Fresh / Marine	16			24	0.2	27.4	1.3	2.2	0.1	7	8
Recreational				50	5	50		100	1	100	

Well_ID	Sample_date	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
PP02	07/11/18	No	390										
PP02	08/02/19	No	230	<1	230								
PP02	09/05/19	No	310	<1	310								
PU14	13/11/18	No	<1			4	<0.1	2	<1	<1	<0.1	<1	<5
PU14	11/02/19	No	<1	<1	<1								
PU14	08/05/19	No	3	<1	3	23	<0.2	9	2	<1	<0.1	1	5
PU15	13/11/18	No	29.4			2	<0.1	<1	<1	<1	<0.1	<1	<5
PU15	11/02/19	No	<1	<1	<1								
PU15	08/05/19	No	180	<1	180	3	<0.2	4	13	6	<0.1	4	43

Areas of Environmental Concern - Laboratory





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

AECs

- Asbestos Contamination

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 6 12 18 24 30
metres

FIGURE A6

CALTEX

Conceptual Site Model

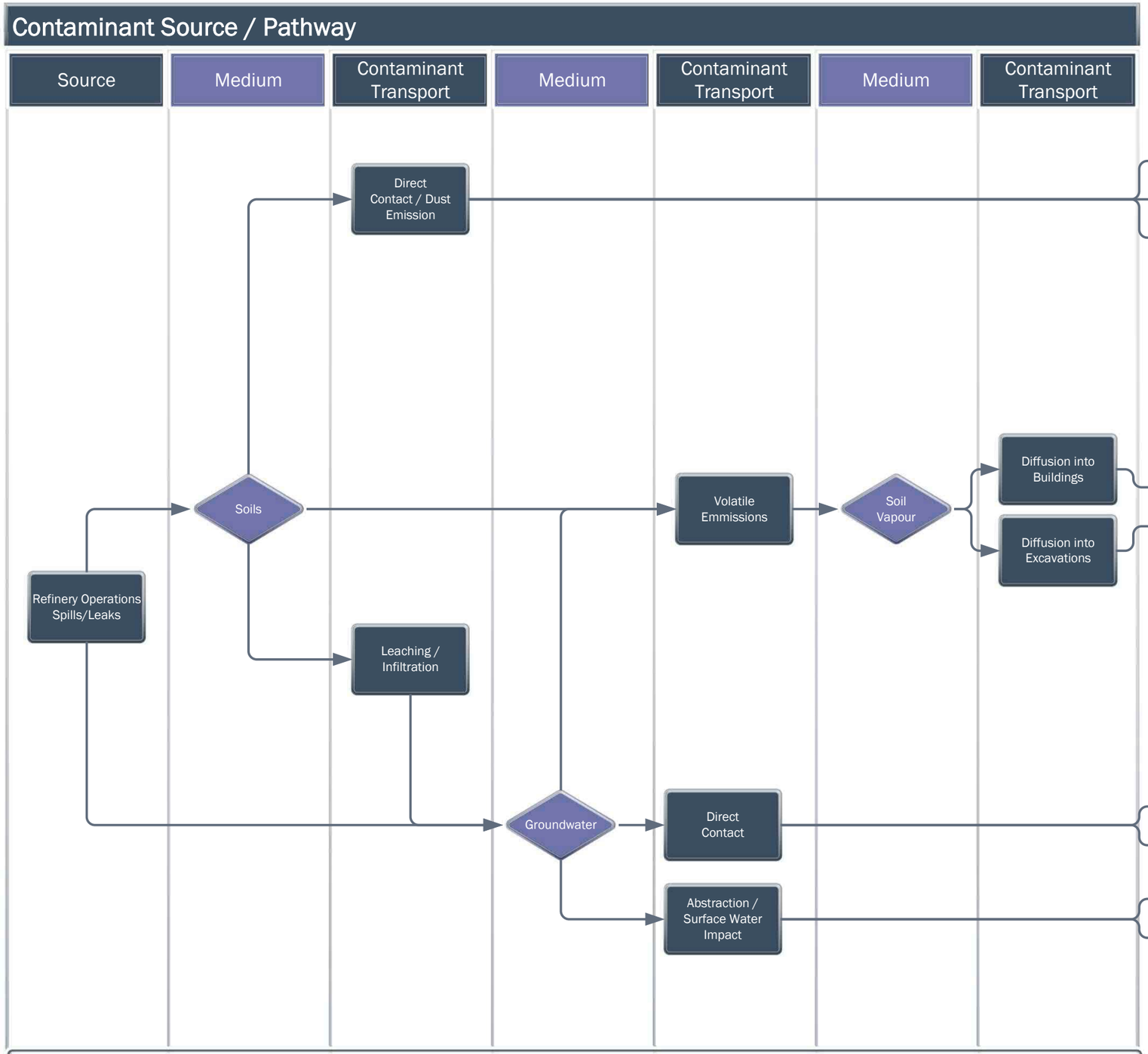
Laboratory Area

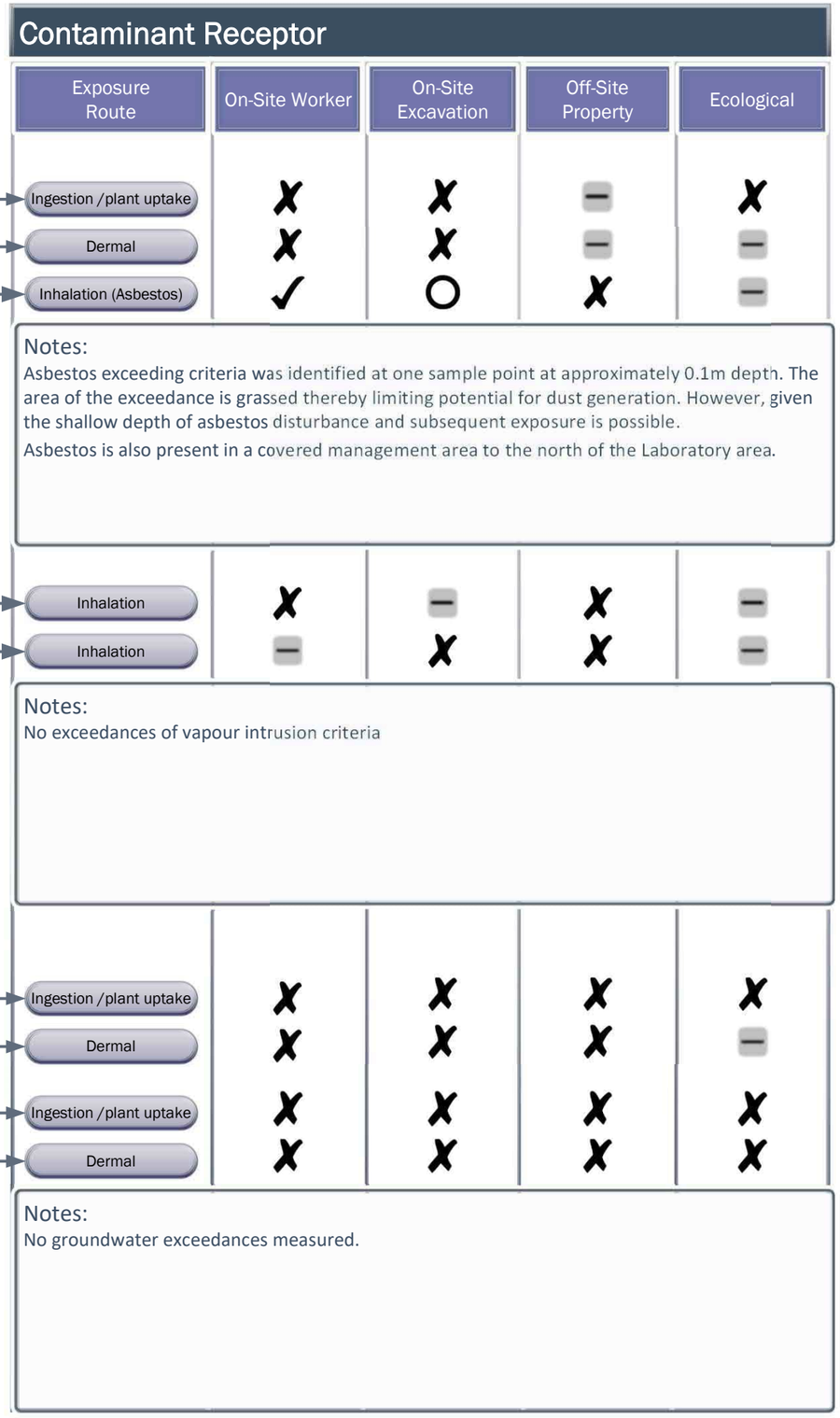
Contaminants of Concern Evaluated:

Soil
Asbestos

Groundwater
No exceedances

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable





Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Table A11. Soil Sample Results - Laboratory

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
HA25E	25/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
HA26E	25/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
HA26E	25/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A11. Soil Sample Results - Laboratory

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
HA25E	25/07/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	4	28	10	0.4	4	52	<0.001
HA26E	25/07/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	5	13	21	0.7	4	84	0.025
HA26E	25/07/18	0.5	No	<0.5	<0.5	<0.5									<0.001

Table A12. GW Monitoring Results - Laboratory

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
Vapour Intrusion					1000	1000		800	NL	NL			NL	
LNAPL Indicator							30000	3000						20000
Fresh / Marine								500	180	80	350	75		
Recreational								10	8000	3000			6000	

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
PP03	07/11/18	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP03	08/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP03	07/05/19	No	<20	<50	200	100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU21	12/11/18	No	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PU21	11/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU21	07/05/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6

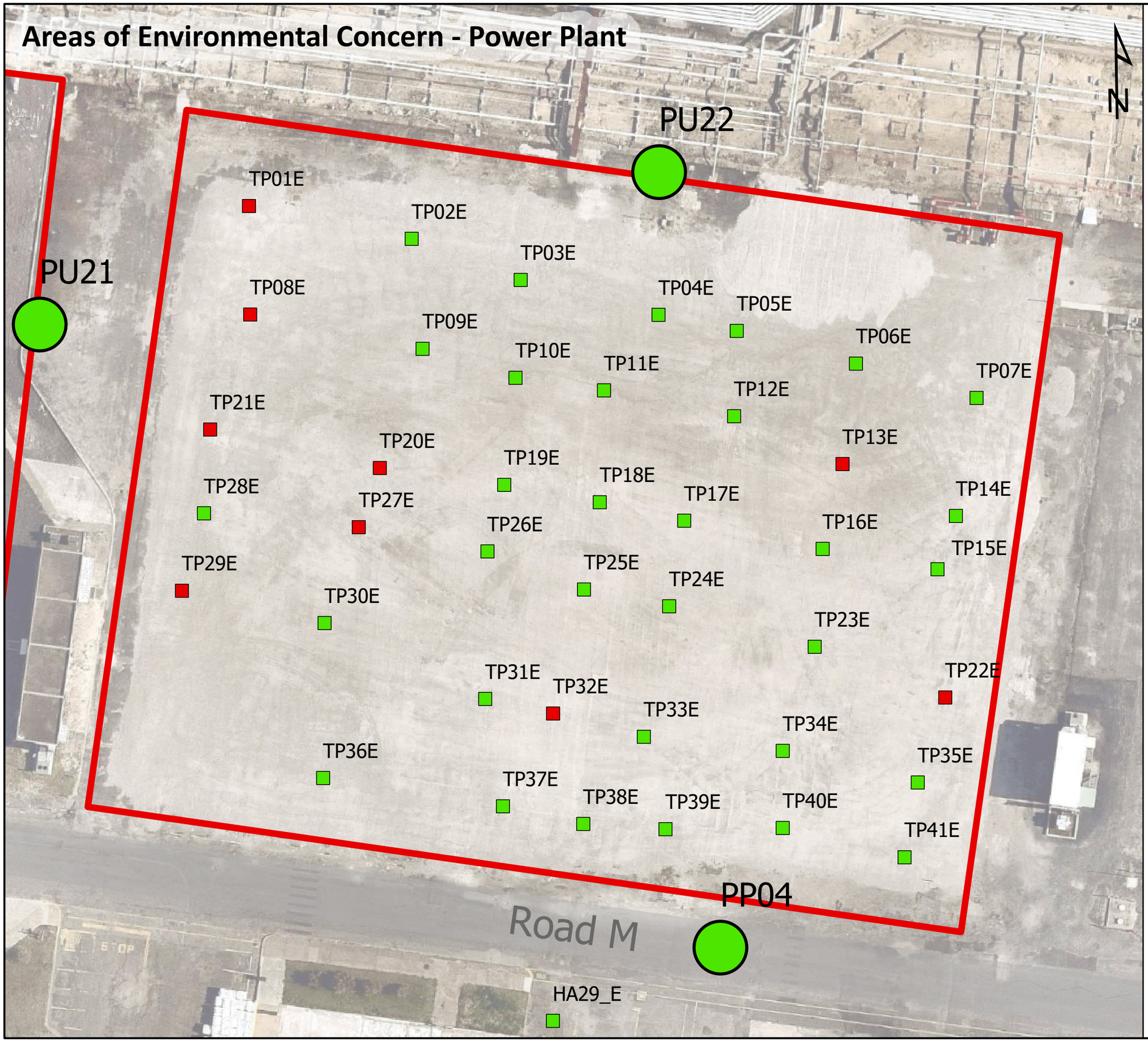
Table A12. GW Monitoring Results - Laboratory

All results in µg/L (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
Vapour Intrusion	NL										
LNAPL Indicator											
Fresh / Marine	16			24	0.2	27.4	1.3	2.2	0.1	7	8
Recreational				50	5	50		100	1	100	

Well_ID	Sample_date	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
PP03	07/11/18	No	<10										
PP03	08/02/19	No	<1	<1	<1								
PP03	07/05/19	No	<1	<1	<1								
PU21	12/11/18	No	<1			2	<0.1	<1	2	<1	<0.1	8	<5
PU21	11/02/19	No	<1	<1	<1								
PU21	07/05/19	No	<1	<1	<1	<1	<0.2	<1	<1	<1	<0.1	7	<5

Areas of Environmental Concern - Power Plant





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

AECs
- Asbestos Contamination

Groundwater Exceedance Locations
- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations
- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations
- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 7.5 15 22.5 30 37.5
metres

FIGURE A7

CALTEX

Conceptual Site Model

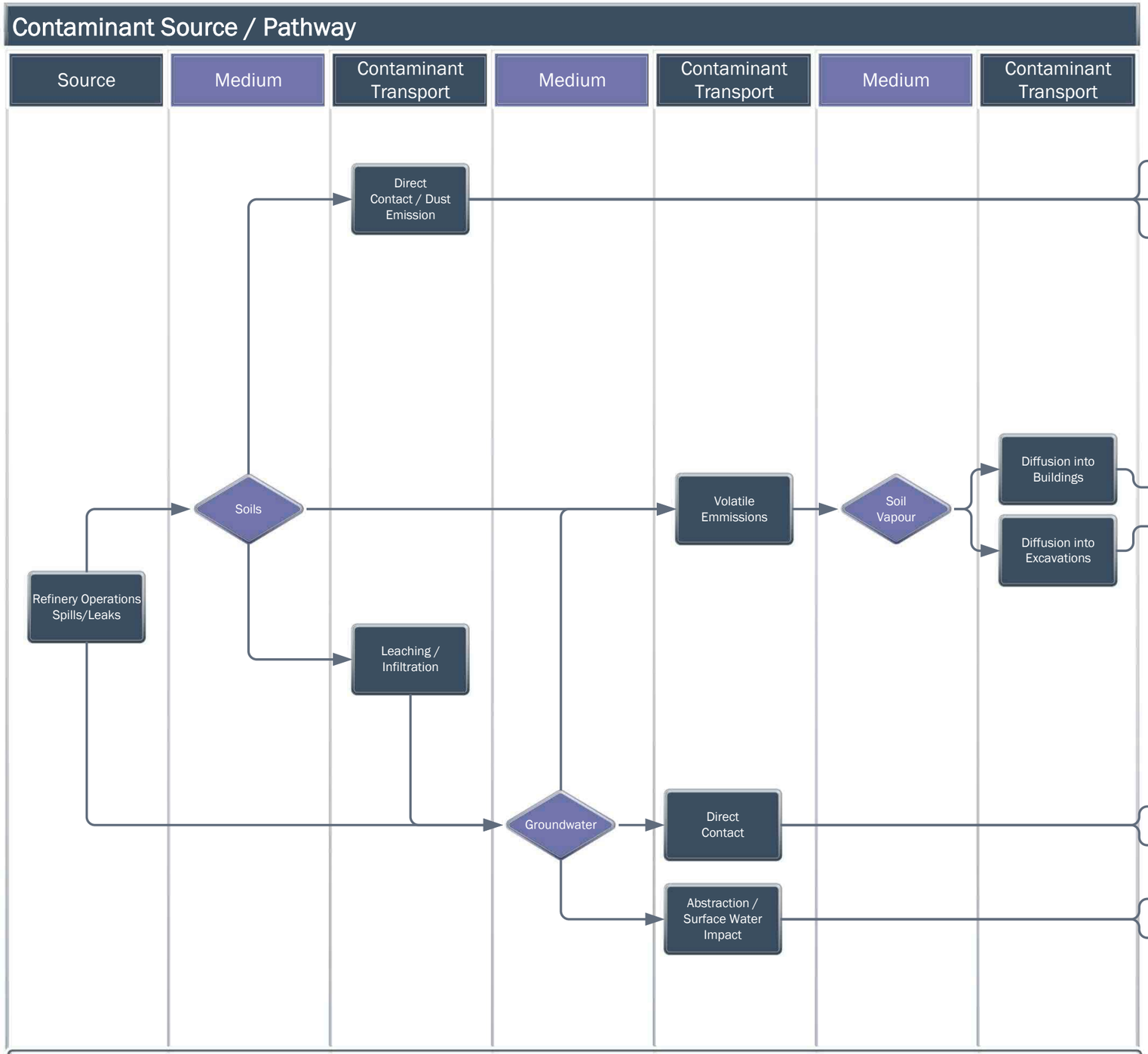
Power Plant Area

Contaminants of Concern Evaluated:

Soil
Asbestos

Groundwater
No exceedances

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable



Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Contaminant Receptor

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	✗	–	✗
Dermal	✗	✗	–	–
Inhalation (Asbestos)	✗	○	✗	–

Notes:
Asbestos exceeding criteria was identified in several locations. The entire power plant area has been covered with a layer (approx 0.4m thick) of crushed concrete with a marker layer of geofabric beneath. The surface cover mitigates potential exposure to asbestos impacted soils, but will need further evaluation in relation to its longer term suitability.

Inhalation	✗	–	✗	–
Inhalation	–	✗	✗	–

Notes:
No exceedances of vapour intrusion criteria

Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	–
Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	✗

Notes:
No groundwater exceedances measured.

Table A13. Soil Sample Results - Power Plant

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP01E	09/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP02E	09/07/18	0.5	No													
TP03E	09/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03E	09/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP04E	10/07/18	0.5	No													
TP05E	10/07/18	0.1	No	<10	<50	100	110	210	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06E	10/07/18	0.1	No													
TP06E	10/07/18	0.5	No													
TP07E	10/07/18	0.1	No													
TP07E	10/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07E	10/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08E	10/07/18	0.5	No													
TP09E	10/07/18	0.1	No													
TP09E	10/07/18	0.5	No	<10	<50	480	260	740	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP09E	10/07/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10E	10/07/18	0.1	No													
TP11E	10/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11E	10/07/18	0.5	No													
TP12E	10/07/18	0.5	No													
TP13E	10/07/18	0.1	No													
TP13E	10/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP13E	10/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP14E	10/07/18	0.5	No													
TP14E	10/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15E	09/07/18	0.1	No	<10	<50	360	210	570	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16E	10/07/18	0.5	No													
TP16E	10/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP17E	10/07/18	1.5	No	<10	<50	2400	290	2690	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP18E	10/07/18	0.5	No													
TP19E	10/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP20E	10/07/18	0.5	No													
TP21E	10/07/18	0.1	No													
TP21E	10/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP21E	10/07/18	1.8	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP22E	10/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP23E	10/07/18	0.1	No													
TP23E	10/07/18	0.5	No	<10	<50	110	<100	110	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP23E	10/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP24E	10/07/18	0.5	No													
TP25E	10/07/18	0.1	No													
TP25E	10/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP26E	10/07/18	0.5	No													
TP27E	11/07/18	0.1	No	<10	<50	330	130	460	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP27E	11/07/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP28E	11/07/18	0.5	No													
TP29E	11/07/18	0.1	No													
TP29E	11/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP29E	11/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP29E	11/07/18	1.5	No													
TP30E	11/07/18	0.5	No													
TP31E	11/07/18	0.1	No													
TP31E	11/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP31E	11/07/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP32E	11/07/18	0.5	No													

Table A13. Soil Sample Results - Power Plant

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP33E	11/07/18	0.1	No	<10	<50	100	<100	100	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP34E	11/07/18	0.5	No													
TP35E	11/07/18	0.1	No													
TP35E	11/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP35E	11/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP36E	11/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP37E	11/07/18	0.1	No													
TP38E	11/07/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP38E	11/07/18	0.5	No													
TP38E	11/07/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP39E	11/07/18	0.1	No													
TP40E	11/07/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP40E	11/07/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP41E	11/07/18	0.1	No													

Table A13. Soil Sample Results - Power Plant

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP01E	09/07/18	0.1	No	<0.5	<0.5	<0.5									0.005
TP02E	09/07/18	0.5	No												<0.001
TP03E	09/07/18	0.1	No	<0.5	<0.5	<0.5									0.001
TP03E	09/07/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	<2	<5	
TP04E	10/07/18	0.5	No												<0.001
TP05E	10/07/18	0.1	No	<0.5	<0.5	<0.5	6	<1	24	158	141	19.1	14	836	<0.001
TP06E	10/07/18	0.1	No												<0.001
TP06E	10/07/18	0.5	No												<0.001
TP07E	10/07/18	0.1	No												<0.001
TP07E	10/07/18	0.5	No	<0.5	<0.5	<0.5									
TP07E	10/07/18	1	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP08E	10/07/18	0.5	No												0.009
TP09E	10/07/18	0.1	No												<0.001
TP09E	10/07/18	0.5	No	<0.5	<0.5	<0.5	6	<1	43	132	58	0.2	59	535	
TP09E	10/07/18	1.5	No	<0.5	<0.5	<0.5									
TP10E	10/07/18	0.1	No												<0.001
TP11E	10/07/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP11E	10/07/18	0.5	No												<0.001
TP12E	10/07/18	0.5	No												<0.001
TP13E	10/07/18	0.1	No												0.005
TP13E	10/07/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	5	
TP13E	10/07/18	1	No	<0.5	<0.5	<0.5									
TP14E	10/07/18	0.5	No												<0.001
TP14E	10/07/18	1	No	<0.5	<0.5	<0.5									
TP15E	09/07/18	0.1	No	<0.5	<0.5	1.3	<5	<1	38	139	97	1.7	24	1190	<0.001
TP16E	10/07/18	0.5	No												<0.001
TP16E	10/07/18	1	No	<0.5	<0.5	<0.5									
TP17E	10/07/18	1.5	No	<0.5	<0.5	<0.5									
TP18E	10/07/18	0.5	No												<0.001
TP19E	10/07/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	22	29	20	<0.1	54	267	<0.001
TP20E	10/07/18	0.5	No												0.121
TP21E	10/07/18	0.1	No												0.002
TP21E	10/07/18	0.5	No	<0.5	<0.5	<0.5									
TP21E	10/07/18	1.8	No	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	8	
TP22E	10/07/18	0.5	No	<0.5	<0.5	<0.5									0.002
TP23E	10/07/18	0.1	No												<0.001
TP23E	10/07/18	0.5	No	<0.5	<0.5	<0.5									
TP23E	10/07/18	1	No	<0.5	<0.5	<0.5									
TP24E	10/07/18	0.5	No												<0.001
TP25E	10/07/18	0.1	No												<0.001
TP25E	10/07/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	13	28	24	<0.1	9	70	
TP26E	10/07/18	0.5	No												<0.001
TP27E	11/07/18	0.1	No	<0.5	<0.5	<0.5	18	<1	166	102	133	1.8	79	1080	0.006
TP27E	11/07/18	1.5	No	<0.5	<0.5	<0.5									
TP28E	11/07/18	0.5	No												<0.001
TP29E	11/07/18	0.1	No												<0.001
TP29E	11/07/18	0.5	No	<0.5	<0.5	<0.5									
TP29E	11/07/18	1	No	<0.5	<0.5	<0.5									
TP29E	11/07/18	1.5	No												0.004
TP30E	11/07/18	0.5	No												<0.001
TP31E	11/07/18	0.1	No												<0.001
TP31E	11/07/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	2	<5	18	<0.1	<2	15	
TP31E	11/07/18	1.5	No	<0.5	<0.5	<0.5									
TP32E	11/07/18	0.5	No												0.004

Table A13. Soil Sample Results - Power Plant

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP33E	11/07/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP34E	11/07/18	0.5	No												<0.001
TP35E	11/07/18	0.1	No												<0.001
TP35E	11/07/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP35E	11/07/18	1	No	<0.5	<0.5	<0.5									
TP36E	11/07/18	0.5	No	<0.5	<0.5	<0.5									<0.001
TP37E	11/07/18	0.1	No												<0.001
TP38E	11/07/18	0.1	No	<0.5	<0.5	<0.5	19	<1	15	16	12	<0.1	11	71	
TP38E	11/07/18	0.5	No												<0.001
TP38E	11/07/18	1	No	<0.5	<0.5	<0.5									
TP39E	11/07/18	0.1	No												<0.001
TP40E	11/07/18	0.5	No	<0.5	<0.5	<0.5									<0.001
TP40E	11/07/18	1.5	No	<0.5	<0.5	<0.5	<5	<1	3	11	24	<0.1	<2	147	
TP41E	11/07/18	0.1	No												<0.001

Table A14. GW Monitoring Results - Power Plant

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
Vapour Intrusion					1000	1000		800	NL	NL			NL	
LNAPL Indicator							30000	3000						20000
Fresh / Marine								500	180	80	350	75		
Recreational								10	8000	3000			6000	

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
PP04	07/11/18	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP04	08/02/19	No	<80	<50	<100	<100	<80	<50	<70	<4	<4	<4	<4	<8	<12	<6
PP04	07/05/19	No	<20	50	<100	<100	<20	50	50	<1	<1	<1	<1	<2	<3	<6
PU22	12/11/18	No	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PU22	11/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6

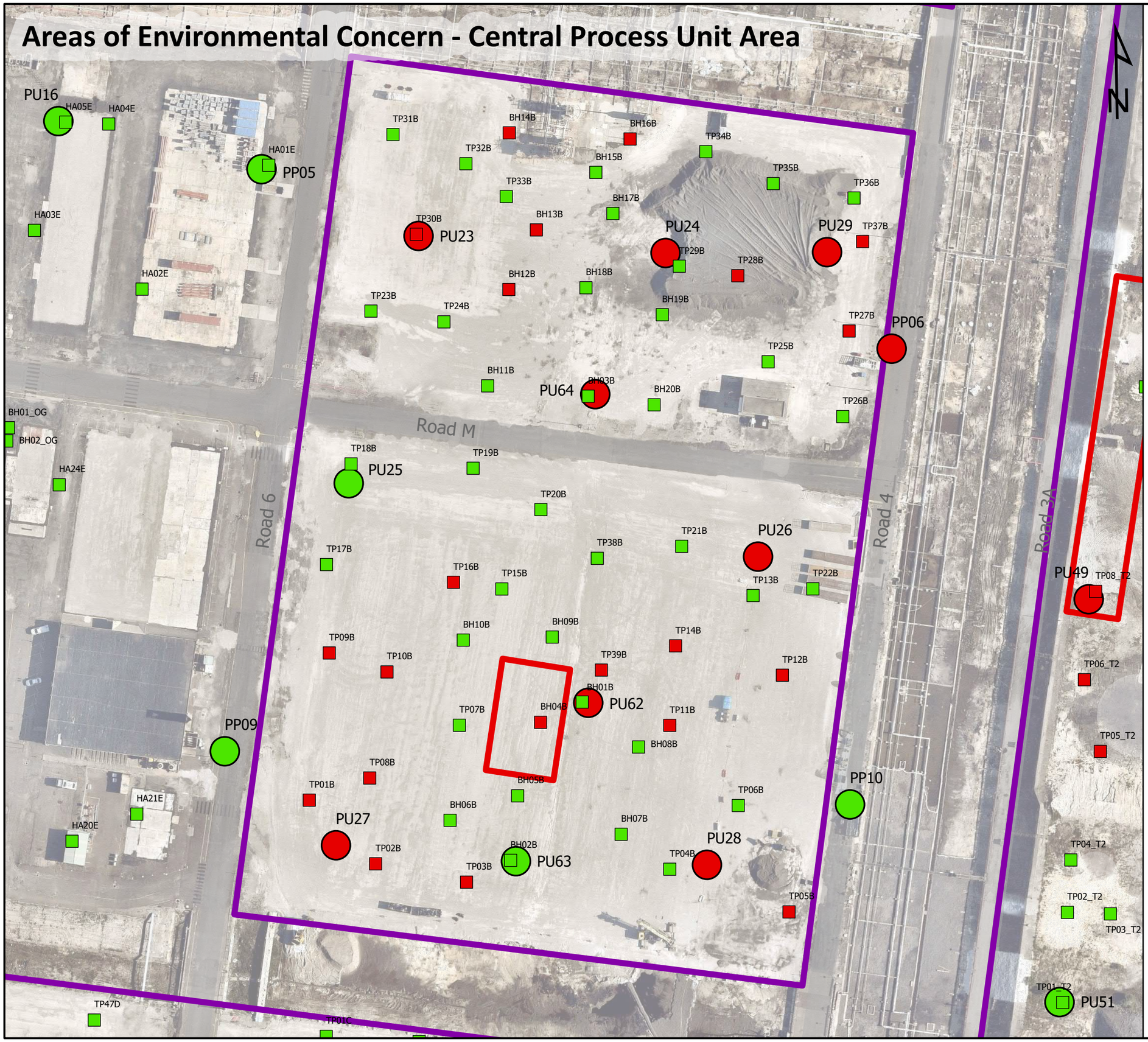
Table A14. GW Monitoring Results - Power Plant

All results in µg/L (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
Vapour Intrusion	NL										
LNAPL Indicator											
Fresh / Marine	16			24	0.2	27.4	1.3	2.2	0.1	7	8
Recreational				50	5	50		100	1	100	

Well_ID	Sample_date	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
PP04	07/11/18	No	<10										
PP04	08/02/19	No	<1	<1	<1								
PP04	07/05/19	No	<1	<1	<1								
PU22	12/11/18	No	<1			2	<0.1	<1	4	<1	<0.1	<1	<5
PU22	11/02/19	No	<1	<1	<1								

Areas of Environmental Concern - Central Process Unit Area





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

AECs

- Asbestos Contamination
- Land Contamination

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 10 20 30 40 50
metres

FIGURE A8

CALTEX

Conceptual Site Model

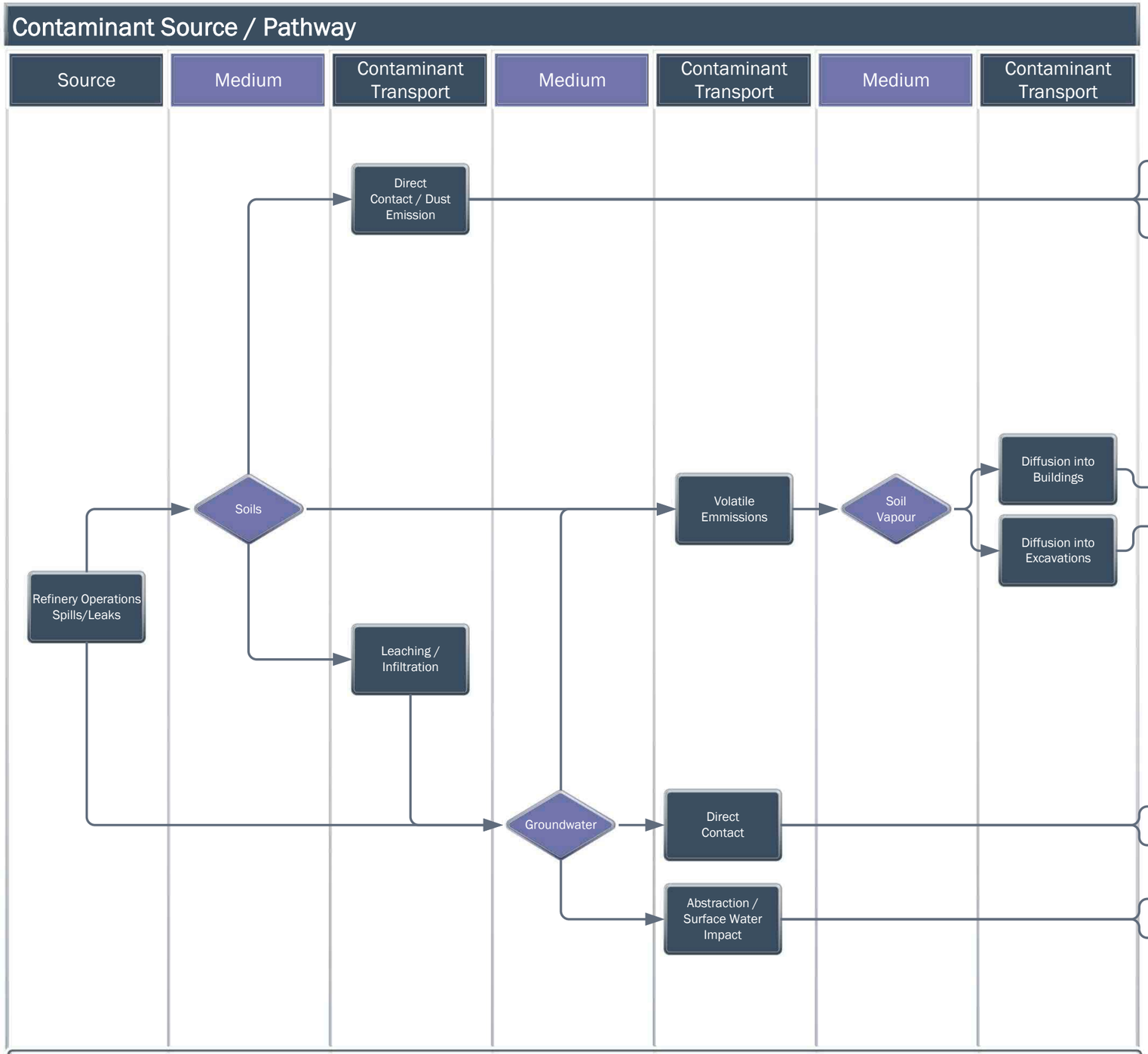
Central Process Unit Area

Contaminants of Concern Evaluated:

Soil
TRH C6-C10
Asbestos

Groundwater
TRH C6-C16
Benzene
Arsenic, Chromium, Mercury

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable



Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Contaminant Receptor

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	○	–	✗
Dermal	✗	○	–	–
Inhalation (Asbestos)	✗	○	✗	–

Notes:
Hydrocarbon and asbestos impacted soil is beneath approximately 0.5m of compacted crushed concrete, limiting potential exposure to site workers.

Inhalation	✗	–	✗	–
Inhalation	–	○	✗	–

Notes:
Exceedances of vapour intrusion criteria have been measured throughout the area. There are currently no buildings in the area, hence no receptors for indoor vapour intrusion.

Ingestion /plant uptake	✗	○	✗	✗
Dermal	✗	○	✗	–
Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	✗

Notes:
Exceedances of arsenic, chromium and mercury at location PU28 have been delineated and appear localised. Further confirmation will be through ongoing groundwater monitoring program.

Table A15. Soil Sample Results - Central Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
BH01B	06/11/18	1	No													
BH01B	06/11/18	1.5	No	12	520	2190	<100	2710	12	520	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH01B	06/11/18	2	No	32	690	2360	<100	3050	32	690	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH02B	06/11/18	0.5	No	<10	<50	130	<100	130	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH02B	06/11/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH03B	06/11/18	1	No													
BH03B	06/11/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH04B	08/11/18	0.7	No	<10	<50	240	<100	240	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH04B	08/11/18	1.5	No	<10	400	820	<100	1220	<10	400	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH05B	08/11/18	0.7	No	<10	<50	200	<100	200	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH05B	08/11/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH06B	08/11/18	0.8	No													
BH06B	08/11/18	1.5	No	24	90	<100	<100	90	24	90	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH07B	08/11/18	0.5	No	<10	<50	130	<100	130	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH08B	08/11/18	0.7	No													
BH08B	08/11/18	1.5	No	65	<50	240	<100	240	65	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH09B	08/11/18	0.7	No	<10	<50	320	<100	320	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH10B	08/11/18	2	No	<10	<50	590	150	740	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH11B	08/11/18	1	No	<10	<50	340	<100	340	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH12B	08/11/18	1	No	<10	270	790	<100	1060	<10	270	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH12B	08/11/18	1.5	No	17	2010	2470	<100	4480	17	2010	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH13B	08/11/18	0.5	No	<10	<50	240	<100	240	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH13B	08/11/18	1.5	No	553	4820	830	<100	5650	546	4810	<0.2	<0.5	1.9	<0.5	5.3	5.3
BH14B	08/11/18	0.5	No													
BH14B	08/11/18	1.5	No	517	10600	19900	3080	33600	517	10600	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH15B	08/11/18	0.5	No		80	280	<100	360		80	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH16B	08/11/18	0.5	No													
BH16B	08/11/18	1.5	No	633	5560	2890	<100	8450	633	5560	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH17B	08/11/18	1	No	<10	<50	130	<100	130	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH18B	08/11/18	0.5	No													
BH18B	08/11/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH19B	08/11/18	1	No													
BH19B	08/11/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH20B	08/11/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH20B	08/11/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP01B	23/05/17	0.05	No	<10	190	1110	<100	1300	<10	190	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP01B	23/05/17	0.95	No	308	430	1140	<100	1570	308	430	<0.2	<0.5	<0.5	<0.5	0.7	0.7
TP02B	23/05/17	0.05	No													
TP02B	23/05/17	0.95	No	305	2730	3460	<100	6190	305	2700	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP02B	23/05/17	1.95	No	51	560	960	<100	1520	51	560	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03B	23/05/17	0.45	No	507	<50	<100	<100	<50	462	<50	<0.2	<0.5	0.6	4.9	38.8	43.7
TP04B	23/05/17	0.45	No	<10	300	660	<100	960	<10	300	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05B	23/05/17	0.05	No													
TP05B	23/05/17	0.45	No	643	580	520	<100	1100	643	580	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05B	23/05/17	1.45	No	313	630	270	<100	900	313	630	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06B	23/05/17	1.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07B	23/05/17	0.05	No	<10	<50	250	<100	250	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08B	23/05/17	0.05	No	<10	310	980	<100	1290	<10	310	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08B	23/05/17	0.95	No	482	530	730	<100	1260	482	530	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP09B	26/07/17	0.95	No	25	1210	2730	110	4050	25	1210	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10B	23/05/17	0.05	No	<10	100	650	<100	750	<10	100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10B	23/05/17	0.95	No	17	1020	1920	<100	2940	17	1020	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11B	23/05/17	0.45	No	430	1710	3910	150	5770	430	1700	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11B	23/05/17	1.45	No	289	2010	4140	<100	6150	289	2010	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A15. Soil Sample Results - Central Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP12B	23/05/17	0.45	No	809	300	340	<100	640	805	300	<0.2	<0.5	1.2	<0.5	2.6	2.6
TP12B	23/05/17	1.45	No	353	200	380	<100	580	353	200	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP13B	23/05/17	0.05	No	<10	<50	260	<100	260	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP14B	23/05/17	0.05	No	50	690	630	<100	1320	50	690	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP14B	23/05/17	0.95	No	970	2890	740	<100	3630	970	2860	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15B	23/05/17	0.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16B	26/07/17	0.05	No													
TP16B	26/07/17	0.45	No	<10	250	980	140	1370	<10	250	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16B	26/07/17	1.95	No	114	210	4370	1520	6100	114	210	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP17B	26/07/17	1.45	No	<10	<50	530	110	640	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP18B	26/07/17	0.45	No	11	<50	440	<100	440	11	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP18B	26/07/17	1.95	No	24	60	440	<100	500	24	60	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP19B	26/07/17	0.05	No	<10	<50	330	<100	330	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP20B	23/05/17	1.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP21B	23/05/17	0.05	No	<10	<50	1560	320	1880	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP22B	23/05/17	0.05	No	<10	<50	140	<100	140	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP22B	23/05/17	1.45	No	37	300	400	<100	700	37	300	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP23B	18/05/17	0.05	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP24B	18/05/17	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP24B	18/05/17	1.95	No	<10	<50	120	<100	120	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP25B	18/05/17	1.45	No	<10	<50	110	<100	110	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP26B	18/05/17	0.05	No													
TP26B	18/05/17	0.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP27B	18/05/17	0.45	No	87	3410	9820	1440	14700	87	3410	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP27B	18/05/17	1.95	No	<10	90	490	<100	580	<10	90	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP28B	18/05/17	0.45	No	49	840	770	200	1810	49	840	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP28B	18/05/17	0.95	No	351	970	470	<100	1440	351	970	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP29B	18/05/17	1.45	No	90	800	880	150	1830	90	800	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP30B	18/05/17	0.45	No	1150	2380	910	<100	3290	1150	2380	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP30B	18/05/17	1.45	No	2330	4010	1050	<100	5060	2330	3990	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP31B	18/05/17	0.05	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP32B	18/05/17	1.45	No	<10	60	190	<100	250	<10	60	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP33B	18/05/17	0.05	No													
TP33B	18/05/17	1.45	No	19	300	460	<100	760	19	300	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP34B	18/05/17	0.05	No													
TP34B	18/05/17	0.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP34B	18/05/17	0.95	No	<10	<50	170	<100	170	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP34B	18/05/17	1.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP35B	18/05/17	0.45	No	<10	660	1620	160	2440	<10	660	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP35B	18/05/17	1.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP36B	18/05/17	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP37B	18/05/17	0.95	No	165	2510	3780	<100	6290	165	2510	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP37B	18/05/17	1.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP38B	26/07/17	0.05	No	<10	70	480	<100	550	<10	70	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP39B	26/07/17	0.05	No													
TP39B	26/07/17	0.45	No	19	780	1780	<100	2560	19	780	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP39B	26/07/17	1.95	No	92	1130	2040	<100	3170	92	1120	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A15. Soil Sample Results - Central Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
BH01B	06/11/18	1	No												<0.001
BH01B	06/11/18	1.5	No	<0.5	<0.5	35.8									
BH01B	06/11/18	2	No	<0.5	<0.5	63.1	<5	<1	18	107	36	0.4	16	437	
BH02B	06/11/18	0.5	No	<0.5	<0.5	0.5									<0.001
BH02B	06/11/18	1.5	No	<0.5	<0.5	<0.5									
BH03B	06/11/18	1	No												<0.001
BH03B	06/11/18	1.5	No	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	2	5	
BH04B	08/11/18	0.7	No	<0.5	<0.5	<0.5									0.007
BH04B	08/11/18	1.5	No	<0.5	<0.5	18.6	<5	<1	10	18	13	0.6	8	192	
BH05B	08/11/18	0.7	No	<0.5	<0.5	<0.5									<0.001
BH05B	08/11/18	1.5	No	<0.5	<0.5	<0.5									
BH06B	08/11/18	0.8	No												<0.001
BH06B	08/11/18	1.5	No	1.6	<0.5	1.6	<5	<1	3	<5	<5	<0.1	3	22	
BH07B	08/11/18	0.5	No	<0.5	<0.5	<0.5									<0.001
BH08B	08/11/18	0.7	No												<0.001
BH08B	08/11/18	1.5	No	<0.5	<0.5	<0.5	<5	<1	9	6	10	0.2	8	106	
BH09B	08/11/18	0.7	No	<0.5	<0.5	<0.5									<0.001
BH10B	08/11/18	2	No	<0.5	<0.5	<0.5									<0.001
BH11B	08/11/18	1	No	<0.5	<0.5	<0.5	<5	<1	5	12	7	0.2	7	76	<0.001
BH12B	08/11/18	1	No	<0.5	<0.5	<0.5	<5	<1	14	27	28	0.9	14	228	<0.001
BH12B	08/11/18	1.5	No	<0.5	<0.5	<0.5	<5	<1	15	24	18	0.4	13	227	
BH13B	08/11/18	0.5	No	<0.5	<0.5	0.6									<0.001
BH13B	08/11/18	1.5	No	7.9	<0.5	10.9	<5	<1	7	9	10	0.5	6	64	
BH14B	08/11/18	0.5	No												<0.001
BH14B	08/11/18	1.5	No	20	<0.5	96.8									
BH15B	08/11/18	0.5	No	<0.5	<0.5	0.5									<0.001
BH16B	08/11/18	0.5	No												<0.001
BH16B	08/11/18	1.5	No	<0.5	<0.5	10.7	<5	<1	13	32	32	0.8	13	330	
BH17B	08/11/18	1	No	<0.5	<0.5	<0.5									<0.001
BH18B	08/11/18	0.5	No												<0.001
BH18B	08/11/18	1.5	No	<0.5	<0.5	<0.5									
BH19B	08/11/18	1	No												<0.001
BH19B	08/11/18	1.5	No	<0.5	<0.5	<0.5	<5	<1	13	12	8	0.2	16	78	
BH20B	08/11/18	1	No	<0.5	<0.5	<0.5									<0.001
BH20B	08/11/18	1.5	No	<0.5	<0.5	<0.5									
TP01B	23/05/17	0.05	No	<1	<0.5	4.6									
TP01B	23/05/17	0.95	No	1	<0.5	11.6	<5	<1	5	21	5	0.1	5	54	
TP02B	23/05/17	0.05	No												<0.001
TP02B	23/05/17	0.95	No	32	1	102									
TP02B	23/05/17	1.95	No	3	<0.5	19.6	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP03B	23/05/17	0.45	No	12	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	2	17	
TP04B	23/05/17	0.45	No	<1	<0.5	8.6									
TP05B	23/05/17	0.05	No												<0.001
TP05B	23/05/17	0.45	No	2	<0.5	0.6									
TP05B	23/05/17	1.45	No	<1	<0.5	2.2	<5	<1	8	23	13	0.4	11	64	
TP06B	23/05/17	1.95	No	<1	<0.5	<0.5	<5	<1	10	9	12	0.7	7	133	
TP07B	23/05/17	0.05	No	<1	2	13.4									<0.001
TP08B	23/05/17	0.05	No	<1	<0.5	1	<5	<1	2	<5	<5	0.1	<2	30	
TP08B	23/05/17	0.95	No	<1	<0.5	1.8									
TP09B	26/07/17	0.95	No	<0.5	<0.5	12.4									
TP10B	23/05/17	0.05	No	<1	<0.5	0.8									
TP10B	23/05/17	0.95	No	2	<0.5	33.9									
TP11B	23/05/17	0.45	No	12	0.8	72.3									
TP11B	23/05/17	1.45	No	3	<0.5	78.9									

Table A15. Soil Sample Results - Central Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP12B	23/05/17	0.45	No	4	<0.5	3.8	<5	<1	4	13	<5	<0.1	<2	66	
TP12B	23/05/17	1.45	No	<1	<0.5	2.1									
TP13B	23/05/17	0.05	No	<1	<0.5	<0.5									<0.001
TP14B	23/05/17	0.05	No	<1	<0.5	3.9									
TP14B	23/05/17	0.95	No	31	<0.5	41	<5	<1	6	<5	<5	0.1	3	111	
TP15B	23/05/17	0.45	No	<1	<0.5	<0.5									
TP16B	26/07/17	0.05	No												<0.001
TP16B	26/07/17	0.45	No	<0.5	<0.5	1									
TP16B	26/07/17	1.95	No	5.5	<0.5	6.4	<5	<1	<2	<5	<5	<0.1	<2	7	
TP17B	26/07/17	1.45	No	<0.5	<0.5	<0.5									
TP18B	26/07/17	0.45	No	<0.5	<0.5	<0.5									
TP18B	26/07/17	1.95	No	<0.5	<0.5	<0.5	<5	<1	9	40	12	0.3	11	287	
TP19B	26/07/17	0.05	No	<0.5	<0.5	<0.5									
TP20B	23/05/17	1.45	No	<1	<0.5	<0.5									
TP21B	23/05/17	0.05	No	<1	1.1	10.7									
TP22B	23/05/17	0.05	No	<1	<0.5	<0.5									
TP22B	23/05/17	1.45	No	<1	<0.5	<0.5	8	<1	<2	<5	<5	<0.1	<2	<5	
TP23B	18/05/17	0.05	No	<1	<0.5	<0.5									<0.001
TP24B	18/05/17	0.95	No	<1	<0.5	<0.5									
TP24B	18/05/17	1.95	No	<1	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	9	15	
TP25B	18/05/17	1.45	No	<1	<0.5	<0.5									
TP26B	18/05/17	0.05	No												<0.001
TP26B	18/05/17	0.45	No	<1	<0.5	<0.5									
TP27B	18/05/17	0.45	No	<1	<0.5	9.1	<5	<1	4	<5	<5	0.1	2	76	
TP27B	18/05/17	1.95	No	<1	<0.5	<0.5									
TP28B	18/05/17	0.45	No	<1	<0.5	<0.5									
TP28B	18/05/17	0.95	No	<1	<0.5	<0.5	<5	<1	3	10	7	0.6	4	78	
TP29B	18/05/17	1.45	No	<1	<0.5	<0.5									
TP30B	18/05/17	0.45	No	1	<0.5	9.2	<5	<1	12	16	9	0.9	14	117	
TP30B	18/05/17	1.45	No	19	<0.5	24.7									
TP31B	18/05/17	0.05	No	<1	<0.5	<0.5									
TP32B	18/05/17	1.45	No	<1	<0.5	<0.5									
TP33B	18/05/17	0.05	No												<0.001
TP33B	18/05/17	1.45	No	<1	<0.5	<0.5									
TP34B	18/05/17	0.05	No												<0.001
TP34B	18/05/17	0.45	No	<1	<0.5	<0.5	<5	<1	8	19	10	0.2	10	90	
TP34B	18/05/17	0.95	No	<1	<0.5	<0.5									
TP34B	18/05/17	1.95	No	<1	<0.5	<0.5									
TP35B	18/05/17	0.45	No	<1	<0.5	<0.5									
TP35B	18/05/17	1.45	No	<1	<0.5	<0.5	<5	<1	<2	<5	<5	0.2	<2	<5	
TP36B	18/05/17	0.95	No	<1	<0.5	<0.5									
TP37B	18/05/17	0.95	No	2	<0.5	10.4									
TP37B	18/05/17	1.95	No	<1	<0.5	<0.5	<5	<1	3	7	<5	1.6	6	31	
TP38B	26/07/17	0.05	No	<0.5	<0.5	0.8									
TP39B	26/07/17	0.05	No												<0.001
TP39B	26/07/17	0.45	No	<0.5	<0.5	22.3									
TP39B	26/07/17	1.95	No	3.7	<0.5	62.1	<5	<1	20	19	8	0.4	14	188	

Table A16. GW Monitoring Results - Central Process Unit Area

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
Vapour Intrusion					1000	1000		800	NL	NL			NL	
LNAPL Indicator							30000	3000						20000
Fresh / Marine								500	180	80	350	75		
Recreational								10	8000	3000			6000	

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
PP05	07/11/18	No	20	150	500	<100	20	150	170	<1	<1	<1	<1	<2	<3	<6
PP05	08/02/19	No	50	<50	<100	<100	50	<50	50	<1	<1	<1	<1	<2	<3	<6
PP05	08/05/19	No	<20	500	900	<100	<20	500	500	<1	<1	<1	<1	<2	<3	<6
PP06	07/11/18	No	1400	2100	1400	200	940	1100	3500	280	<20	66	<20	110	110	456
PP09	07/11/18	No	60	980	<100	<100	60	980	1040	<1	<1	<1	<1	<2	<3	<6
PP09	08/02/19	No	<80	<50	<100	<100	<80	<50	<70	<4	<4	<4	<4	<8	<12	<6
PP09	07/05/19	No	<20	130	<100	<100	<20	130	130	<1	<1	<1	<1	<2	<3	<6
PP10	08/05/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU23	12/11/18	No	140	530	280	<100	140	530	670	<1	<2	<2	<2	<2	<2	<6
PU23	11/02/19	No	130	1900	1900	<100	130	1900	2030	<1	<1	2	<1	<2	<3	2
PU23	08/05/19	No	<20	2100	2500	<100	<20	2100	2100	<1	<1	<1	<1	<2	<3	<6
PU24	12/11/18	No	200	1060	890	<100	200	1060	1260	<1	<2	<2	<2	<2	<2	<6
PU24	11/02/19	No	90	3600	4500	100	90	3600	3690	<1	<1	<1	<1	<2	<3	<6
PU24	08/05/19	No	<20	4100	5700	<100	<20	4100	4100	<1	<1	<1	<1	<2	<3	<6
PU25	12/11/18	No	60	<100	<100	<100	60	<100	60	<1	<2	<2	<2	<2	<2	<6
PU25	11/02/19	No	50	800	1000	<100	50	800	850	<1	<1	<1	<1	<2	<3	<6
PU25	08/05/19	No	<20	710	1300	<100	<20	710	710	<1	<1	<1	<1	<2	<3	<6
PU26	12/11/18	No	940	230	170	<100	580	<100	1170	212	14	8	5	123	128	362
PU26	08/05/19	No	600	1000	200	<100	480	800	1600	40	<10	<10	<10	76	76	116
PU27	12/11/18	No	1070	1730	490	<100	870	1510	2800	10	<2	26	3	163	166	202
PU27	11/02/19	No	520	4100	1700	<100	400	3980	4620	2	1	13	5	95	100	116
PU27	08/05/19	No	590	4900	1100	<100	500	4330	5490	2	2	13	5	68	73	90
PU28	12/11/18	No	1010	3440	1360	<100	810	3420	4450	105	19	20	33	24	57	201
PU28	11/02/19	No	970	4700	2700	<100	760	4700	5670	120	21	12	41	19	60	213
PU28	09/05/19	No	1300	5000	2500	<100	1000	4990	6300	140	31	30	64	34	98	299
PU29	12/11/18	No	4080	1120	200	<100	2680	630	5200	21	78	361	266	679	945	1405
PU29	11/02/19	No	2500	2200	900	<100	1700	1520	4700	48	56	400	36	250	290	790
PU62	12/11/18	No	110	930	1000	<100	110	910	1040	<1	<2	<2	<2	<2	<2	<6
PU62	11/02/19	No	150	2100	2000	<100	150	2070	2250	2	<1	<1	<1	<2	<3	2
PU62	08/05/19	No	<20	2000	1700	<100	<20	1970	2000	<1	<1	<1	<1	<2	<3	<6
PU63	12/11/18	No	50	<100	<100	<100	50	<100	50	<1	<2	<2	<2	<2	<2	<6
PU63	11/02/19	No	<20	380	400	<100	<20	380	380	<1	<1	<1	<1	<2	<3	<6
PU63	08/05/19	No	50	330	400	<100	50	330	380	<1	<1	<1	<1	<2	<3	<6
PU64	12/11/18	No	340	560	<100	<100	300	340	900	2	3	17	3	19	22	44
PU64	11/02/19	No	380	1300	500	<100	350	1060	1680	10	2	11	2	10	12	35
PU64	08/05/19	No	710	2500	500	<100	630	1540	3210	15	11	32	<10	23	<30	81

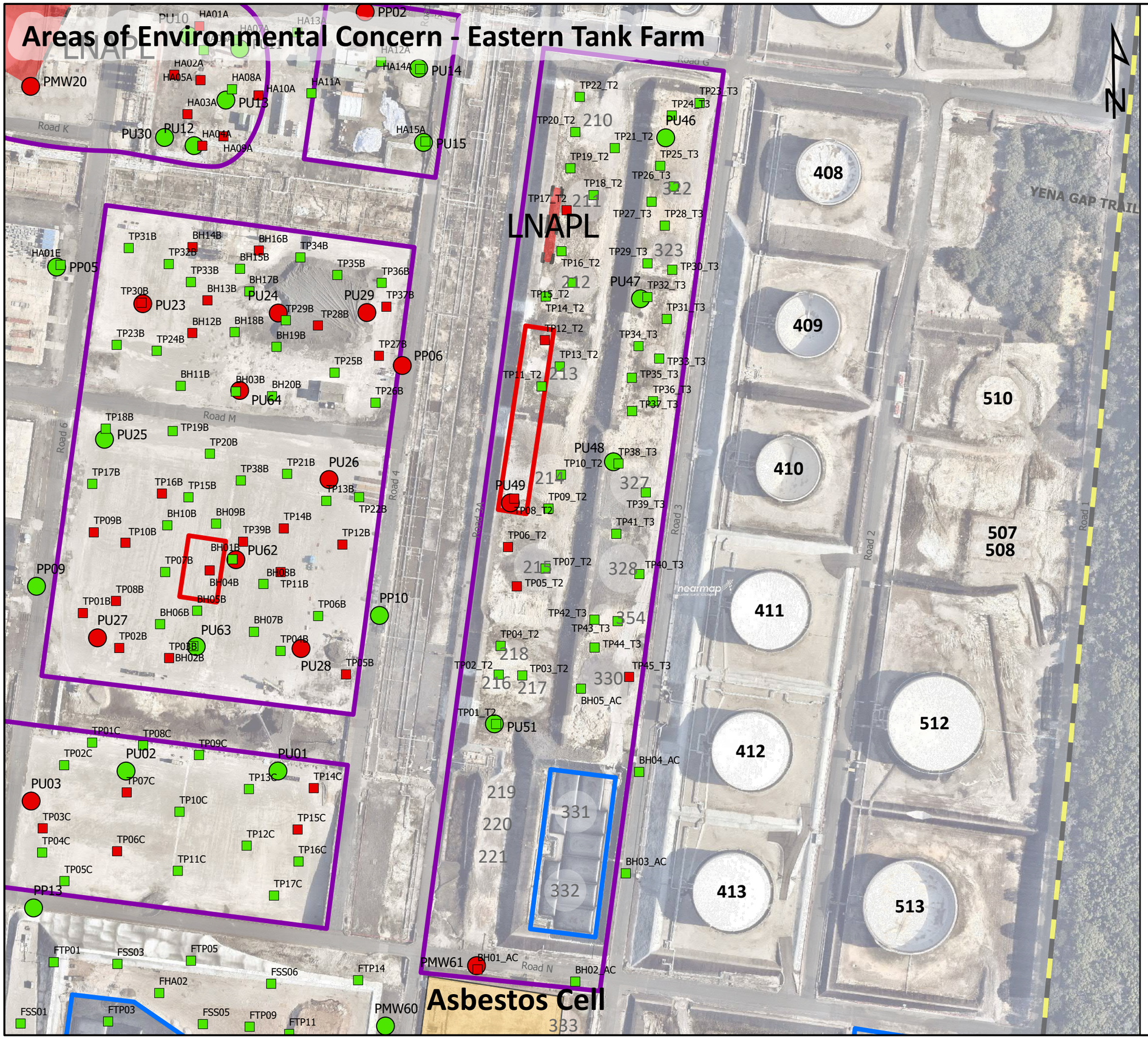
Table A16. GW Monitoring Results - Central Process Unit Area

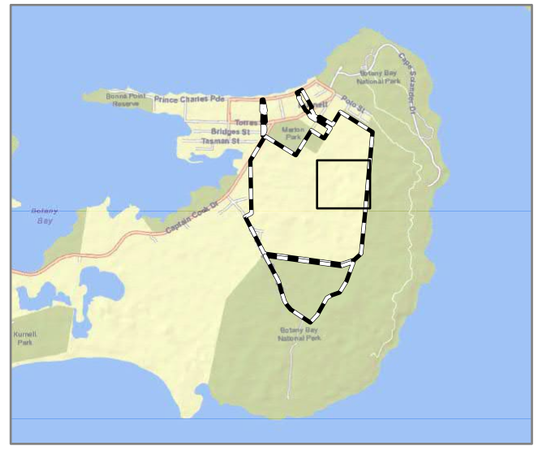
All results in µg/L (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
Vapour Intrusion	NL										
LNAPL Indicator											
Fresh / Marine	16			24	0.2	27.4	1.3	2.2	0.1	7	8
Recreational				50	5	50		100	1	100	

Well_ID	Sample_date	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
PP05	07/11/18	No	<10										
PP05	08/02/19	No	<1	<1	<1								
PP05	08/05/19	No	<1	<1	<1								
PP06	07/11/18	No	1000										
PP09	07/11/18	No	<10										
PP09	08/02/19	No	<1	<1	<1								
PP09	07/05/19	No	<1	<1	<1								
PP10	08/05/19	No	<1	<1	<1								
PU23	12/11/18	No	<1			3	<0.1	1	<1	<1	<0.1	<1	<5
PU23	11/02/19	No	1	<1	2								
PU23	08/05/19	No	<1	<1	3	4	<0.2	3	<1	<1	<0.1	<1	11
PU24	12/11/18	No	<1			5	<0.1	2	<1	<1	<0.1	2	<5
PU24	11/02/19	No	<1	<1	<1								
PU24	08/05/19	No	<1	<1	1	3	<0.2	2	<1	<1	<0.1	3	16
PU25	12/11/18	No	<1			4	<0.1	<1	<1	<1	<0.1	<1	<5
PU25	11/02/19	No	<1	<1	<1								
PU25	08/05/19	No	<1	<1	1	3	<0.2	2	<1	<1	<0.1	1	14
PU26	12/11/18	No	67.9			3	<0.1	<1	<1	<1	<0.1	<1	<5
PU26	08/05/19	No	160	<1	160	3	<0.2	2	<1	<1	<0.1	<1	<5
PU27	12/11/18	No	188			7	<0.1	2	<1	<1	<0.1	<1	8
PU27	11/02/19	No	120	<1	272								
PU27	08/05/19	No	540	<1	540	2	<0.2	2	<1	<1	<0.1	<1	<5
PU28	12/11/18	No	10.6			52	0.2	41	10	12	<0.1	19	34
PU28	11/02/19	No	<10	<1	17								
PU28	09/05/19	No	10	<1	28	65	<0.2	64	26	35	4.2	26	120
PU29	12/11/18	No	271			2	<0.1	<1	<1	<1	<0.1	<1	<5
PU29	11/02/19	No	550	<1	551								
PU62	12/11/18	No	12.7			21	<0.1	1	<1	<1	<0.1	<1	<5
PU62	11/02/19	No	28	<1	45								
PU62	08/05/19	No	27	<1	48	9	<0.2	4	<1	<1	<0.1	2	55
PU63	12/11/18	No	<1			39	<0.1	7	<1	<1	<0.1	<1	<5
PU63	11/02/19	No	<1	<1	<1								
PU63	08/05/19	No	<1	<1	<1	5	<0.2	6	<1	<1	<0.1	1	25
PU64	12/11/18	No	105			3	<0.1	<1	<1	<1	<0.1	<1	<5
PU64	11/02/19	No	240	<1	292								
PU64	08/05/19	No	960	<1	1104	2	<0.2	2	<1	<1	<0.1	<1	<5

Areas of Environmental Concern - Eastern Tank Farm





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

AECs

- Asbestos Contamination
- Land Contamination
- Waste Storage

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 30 60 90 120 150

metres

FIGURE A9

CALTEX

Conceptual Site Model

Eastern Tank Farm

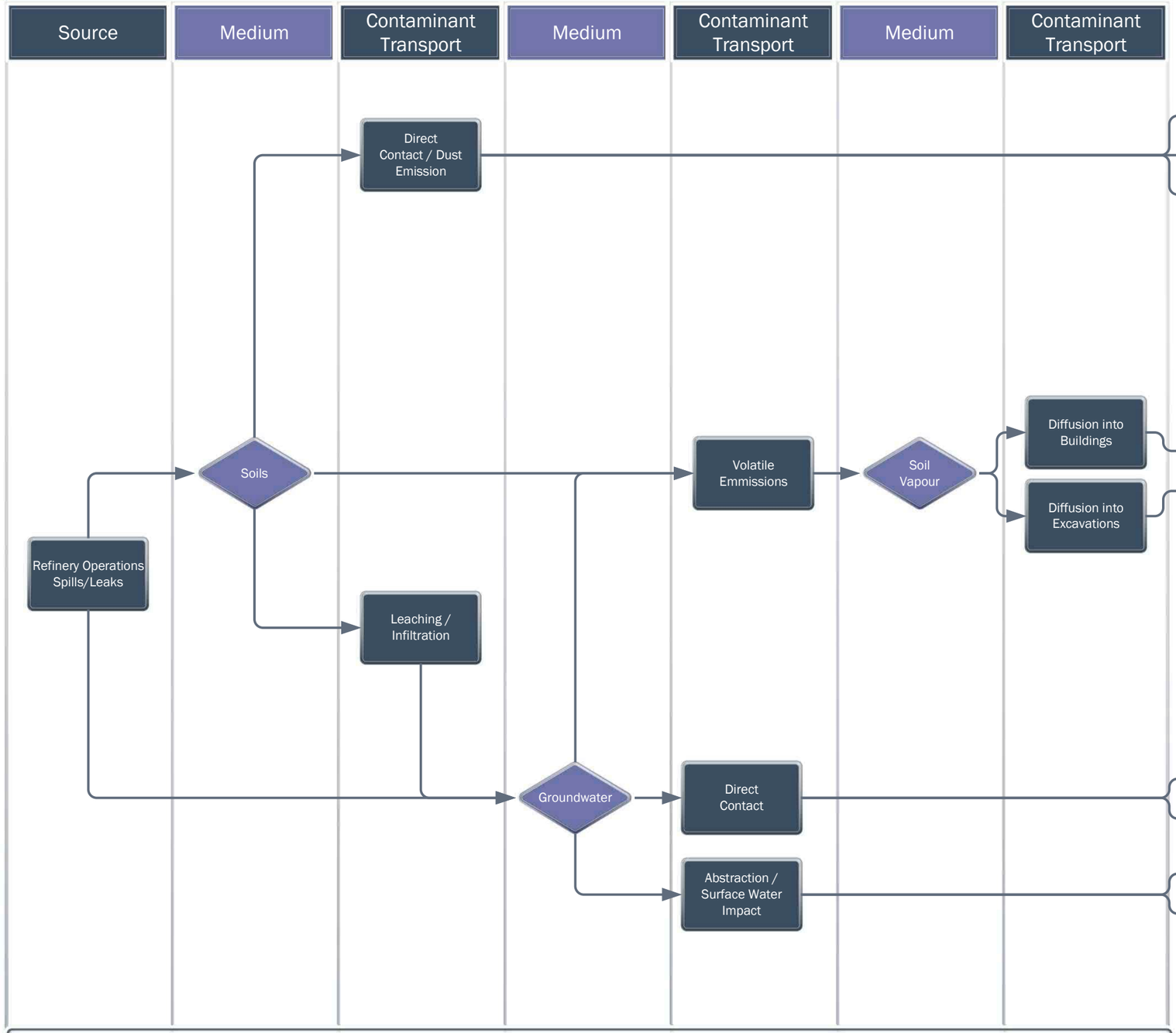
Contaminants of Concern Evaluated:

Soil
TRH C6-C40
Xylene
Benzo(a)pyrene
Asbestos

Groundwater
LNAPL
TRH C6-C34
Xylene
Benzo(a)pyrene

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable

Contaminant Source / Pathway



Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Contaminant Receptor

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	○	–	✗
Dermal	✗	○	–	–
Inhalation (Asbestos)	✗	○	✗	–

Notes:
Impacted soils are within former tank bunds or beneath roadways limiting potential for exposure of site workers. Asbestos impacted soils are beneath a temporary cover mitigating potential exposure.

Inhalation	✗	–	✗	–
Inhalation	–	○	✗	–

Notes:
Exceedances of vapour intrusion criteria have been measured in soils and groundwater throughout the area. There are currently no buildings in the area, hence no receptors for indoor vapour intrusion.

Ingestion /plant uptake	✗	○	✗	✗
Dermal	✗	○	✗	–
Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	✗

Notes:
Groundwater throughout the northern portion of this area of the site is generally deep and unlikely to be encountered during excavation works. Groundwater in the south is shallow and has potential to be encountered during excavation works. No groundwater extraction or ecological receptors in the vicinity.

Table A17. Soil Sample Results - Eastern Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
BH01_AC	30/05/18	0.3	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH01_AC	30/05/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH01_AC	30/05/18	1.5	No													
BH01_AC	30/05/18	2	No	5580	<50	<100	<100	<50	3870	<50	<1	208	211	313	982	1300
BH02_AC	30/05/18	0.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH05_AC	30/05/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH05_AC	30/05/18	1.5	No													
BH05_AC	30/05/18	2	No	<10	340	3140	460	3940	<10	340	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH05_AC	30/05/18	3	No	<10	70	1010	180	1260	<10	70	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP01_T2	01/08/18	0.1	No	<10	<50	2060	350	2410	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP01_T2	01/08/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP02_T2	01/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP02_T2	01/08/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03_T2	01/08/18	0.1	No	<10	<50	130	<100	130	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP04_T2	01/08/18	0.1	No	<10	<50	240	<100	240	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP04_T2	01/08/18	2.1	No	<10	120	820	<100	940	<10	120	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05_T2	01/08/18	0.1	No													
TP05_T2	01/08/18	0.5	No	<10	<50	4610	2920	7530	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06_T2	01/08/18	0.4	No	<10	16700	113000	20800	150000	<10	16700	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06_T2	01/08/18	0.5	No	<10	<50	160	<100	160	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07_T2	01/08/18	0.1	No													
TP07_T2	01/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08_T2	01/08/18	0.1	No	251	<50	2100	4000	6100	248	<50	<0.2	<0.5	<0.5	<0.5	3.2	3.2
TP08_T2	01/08/18	0.5	No	265	<110	6510	8290	14800	248	<110	1.6	1.5	2.2	1.4	10.1	11.5
TP09_T2	01/08/18	0.1	No													
TP09_T2	01/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10_T2	01/08/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10_T2	01/08/18	1.7	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11_T2	01/08/18	0.1	No													
TP11_T2	01/08/18	0.5	No	<10	<50	870	430	1300	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP12_T2	01/08/18	0.1	No	<10	2500	5150	350	8000	<10	2500	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP13_T2	02/08/18	0.1	No	<10	140	1200	800	2140	<10	140	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP13_T2	02/08/18	0.5	No													
TP13_T2	02/08/18	2	No	68	300	<100	<100	300	66	300	<0.2	<0.5	<0.5	<0.5	1.5	1.5
TP14_T2	02/08/18	0.2	No													
TP14_T2	02/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15_T2	02/08/18	0.1	No	<10	<50	130	<100	130	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15_T2	02/08/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16_T2	02/08/18	0.5	No													
TP16_T2	02/08/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16_T2	02/08/18	2.2	No	<10	680	650	<100	1330	<10	680	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP17_T2	02/08/18	0.2	No													
TP17_T2	02/08/18	2.2	No	52	3650	3630	<100	7280	50	3650	<0.2	<0.5	<0.5	<0.5	1.6	1.6
TP18_T2	02/08/18	0.1	No													
TP18_T2	02/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP18_T2	02/08/18	2.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP19_T2	02/08/18	0.1	No	11	<50	390	100	490	11	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP19_T2	02/08/18	0.5	No													
TP19_T2	02/08/18	2.1	No	<10	<50	610	<100	610	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP20_T2	02/08/18	0.1	No													
TP20_T2	02/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP20_T2	02/08/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP21_T2	02/08/18	0.1	No	<10	<50	400	<100	400	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP21_T2	02/08/18	0.5	No													

Table A17. Soil Sample Results - Eastern Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP21_T2	02/08/18	2	No	<10	50	920	<100	970	<10	50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP22_T2	02/08/18	0.1	No													
TP22_T2	02/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP22_T2	02/08/18	2.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP23_T3	02/08/18	0.1	No	<10	<50	2520	910	3430	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP24_T3	02/08/18	0.1	No	<10	<50	260	130	390	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP24_T3	02/08/18	0.5	No													
TP24_T3	02/08/18	1.9	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP25_T3	02/08/18	0.2	No													
TP25_T3	02/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP26_T3	02/08/18	0.1	No	<10	<50	900	590	1490	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP26_T3	02/08/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP27_T3	02/08/18	0.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP27_T3	02/08/18	2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP28_T3	02/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP29_T3	02/08/18	0.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP29_T3	02/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP30_T3	02/08/18	0.1	No													
TP30_T3	02/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP30_T3	02/08/18	2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP31_T3	02/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP31_T3	02/08/18	2.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP32_T3	02/08/18	0.2	No													
TP32_T3	02/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP32_T3	02/08/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP33_T3	02/08/18	0.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP33_T3	02/08/18	0.5	No													
TP33_T3	02/08/18	1.9	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP34_T3	02/08/18	0.1	No	<10	<50	110	130	240	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP34_T3	02/08/18	2.4	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP35_T3	03/08/18	0.2	No													
TP35_T3	03/08/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP36_T3	03/08/18	0.2	No													
TP36_T3	03/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP37_T3	03/08/18	0.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP37_T3	03/08/18	0.5	No													
TP37_T3	03/08/18	2.1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP38_T3	03/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP39_T3	03/08/18	0.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP39_T3	03/08/18	0.5	No													
TP39_T3	03/08/18	1.8	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP40_T3	03/08/18	0.2	No													
TP40_T3	03/08/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP40_T3	03/08/18	1.7	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP41_T3	03/08/18	0.2	No													
TP41_T3	03/08/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP42_T3	03/08/18	0.2	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP42_T3	03/08/18	0.5	No													
TP43_T3	03/08/18	0.2	No	<10	<50	520	210	730	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP43_T3	03/08/18	2.3	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP44_T3	03/08/18	0.2	No													
TP44_T3	03/08/18	0.5	No	<10	<50	2020	510	2530	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP45_T3	03/08/18	0.2	No	<10	670	11300	2670	14600	<10	670	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP45_T3	03/08/18	0.5	No	<10	110	2890	450	3450	<10	110	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A17. Soil Sample Results - Eastern Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP45_T3	03/08/18	1.7	No	<10	80	1440	350	1870	<10	80	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A17. Soil Sample Results - Eastern Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
BH01_AC	30/05/18	0.3	No	<0.5	<0.5	<0.5									
BH01_AC	30/05/18	1	No	<0.5	<0.5	<0.5									
BH01_AC	30/05/18	1.5	No												<0.001
BH01_AC	30/05/18	2	No	2.7	<0.5	3.4	<5	<1	<2	<5	<5	<0.1	<2	<5	
BH02_AC	30/05/18	0.2	No	<0.5	<0.5	<0.5									
BH05_AC	30/05/18	0.5	No	<0.5	<0.5	<0.5									
BH05_AC	30/05/18	1.5	No												<0.001
BH05_AC	30/05/18	2	No	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	<5	
BH05_AC	30/05/18	3	No	<0.5	<0.5	<0.5									
TP01_T2	01/08/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP01_T2	01/08/18	1	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP02_T2	01/08/18	0.5	No	<0.5	<0.5	<0.5									<0.001
TP02_T2	01/08/18	1.5	No	<0.5	<0.5	<0.5									
TP03_T2	01/08/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	6	<5	16	<0.1	2	48	<0.001
TP04_T2	01/08/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP04_T2	01/08/18	2.1	No	<0.5	<0.5	<0.5	<5	<1	10	<5	<5	<0.1	<2	26	
TP05_T2	01/08/18	0.1	No												<0.001
TP05_T2	01/08/18	0.5	No	<0.5	<0.5	<0.5									
TP06_T2	01/08/18	0.4	No	21.9	92.4	1000	<5	<1	4	11	7	<0.1	<2	59	
TP06_T2	01/08/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	62	
TP07_T2	01/08/18	0.1	No												<0.001
TP07_T2	01/08/18	0.5	No	<0.5	<0.5	2.5									
TP07_T2	01/08/18	0.1	No												<0.001
TP07_T2	01/08/18	0.5	No	<0.5	<0.5	2.5									
TP08_T2	01/08/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP08_T2	01/08/18	0.5	No	<0.5	<0.5	2.4	<5	<1	12	65	44	0.2	4	502	
TP09_T2	01/08/18	0.1	No												<0.001
TP09_T2	01/08/18	0.5	No	<0.5	<0.5	<0.5									<0.001
TP10_T2	01/08/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	3	<5	7	<0.1	<2	49	<0.001
TP10_T2	01/08/18	1.7	No	<0.5	<0.5	<0.5									
TP11_T2	01/08/18	0.1	No												<0.001
TP11_T2	01/08/18	0.5	No	<0.5	<0.5	<0.5									
TP12_T2	01/08/18	0.1	No	<0.5	<0.5	15.3									<0.001
TP13_T2	02/08/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	53	35	8	0.1	40	110	
TP13_T2	02/08/18	0.5	No												<0.001
TP13_T2	02/08/18	2	No	2.6	<0.5	2.6									
TP14_T2	02/08/18	0.2	No												<0.001
TP14_T2	02/08/18	0.5	No	<0.5	<0.5	<0.5									
TP15_T2	02/08/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP15_T2	02/08/18	1	No	<0.5	<0.5	<0.5	<5	<1	4	<5	<5	<0.1	2	29	
TP16_T2	02/08/18	0.5	No												<0.001
TP16_T2	02/08/18	1	No	<0.5	<0.5	<0.5									
TP16_T2	02/08/18	2.2	No	<0.5	<0.5	<0.5	<5	<1	5	26	63	<0.1	<2	421	
TP17_T2	02/08/18	0.2	No												<0.001
TP17_T2	02/08/18	2.2	No	<0.5	<0.5	68.8									
TP18_T2	02/08/18	0.1	No												<0.001
TP18_T2	02/08/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP18_T2	02/08/18	2.1	No	<0.5	<0.5	<0.5									
TP19_T2	02/08/18	0.1	No	<0.5	<0.5	<0.5	<5	<1	40	66	98	0.4	12	639	
TP19_T2	02/08/18	0.5	No												<0.001
TP19_T2	02/08/18	2.1	No	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	20	
TP20_T2	02/08/18	0.1	No												<0.001
TP20_T2	02/08/18	0.5	No	<0.5	<0.5	<0.5									
TP20_T2	02/08/18	1	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP21_T2	02/08/18	0.1	No	<0.5	<0.5	<0.5									
TP21_T2	02/08/18	0.5	No												<0.001

Table A17. Soil Sample Results - Eastern Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP21_T2	02/08/18	2	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP22_T2	02/08/18	0.1	No												<0.001
TP22_T2	02/08/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP22_T2	02/08/18	2.1	No	<0.5	<0.5	<0.5									
TP23_T3	02/08/18	0.1	No	<0.5	<0.5	<0.5	12	<1	48	705	440	0.1	27	2830	<0.001
TP24_T3	02/08/18	0.1	No	<0.5	<0.5	<0.5									
TP24_T3	02/08/18	0.5	No												<0.001
TP24_T3	02/08/18	1.9	No	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	7	
TP25_T3	02/08/18	0.2	No												<0.001
TP25_T3	02/08/18	0.5	No	<0.5	<0.5	<0.5									
TP26_T3	02/08/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP26_T3	02/08/18	1	No	<0.5	<0.5	<0.5	<5	<1	5	<5	<5	<0.1	4	6	
TP27_T3	02/08/18	0.1	No	<0.5	<0.5	<0.5	6	<1	54	41	33	<0.1	6	328	<0.001
TP27_T3	02/08/18	2	No	<0.5	<0.5	<0.5									
TP28_T3	02/08/18	0.5	No	<0.5	<0.5	<0.5									<0.001
TP29_T3	02/08/18	0.2	No	<0.5	<0.5	<0.5									<0.001
TP29_T3	02/08/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	23	
TP30_T3	02/08/18	0.1	No												<0.001
TP30_T3	02/08/18	0.5	No	<0.5	<0.5	<0.5									
TP30_T3	02/08/18	2	No	<0.5	<0.5	<0.5	<5	<1	5	<5	<5	<0.1	<2	18	
TP31_T3	02/08/18	0.5	No	<0.5	<0.5	<0.5									<0.001
TP31_T3	02/08/18	2.2	No	<0.5	<0.5	<0.5									
TP32_T3	02/08/18	0.2	No												<0.001
TP32_T3	02/08/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP32_T3	02/08/18	1	No	<0.5	<0.5	<0.5									
TP33_T3	02/08/18	0.2	No	<0.5	<0.5	<0.5	<5	<1	7	10	13	<0.1	2	94	
TP33_T3	02/08/18	0.5	No												<0.001
TP33_T3	02/08/18	1.9	No	<0.5	<0.5	<0.5									
TP34_T3	02/08/18	0.1	No	<0.5	<0.5	<0.5									<0.001
TP34_T3	02/08/18	2.4	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5	
TP35_T3	03/08/18	0.2	No												<0.001
TP35_T3	03/08/18	1	No	<0.5	<0.5	<0.5									
TP36_T3	03/08/18	0.2	No												<0.001
TP36_T3	03/08/18	0.5	No	<0.5	<0.5	<0.5									
TP37_T3	03/08/18	0.2	No	<0.5	<0.5	<0.5	6	<1	42	108	231	<0.1	20	1570	
TP37_T3	03/08/18	0.5	No												<0.001
TP37_T3	03/08/18	2.1	No	<0.5	<0.5	<0.5									
TP38_T3	03/08/18	0.5	No	<0.5	<0.5	<0.5									
TP39_T3	03/08/18	0.2	No	<0.5	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	<5	
TP39_T3	03/08/18	0.5	No												<0.001
TP39_T3	03/08/18	1.8	No	<0.5	<0.5	<0.5									
TP40_T3	03/08/18	0.2	No												<0.001
TP40_T3	03/08/18	0.5	No	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	7	7	
TP40_T3	03/08/18	1.7	No	<0.5	<0.5	<0.5									
TP41_T3	03/08/18	0.2	No												<0.001
TP41_T3	03/08/18	1	No	<0.5	<0.5	<0.5									
TP42_T3	03/08/18	0.2	No	<0.5	<0.5	<0.5									
TP42_T3	03/08/18	0.5	No												<0.001
TP43_T3	03/08/18	0.2	No	<0.5	<0.5	<0.5									<0.001
TP43_T3	03/08/18	2.3	No	<0.5	<0.5	<0.5	<5	<1	4	11	20	<0.1	2	182	
TP44_T3	03/08/18	0.2	No												<0.001
TP44_T3	03/08/18	0.5	No	<0.5	<0.5	<0.5									
TP45_T3	03/08/18	0.2	No	<0.5	1.2	24.5									
TP45_T3	03/08/18	0.5	No	<0.5	<0.5	3.5	<5	<1	3	<5	<5	<0.1	<2	11	<0.001

Table A17. Soil Sample Results - Eastern Tank Farm

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP45_T3	03/08/18	1.7	No	<0.5	<0.5	1.6									

Table A18. GW Monitoring Results - Eastern Tank Farm

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
Vapour Intrusion					1000	1000		800	NL	NL			NL	
LNAPL Indicator							30000	3000						20000
Fresh / Marine								500	180	80	350	75		
Recreational								10	8000	3000			6000	

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
PMW61	05/11/18	No	115000	730	120	<100	56600	390	115730	2000	15300	6710	7440	27000	34400	58450
PMW61	07/02/19	No	98000	<50	<100	<100	36000	<50	98000	1700	16000	7500	8400	28000	36000	61600
PMW61	08/05/19	No	130000	2200	800	<100	59000	1300	132200	3700	15000	9200	8400	35000	43000	71300
PU46	13/11/18	No	50	<100	130	<100	50	<100	50	2	<2	<2	<2	<2	<2	2
PU46	11/02/19	No	1700	520	500	<100	750	520	2220	<10	14	180	130	630	760	954
PU46	08/05/19	No	70	370	200	<100	40	350	440	<1	<1	22	1	10	11	33
PU47	13/11/18	No	7870	1360	<100	<100	4170	1060	9230	<5	387	423	912	1980	2890	3702
PU47	11/02/19	No	10000	2700	300	<100	5200	2090	12700	<20	630	600	1100	2500	3600	4830
PU47	08/05/19	No	1500	810	300	<100	660	710	2310	<1	94	78	270	400	670	842
PU48	13/11/18	No	1350	1460	230	<100	1350	1460	2810	<1	<2	<2	<2	<2	<2	<6
PU48	11/02/19	No	490	2100	1100	<100	490	2100	2590	<1	<1	<1	<1	<2	<3	<6
PU48	08/05/19	No	370	680	800	<100	370	680	1050	<1	<1	<1	<1	<2	<3	<6
PU49	13/11/18	No	16000	1220	250	<100	11700	800	17220	<10	98	512	868	2850	3720	4328
PU49	11/02/19	No	2100	1700	800	<100	1600	1590	3800	<10	13	62	100	330	440	505
PU49	08/05/19	No	1300	460	300	<100	1100	440	1760	<1	1	23	31	110	140	165
PU51	13/11/18	No	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PU51	11/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU51	09/05/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6

Table A18. GW Monitoring Results - Eastern Tank Farm

All results in µg/L (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
Vapour Intrusion	NL											
LNAPL Indicator												
Fresh / Marine	16			24	0.2	27.4	1.3	2.2	0.1	7	8	910
Recreational				50	5	50		100	1	100		500

Well_ID	Sample_date	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
PMW61	05/11/18	No	116			3	<0.1	2	3	<1	<0.1		<5	780
PMW61	07/02/19	No	110	<1	110					<1	<0.1			
PMW61	08/05/19	No	230	<1	230					2	<0.1			
PU46	13/11/18	No	1.7			4	<0.1	<1	<1	<1	<0.1	<1	<5	
PU46	11/02/19	No	<10	<1	37									
PU46	08/05/19	No	6	<1	6	4	<0.2	2	<1	3	<0.1	<1	<5	
PU47	13/11/18	No	168			5	<0.1	<1	2	<1	<0.1	<1	<5	
PU47	11/02/19	No	480	<1	480									
PU47	08/05/19	No	95	<1	95	13	0.6	5	3	3	<0.1	<1	14	
PU48	13/11/18	No	<1			<1	<0.1	<1	3	<1	<0.1	8	129	
PU48	11/02/19	No	<10	<1	13									
PU48	08/05/19	No	6	<1	6									
PU49	13/11/18	No	208			3	<0.1	<1	<1	<1	<0.1	<1	<5	
PU49	11/02/19	No	110	<1	110									
PU49	08/05/19	No	20	<1	20	3	<0.2	9	<1	5	<0.1	<1	23	
PU51	13/11/18	No	<1			10	<0.1	<1	<1	<1	<0.1	<1	8	
PU51	11/02/19	No	<1	<1	<1									
PU51	09/05/19	No	<1	<1	<1									

Areas of Environmental Concern - Storehouses





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

AECs

Asbestos Contamination

Groundwater Exceedance Locations

Below Tier 1 Criteria

Exceeds Tier 1 Criteria

Soil Exceedance Locations

Below Tier 1 Criteria

Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

Below Tier 1 Criteria

Exceeds Tier 1 Criteria

0 3 6 9 12 15

metres

FIGURE A10

CALTEX

Conceptual Site Model

Storehouses

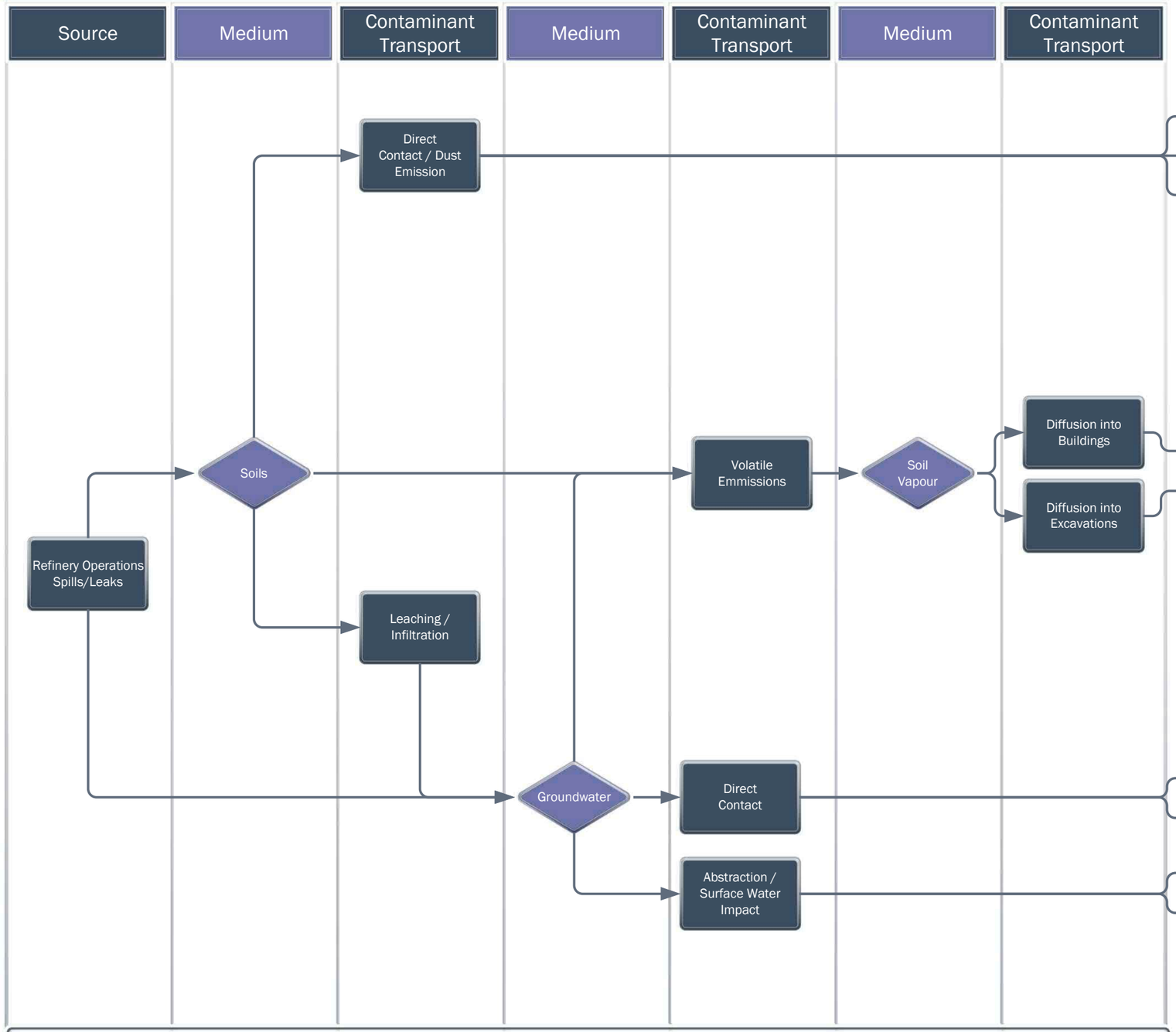
Contaminants of Concern Evaluated:

Soil
TRH C10-C34
Asbestos

Groundwater
No data

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable

Contaminant Source / Pathway



Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Contaminant Receptor

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	✗	–	✗
Dermal	✗	✗	–	–
Inhalation (Asbestos)	○	○	✗	–

Notes:
Asbestos exceeding criteria was identified at one sample point at approximately 1m depth. While this is unlikely to present an exposure risk, shallower soils in this area were not analysed. Further analysis of shallow samples will be required to refine exposure assessment.
TRH exceeded the LNAPL indicator guideline however the exceedance was in surface soil suggesting surface staining was sampled.

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Inhalation	✗	–	✗	–
Inhalation	–	✗	✗	–

Notes:
No exceedances of vapour intrusion criteria were measured.

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	–	–	–	–
Dermal	–	–	–	–
Ingestion /plant uptake	–	–	–	–
Dermal	–	–	–	–

Notes:

Table A19. Soil Sample Results - Storehouses

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
HA03D	13/06/18	0.5	No	<10	<50	170	170	340	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
HA04D	13/06/18	0.1	No	<10	1630	4440	<100	6070	<10	1630	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
HA04D	13/06/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

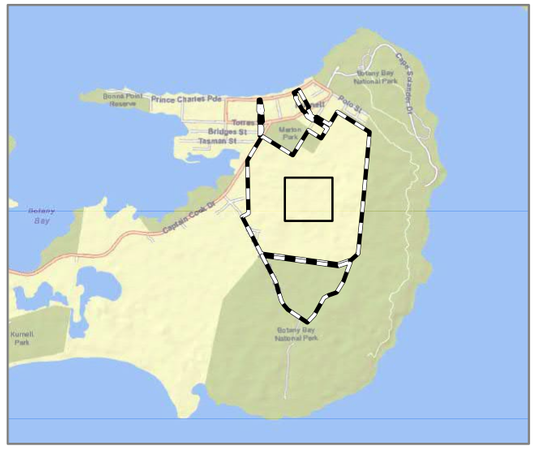
Table A19. Soil Sample Results - Storehouses

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
HA03D	13/06/18	0.5	No	<0.5	<0.5	<0.5									
HA04D	13/06/18	0.1	No	<0.5	<0.5	5.4									
HA04D	13/06/18	1	No	<0.5	<0.5	<0.5	<5	<1	4	<5	9	<0.1	3	51	0.004

Areas of Environmental Concern - Southern Process Unit Area



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

AECs

- Asbestos Contamination
- Land Contamination
- Waste Storage

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 25 50 75 100 125

metres

FIGURE A11

CALTEX

Conceptual Site Model

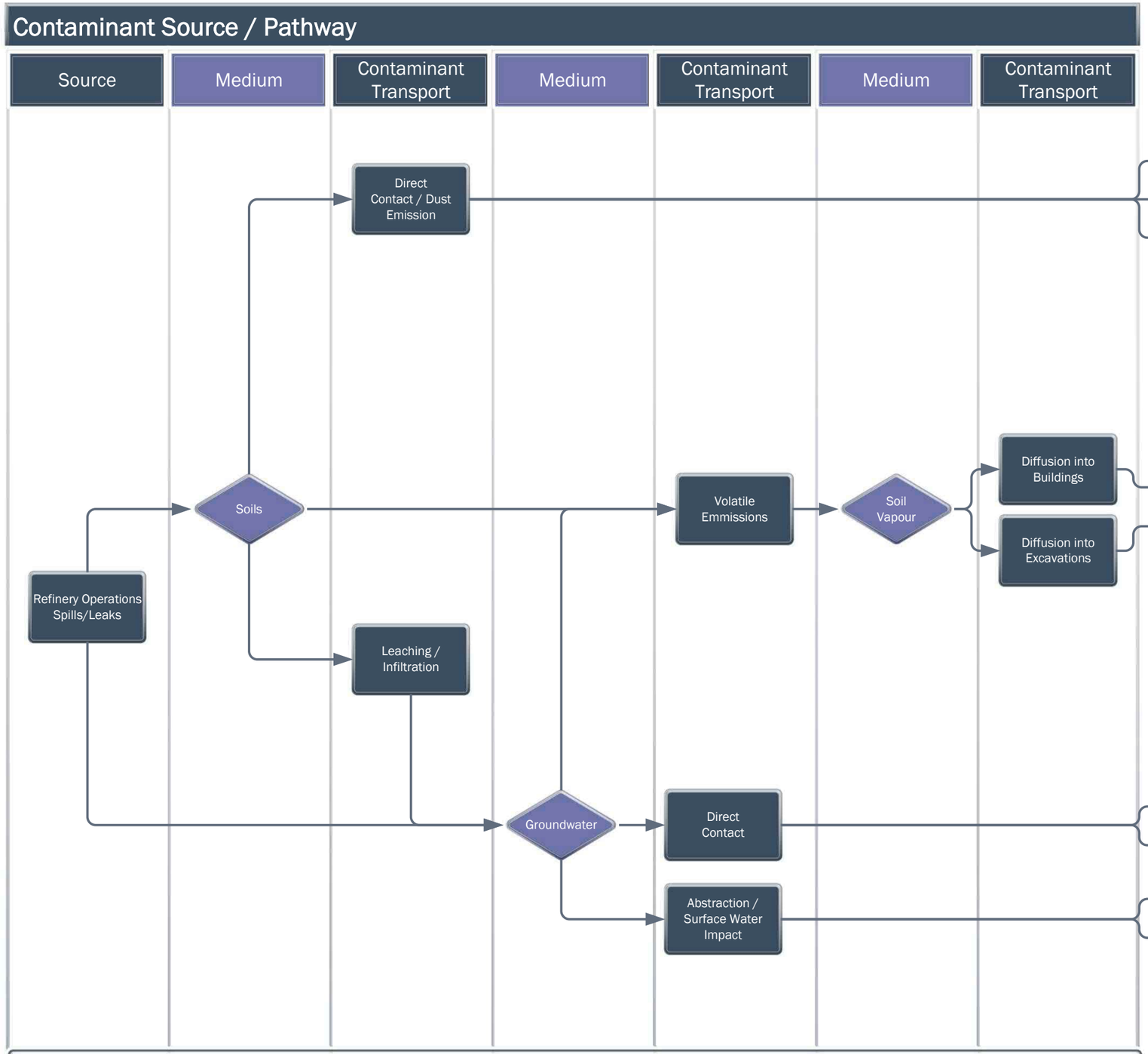
Southern Process Unit Area

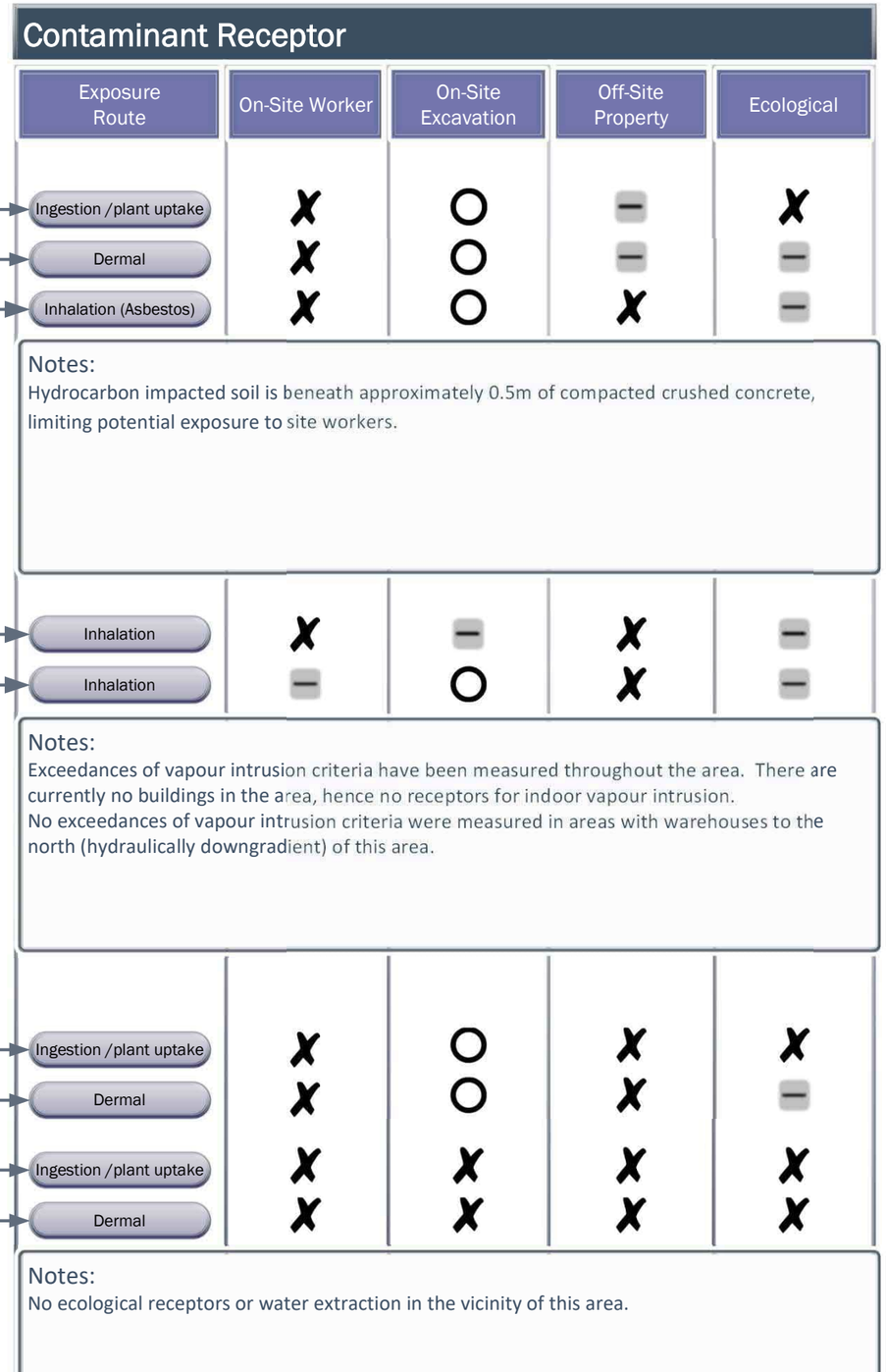
Contaminants of Concern Evaluated:

Soil
TRH C6-C34
Xylene

Groundwater
TRH C6-C34
Benzene, Xylene

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable





Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Table A20. Soil Sample Results - Southern Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
BH01D	05/11/18	0.5	No	4120	330	<100	<100	330	4040	330	<0.5	<0.5	4.9	<0.5	73.7	73.7
BH01D	05/11/18	1	No	942	<50	<100	<100	<50	941	<50	<0.2	<0.5	<0.5	<0.5	0.6	0.6
BH02D	05/11/18	1.5	No	128	<50	130	<100	130	120	<50	<0.2	<0.5	1.6	<0.5	6.1	6.1
BH03D	05/11/18	0.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH03D	05/11/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH04D	09/11/18	1	No	21	<50	150	<100	150	21	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH04D	09/11/18	1.5	No	28	<50	440	150	590	28	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH05D	09/11/18	1	No	19	<50	230	120	350	17	<50	<0.2	<0.5	<0.5	<0.5	2	2
BH05D	09/11/18	1.5	No	1190	400	500	<100	900	975	390	<0.5	<0.5	27	<0.5	188	188
BH06D	09/11/18	1	No	21	<50	<100	<100	<50	21	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH07D	09/11/18	1	No	43	<50	120	<100	120	43	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH07D	09/11/18	1.5	No	237	<50	<100	<100	<50	237	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH08D	09/11/18	1	No													
BH08D	09/11/18	1.5	No	562	<50	500	220	720	526	<50	<0.2	<0.5	1.8	5.3	28.7	34
BH09D	09/11/18	1	No	386	<50	400	130	530	370	<50	0.2	<0.5	1.4	2.3	12.1	14.4
BH09D	09/11/18	1.5	No	1130	<50	390	160	550	1070	<50	<0.5	<0.5	4.4	8.2	44.4	52.6
BH10D	09/11/18	1	No													
BH10D	09/11/18	1.5	No	725	110	540	140	790	670	110	<0.2	2.1	12.8	2.6	38	40.6
BH11D	09/11/18	0.5	No													
BH11D	09/11/18	1.5	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
BH12D	09/11/18	1	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP01C	17/05/17	0.05	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP02C	17/05/17	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP03C	17/05/17	0.45	No	1180	740	1520	<100	2260	1170	740	<0.2	<0.5	<0.5	<0.5	2.4	2.4
TP03C	17/05/17	1.45	No	516	620	1230	<100	1850	492	620	<0.2	0.9	0.8	4.2	17.6	21.8
TP04C	17/05/17	0.05	No	<10	<50	370	<100	370	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP04C	17/05/17	1.45	No	94	70	140	<100	210	94	70	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05C	17/05/17	0.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06C	17/05/17	0.05	No													
TP06C	17/05/17	0.45	No	1140	820	320	<100	1140	1140	820	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07C	17/05/17	0.45	No	292	160	390	100	650	292	160	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07D	12/09/17	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08C	17/05/17	0.05	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08C	17/05/17	1.95	No	18	<50	<100	<100	<50	18	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08D	12/09/17	0.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP09C	17/05/17	0.95	No	32	<50	<100	<100	<50	32	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP09D	12/09/17	0.05	No													
TP09D	12/09/17	0.95	No	<10	90	210	<100	300	<10	90	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP09D	12/09/17	1.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10C	17/05/17	0.05	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP10D	01/02/18	0.05	No													
TP10D	01/02/18	1.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11C	17/05/17	0.25	No	<10	<50	250	<100	250	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP11D	01/02/18	0.05	No													
TP11D	01/02/18	0.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP12C	17/05/17	0.05	No	<10	50	<100	<100	50	<10	50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP12D	01/02/18	0.05	No													
TP12D	01/02/18	0.95	No	32	400	460	<100	860	32	400	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP12D	01/02/18	1.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP13C	17/05/17	0.05	No													
TP13C	17/05/17	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP13C	17/05/17	1.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP13D	01/02/18	0.05	No	<10	<50	120	<100	120	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP14C	17/05/17	0.45	No	49	140	<100	<100	140	49	140	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A20. Soil Sample Results - Southern Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP14C	17/05/17	0.95	No	395	1160	260	<100	1420	395	1160	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP14D	01/02/18	0.05	No													
TP14D	01/02/18	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15C	17/05/17	0.45	No	314	230	<100	<100	230	314	230	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15D	12/09/17	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP15D	12/09/17	1.95	No	155	6490	3980	<100	10500	155	6480	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16C	17/05/17	0.45	No	52	630	720	<100	1350	52	630	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16C	17/05/17	0.95	No	130	520	170	<100	690	130	520	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP16D	12/09/17	0.05	No	<10	<50	150	<100	150	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP17C	17/05/17	0.05	No													
TP17C	17/05/17	0.95	No	<10	130	<100	<100	130	<10	130	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP20D	25/07/17	0.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP21D	12/09/17	0.45	No	<10	<50	220	<100	220	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP21D	12/09/17	1.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP22D	12/09/17	0.05	No													
TP22D	12/09/17	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP23D	01/02/18	0.05	No													
TP23D	01/02/18	0.45	No	<10	80	180	<100	260	<10	80	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP24D	01/02/18	0.05	No													
TP24D	01/02/18	1.45	No	96	770	1500	<100	2270	96	770	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP25D	02/02/18	0.05	No													
TP25D	02/02/18	0.45	No	819	5620	5310	<100	10900	819	5600	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP25D	02/02/18	1.75	No	1850	6230	5510	<100	11700	1810	6190	<0.2	<0.5	9.9	<0.5	27	27
TP26D	02/02/18	0.05	No													
TP26D	02/02/18	0.45	No	604	<50	690	300	990	603	<50	<0.2	<0.5	<0.5	<0.5	1.1	1.1
TP26D	02/02/18	1.95	No	1190	60	480	190	730	1150	60	<0.2	<0.5	7.8	0.9	37.3	38.2
TP28D	01/02/18	0.05	No													
TP28D	01/02/18	0.95	No	11	<50	<100	<100	<50	11	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP29D	01/02/18	0.05	No													
TP29D	01/02/18	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP30D	25/07/17	0.05	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP30D	25/07/17	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP31D	25/07/17	1.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP32D	25/07/17	0.05	No	<10	50	<100	<100	50	<10	50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP32D	25/07/17	0.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP37D	12/09/17	0.05	No	<10	<50	340	190	530	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP37D	12/09/17	0.95	No	<10	<50	130	170	300	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP38D	02/02/18	0.05	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP39D	12/09/17	0.45	No	<10	<50	110	<100	110	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP40D	25/07/17	0.95	No	<10	<50	180	<100	180	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP40D	25/07/17	1.95	No	<10	<50	110	<100	110	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP41D	01/02/18	0.05	No													
TP41D	01/02/18	0.95	No	17	<50	<100	<100	<50	17	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP41D	01/02/18	1.45	No	65	<50	<100	<100	<50	65	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP42D	01/02/18	0.05	No													
TP42D	01/02/18	0.45	No	2120	<50	<100	<100	<50	2120	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP42D	01/02/18	1.45	No	3210	150	290	<100	440	3210	150	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP44D	02/02/18	0.05	No													
TP44D	02/02/18	0.45	No	908	70	660	290	1020	886	70	<0.2	<0.5	4.9	<0.5	17.6	17.6
TP44D	02/02/18	1.75	No	4140	170	830	320	1320	3850	160	<0.5	<0.5	39.7	<0.5	250	250
TP45D	25/07/17	0.95	No	828	120	190	<100	310	667	120	<0.2	<0.5	<0.5	47.5	113	160
TP45D	25/07/17	1.95	No	1780	60	<100	<100	60	1310	60	0.6	15.7	8.8	100	344	444
TP46D	02/02/18	0.05	No													0
TP46D	02/02/18	0.95	No	3730	100	340	120	560	3440	100	1	<0.5	32.3	0.6	255	256

Table A20. Soil Sample Results - Southern Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP47D	02/02/18	0.05	No													
TP47D	02/02/18	1.45	No	180	<50	110	<100	110	176	<50	<0.2	<0.5	<0.5	0.8	3.1	3.9
TP48D	02/02/18	0.05	No													
TP48D	02/02/18	0.45	No	899	<50	120	<100	120	899	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP48D	02/02/18	1.45	No	1110	<50	<100	<100	<50	1110	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP49D	01/02/18	0.05	No													
TP49D	01/02/18	0.45	No	715	<50	<100	<100	<50	707	<50	<0.2	<0.5	<0.5	<0.5	7.8	7.8
TP49D	01/02/18	0.95	No	882	<50	110	100	210	860	<50	<0.2	<0.5	<0.5	<0.5	22.8	22.8
TP49D	01/02/18	1.95	No	5120	100	<100	<100	100	4940	100	0.8	<0.5	32.9	<0.5	140	140
TP50D	02/02/18	0.05	No													
TP50D	02/02/18	0.95	No	100	<50	<100	<100	<50	100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP51D	25/07/17	0.05	No													
TP51D	25/07/17	0.95	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP52D	25/07/17	0.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP53D	12/09/17	0.05	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP54D	02/02/18	0.05	No													
TP54D	02/02/18	0.45	No	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A20. Soil Sample Results - Southern Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
BH01D	05/11/18	0.5	No	4.5	<0.5	2.5									<0.001
BH01D	05/11/18	1	No	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	6	16	
BH02D	05/11/18	1.5	No	2.9	<0.5	0.9									<0.001
BH03D	05/11/18	0.5	No	<0.5	<0.5	<0.5									0.001
BH03D	05/11/18	1	No	<0.5	<0.5	<0.5									
BH04D	09/11/18	1	No	<0.5	<0.5	<0.5									<0.001
BH04D	09/11/18	1.5	No	<0.3	<0.5	0.7	<5	<1	13	5	<5	<0.1	7	40	
BH05D	09/11/18	1	No	<0.5	<0.5	<0.5									<0.001
BH05D	09/11/18	1.5	No	15.6	<0.5	7.8	<5	<1	5	7	7	<0.1	5	93	
BH06D	09/11/18	1	No	<0.5	<0.5	<0.5									<0.001
BH07D	09/11/18	1	No	<0.5	<0.5	<0.5	<5	<1	10	38	7	0.5	20	70	<0.001
BH07D	09/11/18	1.5	No	0.5	<0.5	<0.5	<5	<1	5	20	<5	0.2	7	38	
BH08D	09/11/18	1	No												<0.001
BH08D	09/11/18	1.5	No	3.1	<0.5	2.4									
BH09D	09/11/18	1	No	<0.5	<0.5	<0.5									<0.001
BH09D	09/11/18	1.5	No	<0.5	<0.5	<0.5									
BH10D	09/11/18	1	No												<0.001
BH10D	09/11/18	1.5	No	4.5	<0.5	1.5	<5	<1	9	13	9	1.2	14	325	
BH11D	09/11/18	0.5	No												<0.001
BH11D	09/11/18	1.5	No	<0.5	<0.5	<0.5									
BH12D	09/11/18	1	No	<0.5	<0.5	<0.5	<5	2	2	<5	<5	<0.1	3	9	<0.001
TP01C	17/05/17	0.05	No	<1	<0.5	<0.5									<0.001
TP02C	17/05/17	0.95	No	<1	<0.5	<0.5									
TP03C	17/05/17	0.45	No	<1	<0.5	3.3	<5	<1	<2	<5	<5	<0.1	<2	56	
TP03C	17/05/17	1.45	No	1	<0.5	4									
TP04C	17/05/17	0.05	No	<1	<0.5	<0.5									
TP04C	17/05/17	1.45	No	<1	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	46	
TP05C	17/05/17	0.45	No	<1	<0.5	<0.5									
TP06C	17/05/17	0.05	No												<0.001
TP06C	17/05/17	0.45	No	<1	<0.5	<0.5	<5	<1	4	8	8	0.4	3	64	
TP07C	17/05/17	0.45	No	<1	<0.5	<0.5	<5	<1	3	5	<5	<0.1	3	<5	
TP07D	12/09/17	0.95	No	<0.5	<0.5	<0.5									
TP08C	17/05/17	0.05	No	<1	<0.5	<0.5									
TP08C	17/05/17	1.95	No	<1	<0.5	<0.5	<5	<1	2	<5	<5	<0.1	<2	10	
TP08D	12/09/17	0.45	No	<0.5	<0.5	<0.5									
TP09C	17/05/17	0.95	No	<1	<0.5	<0.5									
TP09D	12/09/17	0.05	No												<0.001
TP09D	12/09/17	0.95	No	<0.5	<0.5	<0.5	<5	<1	5	14	16	<0.1	7	155	
TP09D	12/09/17	1.45	No	<0.5	<0.5	<0.5									
TP10C	17/05/17	0.05	No	<1	<0.5	<0.5	<5	<1	21	162	128	0.7	48	1250	
TP10D	01/02/18	0.05	No												<0.001
TP10D	01/02/18	1.45	No	<1	<0.5	<0.5									
TP11C	17/05/17	0.25	No	<1	<0.5	<0.5									
TP11D	01/02/18	0.05	No												<0.001
TP11D	01/02/18	0.45	No	<1	<0.5	<0.5									
TP12C	17/05/17	0.05	No	<1	<0.5	<0.5									
TP12D	01/02/18	0.05	No												<0.001
TP12D	01/02/18	0.95	No	<1	<0.5	<0.5	<5	<1	3	6	<5	0.5	5	106	
TP12D	01/02/18	1.45	No	<1	<0.5	<0.5									
TP13C	17/05/17	0.05	No												<0.001
TP13C	17/05/17	0.95	No	<1	<0.5	<0.5									
TP13C	17/05/17	1.95	No	<1	<0.5	<0.5	<5	<1	6	<5	<5	0.6	3	<5	
TP13D	01/02/18	0.05	No	<1	<0.5	<0.5	<5	<1	9	14	<5	1.5	19	80	<0.001
TP14C	17/05/17	0.45	No	<1	<0.5	<0.5									

Table A20. Soil Sample Results - Southern Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP14C	17/05/17	0.95	No	<1	<0.5	<0.5	<5	<1	9	61	40	3.9	7	436	
TP14D	01/02/18	0.05	No												<0.001
TP14D	01/02/18	0.95	No	<1	<0.5	<0.5									
TP15C	17/05/17	0.45	No	<1	<0.5	<0.5									
TP15D	12/09/17	0.95	No	<0.5	<0.5	<0.5									
TP15D	12/09/17	1.95	No	11	<0.5	23.4	<5	<1	<2	<5	<5	<0.1	<2	13	
TP16C	17/05/17	0.45	No	<1	<0.5	<0.5	<5	<1	23	31	12	0.2	21	102	
TP16C	17/05/17	0.95	No	<1	<0.5	<0.5									
TP16D	12/09/17	0.05	No	<0.5	<0.5	<0.5									
TP17C	17/05/17	0.05	No												<0.001
TP17C	17/05/17	0.95	No	<1	<0.5	<0.5									
TP20D	25/07/17	0.45	No	<0.5	<0.5	<0.5	<5	<1	4	12	6	<0.1	10	130	
TP21D	12/09/17	0.45	No	<0.5	<0.5	<0.5									
TP21D	12/09/17	1.95	No	<0.5	<0.5	<0.5									
TP22D	12/09/17	0.05	No												<0.001
TP22D	12/09/17	0.95	No	<0.5	<0.5	<0.5									
TP23D	01/02/18	0.05	No												<0.001
TP23D	01/02/18	0.45	No	<1	<0.5	<0.5	<5	<1	18	14	<5	0.7	29	99	
TP24D	01/02/18	0.05	No												<0.001
TP24D	01/02/18	1.45	No	<1	<0.5	<0.5	<5	<1	13	14	9	1.7	11	265	
TP25D	02/02/18	0.05	No												<0.001
TP25D	02/02/18	0.45	No	19	<0.5	36.9									
TP25D	02/02/18	0.05	No												<0.001
TP25D	02/02/18	0.45	No	19	<0.5	36.9									
TP25D	02/02/18	1.75	No	40	<0.5	49	<5	<1	8	<5	<5	0.4	9	11	
TP26D	02/02/18	0.05	No												<0.001
TP26D	02/02/18	0.45	No	2	<0.5	0.6									
TP26D	02/02/18	1.95	No	1	<0.5	0.9									
TP28D	01/02/18	0.05	No												<0.001
TP28D	01/02/18	0.95	No	<1	0.9	11.4	<5	<1	4	<5	<5	0.4	4	64	
TP29D	01/02/18	0.05	No												<0.001
TP29D	01/02/18	0.95	No	<1	<0.5	<0.5									
TP30D	25/07/17	0.05	No	<0.5	<0.5	<0.5									
TP30D	25/07/17	0.95	No	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	31	
TP31D	25/07/17	1.95	No	<0.5	<0.5	<0.5	<5	<1	9	9	<5	<0.1	5	29	
TP32D	25/07/17	0.05	No	<0.5	<0.5	<0.5									<0.001
TP32D	25/07/17	0.45	No	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	3	139	
TP37D	12/09/17	0.05	No	<0.5	<0.5	<0.5	<5	<1	6	12	7	0.4	9	283	
TP37D	12/09/17	0.95	No	<0.5	<0.5	<0.5									
TP38D	02/02/18	0.05	No	<1	<0.5	<0.5									<0.001
TP39D	12/09/17	0.45	No	<0.5	<0.5	<0.5									
TP40D	25/07/17	0.95	No	<0.5	<0.5	<0.5	<5	<1	9	18	7	0.4	11	181	
TP40D	25/07/17	1.95	No	<0.5	<0.5	<0.5									
TP41D	01/02/18	0.05	No												<0.001
TP41D	01/02/18	0.95	No	<1	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	3	10	
TP41D	01/02/18	1.45	No	<1	<0.5	<0.5									
TP42D	01/02/18	0.05	No												<0.001
TP42D	01/02/18	0.45	No	<1	<0.5	<0.5									
TP42D	01/02/18	1.45	No	1	<0.5	1.9	<5	<1	3	8	<5	<0.1	6	19	
TP44D	02/02/18	0.05	No												<0.001
TP44D	02/02/18	0.45	No	2	0.5	4.3	<5	<1	10	21	<5	0.1	28	82	
TP44D	02/02/18	1.75	No	10	<0.5	8.8									
TP45D	25/07/17	0.95	No	4	<0.5	2									
TP45D	25/07/17	1.95	No	4	<0.5	2.5	<5	<1	7	5	12	1.7	6	547	
TP46D	02/02/18	0.05	No												<0.001
TP46D	02/02/18	0.95	No	5	<0.5	2.6	<5	<1	<2	<5	<5	<0.1	<2	<5	

Table A20. Soil Sample Results - Southern Process Unit Area

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
TP47D	02/02/18	0.05	No												<0.001
TP47D	02/02/18	1.45	No	<1	<0.5	<0.5	5	<1	34	16	19	0.5	26	290	
TP48D	02/02/18	0.05	No												<0.001
TP48D	02/02/18	0.45	No	<1	<0.5	<0.5									
TP48D	02/02/18	1.45	No	<1	<0.5	<0.5									
TP49D	01/02/18	0.05	No												<0.001
TP49D	01/02/18	0.45	No	<1	<0.5	<0.5									
TP49D	01/02/18	0.95	No	<1	<0.5	<0.5	<5	<1	4	9	11	<0.1	9	46	
TP49D	01/02/18	1.95	No	2	<0.5	1.8									
TP50D	02/02/18	0.05	No												<0.001
TP50D	02/02/18	0.95	No	<1	<0.5	<0.5									
TP51D	25/07/17	0.05	No												<0.001
TP51D	25/07/17	0.95	No	<0.5	<0.5	<0.5									
TP52D	25/07/17	0.45	No	<0.5	<0.5	<0.5									
TP53D	12/09/17	0.05	No	<0.5	<0.5	<0.5									<0.001
TP54D	02/02/18	0.05	No												<0.001
TP54D	02/02/18	0.45	No	<1	<0.5	<0.5									

Table A21. GW Monitoring Results - Southern Process Unit Area

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
Vapour Intrusion					1000	1000		800	NL	NL			NL	
LNAPL Indicator							30000	3000						20000
Fresh / Marine								500	180	80	350	75		
Recreational								10	8000	3000			6000	

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
PP07	07/11/18	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP07	08/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP07	07/05/19	No	<20	<50	100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP08	07/11/18	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP08	08/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP08	07/05/19	No	<20	<50	200	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP11	07/11/18	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP11	08/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP12	07/11/18	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP12	08/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PP12	07/05/19	No	<20	70	100	<100	<20	70	70	<1	<1	<1	<1	<2	<3	<6
PU01	12/11/18	No	30	330	<100	<100	30	330	360	<1	<2	<2	<2	<2	<2	<6
PU01	11/02/19	No	40	770	<100	<100	40	770	810	<1	<1	<1	<1	<2	<3	<6
PU01	07/05/19	No	<20	480	300	<100	<20	480	480	<1	<1	<1	<1	<2	<3	<6
PU02	12/11/18	No	30	<100	<100	<100	30	<100	30	<1	<2	<2	<2	<2	<2	<6
PU02	11/02/19	No	50	580	300	<100	50	580	630	<1	<1	<1	<1	<2	<3	<6
PU02	07/05/19	No	<20	110	100	<100	<20	110	110	<1	<1	<1	<1	<2	<3	<6
PU03	12/11/18	No	1600	3050	780	<100	1270	3040	4650	250	<2	36	14	28	42	328
PU03	11/02/19	No	2200	33000	7100	300	2000	33000	35200	200	<10	24	17	<20	<30	241
PU03	07/05/19	No	2700	4800	3100	200	1900	4790	7500	670	<10	46	7	44	51	767
PU04	12/11/18	No	<20	110	860	<100	<20	110	110	<1	<2	<2	<2	<2	<2	<6
PU04	11/02/19	No	<20	300	1900	<100	<20	300	300	<1	<1	<1	<1	<2	<3	<6
PU04	07/05/19	No	<20	430	3600	<100	<20	430	430	<1	<1	<1	<1	<2	<3	<6
PU05	12/11/18	No	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PU05	11/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU05	07/05/19	No	<20	<50	100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU06	12/11/18	No	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PU06	11/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU06	07/05/19	No	<20	<50	200	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU07	12/11/18	No	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PU07	11/02/19	No	<20	210	400	<100	<20	210	210	<1	<1	<1	<1	<2	<3	<6
PU07	07/05/19	No	<20	120	200	<100	<20	120	120	<1	<1	<1	<1	<2	<3	<6
PU08	12/11/18	No	25400	800	230	<100	15100	690	26200	2730	606	834	1030	5140	6170	10340
PU08	11/02/19	No	12000	3100	1200	300	6600	2800	15100	1100	28	<10	740	3500	4200	5368
PU08	07/05/19	No	23000	1000	300	<100	10000	940	24000	3300	490	930	1100	7200	8300	13020
PU09	12/11/18	No	2550	2060	210	<100	2050	2010	4610	109	<2	162	3	228	231	502
PU09	11/02/19	No	510	<50	<100	<100	430	<50	510	10	<1	43	<1	26	26	79
PU09	07/05/19	No	1300	2400	500	<100	1100	2360	3700	24	<1	130	2	77	79	233
PU18	13/11/18	No	40	240	<100	<100	40	240	280	<1	<2	<2	<2	<2	<2	<6
PU18	12/02/19	No	40	400	<100	<100	40	400	440	<1	<1	<1	<1	<2	<3	<6
PU18	07/05/19	No	<20	370	200	<100	<20	370	370	<1	<1	<1	<1	<2	<3	<6
PU19	13/11/18	No	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PU19	12/02/19	No	<20	130	<100	<100	<20	130	130	<1	<1	<1	<1	<2	<3	<6
PU19	07/05/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU59	12/11/18	No	9600	940	110	<100	8560	920	10540	23	<5	182	<5	838	838	1043
PU59	11/02/19	No	3800	3900	500	<100	3600	3890	7700	7	<1	98	<1	120	120	225
PU59	07/05/19	No	1400	1100	200	<100	1200	1080	2500	11	<1	64	<1	82	83	157
PU60	12/11/18	No	1020	170	<100	<100	980	120	1190	<1	<2	10	<2	33	33	43
PU60	11/02/19	No	320	1300	300	<100	300	1240	1620	<1	<1	5	<1	12	12	17
PU60	07/05/19	No	150	600	200	<100	150	550	750	<1	<1	<1	<1	<2	<3	<6
PU61	12/11/18	No	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
PU61	11/02/19	No	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PU61	07/05/19	No	<20	150	300	<100	<20	150	150	<1	<1	<1	<1	<2	<3	<6

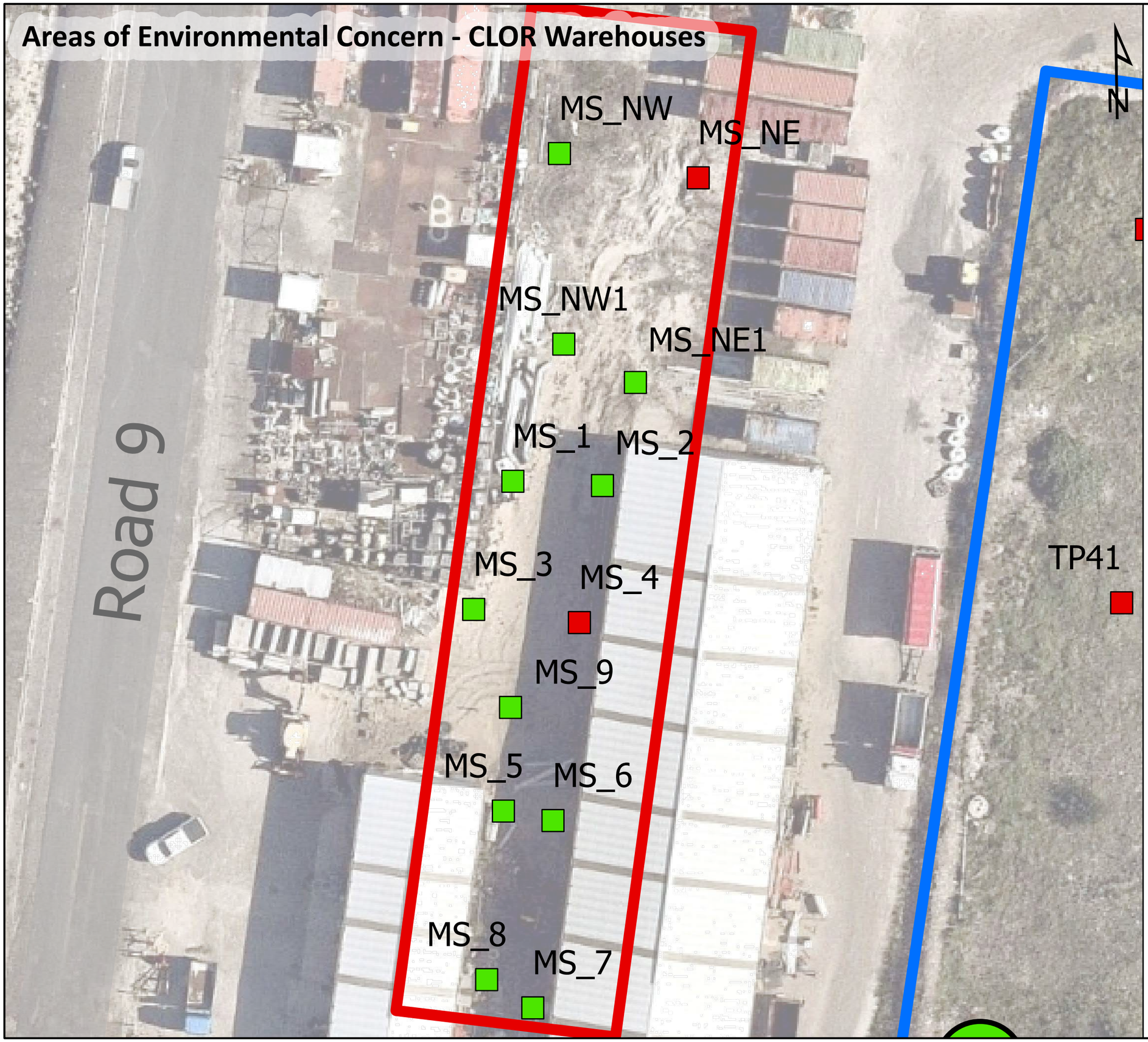
Table A21. GW Monitoring Results - Southern Process Unit Area

All results in µg/L (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
Vapour Intrusion	NL										
LNAPL Indicator											
Fresh / Marine	16			24	0.2	27.4	1.3	2.2	0.1	7	8
Recreational				50	5	50		100	1	100	

Well_ID	Sample_date	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
PP07	07/11/18	No	<10										
PP07	08/02/19	No	<1	<1	<1								
PP07	07/05/19	No	<1	<1	<1								
PP08	07/11/18	No	<10										
PP08	08/02/19	No	<1	<1	<1								
PP08	07/05/19	No	<1	<1	<1								
PP11	07/11/18	No	<10										
PP11	08/02/19	No	<1	<1	<1								
PP12	07/11/18	No	<10										
PP12	08/02/19	No	<1	<1	<1								
PP12	07/05/19	No	<1	<1	<1								
PU01	12/11/18	No	<1			1	<0.1	1	<1	<1	<0.1	<1	<5
PU01	11/02/19	No	<1	<1	<1								
PU01	07/05/19	No	<1	<1	<1	2	<0.2	2	<1	<1	<0.1	<1	<5
PU02	12/11/18	No	<1			4	<0.1	<1	<1	<1	<0.1	<1	<5
PU02	11/02/19	No	<1	<1	<1								
PU02	07/05/19	No	<1	<1	<1	7	<0.2	1	<1	<1	<0.1	<1	<5
PU03	12/11/18	No	4.3			9	<0.1	2	<1	<1	<0.1	2	<5
PU03	11/02/19	No	5	<1	5								
PU03	07/05/19	No	5	<1	5	18	<0.2	3	<1	<1	<0.1	1	<5
PU04	12/11/18	No	<1			4	<0.1	<1	<1	<1	<0.1	<1	<5
PU04	11/02/19	No	<1	<1	4								
PU04	07/05/19	No	<1	<1	<1	13	<0.2	1	<1	<1	<0.1	1	<5
PU05	12/11/18	No	<1			<1	<0.1	<1	<1	<1	<0.1	<1	<5
PU05	11/02/19	No	<1	<1	<1								
PU05	07/05/19	No	<1	<1	<1	<1	<0.2	1	<1	<1	<0.1	<1	<5
PU06	12/11/18	No	<1			2	<0.1	<1	<1	<1	<0.1	1	<5
PU06	11/02/19	No	<1	<1	<1								
PU06	07/05/19	No	<1	<1	<1	10	<0.2	13	6	<1	<0.1	3	<5
PU07	12/11/18	No	<1			2	<0.1	2	<1	<1	<0.1	<1	<5
PU07	11/02/19	No	<1	<1	<1								
PU07	07/05/19	No	<1	<1	<1	4	<0.2	2	<1	<1	<0.1	<1	<5
PU08	12/11/18	No	96.2			10	<0.1	1	<1	<1	<0.1	2	<5
PU08	11/02/19	No	52	<1	52								
PU08	07/05/19	No	18	<1	18	8	<0.2	1	<1	<1	<0.1	1	<5
PU09	12/11/18	No	36.3			9	<0.1	1	<1	<1	<0.1	<1	<5
PU09	11/02/19	No	<1	<1	<1								
PU09	07/05/19	No	18	<1	18	9	<0.2	2	<1	<1	<0.1	<1	<5
PU18	13/11/18	No	<1			2	<0.1	2	<1	<1	<0.1	<1	<5
PU18	12/02/19	No	<1	<1	<1								
PU18	07/05/19	No	<1	<1	<1	2	<0.2	2	<1	<1	<0.1	<1	<5
PU19	13/11/18	No	<1			3	<0.1	3	<1	<1	<0.1	<1	<5
PU19	12/02/19	No	<1	<1	<1								
PU19	07/05/19	No	<1	<1	<1	4	<0.2	1	<1	<1	<0.1	<1	<5
PU59	12/11/18	No	9.3			26	<0.1	1	<1	<1	<0.1	1	<5
PU59	11/02/19	No	8	<1	8								
PU59	07/05/19	No	10	<1	10	59	<0.2	2	1	<1	<0.1	<1	<5
PU60	12/11/18	No	30.4			8	<0.1	<1	<1	<1	<0.1	<1	<5
PU60	11/02/19	No	51	<1	51								
PU60	07/05/19	No	41	<1	41	6	<0.2	1	<1	<1	<0.1	<1	<5
PU61	12/11/18	No	<1			22	<0.1	<1	<1	<1	<0.1	<1	<5
PU61	11/02/19	No	<1	<1	<1								
PU61	07/05/19	No	<1	<1	<1	13	<0.2	1	<1	<1	<0.1	<1	<5

Areas of Environmental Concern - CLOR Warehouses





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

AECs

- Asbestos Contamination
- Waste Storage

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 4.5 9 13.5 18 22.5

metres

FIGURE A13

CALTEX

Conceptual Site Model

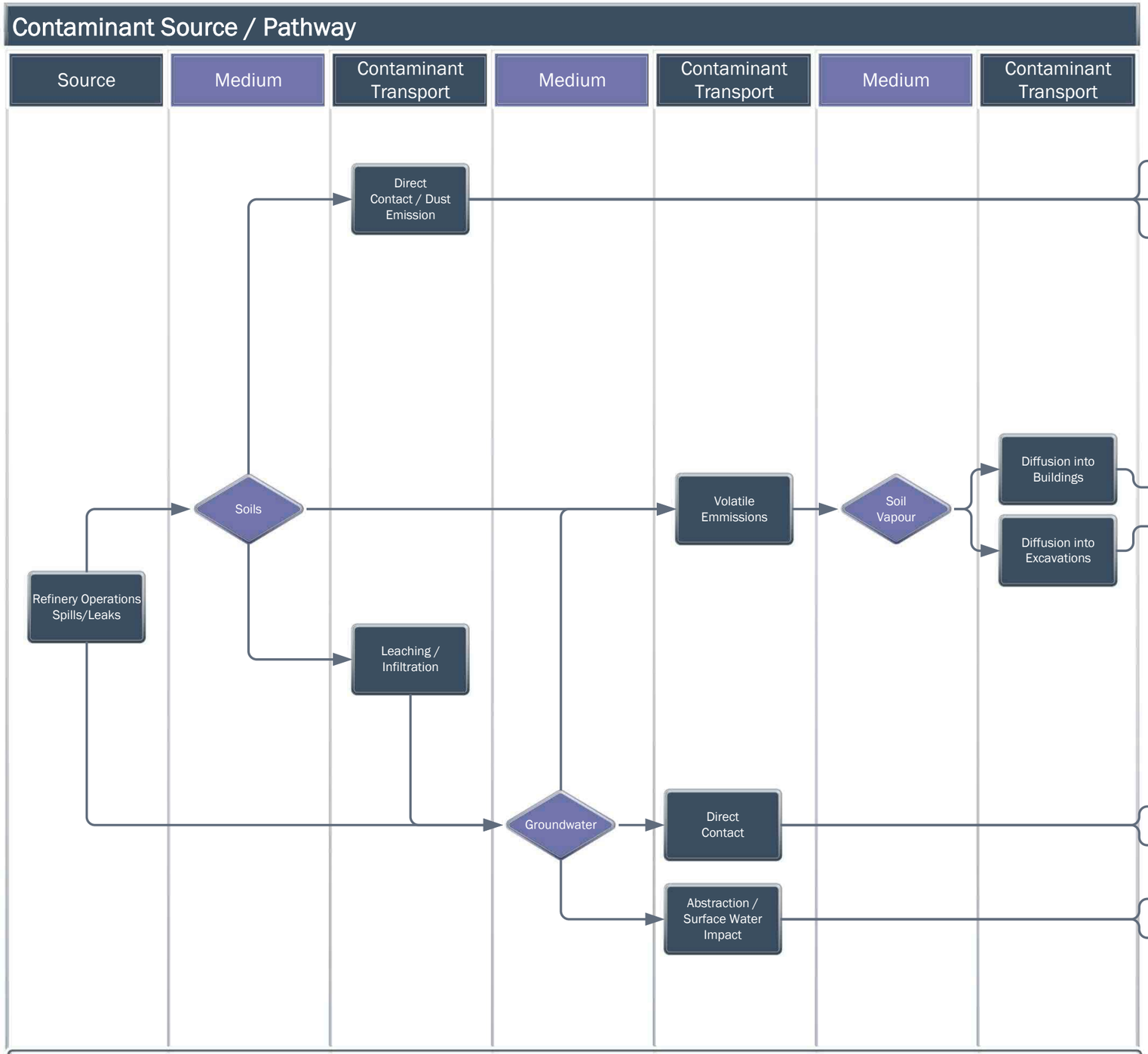
CLOR Warehouses

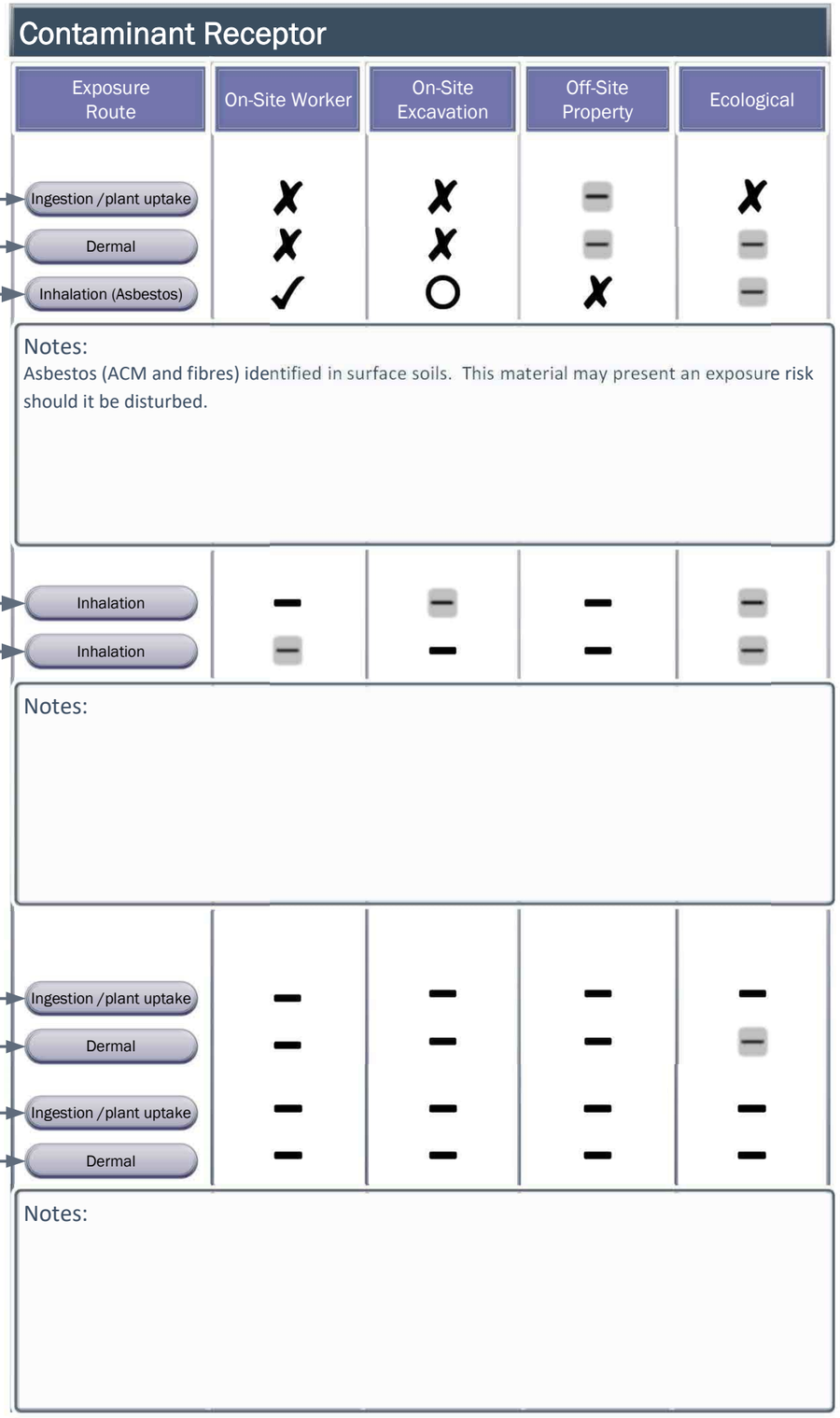
Contaminants of Concern Evaluated:

Soil
Asbestos

Groundwater
No data

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable





Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Table A22. Soil Sample Results - CLOR Warehouses

All results in mg/kg (unless otherwise stated)

Screening Level	Asbestos (%ww)
Vapour Intrusion	
LNAPL Indicator	
HIL	0.001
Ecological	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Asbestos (%ww)
MS_1	04/03/19	0.2	Yes	<0.001
MS_2	04/03/19	0.2	Yes	<0.001
MS_3	04/03/19	0.2	Yes	<0.001
MS_4	04/03/19	0.2	Yes	0.011
MS_5	04/03/19	0.2	Yes	<0.001
MS_6	04/03/19	0.2	Yes	<0.001
MS_7	04/03/19	0.2	Yes	<0.001
MS_8	04/03/19	0.2	Yes	0.001
MS_9	04/03/19	0.5	Yes	<0.001
MS_NE	04/03/19	0.2	Yes	0.095
MS_NE1	04/03/19	0.2	Yes	<0.001
MS_NW	04/03/19	0.2	Yes	0.001
MS_NW1	04/03/19	0.2	Yes	<0.001

Areas of Environmental Concern - Scrap Yard

SPA-BH05
SPA-BH06
SY12
SY10
SY09
SY04
SY03
SY13
SY08
SY11
SY05
SPA-BH08
SY02
SY07
SY06
SY01



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

AECs

- Asbestos Contamination
- Waste Storage

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 7.5 15 22.5 30 37.5
metres

FIGURE A14

CALTEX

Conceptual Site Model

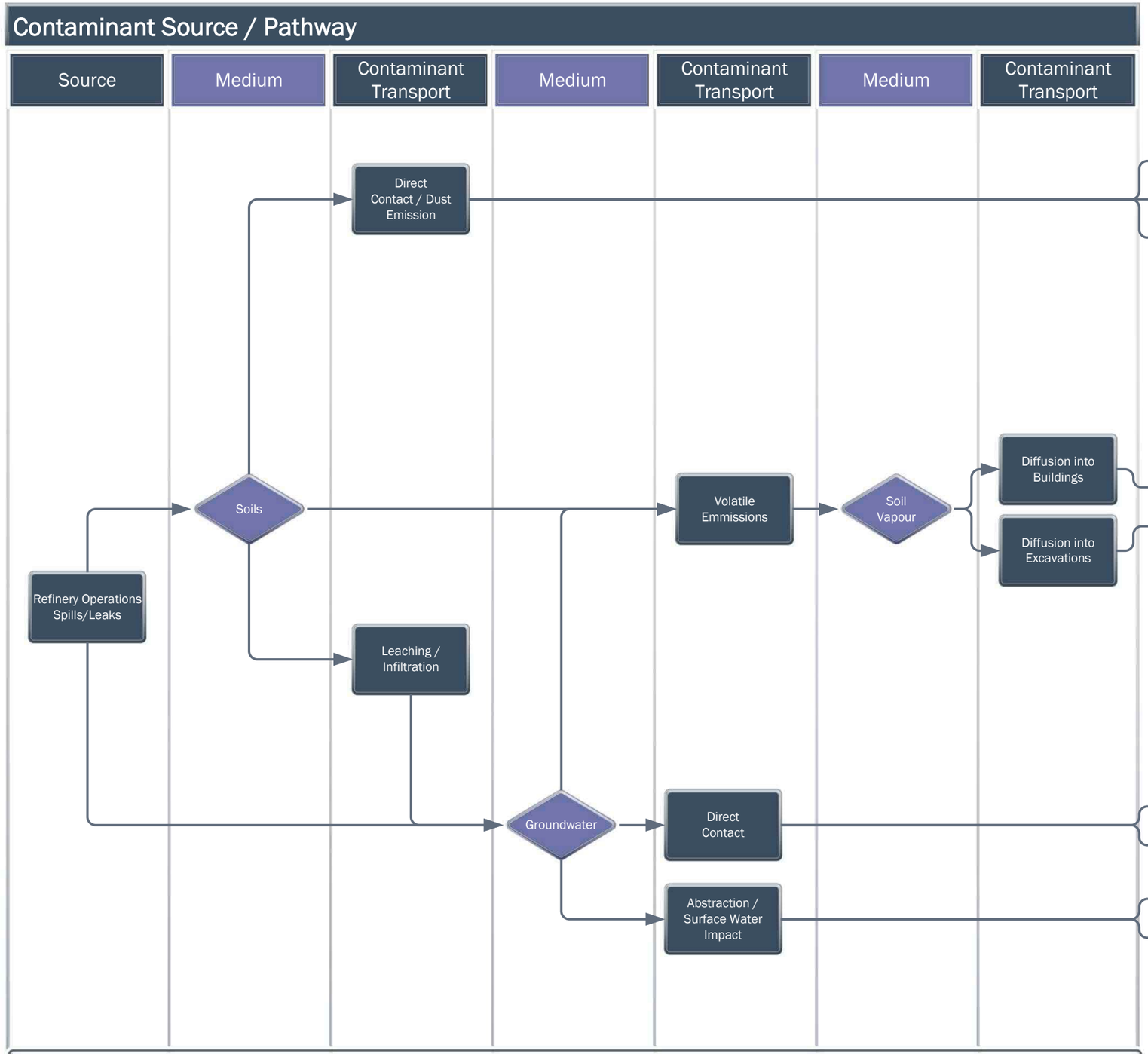
Scrap Yard

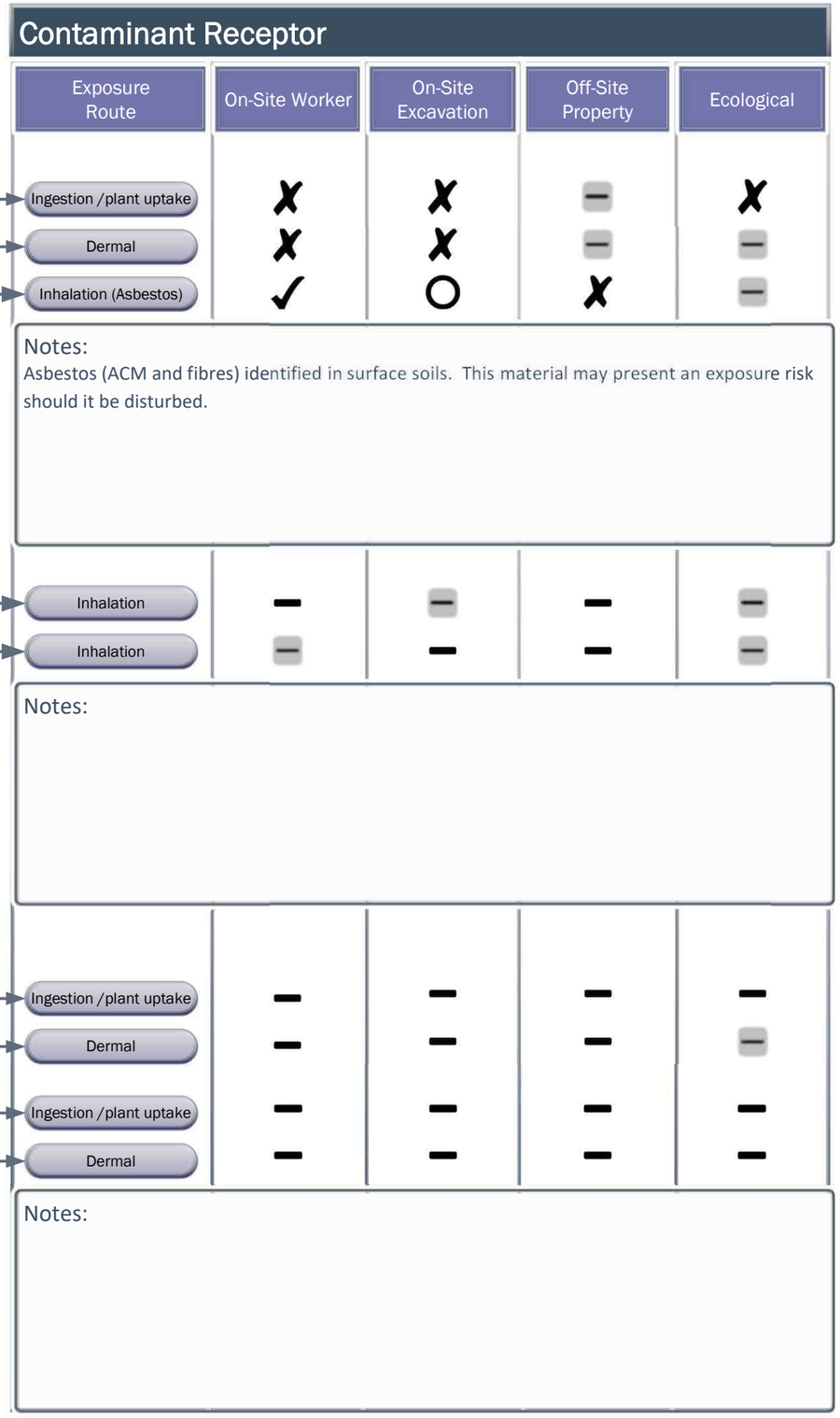
Contaminants of Concern Evaluated:

Soil
Asbestos

Groundwater
No data

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable





Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

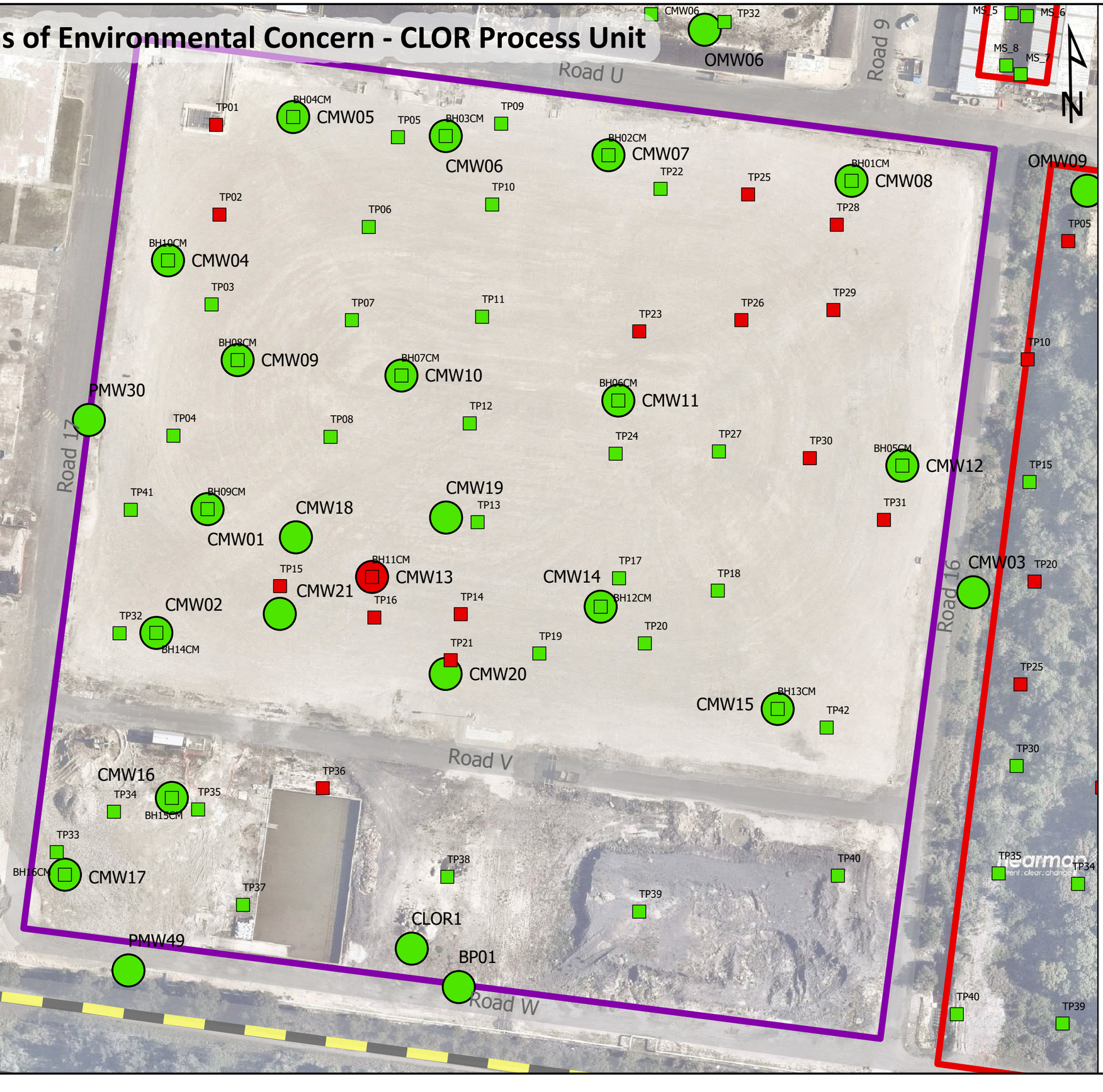
Table A23. Soil Sample Results - Scrap Yard

All results in mg/kg (unless otherwise stated)

Screening Level	Asbestos (%ww)
Vapour Intrusion	
LNAPL Indicator	
HIL	0.001
Ecological	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Asbestos (%ww)
SY01	30/11/18	0.2	Yes	0.001
SY01	30/11/18	0.5	Yes	0.002
SY02	30/11/18	0.2	Yes	<0.001
SY02	30/11/18	0.5	Yes	<0.001
SY03	30/11/18	0.2	Yes	<0.001
SY03	30/11/18	0.5	Yes	<0.001
SY04	30/11/18	0.2	Yes	0.003
SY04	30/11/18	0.5	Yes	0.016
SY05	30/11/18	0.2	Yes	<0.001
SY05	30/11/18	0.5	Yes	0.002
SY06	30/11/18	0.2	Yes	<0.001
SY06	30/11/18	0.5	Yes	<0.001
SY07	30/11/18	0.2	Yes	<0.001
SY07	30/11/18	0.5	Yes	0.025
SY08	30/11/18	0.2	Yes	<0.001
SY08	30/11/18	0.5	Yes	<0.001
SY09	30/11/18	0.2	Yes	<0.001
SY09	30/11/18	0.5	Yes	<0.001
SY10	30/11/18	0.2	Yes	0.007
SY10	30/11/18	0.5	Yes	<0.001
SY11	30/11/18	0.2	Yes	<0.001
SY11	30/11/18	0.5	Yes	0.034
SY12	30/11/18	0.2	Yes	<0.001
SY12	30/11/18	0.5	Yes	<0.001
SY13	30/11/18	0.2	Yes	<0.001
SY13	30/11/18	0.5	Yes	<0.001

Areas of Environmental Concern - CLOR Process Unit





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

AECs

- Asbestos Contamination
- Land Contamination

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 10 20 30 40 50

metres

FIGURE A15

CALTEX

Conceptual Site Model

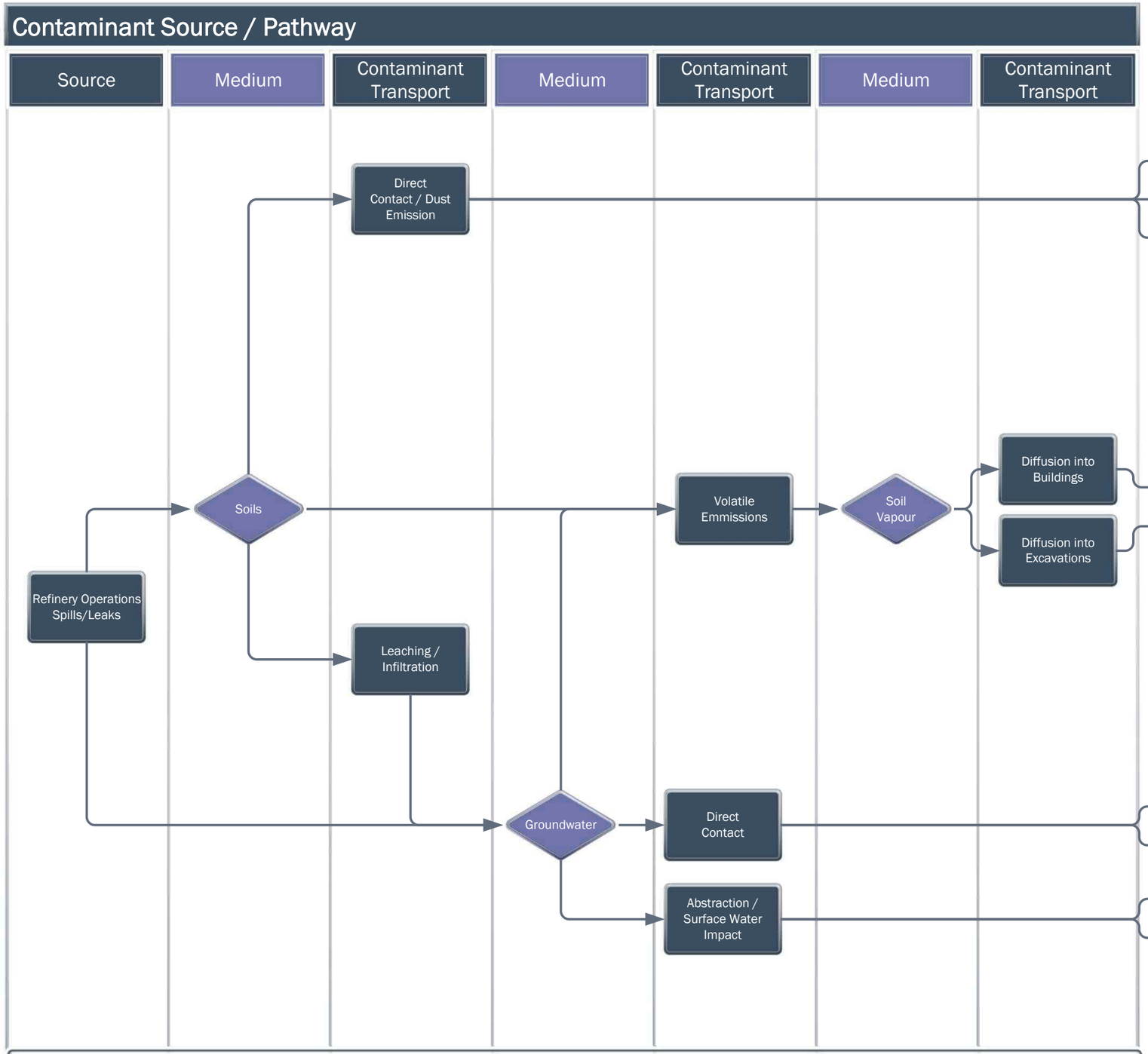
CLOR Process Units

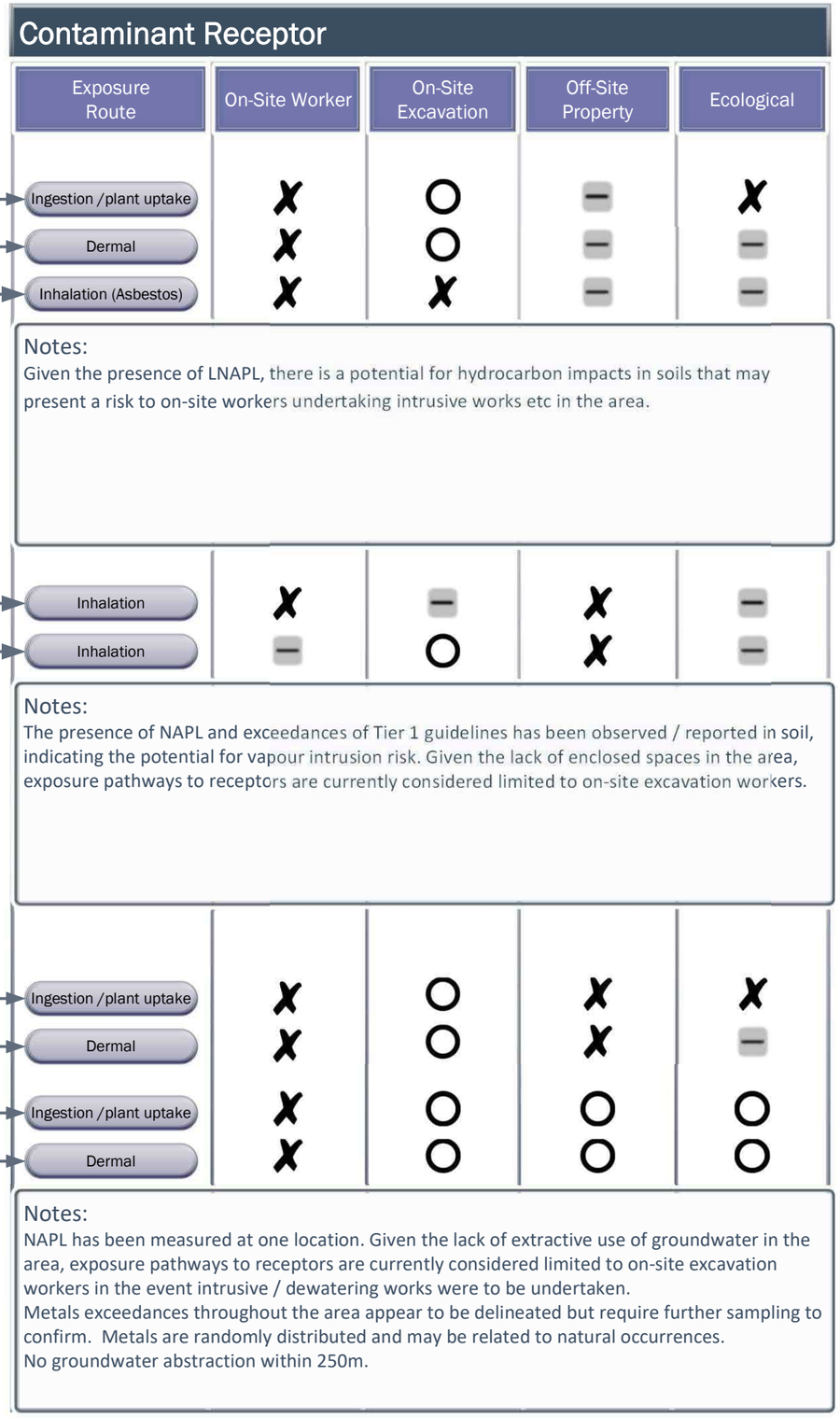
Contaminants of Concern Evaluated:

Soil
TRH >C16

Groundwater
LNAPL
TRH >C10, Toluene
Metals (As, Cu, Hg, Ni, Zn)

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable





Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Table A24. Soil Sample Results - CLOR Process Unit

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
BH01CM	12/11/18	0.5	Yes													
BH02CM	12/11/18	0.5	No													
BH03CM	12/11/18	0.5	No													
BH04CM	12/11/18	0.5	No	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH05CM	13/11/18	0.5	Yes													
BH05CM	13/11/18	1	Yes	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH06CM	13/11/18	1	No	<20	<50	710	<100	710	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH06CM	13/11/18	1.5	No	<20	<50	570	<100	570	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH07CM	13/11/18	1	No													
BH07CM	13/11/18	1.5	No	<20	<50	2400	<100	2400	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH08CM	13/11/18	0.5	No													
BH08CM	13/11/18	1	No	<20	<50	300	<100	300	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH09CM	14/11/18	0.5	No													
BH09CM	14/11/18	1	No	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH10CM	14/11/18	0.5	No	<20	220	1000	<100	1220	<20	220	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH11CM	14/11/18	0.5	No	<20	<50	13000	<100	13000	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH11CM	14/11/18	1	No	<20	<50	12000	<100	12000	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH12CM	14/11/18	0.5	No													
BH12CM	14/11/18	1	No	<20	230	1800	420	2450	<20	230	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH13CM	15/11/18	0.5	Yes	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH14CM	15/11/18	0.5	No	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH14CM	15/11/18	1	No	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH15CM	15/11/18	0.5	Yes													
BH15CM	15/11/18	1	Yes	<20	110	1300	260	1670	<20	110	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH16CM	15/11/18	0.5	Yes	<20	<50	110	<100	110	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH16CM	15/11/18	1	Yes	<20	<50	<100	<100	<100	<20	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3

Table A24. Soil Sample Results - CLOR Process Unit

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
Vapour Intrusion	NL											
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	0.001
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos (%ww)
BH01CM	12/11/18	0.5	Yes												<0.001
BH02CM	12/11/18	0.5	No												<0.001
BH03CM	12/11/18	0.5	No												<0.001
BH04CM	12/11/18	0.5	No	<0.5	<0.5	<0.5									<0.001
BH05CM	13/11/18	0.5	Yes												<0.001
BH05CM	13/11/18	1	Yes	<0.5	<0.5	<0.5									
BH06CM	13/11/18	1	No	<0.5	<0.5	3.3									<0.001
BH06CM	13/11/18	1.5	No	<0.5	<0.5	<0.5	3	<0.4	23	29	38	1.3	13	340	
BH07CM	13/11/18	1	No												<0.001
BH07CM	13/11/18	1.5	No	<0.5	<0.5	<0.5									
BH08CM	13/11/18	0.5	No												<0.001
BH08CM	13/11/18	1	No	<0.5	<0.5	<0.5	2	<0.4	8	10	15	0.3	6	110	
BH09CM	14/11/18	0.5	No												<0.001
BH09CM	14/11/18	1	No	<0.5	<0.5	<0.5									
BH10CM	14/11/18	0.5	No	<0.5	<0.5	<0.5									<0.001
BH11CM	14/11/18	0.5	No	<0.5	<0.5	0.5									
BH11CM	14/11/18	1	No	<0.5	<0.5	<1	3	<0.4	<5	<5	28	<0.1	<5	37	
BH12CM	14/11/18	0.5	No												<0.001
BH12CM	14/11/18	1	No	<0.5	<5	<5									
BH13CM	15/11/18	0.5	Yes	<0.5	<0.5	<0.5									<0.001
BH14CM	15/11/18	0.5	No	<0.5	<0.5	<0.5	3	<0.4	14	11	<5	<0.1	24	15	<0.001
BH14CM	15/11/18	1	No	<0.5	<0.5	<0.5									
BH15CM	15/11/18	0.5	Yes												<0.001
BH15CM	15/11/18	1	Yes	<0.5	<0.5	<0.5									
BH16CM	15/11/18	0.5	Yes	<0.5	<0.5	<0.5	2	<0.4	<5	11	6	<0.1	<5	27	<0.001
BH16CM	15/11/18	1	Yes	<0.5	<0.5	<0.5									

Table A25. GW Monitoring Results - CLOR Process Unit

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	LNAPL	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion					1000	1000			800	NL	NL			NL
LNAPL Indicator							30000	Detection	3000					
Fresh / Marine									500	180	80	350	75	
Recreational									10	8000	3000			6000

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	LNAPL	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
BP01	05/11/18	Yes	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
BP01	04/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
BP01	06/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CLOR1	05/11/18	Yes	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
CLOR1	27/11/18	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CLOR1	04/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CLOR1	08/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CLOR1	06/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CLOR1	09/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW01	27/11/18	No	<20	390	1500	<100	<20	390	390		<1	<1	<1	<1	<2	<3
CMW01	08/02/19	No	<20	440	2100	200	<20	440	440		<1	<1	<1	<1	<2	<3
CMW01	09/05/19	No	<20	390	1400	<100	<20	390	390		<1	<1	<1	<1	<2	<3
CMW02	27/11/18	No	<20	1200	1800	<100	<20	1200	1200		<1	<1	<1	<1	<2	<3
CMW02	08/02/19	No	<20	1200	1600	100	<20	1200	1200		<1	<1	<1	<1	<2	<3
CMW02	09/05/19	No	<20	990	1500	<100	<20	990	990		<1	<1	<1	<1	<2	<3
CMW03	27/11/18	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW03	08/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW03	09/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW04	27/11/18	No	<20	500	900	<100	<20	500	500		<1	<1	<1	<1	<2	<3
CMW04	08/02/19	No	<20	400	700	<100	<20	400	400		<1	<1	<1	<1	<2	<3
CMW04	09/05/19	No	<20	710	2000	<100	<20	710	710		<1	<1	<1	<1	<2	<3
CMW05	27/11/18	No	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW05	08/02/19	No	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW05	09/05/19	No	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW06	27/11/18	No	<20	910	5500	200	<20	910	910		<1	<1	<1	<1	<2	<3
CMW06	08/02/19	No	<20	580	11000	1100	<20	580	580		<1	<1	<1	<1	<2	<3
CMW06	09/05/19	No	<20	300	2400	<100	<20	300	300		<1	<1	<1	<1	<2	<3
CMW07	27/11/18	No	<20	70	500	<100	<20	70	70		<1	<1	<1	<1	<2	<3
CMW07	08/02/19	No	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW07	09/05/19	No	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW08	27/11/18	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW08	08/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW08	09/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW09	27/11/18	No	<20	470	1700	<100	<20	470	470		<1	<1	<1	<1	<2	<3
CMW09	08/02/19	No	<20	<50	1200	100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW09	09/05/19	No	<20	310	1500	<100	<20	310	310		<1	<1	<1	<1	<2	<3
CMW10	27/11/18	No	<20	180	1900	<100	<20	180	180		<1	<1	<1	<1	<2	<3
CMW10	08/02/19	No	<20	80	1100	100	<20	80	80		<1	<1	<1	<1	<2	<3
CMW10	09/05/19	No	<20	100	700	<100	<20	100	100		<1	<1	<1	<1	<2	<3
CMW11	27/11/18	No	<20	2000	6800	900	<20	2000	2000		<1	<1	<1	<1	<2	<3
CMW11	08/02/19	No	<20	870	1900	300	<20	870	870		<1	<1	<1	<1	<2	<3
CMW11	09/05/19	No	<20	920	1600	<100	<20	920	920		<1	<1	<1	<1	<2	<3
CMW12	27/11/18	Yes	<20	<50	500	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW12	08/02/19	Yes	1600	<50	<100	<100	960	<50	1600		<10	640	<10	<10	<20	<30
CMW12	09/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW13	27/11/18	No	<80	6300	40000	200	<80	6300	6300		<4	<4	<4	<4	<8	<12
CMW13	08/02/19	No								Detected						
CMW13	09/05/19	No								Detected						
CMW14	27/11/18	No	<20	70	500	<100	<20	70	70		<1	<1	<1	<1	<2	<3
CMW14	08/02/19	No	<20	<50	600	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW14	09/05/19	No	<20	<50	400	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW15	27/11/18	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW15	08/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW15	09/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW16	27/11/18	Yes	40	190	800	100	<20	190	230		<1	21	<1	<1	<2	<3
CMW16	08/02/19	Yes	40	<50	1800	200	30	<50	40		<1	15	<1	<1	<2	<3

Table A25. GW Monitoring Results - CLOR Process Unit

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	LNAPL	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion					1000	1000			800	NL	NL			NL
LNAPL Indicator							30000	Detection	3000					
Fresh / Marine									500	180	80	350	75	
Recreational									10	8000	3000			6000

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	LNAPL	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
CMW16	09/05/19	Yes	<20	570	1000	<100	<20	570	570		<1	11	<1	1	<2	<3
CMW17	27/11/18	Yes	<80	340	1300	<100	<80	340	340		<4	<4	<4	<4	<8	<12
CMW17	08/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW17	09/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW18	07/06/19	No	<20	500	3000	300	<20	500	500		<1	<1	<1	<1	<2	<3
CMW19	07/06/19	No	<20	<50	1000	200	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW20	07/06/19	No	<20	<50	500	200	<20	<50	<70		<1	<1	<1	<1	<2	<3
CMW21	07/06/19	No	<20	640	3200	300	<20	640	640		<1	<1	<1	<1	<2	<3
PMW10	01/11/18	Yes	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW10	04/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW10	06/05/19	Yes	<80	<50	<100	<100	<80	<50	<70		<4	<4	<4	<4	<8	<12
PMW30	01/11/18	No	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW30	04/02/19	No	<20	530	900	<100	<20	530	530		<1	<1	<1	<1	<2	<3
PMW30	06/05/19	No	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW49	01/11/18	Yes	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW49	04/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW49	06/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW50	01/11/18	Yes	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW50	04/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW50	06/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW51	01/11/18	Yes	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW51	04/02/19	Yes	<20	190	1100	100	<20	190	190		<1	<1	<1	<1	<2	<3
PMW51	06/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW53	01/11/18	Yes	<20	<100	<100	<100	<20	<100	<70		<1	<2	<2	<2	<2	<2
PMW53	04/02/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3
PMW53	06/05/19	Yes	<20	<50	<100	<100	<20	<50	<70		<1	<1	<1	<1	<2	<3

Table A25. GW Monitoring Results - CLOR Process Unit

All results in µg/L (unless otherwise stated)

Screening Level	BTEX_Sum	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
Vapour Intrusion		NL											
LNAPL Indicator	20000												
Fresh / Marine		16			24	0.2	27.4	1.3	2.2	0.1	7	8	910
Recreational					50	5	50		100	1	100		500

Well_ID	Sample_date	Eco_Receptor	BTEX_Sum	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
BP01	05/11/18	Yes	<6	<1			7	<0.1	<1	3	<1			<5	130
BP01	04/02/19	Yes	<6	<10											
BP01	06/05/19	Yes	<6	<10											
CLOR1	05/11/18	Yes	<6	<1			29	<0.1	2	<1	<1			<5	1460
CLOR1	27/11/18	Yes	<6	<1	<1	<1	36	<0.2	2	<1	<1	<0.1	<1	<5	
CLOR1	04/02/19	Yes	<6	<10											
CLOR1	08/02/19	Yes	<6	<1	<1	<1	70	<0.2	2						
CLOR1	06/05/19	Yes	<6	<10											
CLOR1	09/05/19	Yes	<6	<1	<1	<1	34	<0.2	2	1	<1	<0.1	<1	<5	
CMW01	27/11/18	No	<6	<1	<1	<1	5	<0.2	1	<1	<1	<0.1	<1	6	
CMW01	08/02/19	No	<6	<1	<1	<1	6	<0.2	<1						
CMW01	09/05/19	No	<6	<1	<1	<1	6	<0.2	1	2	<1	<0.1	<1	6	
CMW02	27/11/18	No	<6	<1	<1	<1	16	<0.2	2	<1	<1	<0.1	<1	<5	
CMW02	08/02/19	No	<6	<1	<1	<1	17	<0.2	<1	<1	<1	<0.1	<1	<5	
CMW02	09/05/19	No	<6	<1	<1	<1	15	<0.2	1	2	<1	<0.1	<1	<5	
CMW03	27/11/18	Yes	<6	<1	<1	<1	2	<0.2	2	<1	<1	<0.1	<1	6	
CMW03	08/02/19	Yes	<6	<1	<1	<1	1	<0.2	7						
CMW03	09/05/19	Yes	<6	<1	<1	<1	2	0.2	2	2	<1	<0.1	<1	5	
CMW04	27/11/18	No	<6	<1	<1	<1	12	<0.2	<1	<1	<1	<0.1	<1	5	
CMW04	08/02/19	No	<6	<1	<1	<1	13	<0.2	<1						
CMW04	09/05/19	No	<6	<1	<1	<1	6	<0.2	<1	1	<1	<0.1	<1	7	
CMW05	27/11/18	No	<6	<1	<1	<1	17	<0.2	<1	<1	<1	<0.1	2	<5	
CMW05	08/02/19	No	<6	<1	<1	<1	15	<0.2	<1						
CMW05	09/05/19	No	<6	<1	<1	<1	9	<0.2	2	1	<1	<0.1	2	<5	
CMW06	27/11/18	No	<6	<1	<1	<1	76	<0.2	2	<1	<1	<0.1	1	11	
CMW06	08/02/19	No	<6	<1	<1	<1	36	<0.2	2	<1	<1	<0.1	<1	6	
CMW06	09/05/19	No	<6	<1	<1	<1	45	<0.2	2	2	<1	<0.1	<1	<5	
CMW07	27/11/18	No	<6	<1	<1	<1	10	<0.2	<1	<1	<1	<0.1	<1	<5	
CMW07	08/02/19	No	<6	<1	<1	<1	5	<0.2	<1	<1	<1	<0.1	<1	<5	
CMW07	09/05/19	No	<6	<1	<1	<1	4	<0.2	<1	<1	<1	<0.1	<1	<5	
CMW08	27/11/18	Yes	<6	<1	<1	<1	11	<0.2	<1	<1	<1	<0.1	3	11	
CMW08	08/02/19	Yes	<6	<1	<1	<1	5	<0.2	<1	<1	<1	<0.1	<1	<5	
CMW08	09/05/19	Yes	<6	<1	<1	<1	3	<0.2	<1	1	<1	<0.1	<1	<5	
CMW09	27/11/18	No	<6	<1	<1	<1	12	<0.2	2	<1	<1	<0.1	2	14	
CMW09	08/02/19	No	<6	<1	<1	120	19	<0.2	2	<1	<1	<0.1	<1	<5	
CMW09	09/05/19	No	<6	<1	<1	<1	20	<0.2	1	2	<1	<0.1	<1	<5	
CMW10	27/11/18	No	<6	<1	<1	<1	13	<0.2	<1	<1	<1	<0.1	<1	6	
CMW10	08/02/19	No	<6	<1	<1	<1	11	<0.2		<1	<1	<0.1	<1	<5	
CMW10	09/05/19	No	<6	<1	<1	<1	16	<0.2	<1	2	<1	<0.1	1	<5	
CMW11	27/11/18	No	<6	1	<1	1	52	<0.2	3	<1	<1	<0.1	1	6	
CMW11	08/02/19	No	<6	<1	<1	<1	12	<0.2	2	<1	<1	<0.1	<1	12	
CMW11	09/05/19	No	<6	<1	<1	<1	19	<0.2	4	1	<1	<0.1	<1	<5	
CMW12	27/11/18	Yes	<6	<1	<1	<1	15	<0.2	2	<1	<1	<0.1	<1	<5	
CMW12	08/02/19	Yes	640	<1	<1	<1	13	<0.2	2	<1	<1	0.2	<1	<5	
CMW12	09/05/19	Yes	<6	<1	<1	<1	10	<0.2	2	2	<1	<0.1	<1	<5	
CMW13	27/11/18	No	<6	<1	<1	6	39	<0.2	1	<1	<1	<0.1	1	<5	
CMW13	08/02/19	No													
CMW13	09/05/19	No													
CMW14	27/11/18	No	<6	<1	<1	<1	7	<0.2	1	1	<1	<0.1	<1	7	
CMW14	08/02/19	No	<6	<1	<1	<1	8	<0.2		<1	<1	<0.1	<1	<5	
CMW14	09/05/19	No	<6	<1	<1	<1	7	<0.2	<1	2	<1	<0.1	<1	<5	
CMW15	27/11/18	Yes	<6	<1	<1	<1	2	<0.2	1	<1	<1	<0.1	<1	<5	
CMW15	08/02/19	Yes	<6	<1	<1	<1	2	<0.2		<1	<1	<0.1	<1	<5	
CMW15	09/05/19	Yes	<6	<1	<1	<1	2	<0.2	2	<1	<1	<0.1	<1	<5	
CMW16	27/11/18	Yes	21	<1	<1	<1	53	<0.2	7	2	<1	<0.1	10	7	
CMW16	08/02/19	Yes	15	<1	<1	<1	10	<0.2	3	<1	<1	<0.1	7	<5	

Table A25. GW Monitoring Results - CLOR Process Unit

All results in µg/L (unless otherwise stated)

Screening Level	BTEX_Sum	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
Vapour Intrusion		NL											
LNAPL Indicator	20000												
Fresh / Marine		16			24	0.2	27.4	1.3	2.2	0.1	7	8	910
Recreational					50	5	50		100	1	100		500

Well_ID	Sample_date	Eco_Receptor	BTEX_Sum	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia
CMW16	09/05/19	Yes	12	<1	<1	<1	20	<0.2	7	2	<1	<0.1	7	<5	
CMW17	27/11/18	Yes	<6	<1	<1	<1	14	<0.2	5	<1	1	<0.1	2	8	
CMW17	08/02/19	Yes	<6	<1	<1	<1	3	<0.2	2	<1	<1	<0.1	<1	<5	
CMW17	09/05/19	Yes	<6	<1	<1	<1	8	<0.2	<1	2	<1	<0.1	1	<5	
CMW18	07/06/19	No	<6	<1	<1	<1	18	<0.2	2	<1	<1	<0.1	2	<5	
CMW19	07/06/19	No	<6	<1	<1	<1	13	<0.2	<1	1	<1	<0.1	2	<5	
CMW20	07/06/19	No	<6	<1	<1	<1	6	<0.2	3	<1	<1	<0.1	1	48	
CMW21	07/06/19	No	<6	<10	<10	<10	31	<0.2	1	<1	<1	<0.1	1	<5	
PMW10	01/11/18	Yes	<6	<1			<1	<0.1	2	<1	<1			6	740
PMW10	04/02/19	Yes	<6	<10											
PMW10	06/05/19	Yes	<6	<40											
PMW30	01/11/18	No	<6	<1			2	<0.1	<1	2	<1			51	1170
PMW30	04/02/19	No	<6	<10											
PMW30	06/05/19	No	<6	<10											
PMW49	01/11/18	Yes	<6	<1			13	<0.1	<1	<1	<1			<5	550
PMW49	04/02/19	Yes	<6	<10											
PMW49	06/05/19	Yes	<6	<10											
PMW50	01/11/18	Yes	<6	<1			<1	<0.1	<1	<1	<1			<5	1800
PMW50	04/02/19	Yes	<6	<10											
PMW50	06/05/19	Yes	<6	<10											
PMW51	01/11/18	Yes	<6	<1			2	<0.1	2	<1	<1			<5	1340
PMW51	04/02/19	Yes	<6	<10											
PMW51	06/05/19	Yes	<6	<10											
PMW53	01/11/18	Yes	<6	<1			<1	<0.1	<1	3	<1			<5	30
PMW53	04/02/19	Yes	<6	<10											
PMW53	06/05/19	Yes	<6	<10											

Areas of Environmental Concern - RPIP Mountain





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

AECs

- Asbestos Contamination
- Land Contamination
- Waste Storage

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 10 20 30 40 50
metres

FIGURE A16

CALTEX

Conceptual Site Model

RPIP

Contaminants of Concern Evaluated:

Soil
Asbestos
Copper, Zinc
Building rubble

Groundwater
No exceedances

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable

Contaminant Source / Pathway

Source	Medium	Contaminant Transport	Medium	Contaminant Transport	Medium	Contaminant Transport
Refinery Operations Spills/Leaks	Soils	Direct Contact / Dust Emission				
		Leaching / Infiltration	Groundwater	Direct Contact		
				Abstraction / Surface Water Impact		
	Soils			Volatile Emmissions	Soil Vapour	Diffusion into Buildings
						Diffusion into Excavations

Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Contaminant Receptor

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	✗	–	✓
Dermal	✗	✗	–	–
Inhalation (Asbestos)	✗	○	✗	–

Notes:
RPIP is an area of contaminated fill. Asbestos exceeding criteria was throughout the area at various depths. The area of the exceedance is heavily vegetated thereby limiting potential for dust generation and exposure. Metals exceeding ecological criteria located throughout the area are considered to be associated with the fill.

Inhalation	✗	–	✗	–
Inhalation	–	✗	✗	–

Notes:
No exceedances of vapour intrusion criteria

Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	–
Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	✗

Notes:
No groundwater exceedances measured.

Table A26. Soil Sample Results - RPIP Mountain

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
TP01	25/07/11	1.05	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP02	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP03	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP04	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP05	25/07/11	0.55	Yes	<25	<50	130	<100	130	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP06	25/07/11	0.05	Yes													
TP06	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP07	25/07/11	0.55	Yes													
TP07	25/07/11	1.05	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP08	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP09	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP10	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP11	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP12	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP13	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP14	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP15	25/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP16	26/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP17	26/07/11	0.05	Yes													
TP17	26/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP18	26/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP19	26/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP20	26/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP21	26/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP22	26/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP23	26/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP24	26/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP25	26/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP26	27/07/11	0.05	Yes													
TP26	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP27	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP28	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP29	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP30	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP31	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP31A	27/07/11	0.05	Yes													
TP31A	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP31A	27/07/11	1.05	Yes													
TP32	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP33	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP34	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP35	27/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP36	28/07/11	0.25	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP37	28/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP37	28/07/11	1.05	Yes													
TP38	28/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP39	28/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3
TP40	28/07/11	0.55	Yes	<25	<50	<100	<100	<100	<25	<50	<0.2	<0.5	<1	<2	<1	<3

Table A26. Soil Sample Results - RPIP Mountain

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos detected
Vapour Intrusion	NL											-
LNAPL Indicator												
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000	Yes
Ecological	370	1.4		160	22	310	140	1800		55	360	

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Asbestos detected
TP01	25/07/11	1.05	Yes	<0.1	<0.05	<0.5	<4	<0.5	14	130	70	<0.1	11	390	No
TP02	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	9	24	21	<0.1	11	260	No
TP03	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	4	<0.5	36	230	180	1	16	1300	No
TP04	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	13	1	96	1200	670	<0.1	28	4200	No
TP05	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	22	130	95	<0.1	44	680	No
TP06	25/07/11	0.05	Yes												Yes
TP06	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	11	68	54	<0.1	13	470	
TP07	25/07/11	0.55	Yes												No
TP07	25/07/11	1.05	Yes	<0.1	<0.05	<0.5	<4	<0.5	4	19	12	<0.1	8	110	
TP08	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	6	44	12	<0.1	12	78	No
TP09	25/07/11	0.55	Yes	<0.1	0.09	0.19	<4	<0.5	11	48	36	<0.1	8	280	No
TP10	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	14	56	76	<0.1	6	600	No
TP11	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	16	100	100	<0.1	15	720	No
TP12	25/07/11	0.55	Yes	<0.1	0.28	2.98	4	<0.5	14	76	52	<0.1	13	370	Yes
TP13	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	5	22	19	<0.1	4	130	No
TP14	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	16	98	80	<0.1	26	510	Yes
TP15	25/07/11	0.55	Yes	<0.1	<0.05	<0.5	4	<0.5	4	6	4	<0.1	4	25	No
TP16	26/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	5	25	23	<0.1	4	220	No
TP17	26/07/11	0.05	Yes												Yes
TP17	26/07/11	0.55	Yes	<0.1	<0.05	0.6	<4	<0.5	12	74	57	<0.1	12	360	Yes
TP18	26/07/11	0.55	Yes	<0.1	0.08	0.68	<4	<0.5	11	67	43	<0.1	9	370	No
TP19	26/07/11	0.55	Yes	<0.1	<0.05	0.2	<4	<0.5	12	78	43	<0.1	10	270	Yes
TP20	26/07/11	0.55	Yes	<0.1	0.06	0.56	5	<0.5	18	330	110	<0.1	11	710	No
TP21	26/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	11	66	42	<0.1	15	290	Yes
TP22	26/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	7	51	38	<0.1	8	220	No
TP23	26/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	7	20	19	<0.1	5	130	No
TP24	26/07/11	0.55	Yes	<0.1	<0.05	<0.5	27	<0.5	80	3900	1200	<0.1	31	7200	No
TP25	26/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	14	95	120	<0.1	11	730	No
TP26	27/07/11	0.05	Yes												Yes
TP26	27/07/11	0.55	Yes	<0.1	0.24	3.14	<4	<0.5	26	170	190	<0.1	22	1200	
TP27	27/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	14	65	51	1	21	330	No
TP28	27/07/11	0.55	Yes	<0.1	<0.05	<0.5	5	<0.5	18	60	57	1	11	440	No
TP29	27/07/11	0.55	Yes	<0.1	0.09	0.59	<4	<0.5	15	79	56	<0.1	10	390	No
TP30	27/07/11	0.55	Yes	<0.1	<0.05	<0.5	6	<0.5	12	39	23	<0.1	20	110	No
TP31	27/07/11	0.55	Yes	<0.1	0.07	0.07	<4	<0.5	11	9	16	<0.1	7	58	No
TP31A	27/07/11	0.05	Yes												Yes
TP31A	27/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	3	4	200	<0.1	2	46	Yes
TP31A	27/07/11	1.05	Yes												No
TP32	27/07/11	0.55	Yes	<0.1	<0.05	<0.5	4	<0.5	45	250	310	<0.1	20	2500	No
TP33	27/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	12	40	42	<0.1	5	200	No
TP34	27/07/11	0.55	Yes	<0.1	<0.05	<0.5	6	<0.5	3	2	5	<0.1	2	10	No
TP35	27/07/11	0.55	Yes	<0.1	<0.05	<0.5	8	<0.5	4	<1	1	<0.1	1	2	No
TP36	28/07/11	0.25	Yes	<0.1	0.13	1.53	<4	<0.5	11	29	38	<0.1	13	130	No
TP37	28/07/11	0.55	Yes	<0.1	0.05	0.05	5	1	18	47	110	<0.1	16	320	Yes
TP37	28/07/11	1.05	Yes												No
TP38	28/07/11	0.55	Yes	<0.1	<0.05	<0.5	70	<0.5	7	2	7	<0.1	2	18	No
TP39	28/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	<1	<1	2	<0.1	<1	8	No
TP40	28/07/11	0.55	Yes	<0.1	<0.05	<0.5	<4	<0.5	<1	<1	1	<0.1	<1	<1	No

Table A27. GW Monitoring Results - RPIP Mountain

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
Vapour Intrusion					1000	1000		800	NL	NL			NL	
LNAPL Indicator							30000	3000						20000
Fresh / Marine								500	180	80	350	75		
Recreational								10	8000	3000			6000	

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
OMW09	02/11/18	Yes	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
OMW09	05/02/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
OMW09	06/05/19	Yes	<80	<50	<100	<100	<80	<50	<70	<4	<4	<4	<4	<8	<12	<6
OMW10	02/11/18	Yes	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
OMW10	05/02/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
OMW10	06/05/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PMW64	04/02/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
PMW64	06/05/19	Yes	<80	<50	<100	<100	<80	<50	<70	<4	<4	<4	<4	<8	<12	<6

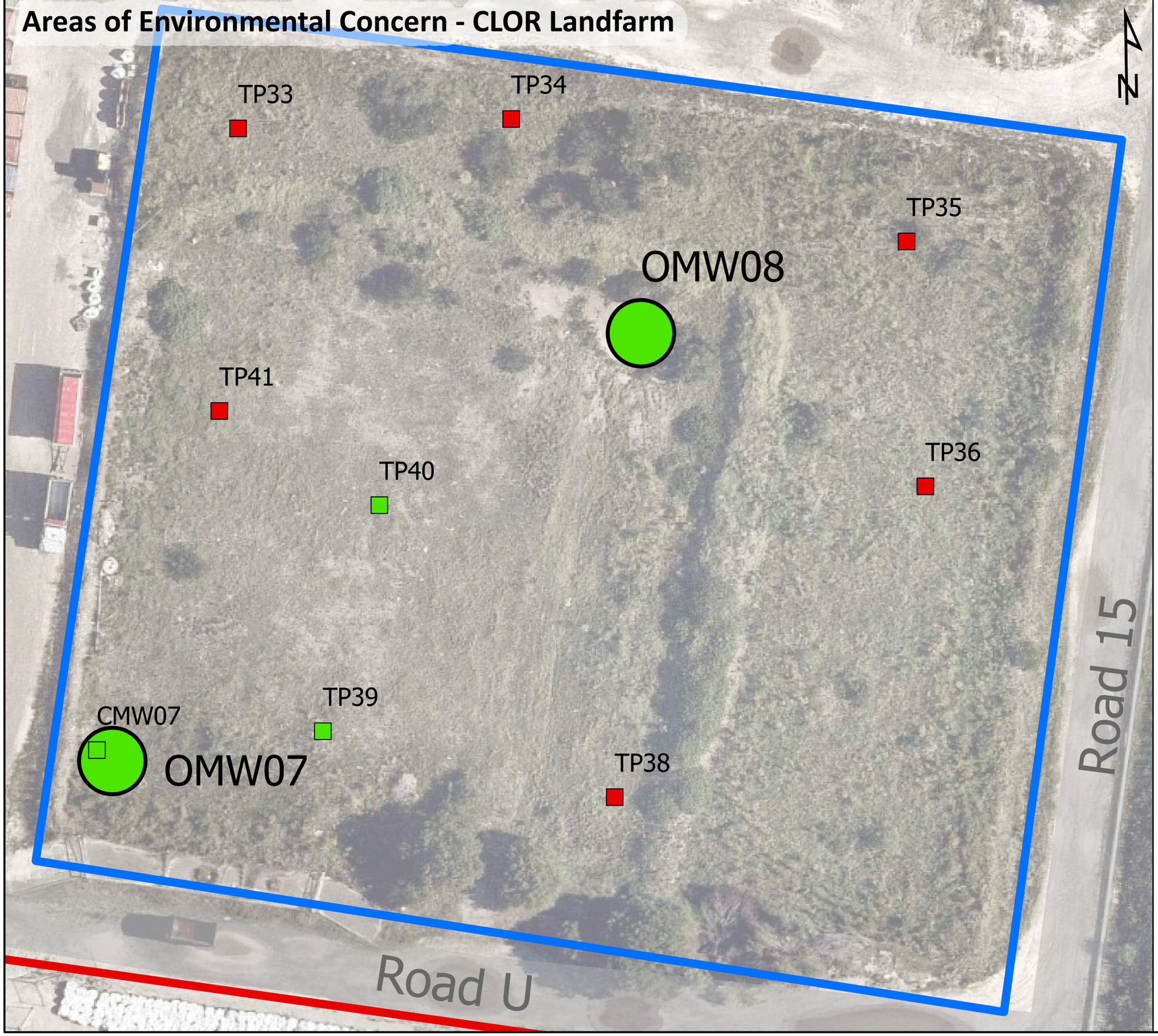
Table A27. GW Monitoring Results - RPIP Mountain

All results in µg/L (unless otherwise stated)

Screening Level	Naphthalene	Arsenic	Cadmium	Chromium	Copper	Lead	Zinc	Ammonia
Vapour Intrusion	NL							
LNAPL Indicator								
Fresh / Marine	16	24	0.2	27.4	1.3	2.2	8	910
Recreational		50	5	50		100		500

Well_ID	Sample_date	Eco_Receptor	Naphthalene	Arsenic	Cadmium	Chromium	Copper	Lead	Zinc	Ammonia
OMW09	02/11/18	Yes	<1	<1	<0.1	<1	<1	<1	<5	1080
OMW09	05/02/19	Yes	<10							
OMW09	06/05/19	Yes	<40							
OMW10	02/11/18	Yes	<1	2	<0.1	1	<1	<1	<5	3200
OMW10	05/02/19	Yes	<10							
OMW10	06/05/19	Yes	<10							
PMW64	04/02/19	Yes	<10							
PMW64	06/05/19	Yes	<40							

Areas of Environmental Concern - CLOR Landfarm





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

AECs

- Asbestos Contamination
- Waste Storage

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Vapour Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 6 12 18 24 30

metres

FIGURE A19

CALTEX

Conceptual Site Model

CLOR Landfarm

Contaminants of Concern Evaluated:

Soil
TRH C6-C40
PAHs
Copper, Nickel, Zinc
Asbestos

Groundwater
Zinc

✓ Potentially complete exposure pathway (current)
○ Potentially complete exposure pathway (non-standard works or off-site migration)
✗ Incomplete exposure pathway (no guideline exceedances / no receptor pathway)
– No data / not evaluated
– Not applicable

Contaminant Source / Pathway

Source	Medium	Contaminant Transport	Medium	Contaminant Transport	Medium	Contaminant Transport
Refinery Operations Spills/Leaks	Soils	Direct Contact / Dust Emission				
		Leaching / Infiltration	Groundwater	Direct Contact		
				Abstraction / Surface Water Impact		
	Soils			Volatile Emmissions	Soil Vapour	Diffusion into Buildings
						Diffusion into Excavations

Note in relation to on-site occupational exposures.
The site's Occupational Health & Safety procedures which require use of PPE, monitoring and mitigation measures, are used to manage potential direct and indirect exposure pathways to onsite workers. Exposure assessment for each pathway is based on maintaining these procedures but considers potential exposure should non-standard works or works not following site procedures be undertaken.

Contaminant Receptor

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	○	–	○
Dermal	✗	○	–	–
Inhalation (Asbestos)	✗	○	–	–

Notes:
Waste material comprises hydrocarbons, mostly C16-C34 fraction
Although not shown in tables of results, asbestos is also present in the waste.
Exceedances of ecological criteria occurred for hydrocarbons and metals.

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Inhalation	✗	–	✗	–
Inhalation	–	○	✗	–

Notes:
Given the lack of enclosed spaces in the area, exposure pathways to receptors are currently considered limited to on-site excavation workers.

Exposure Route	On-Site Worker	On-Site Excavation	Off-Site Property	Ecological
Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	–
Ingestion /plant uptake	✗	✗	✗	✗
Dermal	✗	✗	✗	✗

Notes:
No exceedances of human health based criteria for groundwater.
Ammonia exceeded the ecological guideline however, this area is former swampy ground and ammonia is considered indicative of natural conditions due to vegetation decomposition. Zinc marginally exceeded ecological criteria and is not anticipated to present significant risk to downgradient receptors.
Although ecological criteria was exceeded for hydrocarbons, lack of detection in groundwater indicates the hydrocarbon is not leaching and is unlikely to impact ecological receptors.

Table A30. Soil Sample Results - CLOR Landfarm

All results in mg/kg (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
Vapour Intrusion						260	NL	3	NL	NL			230
LNAPL Indicator	700	1000	3500	10000									
HIL			27000	38000		26000	20000	430	99000	27000			81000
Ecological			1700	3300		215	170	75	135	165			180

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C10_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total
CMW07	05/11/15	0.6	Yes	<10	<50	230	110	340	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP33	05/11/15	1.1	Yes	28	4150	33200	6550	43900	28	4150	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP33	05/11/15	2.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP34	05/11/15	0.6	Yes	17	1230	15100	3680	20000	17	1230	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP34	05/11/15	2.6	Yes	<10	<50	580	180	760	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP35	05/11/15	1.1	Yes	29	2650	29300	6400	38400	29	2650	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP35	05/11/15	2.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP36	05/11/15	1.1	Yes	91	3740	38000	7330	49100	91	3740	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP36	05/11/15	2.1	Yes	37	<50	41300	14800	56100	37	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP38	05/11/15	0.6	Yes	262	8830	31800	5620	46200	262	8830	<0.2	<0.5	<0.5	<0.5	0.6	0.6
TP38	05/11/15	1.1	Yes	<10	420	3760	1030	5210	<10	420	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP38	05/11/15	2.1	Yes	<10	<50	<100	<100	<50	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP39	05/11/15	0.6	Yes	<10	140	210	<100	350	<10	140	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP40	05/11/15	1.1	Yes	<10	<50	560	150	710	<10	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP41	05/11/15	1.1	Yes	500	1020	3550	920	5490	500	1020	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP41	05/11/15	2.1	Yes	428	1480	3350	600	5430	428	1470	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

Table A30. Soil Sample Results - CLOR Landfarm

All results in mg/kg (unless otherwise stated)

Screening Level	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
Vapour Intrusion	NL										
LNAPL Indicator											
HIL	11000	40	4000	3000	900	3600	240000	1500	730	6000	400000
Ecological	370	1.4		160	22	310	140	1800		55	360

Bore_ID	Date	Sample Depth (m)	Eco_Receptor	Naphthalene	Benzo_a_pyrene	Total_PAHs	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
CMW07	05/11/15	0.6	Yes											
TP33	05/11/15	1.1	Yes	<0.5	7.9	232	16	1	128	452	285	5.3	62	1410
TP33	05/11/15	2.1	Yes											
TP34	05/11/15	0.6	Yes	<0.5	6	49.1	32	4	98	820	454	3.6	47	1640
TP34	05/11/15	2.6	Yes											
TP35	05/11/15	1.1	Yes											
TP35	05/11/15	2.1	Yes											
TP36	05/11/15	1.1	Yes											
TP36	05/11/15	2.1	Yes	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5
TP38	05/11/15	0.6	Yes											
TP38	05/11/15	1.1	Yes	<0.5	1.1	14.2	6	<1	60	160	211	1.8	17	1010
TP38	05/11/15	2.1	Yes											
TP39	05/11/15	0.6	Yes											
TP40	05/11/15	1.1	Yes											
TP41	05/11/15	1.1	Yes	6.3	<0.5	9.1	<5	<1	16	24	23	0.7	6	112
TP41	05/11/15	2.1	Yes											

Table A31. GW Monitoring Results - CLOR Landfarm

All results in µg/L (unless otherwise stated)

Screening Level	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
Vapour Intrusion					1000	1000		800	NL	NL			NL	
LNAPL Indicator							30000	3000						20000
Fresh / Marine								500	180	80	350	75		
Recreational								10	8000	3000			6000	

Well_ID	Sample_date	Eco_Receptor	TRH_C6_C10	TRH_C10_C16	TRH_C16_C34	TRH_C34_C40	TRH_C6_C10_F1	TRH_C10_C16_F2	TRH_C6_C16	Benzene	Toluene	Ethylbenzene	Xylene_o	Xylene_m_p	Xylene_Total	BTEX_Sum
OMW07	02/11/18	Yes	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
OMW07	05/02/19	Yes	<20	<50	1600	200	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
OMW07	06/05/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
OMW08	02/11/18	Yes	<20	<100	<100	<100	<20	<100	<70	<1	<2	<2	<2	<2	<2	<6
OMW08	05/02/19	Yes	<20	<50	<100	<100	<20	<50	<70	<1	<1	<1	<1	<2	<3	<6
OMW08	06/05/19	Yes	<80	310	700	<100	<80	310	310	<4	12	<4	<4	<8	<12	12

Table A31. GW Monitoring Results - CLOR Landfarm

All results in µg/L (unless otherwise stated)

Screening Level	Naphthalene	Arsenic	Cadmium	Chromium	Copper	Lead	Zinc	Ammonia
Vapour Intrusion	NL							
LNAPL Indicator								
Fresh / Marine	16	24	0.2	27.4	1.3	2.2	8	910
Recreational		50	5	50		100		500

Well_ID	Sample_date	Eco_Receptor	Naphthalene	Arsenic	Cadmium	Chromium	Copper	Lead	Zinc	Ammonia
OMW07	02/11/18	Yes	<1	1	<0.1	<1	<1	<1	<5	2270
OMW07	05/02/19	Yes	<10							
OMW07	06/05/19	Yes	<10							
OMW08	02/11/18	Yes	<1	1	<0.1	<1	<1	<1	9	3040
OMW08	05/02/19	Yes	<10							
OMW08	06/05/19	Yes	<40							

Table A32. Soil Vapour Sample Results

All results in µg/m3 (unless otherwise stated)

Screening Level	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_Total	Naphthalene
Residential (0-1m)	180,000	130,000	1,000	1,300,000	330,000	220,000	800
Commercial/industrial (0-1m)	680,000	500,000	4,000	4,800,000	1,300,000	840,000	3,000
Maintenance worker (0-2m)	180,000	NL	760,000	NL	NL	NL	880,000

Bore_ID	Location	Date	Sample Depth (m)	Potential Receptors	TRH_C6_C10_F1	TRH_C10_C16_F2	Benzene	Toluene	Ethylbenzene	Xylene_Total	Naphthalene
SV01	Nth Tank Farm	09/04/19	0.8	Residential / maintenance	12,000	3,500	64	340	10	4,300	16
SV01	Nth Tank Farm	09/04/19	1.35	Residential / maintenance	25,000	7,700	160	770	25	13,900	32
SV02	NW Tank Farm	09/04/19	0.5	Commercial / maintenance	66,000	140,000	<10	<10	<10	40	<10
SV02	NW Tank Farm	09/04/19	0.85	Commercial / maintenance	110,000	66,000	56	<50	180	2,630	<50
SV03	NW Tank Farm	09/04/19	sub-slab	Commercial / maintenance	1,000	<100	<5	44	10	41	<5
SV04	Nth Process Unit	09/04/19	0.55	Commercial / maintenance	84,000,000	810,000	890,000	970,000	19,000	1,880,000	1,500
SV05	Sth Process Unit	09/04/19	0.65	Commercial / maintenance	38,000,000	33,000	5,200	5,300	7,700	23,610	<50
SV05	Sth Process Unit	09/04/19	1.1	Commercial / maintenance	480,000,000	200,000	<50	430	34,000	132,300	120
SV06a	Jet Remediation	09/04/19	0.6	Commercial / maintenance	3,300,000	680,000	510	920	2,700	530	130
SV06b	Jet Remediation	09/04/19	1.5	Commercial / maintenance	2,700,000	500,000	200	730	300	570	810

FIGURES

Caltex Kurnell - Site Location and Surrounding Landuse





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Caltex_Site_Boundary

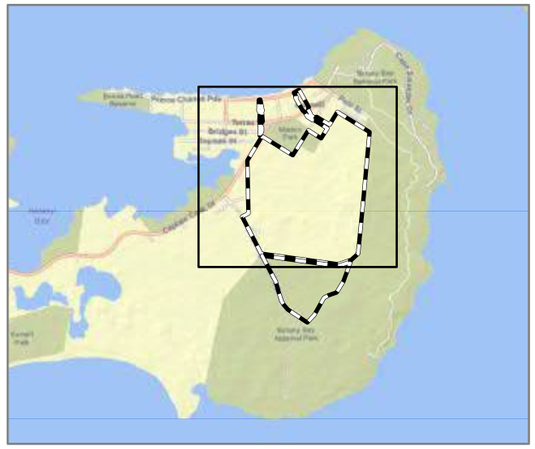
0 500 1,000 1,500

metres

FIGURE 1

CALTEX

Caltex Kurnell - Site Landuse



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Landuse

- Offices
- Pipeway
- Process Unit
- Tankfarm
- Warehouse
- Firefighting
- Non-Operational Areas

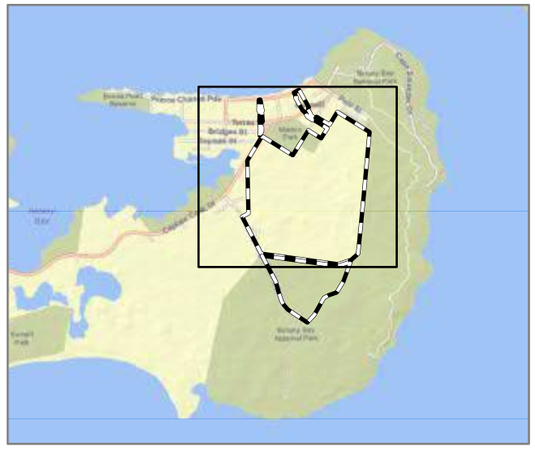
0 500

metres

FIGURE 2

CALTEX

Caltex Kurnell - Hydrogeology



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

Receptor_type

Fresh

Marine

Surface_Water_Receptor_100m_Buffer

Groundwater_Divide

May19_GW_Elevation_mAHD

≤1.0

≤1.6

≤2.2

≤2.8

≤3.4

≤4.2

≤5.0

≤6.0

≤7.5

≤9.0

≤11.0

≤14.0

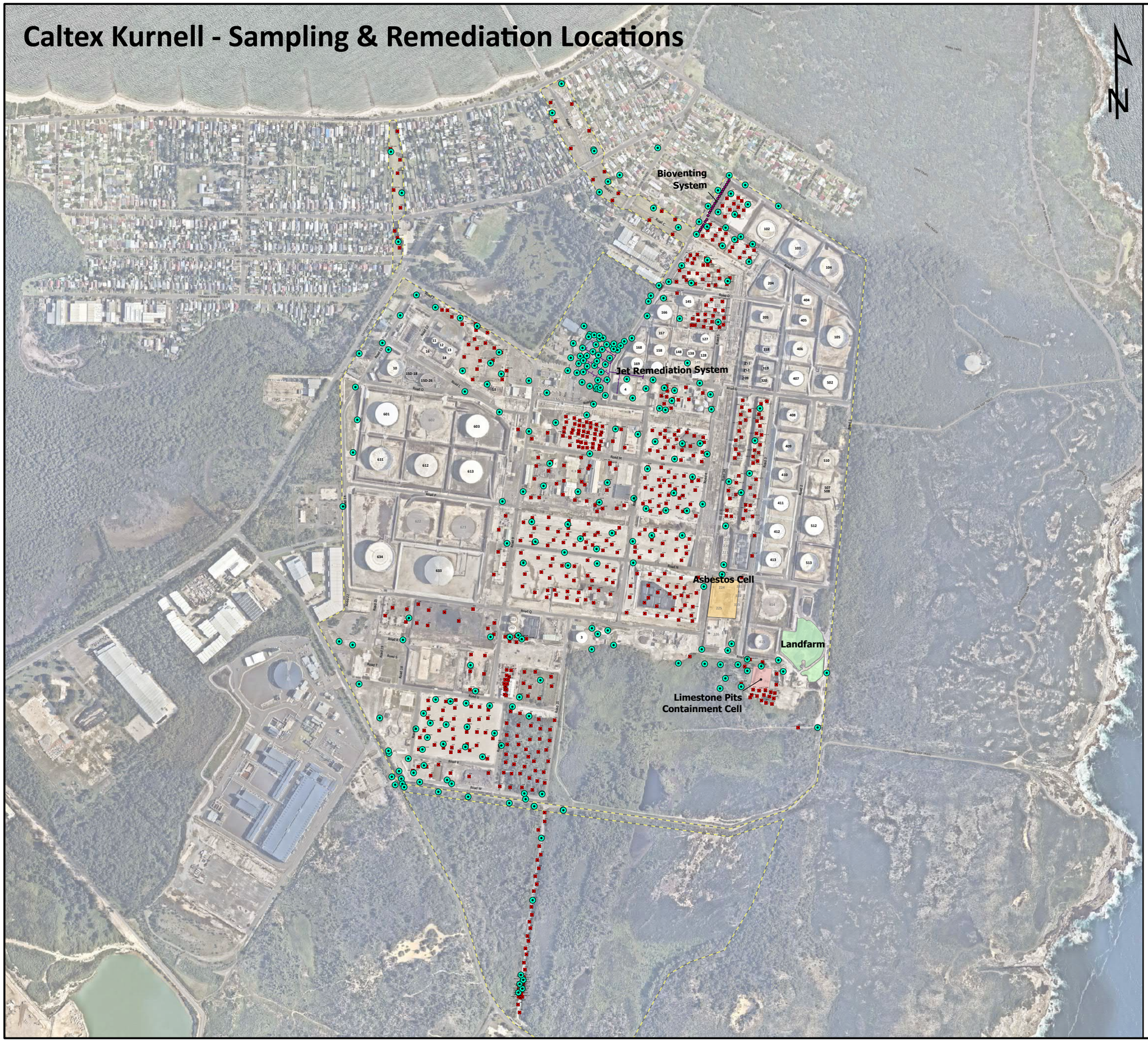
0 500

metres

FIGURE 3

CALTEX

Caltex Kurnell - Sampling & Remediation Locations





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

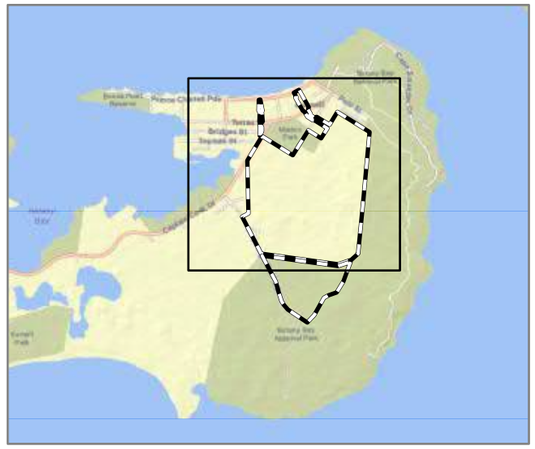
- Site_Boundary
- Borehole_location
- Groundwater_well_location

0 500
metres

FIGURE 4

CALTEX

Caltex Kurnell - Groundwater Arsenic Concentration



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

Groundwater_Divide

GW_Contour_May19 mAHD

- ≤1.0
- ≤1.6
- ≤2.2
- ≤2.8
- ≤3.4
- ≤4.2
- ≤5.0
- ≤6.0
- ≤7.5
- ≤9.0
- ≤11.0
- ≤14.0

Arsenic_off_site_Jul15

- Not detected
- ≤10 ug/L
- ≤20 ug/L
- ≤50 ug/L
- >50 ug/L

Arsenic_on_site_Nov18

- Not detected
- ≤10 ug/L
- ≤20 ug/L
- ≤50 ug/L
- >50 ug/L

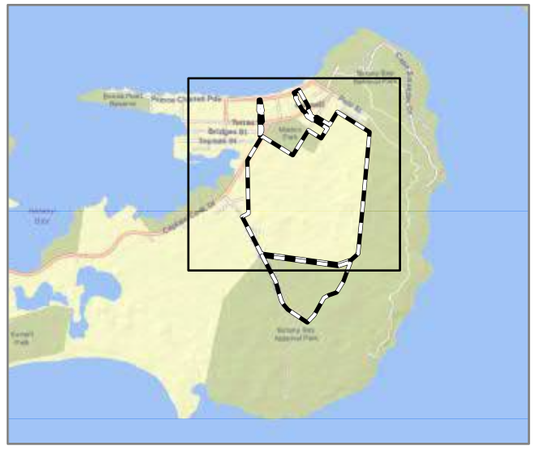
0 125 250 375 500 625

metres

FIGURE 6

CALTEX

Caltex Kurnell - Groundwater Copper Concentration



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

Groundwater_Divide

GW_Contour_May19 mAHD

- ≤1.0
- ≤1.6
- ≤2.2
- ≤2.8
- ≤3.4
- ≤4.2
- ≤5.0
- ≤6.0
- ≤7.5
- ≤9.0
- ≤11.0
- ≤14.0

Copper_off_site_Jul15

- Not detected
- ≤2 ug/L
- ≤5 ug/L
- ≤10 ug/L
- >10 ug/L

Copper_on_site_Nov18

- Not detected
- ≤2 ug/L
- ≤5 ug/L
- ≤10 ug/L
- >10 ug/L

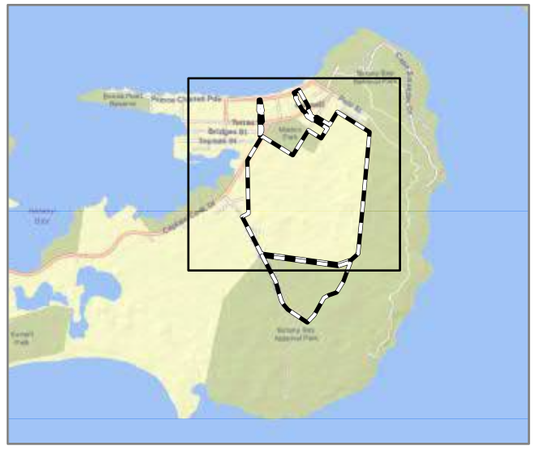
0 125 250 375 500 625

metres

FIGURE 7

CALTEX

Caltex Kurnell - Groundwater Zinc Concentration



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

Groundwater_Divide

GW_Contour_May19 mAHD

- ≤1.0
- ≤1.6
- ≤2.2
- ≤2.8
- ≤3.4
- ≤4.2
- ≤5.0
- ≤6.0
- ≤7.5
- ≤9.0
- ≤11.0
- ≤14.0

Zinc_on_site_Nov18

- Not detected
- ≤5 ug/L
- ≤10 ug/L
- ≤20 ug/L
- >20 ug/L

Zinc_off_site_Jul15

- Not detected
- ≤5 ug/L
- ≤10 ug/L
- ≤20 ug/L
- >20 ug/L

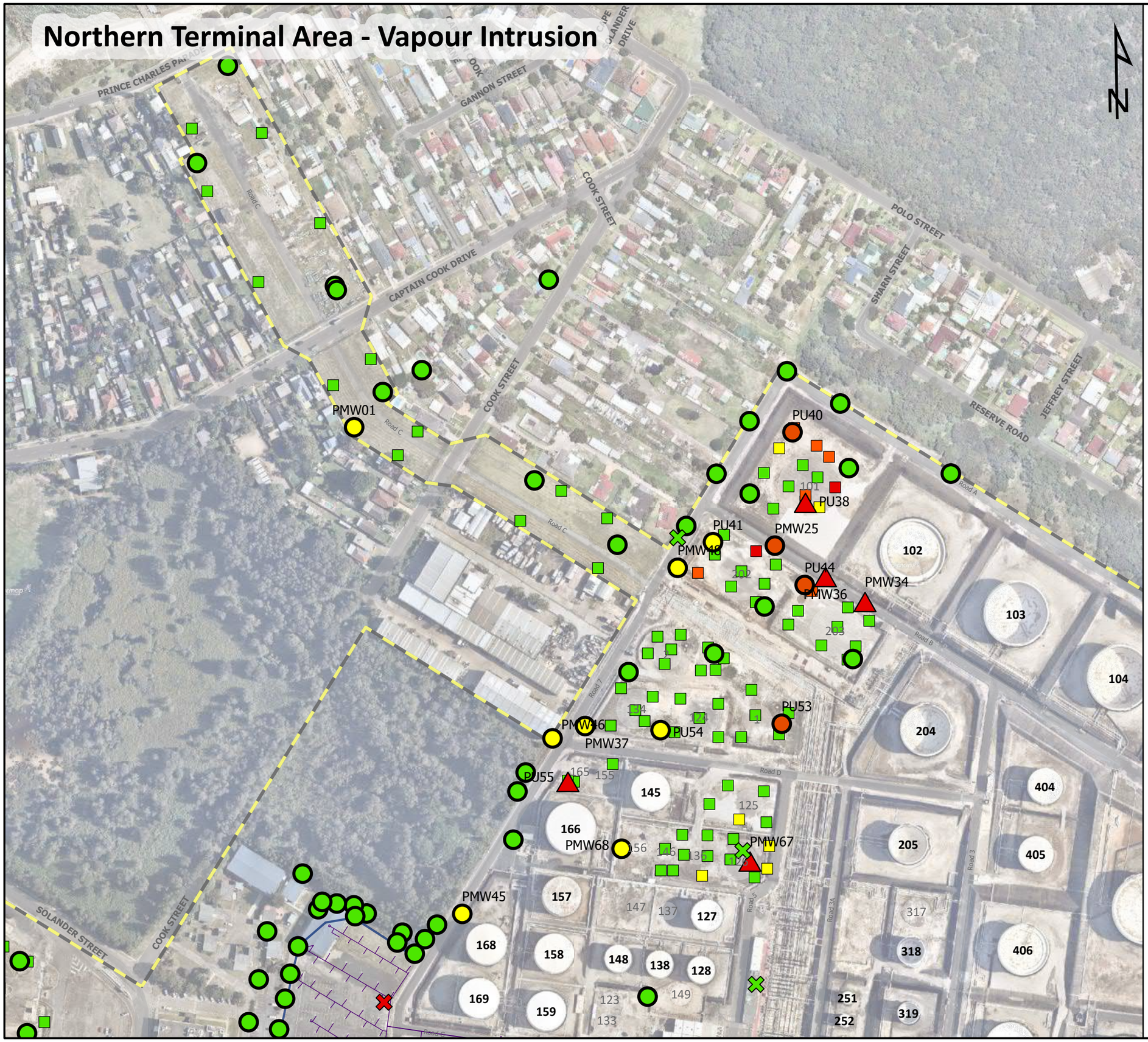
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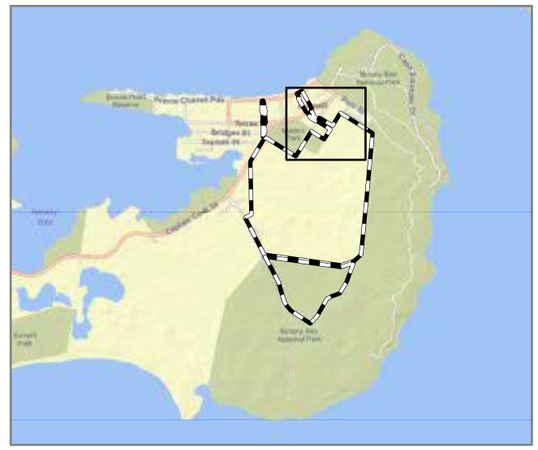
metres

FIGURE 8

CALTEX

Northern Terminal Area - Vapour Intrusion





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

Soil Vapour Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

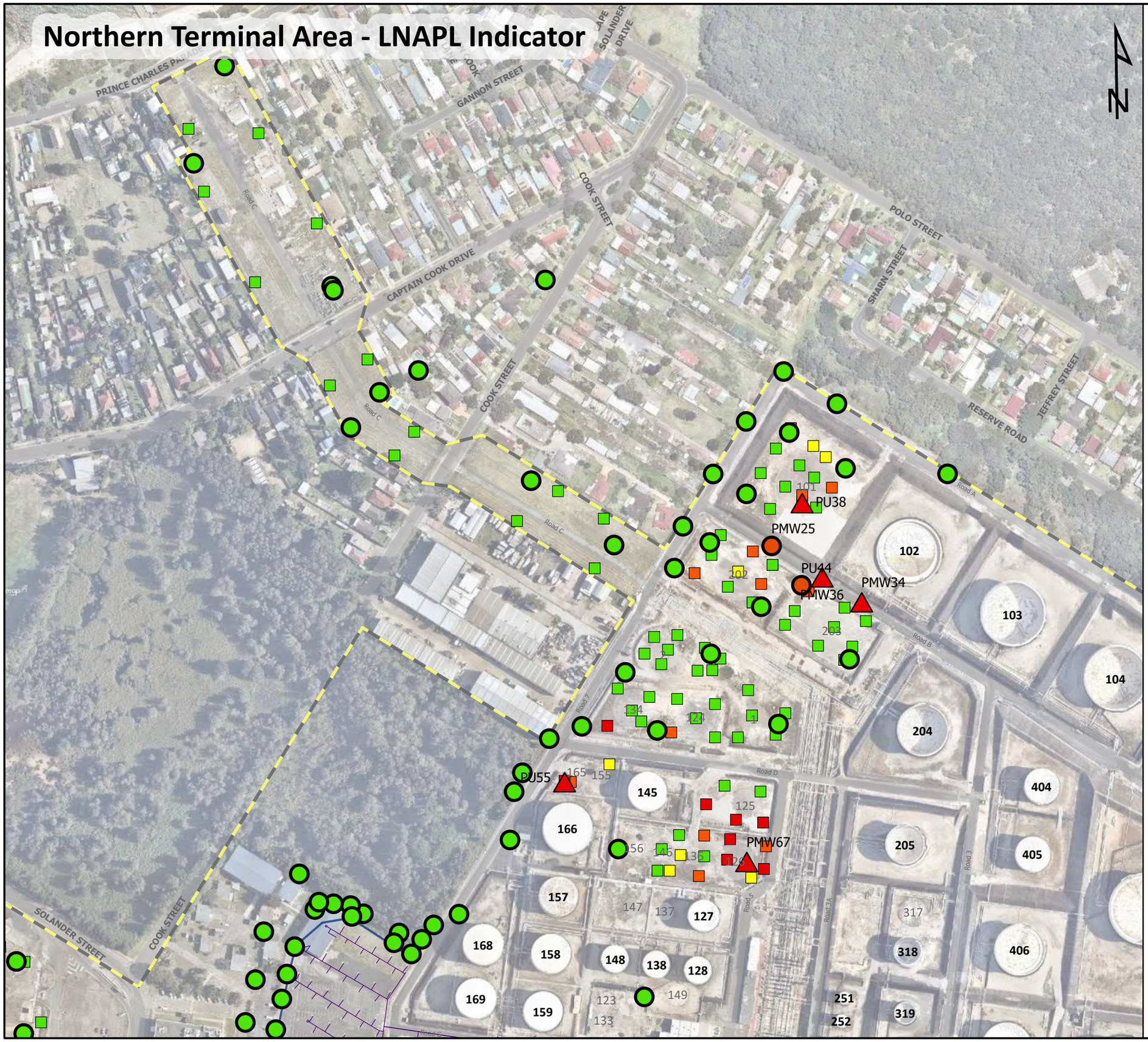
0 40 80 120 160 200

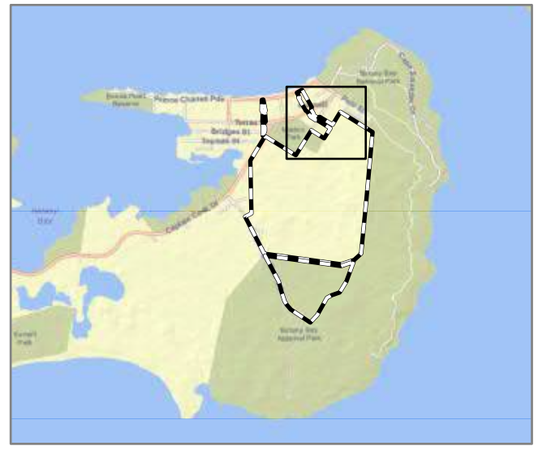
metres

FIGURE 14

CALTEX

Northern Terminal Area - LNAPL Indicator





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

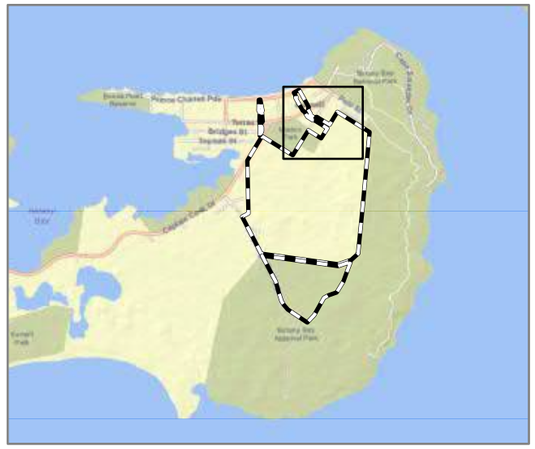
0 40 80 120 160 200

metres

FIGURE 15

CALTEX

Northern Terminal Area - HIL / Recreational



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

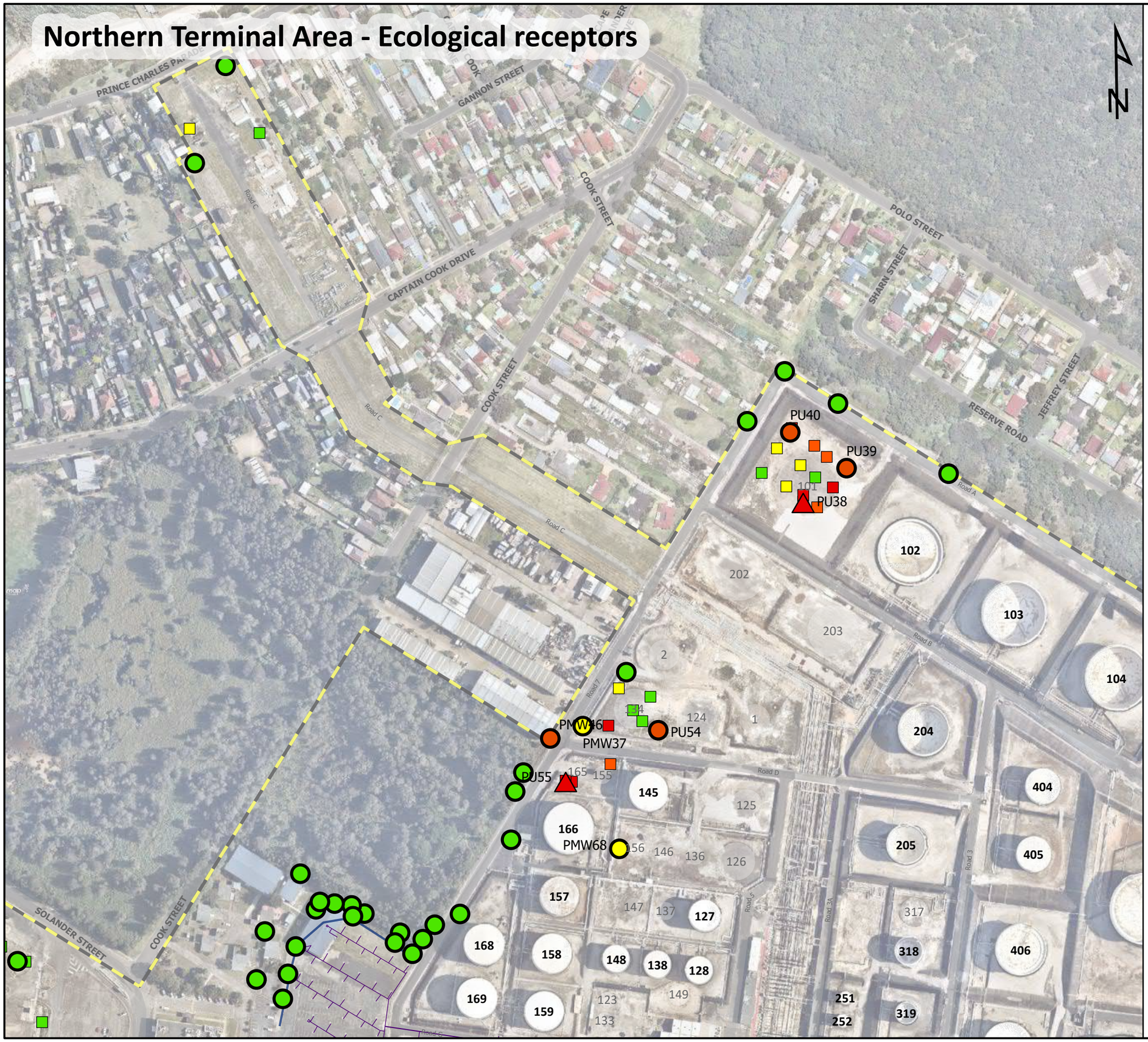
0 40 80 120 160 200

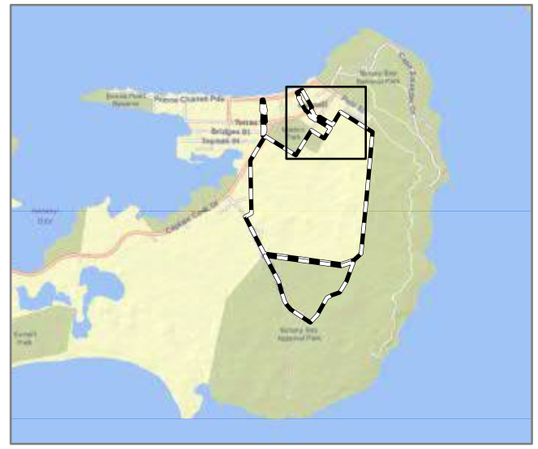
metres

FIGURE 16

CALTEX

Northern Terminal Area - Ecological receptors





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

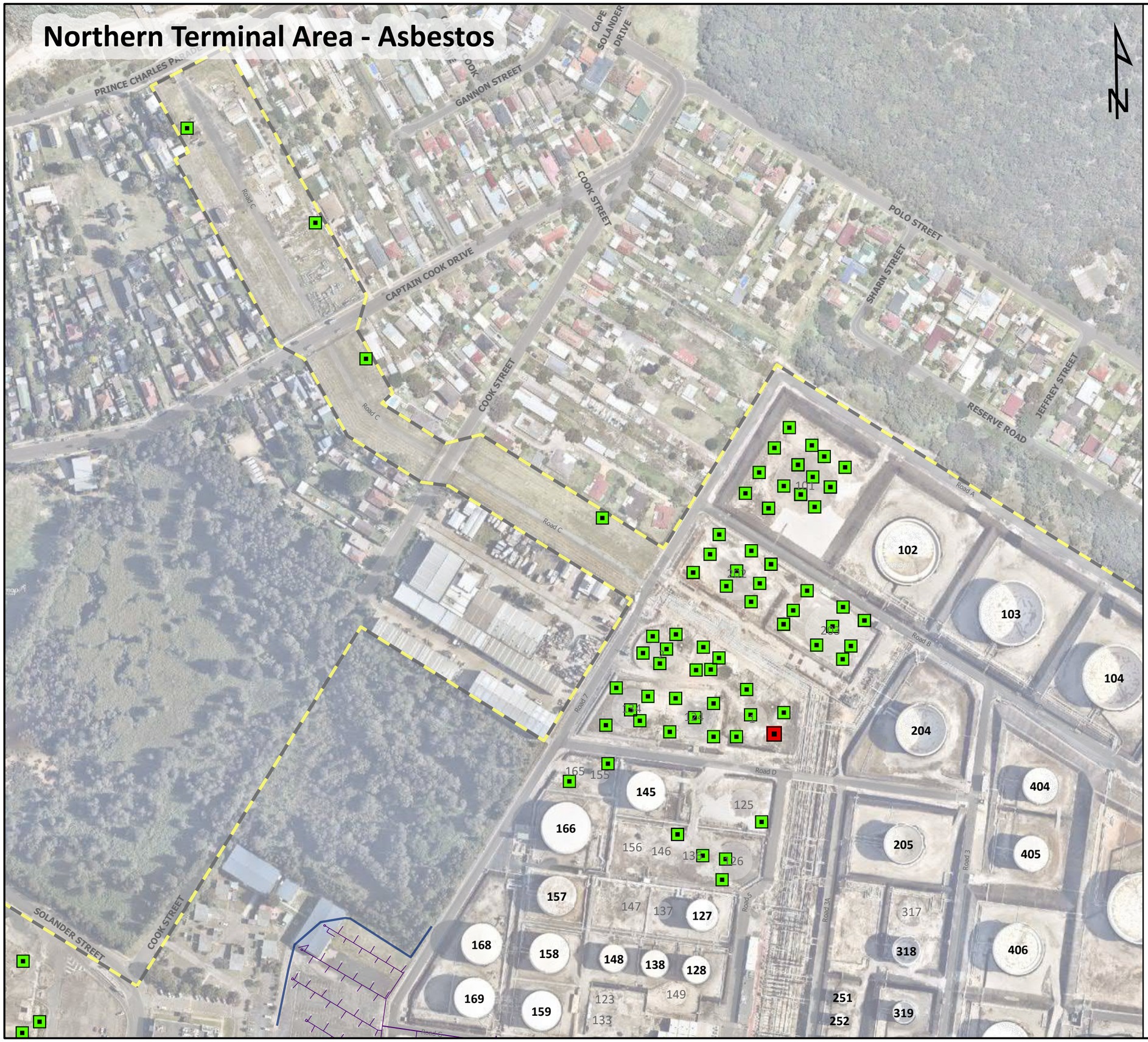
0 40 80 120 160 200

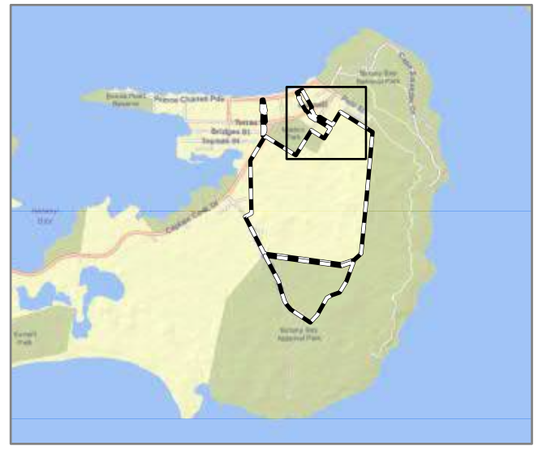
metres

FIGURE 17

CALTEX

Northern Terminal Area - Asbestos





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

Soil Asbestos Exceedances

- Below NEPM (<0.001%w/w)
- Exceeds NEPM (>0.001%w/w)

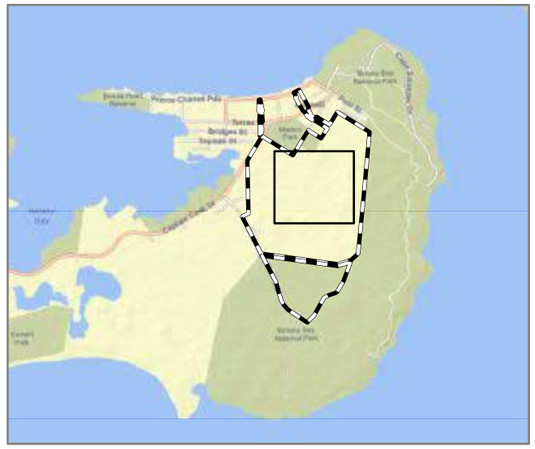
0 40 80 120 160 200

metres

FIGURE 18

CALTEX

Central Terminal Area - Vapour Intrusion



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances
- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances
- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

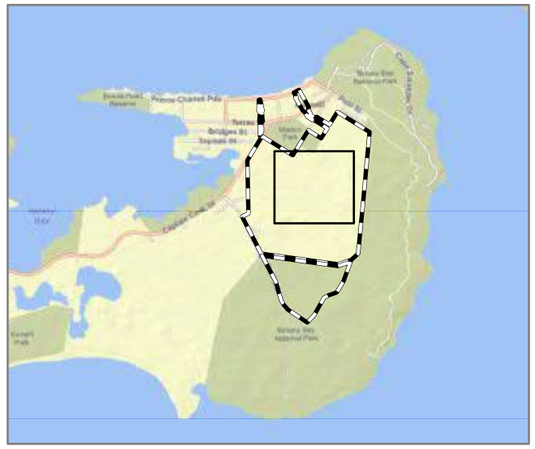
Soil Vapour Tier 1 Exceedances
- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

0 40 80 120 160 200
metres

FIGURE 19

CALTEX

Central Terminal Area - LNAPL Indicator



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

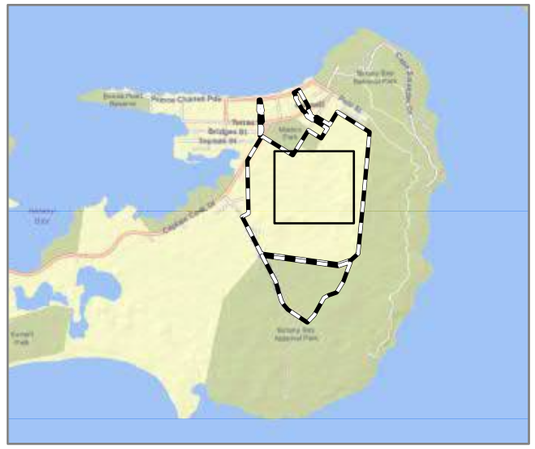
0 40 80 120 160 200

metres

FIGURE 20

CALTEX

Central Terminal Area - HIL / Recreational



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

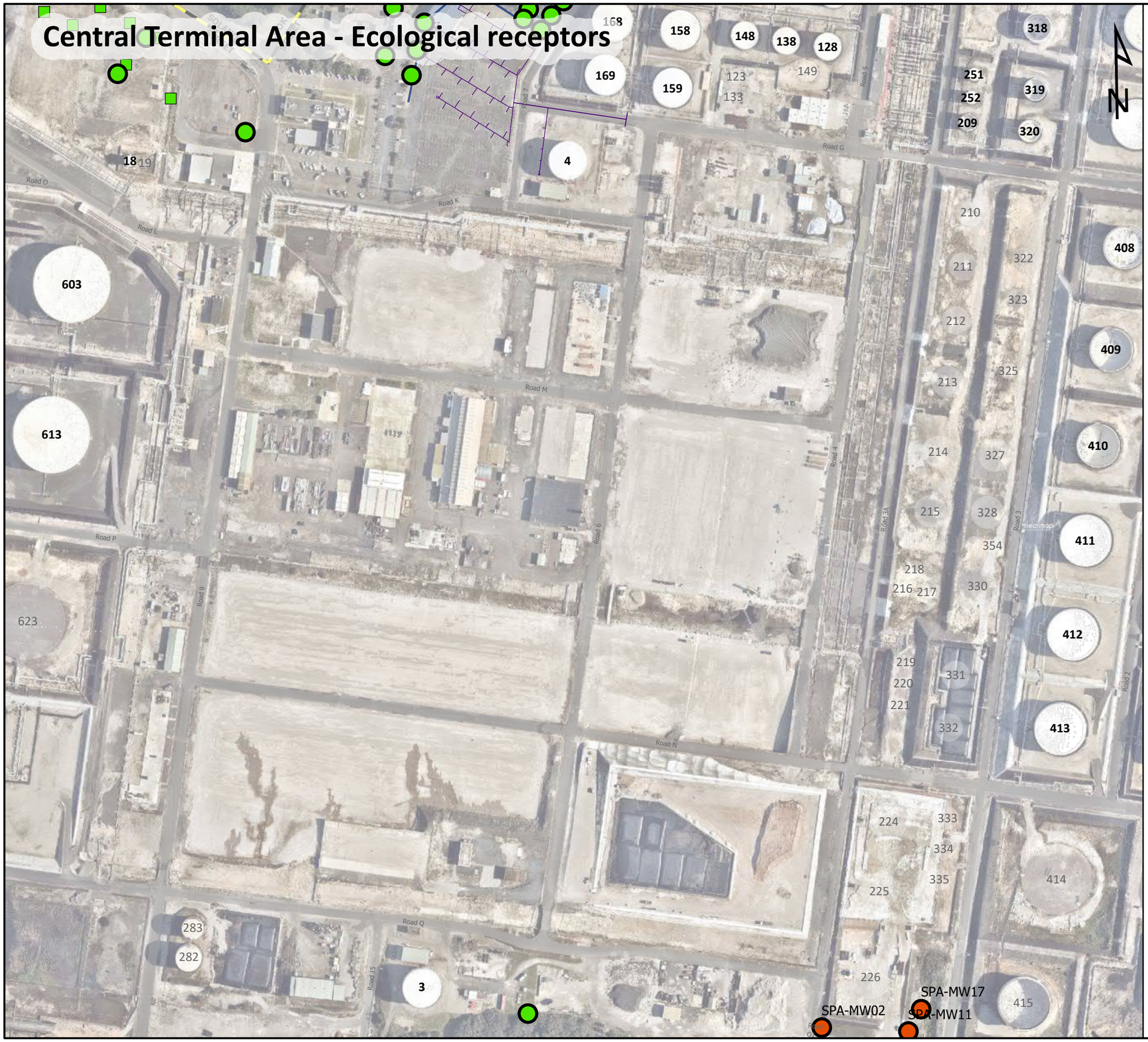
0 40 80 120 160 200

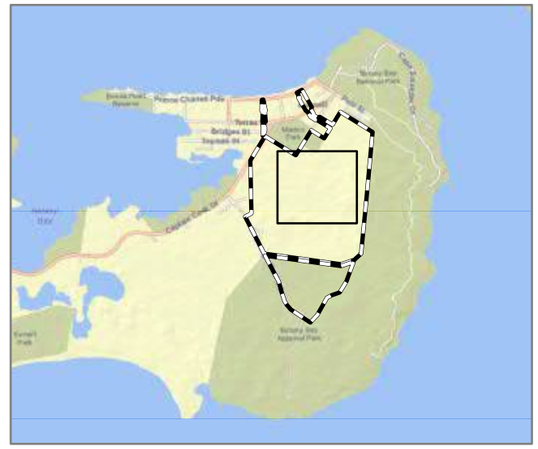
metres

FIGURE 21

CALTEX

Central Terminal Area - Ecological receptors





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

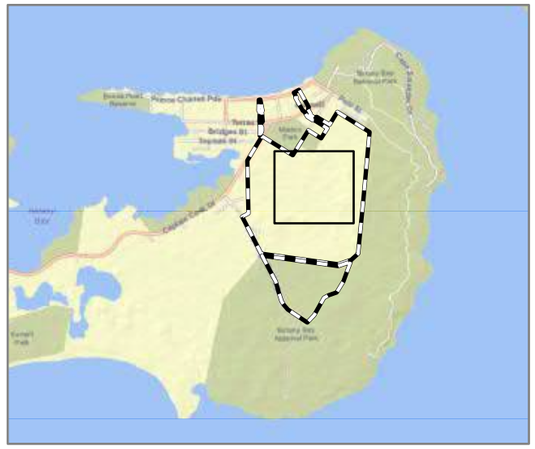
0 40 80 120 160 200

metres

FIGURE 22

CALTEX

Central Terminal Area - Asbestos



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

Soil Asbestos Exceedances

- Below NEPM (<0.001%w/w)
- Exceeds NEPM (>0.001%w/w)

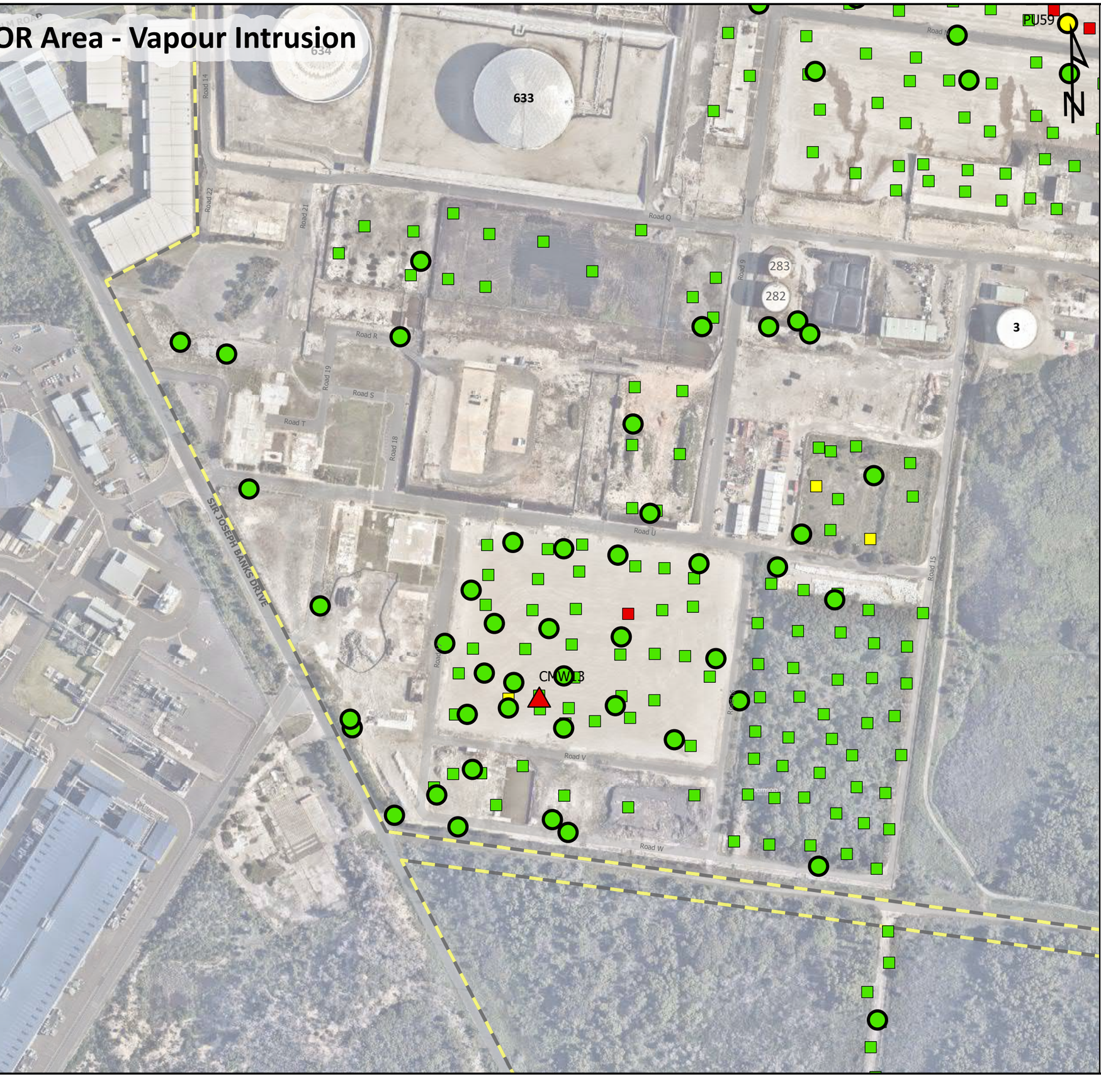
0 40 80 120 160 200

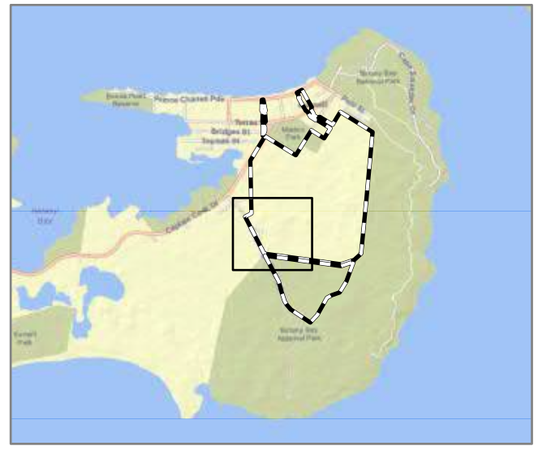
metres

FIGURE 23

CALTEX

CLOR Area - Vapour Intrusion





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

Soil Vapour Tier 1 Exceedances

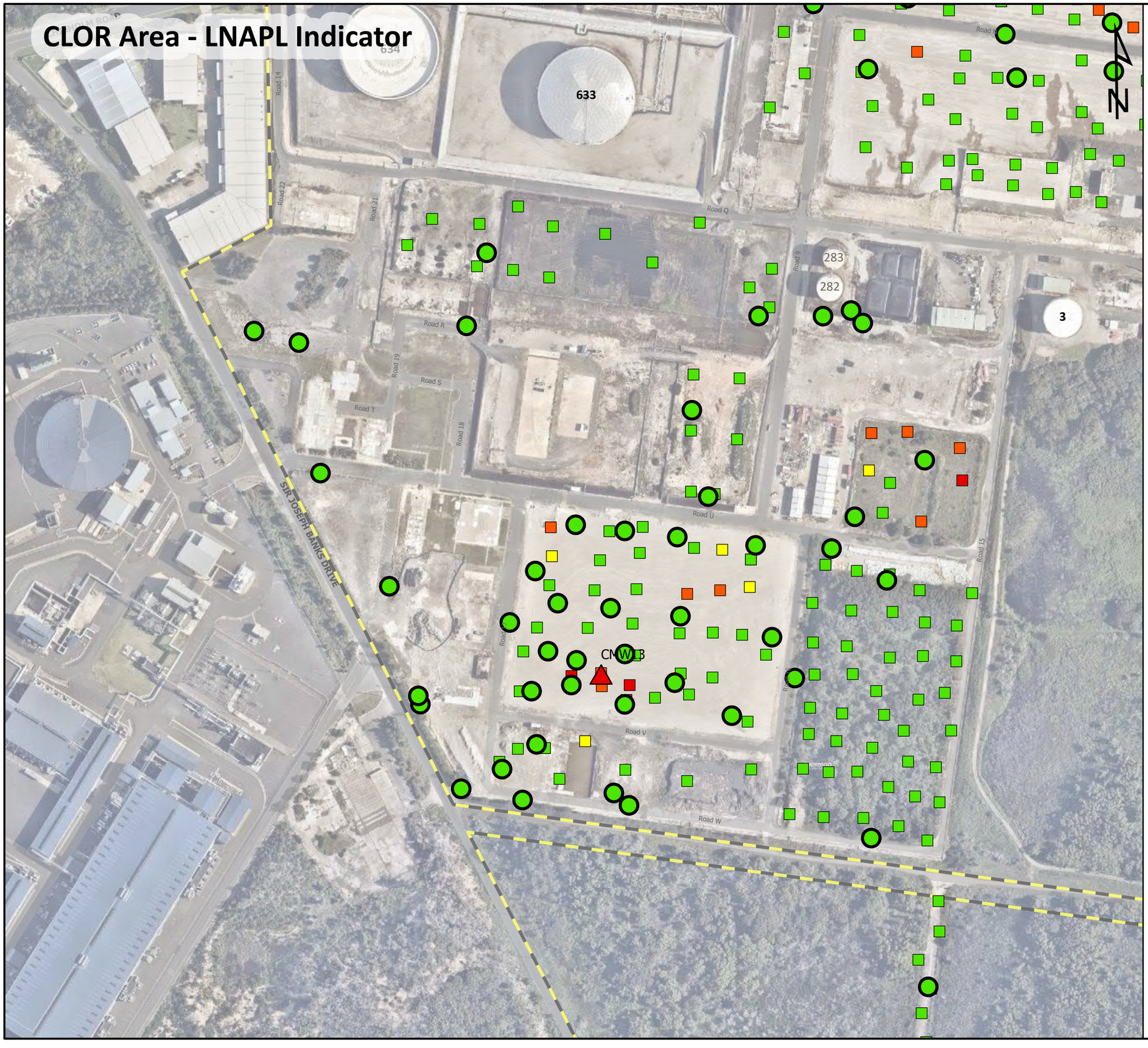
- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

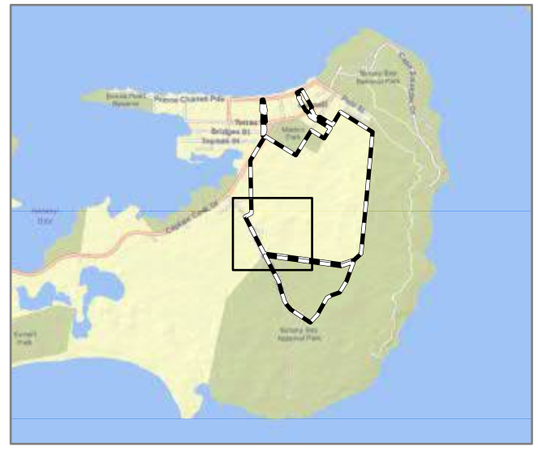
0 40 80 120 160 200
metres

FIGURE 24

CALTEX

CLOR Area - LNAPL Indicator





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

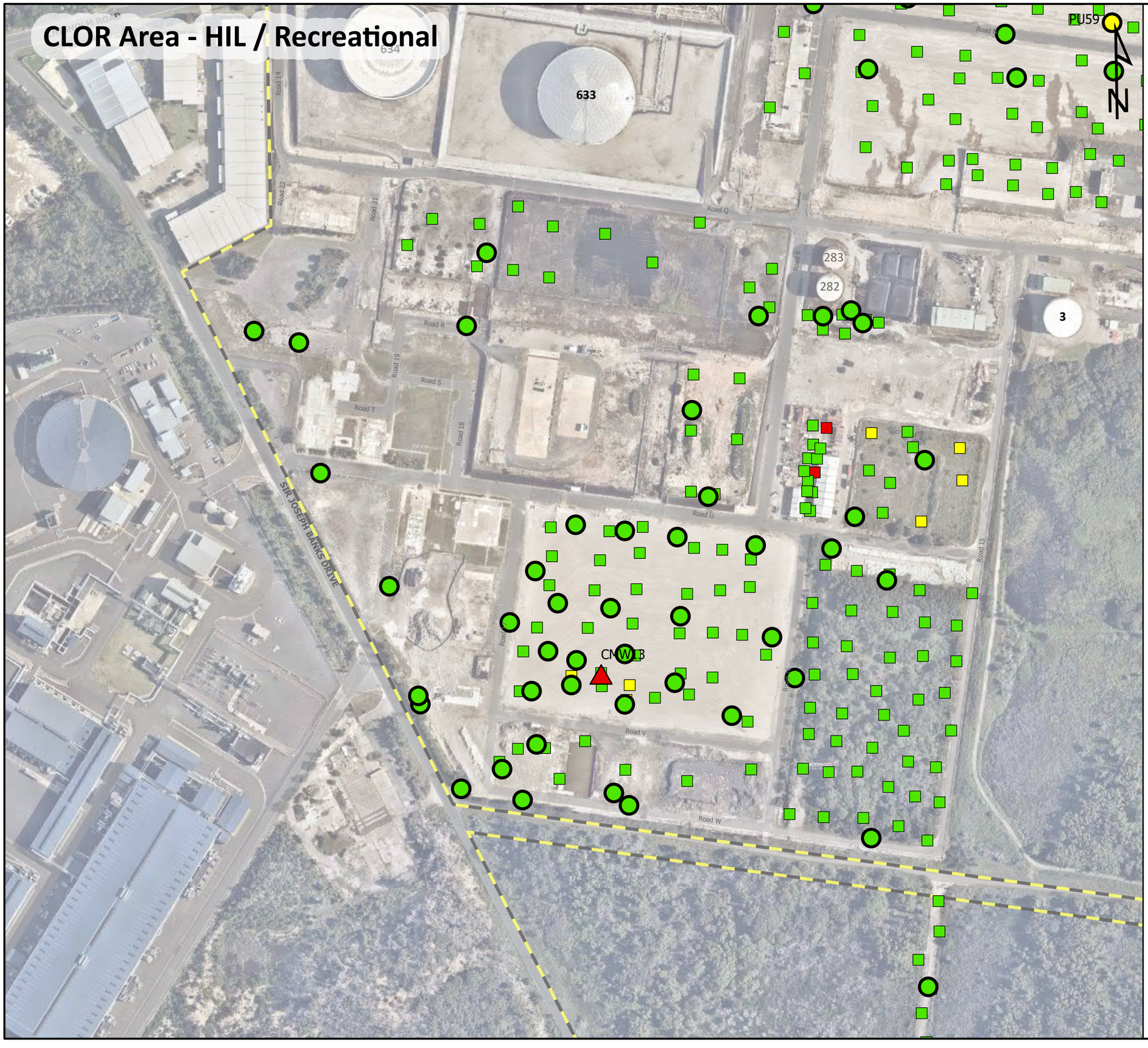
0 40 80 120 160 200

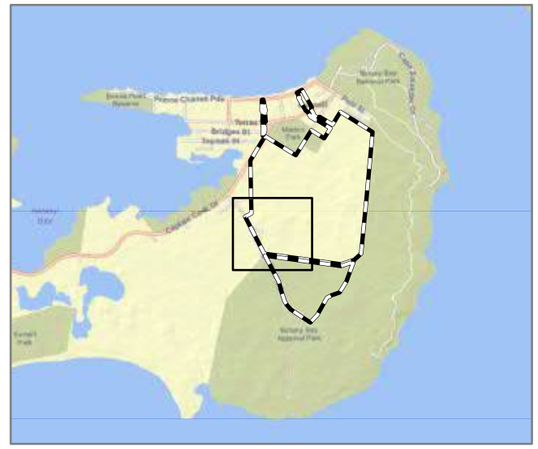
metres

FIGURE 25

CALTEX

CLOR Area - HIL / Recreational





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

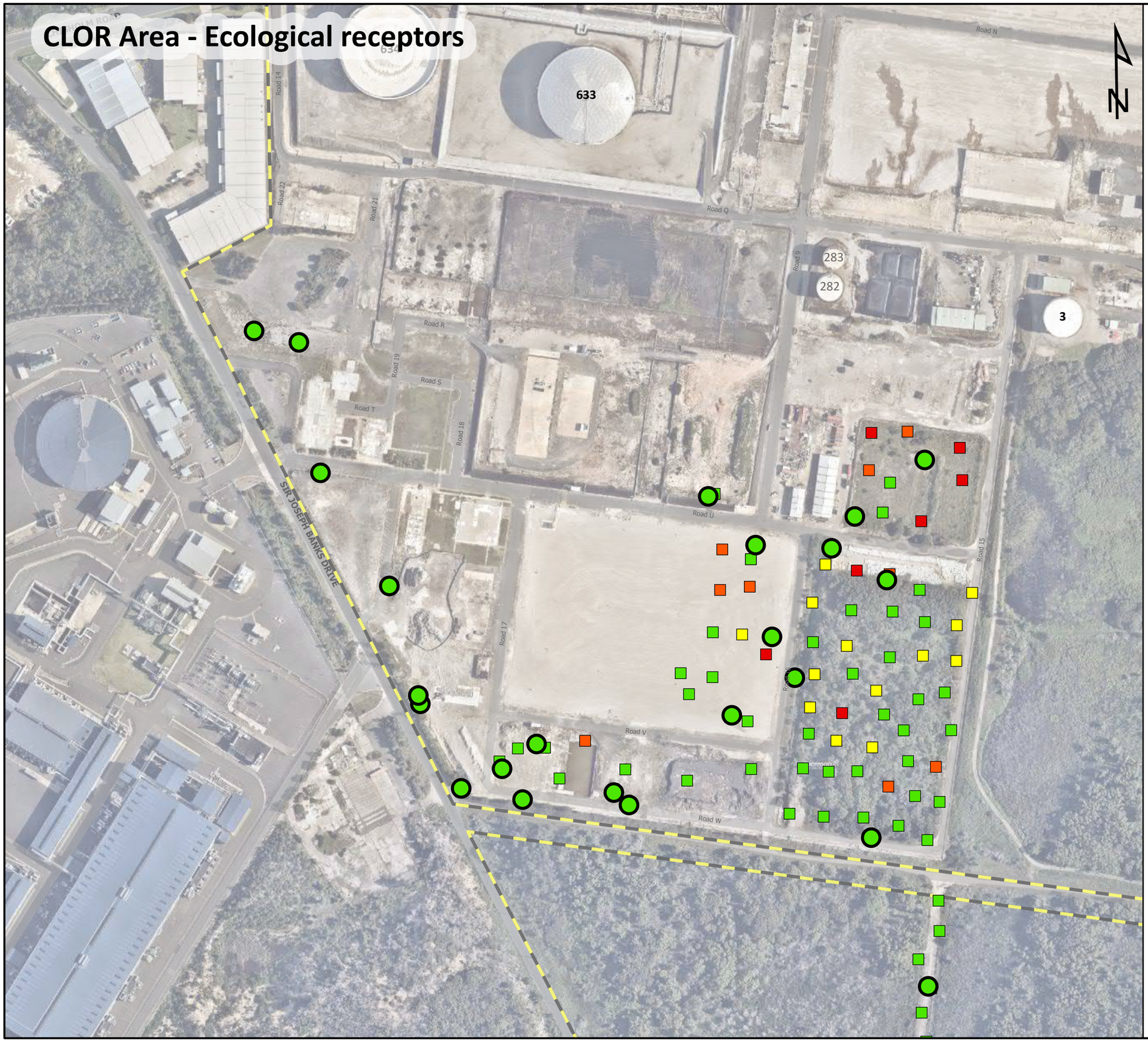
0 40 80 120 160 200

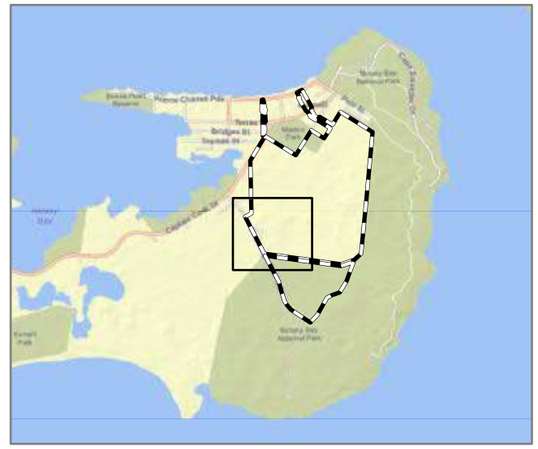
metres

FIGURE 26

CALTEX

CLOR Area - Ecological receptors





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

0 40 80 120 160 200

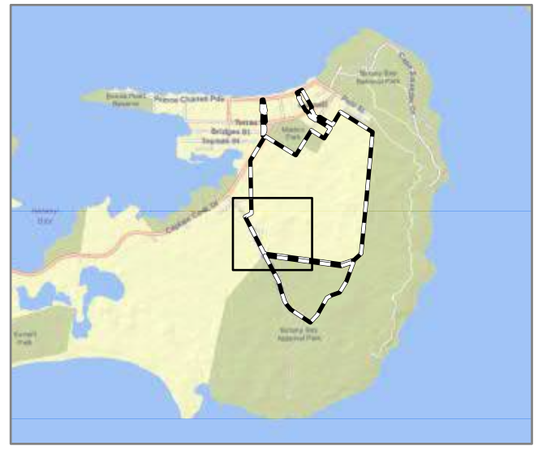
metres

FIGURE 27

CALTEX

CLOR Area - Asbestos





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

Soil Asbestos Exceedances

- Below NEPM (<0.001%w/w)
- Exceeds NEPM (>0.001%w/w)

0 40 80 120 160 200

metres

FIGURE 28

CALTEX

Waste Management Area - Vapour Intrusion

PMW61

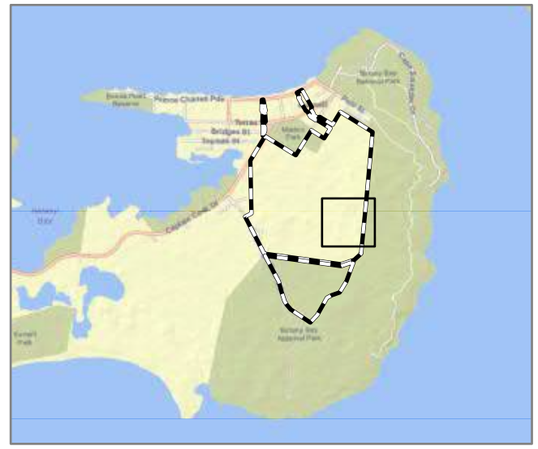
SPA-MW10R

332
413
513
224
333
334
335
225
414
226
415

Road N
Road 2
Road 1
Road 3A
Road 3
Road Q
Road R

TABBIGAI GAP TRAIL

N



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

Soil Vapour Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

0 30 60 90 120 150

metres

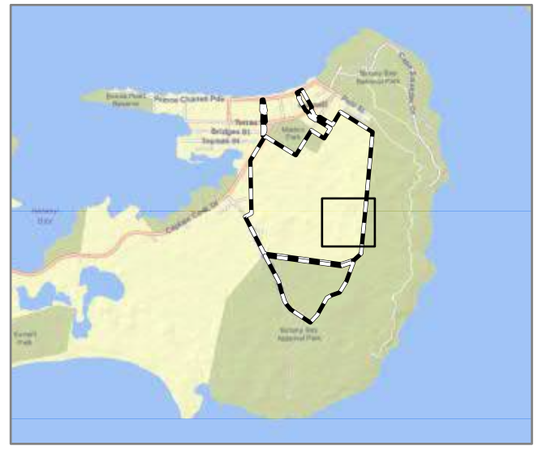
FIGURE 34

CALTEX

Waste Management Area - LNAPL Indicator

PMW61

332
413
513
224
333
334
335
225
414
226
415
Road N
Road 1
Road 2
Road 3
Road 3A
Road Q
TABBIGAI GAP TRAIL



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

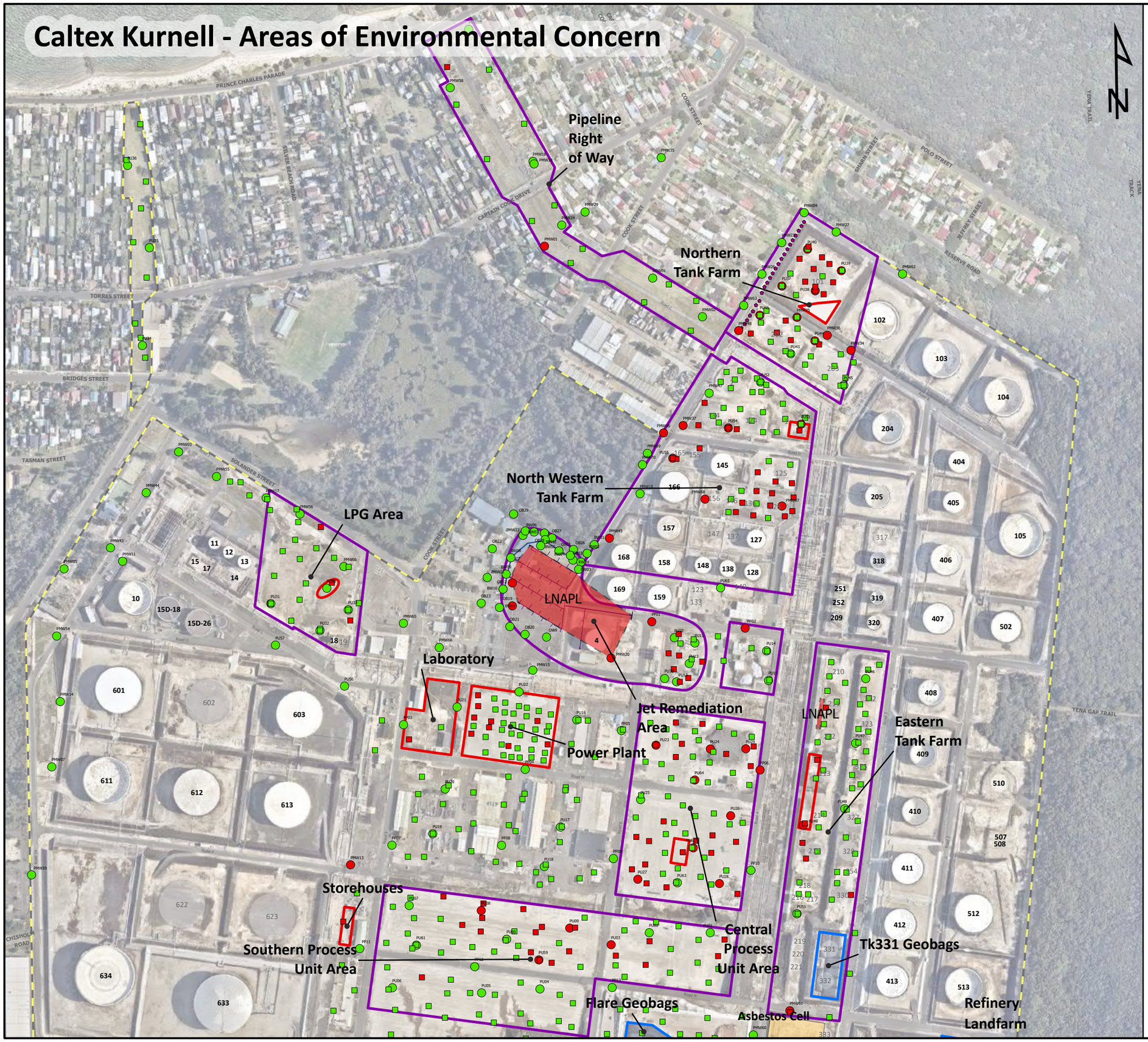
- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

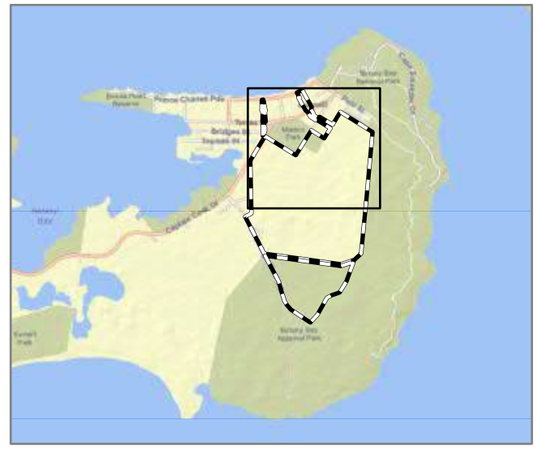
0 30 60 90 120 150
metres

FIGURE 35

CALTEX

Caltex Kurnell - Areas of Environmental Concern





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

AECs

- Asbestos Contamination
- Land Contamination
- Waste Storage

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

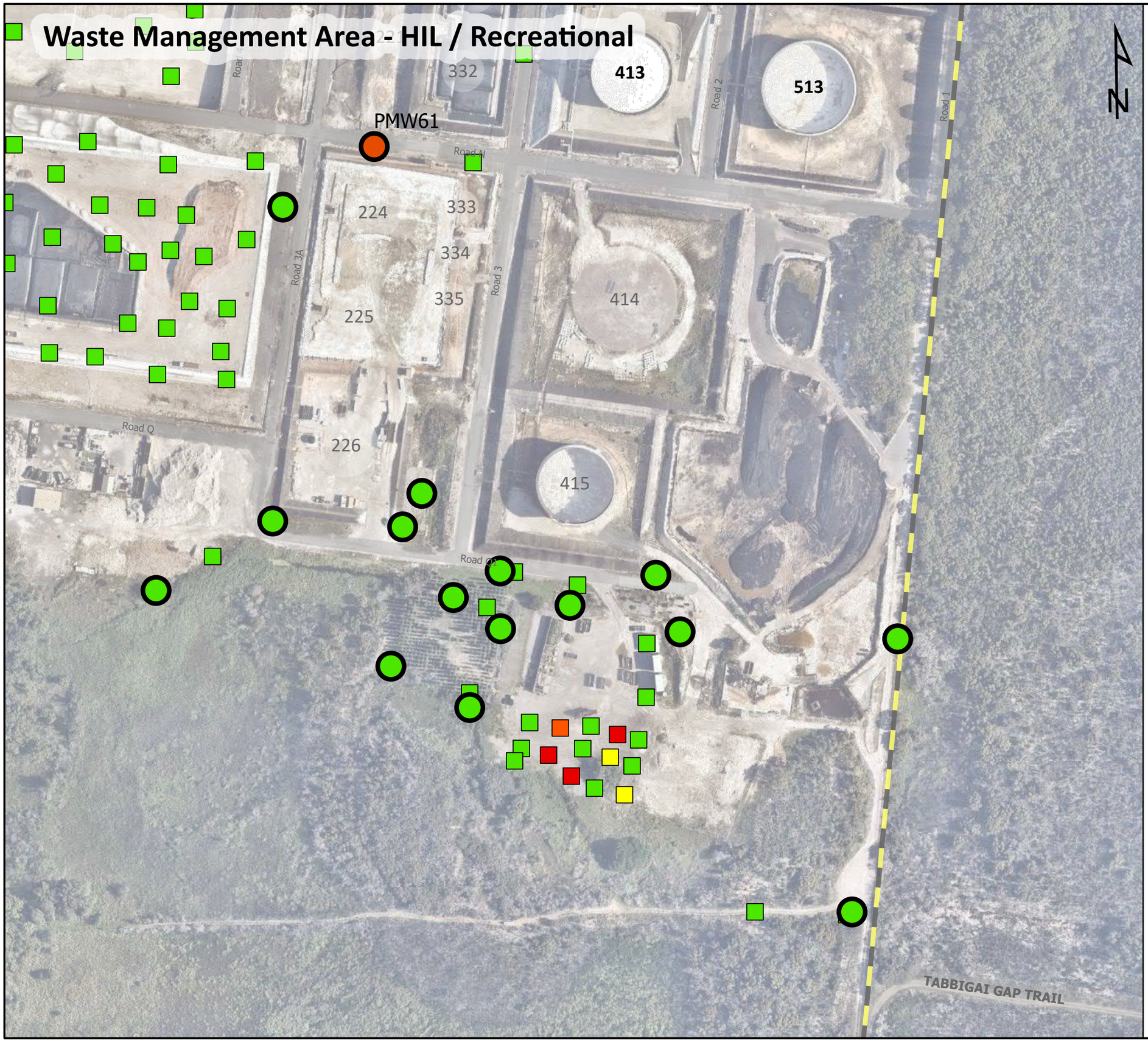
0 75 150 225 300 375

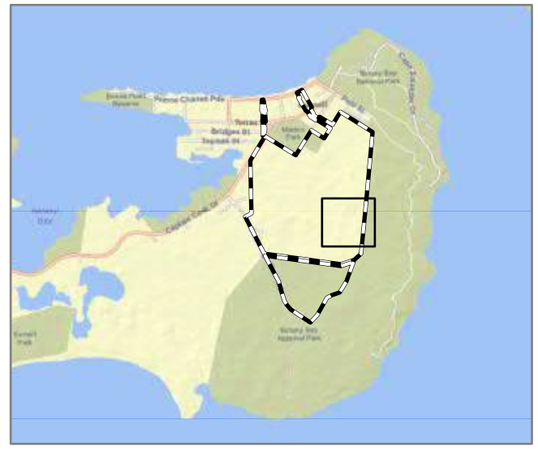
metres

FIGURE 39

CALTEX

Waste Management Area - HIL / Recreational





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

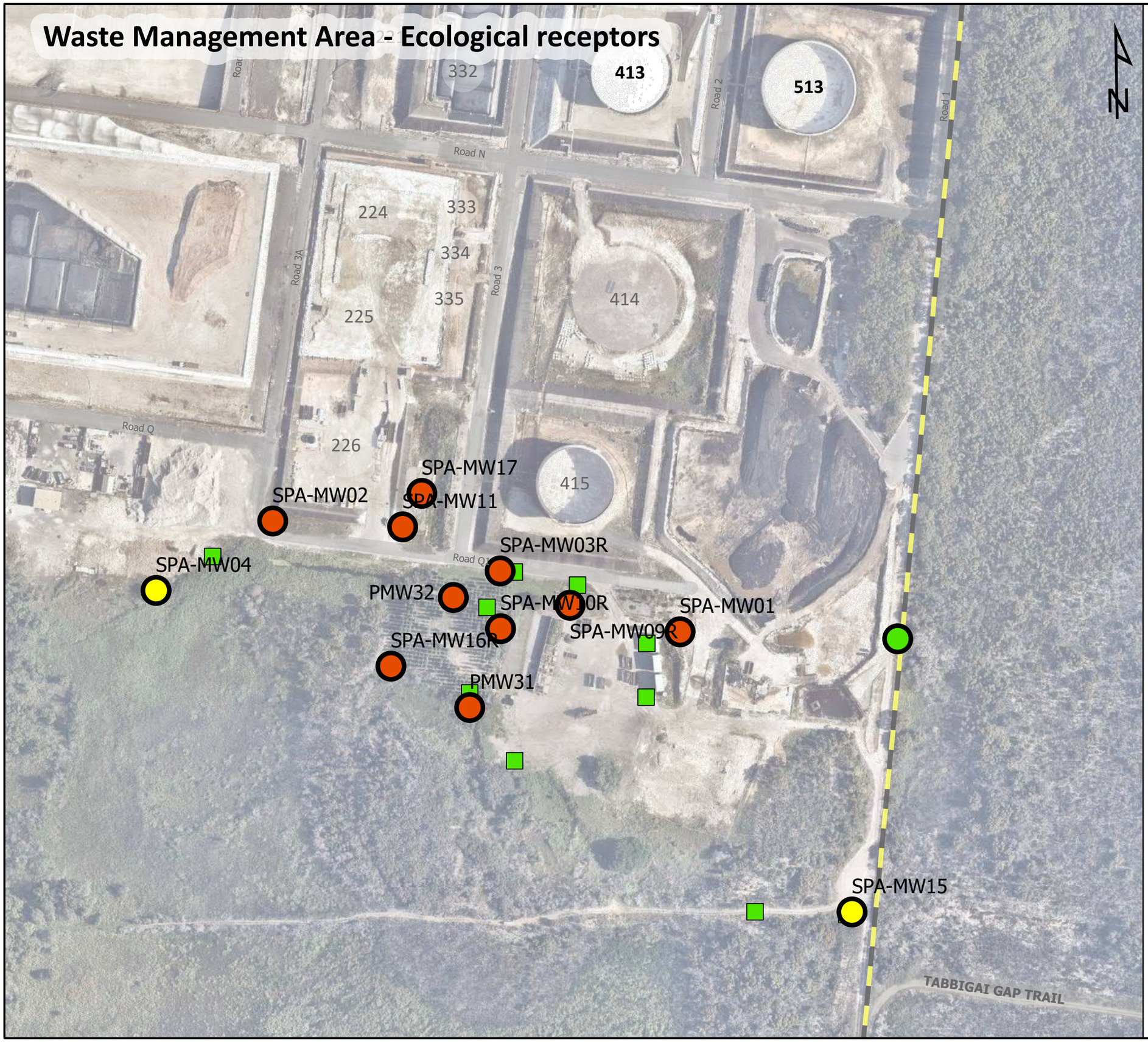
0 30 60 90 120 150

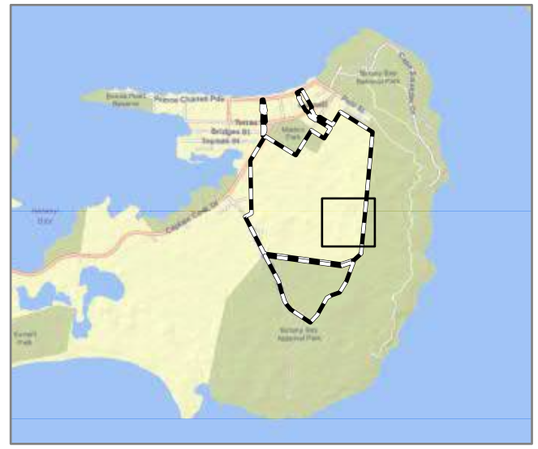
metres

FIGURE 36

CALTEX

Waste Management Area - Ecological receptors





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

GW Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (>2.5 times criteria)
- LNAPL

Soil Tier 1 Exceedances

- Below criteria
- Minor exceedance (<2.5 times criteria)
- Exceedance (2.5-10 times criteria)
- Exceedance (>10 times criteria)

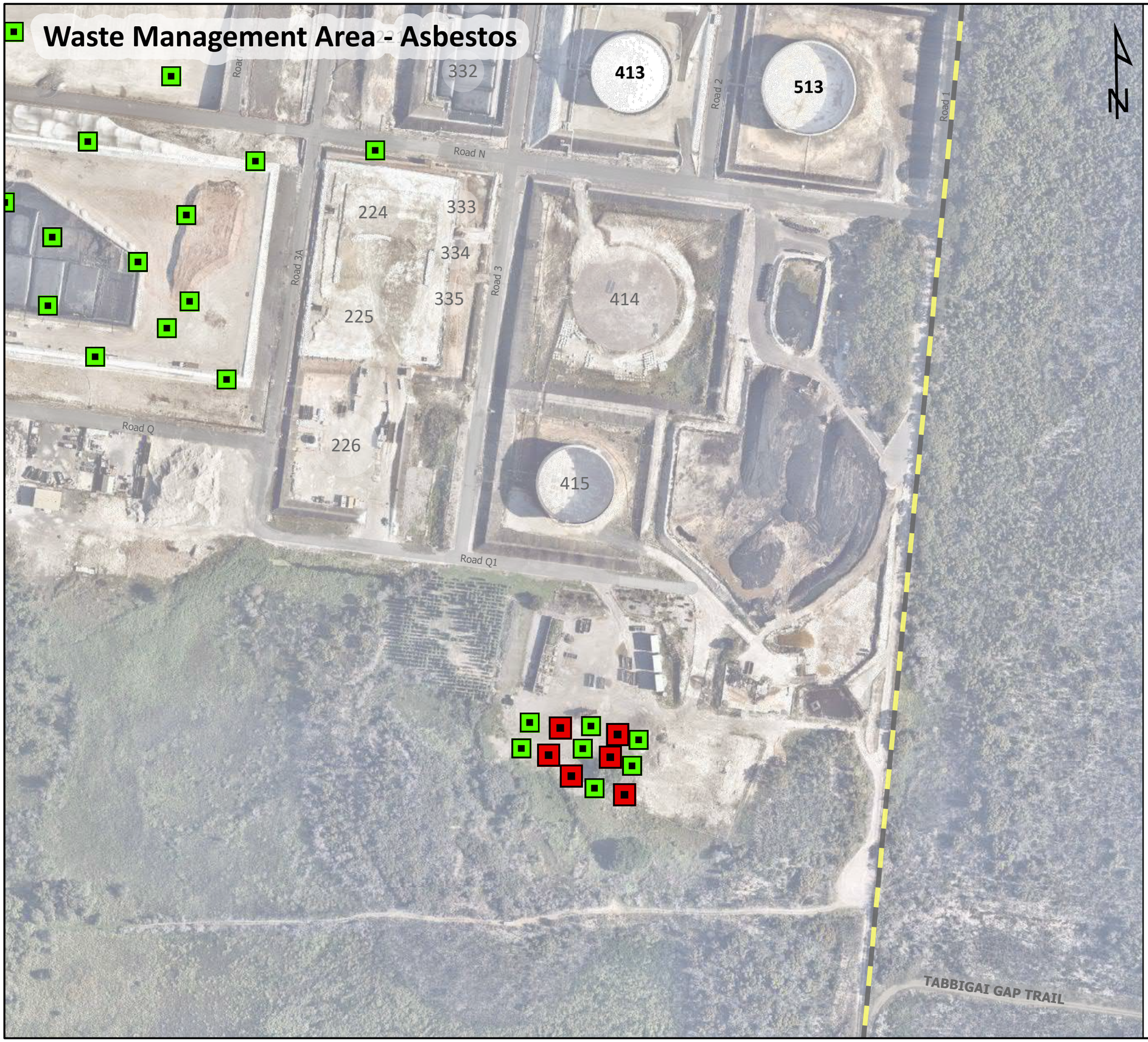
0 30 60 90 120 150

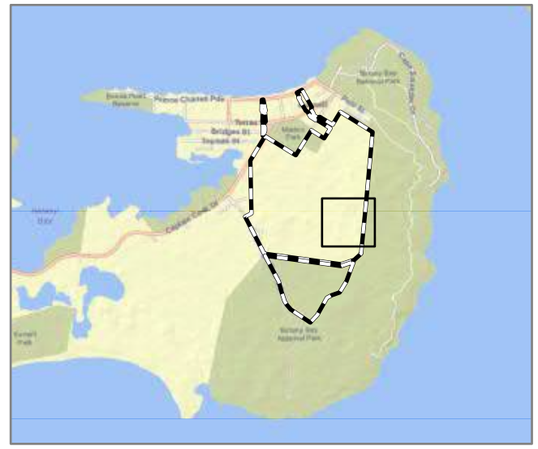
metres

FIGURE 37

CALTEX

Waste Management Area - Asbestos





CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

- Site_Boundary

Soil Asbestos Exceedances

- Below NEPM (<0.001%w/w)
- Exceeds NEPM (>0.001%w/w)

0 30 60 90 120 150

metres

FIGURE 38

CALTEX

Caltex Kurnell - Areas of Environmental Concern

CLOR Tankfarm

Tk282 Geobags

Southern Process Unit Area

Flare Geobags

Tk331 Geobags

Eastern Tank Farm

Refinery Landfarm

Asbestos Cell

Building Waste

CLOR Warehouses

CLOR Landfarm

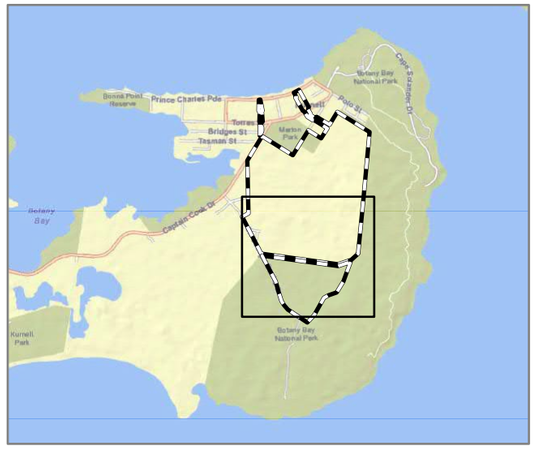
Limestone Pits

Scrap Yard

RPIP Mountain

CLOR Process Unit

Concarb Pipeway



CALTEX REFINERY KURNELL REMEDIATION PROJECT

LEGEND

Site_Boundary

AECs

- Asbestos Contamination
- Land Contamination
- Waste Storage

Groundwater Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

Soil Exceedance Locations

- Below Tier 1 Criteria
- Exceeds Tier 1 Criteria

0 75 150 225 300 375

metres

FIGURE 40

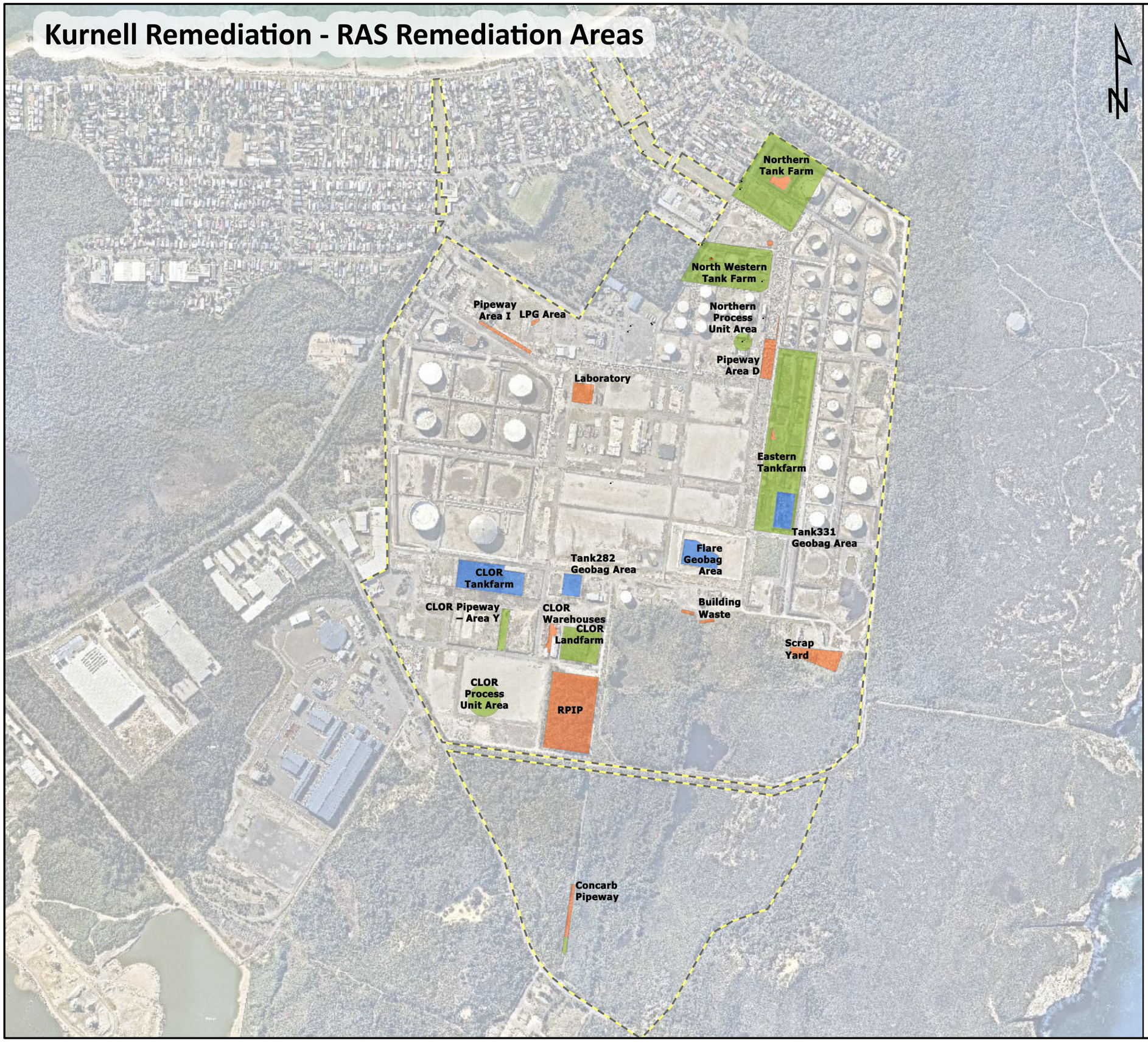
CALTEX

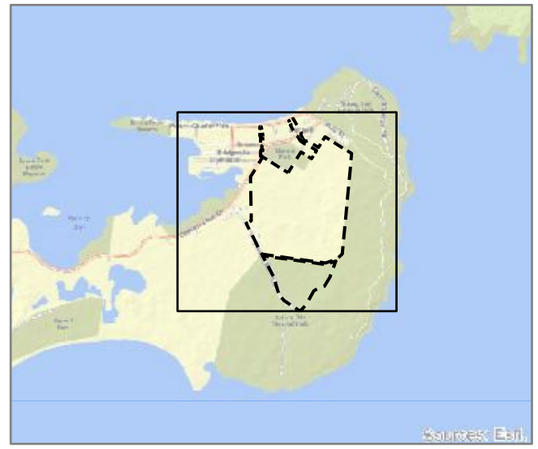
Appendix C - Historical analytical results

6.0 Report details

Report Title:	Kurnell Terminal - Remediation Action Strategy Update 2021
Author:	Ampol
Report Date:	29 November 2021

Kurnell Remediation - RAS Remediation Areas





AMPOL TERMINAL KURNELL
RAS UPDATE NOV 2021

LEGEND

AECs

- Asbestos Contamination
- Hydrocarbon Contamination
- Waste Storage

0 150 300 450 600 750

metres

FIGURE 1

AMPOL

ATTACHMENT 1. RAS Work Progress Summary Table

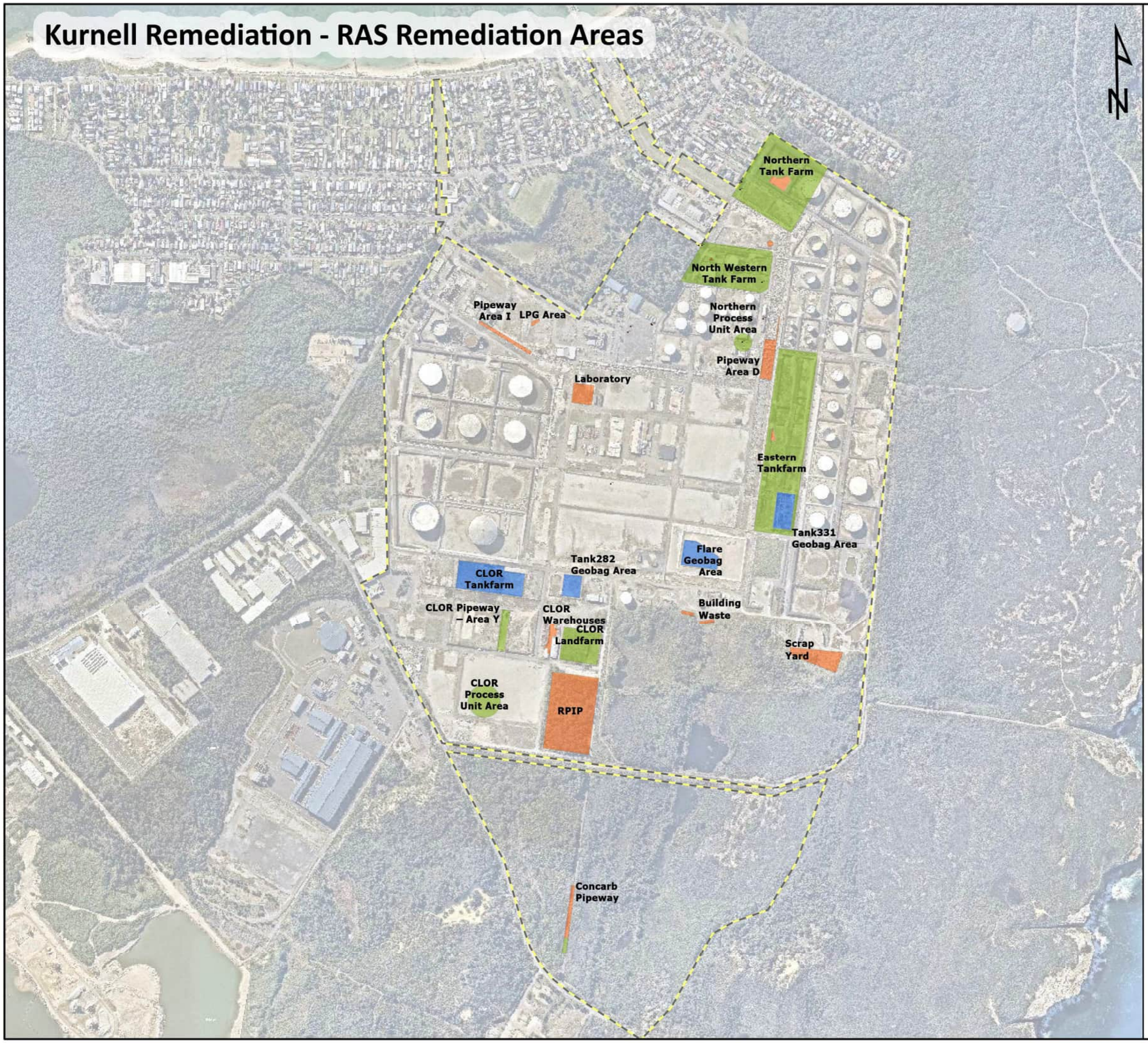
Report Section	Area	Impact	RAS Planned Commencement	Actual Commencement	Status 30Nov21	Comments
3.1	North Western Tank Farm	Hydrocarbons/ LNAPL	2020	2020	In-Progress	Installation of an LNAPL recovery system completed in December 2020. Approximately 100L of LNAPL has been recovered to date. Vapour monitoring at the site boundary continues to show there is not an unacceptable risk to the neighbouring warehouse.
		Asbestos	2021	2021	In-Progress	Waste volume and classification works conducted in 2021, for subsequent excavation and off-site disposal in 2022.
3.2	CLOR Process Unit Area	Hydrocarbons/ LNAPL	2021	2020	Complete	RAP was prepared and DA for remediation works in the CLOR process unit area was submitted to SSC in 2020. Remediation works completed 2021.
3.3	Northern Process Unit Area	Hydrocarbons	2023	-	Not started	Assessment northern process unit area will be undertaken in 2022, with remediation work commencement planned for 2023 in accordance with the RAS timeframe.
3.4	Northern Tank Farm	Hydrocarbons/ LNAPL	2024	2020	In-Progress	Pre-remedial investigations commenced in 2020, with a focus on assessment of enhanced natural attenuation. Further investigation to be undertaken throughout 2022 to refine remedial options.
		Asbestos	2021	2021	Complete	Test pitting through the asbestos control area identified a geofabric marker layer with an appropriate thickness of cover to mitigate potential asbestos exposures. No further works in relation to this asbestos area are considered to be required.
3.5	Concarb Pipeway	Hydrocarbon and Asbestos	2020	2020	In-Progress	RAP was prepared and DA for remediation works in the Concarb Pipeway was submitted to SSC in 2020. Remediation works commenced November 2021 and are due for completion in 2022.
3.6	CLOR Landfarm	Hydrocarbon and Asbestos	2019	2019	In-Progress	RAP was prepared and DA for remediation works in the CLOR Landfarm was submitted to SSC in 2019. Remediation works commenced September 2021 and are due for completion in 2022.
3.7	Eastern Tank Farm	Hydrocarbons/ LNAPL	2025	-	Not started	Preliminary investigations have been undertaken, however, additional targeted investigations are required to defined remediation requirements and remedial options.
		Asbestos	2022	-	Not started	Asbestos area to be investigation in 2022.
3.8	CLOR Pipeway - Area Y	Hydrocarbons	2025	2021	In-Progress	Initial scrape of the area was undertaken in 2021 to remove surface scrap and weeds. The scraped material was stockpiled on the northern end of the pipeway and is currently being removed. Following removal the northern area of the pipeway will be validated to complete these works.
3.9	LPG Area	Asbestos	2020	2020	In-Progress	Works associated with remediation of Pipeway Areas D & I, LPG Area and Laboratory commenced in 2020 with the development of a Remediation Action Plan (RAP) and submission of DA to SSC. Remediation works completed in November 2021. Validation report planned to be issued December 2021.
3.9	Laboratory	Asbestos	2020	2020	In-Progress	
3.9	Main Pipeway (north) – Area D	Asbestos	2020	2020	In-Progress	
3.9	Pipe Track A – Area I	Asbestos	2020	2020	In-Progress	
3.10	CLOR Warehouse	Asbestos	2019	2019	Completed	Commencement of works associated with the CLOR warehouse commenced in 2019 and was completed in early 2020.
3.11	Building waste	Asbestos	2020	2020	In-Progress	Characterisation for off-site disposal conduced in 2020. Off-site disposal in-progress and to be completed by early 2022.
3.12	RPIP	Asbestos	2020	2020	In-Progress	First stage of works associated with management of stockpiles along Road 15 completed in 2020. Second stage associated with asbestos within the heavily vegetated area in-progress.
3.13	Scrap Yard	Asbestos	2022	-	Not started	Preliminary assessment of the scrap yard was undertaken in 2021. This will be supplemented by additional targeted sampling works in 2022 in order to define remediation options, with subsequent development of RAP.
3.14	Geobag Areas	Asbestos	Following geobag removal	2020	In-Progress	Two of the three geobag areas have been cleared and sampled. The third geobag area planned to be cleared and sampled in 2022.
3.15	CLOR Tankfarm	Asbestos	Following removal of hydrocarbon waste material	-	Not started	Approximately one third of the hydrocarbon waste has been removed from this area. Ampol plans to complete removal of this waste in 2023. Following this, validation sampling of the CLOR tankfarm area will be undertaken.

Appendix C - Historical analytical results

7.0 Report details

Report Title:	Kurnell Terminal - Remediation Action Strategy Update 2022
Author:	Ampol
Report Date:	30 November 2022

Kurnell Remediation - RAS Remediation Areas





AMPOL TERMINAL KURNELL
RAS UPDATE NOV 2022

LEGEND

AECs

- Asbestos Contamination
- Hydrocarbon Contamination
- Waste Storage

0 150 300 450 600 750

metres

FIGURE 1

AMPOL

ATTACHMENT 1. RAS Work Progress Summary Table

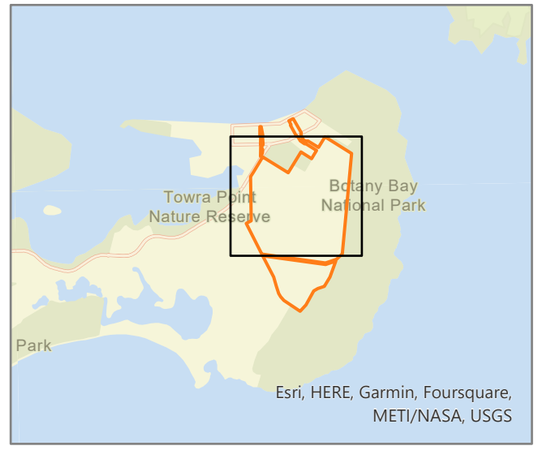
Report Section	Area	Impact	RAS Planned Commencement	Actual Commencement	Status 30Nov22	Comments
3.1	North Western Tank Farm	Hydrocarbons/ LNAPL	2020	2020	In-Progress	Installation of an LNAPL recovery system completed in December 2020. The 2022 assessment confirmed there are two disconnected areas of impact, namely: former tank 155/165 bund area (as represented by monitoring wells PU55 and PMW72) and former tank 126 bund area (as represented by monitoring well PMW67, PMW80 and PMW81). Fingerprint testing indicates the LNAPL in both locations was the result of historical release (greater than 20 years ago). Vapour monitoring at the site boundary continues to show there is not an unacceptable risk to the neighbouring warehouse.
		Asbestos	2021	2021	In-Progress	Waste volume and classification works conducted in 2021. Excavation of asbestos impacted soil planned for early-mid December 2022.
2021 RAS Update	CLOR Process Unit Area	Hydrocarbons/ LNAPL	2021	2020	Completed	RAP was prepared and DA for remediation works in the CLOR process unit area was submitted to SSC in 2020. Remediation works completed 2021. Refer to 2021 RAS Update for further details.
3.2	Northern Process Unit Area	Hydrocarbons	2023	2022	In-Progress	Pre-remedial assessment works in the northern process unit area were undertaken in 2022. Delineation of hydrocarbon impact in the vicinity of PP02 has been achieved. Works to assess remediation requirements planned for 2023.
3.3 & 2021 RAS Update	Northern Tank Farm	Hydrocarbons/ LNAPL	2024	2020	In-Progress	Pre-remedial investigations commenced in 2020, with a focus on assessment of enhanced natural attenuation. The bioventing system was refurbished in late 2021 to ensure continued and reliable operation. Vapour monitoring at the site boundary continues to show there is not an unacceptable risk to the neighbouring properties.
		Asbestos	2021	2021	Completed	Test pitting through the asbestos control area identified a geofabric marker layer with an appropriate thickness of cover to mitigate potential asbestos exposures. No further works in relation to this asbestos area are considered to be required. Refer to 2021 RAS Update for further details.
3.4	Concarb Pipeway	Hydrocarbon and Asbestos	2020	2020	In-Progress	RAP was prepared and DA for remediation works in the Concarb Pipeway was submitted to SSC in 2020. Remediation works commenced November 2021. Due to significant wet weather in late-2021 and throughout 2022, water levels in the remediation areas have risen and inundated the remediation area. This prevented remediation works continuing in 2022 as planned. Re-evaluation of the remedial approach is underway. This will provide options should the water levels in the remediation area remain high.
3.5	CLOR Landfarm	Hydrocarbon and Asbestos	2019	2019	In-Progress	RAP was prepared and DA for remediation works in the CLOR Landfarm was submitted to SSC in 2019. Remediation works commenced September 2021 and are due for completion in 2023.
3.6	Eastern Tank Farm	Hydrocarbons/ LNAPL	2025	2022	In-Progress	Ampol is currently progressing works in the eastern tank farm in accordance with the RAS timeframe. Detailed investigations undertaken in 2022. Detailed CSM in progressing to support evaluation of remedial options.
		Asbestos	2022	2022	Completed	Asbestos area was investigated in 2022. Test pitting through the asbestos control area identified a geofabric marker layer with an appropriate thickness of cover to mitigate potential asbestos exposures. No further works in relation to this asbestos area are considered to be required
3.7	CLOR Pipeway - Area Y	Hydrocarbons	2025	2021	In-Progress	A scrape of the upper 50-100mm of the CLOR pipeway area was undertaken in 2021. Soil scraped from the pipeway was stockpiled on the northern end of the pipeway was removed and disposed off-site in November 2021. It is planned to undertake final validation sampling of the CLOR pipeway in December 2022.
3.8	LPG Area	Asbestos	2020	2020	Completed	Remediation works including excavation and disposal of asbestos contaminated soils, validation sampling and backfilling have been completed. The final validation report was submitted to SSC and NSW EPA in May 2022. During the works in Pipeway Area I, several pieces of asbestos containing material (gaskets and fibro) were observed to the north of the work area (referred to as Southern LPG Area – see Insert 7). The area was fenced pending further assessment of the extent of asbestos. Ampol intends to complete investigation works and, if required, submit a DA to Sutherland Council in 2023 for remediation of this area.
3.8	Laboratory	Asbestos	2020	2020	Completed	
3.8	Main Pipeway (north) – Area D	Asbestos	2020	2020	Completed	
3.8	Pipe Track A – Area I	Asbestos	2020	2020	Completed	
2021 RAS Update	CLOR Warehouse	Asbestos	2019	2019	Completed	Works associated with the CLOR warehouse commenced in 2019 and was completed in early 2020. Refer to 2021 RAS Update for further details.
3.9	Building waste	Asbestos	2020	2020	In-Progress	Characterisation for off-site disposal conduced in 2020. Off-site disposal completed in 2022. Final validation sampling of the area to be undertaken December 2022.
3.10	RPIP	Asbestos	2020	2020	In-Progress	First stage of works associated with management of stockpiles along Road 15 completed in 2020. Second stage associated with assessment of asbestos impacts within the vegetated area in-progress. This will be followed by remedial options assessment in 2023.
3.11	Scrap Yard	Asbestos	2022	2022	In-Progress	Preliminary assessment of the scrap yard was undertaken in 2021. This was supplemented by additional detailed sampling works in 2022 to define the remediation extent and remediation options. Remedial options evaluation is currently in progress.
3.12	Geobag Areas	Asbestos	Following geobag removal	2020	In-Progress	Two of the three geobag areas have been cleared and sampled. Geobags from the third area were removed in 2021 and the underlying gravel bedding assessed in 2022. Ampol plans to dispose of the bedding and liner in 2023.
3.13	CLOR Tankfarm	Asbestos	Following removal of hydrocarbon waste material	-	Not started	Approximately half of the hydrocarbon waste has been removed from this area. Ampol plans to complete removal of this waste in 2023. Following this, validation sampling of the CLOR tankfarm area will be undertaken.

Appendix C - Historical analytical results

8.0 Report details

Report Title:	Kurnell Terminal - Remediation Action Strategy Update 2023
Author:	Ampol
Report Date:	29 November 2023





AMPOL TERMINAL KURNELL
RAS UPDATE NOV 2023

LEGEND

AECs

Area_Type

- Asbestos Contamination
- Hydrocarbon Contamination
- Waste Storage

Site Boundary

0 100 200 300 400 500

metres

FIGURE 1

AMPOL

ATTACHMENT 1. RAS Work Progress Summary Table

Report Section	Area	Impact	RAS Planned Commencement	Actual Commencement	Status 30-Nov-23	Comments
3.1	North Western Tank Farm	Hydrocarbons/ LNAPL	2020	2020	In-Progress	Installation of an LNAPL recovery system completed in December 2020. The 2023 assessment confirmed there are disconnected areas of impact, namely: former tank 155/165 bund area (as represented by monitoring wells PU55 and PMW72), former tank 126 bund area (as represented by monitoring wells PMW80, PMW81, PMW97 and PMW99) and former 136 bund (as represented by monitoring well PMW96). Fingerprint testing indicates the LNAPL in both locations was the result of historical release (greater than 20 years ago). Vapour monitoring at the site boundary continues to show there is not an unacceptable risk to the neighbouring warehouse.
		Asbestos	2021	2021	In-Progress	Waste volume and classification works conducted in 2021. Excavation of asbestos impacted soil was completed in December 2022. Subsequently, in 2023, several fragments of asbestos containing material were observed at the ground surface in the former Tank 1 area. A detailed investigation is in progress to assess any further remediation requirements.
2021 RAS Update	CLOR Process Unit Area	Hydrocarbons/ LNAPL	2021	2020	Completed	RAP was prepared and DA for remediation works in the CLOR process unit area was submitted to SSC in 2020. Remediation works completed 2021. Refer to 2021 RAS Update for further details.
3.2	Northern Process Unit Area	Hydrocarbons	2023	2022	Completed	Pre-remedial assessment works in the northern process unit area were undertaken in 2022, with additional assessment works and refinement of the CSM in 2023. Based on the results of contamination assessment works in the northern process unit area remediation is not warranted for the current site use.
3.3 & 2021 RAS Update	Northern Tank Farm	Hydrocarbons/ LNAPL	2024	2020	In-Progress	Pre-remedial investigations commenced in 2020, with a focus on assessment of enhanced natural attenuation. The bioventing system was refurbished in late 2021 to ensure continued and reliable operation. Vapour monitoring at the site boundary continues to show there is not an unacceptable risk to the neighbouring properties.
		Asbestos	2021	2021	Completed	Test pitting through the asbestos control area identified a geofabric marker layer with an appropriate thickness of cover to mitigate potential asbestos exposures. No further works in relation to this asbestos area are considered to be required. Refer to 2021 RAS Update for further details.
3.4	Concarb Pipeway	Hydrocarbon and Asbestos	2020	2020	In-Progress	RAP was prepared and DA for remediation works in the Concarb Pipeway was submitted to SSC in 2020. Remediation works commenced November 2021. Due to significant wet weather in late-2021 and throughout 2022, high groundwater levels in the remediation area prevented planned works. In 2023, Ampol completed removal of asbestos contaminated soils in the southern area of the Concarb Pipeway. The upper 0.6m of soil (approximately 480 tonnes) of asbestos contaminated soils were excavated and disposed off-site. During the 2023 remediation works, high groundwater levels were observed which limited deeper excavation to remove creosote impacts. Given the persistence of high groundwater level, Ampol is currently reviewing alternate remediation strategies to address the creosote contamination. We plan to complete this assessment in 2024.
3.5	CLOR Landfarm	Hydrocarbon and Asbestos	2019	2019	In-Progress	RAP was prepared and DA for remediation works in the CLOR Landfarm was submitted to SSC in 2019. Remediation works involving removal of contaminated soils, validation of the excavation and backfilling with VENM were completed in December 2022. Following backfilling with VENM SSC DA20/0104 included the requirement for revegetation of the area. Ampol is currently reviewing revegetation in the context of future site use.
3.6	Eastern Tank Farm	Hydrocarbons/ LNAPL	2025	2022	In-Progress	Ampol is currently progressing works in the eastern tank farm in accordance with the RAS timeframe. Detailed investigations undertaken in 2022 and 2023 are considered sufficient to progress to remedial options evaluation.
		Asbestos	2022	2022	Completed	Asbestos area was investigated in 2022. Test pitting through the asbestos control area identified a geofabric marker layer with an appropriate thickness of cover to mitigate potential asbestos exposures. No further works in relation to this asbestos area are considered to be required. Refer to 2022 RAS Update for further details.
3.7	CLOR Pipeway - Area Y	Hydrocarbons	2025	2021	Completed[1]	A scrape of the upper 50-100mm of the CLOR pipeway area was undertaken in 2021 to remove surface material and weeds from the area. During the scrape, hydrocarbon staining was observed to be heavy/waxy material and was limited to surface soils. Sampling following removal of the surface impacted material showed no exceedance of relevant health-based criteria. This completes the scope of works in accordance with the RAS. Following of asbestos in the pipeway it was assessed that remediation would be required. Works to address the asbestos contamination is planned for 2024.
3.8	LPG Area	Asbestos	2020	2020	Completed	Remediation works including excavation and disposal of asbestos contaminated soils, validation sampling and backfilling have been completed. The final validation report was submitted to SSC and NSW EPA in May 2022. During the works in Pipeway Area I, several pieces of asbestos containing material (gaskets and fibro) were observed to the north of the work area. Further assessment during 2023 delineated the asbestos affected area. Ampol plans to submit an application to SSC in late 2023/ early 2024 for an amendment of DA20/0779 to include asbestos remediation in the LPG area. Subject to approvals timing, we plan to complete this remediation work in 2024.
3.8	Laboratory	Asbestos	2020	2020	Completed	
3.8	Main Pipeway (north) – Area D	Asbestos	2020	2020	Completed	
3.8	Pipe Track A – Area I	Asbestos	2020	2020	Completed[2]	
2021 RAS Update	CLOR Warehouse	Asbestos	2019	2019	Completed	Works associated with the CLOR warehouse commenced in 2019 and was completed in early 2020. Refer to 2021 RAS Update for further details.
3.9	Building waste	Asbestos	2020	2020	Completed	Characterisation for off-site disposal conduced in 2020. Off-site disposal completed in 2022. Final validation sampling of the area was undertaken in December 2022.
3.10	RPIP	Asbestos	2020	2020	In-Progress	First stage of works associated with management of stockpiles along Road 15 completed in 2020. Second stage associated with remediation/management of asbestos impacts within the vegetated area is in-progress. A review undertaken in 2023 identified administrative controls to be the preferred option. This option involves restricting access to the RPIP area. Ampol plans to finalise the management option for RPIP in 2024 with subsequent implementation from 2025.
3.11	Scrap Yard	Asbestos	2022	2022	In-Progress	Preliminary assessment of the scrap yard was undertaken in 2021. This was supplemented by additional detailed sampling works in 2022 and 2023 to define the remediation extent and remediation options. The remedial options evaluation for the scrap yard identified capping of the area to be the preferred remedial option. A remedial action plan and DA documentation has been prepared for the scrapyard and the DA was submitted to the NSW Planning Portal in November 2023. Subject to the timing of the approvals, capping of the scrap yard will be undertaken in 2024.
3.12	Geobag Areas	Asbestos	Following geobag removal	2020	Completed	The third and final geobag area was cleared and validated in 2023. The results of this sampling confirmed that the area is suitable for ongoing industrial use, thereby completing the scope for this area.
3.13	CLOR Tankfarm	Asbestos	Following removal of hydrocarbon waste material	-	In progress	A majority of the heavily contaminated waste in the CLOR tankfarm (approximately 7,000 tonnes) was disposed off-site in 2023. Subsequent scraping/clearing of soils from the base of the tank bund has resulted in an additional 3,500 tonnes of waste which is planned to be removed in 2024. Following removal of the remaining waste, validation sampling will be undertaken.

Notes:

1. Remediation works identified in the RAS have been completed. However, asbestos was identified in this area and will be subject to an additional remediation program.

2. Remediation works identified in the RAS have been completed. However, an area of asbestos impacted soil extending from the remediated area has been identified. A modification to the current DA will be sought to facilitate remediation.

Appendix C - Historical analytical results

9.0 Report details

Report Title:	Investigation of Soil Vapours at the Former CLOR Area
Author:	WSP
Report Date:	August 2023



AMPOL wsp

Ampol Kurnell Terminal Quarterly Groundwater Monitoring

Figure 1
Soil Vapour
Sampling Location Plan

www.wsp.com

Soil Vapour Bore

F1 TRH concentrations (µg/L)

- 20 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- 10,000 - 200,000

CLOR Final Excavation Extent

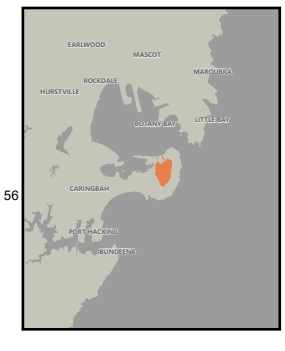
Roads

Site areas

0 20

Meters
Scale: 1:1,000
Coordinate system: GDA 1994 MGA Zone 56
Scale ratio correct when printed at A3
Author: J.Brodie | QA:
Date: 7/08/2023

Data sources: Ampol, Nearmap, NSW Spatial Services



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Table A1. Soil vapour concentrations, June 2023
Ampol Kurnell Terminal

Analyte	Sample ID	SV214	SV215	SV216	SV13_1.0	SV13_1.0 Dup	SV14_1.0	SV14_1.5	SV15_1.0	SV15_1.1	SV16_0.5	SV16_1.5	Trip blank	NEPM 2013 Res HSL D soil vapour, Sand [1] Commercial	NEPM 2013 Res HSL D soil vapour, Sand [1] Commercial	*NEPM 2013 Res HSL A soil vapour, Sand [1][3] Low Density Residential*	*NEPM 2013 Res HSL A soil vapour, Sand [1][3] Low Density Residential*	CRC Care 2011 Table B1 Intrusive Maintenance Worker, Sand
	Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m3	µg/m^3	µg/m^3	µg/m^3	µg/m3					
	Depth (m)	1	1	1	1	1	1	1.5	1	1.1	0.5	1.5	-					
	Date	26/06/2023	26/06/2023	26/06/2023	26/06/2023	26/06/2023	26/06/2023	26/06/2023	26/06/2023	26/06/2023	26/06/2023	26/06/2023	26/06/2023	0 - < 1 m depth	1 - < 2 m depth	*0 - < 1 m depth*	*1 - < 2 m depth*	0 - < 2 m depth
	PQL																	
Benzene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	4,000	10,000	*1,000*	*3,000*	760,000
Toluene	2	nd	nd	nd	nd	nd	nd	nd	21	15	nd	nd	nd	4,800,000	16,000,000	*1,300,000*	*3,800,000*	
Ethylbenzene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	1,300,000	4,600,000	*330,000*	*1,100,000*	
m&p-Xylene	2	nd	nd	nd	nd	nd	nd	3	5	4	nd	nd	nd	840,000	3,200,000	*220,000*	*750,000*	
o-Xylene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,2,4-Trimethylbenzene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,3,5-Trimethylbenzene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Propylbenzene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Isopropylbenzene	2	nd	nd	nd	nd	nd	nd	11	nd	nd	nd	nd	nd					
sec-Butylbenzene	2	nd	nd	nd	nd	nd	nd	6	nd	nd	nd	nd	nd					
Styrene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
p-Cymene	2	nd	nd	nd	nd	nd	nd	7	nd	8	4	nd	nd					
Naphthalene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	3,000	15,000	*800*	*3,000*	880,000
1-Methyl naphthalene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
2-Methyl naphthalene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
2-Methylbutane	2	nd	nd	nd	nd	nd	15	170	6	nd	nd	nd	nd					
3-Methylpentane	2	nd	nd	nd	nd	nd	nd	26	nd	nd	nd	nd	nd					
2,2,4-Trimethyl pentane	2	nd	nd	nd	nd	nd	nd	10	nd	nd	nd	nd	nd					
2,2-Dimethyl butane	2	nd	nd	nd	nd	nd	nd	5	nd	nd	nd	nd	nd					
2,4-Dimethylpentane	2	nd	nd	nd	nd	nd	nd	5	nd	nd	nd	nd	nd					
Ethylcyclopentane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Cyclohexane	2	nd	nd	nd	nd	nd	nd	37	nd	nd	nd	nd	nd					
Methylcyclohexane	2	nd	nd	nd	nd	nd	nd	50	nd	nd	nd	nd	nd					
Ethylcyclohexane	2	nd	nd	nd	nd	nd	nd	48	nd	nd	2	nd	nd					
Propyl cyclohexane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
n-Pentane	2	nd	nd	nd	nd	nd	nd	89	nd	nd	nd	nd	nd					
n-Hexane	2	nd	nd	nd	nd	nd	nd	48	nd	nd	nd	nd	nd					
n-Heptane	2	nd	nd	nd	nd	nd	nd	20	nd	nd	nd	nd	nd					
n-Octane	2	nd	nd	nd	nd	nd	nd	50	nd	nd	3	nd	nd					
n-Nonane	2	nd	nd	nd	nd	nd	nd	15	nd	nd	nd	nd	nd					
n-Decane	2	nd	nd	nd	nd	nd	nd	8	nd	nd	nd	nd	nd					
n-Undecane	2	nd	nd	nd	nd	nd	nd	2	nd	nd	nd	nd	nd					
n-Dodecane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
n-Tridecane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
n-Tetradecane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Chloromethane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,2-Dichloroethane (EDC)	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,2-Dibromoethane (EDB)	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Chloroform	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Carbon tetrachloride	4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,1-Dichloroethane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,1,1-Trichloroethane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	230,000	230,000	*60,000*	*60,000*	
1,1,2-Trichloroethane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,1,1,2-Tetrachloroethane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,1,2,2-Tetrachloroethane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Vinyl Chloride	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,1-Dichloroethene	2	nd	nd	2	nd	nd	10	6	nd	nd	nd	nd	nd					
1,2-Dichloroethylene (cis)	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,2-Dichloroethylene (trans)	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Trichloroethylene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	80	80	*20*	*20*	
Tetrachloroethylene	2	nd	nd	3	nd	nd	10	6	nd	nd	nd	nd	nd	8,000	8,000	*2,000*	*2,000*	
1,2-Dichloropropane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,3-Dichloropropane	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,1-Dichloropropene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Hexachlorobutadiene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
2-Chloro-1,3-butadiene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Chlorobenzene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,2-Dichlorobenzene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,3-Dichlorobenzene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
1,4-Dichlorobenzene	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
MEK	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
Isopropyl alcohol	2	nd	nd	nd	nd	nd	nd	nd	26	46	32	59	nd					
C6-C10	4	32	12	45	58	59	64	1,600	170	190	140	100	nd					180,000
>C10-C14	4	19	14	28	48	34	33	370	70	150	130	150	nd					NL
TRH F1	4	32	12	45	58	59	64	1,600	170	190	140	100	nd	680,000	2,800,000	*180,000*	*640,000*	
TRH F2	4	19	14	28	48	34	33	370	70	150	130	*150*	nd	500,000	2,400,000	*130,000*	*560,000*	

Notes:

Concentration expressed in µg/m^3 unless otherwise stated

[1] NEPM (2013) – Schedule B-1 Investigation Levels for Soil and Groundwater – Table 1A(5) Soil Vapour HSLs for vapour intrusion

[2] NEPM (2013) Schedule B-7 – Appendix A6 The Derivation of Interim HILs for Volatile Organice Chlorinated Compounds, 0-1m

[3] Only applicable for vapour bore locations SV01, SV08 and SV10, which are in the vicinity of residential receptors - shown as Italic

PQL - Practical Quantitation Limit

NL - non limiting

Interim soil vapour health investigation levels for volatile organic chlorinated compounds (Table 1A(2) of NEPM 2013 are not listed because chlorinated compounds were not detected

Table A2 Historical Soil Vapour Data Summary
Ampol Kurnell Terminal

Historical Soil Vapour Data Summary - Ampol Kurnell Terminal				Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-xylene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	propylbenzene	isopropyl benzene
Units				µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand 0-1m				**4,000**	**4,800,000**	**1,300,000**	**840,000**					
Sample ID	**Location**	**Depth (m)**	**Date**									
SV13_1.0	CLOR area	1	14/05/2020	nd	nd	nd	nd	nd	19	nd	nd	30
		1	12/11/2020	15	6	nd	nd	nd	nd	nd	nd	160
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV14 (shallow)	CLOR area	1	14/05/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	310
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV14 (deep)		1.5	14/05/2020	nd	nd	98	nd	nd	12	nd	nd	25
		1.5	12/11/2020	21	11	3	6	2	nd	nd	nd	31
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	nd	nd	nd	3	nd	nd	nd	nd	11
SV15 (shallow)	CLOR area	1	14/05/2020	nd	nd	nd	nd	nd	13	nd	nd	12
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	100
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	21	nd	5	nd	nd	nd	nd	nd
SV15 (deep)		1.1	14/05/2020	nd	nd	nd	nd	nd	16	nd	nd	16
		1.1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	180
		1.1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.1	26/06/2023	nd	15	nd	4	nd	nd	nd	nd	nd
SV16 (shallow)	CLOR area	0.5	14/05/2020	nd	nd	nd	nd	nd	26	nd	nd	30
		0.5	12/11/2020	nd	740	nd	nd	nd	nd	nd	nd	nd
		0.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		0.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV16 (deep)		1.5	14/05/2020	nd	nd	nd	nd	nd	29	nd	nd	39
		1.5	12/11/2020	nd	5	nd	nd	nd	nd	nd	nd	620
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV214	CLOR	1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV215		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV216		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd

Table A2 Historical Soil Vapour Data Summary
Ampol Kurnell Terminal

Historical Soil Vapour Data Summary - Ampol Kurnell Terminal				sec butyl benzene	styrene	p-Cymene	naphthalene	1-methyl naphthalene	2-methyl naphthalene	2-methyl butane	3-methylpentane	2,2,4-Trimethyl pentane
Units				µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand 0-1m							**3000**					
Sample ID	**Location**	**Depth (m)**	**Date**									
SV13_1.0	CLOR area	1	14/05/2020	nd	nd	-	nd	nd	nd	nd	nd	-
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV14 (shallow)	CLOR area	1	14/05/2020	nd	nd	-	nd	nd	nd	nd	nd	-
		1	12/11/2020	nd	nd	nd	nd	nd	nd	42	nd	nd
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	15	nd	nd
SV14 (deep)		1.5	14/05/2020	nd	nd	-	nd	32	360	32	nd	-
		1.5	12/11/2020	18	7	nd	nd	nd	nd	190	27	10
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	6	nd	7	nd	nd	nd	170	26	10
SV15 (shallow)	CLOR area	1	14/05/2020	nd	nd	-	nd	nd	nd	nd	nd	-
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	6	nd	nd
SV15 (deep)		1.1	14/05/2020	nd	nd	-	nd	nd	nd	nd	nd	-
		1.1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.1	26/06/2023	nd	nd	8	nd	nd	nd	nd	nd	nd
SV16 (shallow)	CLOR area	0.5	14/05/2020	nd	nd	-	nd	nd	38	nd	nd	-
		0.5	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		0.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		0.5	26/06/2023	nd	nd	4	nd	nd	nd	nd	nd	nd
SV16 (deep)		1.5	14/05/2020	nd	nd	-	nd	nd	12	nd	nd	-
		1.5	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV214	CLOR	1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV215		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV216		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd

Table A2 Historical Soil Vapour Data Summary
Ampol Kurnell Terminal

Historical Soil Vapour Data Summary - Ampol Kurnell Terminal				2,2-Dimethyl butane	2,4-dimethyl pentane	ethylcyclopentane	cyclohexane	methylcyclohexane	ethylcyclohexane	propylcyclohexane	n-pentane	n-hexane
Units				µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand 0-1m												
Sample ID	**Location**	**Depth (m)**	**Date**									
SV13_1.0	CLOR area	1	14/05/2020	-	nd	nd	nd	nd	nd	nd	nd	nd
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV14 (shallow)	CLOR area	1	14/05/2020	-	nd	nd	nd	nd	nd	nd	nd	nd
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	9	nd
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV14 (deep)		1.5	14/05/2020	-	nd	nd	nd	nd	nd	nd	nd	23
		1.5	12/11/2020	nd	nd	nd	23	54	38	nd	130	50
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	5	5	nd	37	50	48	nd	89	48
SV15 (shallow)	CLOR area	1	14/05/2020	-	nd	nd	nd	nd	nd	nd	nd	nd
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV15 (deep)		1.1	14/05/2020	-	nd	nd	nd	nd	nd	nd	nd	nd
		1.1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV16 (shallow)	CLOR area	0.5	14/05/2020	-	nd	nd	nd	nd	nd	nd	nd	nd
		0.5	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		0.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		0.5	26/06/2023	nd	nd	nd	nd	nd	2	nd	nd	nd
SV16 (deep)		1.5	14/05/2020	-	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV214	CLOR	1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV215		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV216		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd

Table A2 Historical Soil Vapour Data Summary
Ampol Kurnell Terminal

Historical Soil Vapour Data Summary - Ampol Kurnell Terminal				n-heptane	n-octane	n-nonane	n-decane	n-undecane	n-dodecane	n-tridecane	n-tetradecane	chloromethane
Units				µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand 0-1m												
Sample ID	Location	Depth (m)	Date									
SV13_1.0	CLOR area	1	14/05/2020	nd	nd	nd	nd	11	nd	nd	nd	-
		1	12/11/2020	nd	nd	nd	nd	nd	5	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV14 (shallow)	CLOR area	1	14/05/2020	nd	nd	nd	nd	nd	nd	nd	nd	-
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV14 (deep)		1.5	14/05/2020	63	190	130	nd	16	34	nd	nd	-
		1.5	12/11/2020	30	41	9	nd	14	nd	nd	nd	nd
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	20	50	15	8	2	nd	nd	nd	nd
SV15 (shallow)	CLOR area	1	14/05/2020	nd	nd	nd	nd	nd	nd	nd	nd	-
		1	12/11/2020	nd	nd	nd	nd	nd	9	nd	nd	nd
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV15 (deep)		1.1	14/05/2020	12	nd	nd	nd	nd	nd	nd	nd	-
		1.1	12/11/2020	nd	nd	nd	6	nd	nd	nd	nd	nd
		1.1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV16 (shallow)	CLOR area	0.5	14/05/2020	10	nd	nd	nd	12	nd	nd	nd	-
		0.5	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		0.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		0.5	26/06/2023	nd	3	nd	nd	nd	nd	nd	nd	nd
SV16 (deep)		1.5	14/05/2020	nd	nd	nd	nd	16	nd	nd	nd	-
		1.5	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV214	CLOR	1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV215		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV216		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd

Table A2 Historical Soil Vapour Data Summary
Ampol Kurnell Terminal

Historical Soil Vapour Data Summary - Ampol Kurnell Terminal				1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Chloroform (Trichloromethane)	Carbon tetrachloride	1,1-dichloroethane	1,1,1-trichloroethane	1,1,2-trichloroethane	1,1,1,2-tetrachloroethane	1,1,2,2-tetrachloroethane
Units				µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand 0-1m												
Sample ID	**Location**	**Depth (m)**	**Date**									
SV13_1.0	CLOR area	1	14/05/2020		-	-	-	nd	nd	nd	nd	nd
		1	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV14 (shallow)	CLOR area	1	14/05/2020		-	-	-	nd	nd	nd	nd	nd
		1	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV14 (deep)		1.5	14/05/2020		-	-	-	nd	nd	nd	nd	nd
		1.5	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV15 (shallow)	CLOR area	1	14/05/2020		-	-	-	nd	nd	nd	nd	nd
		1	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV15 (deep)		1.1	14/05/2020		-	-	-	nd	nd	nd	nd	nd
		1.1	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1.1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV16 (shallow)	CLOR area	0.5	14/05/2020		-	-	-	nd	nd	nd	nd	nd
		0.5	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		0.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		0.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV16 (deep)		1.5	14/05/2020		-	-	-	nd	nd	nd	nd	nd
		1.5	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV214	CLOR	1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV215		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV216		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd

Table A2 Historical Soil Vapour Data Summary
Ampol Kurnell Terminal

Historical Soil Vapour Data Summary - Ampol Kurnell Terminal				Vinyl Chloride	1.1-dichloroethene	cis-1,2-dichloroethene	trans-1,2-dichloroethene	Trichloroethylene	Tetrachloroethylene	1,2-dichloropropane	1,3-dichloropropane	1,1-dichloropropene
Units				µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand 0-1m												
Sample ID	**Location**	**Depth (m)**	**Date**									
SV13_1.0	CLOR area	1	14/05/2020		nd	nd	nd	-	-	nd	nd	nd
		1	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV14 (shallow)	CLOR area	1	14/05/2020		nd	nd	nd	-	-	nd	nd	nd
		1	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	10	nd	nd	nd	10	nd	nd	nd
SV14 (deep)		1.5	14/05/2020		nd	nd	nd	-	-	nd	nd	nd
		1.5	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	nd	6	nd	nd	nd	6	nd	nd	nd
SV15 (shallow)	CLOR area	1	14/05/2020		nd	nd	nd	-	-	nd	nd	nd
		1	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV15 (deep)		1.1	14/05/2020		nd	nd	nd	-	-	nd	nd	nd
		1.1	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1.1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV16 (shallow)	CLOR area	0.5	14/05/2020		nd	nd	nd	-	-	nd	nd	nd
		0.5	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		0.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		0.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV16 (deep)		1.5	14/05/2020		nd	nd	nd	-	-	nd	nd	nd
		1.5	12/11/2020		nd	nd	nd	nd	nd	nd	nd	nd
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	nd	nd
		1.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV214	CLOR	1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV215		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV216		1	26/06/2023	nd	2	nd	nd	nd	3	nd	nd	nd

Table A2 Historical Soil Vapour Data Summary
Ampol Kurnell Terminal

Historical Soil Vapour Data Summary - Ampol Kurnell Terminal				hexachlorobutadiene	2-chloro-1,3-butadiene	chlorobenzene	1,2-dichlorobenzene	1,3,dichlorobenzene	1,4-Dichlorobenzene	MEK	Isopropyl alcohol	C_6-C_{10}
Units				µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand 0-1m												
Sample ID	**Location**	**Depth (m)**	**Date**									
SV13_1.0	CLOR area	1	14/05/2020	nd	nd	nd	nd	nd	-	-	-	170
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	2	460
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	58
SV14 (shallow)	CLOR area	1	14/05/2020	nd	nd	nd	nd	nd	-	-	-	nd
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	35	1,000
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	290	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	64
SV14 (deep)		1.5	14/05/2020	nd	nd	nd	nd	nd	-	-	-	7,200
		1.5	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	1,100
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	210	nd
		1.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	1,600
SV15 (shallow)	CLOR area	1	14/05/2020	nd	nd	nd	nd	nd	-	-	-	520
		1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	11	260
		1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	89	nd
		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	26	170
SV15 (deep)		1.1	14/05/2020	nd	nd	nd	nd	nd	-	-	-	1,400
		1.1	12/11/2020	nd	nd	nd	nd	nd	nd	nd	5	460
		1.1	28/11/2021	nd	nd	nd	nd	nd	nd	nd	290	nd
		1.1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	46	190
SV16 (shallow)	CLOR area	0.5	14/05/2020	nd	nd	nd	nd	nd	-	-	-	210
		0.5	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	1,000
		0.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	220	nd
		0.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	32	140
SV16 (deep)		1.5	14/05/2020	nd	nd	nd	nd	nd	-	-	-	330
		1.5	12/11/2020	nd	nd	nd	nd	nd	nd	nd	nd	930
		1.5	28/11/2021	nd	nd	nd	nd	nd	nd	nd	220	nd
		1.5	26/06/2023	nd	nd	nd	nd	nd	nd	nd	59	100
SV214	CLOR	1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	32
SV215		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	12
SV216		1	26/06/2023	nd	nd	nd	nd	nd	nd	nd	nd	45

Table A2 Historical Soil Vapour Data Summary
Ampol Kurnell Terminal

Historical Soil Vapour Data Summary - Ampol Kurnell Terminal				>C_{10}-C_{14}	C6-C10 min BTEX (F1)	C_{10}-C_{16} min naphthalene (F2)	4-isopropyltoluene	1,1,1-trichloroethane	1,1,2-trichloroethane	1,1,1,2-tetrachloroethane	1,1,2,2-tetrachloroethane
Units				µg/m3	µg/m3	µg/m3					
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand 0-1m					**680,000**	**500,000**					
Sample ID	**Location**	**Depth (m)**	**Date**								
SV13_1.0	CLOR area	1	14/05/2020	nd	170	nd	-	nd	nd	nd	nd
		1	12/11/2020	2,100	439	2,100	-	-	-	-	-
		1	26/06/2023	48	58	48	-	-	-	-	-
SV14 (shallow)	CLOR area	1	14/05/2020	nd	nd	nd	-	nd	nd	nd	nd
		1	12/11/2020	4,400	1,000	4,400	-	-	-	-	-
		1	28/11/2021	nd	nd	nd	-	-	-	-	-
		1	26/06/2023	33	64	33	-	-	-	-	-
SV14 (deep)		1.5	14/05/2020	2,200	7,102	2,200	-	nd	nd	nd	nd
		1.5	12/11/2020	960	1,057	960	-	-	-	-	-
		1.5	28/11/2021	nd	nd	nd	-	-	-	-	-
		1.5	26/06/2023	370	1,600	370					
SV15 (shallow)	CLOR area	1	14/05/2020	nd	520	nd	-	nd	nd	nd	nd
		1	12/11/2020	1,200	260	1,200	-	-	-	-	-
		1	28/11/2021	nd	nd	nd	-	-	-	-	-
		1	26/06/2023	70	170	70	-	-	-	-	-
SV15 (deep)		1.1	14/05/2020	nd	1,400	nd	-	nd	nd	nd	nd
		1.1	12/11/2020	2,200	460	2,200	-	-	-	-	-
		1.1	28/11/2021	nd	nd	nd	-	-	-	-	-
		1.1	26/06/2023	150	190	150	-	-	-	-	-
SV16 (shallow)	CLOR area	0.5	14/05/2020	<8	210	<8	-	nd	nd	nd	nd
		0.5	12/11/2020	nd	260	nd	-	-	-	-	-
		0.5	28/11/2021	nd	nd	nd	-	-	-	-	-
		0.5	26/06/2023	130	140	130					
SV16 (deep)		1.5	14/05/2020	<8	330	<8	-	nd	nd	nd	nd
		1.5	12/11/2020	5,100	925	5,100	-	-	-	-	-
		1.5	28/11/2021	nd	nd	nd	-	-	-	-	-
		1.5	26/06/2023	150	100	150					
SV214	CLOR	1	26/06/2023	19	32	19	-	-	-	-	-
SV215		1	26/06/2023	14	12	14	-	-	-	-	-
SV216		1	26/06/2023	28	45	28	-	-	-	-	-

Appendix D

Remedial Options Assessment

Table D.1 Assessment of Main Soil Remediation Options

Remediation Option	Description	Merits	Disadvantages	Feasibility
Excavation and onsite treatment of hydrocarbon impacted soil – Ex-Situ bioremediation via passive or mechanical biopiling	Excavation of impacted soil and onsite bioremediation. Reinstatement of excavated areas with material validated as suitable for the intended land use.	• On-going future liabilities including human health and the environment would be minimised following remediation. • Consistent with community and regulatory expectations of minimal impacts at the site. • Traffic volumes and potential community impacts reduced compared to other alternatives (i.e. offsite disposal) • Consistency with the principles of Ecologically Sustainable Development.	• Extended timeframe for onsite treatment and soil sampling and analysis. • Restricted to petroleum hydrocarbon (better for lighter end compounds) impacted material and some other organics. • Biopiling generates odours during placement and turning of material. Erosion and sediment controls would be required	Likely
In-situ bioremediation via biostimulation or bioaugmentation	Bioremediation in-situ by introduction of additives to enhance microbial degradation or addition of microbes	• Traffic volumes and potential community impacts reduced compared to other alternatives. • On-going future liabilities including human health and the environment would be minimised following remediation. • Consistency with the principles of Ecologically Sustainable Development. • Consistent with community and regulatory expectations of minimal impacts.	• Extended timeframe for onsite treatment. • Timeframe difficult to estimate. • Restricted to hydrocarbon impacted material. • Need for pilot trials at the Project Area • Potentially expensive implementation to ensure adequate coverage.	Unlikely

Remediation Option	Description	Merits	Disadvantages	Feasibility
Excavation of contaminated soil and disposal to licenced landfill or removal to a storage facility	Excavation of impacted soil and offsite disposal to a licenced facility or removal to a storage facility following waste classification	• On-going future liabilities including human health and the environment would be minimised following remediation. • Proven technology widely applied in Australia and internationally. • Shorter time frame when compared with other options. • Able to handle most solid waste streams generated at the target area (hazardous materials excepted). • Limited onsite handling of wastes thereby reducing odour issues.	• Inconsistent with the NSW EPA remediation hierarchy, including preference for recycling and treatment rather than disposal. • Inconsistent with the principles of Ecologically Sustainable Development due to re-location of impacts instead of treatment. • In the event of large volumes to be remediated - increased community impacts associated with increased traffic inconvenience and potential for dust and odour impacts if not managed appropriately.	Likely
In-situ solidification / stabilisation	Excavation of impacted soil and onsite burial within an approved lined onsite containment cell. Reinstatement of excavated areas with stabilised material validated as suitable fill.	• Moderately protective of human health including onsite workers and community surrounding the site. • On-going future liabilities including human health and the environment would be low following remediation. • Partial consistency with community and regulatory expectations of minimal impacts. • Protective of the environment if appropriately designed. • The target area is likely to have sufficient space to accommodate construction of a containment cell(s) without impacting significantly on future redevelopment.	Inconsistent with the NSW EPA remediation hierarchy, as the waste is not treated, reduced in concentration or destroyed. • Land area needed for containment of impacted material. • Potential restricted future land use following remediation. • Ongoing monitoring may be required to ensure the efficacy of the containment cell. • As a result, there may be contingent liability associated with this approach. • Ongoing monitoring in-situ to assess its long term effectiveness.	Likely (relevant to RPIP and/or Limestone Pits)

Remediation Option	Description	Merits	Disadvantages	Feasibility
Engineered capping system with clean soil	Cap contamination to prevent infiltration of surface water into contaminated soil and /or to prevent contact with site users.	• Protective of human health including onsite workers and community surrounding the site where appropriately maintained. • On-going future liabilities including human health and the environment would be relatively low following remediation. • Partial consistency with community and regulatory expectations. • Protective of the environment and human health if appropriately designed and managed into the future. • Effective for residual contaminant concentrations minimising the exposure pathways to human and environment.	• Inconsistent with the NSW EPA remediation hierarchy, as the waste is not treated, reduced in concentration or destroyed. • Ongoing management and/ or management plan is required. • Lateral groundwater flow may still lead to contamination migration, excluding in the case of asbestos impacted soil. • Not suitable for areas with difficult access for plant/machinery etc.	Likely

Remediation Option	Description	Merits	Disadvantages	Feasibility
Excavation and ex-situ stabilisation of PFAS impacted soils	Excavation of impacts soils and immobilisation of PFAS in the soil matrix by mixing with carbon, cement or similar	• Reduces leaching of contaminants. • Can be used to lower waste classification of highly contaminated soils prior to offsite disposal.	• Contamination remains and hence requires capping and ongoing management if left onsite. • Regulatory acceptance for in-situ treatment may present challenges • Bench scale testing may be required	Likely
Onsite treatment of asbestos impacted materials	Screening or sorting materials to remove asbestos (as per NEPM [1999] as amended requirements)	• May reduce quantity of asbestos impacted material requiring offsite disposal or capping at the Project Area.	• The screening and sorting process can potentially result in further breakdown of asbestos materials and potentially liberation of asbestos fibres. • Asbestos fragments smaller than the screen as well as fibres would not be removed. • It is often not practicable to selectively remove asbestos particularly in fill materials and in clayey soils. • It can be difficult to demonstrate all asbestos has been removed.	Likely

Remediation Option	Description	Merits	Disadvantages	Feasibility
No Remediation – Site Management Plan	Do nothing – other than prepare a Site Management Plan No remedial action taken. Impacted soil left in-situ. Potential ongoing offsite migration of contaminated groundwater.	• No disturbance to site required. • No remedial costs incurred other than cost of preparing the Site Management Plan. • No potential impacts related to the remediation of the site. • Risks to human health and the environment managed through defined work practices under the site management plan.	• On-going liabilities including human health and the environment would remain in some target areas. • On-going liabilities including risks to human health and the environment in some target areas. • On-going obligation to adhere to Site Management Plan. • Changes to a more sensitive land use other than commercial/ industrial would not be possible. • Impacted material would remain onsite indefinitely. • Not consistent with the principles of Ecologically Sustainable Development, particularly inter-generational equity. • Inconsistent with community expectations for remediation.	Likely but would be paired with soil remediation